

FROM PLAN DATED: NOV. 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA

MODEL: S32-1-10

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.

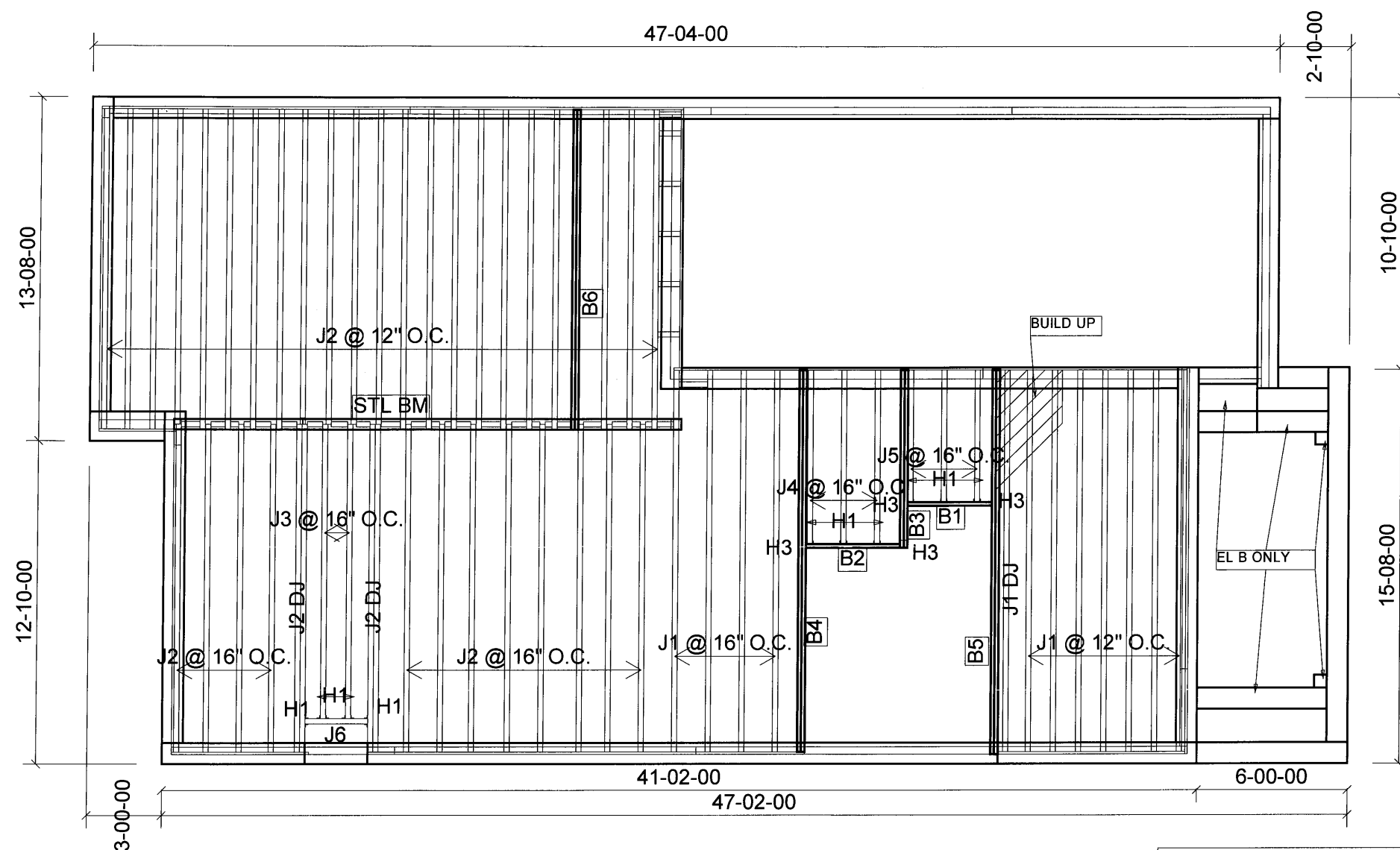
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft²  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 12/09/2017

1st FLOOR

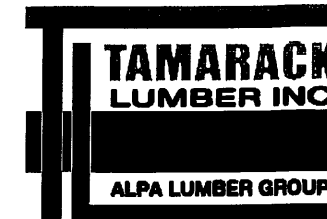
WOD. CON



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	11
J1 DJ	16-00-00	9 1/2" NI-40x	2	2
J2	14-00-00	9 1/2" NI-40x	1	34
J2 DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	2
J4	8-00-00	9 1/2" NI-40x	1	3
J5	6-00-00	9 1/2" NI-40x	1	3
J6	4-00-00	9 1/2" NI-40x	1	1
B4	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

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

Town of Innisfil Certified Model  
04/01/2018 10:17:00 AM kgervais



FROM PLAN DATED: NOV. 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA

MODEL: S32-1-10

ELEVATION: A,B

LOT:  
CITY: INNISFIL, ON

SALESMAN: MARIO  
DESIGNER: CZ  
REVISION: -

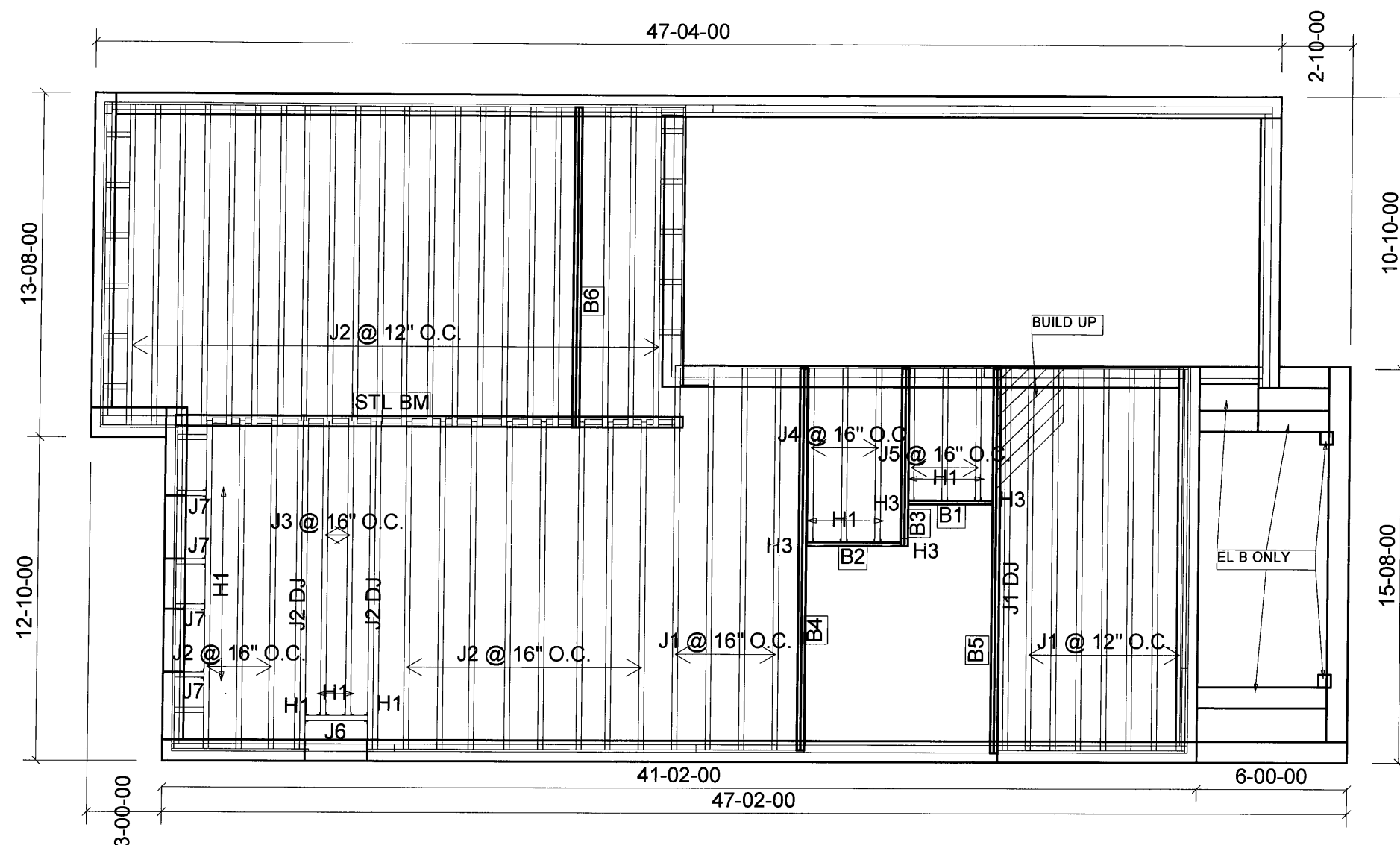
NOTES:  
CERAMIC TILE APPLICATION  
AS PER O.B.C. 9.30.6.  
SQUASH BLOCKS  
2x4 OR 2x6 #2 S.P.F. REQ'D UNDER  
INTERIOR UNIFORM LOAD BEARING  
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MULTIPLE SQUASH BLOCKS REQ'D  
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AT ENDS.  
REFER TO THE NORDIC  
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STORAGE AND INSTALLATION.

LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 12/09/2017

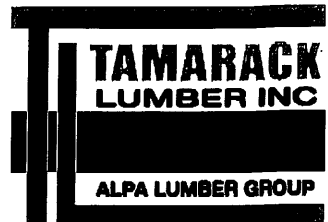
# 1st FLOOR STANDARD



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	11
J1 DJ	16-00-00	9 1/2" NI-40x	2	2
J2	14-00-00	9 1/2" NI-40x	1	32
J2 DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	2
J4	8-00-00	9 1/2" NI-40x	1	3
J5	6-00-00	9 1/2" NI-40x	1	3
J6	4-00-00	9 1/2" NI-40x	1	1
J7	2-00-00	9 1/2" NI-40x	1	4
B4	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

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

Town of Innisfil Certified Model  
04/01/2018 10:17:03 AM kgervais



FROM PLAN DATED: NOV. 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA

MODEL: S32-1-10G

ELEVATION: A,B

LOT:  
CITY: INNISFIL, ON

SALESMAN: MARIO  
DESIGNER: CZ  
REVISION: -

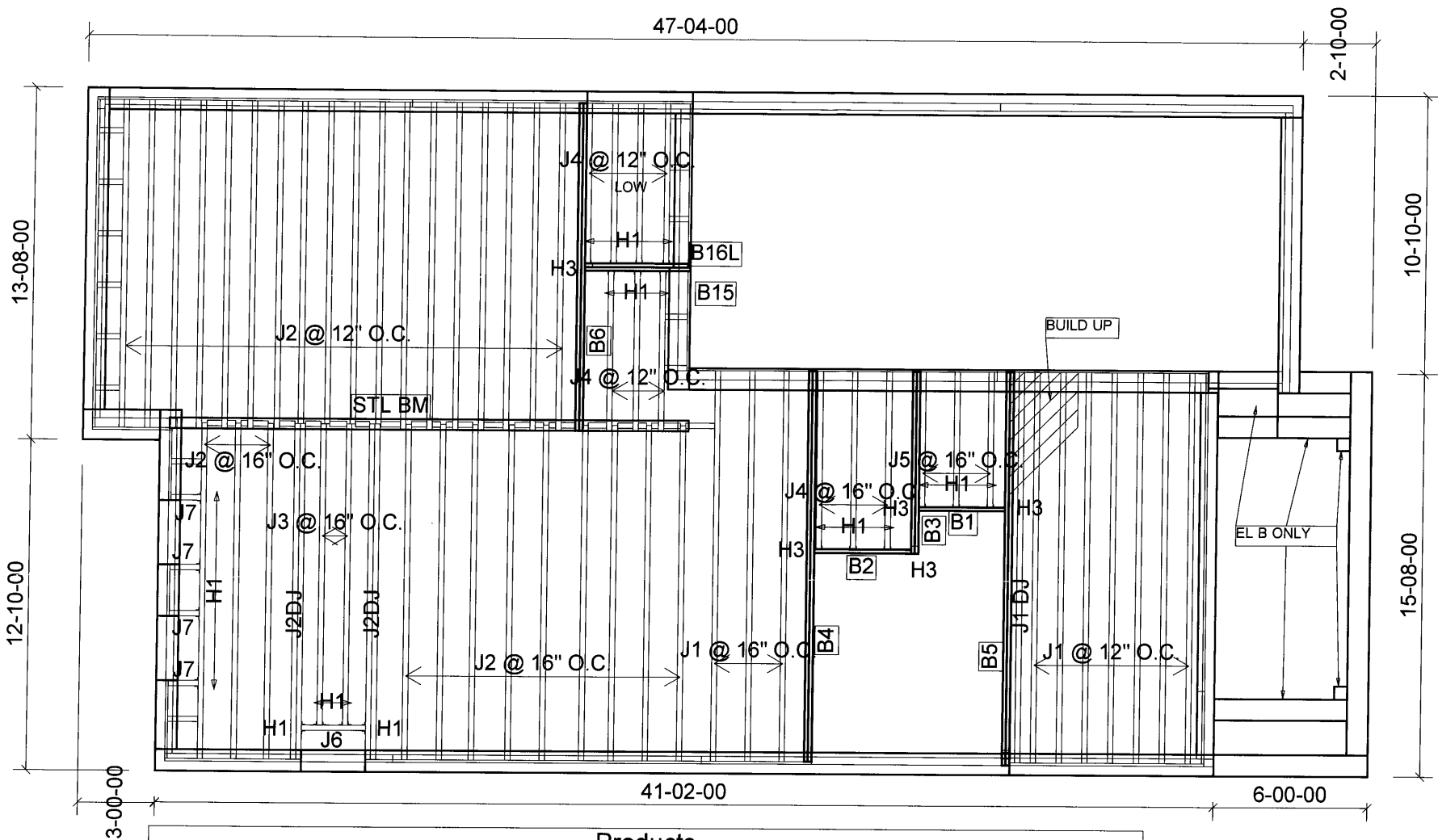
NOTES:  
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SQUASH BLOCKS  
2x4 OR 2x6 #2 S.P.F. REQ'D UNDER  
INTERIOR UNIFORM LOAD BEARING  
WALLS.  
MULTIPLE SQUASH BLOCKS REQ'D  
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AT ENDS.  
REFER TO THE NORDIC  
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LOADING:  
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: 12/09/2017

