

FROM PLAN DATED: NOV 2015

BUILDER:
BAYVIEW WELLINGTON

SITE:
ALCONA SHORES

MODEL:S45-3

ELEVATION: A

LOT:
CITY: INNISFILL

SALESMAN: M D
DESIGNER: AJ
REVISION:

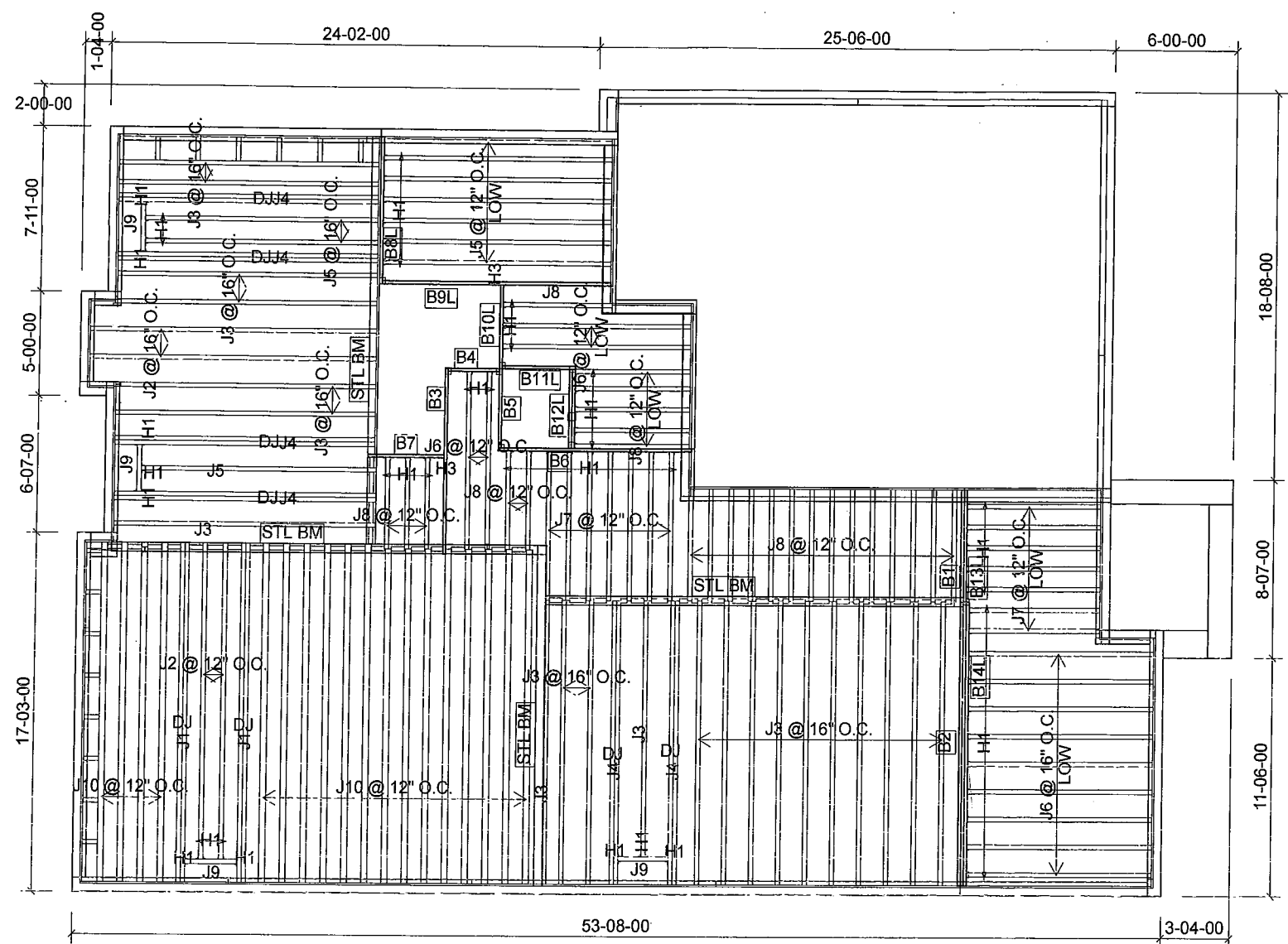
NOTES:
CERAMIC TILE APPLICATION
AS PER O.B.C. 9.30.6.
SQUASH BLOCKS
2x4 OR 2x6 #2 S.P.F. REQ'D UNDER
INTERIOR UNIFORM LOAD BEARING
WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS.
CANTILEVERED JOISTS
REQUIRE I-JOIST BLOCKING ALONG
BEARING AND RIMBOARD CLOSURE
AT ENDS.
REFER TO THE NORDIC
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: 9/20/2016

