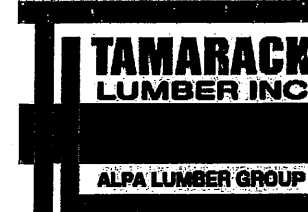


Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	39
J1DJ	14-00-00	9 1/2" NI-40x	2	4
J2	12-00-00	9 1/2" NI-40x	1	14
J3	8-00-00	9 1/2" NI-40x	1	4
J4	6-00-00	9 1/2" NI-40x	1	1
J5	4-00-00	9 1/2" NI-40x	1	6
J6	2-00-00	9 1/2" NI-40x	1	4
B2	16-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	3	3
B1	12-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B5	6-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B3	4-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B4	4-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B6L	4-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
9	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
15	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
2	H3	HUS1.81/10

TOWN OF BRADFORD WEST GWILLIMBURY
BUILDING DEPARTMENT
PLANS EXAMINED
ONTARIO BUILDING CODE APPLIES
DATE: 2018-10-16
INSPECTOR: BG

SITE COPY



FROM PLAN DATED: DEC 2016

BUILDER: BAYVIEW WELLINGTON

SITE: GREEN VALLEY EAST

MODEL: SD25-2 SONOMA 2

ELEVATION: A,B,C

LOT:

CITY: BRADFORD

SALESMAN: M D

DESIGNER: CZ

REVISION:

NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS. SEE
FIGURE 1. CANTILEVERED JOISTS
INCLUDING CANT' OVER BRICK REQ.
I-JOIST BLOCKING ALONG BEARING
AND RIMBOARD CLOSURE AT ENDS.
SEE FIGURES 4 & 5 FOR
REINFORCEMENT REQUIREMENTS.
FOR HOLES INCLUDING DUCT
CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7, TABLES 1 & 2.
CERAMIC TILE APPLICATION AS PER
O.B.C 9.30.6.

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 15.0 lb/ft

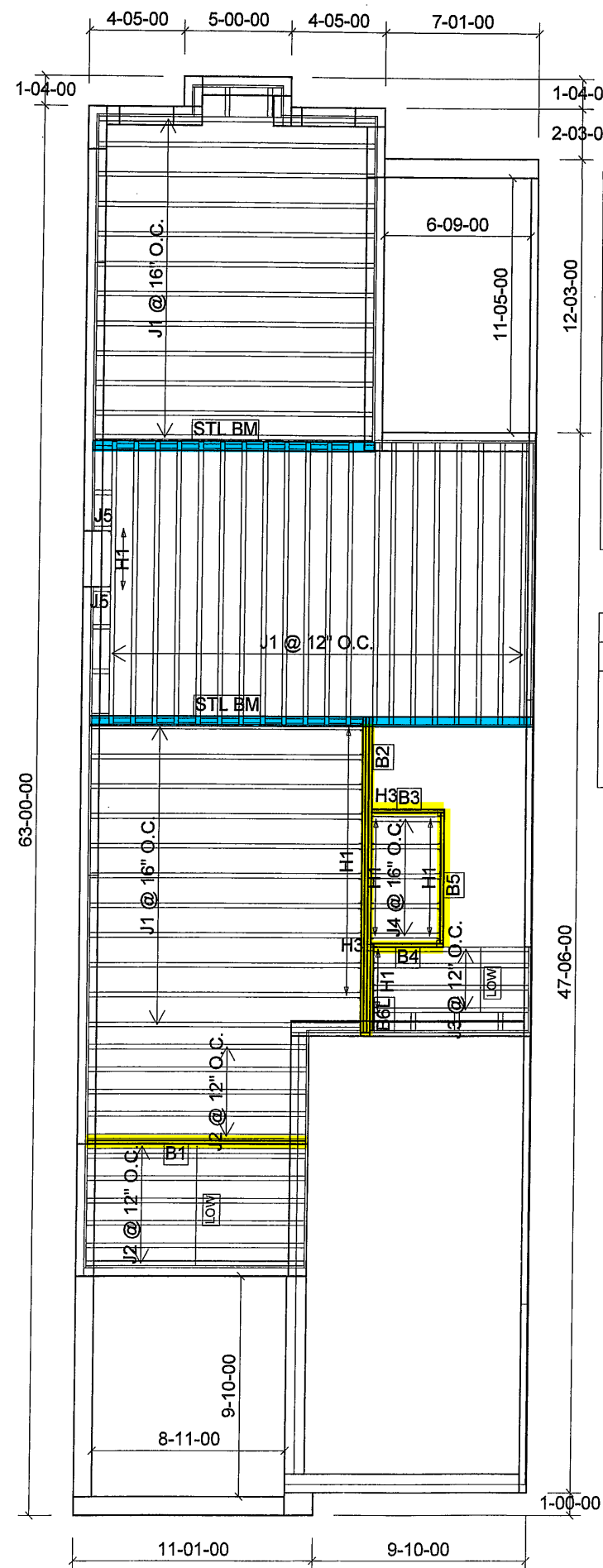
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 14/02/2018

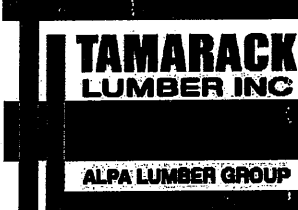
1st FLOOR

STANDARD



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	43
J2	12-00-00	9 1/2" NI-40x	1	12
J3	8-00-00	9 1/2" NI-40x	1	4
J4	4-00-00	9 1/2" NI-40x	1	5
J5	2-00-00	9 1/2" NI-40x	1	2
B2	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B1	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6L	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
9	H1	IUS2.56/9.5
15	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
2	H3	HUS1.81/10



FROM PLAN DATED: DEC 2016

BUILDER: BAYVIEW WELLINGTON

SITE: GREEN VALLEY E AST

MODEL: SD25-2 SONOMA 2

ELEVATION: A,B,C

LOT:

CITY: BRADFORD

SALESMAN: M D

DESIGNER: CZ

REVISION:

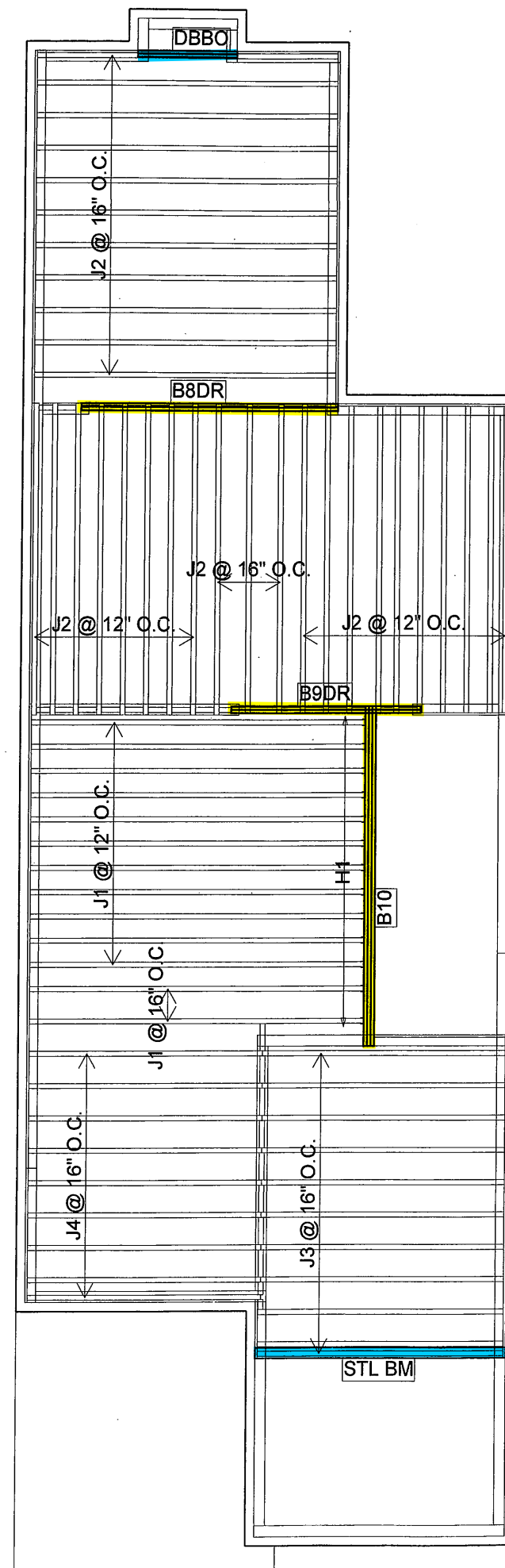
NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
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SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
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REINFORCEMENT REQUIREMENTS.
FOR HOLES INCLUDING DUCT
CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7, TABLES 1 & 2.
CERAMIC TILE APPLICATION AS PER
O.B.C 9.30.6.
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 14/02/2018

1st FLOOR

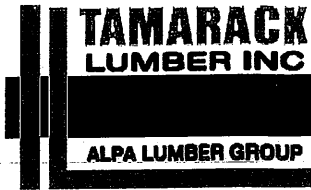
W.O.D. & W.O.B. CON.