1st FLOOR  
SUNKEN



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	10
J1 DJ	16-00-00	9 1/2" NI-40x	2	2
J2	14-00-00	9 1/2" NI-40x	1	30
J2DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	2
J4	8-00-00	9 1/2" NI-40x	1	10
J5	6-00-00	9 1/2" NI-40x	1	3
J6	4-00-00	9 1/2" NI-40x	1	1
J7	2-00-00	9 1/2" NI-40x	1	4
B4	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B16L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

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

Town of Innisfil Certified Model  
04/01/2018 10:17:05 AM kgervais

FROM PLAN DATED: NOV. 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA

MODEL: S32-1-10

ELEVATION: A

LOT:  
CITY: INNISFIL, ON

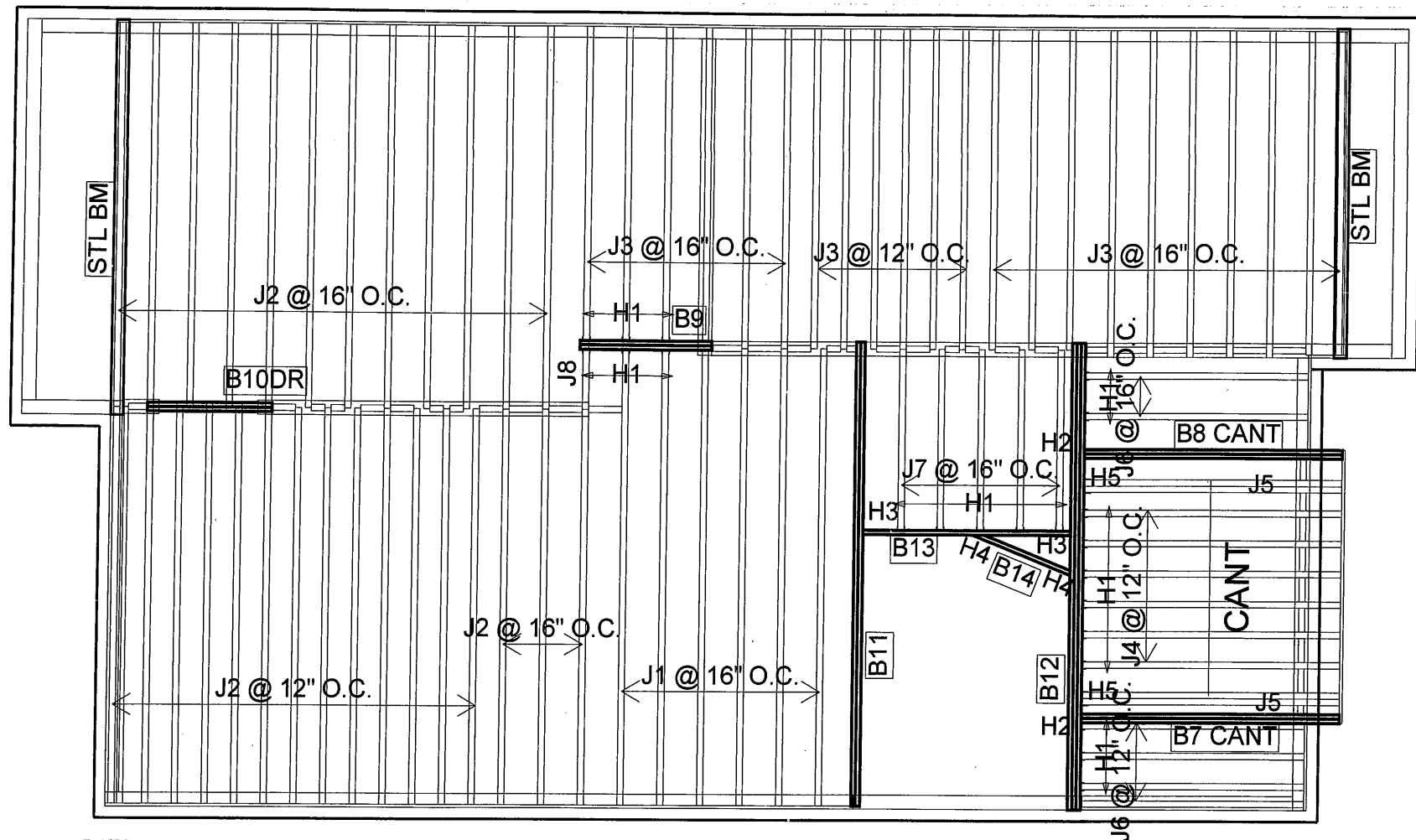
SALESMAN: MARIO  
DESIGNER: CZ  
REVISION: -

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  
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BEARING AND RIMBOARD CLOSURE  
AT ENDS.  
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: 05/09/2017



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	6
J2	14-00-00	9 1/2" NI-40x	1	29
J3	12-00-00	9 1/2" NI-40x	1	22
J4	10-00-00	9 1/2" NI-40x	1	6
J5	10-00-00	9 1/2" NI-40x	2	4
J6	8-00-00	9 1/2" NI-40x	1	6
J7	6-00-00	9 1/2" NI-40x	1	5
J8	2-00-00	9 1/2" NI-40x	1	1
B11	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B7 CANT	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8 CANT	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B10DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
11	H1	IUS2.56/9.5
2	H2	HGUS410
1	H3	HUS1.81/10
1	H3	HUS1.81/10
1	H4	LS 90
1	H4	LS 90
2	H5	HU310-2

Town of Innisfil Certified Model

04/01/2018 10:17:06 AM kgervais

2nd FLOOR



FROM PLAN DATED: NOV. 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA

MODEL: S32-1-10

ELEVATION: B

LOT:  
CITY: INNISFIL, ON

SALESMAN: MARIO  
DESIGNER: CZ  
REVISION: -

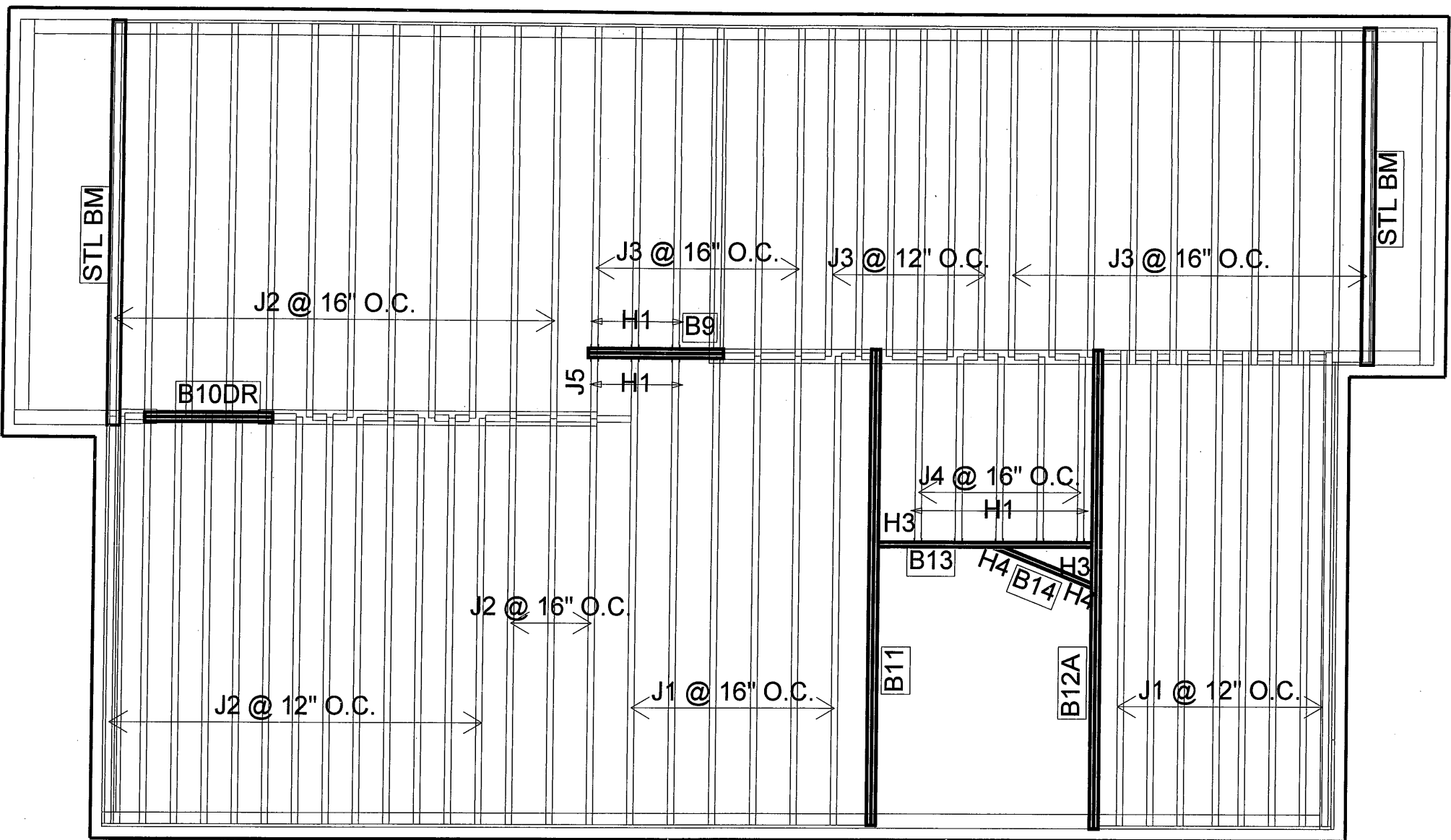
NOTES:  
CERAMIC TILE APPLICATION  
AS PER O.B.C. 9.30.6.  
SQUASH BLOCKS  
2x4 OR 2x6 #2 S.P.F. REQ'D UNDER  
INTERIOR UNIFORM LOAD BEARING  
WALLS.  
MULTIPLE SQUASH BLOCKS REQ'D  
UNDER CONCENTRATED LOADS.  
CANTILEVERED JOISTS  
REQUIRE I-JOIST BLOCKING ALONG  
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AT 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: 05/09/2017

2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	14
J2	14-00-00	9 1/2" NI-40x	1	29
J3	12-00-00	9 1/2" NI-40x	1	22
J4	6-00-00	9 1/2" NI-40x	1	5
J5	2-00-00	9 1/2" NI-40x	1	1
B11	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12A	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B10DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
2	H3	HUS1.81/10
1	H4	LS 90
1	H4	LS 90

Town of Innisfil Certified Model

04/01/2018 10:17:08 AM kgervais



# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i1849)

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

September 5, 2017 09:20:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B1(i1849)

Specifier:

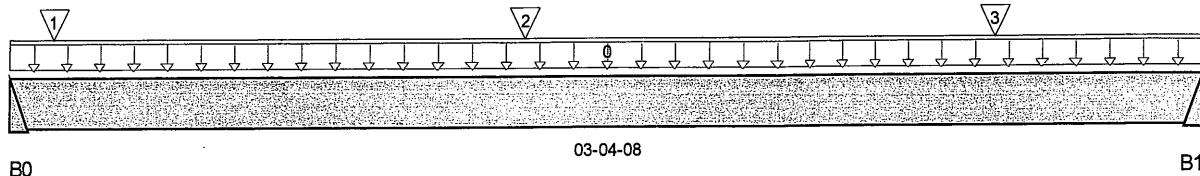
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:23:54 AM kgervais



Total Horizontal Product Length = 03-04-08

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

Bearing	Live	Dead	Snow	Wind
B0	586 / 0	301 / 0		
B1	564 / 0	290 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	03-04-08	240	120			n/a
1	J5(i1860)	Conc. Pt. (lbs)	L	00-01-08	00-01-08	84	42			n/a
2	J5(i1845)	Conc. Pt. (lbs)	L	01-05-08	01-05-08	140	70			n/a
3	J5(i1857)	Conc. Pt. (lbs)	L	02-09-08	02-09-08	116	58			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	917 ft-lbs	12,704 ft-lbs	7.2%	1	01-06-04
End Shear	597 lbs	5,785 lbs	10.3%	1	02-05-00
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	01-08-06
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	01-08-06
Max Defl.	0.005"	n/a	n/a	4	01-08-06
Span / Depth	4	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"	1,256 lbs	n/a	29.4%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	1,208 lbs	n/a	28.3%	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. TAM 4542B-17  
STRUCTURAL  
COMPONENT ONLY





# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B2(i1846)

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

September 5, 2017 09:20:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B2(i1846)

Specifier:

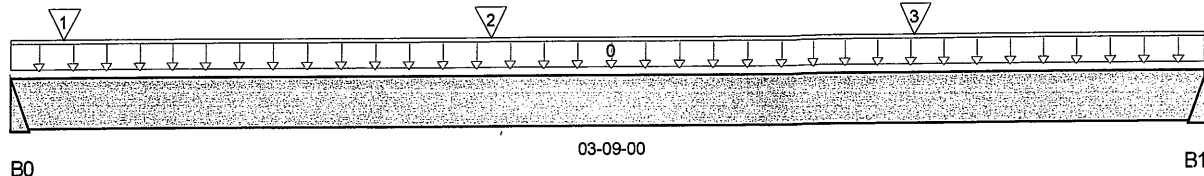
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:23:58 AM kgervais