1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	2	4
J2	16-00-00	9 1/2" NI-40x	1	4
J3	14-00-00	9 1/2" NI-40x	1	21
J4	14-00-00	9 1/2" NI-40x	2	12
J5	12-00-00	9 1/2" NI-40x	1	10
J6	10-00-00	9 1/2" NI-40x	1	13
J7	8-00-00	9 1/2" NI-40x	1	14
J8	6-00-00	9 1/2" NI-40x	1	25
J9	4-00-00	9 1/2" NI-40x	1	4
J10	18-00-00	9 1/2" NI-80	1	18
B2	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B14L	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
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B12L	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

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

Town of Innisfil Certified Model
04/01/2018 8:45:24 AM kgervais



FROM PLAN DATED: NOV 2015

BUILDER:
BAYVIEW WELLINGTON

SITE:
ALCONA SHORES

MODEL: 45-3

ELEVATION: A

LOT:
CITY: INNISFILL

SALESMAN: M D
DESIGNER: AJ
REVISION:

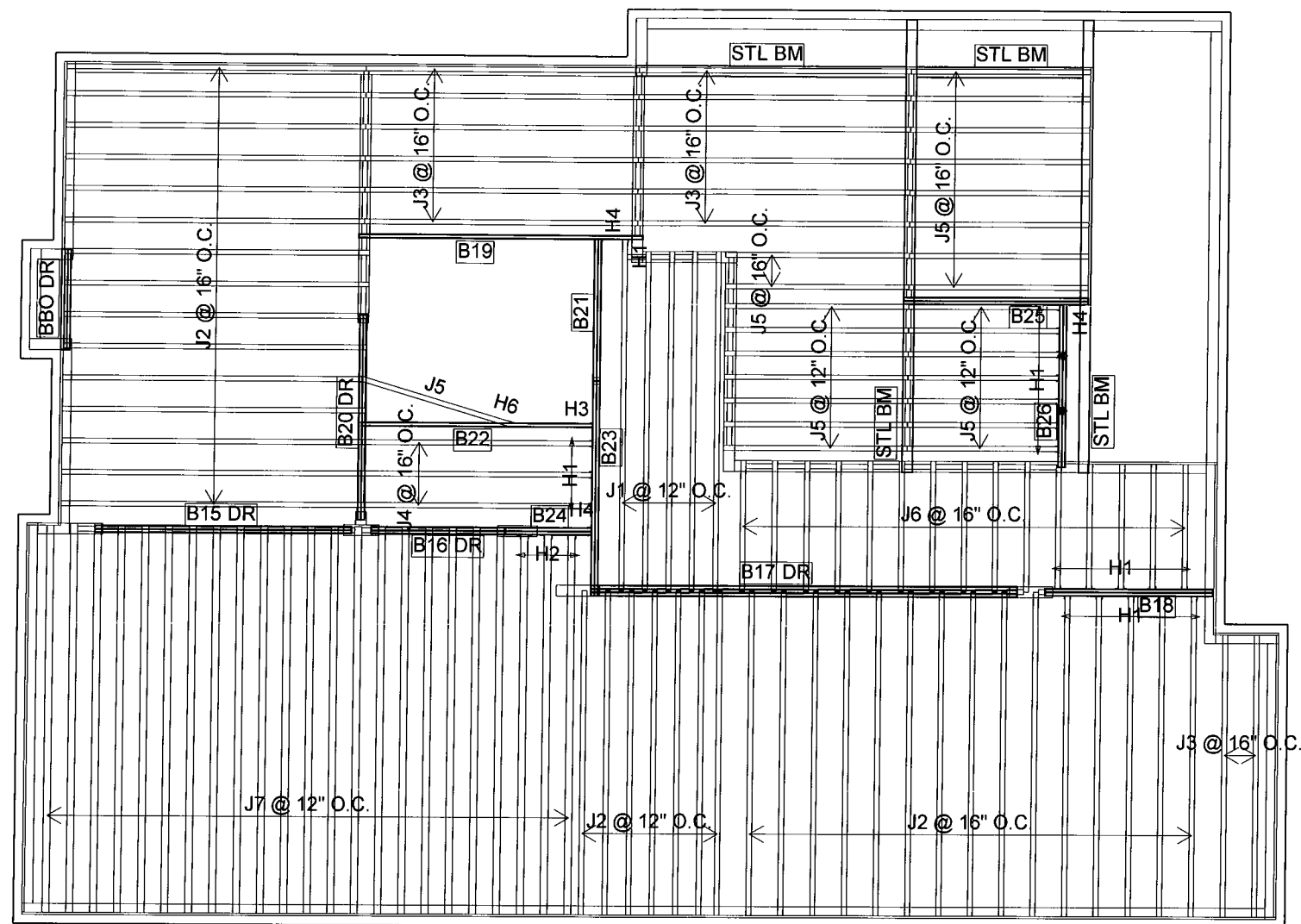
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REQUIRE I-JOIST BLOCKING ALONG
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AT ENDS.
REFER TO THE NORDIC
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STORAGE AND INSTALLATION.