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	13
J2	14-00-00	9 1/2" NI-40x	1	32
J3	12-00-00	9 1/2" NI-40x	1	11
J4	10-00-00	9 1/2" NI-40x	1	9
B10	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B8DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
13	H1	IUS2.56/9.5



FROM PLAN DATED: DEC 2016

BUILDER: BAYVIEW WELLINGTON

SITE: GREEN VALLEY E AST

MODEL: SD25-2 SONOMA 2

ELEVATION: A

LOT:

CITY: BRADFORD

SALESMAN: M D

DESIGNER: CZ

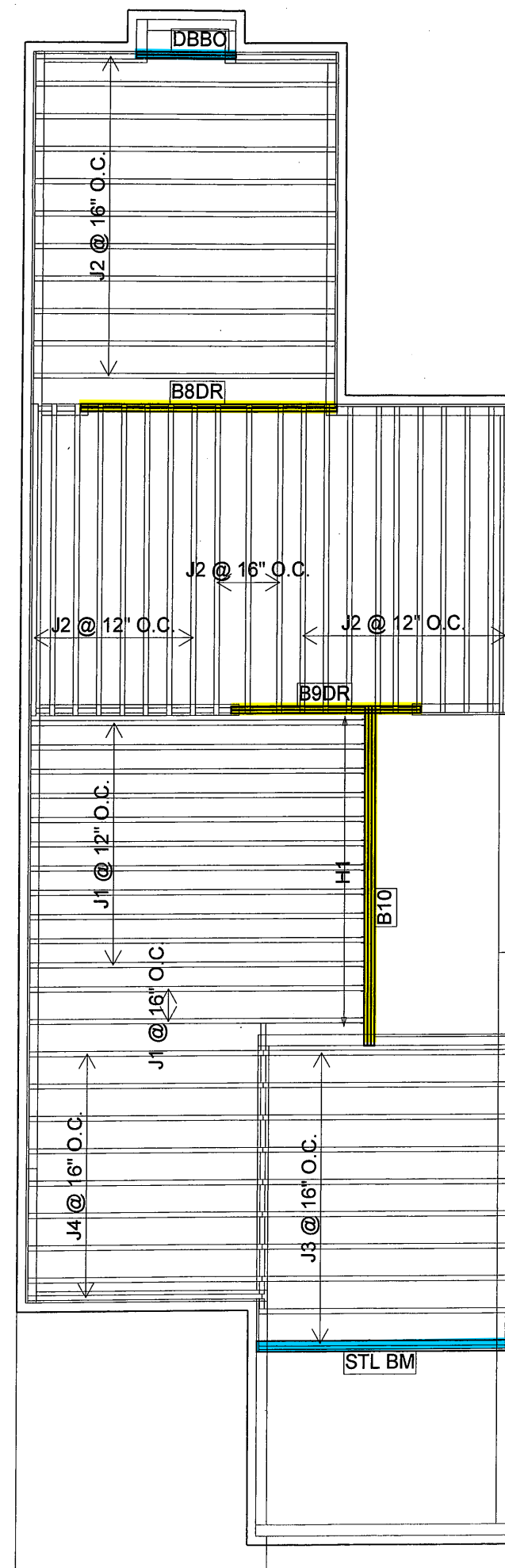
REVISION:

NOTES:
REFER TO THE NORDIC
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SEE FIGURE 7 TABLES 1 & 2 OF THE
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APPLICATION AS PER O.B.C. 9.30.6
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 25/08/2017

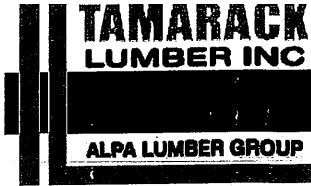
2nd FLOOR

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	13
J2	14-00-00	9 1/2" NI-40x	1	32
J3	12-00-00	9 1/2" NI-40x	1	10
J4	10-00-00	9 1/2" NI-40x	1	9
B10	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B8DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
13	H1	IUS2.56/9.5



FROM PLAN DATED: DEC 2016

BUILDER: BAYVIEW WELLINGTON

SITE: GREEN VALLEY EAST

MODEL: SD25-2 SONOMA 2

ELEVATION: B

LOT:

CITY: BRADFORD

SALESMAN: M D

DESIGNER: CZ

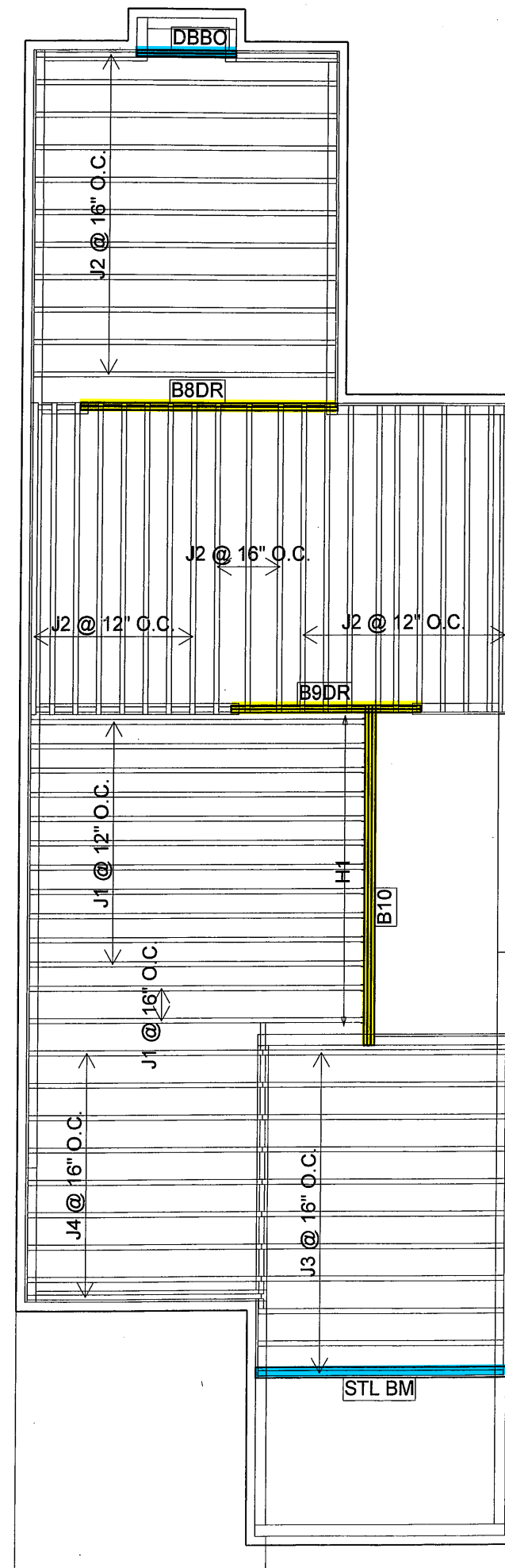
REVISION:

NOTES:
REFER TO THE NORDIC
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SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
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APPLICATION AS PER O.B.C. 9.30.6
LOADING:
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LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 25/08/2017

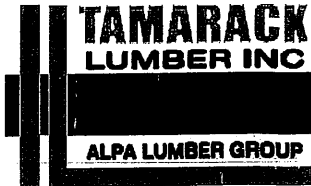
2nd FLOOR

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	13
J2	14-00-00	9 1/2" NI-40x	1	32
J3	12-00-00	9 1/2" NI-40x	1	11
J4	10-00-00	9 1/2" NI-40x	1	9
B10	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B8DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
13	H1	IUS2.56/9.5



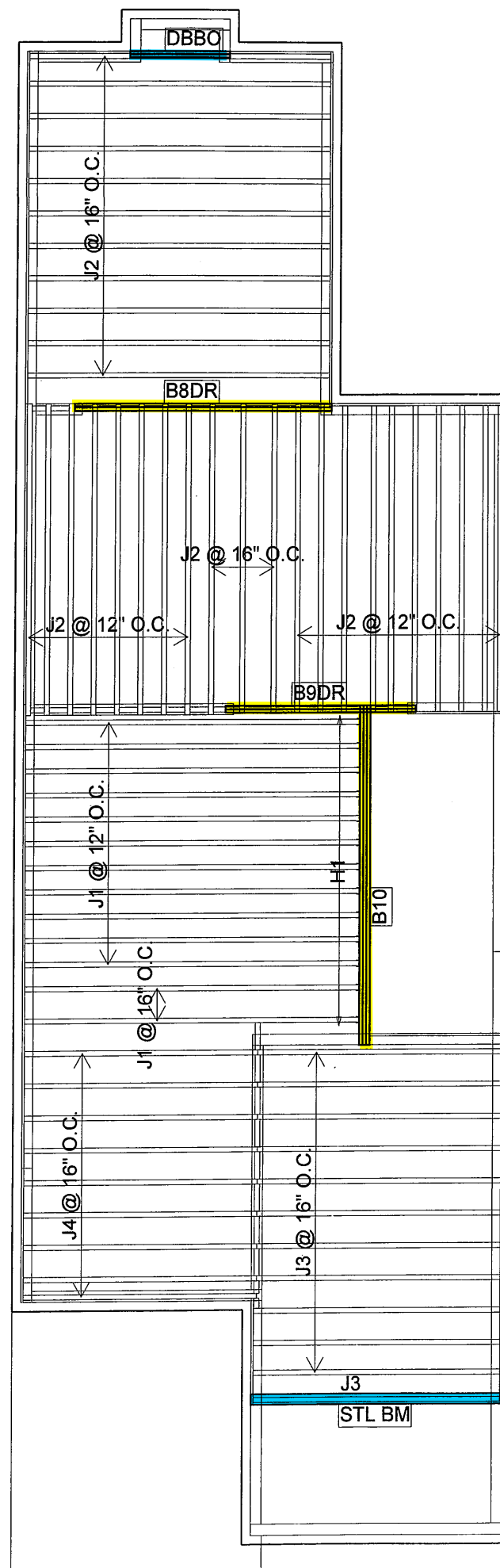
FROM PLAN DATED: DEC 2016
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY EAST
MODEL: SD25-2 SONOMA 2
ELEVATION: C
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
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SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
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APPLICATION AS PER O.B.C. 9.30.6
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 25/08/2017