Total Horizontal Product Length = 03-09-00

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

Bearing	Live	Dead	Snow	Wind
B0	713 / 0	365 / 0		
B1	656 / 0	337 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	03-09-00	240	120			n/a
1	J4(i1864)	Conc. Pt. (lbs)	L	00-02-00	00-02-00	114	57			n/a
2	J4(i1847)	Conc. Pt. (lbs)	L	01-06-00	01-06-00	185	92			n/a
3	J4(i1859)	Conc. Pt. (lbs)	L	02-10-00	02-10-00	170	85			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,242 ft-lbs	12,704 ft-lbs	9.8%	1	01-08-15
End Shear	891 lbs	5,785 lbs	15.4%	1	02-09-08
Total Load Defl.	L/999 (0.008")	n/a	n/a	4	01-10-06
Live Load Defl.	L/999 (0.005")	n/a	n/a	5	01-10-06
Max Defl.	0.008"	n/a	n/a	4	01-10-06
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 1-3/4"	1,526 lbs	n/a	35.7%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	1,405 lbs	n/a	32.9%	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

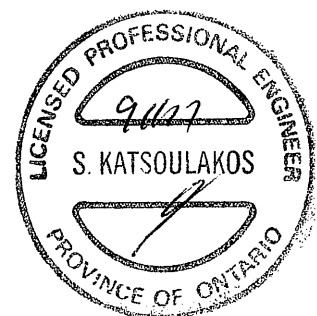
**CONFORMS TO OBC 2012**

DWG NO. TAM45429-17  
STRUCTURAL  
COMPONENT ONLY

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





# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B3(i1862)

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

September 5, 2017 09:20:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B3(i1862)

Specifier:

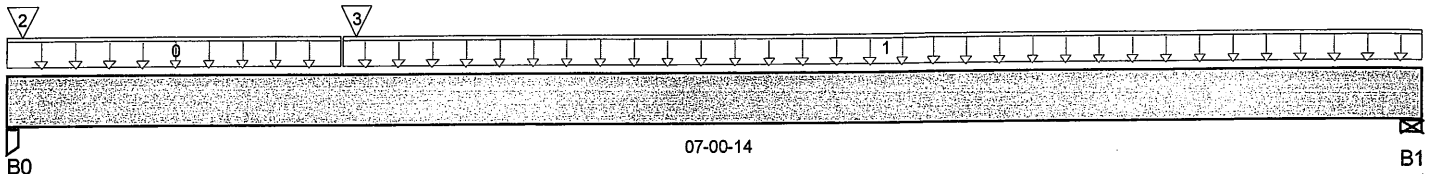
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:23:59 AM kgervais



Total Horizontal Product Length = 07-00-14

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,195 / 0	646 / 0		
B1, 4-3/8"	231 / 0	152 / 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	01-08-00	24	12			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	01-08-00	07-00-14	27	13			n/a
2	B2(i1846)	Conc. Pt. (lbs)	L	00-00-14	00-00-14	652	335			n/a
3	B1(i1849)	Conc. Pt. (lbs)	L	01-08-14	01-08-14	589	302			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,721 ft-lbs	25,408 ft-lbs	6.8%	1	01-08-14
End Shear	1,134 lbs	11,571 lbs	9.8%	1	01-01-00
Total Load Defl.	L/999 (0.016")	n/a	n/a	4	03-02-02
Live Load Defl.	L/999 (0.01")	n/a	n/a	5	03-02-02
Max Defl.	0.016"	n/a	n/a	4	03-02-02
Span / Depth	8.3	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 3-1/2"	2,599 lbs	26.1%	17.4%	Unspecified
B1 Wall/Plate	4-3/8" x 3-1/2"	536 lbs	6.5%	2.9%	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**



P612





Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B3(i1862)**

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

September 5, 2017 09:20:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

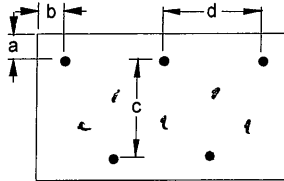
Description: Designs\Flush Beams\Basment\Flush Beams\B3(i1862)

Specifier:

Designer:

Company:

Misc:

**Connection Diagram**

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

Calculated Side Load = 197.5 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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**Town of Innisfil Certified (Code)**

04/01/2018 10:24:01 AM koervais



DW000.TAM45430-17  
 STRUCTURAL  
 COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i1866)

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

September 5, 2017 09:20:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmd

Description: Designs\Flush Beams\Basement\Flush Beams\B4(i1866)

Specifier:

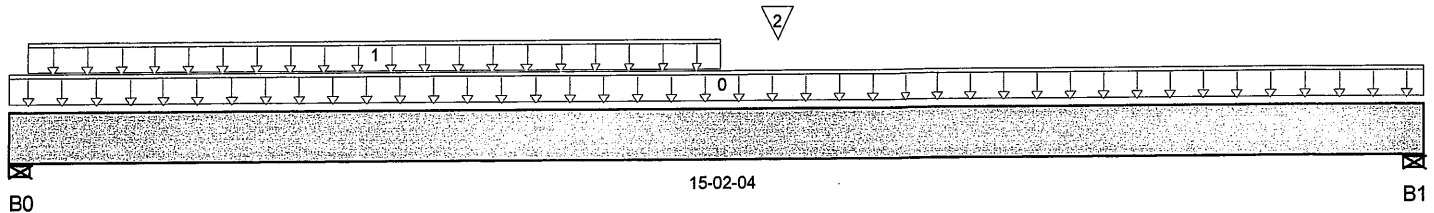
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:02 AM kgervais



Total Horizontal Product Length = 15-02-04

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

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	523 / 0	668 / 0		
B1, 4-3/8"	595 / 0	489 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	15-02-04	26	13			n/a
1	User Load	Unf. Lin. (lb/ft)	L	00-02-06	07-07-02		60			n/a
2	B2(i1846)	Conc. Pt. (lbs)	L	08-02-04	08-02-04	717	367			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	8,396 ft-lbs	25,408 ft-lbs	33%	1	08-02-04
End Shear	1,494 lbs	11,571 lbs	12.9%	1	00-11-14
Total Load Defl.	L/424 (0.417")	0.737"	56.6%	4	07-07-02
Live Load Defl.	L/805 (0.22")	0.492"	44.7%	5	07-08-11
Max Defl.	0.417"	n/a	n/a	4	07-07-02
Span / Depth	18.6	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	2-3/8" x 3-1/2"	1,621 lbs	36.5%	16%	Unspecified
B1 Wall/Plate	4-3/8" x 3-1/2"	1,504 lbs	18.4%	8.1%	Unspecified

## Notes

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

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

Calculations assume member is fully braced.

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

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

**CONFORMS TO OBC 2012**

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9





Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement Flush Beams\B4(i1866)**

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

September 5, 2017 09:20:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

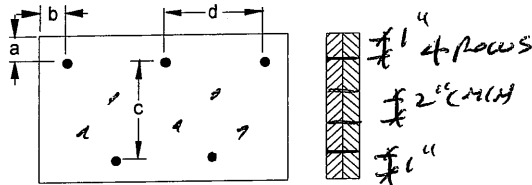
Description: Designs\Flush Beams\Basement\Flush Beams\B4(i1866)

Specifier:

Designer:

Company:

Msc:

**Connection Diagram**

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

Calculated Side Load = 101.0 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: Nails

3 1/2" ARDOX SPIRAL

**Disclosure**

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**Town of Innisfil Certified Model**

04/01/2018 10:24:03 AM kopyais



p62

DWG NO. TAM45431-17  
 STRUCTURAL  
 COMPONENT ONLY



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B5(i1853)**

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

September 5, 2017 09:20:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmd

Description: Designs\Flush Beams\Basement\Flush Beams\B5(i1853)

Specifier:

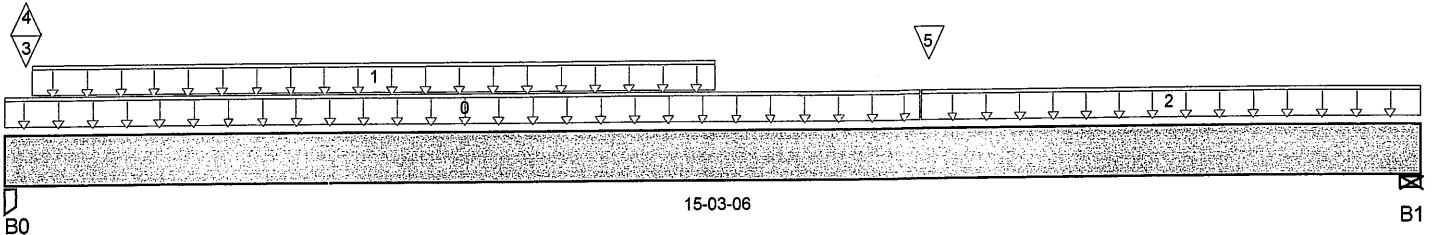
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:04 AM kgervais



Total Horizontal Product Length = 15-03-06

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

Bearing	Live	Dead	Snow	Wind
B0, 7"	1,074 / 34	1,243 / 0	0 / 72	
B1, 4-3/8"	479 / 0	423 / 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	09-10-08	12	6			n/a
1	User Load	Unf. Lin. (lb/ft)	L	00-03-08	07-07-11		60			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	09-10-08	15-03-06	17	9			n/a
3	E11(i2010)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	784	685	-72		n/a
4	E11(i2010)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	-34				n/a
5	B1(i1849)	Conc. Pt. (lbs)	L	09-11-06	09-11-06	561	289			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,579 ft-lbs	25,408 ft-lbs	22%	1	09-11-06
End Shear	1,219 lbs	11,571 lbs	10.5%	1	14-01-08
Total Load Defl.	L/625 (0.277")	0.723"	38.4%	56	08-00-12
Live Load Defl.	L/1,300 (0.133")	0.482"	27.7%	83	08-02-06
Max Defl.	0.277"	n/a	n/a	56	08-00-12
Span / Depth	18.3	n/a	n/a		00-00-00

**Bearing Supports**

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	7" x 3-1/2"	3,166 lbs	24.2%	10.6%	Unspecified
B1 Wall/Plate	4-3/8" x 3-1/2"	1,247 lbs	15.2%	6.7%	Unspecified

**Notes**





Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement Flush Beams\B5(i1853)**

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

September 5, 2017 09:20:47

## BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B5(i1853)

Specifier:

Designer:

Company:

Msc:

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.

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**

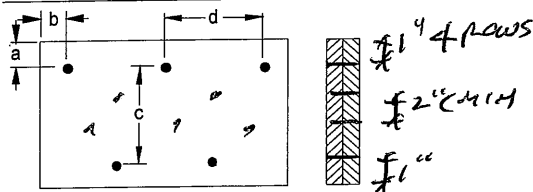
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Town of Innisfil Certified Model

04/01/2018 10:24:06 AM

**CONFORMS TO OBC 2012****Connection Diagram**

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

Calculated Side Load = 78.7 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: Nails

3 1/2" ARDOX SPIRAL



p22

DWG NO. TAM 4543217  
STRUCTURAL  
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B6(i2130)

Specifier:

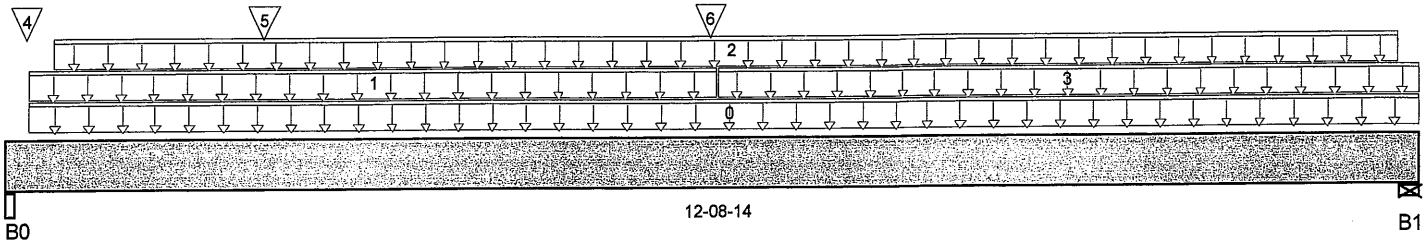
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:07 AM kgervais



12-08-14

Total Horizontal Product Length = 12-08-14

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

Bearing	Live	Dead	Snow	Wind
B0, 5"	1,254 / 0	1,165 / 0		
B1, 2-3/8"	411 / 0	651 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-08	12-08-14	16	8			n/a
1	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-08	06-04-08	23	12			n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-05-02	12-06-10		60			n/a
3	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	06-04-08	12-08-14	6	3			n/a
4	5(i839)	Conc. Pt. (lbs)	L	00-02-04	00-02-04	105	76			n/a
5	PBO3(i868)	Conc. Pt. (lbs)	L	02-03-12	02-03-12	993	598			n/a
6	B15(i1843)	Conc. Pt. (lbs)	L	06-03-10	06-03-10	185	101			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,432 ft-lbs	25,408 ft-lbs	25.3%	1	05-03-10
End Shear	2,986 lbs	11,571 lbs	25.8%	1	01-02-08
Total Load Defl.	L/581 (0.253")	0.612"	41.3%	4	06-02-02
Live Load Defl.	L/999 (0.117")	n/a	n/a	5	06-00-10
Max Defl.	0.253"	n/a	n/a	4	06-02-02
Span / Depth	15.5	n/a	n/a		00-00-00

### Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	5" x 3-1/2"	3,337 lbs	35.7%	15.6%	Unspecified
B1 Wall/Plate	2-3/8" x 3-1/2"	1,431 lbs	32.2%	14.1%	Unspecified

### Notes



pg 1/2



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement Flush Beams\B6(i2130)**

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

September 5, 2017 09:20:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B6(i2130)

Specifier:

Designer:

Company:

Misc:

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

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

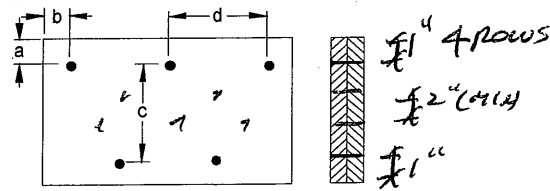
Calculations assume member is fully braced.

