

FROM PLAN DATED: NOV. 2015

BUILDER:
BAYVIEW WELLINGTON

SITE:
ALCONA

MODEL: S32-4-12

ELEVATION: A,B

LOT:
CITY: INNISFIL, ON

SALESMAN: MARIO
DESIGNER: CZ
REVISION: -

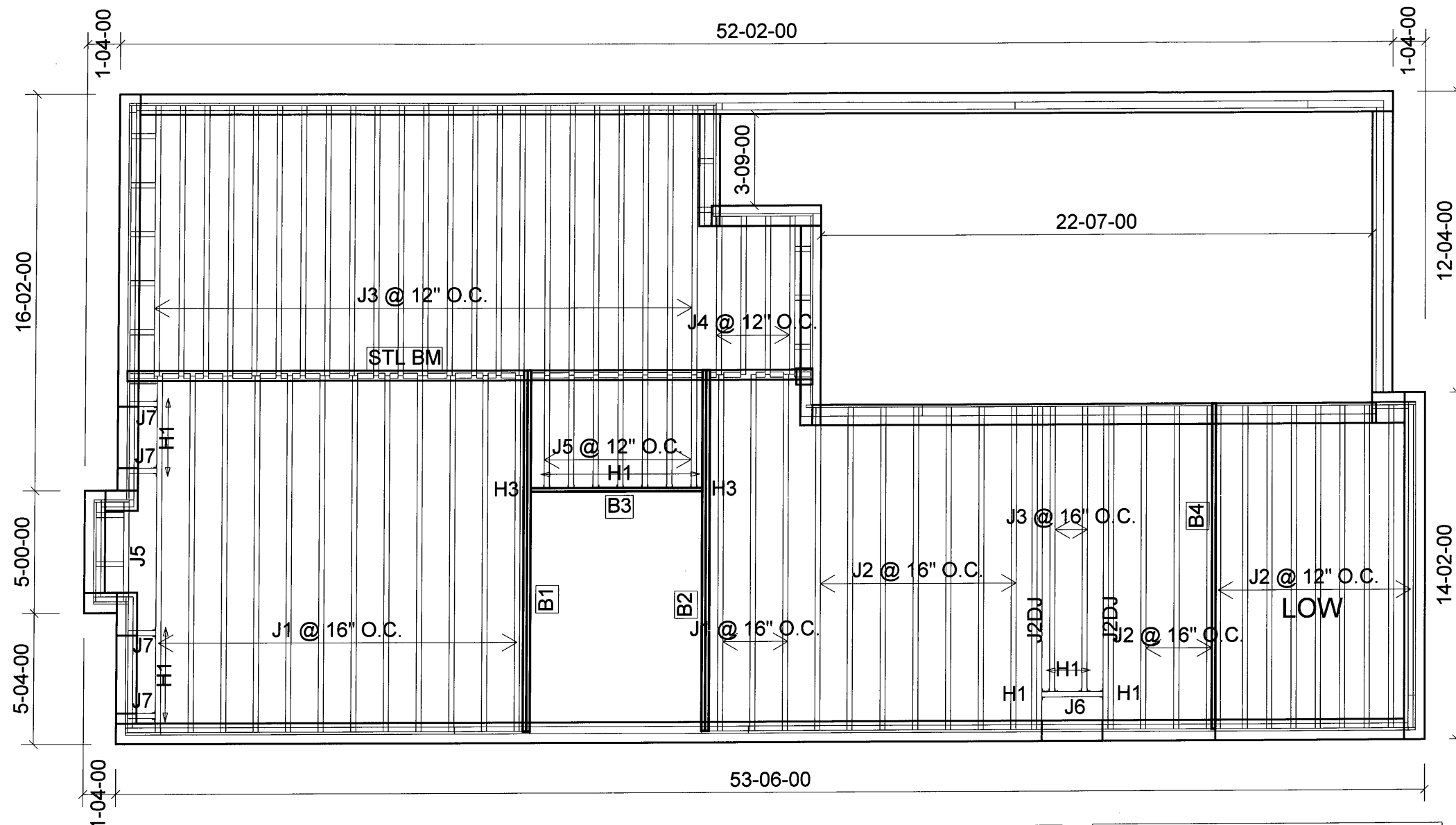
NOTES:
CERAMIC TILE APPLICATION
AS PER O.B.C. 9.30.6.
SQUASH BLOCKS
2x4 OR 2x6 #2 S.P.F. REQ'D UNDER
INTERIOR UNIFORM LOAD BEARING
WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS.
CANTILEVERED JOISTS
REQUIRE I-JOIST BLOCKING ALONG
BEARING AND RIMBOARD CLOSURE
AT ENDS.
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.

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: 12/09/2017

1st FLOOR
STANDARD



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	15
J2	14-00-00	9 1/2" NI-40x	1	19
J2DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	25
J4	8-00-00	9 1/2" NI-40x	1	4
J5	6-00-00	9 1/2" NI-40x	1	8
J6	4-00-00	9 1/2" NI-40x	1	1
J7	2-00-00	9 1/2" NI-40x	1	4
B1	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

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

Town of Innisfil Certified Model
05/01/2018 11:34:54 AM kgervais



FROM PLAN DATED: NOV. 2015

BUILDER:
BAYVIEW WELLINGTON

SITE:
ALCONA

MODEL: S32-4-12

ELEVATION: A,B

LOT:
CITY: INNISFIL, ON

SALESMAN: MARIO
DESIGNER: CZ
REVISION: -

NOTES:
CERAMIC TILE APPLICATION
AS PER O.B.C. 9.30.6.
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2x4 OR 2x6 #2 S.P.F. REQ'D UNDER
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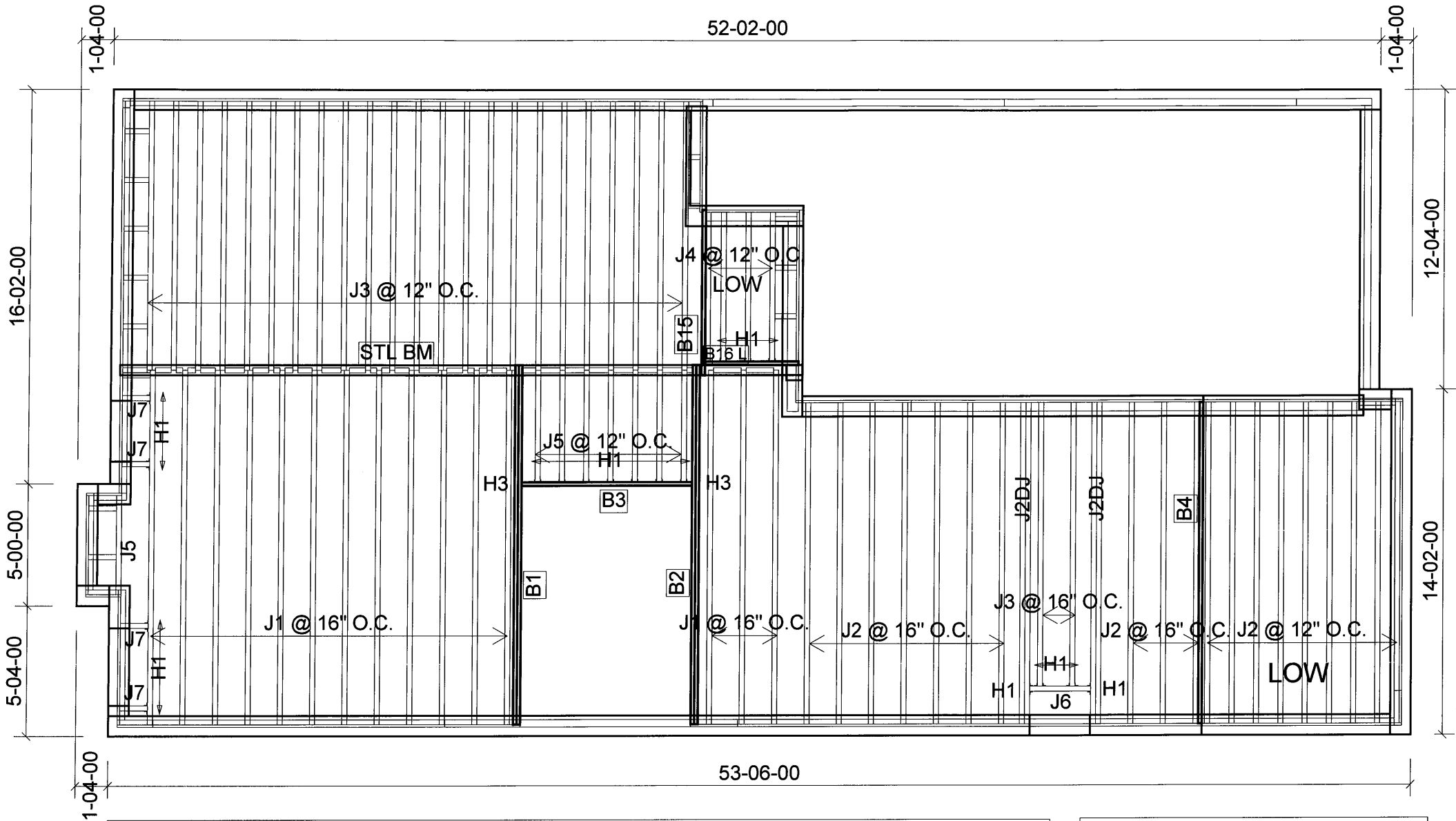
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 12/09/2017

1st FLOOR

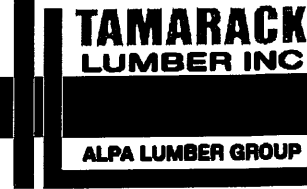
SUNKEN



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	15
J2	14-00-00	9 1/2" NI-40x	1	19
J2DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	25
J4	8-00-00	9 1/2" NI-40x	1	4
J5	6-00-00	9 1/2" NI-40x	1	8
J6	4-00-00	9 1/2" NI-40x	1	1
J7	2-00-00	9 1/2" NI-40x	1	4
B1	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