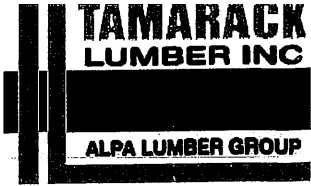
2nd FLOOR

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	13
J2	14-00-00	9 1/2" NI-40x	1	32
J3	12-00-00	9 1/2" NI-40x	1	12
J4	10-00-00	9 1/2" NI-40x	1	9
B10	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B8DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
13	H1	IUS2.56/9.5



FROM PLAN DATED: DEC 2016

BUILDER: BAYVIEW WELLINGTON

SITE: GREEN VALLEY EAST

MODEL: SD25-2 SONOMA 2

ELEVATION: C MOD

LOT:

CITY: BRADFORD

SALESMAN: M D

DESIGNER: CZ

REVISION:

NOTES:
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SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
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SEE FIGURE 7 TABLES 1 & 2 OF THE
INSTALLATION GUIDE. CERAMIC TILE
APPLICATION AS PER O.B.C. 9.30.6
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 25/08/2017

2nd FLOOR

SITE COPY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i1523)

BC CALC® Design Report



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

August 25, 2017 11:53:04

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-2 SONOMA2.mmdl

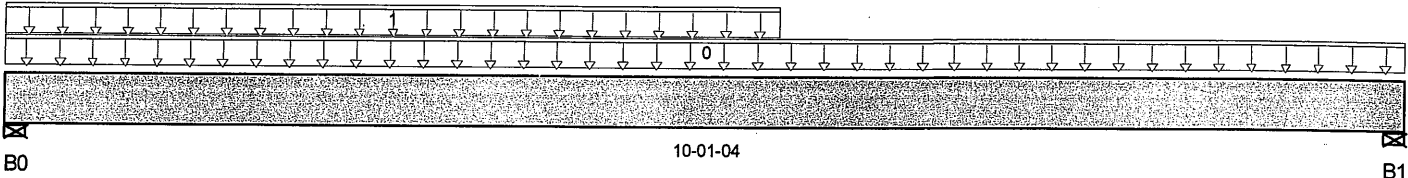
Description: Designs\Flush Beams\Basement\Flush Beams\B1(i1523)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 10-01-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	34 / 0	288 / 0		
B1, 4-3/8"	34 / 0	129 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-01-04	7	3			n/a
1	User Load	Unf. Lin. (lb/ft)	L	00-00-00	05-07-00		60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	735 ft-lbs	8,258 ft-lbs	8.9%	0	04-02-06
End Shear	293 lbs	3,761 lbs	7.8%	0	01-01-14
Total Load Defl.	L/999 (0.037")	n/a	n/a	4	04-09-14
Live Load Defl.	L/999 (0.005")	n/a	n/a	5	05-00-06
Max Defl.	0.037"	n/a	n/a	4	04-09-14
Span / Depth	12	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.

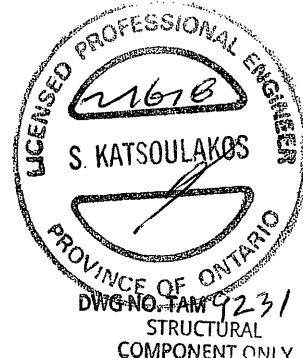
Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/8" x 1-3/4"	403 lbs	15.2%	6.6%	Unspecified
B1 Wall/Plate	4-3/8" x 1-3/4"	181 lbs	6.8%	3%	Unspecified

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 O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



BC CALC® Design Report



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

August 25, 2017 11:53:05

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-2 SONOMA 2.mmdl

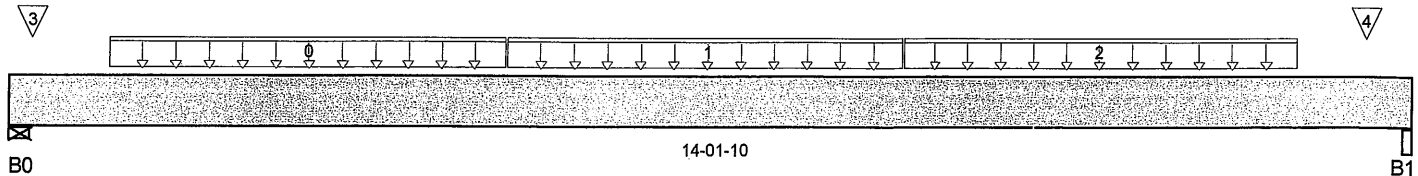
Description: Designs\Flush Beams\Basement\Flush Beams\B2(i1596)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 14-01-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-15/16"	4,645 / 0	3,128 / 0		
B1, 5-1/4"	2,123 / 0	1,218 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	01-00-00	05-00-00	259	130			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	05-00-00	09-00-00	326	163			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	09-00-00	13-00-00	259	130			n/a
3	2(i366)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	2,835	2,113			n/a
4	J1(i1555)	Conc. Pt. (lbs)	L	13-08-00	13-08-00	346	222			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	15,046 ft-lbs	39,636 ft-lbs	38%	1	07-00-00
End Shear	3,960 lbs	17,356 lbs	22.8%	1	01-03-07
Total Load Defl.	L/357 (0.447")	0.666"	67.1%	4	07-00-00
Live Load Defl.	L/555 (0.288")	0.444"	64.9%	5	07-00-00
Max Defl.	0.447"	n/a	n/a	4	07-00-00
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	5-15/16" x 5-1/4"	10,877 lbs	65.1%	28.5%	Unspecified
B1 Beam	5-1/4" x 5-1/4"	4,707 lbs	32%	14%	Unspecified

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.

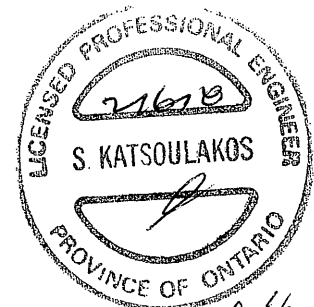
Resistance Factor phi has been applied to all presented results per CSA O86.

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

CONFORMS TO OBC 2012

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9


DWG NO. TAM 9232-8
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



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

August 25, 2017 11:53:05

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-2 SONOMA2.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B2(i1596)

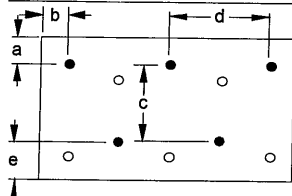
Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram



4 rows

a minimum = 1" c = 6 1/2"
b minimum = 3" d = 4"
e minimum = 3"

Calculated Side Load = 521.6 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nailing schedule applies to both sides of the member.

Connectors are: 16d * * Nails

3-1/2" ARDOX SPIRAL

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.

BC CALO®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, 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.



DWG NO. TAM 9232-18
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B3(i1470)

BC CALC® Design Report



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

August 25, 2017 11:53:05

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-2 SONOMA 2.mmdl

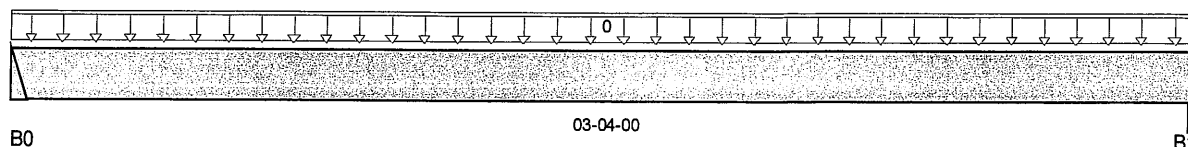
Description: Designs\Flush Beams\Basement\Flush Beams\B3(i1470)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 03-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	14 / 0	15 / 0		
B1, 3-1/2"	15 / 0	16 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0 FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-04-00	9	4	1.00	1.15	n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	28 ft-lbs	12,704 ft-lbs	0.2%	1	01-07-04
End Shear	16 lbs	5,785 lbs	0.3%	1	00-11-08
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-07-04
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-07-04
Max Defl.	0"	n/a	n/a	4	01-07-04
Span / Depth	3.8	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 Hanger	2" x 1-3/4"	39 lbs	n/a	0.9%	HUS1.81/10
B1 Post	3-1/2" x 1-3/4"	43 lbs	0.9%	0.6%	Unspecified

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.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, 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.





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i1475)

BC CALC® Design Report



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

August 25, 2017 11:53:04

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports:

CCMC 12472-R

File Name: SD25-2 SONOMA 2.mmdl

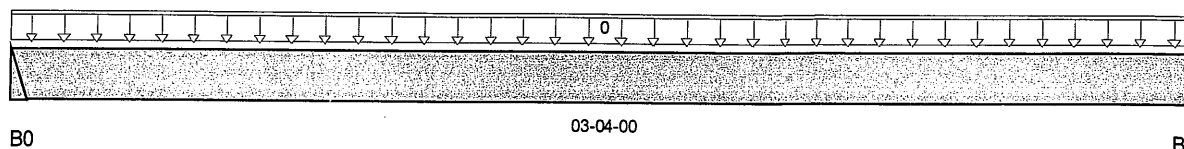
Description: Designs\Flush Beams\Basement\Flush Beams\B4(i1475)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 03-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	16 / 0	16 / 0		
B1, 3-1/2"	17 / 0	17 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0 FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-04-00	10	5	1.00	1.15	n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	31 ft-lbs	12,704 ft-lbs	0.2%	1	01-07-04
End Shear	18 lbs	5,785 lbs	0.3%	1	00-11-08
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-07-04
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-07-04
Max Defl.	0"	n/a	n/a	4	01-07-04
Span / Depth	3.8	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 Hanger	2" x 1-3/4"	44 lbs	n/a	1%	HUS1.81/10
B1 Post	3-1/2" x 1-3/4"	47 lbs	0.9%	0.6%	Unspecified

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.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, 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.