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 = 7-1/2"  
 b minimum = 3" d = 4"

Calculated Side Load = 31.7 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: Nails

3 1/2" ARDOX SPIRAL

**Disclosure**

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DWG NO. TAM 45433-17  
 STRUCTURAL  
 COMPONENT ONLY



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B7 CANT(i

Specifier:

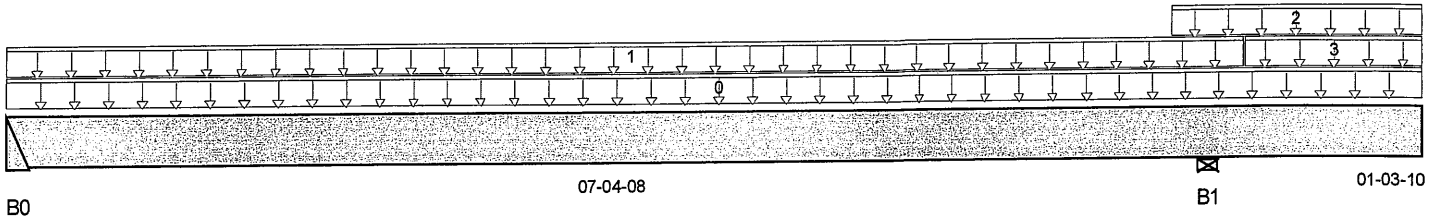
Designer:

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:09 AM kgervais



Total Horizontal Product Length = 08-08-02

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

Bearing	Live	Dead	Snow	Wind
B0	67 / 6	53 / 0	0 / 13	
B1, 5-1/2"	146 / 0	308 / 0	183 / 0	

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-08-02	13	6			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-07-04	5	2			n/a
2	User Load	Unf. Lin. (lb/ft)	L	07-01-12	08-08-02	33	130	111		n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-07-04	08-08-02	6	3			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	259 ft-lbs	25,408 ft-lbs	1%	44	03-03-13
Neg. Moment	-321 ft-lbs	-25,408 ft-lbs	1.3%	49	07-04-08
End Shear	118 lbs	11,571 lbs	1%	44	00-11-08
Cont. Shear	168 lbs	11,571 lbs	1.4%	16	06-04-04
Total Load Defl.	L/999 (0.003")	n/a	n/a	107	03-06-14
Live Load Defl.	L/999 (0.002")	n/a	n/a	159	03-08-14
Total Neg. Defl.	2xL/1,998 (-0.001")	n/a	n/a	107	08-08-02
Max Defl.	0.003"	n/a	n/a	107	03-06-14
Span / Depth	9.2	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"	166 lbs	n/a	1.9%	HGUS410
B1 Wall/Plate	5-1/2" x 3-1/2"	732 lbs	7.1%	3.1%	Unspecified

## Notes





BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B7 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.

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

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

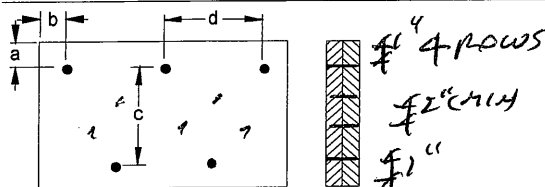
CONFORMS TO OBC 2012

### Disclosure

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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 45434-17  
STRUCTURAL  
COMPONENT ONLY

**BC CALC® Design Report**


Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B8 CANT(i:

Specifier:

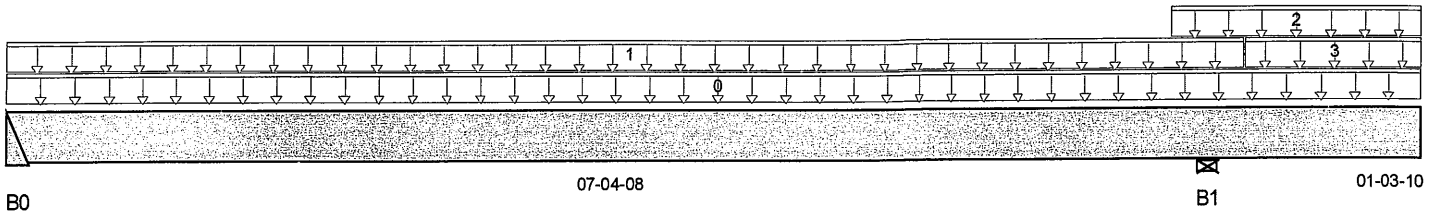
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:13 AM kgervais



Total Horizontal Product Length = 08-08-02

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

Bearing	Live	Dead	Snow	Wind
B0	172 / 7	104 / 0	0 / 13	
B1, 5-1/2"	264 / 0	367 / 0	183 / 0	

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-08-02	21	11			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-07-04	25	12			n/a
2	User Load	Unf. Lin. (lb/ft)	L	07-01-12	08-08-02	33	130	111		n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-07-04	08-08-02	6				n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	647 ft-lbs	25,408 ft-lbs	2.5%	44	03-06-14
Neg. Moment	-329 ft-lbs	-25,408 ft-lbs	1.3%	49	07-04-08
End Shear	283 lbs	11,571 lbs	2.4%	44	00-11-08
Cont. Shear	325 lbs	11,571 lbs	2.8%	16	06-04-04
Total Load Defl.	L/999 (0.008")	n/a	n/a	107	03-07-14
Live Load Defl.	L/999 (0.006")	n/a	n/a	159	03-08-14
Total Neg. Defl.	2xL/1,998 (-0.004")	n/a	n/a	107	08-08-02
Max Defl.	0.008"	n/a	n/a	107	03-07-14
Span / Depth	9.2	n/a	n/a		00-00-00

**Bearing Supports**

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0	2" x 3-1/2"	388 lbs	n/a	4.5%	HGUS410
B1	5-1/2" x 3-1/2"	946 lbs	9.2%	4%	Unspecified

**Notes**


BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B8 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.

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

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

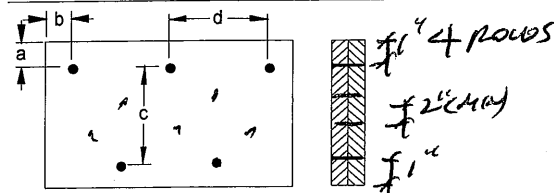
**CONFORMS TO OBC 2012**

**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**

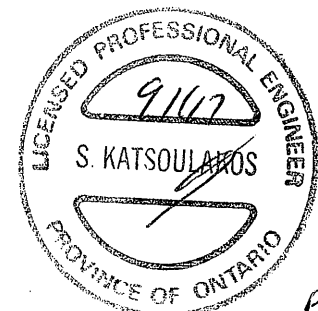


a minimum = 4" c = 7-1/2"  
b minimum = 3" d = 6"

Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



DWG NO. TAM45435-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B9(i1998)

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

September 5, 2017 09:20:48

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B9(i1998)

Specifier:

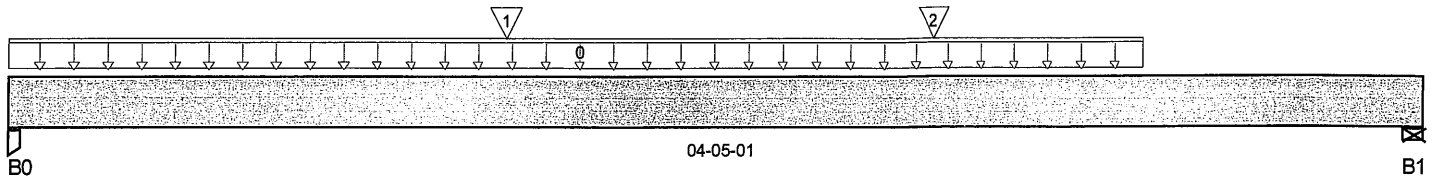
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:16 AM kgervais



Total Horizontal Product Length = 04-05-01

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	974 / 0	508 / 0		
B1, 5-1/2"	705 / 0	374 / 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	03-06-09	248	124			n/a
1	J1(i1997)	Conc. Pt. (lbs)	L	01-06-09	01-06-09	400	200			n/a
2	J1(i2005)	Conc. Pt. (lbs)	L	02-10-09	02-10-09	400	200			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,823 ft-lbs	25,408 ft-lbs	7.2%	1	01-06-09
End Shear	1,510 lbs	11,571 lbs	13%	1	03-02-01
Total Load Defl.	L/999 (0.007")	n/a	n/a	4	02-01-09
Live Load Defl.	L/999 (0.004")	n/a	n/a	5	02-01-09
Max Defl.	0.007"	n/a	n/a	4	02-01-09
Span / Depth	4.8	n/a	n/a		00-00-00

## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 3-1/2"	2,097 lbs	21.1%	14%	Unspecified
B1 Wall/Plate	5-1/2" x 3-1/2"	1,525 lbs	14.8%	6.5%	Unspecified

## Notes

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

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

Calculations assume 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







Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B9(i1998)**

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

September 5, 2017 09:20:48

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

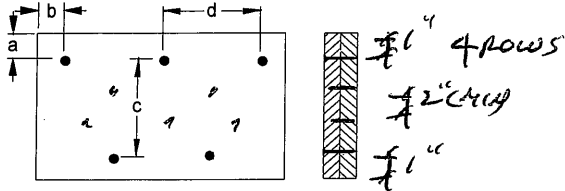
Description: Designs\Flush Beams\1st Floor\Flush Beams\B9(i1998)

Specifier:

Designer:

Company:

Misc:

**Connection Diagram**

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

Calculated Side Load = 411.9 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

**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 4543617  
 STRUCTURAL  
 COMPONENT ONLY

**BC CALC® Design Report**


Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B10

Specifier:

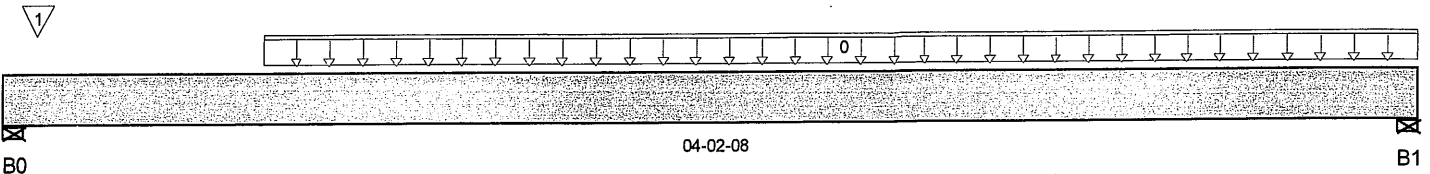
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:19 AM kgervais



Total Horizontal Product Length = 04-02-08

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

Bearing	Live	Dead	Snow	Wind
B0, 4-3/4"	1,235 / 0	637 / 0		
B1, 5-3/4"	1,316 / 0	677 / 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	00-09-04	04-02-08	585	292			n/a
1	-	Conc. Pt. (lbs)	L	00-01-04	00-01-04	540	270			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,626 ft-lbs	25,408 ft-lbs	6.4%	1	02-01-04
End Shear	1,448 lbs	11,571 lbs	12.5%	1	02-11-04
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	02-00-12
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	02-00-12
Max Defl.	0.005"	n/a	n/a	4	02-00-12
Span / Depth	4.4	n/a	n/a		00-00-00

**Bearing Supports**

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/4" x 3-1/2"	2,650 lbs	19.6%	13.1%	Unspecified
B1 Wall/Plate	5-3/4" x 3-1/2"	2,820 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: 00-02-12, Bottom: 00-02-12.

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**


p6 1/2

**DWG NO. TAM 45437-17  
STRUCTURAL  
COMPONENT ONLY**

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

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

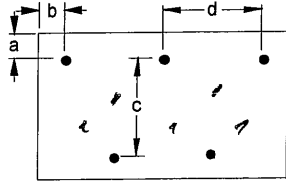
Specifier:

Designer:

Company:

Misc:

### Connection Diagram



*Handwritten notes:*  
 $\#1^4$  4 rows  
 $\#2^4$  4 rows  
 $\#1^4$

a minimum = 4"    c = 7-1/2"  
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

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*Handwritten signature:* 9/11/17

**DWG NO. TAM 45437-17**  
**STRUCTURAL**  
**COMPONENT ONLY**

**BC CALC® Design Report**


Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i2004)

Specifier:

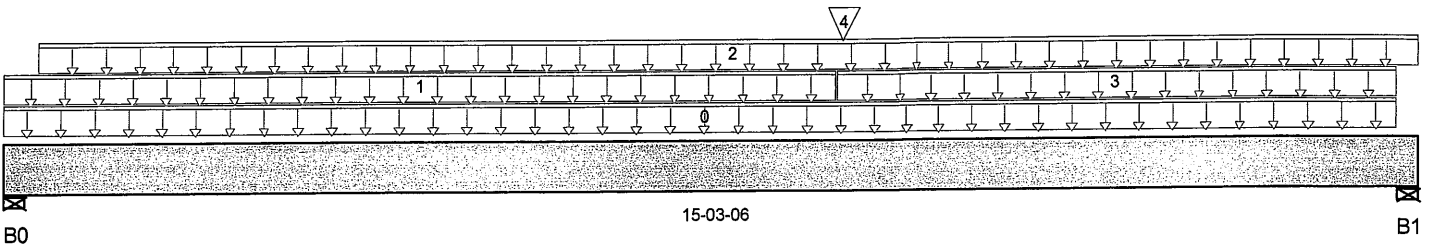
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:21 AM kgervais



Total Horizontal Product Length = 15-03-06

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

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	662 / 0	846 / 0		
B1, 5-1/2"	939 / 0	1,017 / 0		

**Load Summary**

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0 FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	15-00-10	25	12			n/a
1 FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-11-06	6	3			n/a
2 User Load	Unf. Lin. (lb/ft)	L	00-04-06	15-03-06		60			n/a
3 FC2 Floor Material	Unf. Lin. (lb/ft)	L	08-11-06	15-00-10	29	14			n/a
4 B13(i2037)	Conc. Pt. (lbs)	L	09-00-04	09-00-04	1,003	522			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	11,954 ft-lbs	25,408 ft-lbs	47.1%	1	09-00-04
End Shear	2,454 lbs	11,571 lbs	21.2%	1	14-00-06
Total Load Defl.	L/301 (0.582")	0.729"	79.9%	4	07-11-11
Live Load Defl.	L/601 (0.291")	0.486"	59.9%	5	07-11-11
Max Defl.	0.582"	n/a	n/a	4	07-11-11
Span / Depth	18.4	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/8" x 3-1/2"	2,051 lbs	25.1%	11%	Unspecified
B1 Wall/Plate	5-1/2" x 3-1/2"	2,679 lbs	26.1%	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.