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

Town of Innisfil Certified Model
05/01/2018 11:35:07 AM kgervais



FROM PLAN DATED: NOV. 2015

BUILDER:
BAYVIEW WELLINGTON

SITE:
ALCONA

MODEL: S32-4-12

ELEVATION: A,B

LOT:
CITY: INNISFIL, ON

SALESMAN: MARIO
DESIGNER: CZ
REVISION: -

NOTES:
CERAMIC TILE APPLICATION
AS PER O.B.C. 9.30.6.
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2x4 OR 2x6 #2 S.P.F. REQ'D UNDER
INTERIOR UNIFORM LOAD BEARING
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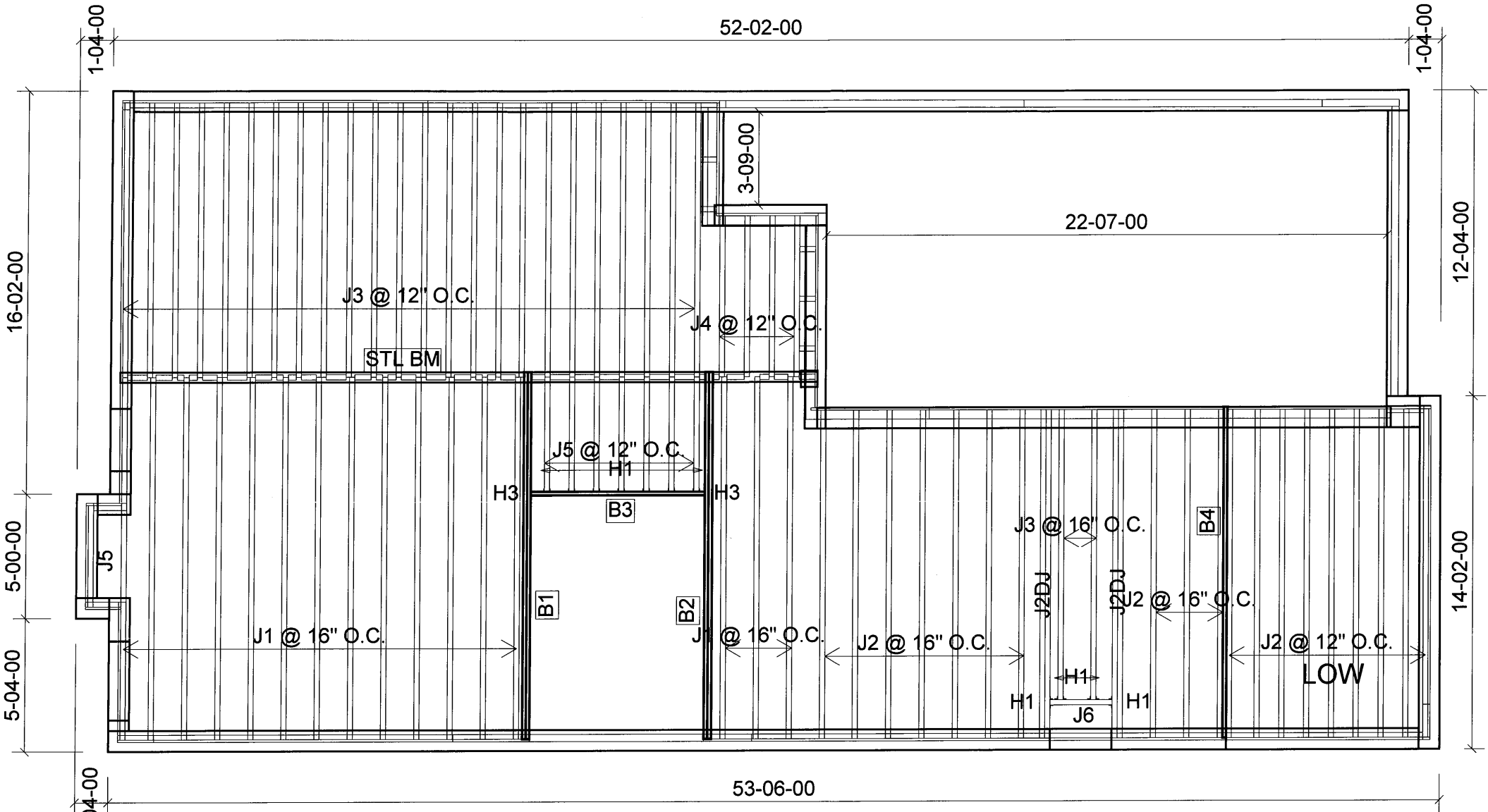
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 12/09/2017

1st FLOOR

WOD



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	16
J2	14-00-00	9 1/2" NI-40x	1	19
J2DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	26
J4	8-00-00	9 1/2" NI-40x	1	4
J5	6-00-00	9 1/2" NI-40x	1	8
J6	4-00-00	9 1/2" NI-40x	1	1
B1	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

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

Town of Innisfil Certified Model
05/01/2018 11:35:08 AM kgervais

FROM PLAN DATED: NOV. 2015

BUILDER:
BAYVIEW WELLINGTON

SITE:
ALCONA

MODEL: S32-4-12

ELEVATION: A

LOT:
CITY: INNISFIL, ON

SALESMAN: MARIO
DESIGNER: CZ
REVISION: -

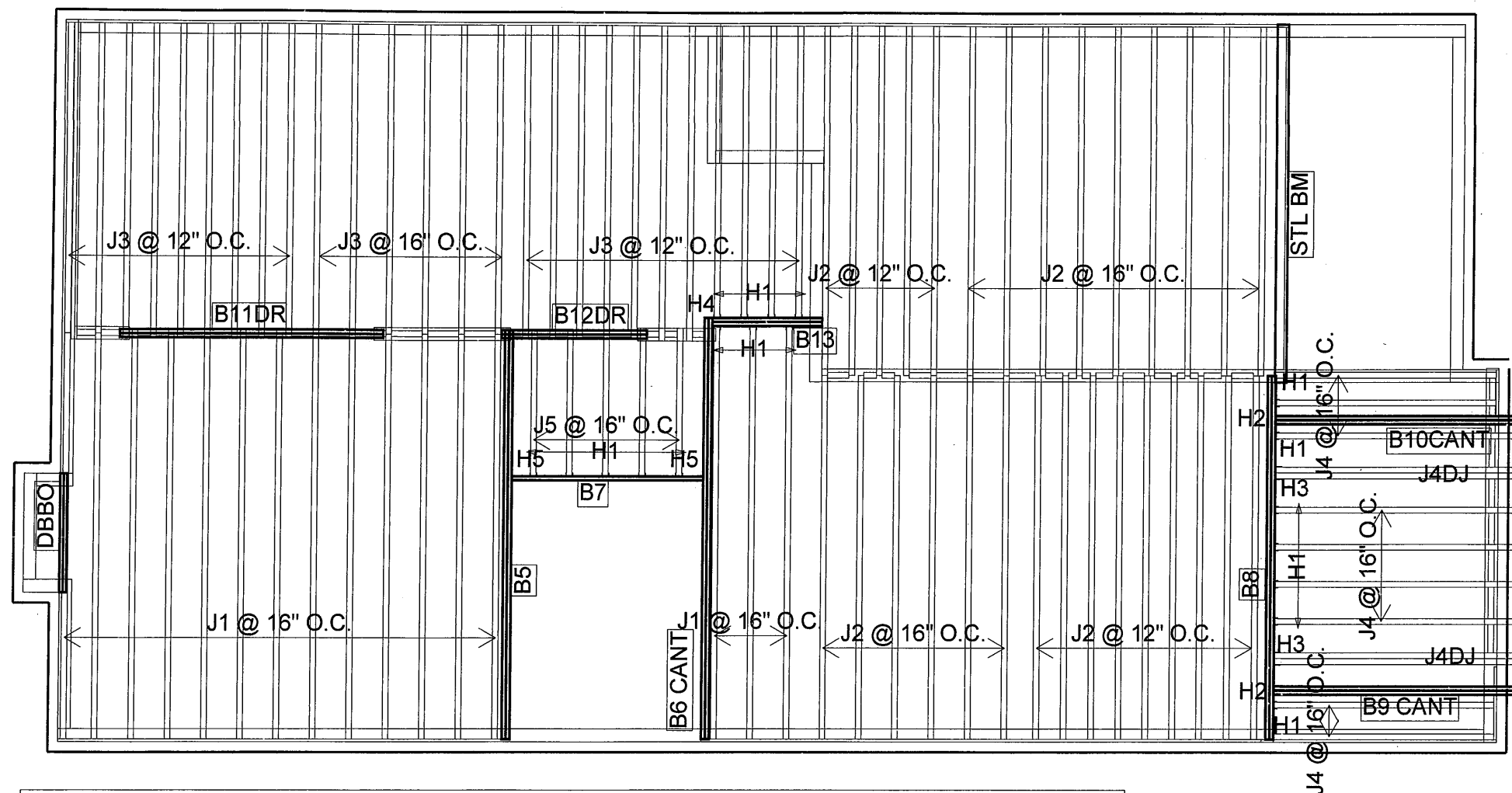
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REFER TO THE NORDIC
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LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 06/09/2017

2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	16
J2	14-00-00	9 1/2" NI-40x	1	29
J3	12-00-00	9 1/2" NI-40x	1	27
J4	10-00-00	9 1/2" NI-40x	1	9
J4DJ	10-00-00	9 1/2" NI-40x	2	4
J5	6-00-00	9 1/2" NI-40x	1	5
B5	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6 CANT	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10CANT	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9 CANT	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/9.5
14	H1	IUS2.56/9.5
2	H2	HGUS410
2	H3	HU310-2
1	H4	HUC410
2	H5	HUS1.81/10

Town of Innisfil Certified Model
05/01/2018 11:35:10 AM kgervais

FROM PLAN DATED: NOV. 2015

BUILDER:
BAYVIEW WELLINGTON

SITE:
ALCONA

MODEL: S32-4-12

ELEVATION: B

LOT:
CITY: INNISFIL, ON

SALESMAN: MARIO
DESIGNER: CZ
REVISION: -

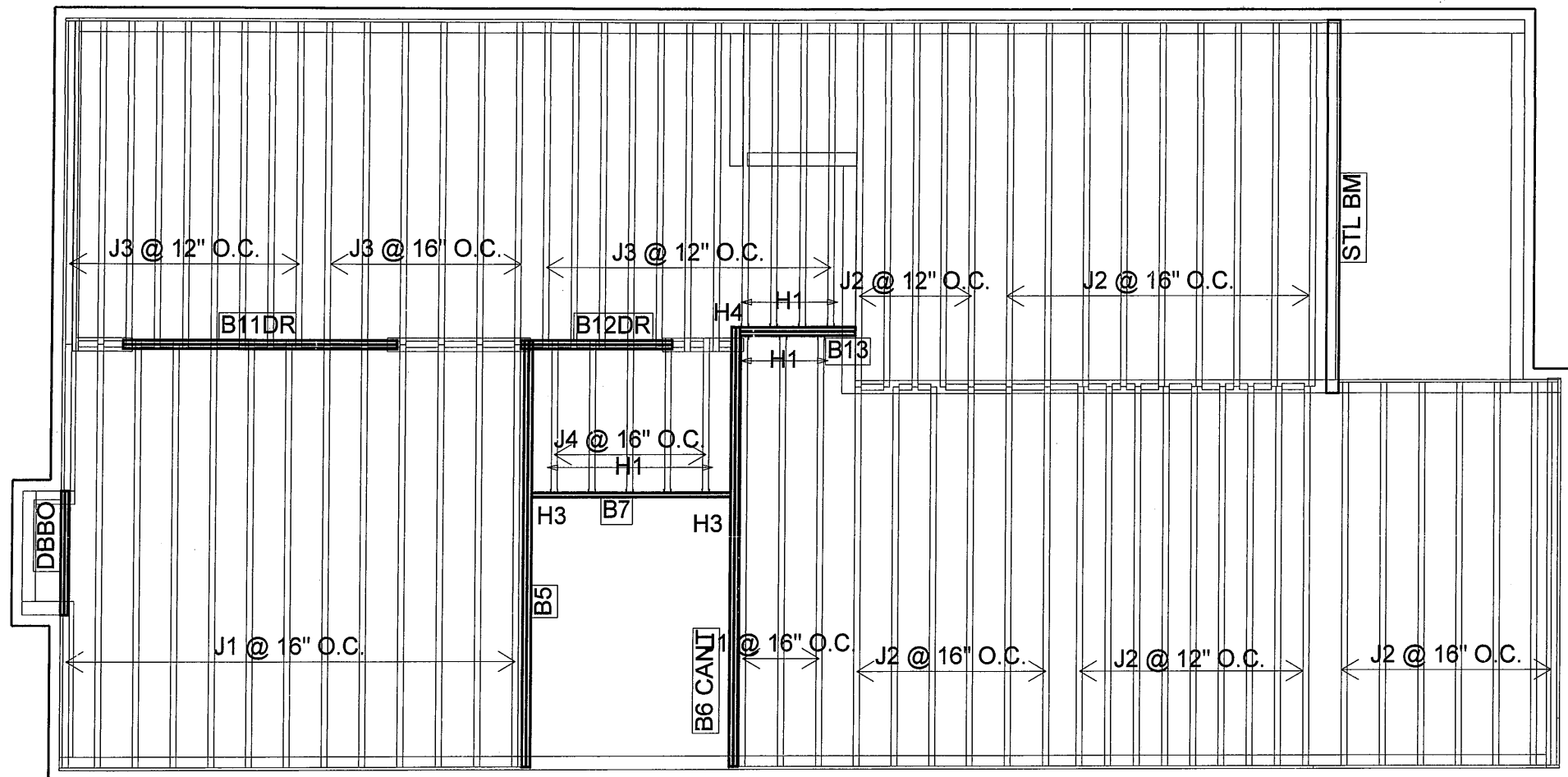
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LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 06/09/2017

2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	16
J2	14-00-00	9 1/2" NI-40x	1	36
J3	12-00-00	9 1/2" NI-40x	1	27
J4	6-00-00	9 1/2" NI-40x	1	5
B5	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6 CANT	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/9.5
7	H1	IUS2.56/9.5
2	H3	HUS1.81/10
1	H4	HUC410

Town of Innisfil Certified Model
05/01/2018 11:35:11 AM kgervais



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i2610)

BC CALC® Design Report



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

September 6, 2017 11:06:14

Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELA,B.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B1(i2610)