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B5(i1512)

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

August 25, 2017 11:53:05

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-2 SONOMA 2.mxd

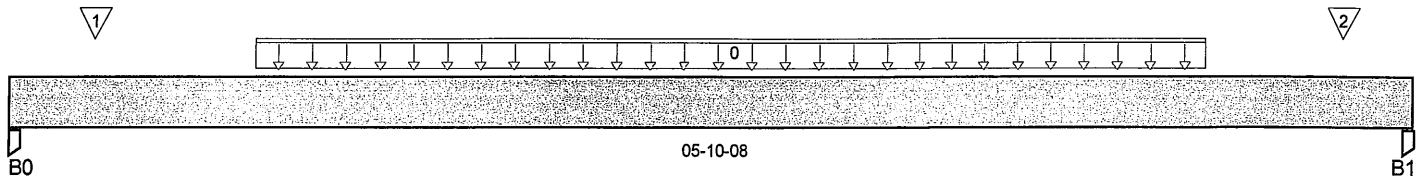
Description: Designs\Flush Beams\Basement\Flush Beams\B5(i1512)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 05-10-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	198 / 0	112 / 0		
B1, 1-3/4"	200 / 0	114 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	01-00-04	05-00-04	69	34			n/a
1	J5(i1563)	Conc. Pt. (lbs)	L	00-04-04	00-04-04	64	32			n/a
2	J5(i1516)	Conc. Pt. (lbs)	L	05-07-00	05-07-00	58	29			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	630 ft-lbs	12,704 ft-lbs	5%	1	03-00-04
End Shear	335 lbs	5,785 lbs	5.8%	1	04-11-04
Total Load Defl.	L/999 (0.01")	n/a	n/a	4	02-11-04
Live Load Defl.	L/999 (0.006")	n/a	n/a	5	02-11-04
Max Defl.	0.01"	n/a	n/a	4	02-11-04
Span / Depth	7.2	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 Post	1-3/4" x 1-3/4"	437 lbs	17.6%	11.7%	Unspecified
B1 Post	1-3/4" x 1-3/4"	442 lbs	17.8%	11.8%	Unspecified

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.

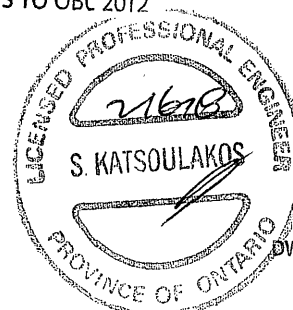
Resistance Factor phi has been applied to all presented results per CSA O86.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, 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.



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B6L(i1139)

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

August 25, 2017 11:53:04

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-2 SONOMA 2.mmdl

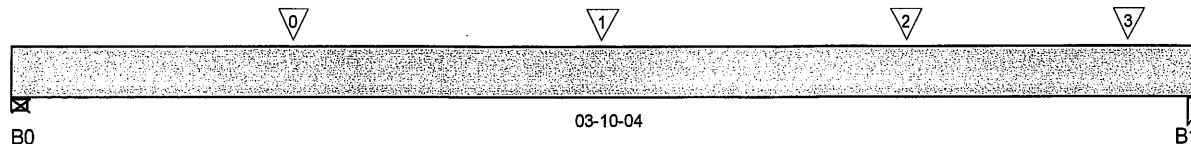
Description: Designs\Flush Beams\Basement\Flush Beams\B6L(i1139)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 03-10-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	224 / 0	121 / 0		
B1, 3-1/2"	263 / 0	140 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J4(i992)	Conc. Pt. (lbs)	L	00-10-14	00-10-14	146	73			n/a
1	J4(i1060)	Conc. Pt. (lbs)	L	01-10-14	01-10-14	146	73			n/a
2	J4(i935)	Conc. Pt. (lbs)	L	02-10-14	02-10-14	134	67			n/a
3	J4(i979)	Conc. Pt. (lbs)	L	03-07-10	03-07-10	61	30			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	462 ft-lbs	12,704 ft-lbs	3.6%	1	01-10-14
End Shear	386 lbs	5,785 lbs	6.7%	1	02-09-04
Total Load Defl.	L/999 (0.002")	n/a	n/a	4	01-11-08
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	01-11-08
Max Defl.	0.002"	n/a	n/a	4	01-11-08
Span / Depth	4.2	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	4-3/8" x 1-3/4"	488 lbs	11.9%	5.2%	Unspecified
B1 Post	3-1/2" x 1-3/4"	570 lbs	11.5%	7.6%	Unspecified

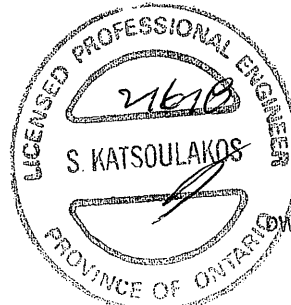
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-01-06, Bottom: 00-01-06.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

CONFORMS TO OBC 2012

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



DWG NO. TAM 9236-18
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



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

August 25, 2017 11:53:05

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-2 SONOMA 2.mmdl

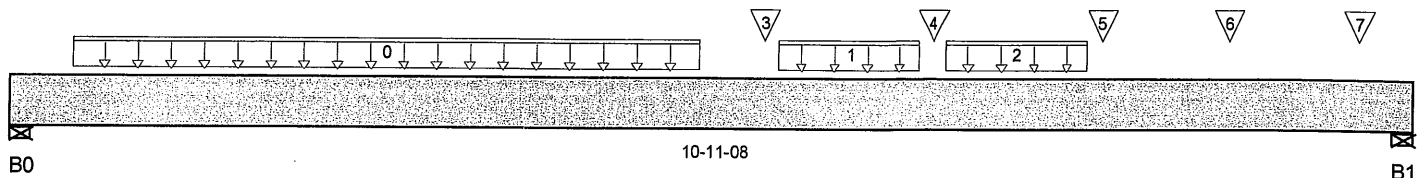
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B8D

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 10-11-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	1,401 / 0	749 / 0		
B1, 5-1/2"	1,466 / 0	783 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-05-12	05-04-08	260	130			n/a
1	Bk1(i1274)	Unf. Lin. (lb/ft)	L	05-11-12	07-01-04	27	14			n/a
2	Bk1(i1174)	Unf. Lin. (lb/ft)	L	07-03-12	08-05-04	27	14			n/a
3	J2(i1237)	Conc. Pt. (lbs)	L	05-10-08	05-10-08	291	145			n/a
4	J2(i1241)	Conc. Pt. (lbs)	L	07-02-08	07-02-08	332	166			n/a
5	J2(i1287)	Conc. Pt. (lbs)	L	08-06-08	08-06-08	291	145			n/a
6	J2(i1247)	Conc. Pt. (lbs)	L	09-06-08	09-06-08	249	125			n/a
7	J2(i1203)	Conc. Pt. (lbs)	L	10-06-08	10-06-08	171	86			n/a

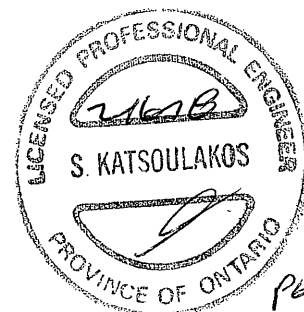
Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,893 ft-lbs	25,408 ft-lbs	31.1%	1	05-09-04
End Shear	2,835 lbs	11,571 lbs	24.5%	1	01-01-08
Total Load Defl.	L/583 (0.212")	0.515"	41.2%	4	05-09-04
Live Load Defl.	L/894 (0.138")	0.343"	40.3%	5	05-09-04
Max Defl.	0.212"	n/a	n/a	4	05-09-04
Span / Depth	13	n/a	n/a		00-00-00

Bearing Supports

B0	Wall/Plate	4" x 3-1/2"	3,038 lbs	26.7%	17.8%	Unspecified
B1	Wall/Plate	5-1/2" x 3-1/2"	3,178 lbs	20.3%	13.5%	Unspecified

Notes



BC CALC® Design Report



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

August 25, 2017 11:53:05

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-2 SONOMA 2.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B8

Specifier:

Designer: CZ

Company:

Misc:

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

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

Calculations assume unbraced length of Top: 00-02-10, Bottom: 00-02-10.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

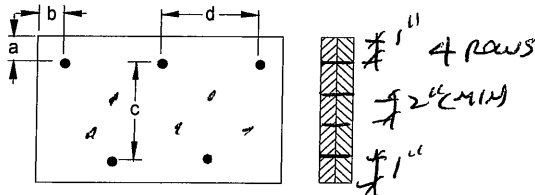
CONFORMS TO OBC 2012

Disclosure

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

Connection Diagram



a minimum = 1" c = 1-1/2"
b minimum = 3" d = 4"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



DWG NO. TAM 9237-18
STRUCTURAL
COMPONENT ONLY



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-2 SONOMA 2.mmdl

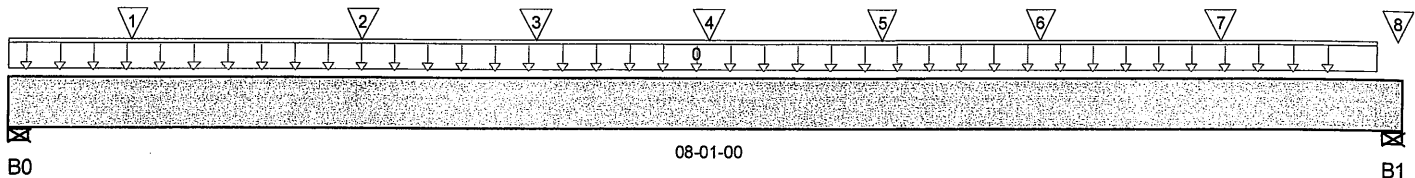
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B9D