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

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 9/7/2017

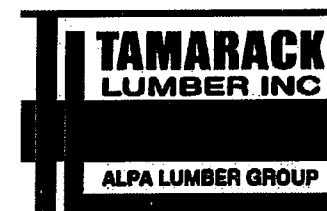
2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	5
J2	14-00-00	9 1/2" NI-40x	1	37
J3	12-00-00	9 1/2" NI-40x	1	14
J4	10-00-00	9 1/2" NI-40x	1	3
J5	8-00-00	9 1/2" NI-40x	1	25
J6	6-00-00	9 1/2" NI-40x	1	15
J7	18-00-00	9 1/2" NI-80	1	23
B19	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B22	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B20 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B23	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B18	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B25	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B26	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16 DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B21	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B24	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B17 DR	20-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
1	H1	IUS2.56/9.5
20	H1	IUS2.56/9.5
3	H2	IUS3.56/9.5
1	H3	HUS1.81/9.5
1	H4	HGUS410
2	H4	HGUS410
1	H6	LSSUH310

Town of Innisfil Certified Model
04/01/2018 8:45:28 AM kgervais



FROM PLAN DATED: NOV 2015

BUILDER:
BAYVIEW WELLINGTON

SITE:
ALCONA SHORES

MODEL:\$45-3

ELEVATION: B

LOT:
CITY: INNISFILL

SALESMAN: M D
DESIGNER: AJ
REVISION:

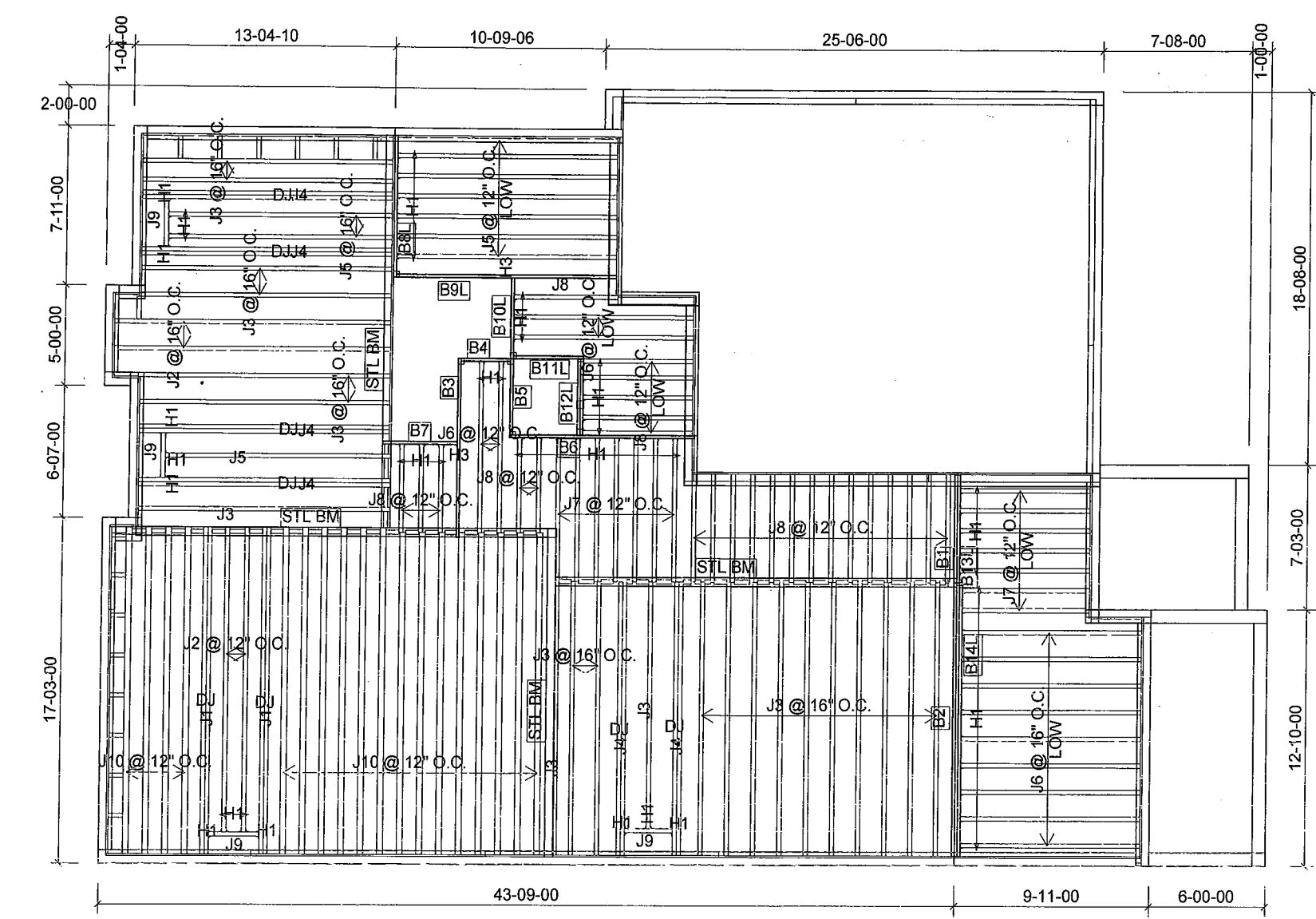
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SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 9/20/2016