Specifier:

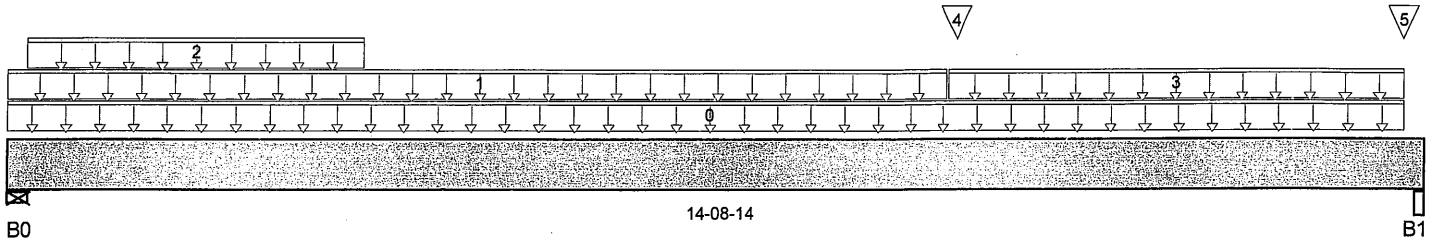
Designer:

Company:

Misc:

Town of Innisfil Certified Model

05/01/2018 11:35:13 AM kgervais



Total Horizontal Product Length = 14-08-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	472 / 0	495 / 0		
B1, 5"	2,228 / 0	1,792 / 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	14-06-06	8	4			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-09-06	6	3			n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-02-06	03-08-06		60			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	09-09-06	14-06-06	16	8			n/a
4	B3(i2638)	Conc. Pt. (lbs)	L	09-10-04	09-10-04	1,146	591			n/a
5	7(i973)	Conc. Pt. (lbs)	L	14-06-02	14-06-02	1,306	1,220			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	8,812 ft-lbs	25,408 ft-lbs	34.7%	1	09-10-04
End Shear	2,033 lbs	11,571 lbs	17.6%	1	13-06-06
Total Load Defl.	L/450 (0.38")	0.712"	53.3%	4	07-08-04
Live Load Defl.	L/747 (0.229")	0.475"	48.2%	5	07-10-09
Max Defl.	0.38"	n/a	n/a	4	07-08-04
Span / Depth	18	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	2-3/8" x 3-1/2"	1,326 lbs	29.9%	13.1%	Unspecified
B1 Beam	5" x 3-1/2"	5,583 lbs	59.7%	26.1%	Unspecified

Notes



DWG NO. TAM 45314-17
STRUCTURAL
COMPONENT ONLY



Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i2610)

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

September 6, 2017 11:06:14

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELA.B.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B1(i2610)

Specifier:

Designer:

Company:

Misc:

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

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

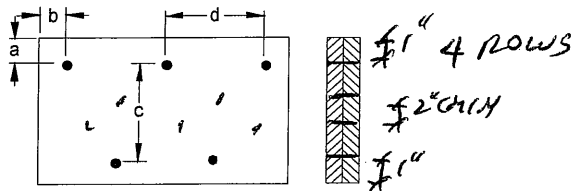
Calculations assume member is fully braced.

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**Connection Diagram**

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

Calculated Side Load = 166.7 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.

Connectors are: 3 1/2" ARDOX SPIRAL

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



DWG NO. TAM 45314-17
 STRUCTURAL
 COMPONENT ONLY



Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B2(i2663)

BC CALC® Design Report



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

September 6, 2017 11:06:14

Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: S32-4-12-ELA,B.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B2(i2663)

Specifier:

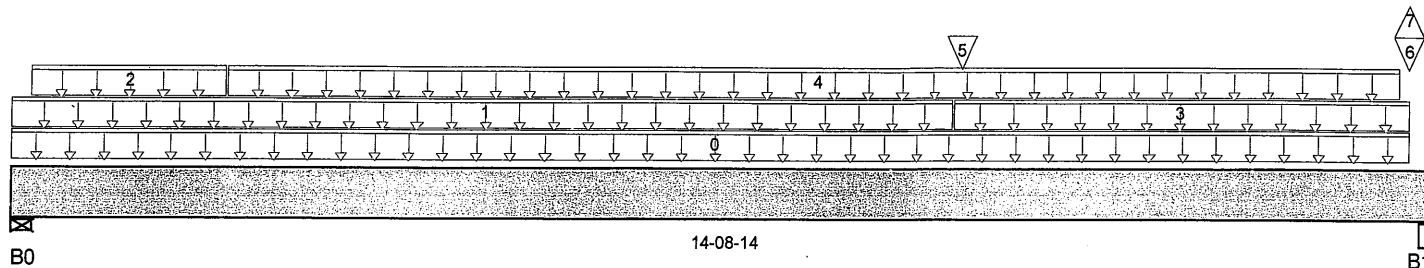
Designer:

Company:

Misc:

Town of Innisfil Certified Model

05/01/2018 11:35:15 AM kgervais



Total Horizontal Product Length = 14-08-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	504 / 0	717 / 0		
B1, 5"	2,586 / 19	2,271 / 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	14-06-06	12	6			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-09-06	6	3			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-06	02-02-12		58			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	09-09-06	14-06-06	10				n/a
4	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-02-12	14-05-02		58			n/a
5	B3(i2638)	Conc. Pt. (lbs)	L	09-10-04	09-10-04	1,164	600			n/a
6	9(i975)	Conc. Pt. (lbs)	L	14-06-02	14-06-02	1,645	1,355			n/a
7	9(i975)	Conc. Pt. (lbs)	L	14-06-02	14-06-02	-19				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	10,321 ft-lbs	25,408 ft-lbs	40.6%	1	09-10-04
End Shear	2,490 lbs	11,571 lbs	21.5%	1	13-06-06
Total Load Defl.	L/361 (0.474")	0.712"	66.5%	6	07-07-14
Live Load Defl.	L/720 (0.237")	0.475"	50%	8	07-10-11
Max Defl.	0.474"	n/a	n/a	6	07-07-14
Span / Depth	18	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	2-3/8" x 3-1/2"	1,652 lbs	37.2%	16.3%	Unspecified
B1 Beam	5" x 3-1/2"	6,718 lbs	71.9%	31.5%	Unspecified

Notes

DWG NO. TAM 45315-17

STRUCTURAL

COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B2(i2663)

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

September 6, 2017 11:06:14

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELAB.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B2(i2663

Specifier:

Designer:

Company:

Misc:

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.

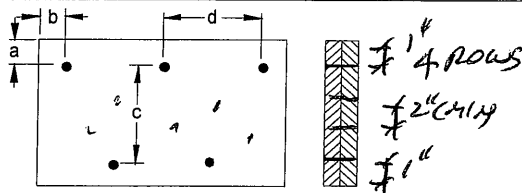
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO DBC 2012

Connection Diagram



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

Calculated Side Load = 169.3 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.

Connectors are: 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.

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per

DWG NO. TAM 45315-17
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B3(i2638)

BC CALC® Design Report



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

September 6, 2017 11:06:14

Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELA,B.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B3(i2638)

Specifier:

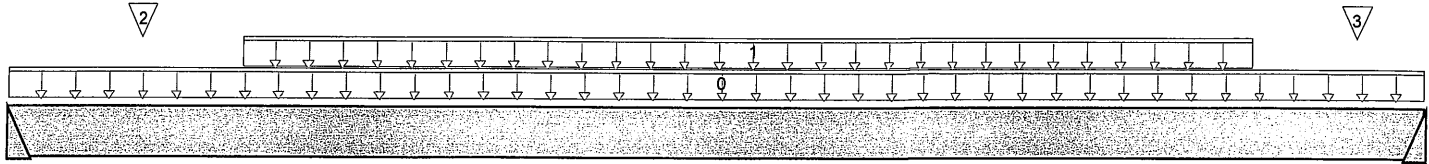
Designer:

Company:

Misc:

Town of Innisfil Certified Model

05/01/2018 11:35:17 AM kgervais



B0

07-00-00

B1

Total Horizontal Product Length = 07-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	1,146 / 0	591 / 0		
B1	1,164 / 0	601 / 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	00-00-02	07-00-00	240	120			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-01-14	06-01-14	95	48			n/a
2	J5(i2650)	Conc. Pt. (lbs)	L	00-07-14	00-07-14	86	43			n/a
3	J5(i2604)	Conc. Pt. (lbs)	L	06-07-14	06-07-14	71	36			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,144 ft-lbs	12,704 ft-lbs	32.6%	1	03-07-14
End Shear	1,898 lbs	5,785 lbs	32.8%	1	00-11-08
Total Load Defl.	L/999 (0.097")	n/a	n/a	4	03-06-06
Live Load Defl.	L/999 (0.064")	n/a	n/a	5	03-06-06
Max Defl.	0.097"	n/a	n/a	4	03-06-06
Span / Depth	8.6	n/a	n/a		00-00-00

Disclosure

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

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	2,458 lbs	n/a	57.6%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	2,497 lbs	n/a	58.5%	HUS1.81/10

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.

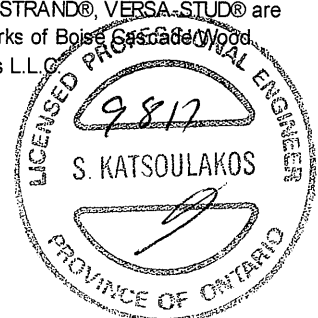
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

DWG NO. YAM 45316-17
STRUCTURAL
COMPONENT ONLY

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Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i2533)

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

September 6, 2017 11:06:14

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELA.B.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B4(i2533)

Specifier:

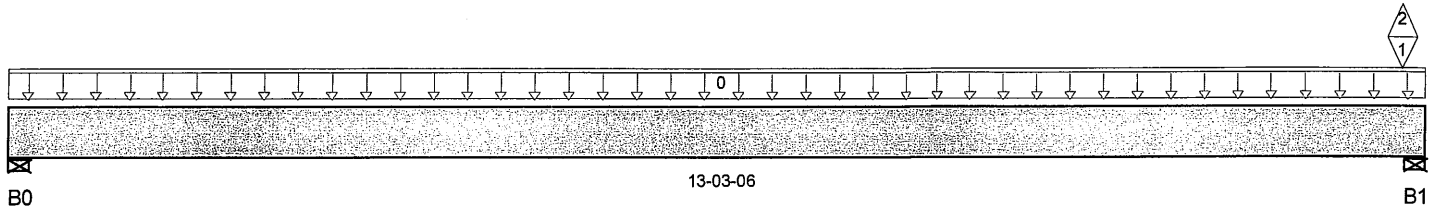
Designer:

Company:

Misc:

Town of Innisfil Certified Model

05/01/2018 11:35:19 AM kgervais



Total Horizontal Product Length = 13-03-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	206 / 0	134 / 0		
B1, 5-1/2"	471 / 19	302 / 0	0 / 34	

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	13-03-06	32	16			n/a
1 4(i953)	Conc. Pt. (lbs)	L	13-00-10	13-00-10	257	162	-34		n/a
2 4(i953)	Conc. Pt. (lbs)	L	13-00-10	13-00-10	-19				n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,490 ft-lbs	12,704 ft-lbs	11.7%	1	06-06-02
End Shear	405 lbs	5,785 lbs	7%	1	00-11-14
Total Load Defl.	L/999 (0.124")	n/a	n/a	56	06-06-02
Live Load Defl.	L/999 (0.075")	n/a	n/a	83	06-06-02
Max Defl.	0.124"	n/a	n/a	56	06-06-02
Span / Depth	16.1	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	2-3/8" x 1-3/4"	477 lbs	21.5%	9.4%	Unspecified
B1 Wall/Plate	5-1/2" x 1-3/4"	1,084 lbs	21.1%	9.2%	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

Unbalanced snow loads determined from building geometry were used in selected products verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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.