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 08-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	1,543 / 0	1,077 / 0		
B1, 4"	2,711 / 0	1,702 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	07-11-04		60			n/a
1	J2(i1241)	Conc. Pt. (lbs)	L	00-08-08	00-08-08	332	166			n/a
2	J2(i1287)	Conc. Pt. (lbs)	L	02-00-08	02-00-08	291	145			n/a
3	J2(i1247)	Conc. Pt. (lbs)	L	03-00-08	03-00-08	249	125			n/a
4	J2(i1203)	Conc. Pt. (lbs)	L	04-00-08	04-00-08	240	120			n/a
5	J2(i1252)	Conc. Pt. (lbs)	L	05-00-08	05-00-08	294	147			n/a
6	-	Conc. Pt. (lbs)	L	05-11-12	05-11-12	2,306	1,251			n/a
7	J2(i1186)	Conc. Pt. (lbs)	L	07-00-08	07-00-08	217	109			n/a
8	J2(i1188)	Conc. Pt. (lbs)	L	08-00-08	08-00-08	250	125			n/a

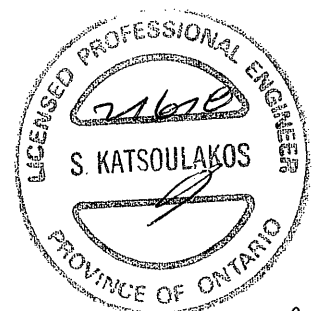
Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	9,677 ft-lbs	25,408 ft-lbs	38.1%	1	05-11-06
End Shear	5,524 lbs	11,571 lbs	47.7%	1	06-11-08
Total Load Defl.	L/672 (0.135")	0.377"	35.7%	4	04-04-02
Live Load Defl.	L/999 (0.082")	n/a	n/a	5	04-04-02
Max Defl.	0.135"	n/a	n/a	4	04-04-02
Span / Depth	9.5	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0	Wall/Plate 4" x 3-1/2"	3,662 lbs	32.2%	21.4%	Unspecified
B1	Wall/Plate 4" x 3-1/2"	6,193 lbs	54.5%	36.3%	Unspecified

Notes



BC CALC® Design Report



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

August 25, 2017 11:53:05

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-2 SONOMA 2.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B9

Specifier:

Designer: CZ

Company:

Msc:

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

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

Calculations assume unbraced length of Top: 00-02-01, Bottom: 00-02-01.

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

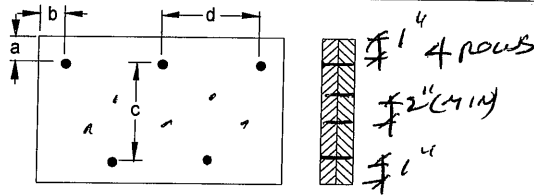
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Connection Diagram



a minimum = 1/2" c = 1-1/2"
b minimum = 3" d = 4"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

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BC CALO®, 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.





Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B10(i1175)

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

August 25, 2017 11:53:05

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-2 SONOMA 2.mmdl

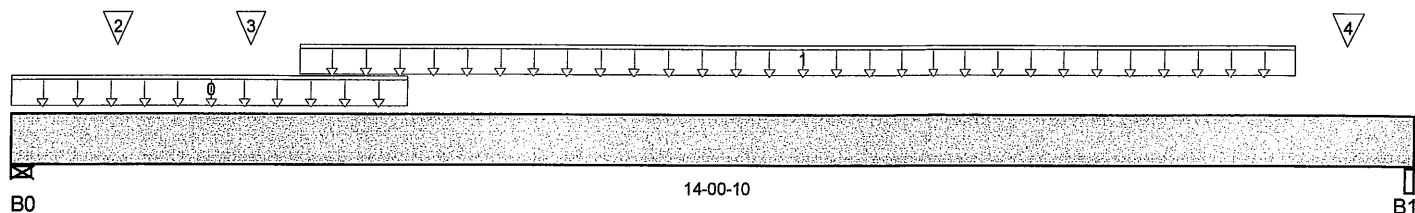
Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i1175)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 14-00-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	2,838 / 0	1,519 / 0		
B1, 3-1/2"	2,057 / 0	1,127 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	03-11-08	240	120			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-10-08	12-10-08	297	148			n/a
2	J1(i1282)	Conc. Pt. (lbs)	L	01-00-08	01-00-08	390	195			n/a
3	J1(i1189)	Conc. Pt. (lbs)	L	02-04-08	02-04-08	346	173			n/a
4	J1(i1289)	Conc. Pt. (lbs)	L	13-04-08	13-04-08	223	112			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	16,317 ft-lbs	39,636 ft-lbs	41.2%	1	06-04-08
End Shear	5,263 lbs	17,356 lbs	30.3%	1	01-03-00
Total Load Defl.	L/319 (0.505")	0.671"	75.2%	4	07-01-08
Live Load Defl.	L/492 (0.328")	0.448"	73.2%	5	07-01-08
Max Defl.	0.505"	n/a	n/a	4	07-01-08
Span / Depth	17	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 5-1/4"	6,156 lbs	39.9%	17.5%	Unspecified
B1 Beam	3-1/2" x 5-1/4"	4,494 lbs	22.4%	20%	Unspecified

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.

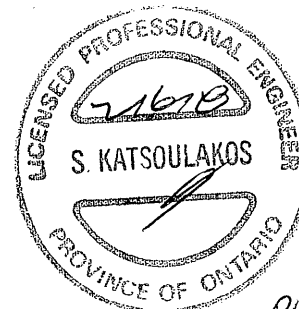
Resistance Factor phi has been applied to all presented results per CSA O86.

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

CONFORMS TO OBC 2012

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



P6 1/2



Boise Cascade

Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B10(i1175)

BC CALC® Design Report



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

August 25, 2017 11:53:05

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-2 SONOMA 2.mxd

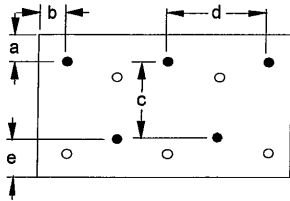
Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i1175)

Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram

4 rows

a minimum = 1" c = 6 1/2"
 b minimum = 3" d = 4"
 e minimum = 2"

Calculated Side Load = 593.8 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

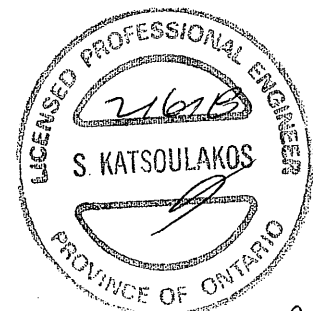
Nailing schedule applies to both sides of the member.

Connectors are: 16d Common Nails

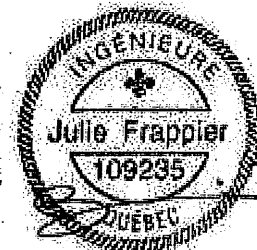
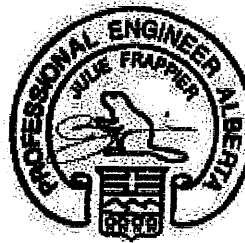
3-1/2" ARDOX SPIRAL**Disclosure**

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DWG NO. TAM 9239-8
 STRUCTURAL
 COMPONENT ONLY



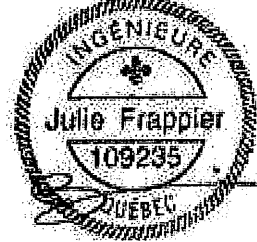
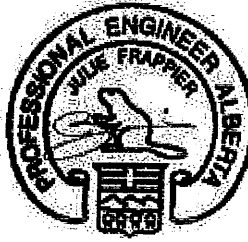
Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 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
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	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'-8"	15'-3"	14'-5"	N/A	16'-8"	15'-3"	14'-5"	N/A
	NI-40x	17'-11"	16'-11"	16'-1"	N/A	18'-5"	17'-1"	16'-1"	N/A
	NI-60	18'-2"	17'-1"	16'-4"	N/A	18'-7"	17'-4"	16'-4"	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'-3"	N/A	19'-11"	18'-3"	17'-3"	N/A
	NI-40x	21'-0"	19'-6"	18'-8"	N/A	21'-7"	20'-2"	19'-2"	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
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	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
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	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/480 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, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



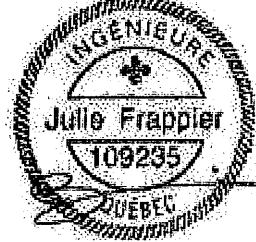
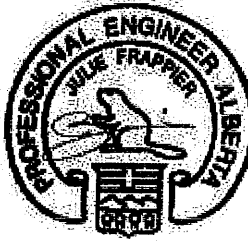
Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

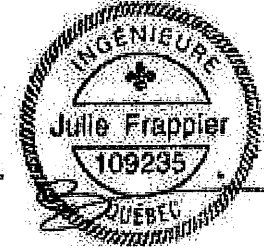
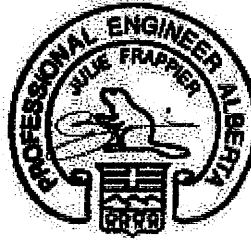
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	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
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	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	15'-7"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	17'-9"	16'-1"	15'-1"	N/A	17'-9"	16'-1"	15'-1"	N/A
	NI-60	18'-1"	16'-4"	15'-4"	N/A	18'-1"	16'-4"	15'-4"	N/A
	NI-70	19'-2"	17'-10"	16'-9"	N/A	19'-7"	17'-10"	16'-9"	N/A
	NI-80	19'-5"	18'-0"	17'-1"	N/A	19'-10"	18'-3"	17'-1"	N/A
11-7/8"	NI-20	18'-9"	17'-0"	16'-0"	N/A	18'-9"	17'-0"	16'-0"	N/A
	NI-40x	21'-0"	19'-3"	17'-9"	N/A	21'-3"	19'-3"	17'-9"	N/A
	NI-60	21'-4"	19'-8"	18'-5"	N/A	21'-8"	19'-8"	18'-5"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-4"	20'-0"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-5"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	NI-40x	23'-7"	21'-5"	19'-6"	N/A	24'-1"	21'-5"	19'-6"	N/A
	NI-60	24'-0"	22'-3"	21'-0"	N/A	24'-8"	22'-5"	21'-0"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-9"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	24'-10"	23'-4"	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 30 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/480 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, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans

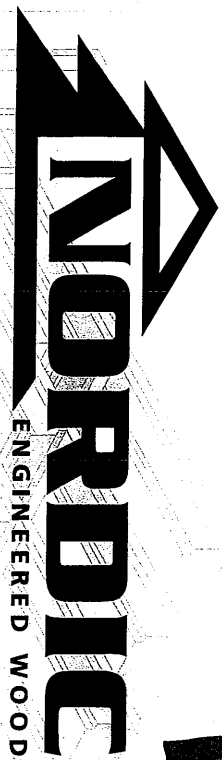
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing



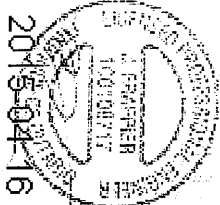
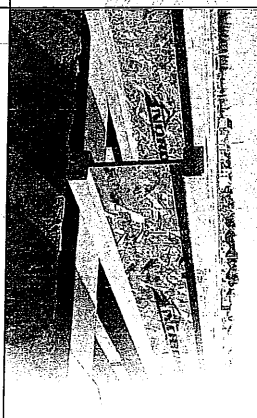
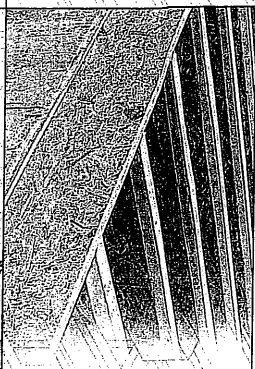
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 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/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:

N-C301 / November 2014

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-joists until fully fastened and braced, or serious injuries can result.



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

2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.

■ Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.

■ Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.

3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with 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.

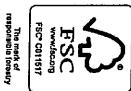
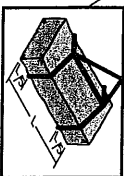
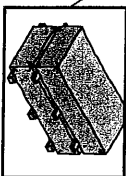
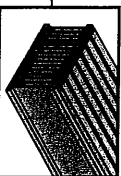
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines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



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

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.



101ST HANGERS

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

I-JOIST HANGERS

CCMC EVALUATION REPORT 13032-R

NORDIC I-JOIST SERIES

END BEARING
(Positive Lift)

STIFFENER SIZE REQUIREMENTS

Chambers of L'Aboungoum 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 L-Joists use only finger-joined black spruce lumber in their flanges, ensuring consistent quality, superior strength, and longer span carrying capacity.

2015-04-16

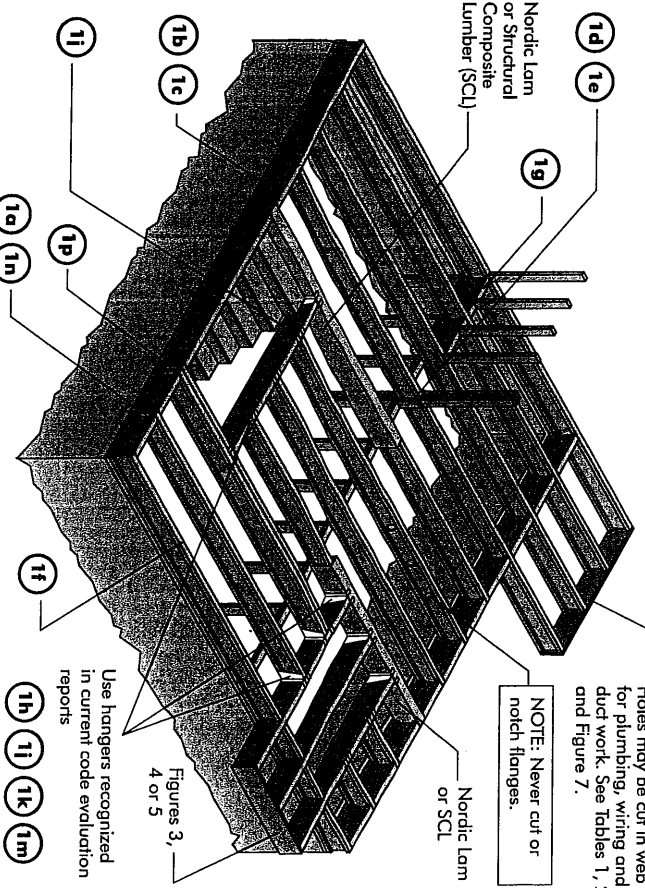
INSTALLING NORDIC I-JOISTS

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



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

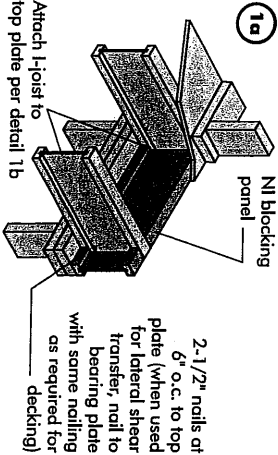
Some framing requirements such as erection bracing and blocking panels have been omitted for clarity.



Figures 3, 4 or 5
Holes may be cut in web for plumbing, wiring and duct work. See Tables 1, 2 and Figure 7.
NOTE: Never cut or notch flanges.

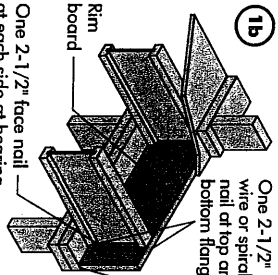
Use hangers recognized in current code evaluation reports

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



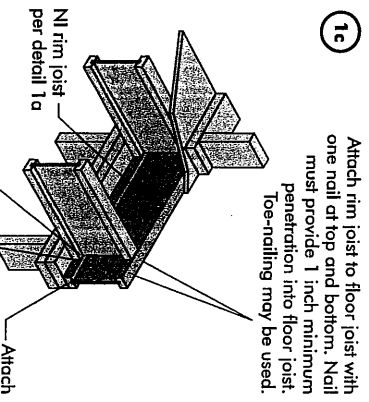
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

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

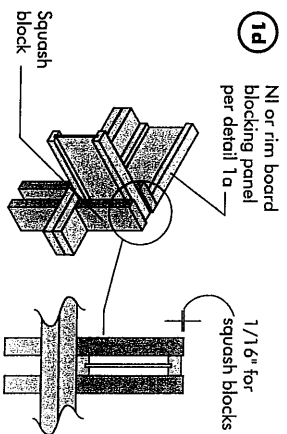


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

*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.

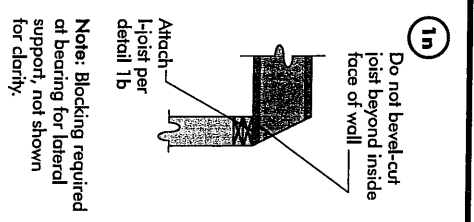
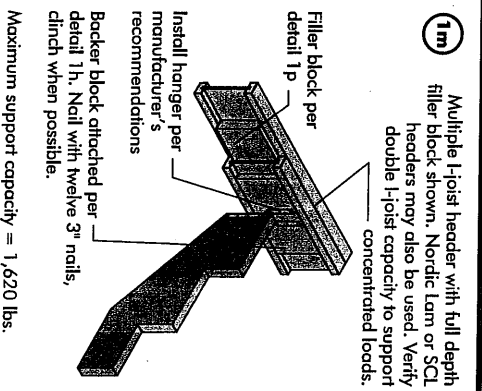
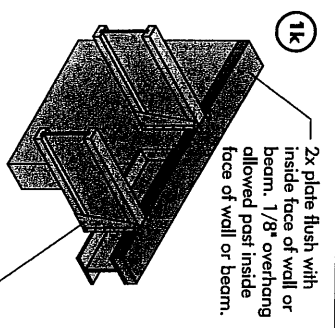
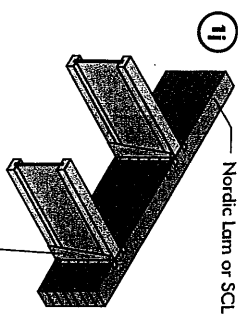
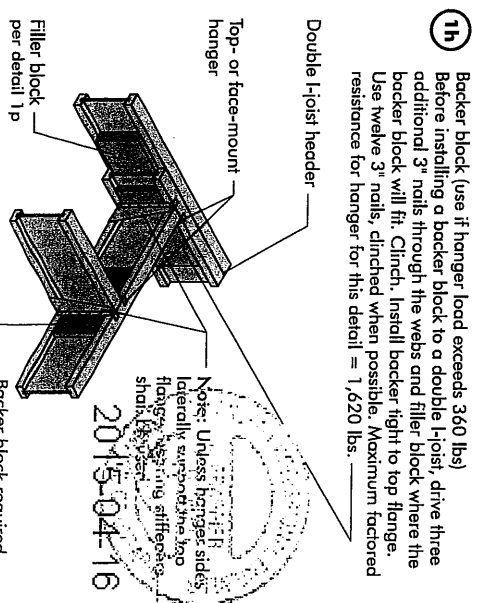
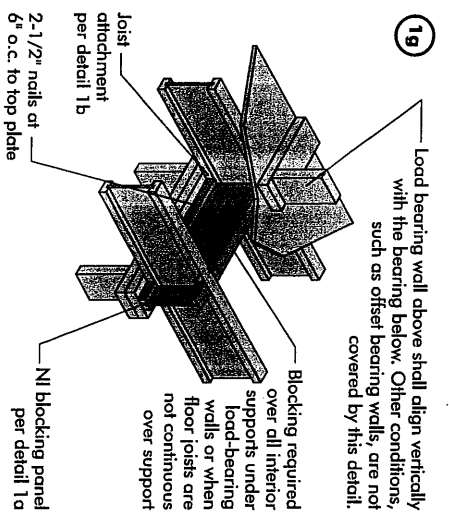
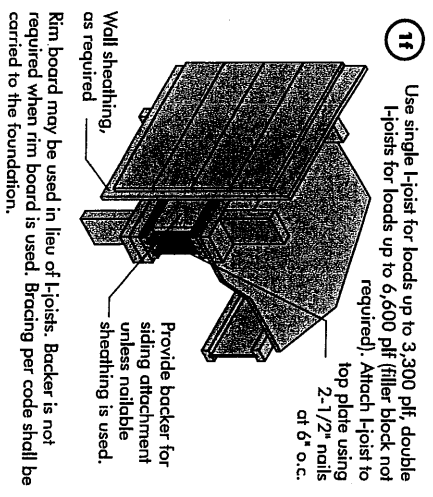
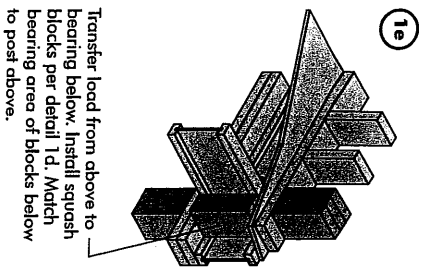


Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.



Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)
3-1/2" wide	5,500
5-1/2" wide	8,500
1-1/8" Rim Board Plus	4,300

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

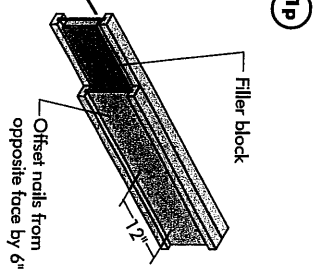


BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

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

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-Q325 or CAN/CSA-Q437 Standard.
** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

For nailing schedules for multiple beams, see the manufacturer's recommendations.
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

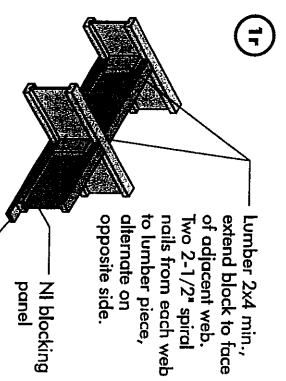


1/8" to 1/4" gap between top flange and filler block

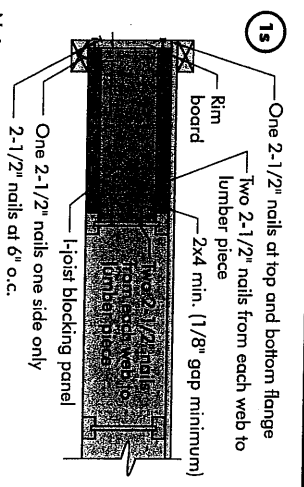
- Notes:**
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
 2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
 3. Filler block is required between joists for full length of span.
 4. Nail joists together with two rows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

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" x 11-7/8" x 14"	2-1/8" x 6" x 8"
3-1/2" x 1-1/2"	9-1/2" x 11-7/8" x 14"	2-1/8" x 8" x 10"
3-1/2" x 2"	11-7/8" x 14" x 16"	3" x 7" x 12"
		3" x 7" x 11"



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



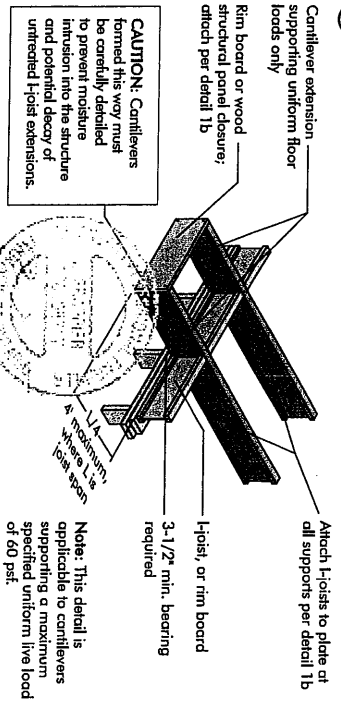
Notes:

- 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.

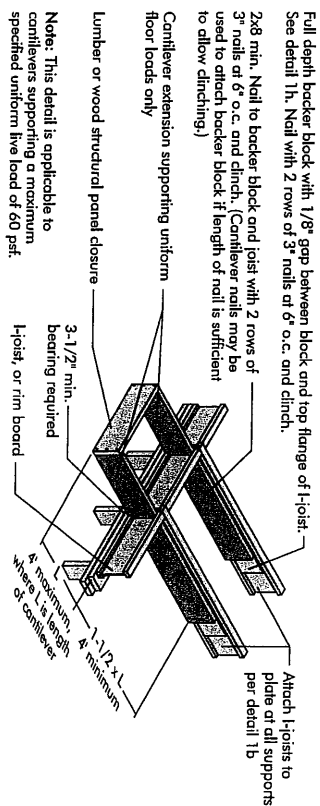
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CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

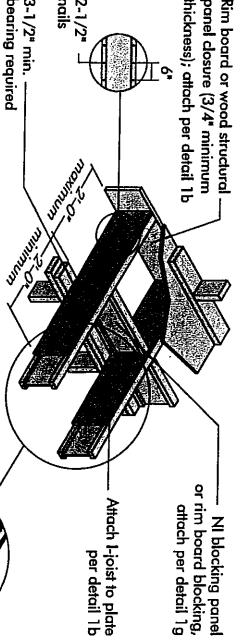


3b) LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a) Method 1 — SHEATHING REINFORCEMENT ONE SIDE

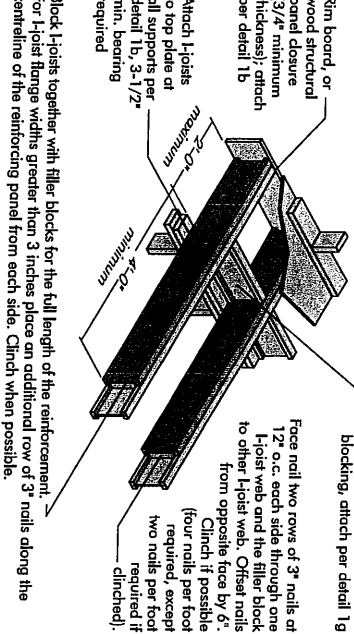


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4 inch) required top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b. Verify reinforced I-joist capacity.

4b) Alternate Method 2 — DOUBLE I-JOIST

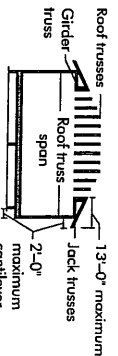
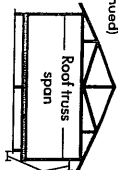


CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)		ROOF LOADING (UNFACTORED)			
	LL = 30 psf, DL = 15 psf	JOIST SPACING (in.)	LL = 40 psf, DL = 15 psf	JOIST SPACING (in.)	LL = 50 psf, DL = 15 psf	JOIST SPACING (in.)
12	24	24	24	24	24	24
16	24	24	24	24	24	24
19.2	24	24	24	24	24	24
24	24	24	24	24	24	24
28	24	24	24	24	24	24
30	24	24	24	24	24	24
32	24	24	24	24	24	24
34	24	24	24	24	24	24
36	24	24	24	24	24	24
38	24	24	24	24	24	24
40	24	24	24	24	24	24
42	24	24	24	24	24	24

1. N = No reinforcement required.
2. N = Reinforced with 3/4 inch wood structural panel on one side only.
3. N = Reinforced with 3/4 inch wood structural panel on both sides, or double I-joist.
4. For larger openings, or multiple 3-0 inch wide openings spaced less than 6-0 inch o.c., additional joists beneath the opening's cripple studs may be required.
5. Table applies to joists 12 inch to 24 inch o.c. 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. Use 12 inch o.c. requirements for lesser spacing.
6. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam.
7. When the roof is formed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a ridge beam is used.
8. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

FIGURE 4 (continued)
See table below for N1 reinforcement requirements at cantilever.



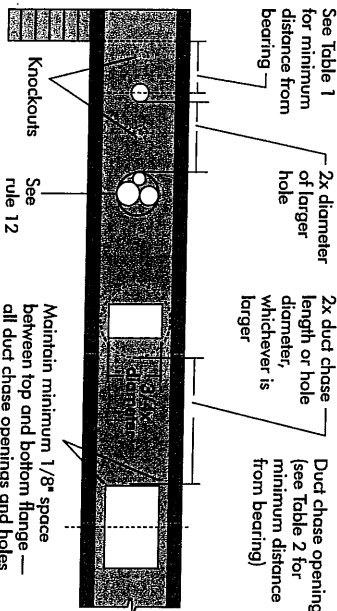
For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the I-joist reinforcement requirements for a span of 26 ft. shall be permitted to be used.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

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.