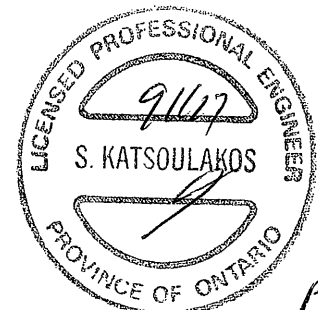
Resistance Factor phi has been applied to all presented results per CSA O86.

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

**CONFORMS TO OBC 2012**

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9


 DWG NO. TAM 4543B-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: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i2004)

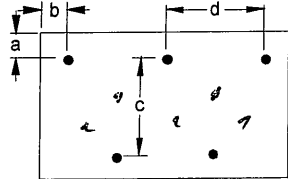
Specifier:

Designer:

Company:

Misc:

### Connection Diagram



*Handwritten notes:*  
 $\frac{1}{4}$  rows  
 $\frac{1}{2}$  (4/4)  
 $\frac{1}{4}$

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

Calculated Side Load = 141.2 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

*Handwritten note:* 3 1/2" ARDOX SPIRAL

### Disclosure

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*Handwritten signature:* puz

DWG NO. TAM 45438-17  
 STRUCTURAL  
 COMPONENT ONLY



# Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B12(i2007)

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

September 5, 2017 09:20:49

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i2007)

Specifier:

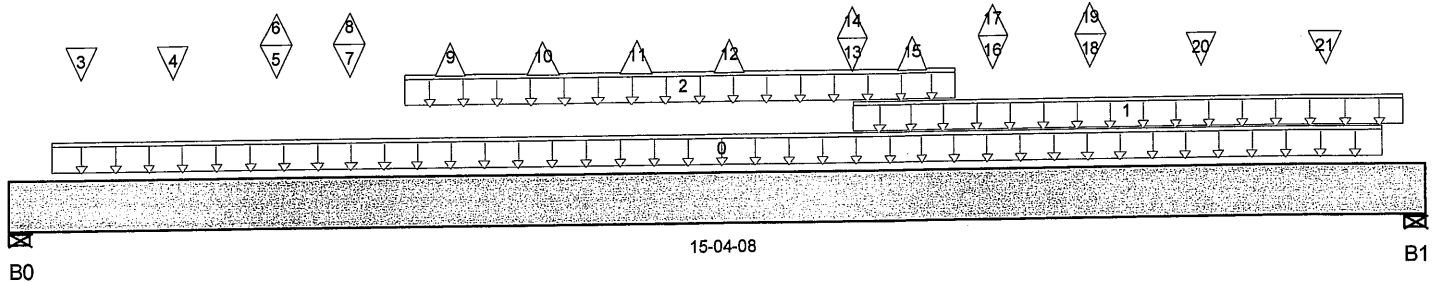
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:23 AM kgervais



Total Horizontal Product Length = 15-04-08

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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	1,469 / 65	1,246 / 0	0 / 138	
B1, 5-1/2"	1,616 / 57	1,330 / 0	0 / 120	

## 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	00-05-08	14-11-00		60			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	09-01-06	15-01-12	12	6			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	04-03-04	10-03-04	176	85			n/a
3	J6(i2152)	Conc. Pt. (lbs)	L	00-09-04	00-09-04	127	64			n/a
4	J6(i2161)	Conc. Pt. (lbs)	L	01-09-04	01-09-04	162	81			n/a
5	-	Conc. Pt. (lbs)	L	02-10-08	02-10-08	175	104	-15		n/a
6	-	Conc. Pt. (lbs)	L	02-10-08	02-10-08	-6				n/a
7	J5(i2159)	Conc. Pt. (lbs)	L	03-08-00	03-08-00	144		-114		n/a
8	J5(i2159)	Conc. Pt. (lbs)	L	03-08-00	03-08-00	-39				n/a
9	J4(i2145)	Conc. Pt. (lbs)	L	04-09-04	04-09-04	-6				n/a
10	J4(i2166)	Conc. Pt. (lbs)	L	05-09-04	05-09-04	-5				n/a
11	J4(i2165)	Conc. Pt. (lbs)	L	06-09-04	06-09-04	-5				n/a
12	J4(i2164)	Conc. Pt. (lbs)	L	07-09-04	07-09-04	-5				n/a
13	-	Conc. Pt. (lbs)	L	09-01-06	09-01-06	676	359			n/a
14	-	Conc. Pt. (lbs)	L	09-01-06	09-01-06	-5				n/a
15	J4(i2137)	Conc. Pt. (lbs)	L	09-09-04	09-09-04	-5				n/a
16	J5(i2155)	Conc. Pt. (lbs)	L	10-08-00	10-08-00	153	25	-114		n/a
17	J5(i2155)	Conc. Pt. (lbs)	L	10-08-00	10-08-00	-39				n/a
18	B8 CANT(i2158)	Conc. Pt. (lbs)	L	11-08-12	11-08-12	179	106	-15		n/a
19	B8 CANT(i2158)	Conc. Pt. (lbs)	L	11-08-12	11-08-12	-7				n/a
20	J6(i2156)	Conc. Pt. (lbs)	L	12-11-08	12-11-08	196	98			n/a
21	J6(i2147)	Conc. Pt. (lbs)	L	14-03-08	14-03-08	198	99			n/a





Boise Cascade

**Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B12(i2007)**

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

September 5, 2017 09:20:49

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i2007)

Specifier:

Designer:

Company:

Misc:

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	16,489 ft-lbs	39,636 ft-lbs	41.6%	21	08-09-04
End Shear	3,890 lbs	17,356 lbs	22.4%	21	14-01-08
Total Load Defl.	L/301 (0.58")	0.729"	79.6%	56	07-09-08
Live Load Defl.	L/541 (0.324")	0.486"	66.6%	83	07-09-08
Max Defl.	0.58"	n/a	n/a	56	07-09-08
Span / Depth	18.4	n/a	n/a		00-00-00

**Disclosure**

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

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 5-1/4"	3,762 lbs	24.4%	10.7%	Unspecified
B1 Wall/Plate	5-1/2" x 5-1/4"	4,086 lbs	26.5%	11.6%	Unspecified

**Notes**

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

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

Calculations assume member is fully braced.

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.

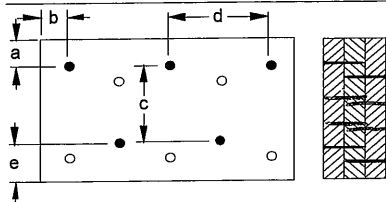
**CONFORMS TO OBC 2012**

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

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**Connection Diagram**

4 rows

a minimum = 1"

c = 6 1/2"

b minimum = 3"

d = 6"

e minimum = 2"

Calculated Side Load = 279.0 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.

Nailing schedule applies to both sides of the member.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10.mmdl-ELB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B12A (i19

Specifier:

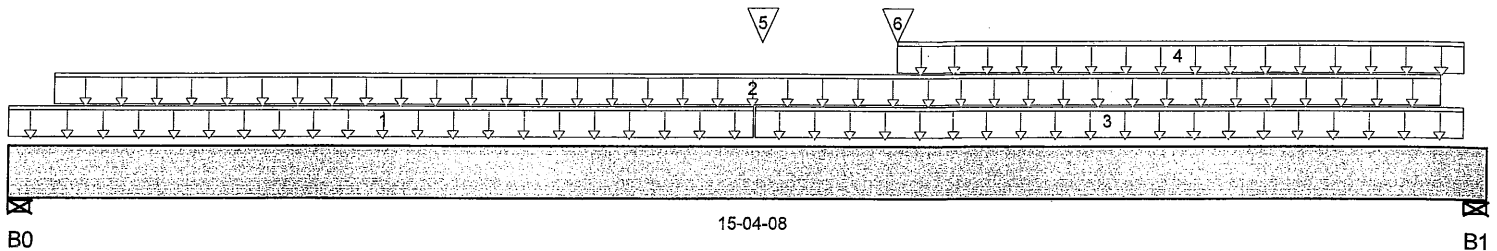
Designer:

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:26 AM kgervais



Total Horizontal Product Length = 15'-0"

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

Bearing	Live	Dead	Snow	Wind
B0, 5'-1/2"	449 / 0	751 / 0		
B1, 5'-1/2"	613 / 0	841 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-08-10	20	10			n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-05-08	14-11-00		60			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-08-10	15-01-12	17	9			n/a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	09-02-04	15-01-12	10	5			n/a
5	B14(i2117)	Conc. Pt. (lbs)	L	07-09-08	07-09-08	27	21			n/a
6	B13(i2029)	Conc. Pt. (lbs)	L	09-02-04	09-02-04	680	378			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	8,907 ft-lbs	25,408 ft-lbs	35.1%	1	09-02-04
End Shear	1,836 lbs	11,571 lbs	15.9%	1	14-01-08
Total Load Defl.	L/392 (0.446")	0.729"	61.2%	4	07-11-04
Live Load Defl.	L/890 (0.197")	0.486"	40.4%	5	08-01-00
Max Defl.	0.446"	n/a	n/a	4	07-11-04
Span / Depth	18.4	n/a	n/a		00-00-00

## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5'-1/2" x 3'-1/2"	1,052 lbs	15.7%	6.9%	Unspecified
B1 Wall/Plate	5'-1/2" x 3'-1/2"	1,971 lbs	19.2%	8.4%	Unspecified

## Notes



DWG NO. TAM 4544017  
 STRUCTURAL  
 COMPONENT ONLY



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10.mmdl-ELB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B12A (i

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 086.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.

Design based on Dry Service Condition.

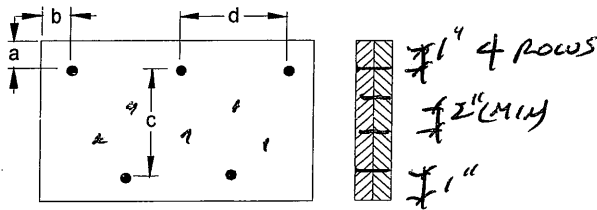
Importance Factor : Normal Part code : Part 9

Deflections less than 1/8" were ignored in the results.

**CONFORMS TO OBC 2012****Disclosure**

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**Connection Diagram**

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

Calculated Side Load = 105.3 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



602  
DWG NO. TAM 4544217  
STRUCTURAL  
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B13(i2037)

Specifier:

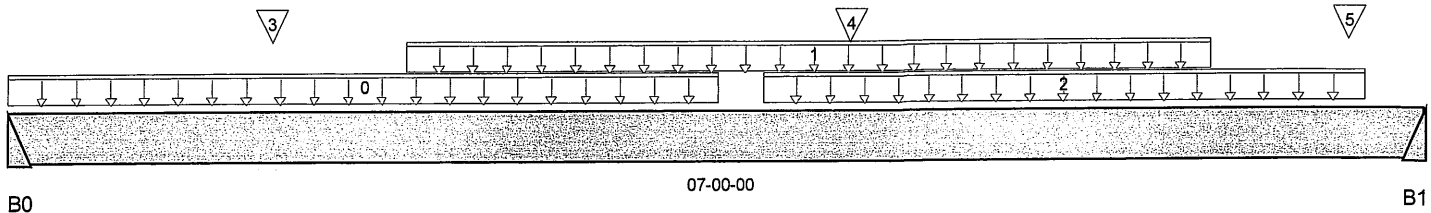
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:28 AM kgervais



Total Horizontal Product Length = 07-00-00

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

Bearing	Live	Dead	Snow	Wind
B0	1,005 / 0	523 / 0		
B1	669 / 0	355 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	240	120			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-11-08	05-11-08	120	60			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-08-09	06-08-08	2	1			n/a
3	J7(i2040)	Conc. Pt. (lbs)	L	01-03-08	01-03-08	169	85			n/a
4	B14(i2149)	Conc. Pt. (lbs)	L	04-01-11	04-01-11	20	19			n/a
5	J7(i2047)	Conc. Pt. (lbs)	L	06-07-08	06-07-08	115	57			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,204 ft-lbs	12,704 ft-lbs	25.2%	1	02-10-02
End Shear	1,667 lbs	5,785 lbs	28.8%	1	00-11-08
Total Load Defl.	L/999 (0.073")	n/a	n/a	4	03-04-11
Live Load Defl.	L/999 (0.048")	n/a	n/a	5	03-04-11
Max Defl.	0.073"	n/a	n/a	4	03-04-11
Span / Depth	8.6	n/a	n/a		00-00-00

### Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	2,162 lbs	n/a	50.6%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	1,448 lbs	n/a	33.9%	HUS1.81/10

### Notes







Boise Cascade

**Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B13(i2037)**

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

September 5, 2017 09:20:48

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B13(i2037)

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

**Disclosure**

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**CONFORMS TO OBC 2012**

DWG NO. TAM 45441-17  
STRUCTURAL  
COMPONENT ONLY



# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B14(i2149)

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

September 5, 2017 09:20:48

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmd

Description: Designs\Flush Beams\1st Floor\Flush Beams\B14(i2149)