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DWG NO. TAW 45317-17
STRUCTURAL
COMPONENT ONLY



Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B5(i2354)

BC CALC® Design Report



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

September 6, 2017 11:06:14

Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: S32-4-12-ELA,B.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B5(i2354)

Specifier:

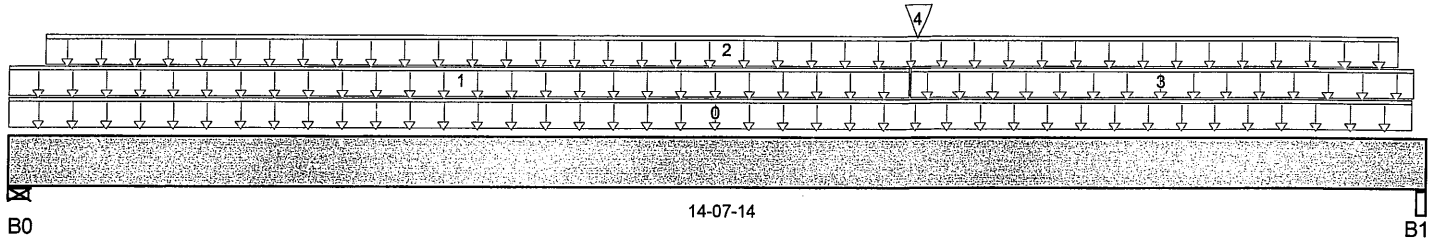
Designer:

Company:

Misc:

Town of Innisfil Certified Model

05/01/2018 11:35:20 AM kgervais



Total Horizontal Product Length = 14-07-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	311 / 0	652 / 0		
B1, 3-1/2"	507 / 0	754 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	14-06-02	8	4			n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-03-06	6	3			n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-04-06	14-04-06		60			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	09-03-06	14-06-05	19	9			n/a
4	B7(1998)	Conc. Pt. (lbs)	L	09-04-04	09-04-04	551	292			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,776 ft-lbs	25,408 ft-lbs	26.7%	1	09-04-04
End Shear	1,577 lbs	11,571 lbs	13.6%	1	13-06-14
Total Load Defl.	L/522 (0.325")	0.706"	46%	4	07-07-09
Live Load Defl.	L/1,287 (0.132")	0.471"	28%	5	07-10-10
Max Defl.	0.325"	n/a	n/a	4	07-07-09
Span / Depth	17.8	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/8" x 3-1/2"	913 lbs	17.2%	7.5%	Unspecified
B1 Beam	3-1/2" x 3-1/2"	1,703 lbs	12.8%	11.4%	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**DWG NO. TAM4531B-17
STRUCTURAL
COMPONENT ONLY**



Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B5(i2354)

BC CALC® Design Report



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

September 6, 2017 11:06:14

Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELAB.mmdl

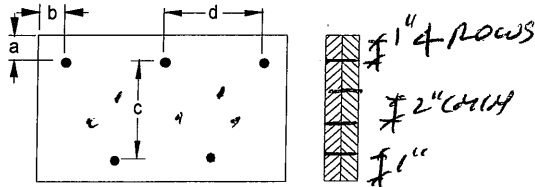
Description: Designs\Flush Beams\1st Floor\Flush Beams\B5(i2354

Specifier:

Designer:

Company:

Misc:

Connection Diagram

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

Calculated Side Load = 81.3 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.

Connectors are: Nails

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

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DWG NO. TAM 45318-17
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B6 CANT(i2706)

Dry | 2 spans | Right cantilever | 0/12 slope (deg)

September 6, 2017 11:06:13

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELA,B.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B6 CANT(i

Specifier:

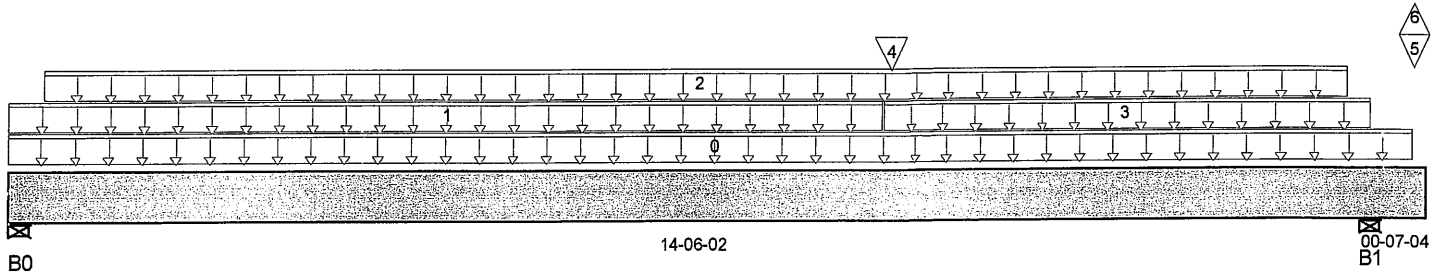
Designer:

Company:

Msc:

Town of Innisfil Certified Model

05/01/2018 11:35:23 AM kgervais



Total Horizontal Product Length = 15-01-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	455 / 26	714 / 0		
B1, 5-1/2"	1,594 / 19	1,305 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0 FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	14-11-10	6	3			n/a
1 FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-03-06	6	3			n/a
2 User Load	Unf. Lin. (lb/ft)	L	00-04-06	14-03-06		60			n/a
3 FC3 Floor Material	Unf. Lin. (lb/ft)	L	09-03-06	14-06-05	20	10			n/a
4 B7(i1998)	Conc. Pt. (lbs)	L	09-04-04	09-04-04	968	501			n/a
5 B13(i2690)	Conc. Pt. (lbs)	L	14-11-10	14-11-10	800	410			n/a
6 B13(i2690)	Conc. Pt. (lbs)	L	14-11-10	14-11-10	-18				n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	9,583 ft-lbs	25,408 ft-lbs	37.7%	3	09-04-04
Neg. Moment	-790 ft-lbs	-25,408 ft-lbs	3.1%	1	14-06-02
End Shear	1,472 lbs	11,571 lbs	12.7%	3	01-01-14
Cont. Shear	2,166 lbs	11,571 lbs	18.7%	1	13-05-14
Total Load Defl.	L/389 (0.438")	0.71"	61.7%	12	07-09-01
Live Load Defl.	L/808 (0.211")	0.474"	44.6%	16	07-10-10
Total Neg. Defl.	2xL/1,998 (-0.061")	n/a	n/a	12	15-01-06
Max Defl.	0.438"	n/a	n/a	12	07-09-01
Span / Depth	17.9	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/8" x 3-1/2"	1,575 lbs	19.3%	8.4%	Unspecified
B1 Wall/Plate	5-1/2" x 3-1/2"	4,022 lbs	39.1%	17.1%	Unspecified

Notes



DWG NO. TAM 45319-17
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B6 CANT(i2706)

Dry | 2 spans | Right cantilever | 0/12 slope (deg)

September 6, 2017 11:06:13

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELAB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B6 CAN

Specifier:

Designer:

Company:

Misc:

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.

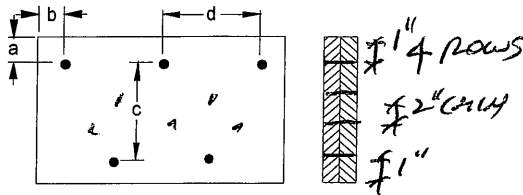
Design based on Dry Service Condition.

CONFORMS TO OBC 2012

Importance Factor : Normal Part code : Part 9

Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

Connection Diagram



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

Calculated Side Load = 137.5 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.

Connectors are: 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.

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DWG NO. YAM 45319-17
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B7(i1998)

BC CALC® Design Report



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

September 6, 2017 11:06:13

Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELA.B.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B7(i1998)

Specifier:

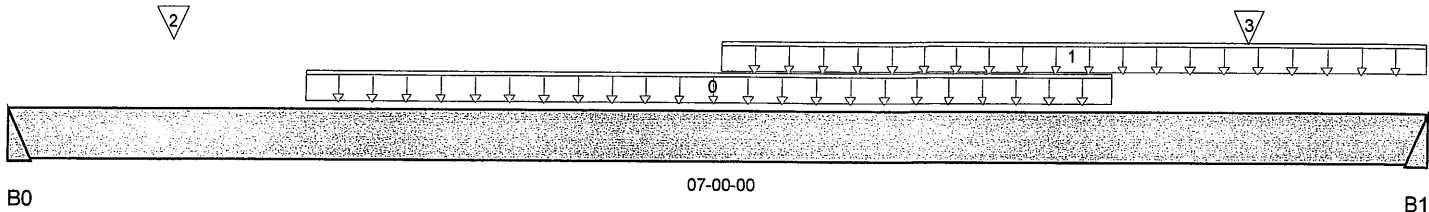
Designer:

Company:

Misc:

Town of Innisfil Certified Model

05/01/2018 11:35:25 AM kgervais



Total Horizontal Product Length = 07-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	545 / 0	290 / 0		
B1	974 / 0	503 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	01-05-08	05-05-08	108	54			n/a
1	User Load	Unf. Lin. (lb/ft)	L	03-06-00	07-00-00	240	120			n/a
2	J6(i1952)	Conc. Pt. (lbs)	L	00-09-08	00-09-08	122	61			n/a
3	J6(i1973)	Conc. Pt. (lbs)	L	06-01-08	06-01-08	127	63			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,918 ft-lbs	12,704 ft-lbs	23%	1	04-00-13
End Shear	1,567 lbs	5,785 lbs	27.1%	1	06-00-08
Total Load Defl.	L/999 (0.066")	n/a	n/a	4	03-07-15
Live Load Defl.	L/999 (0.043")	n/a	n/a	5	03-07-15
Max Defl.	0.066"	n/a	n/a	4	03-07-15
Span / Depth	8.6	n/a	n/a		00-00-00

Disclosure

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

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	1,180 lbs	n/a	27.6%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	2,089 lbs	n/a	48.9%	HUS1.81/10

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.

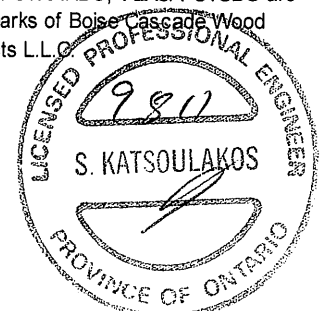
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

DWG NO. YAM45320-17
STRUCTURAL
COMPONENT ONLY

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Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B8(i2351)

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

September 6, 2017 11:06:13

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELA,B.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i2351)

Specifier:

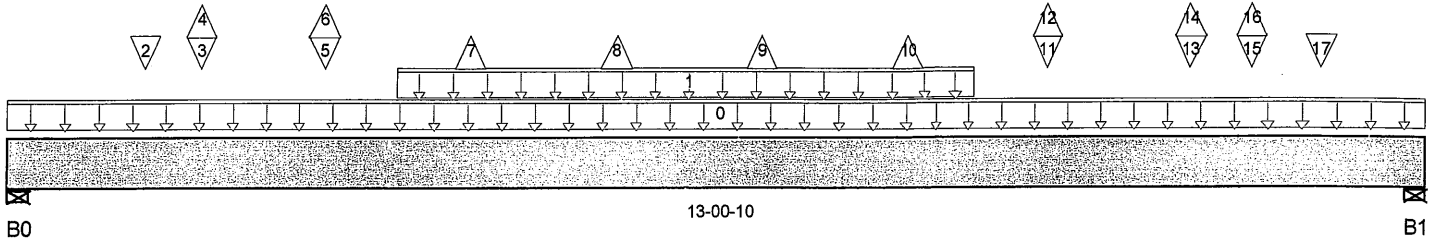
Designer:

Company:

Misc:

Town of Innisfil Certified Model

05/01/2018 11:35:27 AM kgervais



Total Horizontal Product Length = 13-00-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	1,052 / 41	575 / 0	0 / 80	
B1, 2-3/4"	1,065 / 37	586 / 0	0 / 67	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-00-10	11	6			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	03-06-14	08-10-14	166	81			n/a
2	J4(i1920)	Conc. Pt. (lbs)	L	01-02-14	01-02-14	134	67			n/a
3	B9 CANT(i1926)	Conc. Pt. (lbs)	L	01-09-02	01-09-02	138	92	-18		n/a
4	B9 CANT(i1926)	Conc. Pt. (lbs)	L	01-09-02	01-09-02	-8				n/a
5	J5(i1922)	Conc. Pt. (lbs)	L	02-10-14	02-10-14	205	72	-61		n/a
6	J5(i1922)	Conc. Pt. (lbs)	L	02-10-14	02-10-14	-21				n/a
7	J4(i1924)	Conc. Pt. (lbs)	L	04-02-14	04-02-14	-5				n/a
8	J4(i1911)	Conc. Pt. (lbs)	L	05-06-14	05-06-14	-5				n/a
9	J4(i1911)	Conc. Pt. (lbs)	L	06-10-14	06-10-14	-5				n/a
10	J4(i1910)	Conc. Pt. (lbs)	L	08-02-14	08-02-14	-5				n/a
11	J5(i1914)	Conc. Pt. (lbs)	L	09-06-14	09-06-14	221	81	-55		n/a
12	J5(i1914)	Conc. Pt. (lbs)	L	09-06-14	09-06-14	-21				n/a
13	J4(i1928)	Conc. Pt. (lbs)	L	10-10-14	10-10-14	157	76			n/a
14	J4(i1928)	Conc. Pt. (lbs)	L	10-10-14	10-10-14	-3				n/a
15	B10CANT(i1915)	Conc. Pt. (lbs)	L	11-05-10	11-05-10	97	75	-13		n/a
16	B10CANT(i1915)	Conc. Pt. (lbs)	L	11-05-10	11-05-10	-5				n/a
17	J4(i2068)	Conc. Pt. (lbs)	L	12-01-00	12-01-00	128	64			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,585 ft-lbs	25,408 ft-lbs	29.9%	21	06-10-14
End Shear	2,272 lbs	11,571 lbs	19.6%	21	12-00-06
Total Load Defl.	L/496 (0.304")	0.629"	48.4%	56	06-06-14
Live Load Defl.	L/760 (0.199")	0.419"	47.4%	83	06-06-14
Max Defl.	0.304"	n/a	n/a	56	06-06-14
Span / Depth	15.9	n/a	n/a		00-00-00

Bearing Supports

Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
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P61/2

DWG NO. TAM 45321-17
STRUCTURAL
COMPONENT ONLY



Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B8(i2351)

BC CALC® Design Report



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

September 6, 2017 11:06:13

Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: S32-4-12-ELAB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i2351

Specifier:

Designer:

Company:

Misc:

B0	Wall/Plate	4-3/8" x 3-1/2"	2,296 lbs	28.1%	12.3%	Unspecified
B1	Wall/Plate	2-3/4" x 3-1/2"	2,330 lbs	45.3%	19.8%	Unspecified

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.

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.

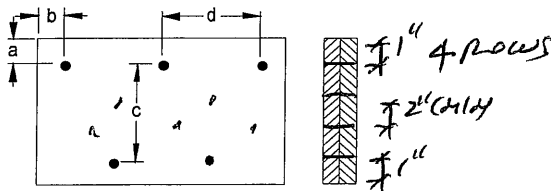
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

CONFORMS TO OBC 2012

Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram

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

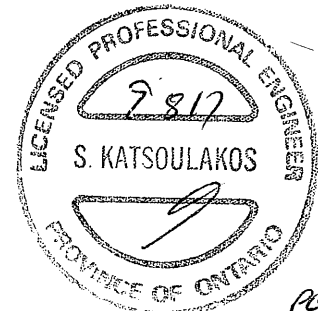
Calculated Side Load = 295.9 lb/ft

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.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCK®, 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 45321-17
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...\B9 CANT(i1926)

Dry | 2 spans | Right cantilever | 0/12 slope (deg)

September 6, 2017 11:06:13

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELA,B.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B9 CANT(i

Specifier:

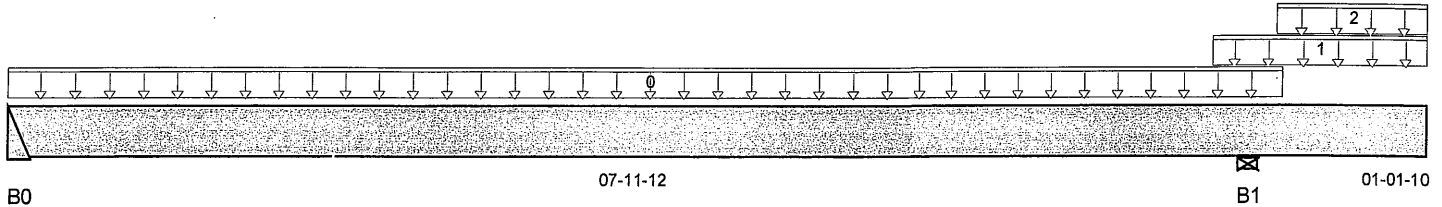
Designer:

Company:

Misc:

Town of Innisfil Certified Model

05/01/2018 11:35:29 AM kgervais



Total Horizontal Product Length = 09-01-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	135 / 8	92 / 0	0 / 15	
B1, 5-1/2"	258 / 0	356 / 0	267 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-02-08	33	16			n/a
1	User Load	Unf. Lin. (lb/ft)	L	07-09-00	09-01-06	55	150	185		n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	08-01-15	09-01-06	39	20			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	575 ft-lbs	25,408 ft-lbs	2.3%	44	03-10-06
Neg. Moment	-354 ft-lbs	-25,408 ft-lbs	1.4%	67	07-11-12
End Shear	238 lbs	11,571 lbs	2.1%	44	00-11-08
Cont. Shear	279 lbs	11,571 lbs	2.4%	16	06-11-08
Total Load Defl.	L/999 (0.009")	n/a	n/a	107	03-11-08
Live Load Defl.	L/999 (0.006")	n/a	n/a	159	04-00-10
Total Neg. Defl.	2xL/1,998 (-0.003")	n/a	n/a	107	09-01-06
Max Defl.	0.009"	n/a	n/a	107	03-11-08
Span / Depth	9.9	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 3-1/2"	317 lbs	n/a	3.7%	HGUS410
B1 Wall/Plate	5-1/2" x 3-1/2"	975 lbs	9.5%	4.2%	Unspecified

Notes



DYNNO.TAM 45322-17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELAB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B9 CAN

Specifier:

Designer:

Company:

Misc:

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.

CONFORMS TO OBC 2012

Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

Disclosure

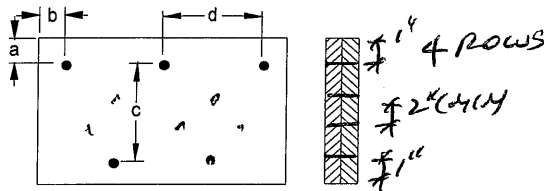
Completeness and accuracy of input must

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.

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Connection Diagram

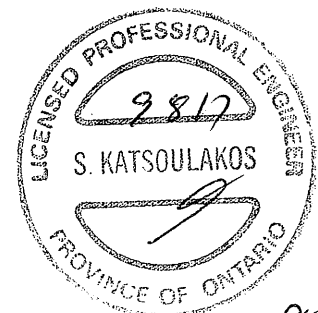


a minimum = 2" c = 3-1/2"
b minimum = 3" d = 6"

Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



BOB NO. TAM 4532217
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...\B10CANT(i1915)

Dry | 2 spans | Right cantilever | 0/12 slope (deg)

September 6, 2017 11:06:13

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELA,B.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B10CANT(

Specifier:

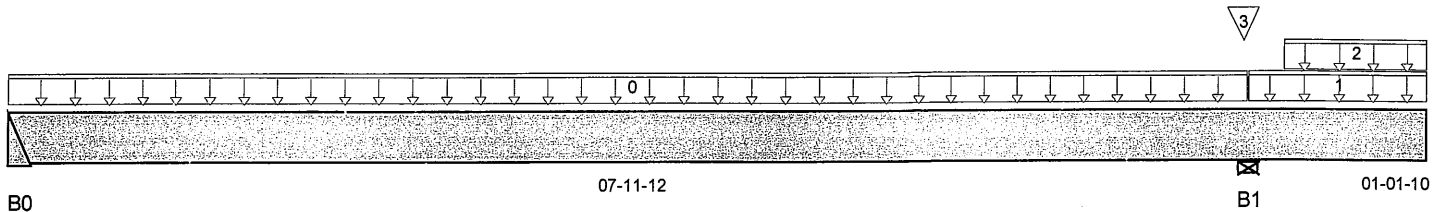
Designer:

Company:

Msc:

Town of Innisfil Certified Model

05/01/2018 11:35:32 AM kgervais



Total Horizontal Product Length = 09-01-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	95 / 6	73 / 0	0 / 15	
B1, 5-1/2"	192 / 0	320 / 0	264 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-11-12	24	12			n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	07-11-12	09-01-06	38	80	91		n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	08-02-08	09-01-06	33	78	92		n/a
3	-	Conc. Pt. (lbs)	L	07-11-05	07-11-05	20	52	62		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	420 ft-lbs	25,408 ft-lbs	1.7%	44	03-09-04
Neg. Moment	-334 ft-lbs	-25,408 ft-lbs	1.3%	49	07-11-12
End Shear	175 lbs	11,571 lbs	1.5%	44	00-11-08
Cont. Shear	214 lbs	11,571 lbs	1.8%	16	06-11-08
Total Load Defl.	L/999 (0.006")	n/a	n/a	107	03-11-08
Live Load Defl.	L/999 (0.004")	n/a	n/a	159	04-00-10
Total Neg. Defl.	2xL/1,998 (-0.002")	n/a	n/a	107	09-01-06
Max Defl.	0.006"	n/a	n/a	107	03-11-08
Span / Depth	9.9	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 3-1/2"	235 lbs	n/a	2.7%	HGUS410
B1 Wall/Plate	5-1/2" x 3-1/2"	892 lbs	8.7%	3.8%	Unspecified

Notes



P614

DWG NO. TAM 4532317
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELAB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B10CAN

Specifier:

Designer:

Company:

Misc:

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.

CONFORMS TO OBC 2012

Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

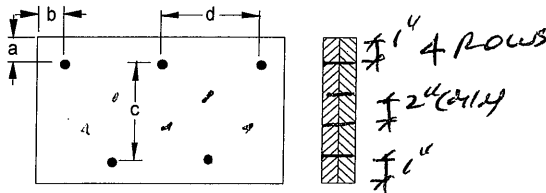
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

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.

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Connection Diagram



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

Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



DWG NO. TAM 45323-17
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...B13(i2690)

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

September 6, 2017 11:06:14

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELA,B.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B13(i2690)

Specifier:

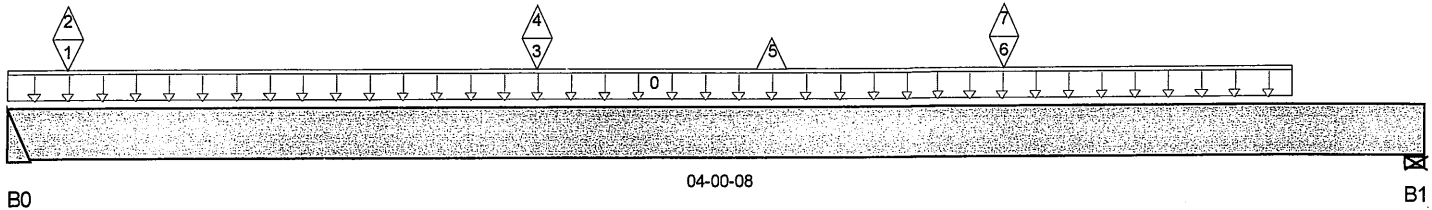
Designer:

Company:

Msc:

Town of Innisfil Certified Model

05/01/2018 11:35:33 AM kgervais



Total Horizontal Product Length = 04-00-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	803 / 18	412 / 0		
B1, 5-1/2"	650 / 12	340 / 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	00-00-00	03-08-00	114	54			n/a
1	-	Conc. Pt. (lbs)	L	00-02-00	00-02-00	244	122			n/a
2	-	Conc. Pt. (lbs)	L	00-02-00	00-02-00	-9				n/a
3	-	Conc. Pt. (lbs)	L	01-05-15	01-05-15	395	198			n/a
4	-	Conc. Pt. (lbs)	L	01-05-15	01-05-15	-7				n/a
5	J3(i2708)	Conc. Pt. (lbs)	L	02-02-00	02-02-00	-7				n/a
6	-	Conc. Pt. (lbs)	L	02-10-01	02-10-01	395	198			n/a
7	-	Conc. Pt. (lbs)	L	02-10-01	02-10-01	-7				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,334 ft-lbs	25,408 ft-lbs	5.3%	1	01-06-00
End Shear	1,236 lbs	11,571 lbs	10.7%	1	02-09-08
Total Load Defl.	L/999 (0.004")	n/a	n/a	6	01-10-08
Live Load Defl.	L/999 (0.003")	n/a	n/a	8	01-10-08
Max Defl.	0.004"	n/a	n/a	6	01-10-08
Span / Depth	4.5	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 3-1/2"	1,720 lbs	n/a	20.1%	HUC410
B1 Wall/Plate	5-1/2" x 3-1/2"	1,399 lbs	13.6%	6%	Unspecified

Notes



DWG NO. YAM 45324 -17
STRUCTURAL
COMPONENT ONLY



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELAB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B13(i2690)

Specifier:

Designer:

Company:

Misc:

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.