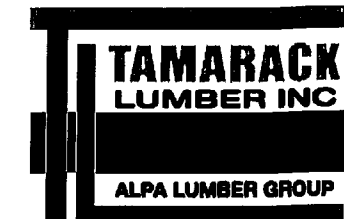
1st FLOOR



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J7	8-00-00	9 1/2" NI-40x	1	14
J8	6-00-00	9 1/2" NI-40x	1	25
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2	H3	HUS1.81/9.5

Town of Innisfil Certified Model
04/01/2018 8:45:32 AM kgervais



FROM PLAN DATED: NOV 2015

BUILDER:
BAYVIEW WELLINGTON

SITE:
ALCONA SHORES

MODEL: 45-3

ELEVATION: B

LOT:
CITY: INNISFILL

SALESMAN: M D
DESIGNER: AJ
REVISION:

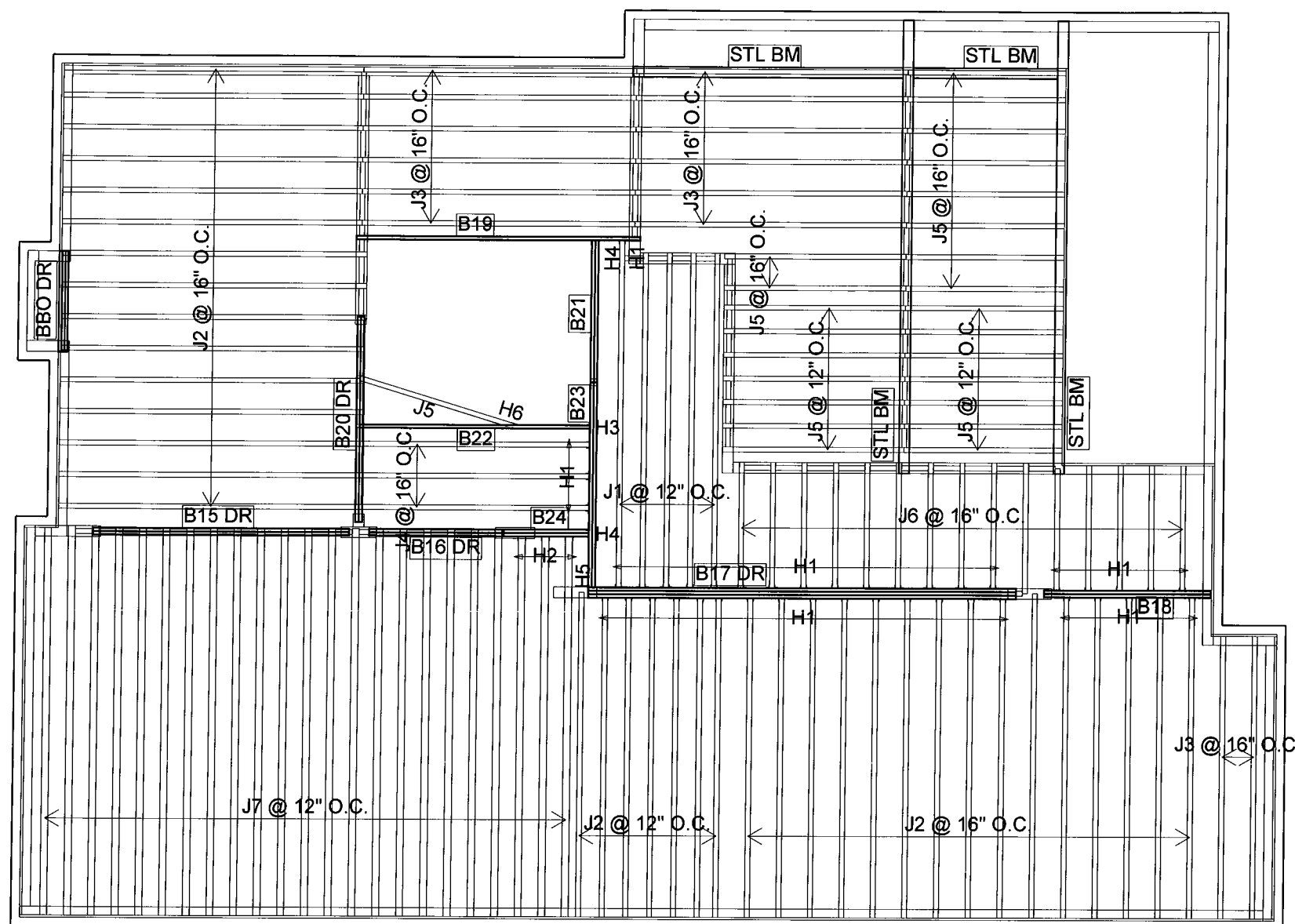
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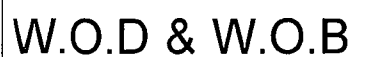
2nd FLOOR