Specifier:

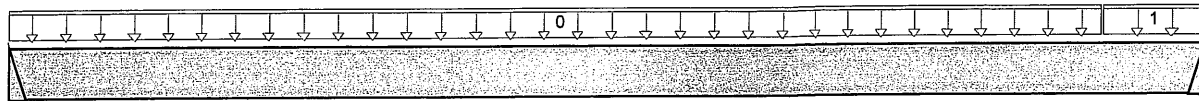
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:30 AM kgervais



B0

03-04-05

B1

Total Horizontal Product Length = 03-04-05

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

Bearing	Live	Dead	Snow	Wind
B0	16 / 0	16 / 0		
B1	29 / 0	22 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-00-14	2	1			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-00-14	03-04-05	28	14			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	44 ft-lbs	12,704 ft-lbs	0.3%	1	01-10-05
End Shear	60 lbs	5,785 lbs	1%	1	02-04-13
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-08-11
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-08-11
Max Defl.	0"	n/a	n/a	4	01-08-11
Span / Depth	4	n/a	n/a		00-00-00

## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	44 lbs	n/a	1%	LS 90
B1 Hanger	2" x 1-3/4"	71 lbs	n/a	1.7%	LS 90

## 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: 00-02-09, Bottom: 00-02-09.

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**

## 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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# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B15(i1843)

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

September 5, 2017 09:20:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B15(i1843

Specifier:

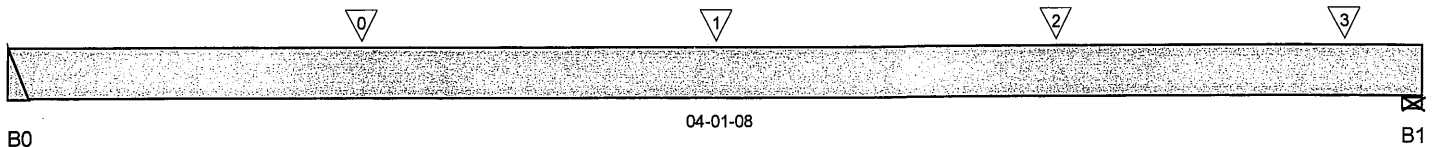
Designer:

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:32 AM kgervais



Total Horizontal Product Length = 04-01-08

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

Bearing	Live	Dead	Snow	Wind
B0	189 / 0	103 / 0		
B1, 5-1/2"	224 / 0	135 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J4(i1874)	Conc. Pt. (lbs)	L	01-00-04	01-00-04	139	69			n/a
1	J4(i1926)	Conc. Pt. (lbs)	L	02-00-10	02-00-10	128	64			n/a
2	J4(i1933)	Conc. Pt. (lbs)	L	03-00-10	03-00-10	138	69			n/a
3	9(i2082)	Conc. Pt. (lbs)	L	03-10-12	03-10-12	8	16			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	486 ft-lbs	12,704 ft-lbs	3.8%	1	02-00-10
End Shear	407 lbs	5,785 lbs	7%	1	00-11-08
Total Load Defl.	L/999 (0.003")	n/a	n/a	4	01-11-01
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	01-11-01
Max Defl.	0.003"	n/a	n/a	4	01-11-01
Span / Depth	4.6	n/a	n/a		00-00-00

## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	412 lbs	n/a	9.7%	HUS1.81/10
B1 Wall/Plate	5-1/2" x 1-3/4"	505 lbs	9.8%	4.3%	Unspecified

## Notes

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

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

Calculations assume member is fully braced.

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**

## Disclosure

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Build 5033

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: S32-1-10-ELA-SUNKEN.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B16L(i195

Specifier:

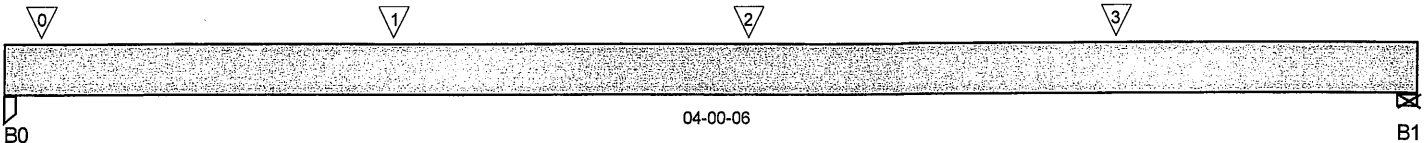
Designer:

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 10:24:33 AM kgervais



Total Horizontal Product Length = 04-00-06

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	254 / 0	136 / 0		
B1, 4-3/8"	213 / 0	117 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J4(i1958)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	71	35			n/a
1	J4(i2074)	Conc. Pt. (lbs)	L	01-01-04	01-01-04	135	67			n/a
2	J4(i2075)	Conc. Pt. (lbs)	L	02-01-04	02-01-04	132	66			n/a
3	J4(i1960)	Conc. Pt. (lbs)	L	03-02-00	03-02-00	129	65			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	453 ft-lbs	12,704 ft-lbs	3.6%	1	02-01-04
End Shear	395 lbs	5,785 lbs	6.8%	1	01-01-00
Total Load Defl.	L/999 (0.003")	n/a	n/a	4	01-11-12
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	01-11-12
Max Defl.	0.003"	n/a	n/a	4	01-11-12
Span / Depth	4.4	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 Post	3-1/2" x 1-3/4"	551 lbs	11.1%	7.4%	Unspecified
B1 Wall/Plate	4-3/8" x 1-3/4"	465 lbs	11.4%	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 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.

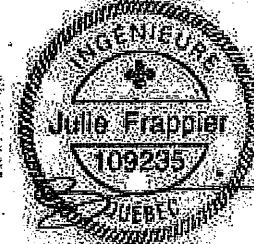
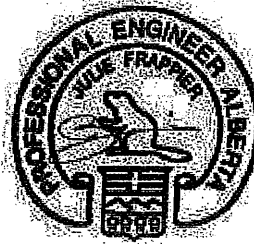
Importance Factor: Normal Part code: Part 9

**CONFORMS TO OBC 2012**

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DWG NO. TAM 4544417  
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

1. 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.

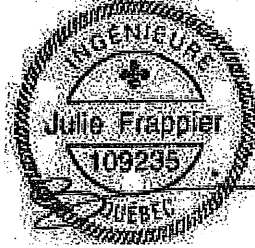
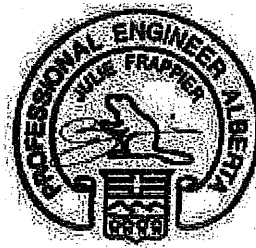
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

3. Minimum bearing length shall be 1-3/4 inches for the end bearings.

4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

5. 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.

6. 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

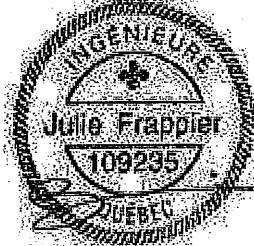
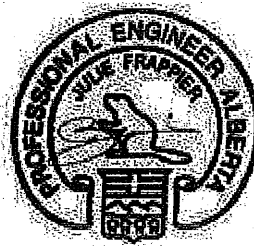
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	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.





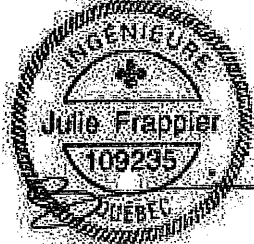
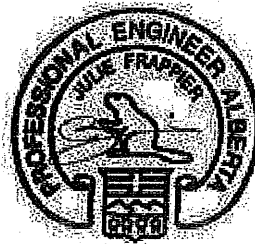
## Maximum Floor Spans

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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of  $1.50L + 1.25D$ . The serviceability limit states include the consideration for floor vibration, a live load deflection limit of  $L/480$  and a total load deflection limit of  $L/240$ .
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



## Maximum Floor Spans

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

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

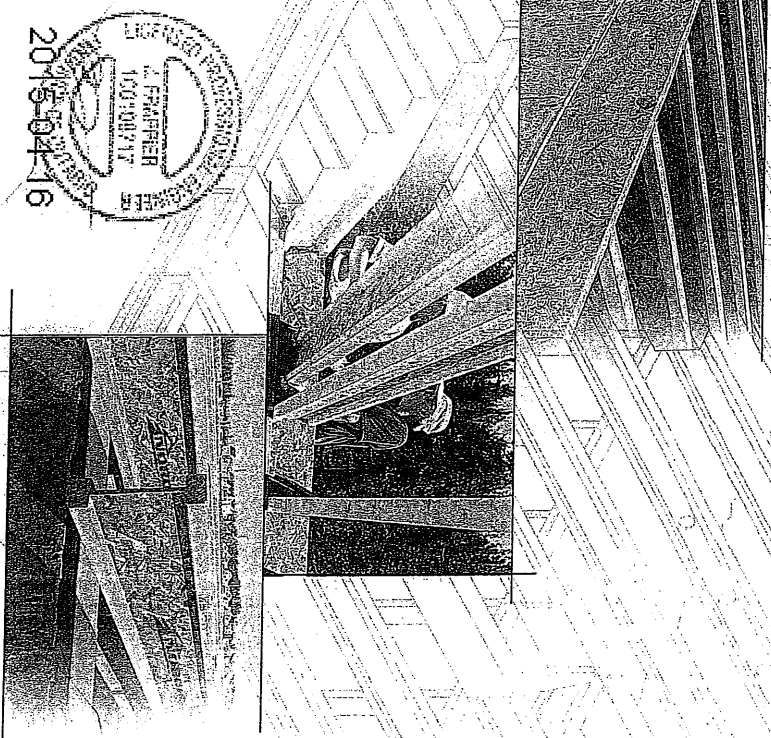
  

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-9"	16'-1"	15'-1"	13'-11"	17'-9"	16'-1"	15'-1"	13'-11"
	NI-60	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.

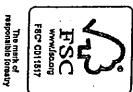
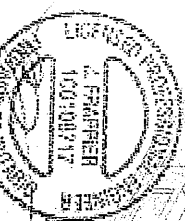


# INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



2015-04-16

Distributed by:



N-C301 / November 2014

## SAFETY AND CONSTRUCTION PRECAUTIONS

### WARNING

Joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

#### Avoid Accidents by Following these Important Guidelines:



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

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

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

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

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

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

4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.

5. Never install a damaged I-joist.

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

## STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.

2. Store, stack, and handle I-joists vertically and level only.

3. Always stack and handle I-joists in the upright position only.

4. Do not store I-joists in direct contact with the ground and/or flatwise.

5. Protect I-joists from weather, and use spacers to separate bundles.

6. Bundled units should be kept intact until time of installation.

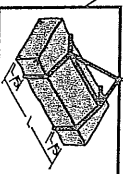
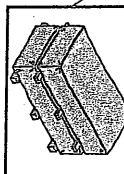
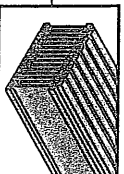
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.

- Pick I-joists in bundles as shipped by the supplier.

- Orient the bundles so that the webs of the I-joists are vertical.

8. Do not handle I-joists at the 5th points, using a spreader bar if necessary.

9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.





# INSTALLING NORDIC I-JOISTS

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

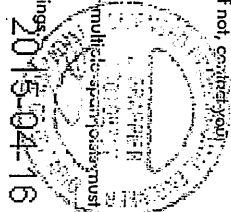
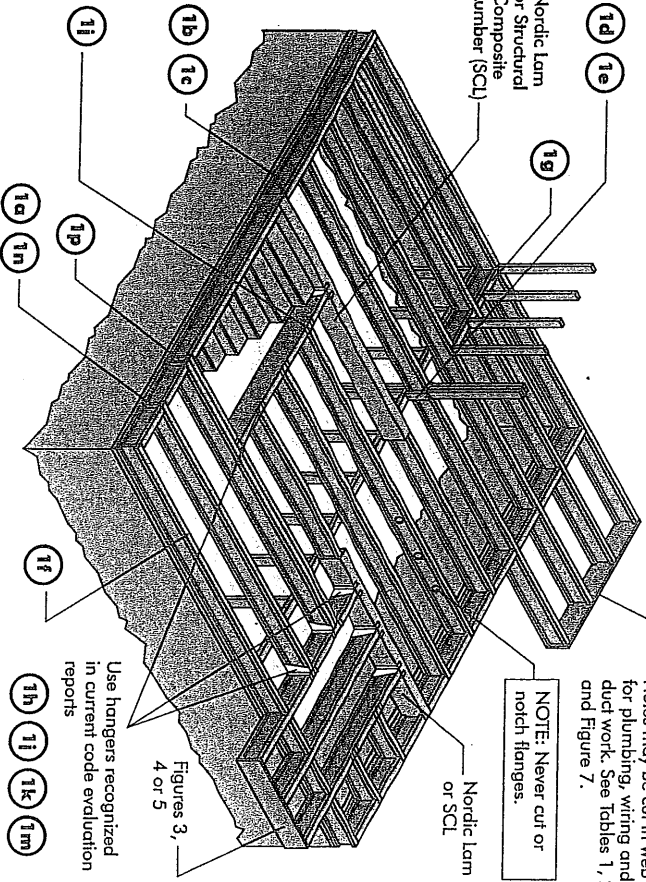


FIGURE 1  
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

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



NOTE: Never cut or notch flanges.

Holes may be cut in web for plumbing, wiring and duct work. See Tables 1, 2 and Figure 7.

Figures 3, 4 or 5

Use hangers recognized in current code evaluation reports

All nails shown in the above details are assumed to be common wire nails unless otherwise noted.<sup>3)</sup> (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.

**1a**

NI blocking panel

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)

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

**1b**

One 2-1/2" wire or spiral nail at top and bottom flange

Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c. To avoid splitting flange, start nails at least 1-1/2" from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate. Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

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

**1c**

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.