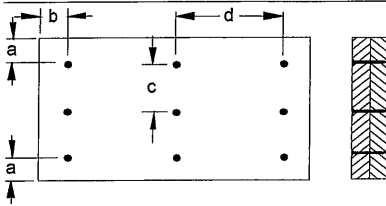
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Connection Diagram



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

Calculated Side Load = 544.0 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.

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.

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DWG NO. TAM 45324-17
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...\B11DR(i2724)

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

September 6, 2017 11:06:12

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELA.B.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B11

Specifier:

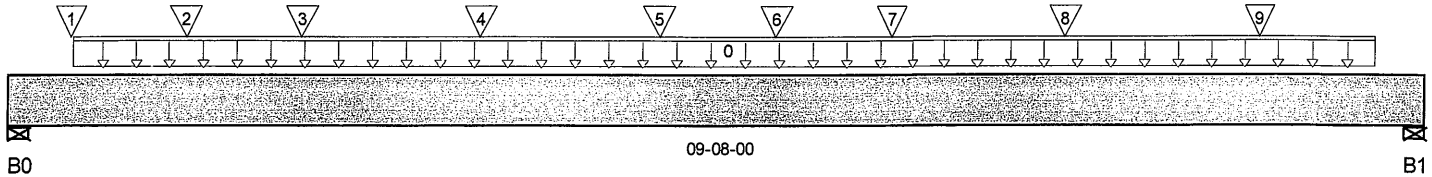
Designer:

Company:

Misc:

Town of Innisfil Certified Model

05/01/2018 11:35:36 AM kgervais



Total Horizontal Product Length = 09-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	2,526 / 0	1,572 / 0		
B1, 4"	2,189 / 0	1,409 / 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	00-05-04	09-04-00		60			n/a
1	-	Conc. Pt. (lbs)	L	00-05-01	00-05-01	594	297			n/a
2	J3(i2732)	Conc. Pt. (lbs)	L	01-02-08	01-02-08	216	108			n/a
3	-	Conc. Pt. (lbs)	L	01-11-15	01-11-15	596	297			n/a
4	-	Conc. Pt. (lbs)	L	03-02-08	03-02-08	597	298			n/a
5	-	Conc. Pt. (lbs)	L	04-05-01	04-05-01	594	297			n/a
6	J3(i2726)	Conc. Pt. (lbs)	L	05-02-08	05-02-08	216	108			n/a
7	-	Conc. Pt. (lbs)	L	05-11-15	05-11-15	596	297			n/a
8	-	Conc. Pt. (lbs)	L	07-02-08	07-02-08	633	316			n/a
9	-	Conc. Pt. (lbs)	L	08-06-08	08-06-08	669	334			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	12,044 ft-lbs	25,408 ft-lbs	47.4%	1	04-06-08
End Shear	4,972 lbs	11,571 lbs	43%	1	08-06-08
Total Load Defl.	L/427 (0.256")	0.456"	56.2%	4	04-07-12
Live Load Defl.	L/699 (0.157")	0.304"	51.5%	5	04-07-12
Max Defl.	0.256"	n/a	n/a	4	04-07-12
Span / Depth	11.5	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"	5,754 lbs	50.6%	33.7%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	5,046 lbs	44.4%	29.5%	Unspecified

Notes



DWG NO. TAM4532517
STRUCTURAL
COMPONENT ONLY



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELAB.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B1

Specifier:

Designer:

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: 00-04-02, Bottom: 00-04-02.

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

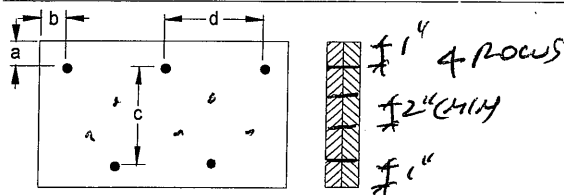
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Connection Diagram



a minimum = 2" c = 3-1/2"
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 x 3" 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™, 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.



DWG NO. TAM 45325-17
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B12DR(i2731)

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

September 6, 2017 11:06:12

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELA.B.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B12I

Specifier:

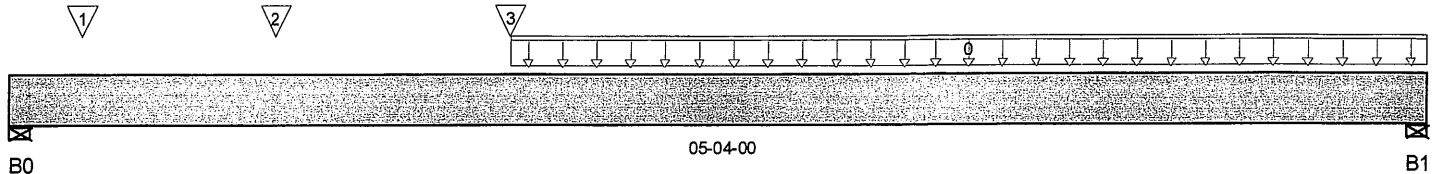
Designer:

Company:

Misc:

Town of Innisfil Certified Model

05/01/2018 11:35:38 AM kgervais



Total Horizontal Product Length = 05-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	1,194 / 0	1,122 / 0		
B1, 4"	912 / 0	481 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-08	05-04-00	305	152			n/a
1	B5(i2354)	Conc. Pt. (lbs)	L	00-03-04	00-03-04	504	752			n/a
2	-	Conc. Pt. (lbs)	L	00-11-14	00-11-14	331	165			n/a
3	J3(i2715)	Conc. Pt. (lbs)	L	01-10-08	01-10-08	215	107			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,974 ft-lbs	25,408 ft-lbs	7.8%	1	02-10-08
End Shear	1,340 lbs	11,571 lbs	11.6%	1	01-01-08
Total Load Defl.	L/999 (0.011")	n/a	n/a	4	02-08-08
Live Load Defl.	L/999 (0.007")	n/a	n/a	5	02-07-08
Max Defl.	0.011"	n/a	n/a	4	02-08-08
Span / Depth	6.1	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4" x 3-1/2"	3,193 lbs	28.1%	18.7%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	1,970 lbs	17.3%	11.5%	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: 00-02-00, Bottom: 00-02-00.

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





Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-4-12-ELAB.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B1

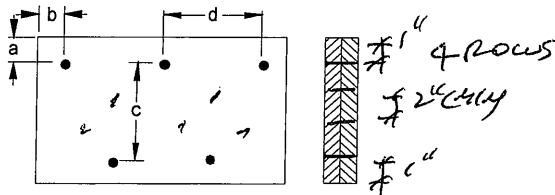
Specifier:

Designer:

Company:

Misc:

Connection Diagram



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

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

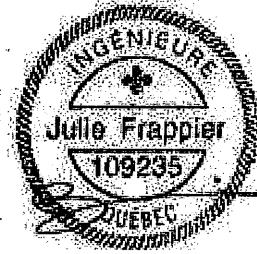
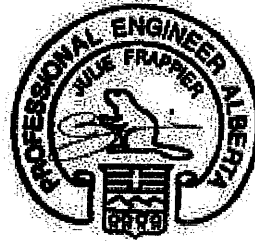
Disclosure

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™, BCK®, 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 45326-17
STRUCTURAL
COMPONENT ONLY



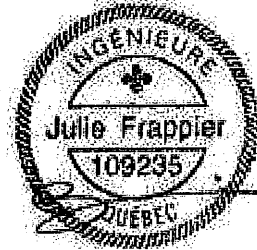
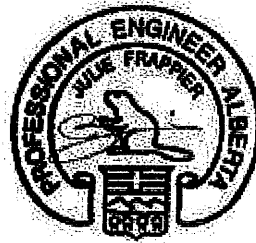
Maximum Floor Spans

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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/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.



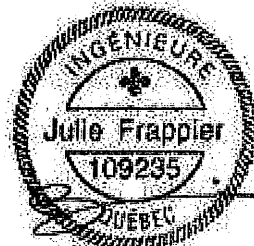
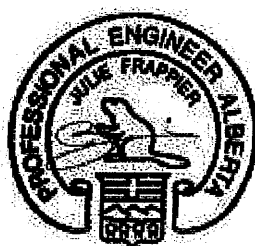
Maximum Floor Spans

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

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



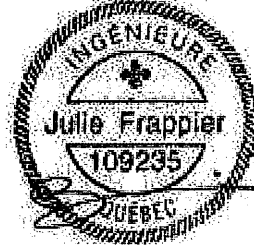
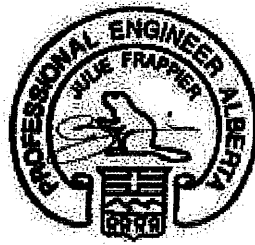
Maximum Floor Spans

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

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

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	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"
14"	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"
	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"
16"	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"
	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"

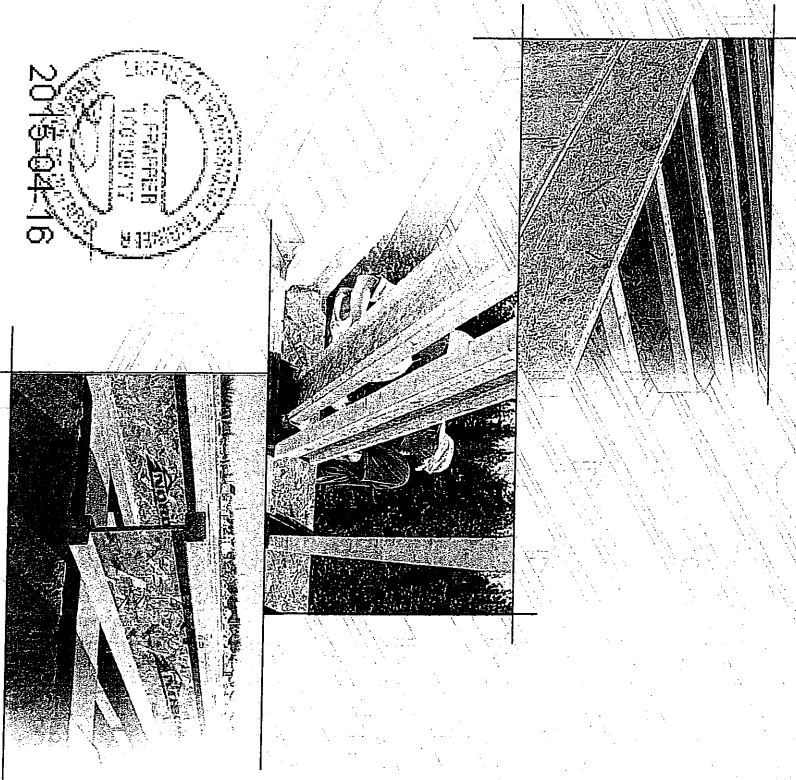
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load 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.

NORDIC

ENGINEERED WOOD



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:

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.



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

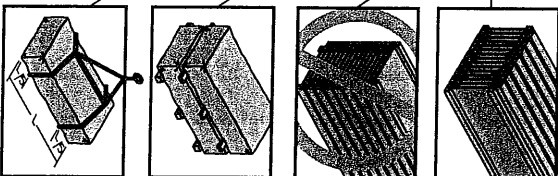


Never stack building materials over unsheathed I-joists. Once sheathed, do not over-stress I-joist with concentrated loads from building materials.