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Connector Summary		
Qty	Manuf	Product
1	H1	IUS2.56/9.5
13	H1	IUS2.56/9.5
29	H1	IUS2.56/9.5
3	H2	IUS3.56/9.5
1	H3	HUS1.81/9.5
1	H4	HGUS410
1	H4	HGUS410
1	H5	HUC410
1	H6	LSSUH310

Town of Innisfil Certified Model
04/01/2018 8:45:38 AM kgervais





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i2146)

BC CALC® Design Report



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

September 20, 2016 15:19:46

Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B1(i2146)

Specifier:

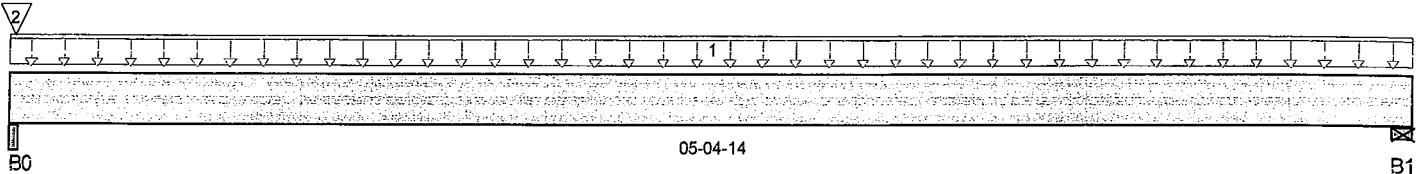
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:45:44 AM kgervais



Total Horizontal Product Length = 05-04-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-5/8"	525 / 0	307 / 0		
B1, 4-3/8"	26 / 0	26 / 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	05-04-14	9	5			n/a
2 9(i386)	Conc. Pt. (lbs)	L	00-00-04	00-00-04	500	282			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	79 ft-lbs	12,704 ft-lbs	0.6%	1	02-07-09
End Shear	42 lbs	5,785 lbs	0.7%	1	01-00-02
Total Load Defl.	L/999 (0.001")	n/a	n/a	4	02-07-09
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	02-07-09
Max Defl.	0.001"	n/a	n/a	4	02-07-09
Span / Depth	6.3	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 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 Beam	2-5/8" x 1-3/4"	1,171 lbs	59.7%	20.9%	Unspecified
B1 Wall/Plate	4-3/8" x 1-3/4"	72 lbs	2.2%	0.8%	Unspecified

Notes

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

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

Calculations assume Member is Fully Braced.

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

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





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement/Flush Beams/B2(i2076)

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

September 20, 2016 15:19:46

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B2(i2076)

Specifier:

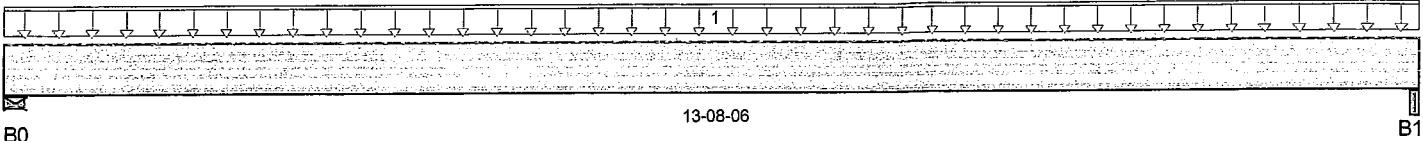
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:45:49 AM kgervais



Total Horizontal Product Length = 13-08-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	132 / 0	99 / 0		
B1, 2-5/8"	133 / 0	99 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-08-06	19	10			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,060 ft-lbs	12,704 ft-lbs	8.3%	1	06-10-01
End Shear	276 lbs	5,785 lbs	4.8%	1	00-11-14
Total Load Defl.	L/999 (0.098")	n/a	n/a	4	06-10-01
Live Load Defl.	L/999 (0.056")	n/a	n/a	5	06-10-01
Max Defl.	0.098"	n/a	n/a	4	06-10-01
Span / Depth	16.9	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	2-3/8" x 1-3/4"	323 lbs	18.2%	6.4%	Unspecified
B1 Beam	2-5/8" x 1-3/4"	324 lbs	16.5%	5.8%	Unspecified

Notes

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

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

Calculations assume Member is Fully Braced.