NI rim joist per detail 1a

Attach I-joist per detail 1b

Minimum 1-3/4" bearing required

**1d**

NI or rim board blocking panel per detail 1a

1/16" for squash blocks

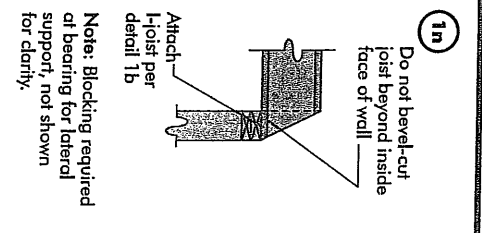
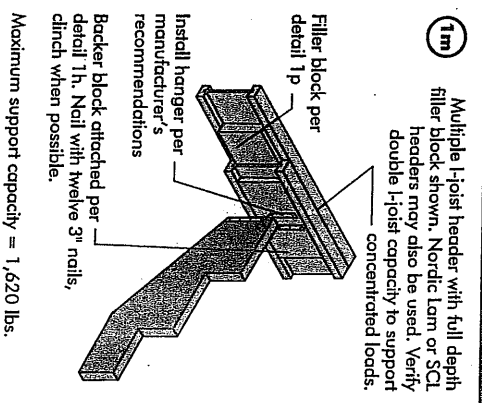
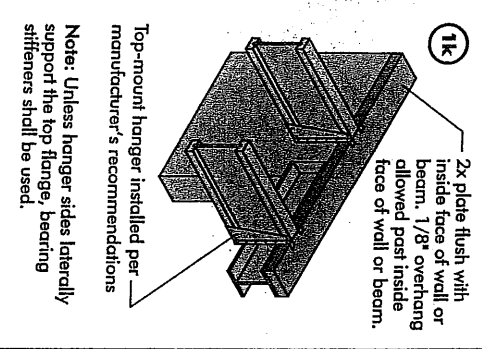
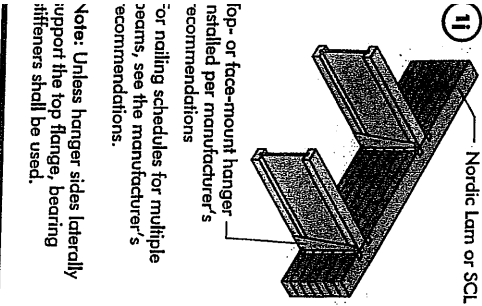
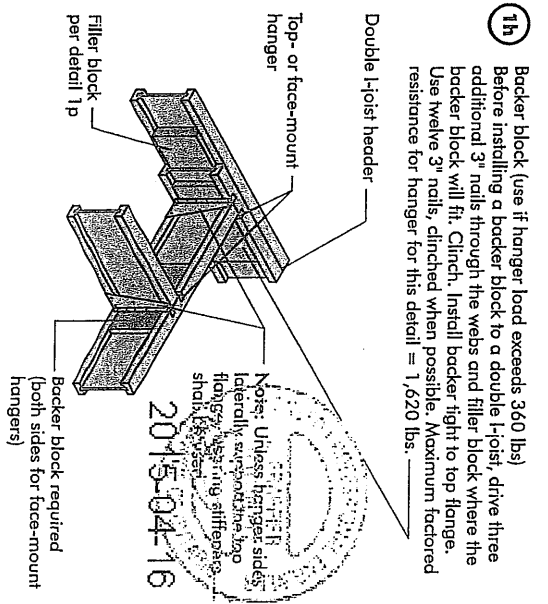
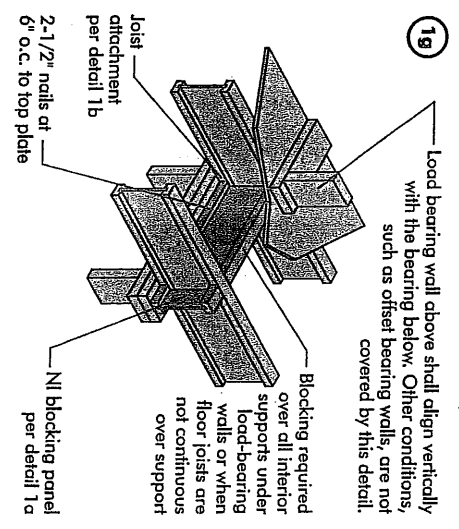
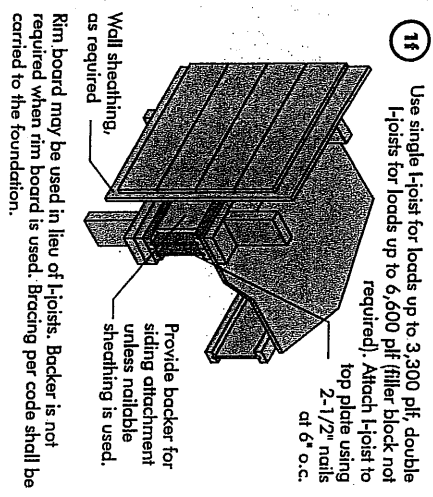
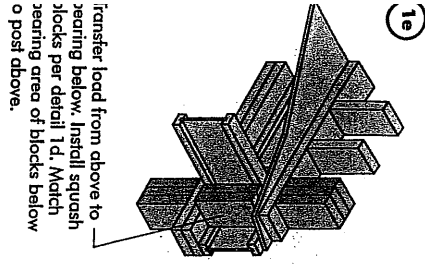
Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,300

\*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.

\*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.

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





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".

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

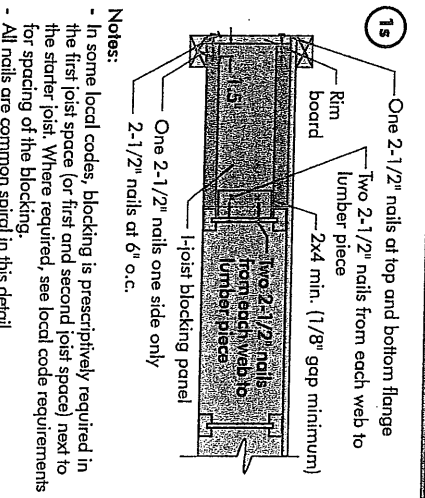
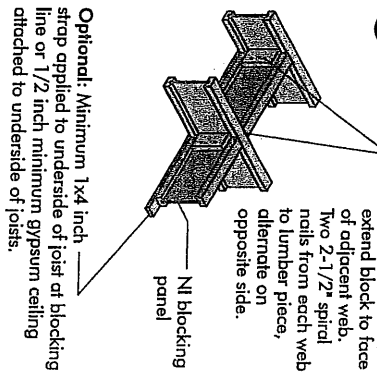
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

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 lb/ft. Verify double I-joist capacity.

### FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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

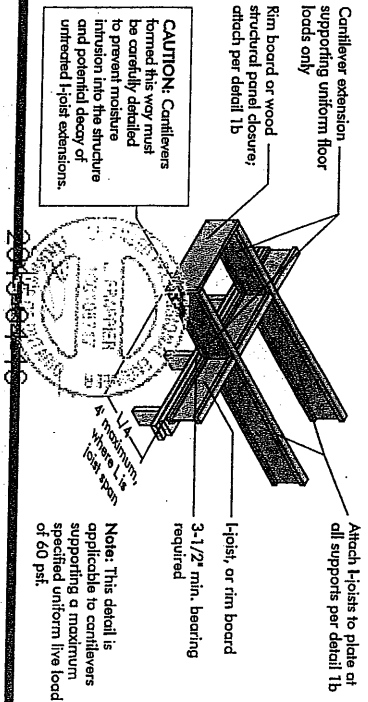


Notes:  
 - In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.  
 - All nails are common spiral in this detail.

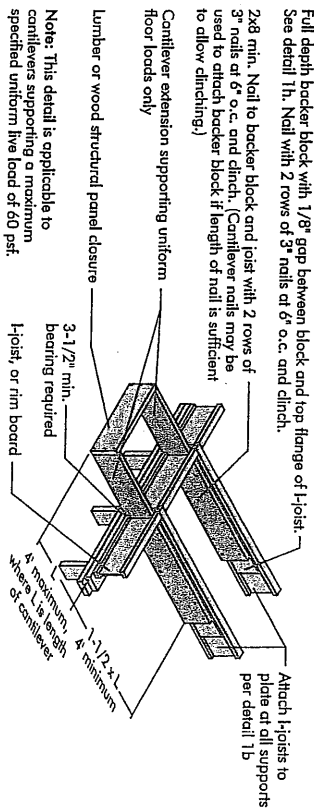


## CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

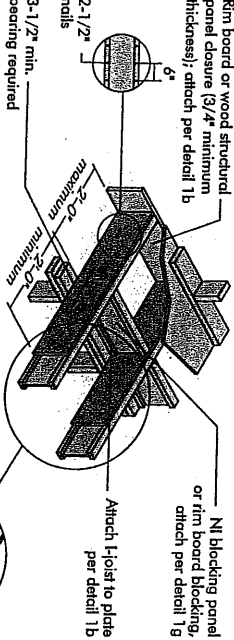


### 3b) LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



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

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



### Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

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.

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

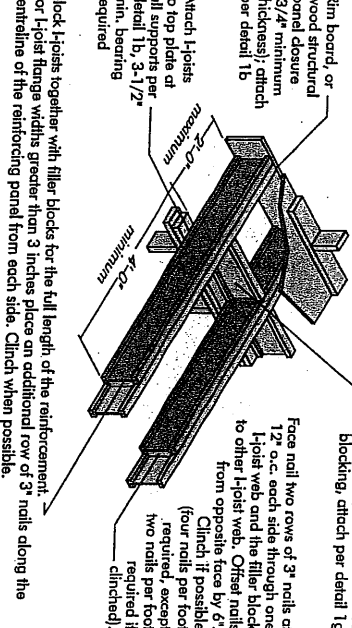
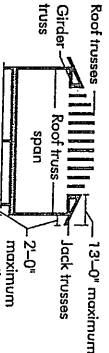
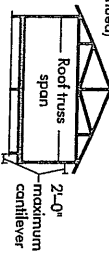


FIGURE 4 (continued)  
See table below for NI reinforcement requirements at cantilever.