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

STORAGE AND HANDLING GUIDELINES

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



MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

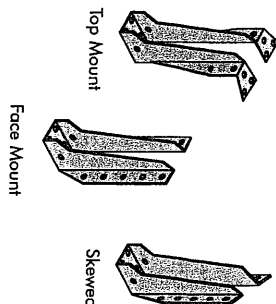
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
NI-20	NI-20	5-11	4-2	3-9	3-5	16-3	15-4	14-10	14-7
NI-20	NI-20	16-11	15-2	14-8	14-9	17-5	16-5	15-10	15-5
NI-20	NI-20	16-11	15-4	14-10	14-11	17-7	16-7	15-11	15-6
NI-20	NI-20	17-11	16-1	15-6	15-7	18-7	17-4	16-9	16-10
NI-20	NI-20	17-3	16-3	15-8	15-9	18-7	17-4	16-9	16-10
NI-20	NI-20	18-1	17-0	16-5	16-6	19-4	18-3	17-8	17-0
NI-20	NI-20	18-4	17-3	16-7	16-9	20-3	19-3	18-8	18-1
NI-20	NI-20	18-5	18-0	17-4	17-5	21-6	20-2	19-7	19-4
NI-20	NI-20	19-5	18-3	17-6	17-7	21-9	20-7	19-8	19-9
NI-20	NI-20	20-2	18-7	17-10	17-11	22-3	20-7	19-8	19-9
NI-20	NI-20	20-4	18-9	17-11	18-0	22-5	20-9	19-10	19-11
NI-20	NI-20	20-5	18-7	17-10	17-11	22-5	20-6	19-8	19-4
NI-20	NI-20	21-2	19-0	18-1	18-2	22-7	20-11	20-0	20-1
NI-20	NI-20	21-10	20-3	19-1	19-2	23-10	22-1	21-1	21-2
NI-20	NI-20	22-5	20-8	19-4	19-5	24-3	22-5	21-5	21-6
NI-20	NI-20	22-7	20-8	19-4	19-5	24-3	22-5	21-5	21-6
NI-20	NI-20	22-7	20-11	19-11	20-0	25-0	23-10	22-10	22-2
NI-20	NI-20	22-5	20-8	19-2	19-10	24-7	22-9	21-9	21-10
NI-20	NI-20	23-6	21-9	20-9	20-10	26-0	24-0	22-11	23-0
NI-20	NI-20	23-11	22-1	21-1	21-2	26-5	24-5	23-4	23-4
NI-20	NI-20	24-5	22-6	21-5	21-6	26-11	24-10	23-9	23-9
NI-20	NI-20	24-5	22-9	21-9	21-10	27-3	25-2	24-0	24-1

CCMC EVALUATION REPORT 13022-R

I-JOIST HANGERS

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



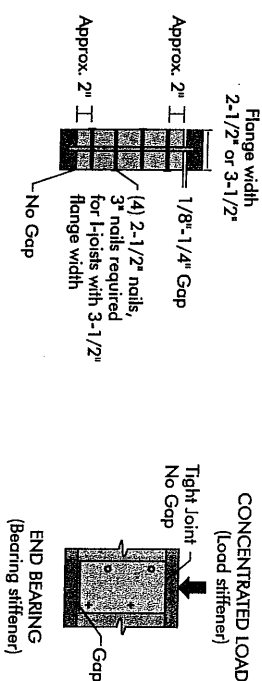
WEB STIFFENERS

RECOMMENDATIONS:

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

SI units conversion: 1 inch = 25.4 mm

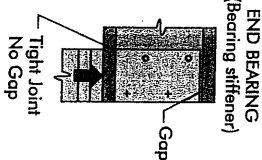
FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

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



NORDIC I-JOIST SERIES

NI-20	NI-40x	NI-60	NI-70	NI-80	NI-90	NI-90x
33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit
5-PF No.2	1950F MSR	2100F MSR	1950F MSR	2100F MSR	2400F MSR	NRG Lumber
OSB 3/4"	OSB 3/4"	OSB 3/4"	OSB 3/4"	OSB 3/4"	OSB 3/4"	OSB 3/4"
1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
9-1/2"	9-1/2"	9-1/2"	9-1/2"	9-1/2"	9-1/2"	9-1/2"
11-7/8"	11-7/8"	11-7/8"	11-7/8"	11-7/8"	11-7/8"	11-7/8"
14"	14"	14"	14"	14"	14"	14"
16"	16"	16"	16"	16"	16"	16"

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

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

2015-04-16

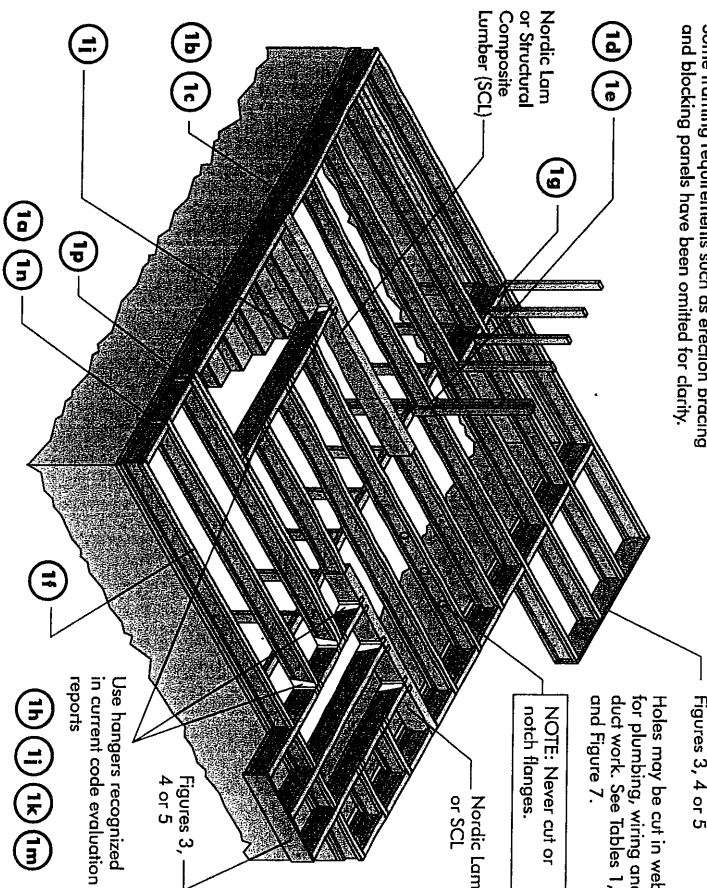
INSTALLING NORDIC I-JOISTS

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 of 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.

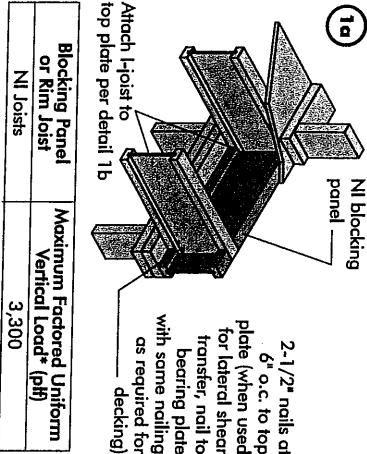
2015-04-16

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

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

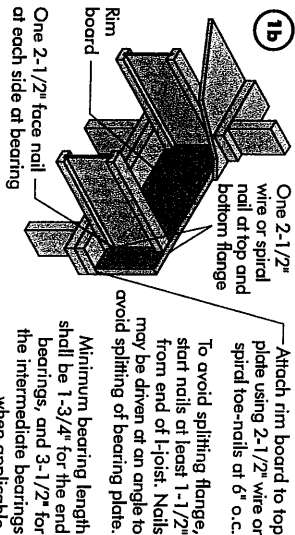


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



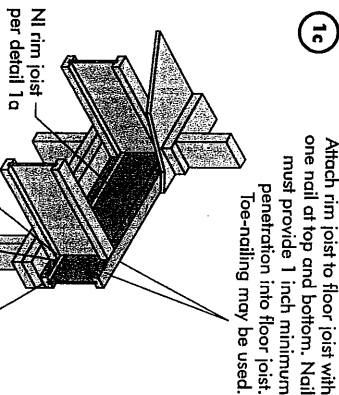
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

*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.



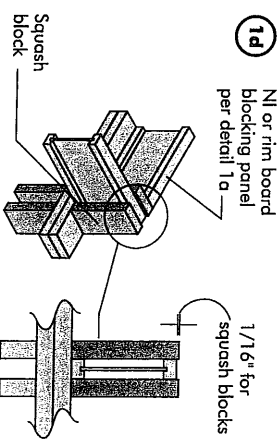
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

*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.



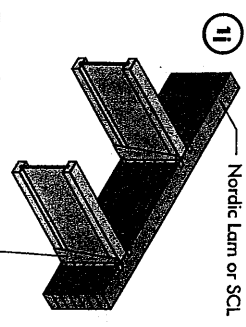
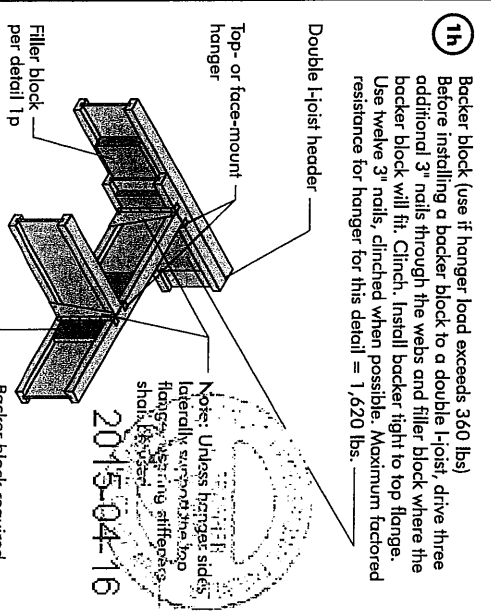
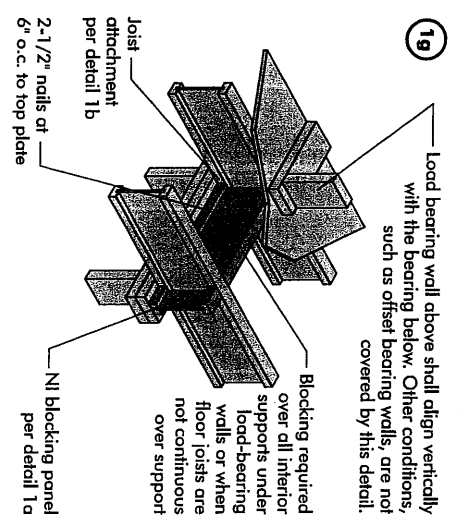
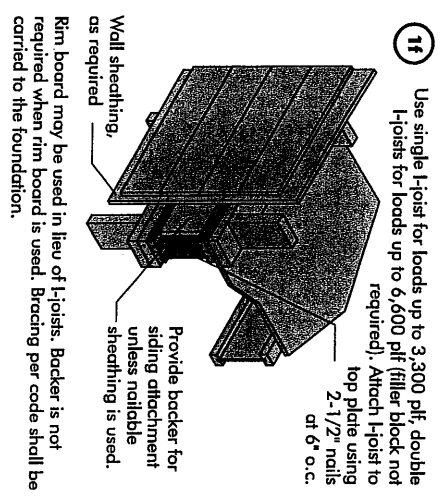
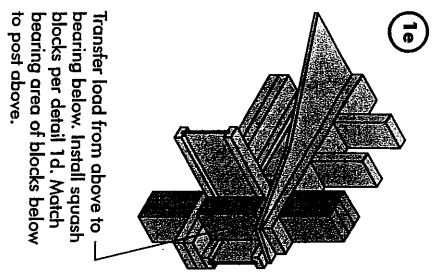
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI rim joist per detail 1a	Minimum 1-3/4" bearing required

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)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,300

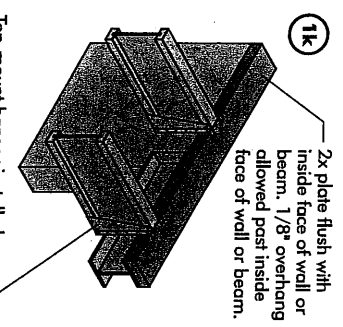
Provide lateral bracing per detail 1a, 1b, or 1c



Top- or face-mount hanger installed per manufacturer's recommendations

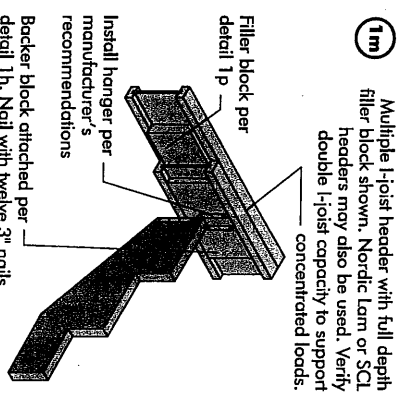
For nailing schedules for multiple beams, see the manufacturer's recommendations.

Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.



Top-mount hanger installed per manufacturer's recommendations

Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

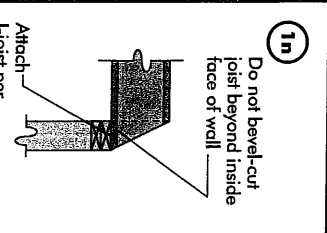


Filler block per detail 1p

Install hanger per manufacturer's recommendations

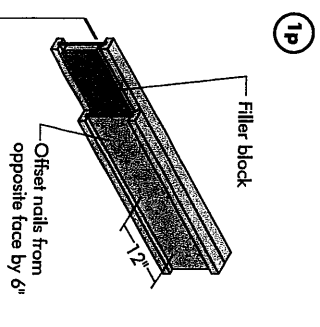
Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

Maximum support capacity = 1,620 lbs.



Attach I-joist per detail 1b

Note: Blocking required at bearing for lateral support, not shown for clarity.



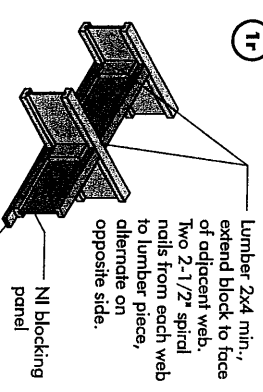
Offset nails from opposite face by 6"

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

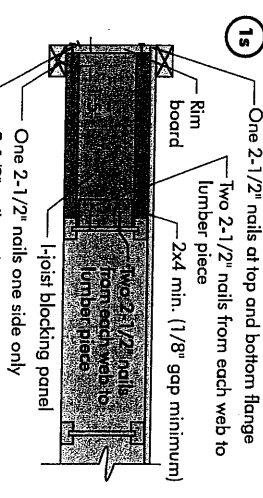
- Notes:
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
 2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
 3. Filler block is required between joists for full length of span.
 4. Nail joists together with two rows 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" 11-7/8" 14" 16"	2-1/8" x 6" 2-1/8" x 8" 2-1/8" x 10" 2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2" 11-7/8" 14" 16"	3" x 6" 3" x 8" 3" x 10" 3" x 12"
3-1/2" x 2"	11-7/8" 14" 16"	3" x 7" 3" x 9" 3" x 11"



Optional: Minimum 1x4 inch strip 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.

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".

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

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

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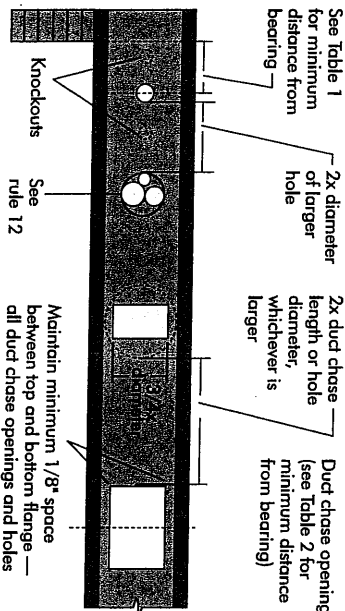
1. N = No reinforcement required.
1. N = Reinforced with 3/4" wood structural panel on one side only.
2. N = Reinforced with 3/4" wood structural panel on both sides, or double 1/2-in. X = Try a deeper joist or closer spacing.
2. Medium design load shall be: 15 psf dead load, 55 psf live load, and 80 psf wind load. Wall load is based on 3.0'-maximum width of door or opening.
3. 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 1/80. Use 12" o.c. requirements for lesser spacing.
4. For larger openings, or multiple 3.0'-wide openings spaced less than 6.0'-o.c., additional joists beneath the opening's cripple studs may be required.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the ridge beam. The supporting wall and the ridge beam. When the roof is framed using the second floor joists, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girders or roof beams may require additional

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 at 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	20	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
12	24	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
14	28	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
16	32	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
18	36	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
20	40	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
22	44	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
24	48	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
26	52	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
28	56	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
30	60	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
32	64	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
34	68	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
36	72	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
38	76	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
40	80	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
42	84	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
44	88	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
46	92	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
48	96	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0
50	100	0-7 1/2	1-0	1-6	2-10	4-8	5-8	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0	6-0

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 placed at less than their full maximum span (see Maximum Floor 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:

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

Where:

D_{reduced} =

L_{actual} =

SAF =

D =

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

Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications (ft. - in.)
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 L_{actual} is greater than 1, use 1 in the above calculation for L_{actual} .

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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	20	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
12	24	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
14	28	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
16	32	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
18	36	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
20	40	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
22	44	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
24	48	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
26	52	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
28	56	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
30	60	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
32	64	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
34	68	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
36	72	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
38	76	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
40	80	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
42	84	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
44	88	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
46	92	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
48	96	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0
50	100	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0	4-0

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



Never drill, cut or notch the flange, or over-cut the web. Holes in webs should be cut with a sharp saw.

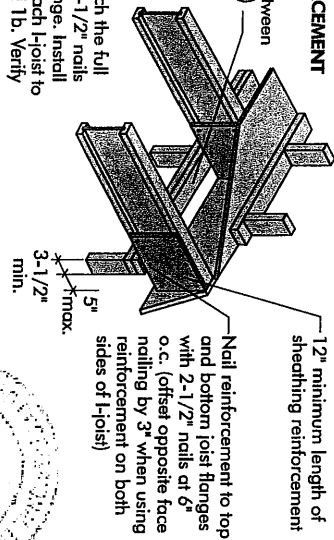
For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another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

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

5c SHEATHING REINFORCEMENT

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

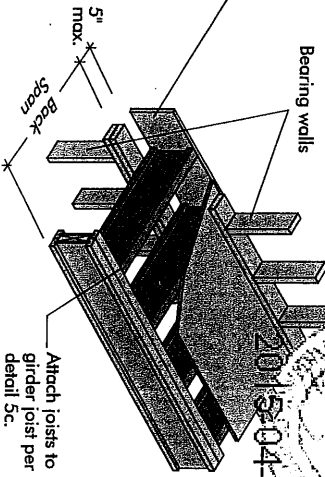
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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



5b SET-BACK DETAIL

Rim board or wood structural panel closure (3/4" 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" 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" nails.

Alternate for opposite side.

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

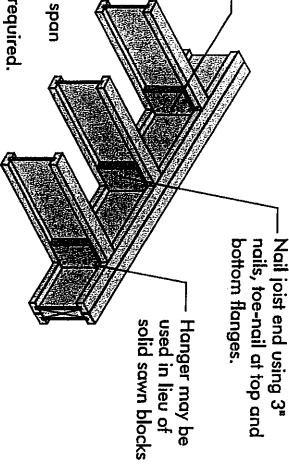
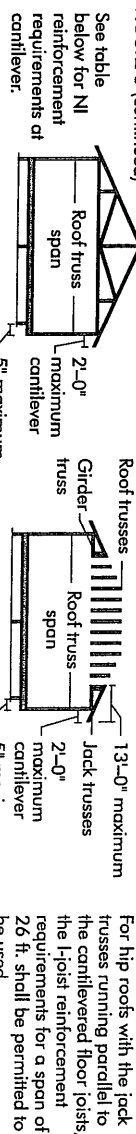


FIGURE 5 (continued)



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)								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	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	1	X	X	X	2	X	X	X	2	X	X	X
	30	1	X	X	X	2	X	X	X	2	X	X	X
	32	2	X	X	X	2	X	X	X	2	X	X	X
	34	2	X	X	X	2	X	X	X	2	X	X	X
	36	2	X	X	X	2	X	X	X	2	X	X	X
11-7/8"	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	2	X	X	X
	30	1	X	X	X	2	X	X	X	2	X	X	X
	32	2	X	X	X	2	X	X	X	2	X	X	X
	34	2	X	X	X	2	X	X	X	2	X	X	X
14"	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	2	X	X	X
	30	1	X	X	X	2	X	X	X	2	X	X	X
	32	2	X	X	X	2	X	X	X	2	X	X	X
	34	2	X	X	X	2	X	X	X	2	X	X	X
16"	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	2	X	X	X
	30	1	X	X	X	2	X	X	X	2	X	X	X
	32	2	X	X	X	2	X	X	X	2	X	X	X
	34	2	X	X	X	2	X	X	X	2	X	X	X

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

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

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

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 9.2.3.5.

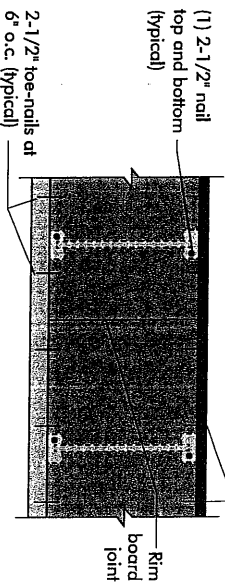
IMPORTANT NOTE:
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

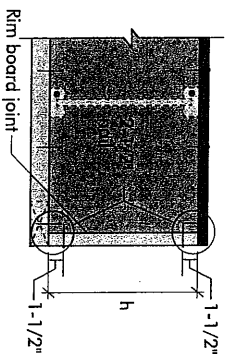
8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim board Joint Between Floor Joists

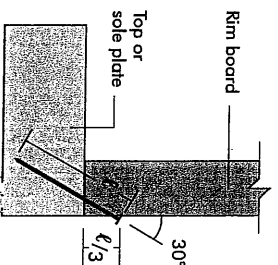
2-1/2" nails at 6" o.c. (typical)



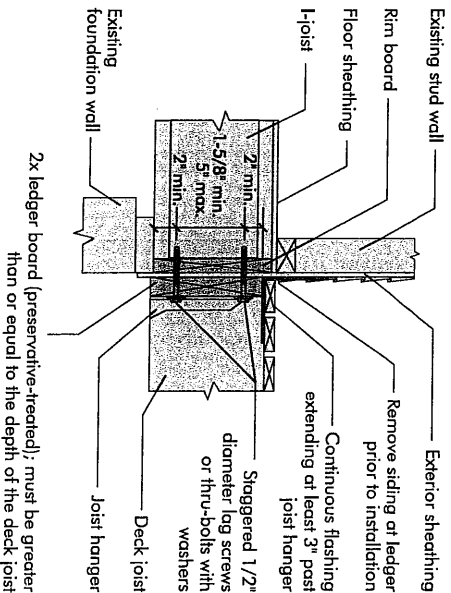
Rim board Joint at Corner



8b TOE-NAIL CONNECTION AT RIM BOARD



8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

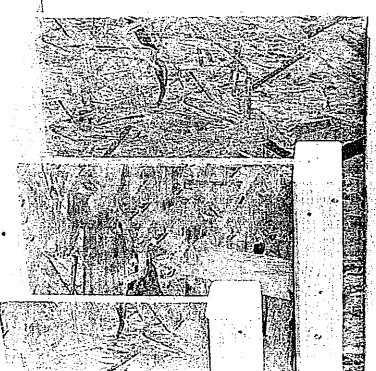


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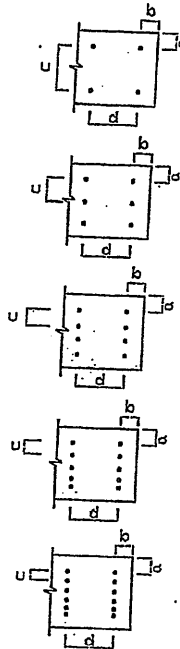
PRODUCT WARRANTY

Changiers warrants that, in accordance with our specifications, Nork products are free from manufacturing defects in material and workmanship.

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



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 TAMN1001.14

STRUCTURAL

COMPONENT ONLY

TO BE USED ONLY
WITH BEAM CALCS
BEARING THE
STAMP BELOW

PROVIDE NAILING

DETAIL # X SEE

DWG #TAMN1001-14