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (ft-in.)												Span adjustment Factor		
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4		11	12
10	10	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
12	12	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
14	14	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3
16	16	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4
18	18	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
20	20	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6
22	22	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7
24	24	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8
26	26	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
28	28	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
30	30	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1
32	32	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
34	34	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3
36	36	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4
38	38	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5
40	40	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6
42	42	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7
44	44	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
46	46	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9
48	48	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
50	50	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1
52	52	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2
54	54	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3
56	56	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4
58	58	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5
60	60	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6
62	62	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7
64	64	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8
66	66	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9
68	68	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
70	70	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1
72	72	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2
74	74	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3
76	76	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4
78	78	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5
80	80	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6
82	82	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7
84	84	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8
86	86	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9
88	88	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0
90	90	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1
92	92	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2
94	94	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3
96	96	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4
98	98	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5
100	100	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Hole location distance is measured from inside face of supports to centre of hole.
3. 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 given at less than their full maximum span (see Maximum Floor Joist Spacing, the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

$$D_{\text{reduced}} = \frac{D_{\text{actual}}}{\text{SAF}} \times D$$

Where:

D_{reduced} =

D_{actual} =

SAF =

D =

Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications (ft). The reduced distance shall not be less than 6 inches from the face of the support to edge of the hole.

The actual measured span distance between the inside faces of supports (ft).

Span Adjustment Factor given in this table.

The minimum distance from the inside face of any support to centre of hole from this table.

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

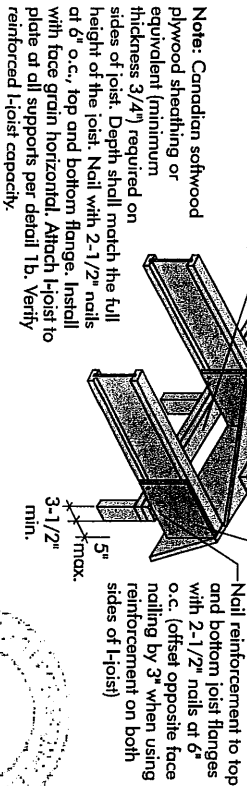
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (ft-in.)											
		8	10	12	14	16	18	20	22	24	26	28	30
10	10	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6
12	12	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7
14	14	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
16	16	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
18	18	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
20	20	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
22	22	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
24	24	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3
26	26	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4
28	28	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
30	30	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6
32	32	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7
34	34	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8
36	36	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
38	38	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
40	40	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1
42	42	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
44	44	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3
46	46	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4
48	48	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5
50	50	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6
52	52	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7
54	54	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
56	56	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9
58	58	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
60	60	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1
62	62	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2
64	64	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3
66	66	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	

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

5c SHEATHING REINFORCEMENT

Provide full depth blocking between joists over support (not shown)

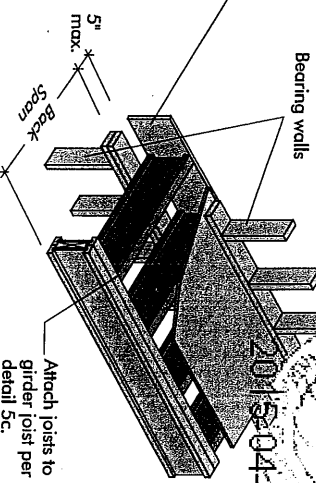


Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4 inch) required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2 inch nails at 6 inch o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports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

5b SET-BACK DETAIL

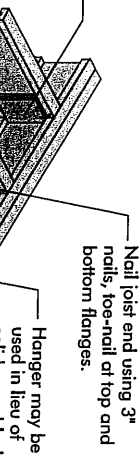
Kim board or wood structural panel closure (3/4 inch minimum thickness), attach per detail 1b.

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 inch minimum I-joist bearing required.



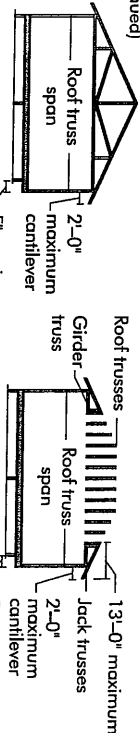
5c SET-BACK CONNECTION

Vertical solid sawn blocks (2x6 S-P-F No. 2 or better) nailed through joist web and web of girder using 2-1/2 inch nails.



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

FIGURE 5 (continued)



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

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)				LL = 50 psf, DL = 15 psf			
		LL = 30 psf, DL = 15 psf				JOIST SPACING (in.)			
		12	16	19.2	24	12	16	19.2	24
12	26	X	X	X	X	X	X	X	X
12	30	X	X	X	X	X	X	X	X
12	32	X	X	X	X	X	X	X	X
12	34	X	X	X	X	X	X	X	X
12	36	X	X	X	X	X	X	X	X
12	38	X	X	X	X	X	X	X	X
12	40	X	X	X	X	X	X	X	X
12	42	X	X	X	X	X	X	X	X
16	26	X	X	X	X	X	X	X	X
16	30	X	X	X	X	X	X	X	X
16	32	X	X	X	X	X	X	X	X
16	34	X	X	X	X	X	X	X	X
16	36	X	X	X	X	X	X	X	X
16	38	X	X	X	X	X	X	X	X
16	40	X	X	X	X	X	X	X	X
16	42	X	X	X	X	X	X	X	X

1. N = No reinforcement required.
2. N = NI reinforced with 3/4 inch wood structural panel on one side only.
3. X = Try a deeper joist or closer spacing.
4. For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
6. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joint flanges before gluing.
2. 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.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when topped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joint. Apply glue in a winding pattern on wide areas, such as with double I-joists.
6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels of a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joint flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. 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 on 2-1/2" common nail to assure accurate and consistent spacing.)
10. **Complete all nailing of each panel before glue sets.** Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

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

1. Fasteners of sheathing and subflooring shall conform to the above table.
2. 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.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
5. 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.

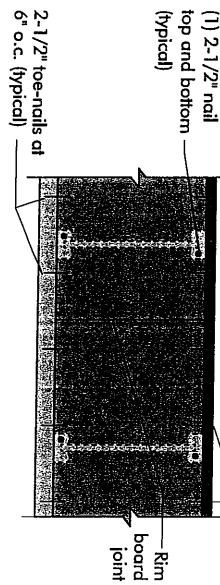
IMPORTANT NOTE:
Floor sheathing must be field glued to the I-joint flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joint spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

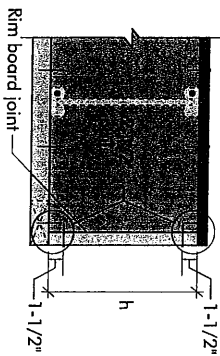
8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim board joint Between Floor Joists

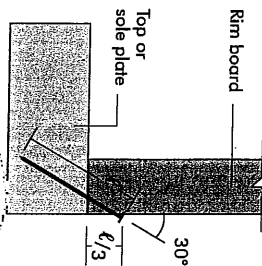
2-1/2" nails at 6" o.c. (typical)



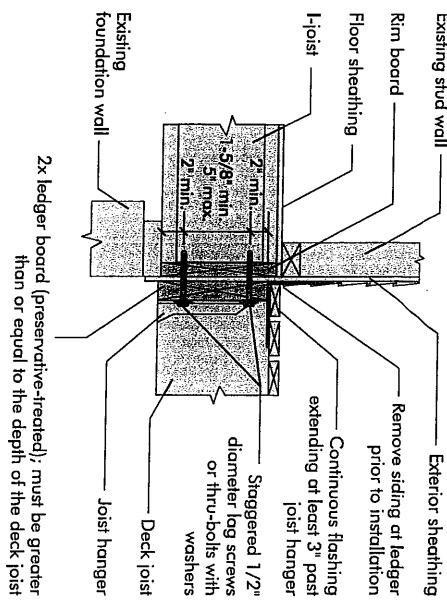
Rim board joint at Corner



8b TOE-NAIL CONNECTION AT RIM BOARD



8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

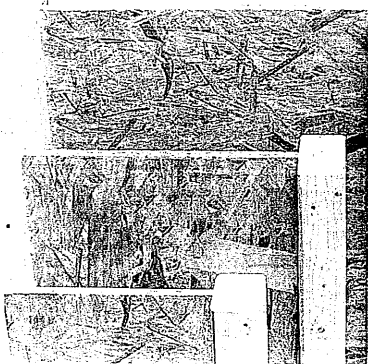


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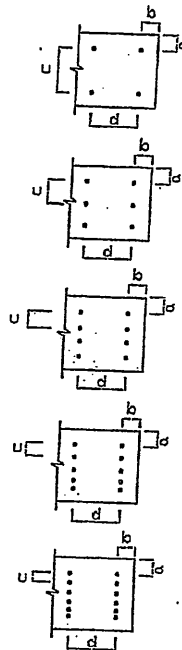
PRODUCT WARRANTY

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

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



LVL HEADER AND CONVENTIONAL LUMBER NAILING DETAILS		
DETAIL NUMBER	NUMBER OF ROWS	SPACING (INCHES o/c) "d"
A	2	12
B	2	8
C	2	6
D	2	4
1A	3	12
1B	3	8
1C	3	6
1D	3	4
2A	4	12
2B	4	8
2C	4	6
2D	4	4
3A	5	12
3B	5	8
3C	5	6
3D	5	4
4A	6	12
4B	6	8
4C	6	6
4D	6	4



NOTES:

- (1) MINIMUM LUMBER EDGE DISTANCE "a" = 1"
- (2) MINIMUM LUMBER END DISTANCE "b" = 2"
- (3) MINIMUM NAIL ROW SPACING "c" = 2"
- (4) STAGGER NAILS "d/2" BETWEEN PLYS FOR MULTI-PLY MEMBERS (3 PLY OR MORE)
- (5) ALL NAILS ARE 3-1/2" ARDOX SPIRAL NAILS
- (6) DO NOT USE AIR-DRIVEN NAILS



DWG NO TAMN/001.14

STRUCTURAL
COMPONENT ONLY

TO BE USED ONLY
WITH BEAM CALCS
BEARING THE
STAMP BELOW

PROVIDE NAILING
DETAIL N° X SEE
DWG #TAMN1001-14