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

### CANTILEVER REINFORCEMENT METHODS ALLOWED

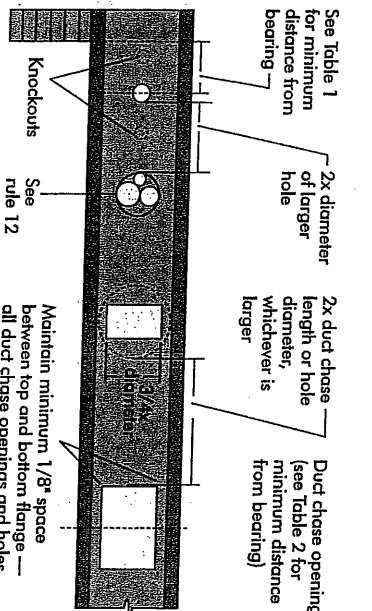
JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)		ROOF LOADING (UNFACTORED)			
	LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	LL = 60 psf, DL = 15 psf	LL = 70 psf, DL = 15 psf	LL = 80 psf, DL = 15 psf
12	16	19.2	24	12	16	19.2
16	24	32	32	24	32	24
20	32	48	48	32	48	32
24	48	64	64	48	64	48
28	64	80	80	64	80	64
32	80	96	96	80	96	80
36	96	112	112	96	112	96
40	112	128	128	112	128	112
44	128	144	144	128	144	128
48	144	160	160	144	160	144
52	160	176	176	160	176	160
56	176	192	192	176	192	176
60	192	208	208	192	208	192
64	208	224	224	208	224	208
68	224	240	240	224	240	224
72	240	256	256	240	256	240
76	256	272	272	256	272	256
80	272	288	288	272	288	272
84	288	304	304	288	304	288
88	304	320	320	304	320	304
92	320	336	336	320	336	320
96	336	352	352	336	352	336
100	352	368	368	352	368	352
104	368	384	384	368	384	368
108	384	400	400	384	400	384
112	400	416	416	400	416	400
116	416	432	432	416	432	416
120	432	448	448	432	448	432
124	448	464	464	448	464	448
128	464	480	480	464	480	464
132	480	496	496	480	496	480
136	496	512	512	496	512	496
140	512	528	528	512	528	512
144	528	544	544	528	544	528
148	544	560	560	544	560	544
152	560	576	576	560	576	560
156	576	592	592	576	592	576
160	592	608	608	592	608	592
164	608	624	624	608	624	608
168	624	640	640	624	640	624
172	640	656	656	640	656	640
176	656	672	672	656	672	656
180	672	688	688	672	688	672
184	688	704	704	688	704	688
188	704	720	720	704	720	704
192	720	736	736	720	736	720
196	736	752	752	736	752	736
200	752	768	768	752	768	752
204	768	784	784	768	784	768
208	784	800	800	784	800	784
212	800	816	816	800	816	800
216	816	832	832	816	832	816
220	832	848	848	832	848	832
224	848	864	864	848	864	848
228	864	880	880	864	880	864
232	880	896	896	880	896	880
236	896	912	912	896	912	896
240	912	928	928	912	928	912
244	928	944	944	928	944	928
248	944	960	960	944	960	944
252	960	976	976	960	976	960
256	976	992	992	976	992	976
260	992	1008	1008	992	1008	992
264	1008	1024	1024	1008	1024	1008
268	1024	1040	1040	1024	1040	1024
272	1040	1056	1056	1040	1056	1040
276	1056	1072	1072	1056	1072	1056
280	1072	1088	1088	1072	1088	1072
284	1088	1104	1104	1088	1104	1088
288	1104	1120	1120	1104	1120	1104
292	1120	1136	1136	1120	1136	1120
296	1136	1152	1152	1136	1152	1136
300	1152	1168	1168	1152	1168	1152
304	1168	1184	1184	1168	1184	1168
308	1184	1200	1200	1184	1200	1184
312	1200	1216	1216	1200	1216	1200
316	1216	1232	1232	1216	1232	1216
320	1232	1248	1248	1232	1248	1232
324	1248	1264	1264	1248	1264	1248
328	1264	1280	1280	1264	1280	1264
332	1280	1296	1296	1280	1296	1280
336	1296	1312	1312	1296	1312	1296
340	1312	1328	1328	1312	1328	1312
344	1328	1344	1344	1328	1344	1328
348	1344	1360	1360	1344	1360	1344
352	1360	1376	1376	1360	1376	1360
356	1376	1392	1392	1376	1392	1376
360	1392	1408	1408	1392	1408	1392
364	1408	1424	1424	1408	1424	1408
368	1424	1440	1440	1424	1440	1424
372	1440	1456	1456	1440	1456	1440
376	1456	1472	1472	1456	1472	1456
380	1472	1488	1488	1472	1488	1472
384	1488	1504	1504	1488	1504	1488
388	1504	1520	1520	1504	1520	1504
392	1520	1536	1536	1520	1536	1520
396	1536	1552	1552	1536	1552	1536
400	1552	1568	1568	1552	1568	1552
404	1568	1584	1584	1568	1584	1568
408	1584	1600	1600	1584	1600	1584
412	1600	1616	1616	1600	1616	1600
416	1616	1632	1632	1616	1632	1616
420	1632	1648	1648	1632	1648	1632
424	1648	1664	1664	1648	1664	1648
428	1664	1680	1680	1664	1680	1664
432	1680	1696	1696	1680	1696	1680
436	1696	1712	1712	1696	1712	1696
440	1712	1728	1728	1712	1728	1712
444	1728	1744	1744	1728	1744	1728
448	1744	1760	1760	1744	1760	1744
452	1760	1776	1776	1760	1776	1760
456	1776	1792	1792	1776	1792	1776
460	1792	1808	1808	1792	1808	1792
464	1808	1824	1824	1808	1824	1808
468	1824	1840	1840	1824	1840	1824
472	1840	1856	1856	1840	1856	1840
476	1856	1872	1872	1856	1872	1856
480	1872	1888	1888	1872	1888	1872
484	1888	1904	1904	1888	1904	1888
488	1904	1920	1920	1904	1920	1904
492	1920	1936	1936	1920	1936	1920
496	1936	1952	1952	1936	1952	1936
500	1952	1968	1968	1952	1968	1952
504	1968	1984	1984	1968	1984	1968
508	1984	2000	2000	1984	2000	1984
512	2000	2016	2016	2000	2016	2000
516	2016	2032	2032	2016	2032	2016
520	2032	2048	2048	2032	2048	2032
524	2048	2064	2064	2048	2064	2048
528	2064	2080	2080	2064	2080	2064
532	2080	2096	2096	2080	2096	2080
536	2096	2112	2112	2096	2112	2096
540	2112	2128	2128	2112	2128	2112
544	2128	2144	2144	2128	2144	2128
548	2144	2160	2160	2144	2160	2144
552	2160	2176	2176	2160	2176	2160
556	2176	2192	2192	2176	2192	2176
560	2192	2208	2208	2192	2208	2192
564	2208	2224	2224	2208	2224	2208
568	2224	2240	2240	2224	2240	2224
572	2240	2256	2256	2240	2256	2240
576	2256	2272	2272	2256	2272	2256
580	2272	2288	2288	2272	2288	2272
584	2288	2304	2304	2288	2304	2288
588	2304	2320	2320	2304	2320	2304
592	2320	2336	2336	2320	2336	2320
596	2336	2352	2352	2336	2352	2336
600	2352	2368	2368	2352	2368	2352
604	2368	2384	2384	2368	2384	2368
608	2384	2400	2400	2384	2400	2384
612	2400	2416	2416	2400	2416	2400
616	2416	2432	2432	2416	2432	2416
620	2432	2448	2448	2432	2448	2432
624	2448	2464	2464	2448	2464	2448
628	2464	2480	2480	2464	2480	2464
632	2480	2496	2496	2480	2496	2480
636	2496	2512	2512	2496	2512	2496
640	2512	2528	2528	2512	2528	2512
644	2528	2544	2544	2528	2544	2528
648	2544	2560	2560	2544	2560	2544</

# 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-joint 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-joint web shall equal the clear distance between the flanges of the I-joint minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joint flange.
5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes of approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

FIGURE 7  
FIELD-CUT HOLE LOCATOR



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

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (ft-in)												Span adjustment Factor		
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4		11	12
12	N120	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
	N140	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
	N160	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
	N180	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
14	N140	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
	N160	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
	N180	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
	N200	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
16	N160	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
	N180	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
	N200	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
	N220	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
18	N180	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
	N200	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
	N220	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8
	N240	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8	7-1/8	7-5/8	8-1/8

1. Above table may be used for I-joint spacing of 24 inches on centre or less.
2. Joist 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 Span, Spanning the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

$$\text{Reduced } D = \frac{\text{Actual } D}{\text{Span Adjustment Factor}}$$

Where:  
 D, reduced = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications (ft). The reduced distance shall not be less than 6 inches from the face of the support to edge of the hole.  
 Actual = The actual measured span distance between the inside faces of supports (ft).  
 SAF = Span Adjustment Factor given in this table.  
 D = The minimum distance from the inside face of any support to centre of hole from this table.  
 If Actual is greater than 1, use 1 in the above calculation for Actual.  
 SAF

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
12	N120	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
	N140	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
	N160	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
	N180	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
14	N140	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
	N160	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
	N180	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
	N200	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
16	N160	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
	N180	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
	N200	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
	N220	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
18	N180	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
	N200	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
	N220	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8
	N240	0-7/8	1-1/8	2-1/16	2-5/8	3-1/8	3-5/8	4-1/8	4-5/8	5-1/8	5-5/8	6-1/8	6-5/8

1. Above table may be used for I-joint 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.

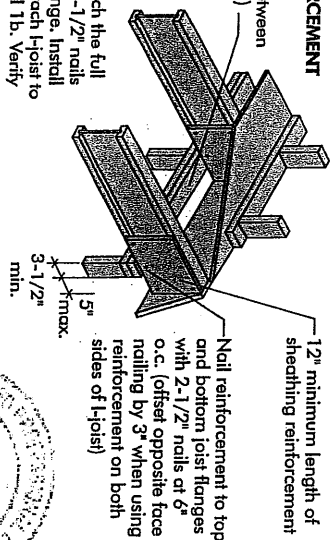
2015-04-16

# 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.

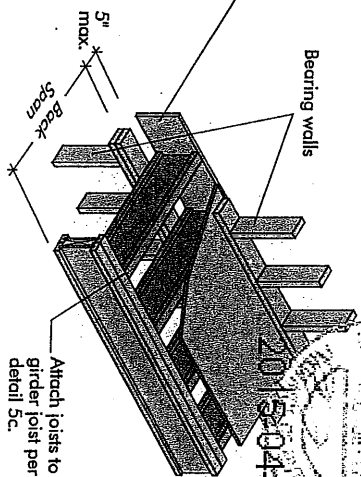


## 5b SET-BACK DETAIL

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-I-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.

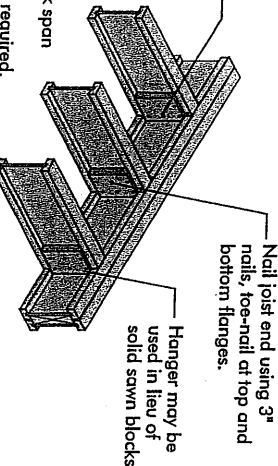
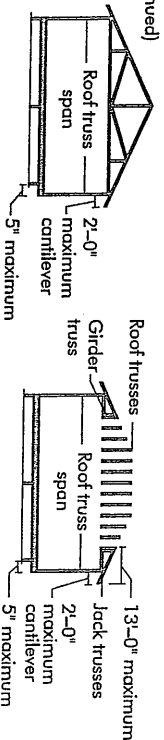


FIGURE 5 (continued)

See table below for NI reinforcement requirements at cantilever.



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

## BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)			ROOF LOADING (UNFACTORED)		
		LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf
		JOIST SPACING (in.)	JOIST SPACING (in.)	JOIST SPACING (in.)	JOIST SPACING (in.)	JOIST SPACING (in.)	JOIST SPACING (in.)
9-1/2	26	12	16	19-2	12	16	19-2
	28	X	X	X	X	X	X
	30	X	X	X	X	X	X
	32	X	X	X	X	X	X
	34	X	X	X	X	X	X
	36	X	X	X	X	X	X
	38	X	X	X	X	X	X
	40	X	X	X	X	X	X
	42	X	X	X	X	X	X
11-7/8	26	12	16	19-2	12	16	19-2
	28	X	X	X	X	X	X
	30	X	X	X	X	X	X
	32	X	X	X	X	X	X
	34	X	X	X	X	X	X
	36	X	X	X	X	X	X
	38	X	X	X	X	X	X
	40	X	X	X	X	X	X
	42	X	X	X	X	X	X
14	26	12	16	19-2	12	16	19-2
	28	X	X	X	X	X	X
	30	X	X	X	X	X	X
	32	X	X	X	X	X	X
	34	X	X	X	X	X	X
	36	X	X	X	X	X	X
	38	X	X	X	X	X	X
	40	X	X	X	X	X	X
	42	X	X	X	X	X	X
16	26	12	16	19-2	12	16	19-2
	28	X	X	X	X	X	X
	30	X	X	X	X	X	X
	32	X	X	X	X	X	X
	34	X	X	X	X	X	X
	36	X	X	X	X	X	X
	38	X	X	X	X	X	X
	40	X	X	X	X	X	X
	42	X	X	X	X	X	X

1. N = No reinforcement required.
2. 1 = NI reinforced with 3/4" wood structural panel on one side only.
3. 2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. X = Try a deeper joist or closer spacing.
5. 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.
6. 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.
7. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
8. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
9. 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 at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Top 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)

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Common Wire or Spiral Nails	Nail Size and Type Ring Thread Nails or Screws	Staples	Maximum Spacing of Fasteners	Internal 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"

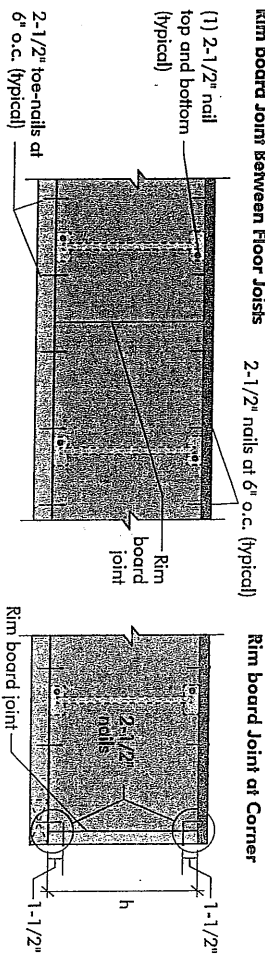
1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions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

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

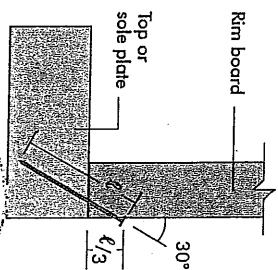
**IMPORTANT NOTE:**  
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

## RIM BOARD INSTALLATION DETAILS

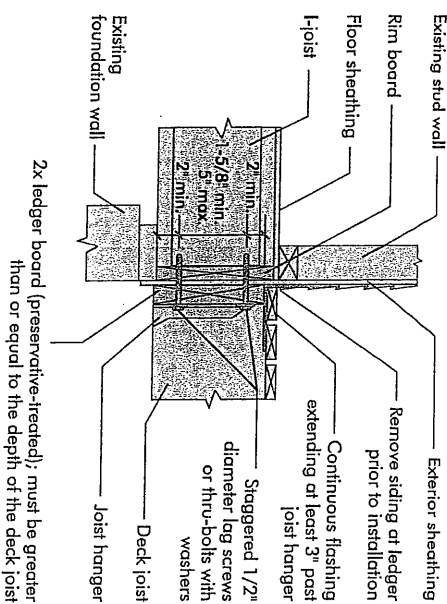
### 8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



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



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

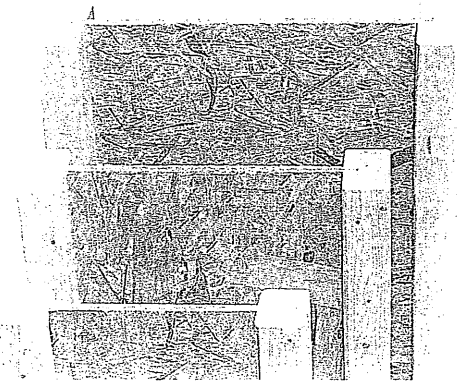


2015-04-16

## PRODUCT WARRANTY

*Customer Obligations guarantee that, in accordance with our specifications, Nerdex products are free from manufacturing defects in material and workmanship.*

*Furthermore, Customer Obligations warrant 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.*

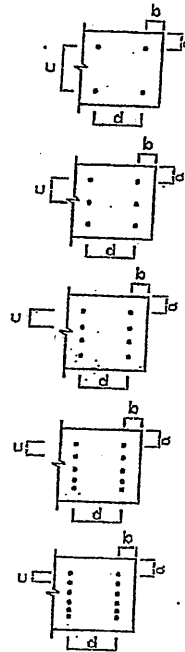


# MICRO CITY ENGINEERING SERVICES INC.

TEL: (519) 287 - 2242

R.R. #1, P.O. BOX 61, GLENCOE, ONTARIO, N0L 1M0

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



## NOTES:

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



DWG NO TAMN/001.14

STRUCTURAL  
COMPONENT ONLY

TO BE USED ONLY  
WITH BEAM CALCS  
BEARING THE  
STAMP BELOW

PROVIDE NAILING  
DETAIL # X SEE  
DWG #TAMN1001-14