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

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

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





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B3(i1247)

BC CALC® Design Report



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

September 20, 2016 15:19:46

Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B3(i1247)

Specifier:

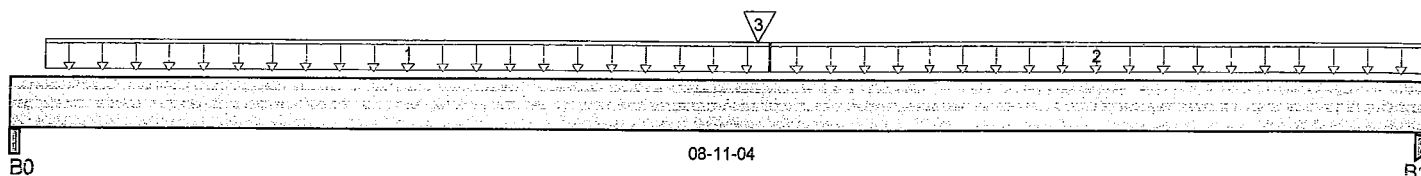
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:45:51 AM kgervais



Total Horizontal Product Length = 08-11-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	416 / 0	234 / 0		
B1, 3-1/2"	402 / 0	227 / 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	00-02-10	04-09-04	40	20			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	04-09-04	08-11-04	24	12			n/a
3	B7(i1246)	Conc. Pt. (lbs)	L	04-08-06	04-08-06	536	277			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,045 ft-lbs	12,704 ft-lbs	24%	1	04-08-06
End Shear	825 lbs	5,785 lbs	14.3%	1	07-10-04
Total Load Defl.	L/999 (0.091")	n/a	n/a	4	04-07-01
Live Load Defl.	L/999 (0.059")	n/a	n/a	5	04-07-01
Max Defl.	0.091"	n/a	n/a	4	04-07-01
Span / Depth	10.5	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	5-1/4" x 1-3/4"	916 lbs	23.4%	8.2%	Unspecified
B1 Post	3-1/2" x 1-3/4"	887 lbs	22.3%	11.9%	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 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.

Disclosure

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CONFORMS TO OBC 2012





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i1358)

BC CALC® Design Report



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

September 20, 2016 15:19:46

Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B4(i1358)

Specifier:

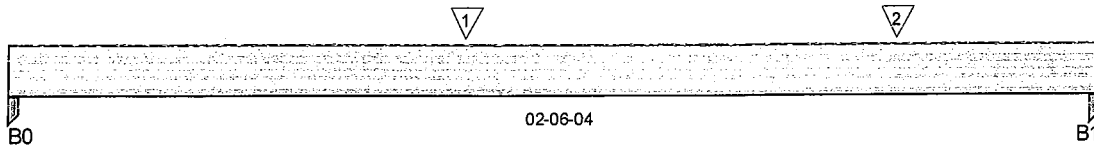
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:45:52 AM kgervais



Total Horizontal Product Length = 02-06-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	134 / 0	73 / 0		
B1, 1-3/4"	190 / 0	100 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1 J4(i1878)	Conc. Pt. (lbs)	L	01-00-10	01-00-10	190	95			n/a
2 J4(i1538)	Conc. Pt. (lbs)	L	02-00-10	02-00-10	134	66			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	279 ft-lbs	12,704 ft-lbs	2.2%	1	01-00-10
End Shear	286 lbs	5,785 lbs	4.9%	1	00-11-04
Total Load Defl.	L/999 (0.001")	n/a	n/a	4	01-03-00
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-03-00
Max Defl.	0.001"	n/a	n/a	4	01-03-00
Span / Depth	3	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	1-3/4" x 1-3/4"	292 lbs	14.7%	7.8%	Unspecified
B1 Post	1-3/4" x 1-3/4"	411 lbs	20.6%	11%	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 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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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B5(i1034)

BC CALC® Design Report



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

September 20, 2016 15:19:46

Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B5(i1034)

Specifier:

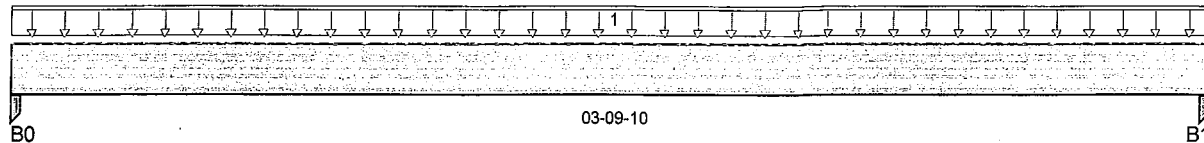
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:45:54 AM kgervais



Total Horizontal Product Length = 03-09-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	22 / 0	17 / 0		
B1, 3-1/2"	24 / 0	19 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1 FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-09-10	12	5			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	46 ft-lbs	12,704 ft-lbs	0.4%	1	01-09-15
End Shear	27 lbs	5,785 lbs	0.5%	1	00-11-04
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-09-15
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-09-15
Max Defl.	0"	n/a	n/a	4	01-09-15
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 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	1-3/4" x 1-3/4"	55 lbs	2.8%	1.5%	Unspecified
B1 Post	3-1/2" x 1-3/4"	60 lbs	1.5%	0.8%	Unspecified

Notes

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

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

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 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 DBC 2012

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Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B6(i2084)

BC CALC® Design Report



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

September 20, 2016 15:19:46

Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B6(i2084)

Specifier:

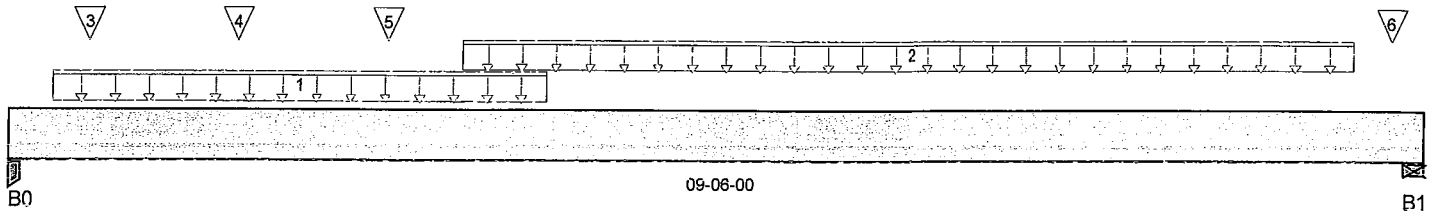
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:45:56 AM kgervais



Total Horizontal Product Length = 09-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,221 / 0	632 / 0		
B1, 5-1/2"	1,600 / 0	1,360 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1 User Load	Unf. Lin. (lb/ft)	L	00-03-08	03-07-04	240	120			n/a
2 Smoothed Load	Unf. Lin. (lb/ft)	L	03-00-06	09-00-06	147	73			n/a
3 J6(i1523)	Conc. Pt. (lbs)	L	00-06-06	00-06-06	91	46			n/a
4 J6(i1879)	Conc. Pt. (lbs)	L	01-06-06	01-06-06	98	49			n/a
5 J5(i2064)	Conc. Pt. (lbs)	L	02-06-06	02-06-06	140	69			n/a
6 2(i376)	Conc. Pt. (lbs)	L	09-03-04	09-03-04	817	947			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,649 ft-lbs	12,704 ft-lbs	36.6%	1	03-06-06
End Shear	2,076 lbs	5,785 lbs	35.9%	1	01-01-00
Total Load Defl.	L/578 (0.184")	0.444"	41.5%	4	04-06-06
Live Load Defl.	L/999 (0.121")	n/a	n/a	5	04-06-06
Max Defl.	0.184"	n/a	n/a	4	04-06-06
Span / Depth	11.2	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 1-3/4"	2,622 lbs	65.9%	35.1%	Unspecified
B1 Wall/Plate	5-1/2" x 1-3/4"	4,100 lbs	99.7%	34.9%	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 086.

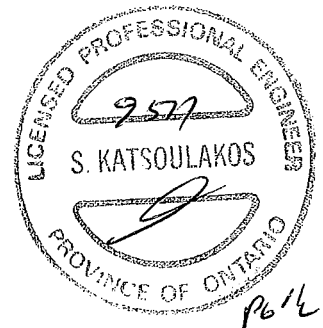
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.

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



P614

DW000.YAM44730-17
STRUCTURAL
COMPONENT ONLY



Boise Cascade

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B6(i2084)

BC CALC® Design Report



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

September 20, 2016 15:19:46

Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports:

CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B6(i208-

Specifier:

Designer: AJ

Company:

Misc:

Disclosure

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

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Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B7(i1246)

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

September 20, 2016 15:19:47

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B7(i1246)

Specifier:

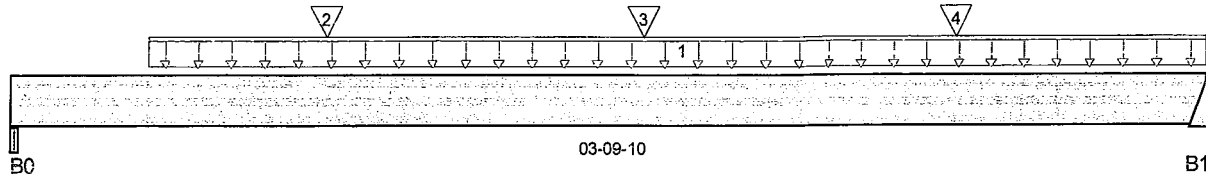
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:45:59 AM kgervais



Total Horizontal Product Length = 03-09-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	516 / 0	268 / 0		
B1	551 / 0	284 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	User Load	Unf. Lin. (lb/ft)	L	00-05-04	03-09-10	240	120			n/a
2	J6(i1489)	Conc. Pt. (lbs)	L	01-00-00	01-00-00	81	40			n/a
3	J6(i1876)	Conc. Pt. (lbs)	L	02-00-00	02-00-00	91	46			n/a
4	J6(i1925)	Conc. Pt. (lbs)	L	03-00-00	03-00-00	85	43			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	990 ft-lbs	12,704 ft-lbs	7.8%	1	02-00-00
End Shear	651 lbs	5,785 lbs	11.3%	1	02-10-02
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	02-00-05
Live Load Defl.	L/999 (0.004")	n/a	n/a	5	02-00-05
Max Defl.	0.005"	n/a	n/a	4	02-00-05
Span / Depth	4.2	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	5-1/4" x 1-3/4"	1,108 lbs	28.2%	9.9%	Unspecified
B1 Hanger	2" x 1-3/4"	1,181 lbs	n/a	27.7%	Hanger

Notes

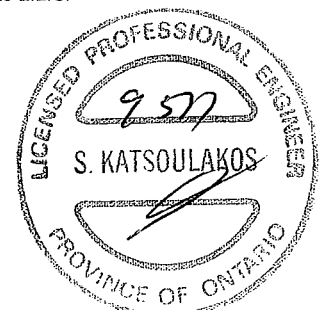
Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume Member is Fully Braced.
 Resistance Factor phi has been applied to all presented results per CSA 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Deflections less than 1/8" were ignored in the results.

CONFORMS TO OBC 2012

Disclosure

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BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B8L(i2054

Specifier:

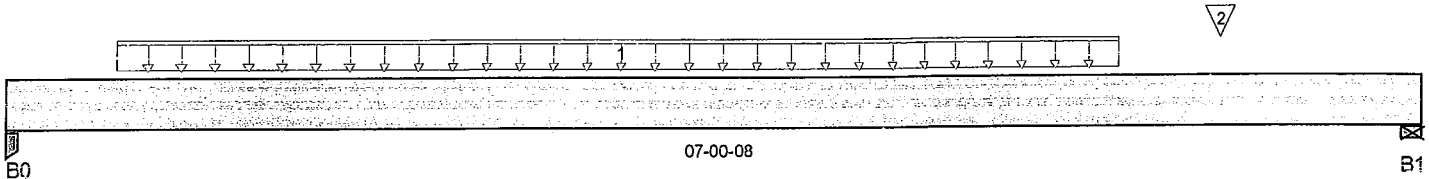
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:46:00 AM kgervais



Total Horizontal Product Length = 07-00-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	674 / 0	353 / 0		
B1, 3-1/2"	663 / 0	349 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-08	05-06-08	226	114			n/a
2	J3(i1969)	Conc. Pt. (lbs)	L	06-00-08	06-00-08	204	102			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,604 ft-lbs	12,704 ft-lbs	20.5%	1	03-00-08
End Shear	1,420 lbs	5,785 lbs	24.5%	1	01-01-00
Total Load Defl.	L/999 (0.058")	n/a	n/a	4	03-06-08
Live Load Defl.	L/999 (0.038")	n/a	n/a	5	03-06-08
Max Defl.	0.058"	n/a	n/a	4	03-06-08
Span / Depth	8.3	n/a	n/a		00-00-00

Disclosure

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Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 1-3/4"	1,452 lbs	36.5%	19.4%	Unspecified
B1 Wall/Plate	3-1/2" x 1-3/4"	1,431 lbs	54.7%	19.1%	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 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

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





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B9L(i2037)

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

September 20, 2016 15:19:47

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B9L(i2037

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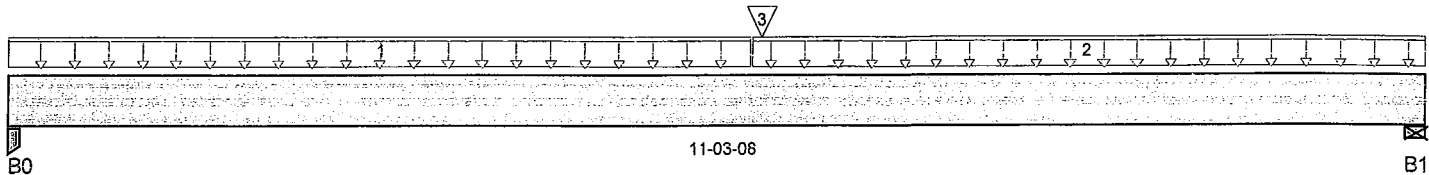
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:46:02 AM kgervais



Total Horizontal Product Length = 11-03-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	448 / 0	255 / 0		
B1, 4-3/8"	562 / 0	314 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1 FC 1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-10-10	21	10			n/a
2 FC 1 Floor Material	Unf. Lin. (lb/ft)	L	05-10-10	11-03-08	40	20			n/a
3 B10L(i2043)	Conc. Pt. (lbs)	L	05-11-08	05-11-08	671	345			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,926 ft-lbs	12,704 ft-lbs	38.8%	1	05-11-08
End Shear	1,130 lbs	5,785 lbs	19.5%	1	10-01-10
Total Load Defl.	L/522 (0.251")	0.545"	46%	4	05-08-12
Live Load Defl.	L/809 (0.162")	0.364"	44.5%	5	05-08-12
Max Defl.	0.251"	n/a	n/a	4	05-08-12
Span / Depth	13.8	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 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	1-3/4" x 1-3/4"	990 lbs	49.8%	26.5%	Unspecified
B1 Wall/Plate	4-3/8" x 1-3/4"	1,236 lbs	37.8%	13.2%	Unspecified

Notes

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

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

Calculations assume Member is Fully Braced.

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





Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdi

Description: Designs\Flush Beams\Basement\Flush Beams\B10L(i204

Specifier:

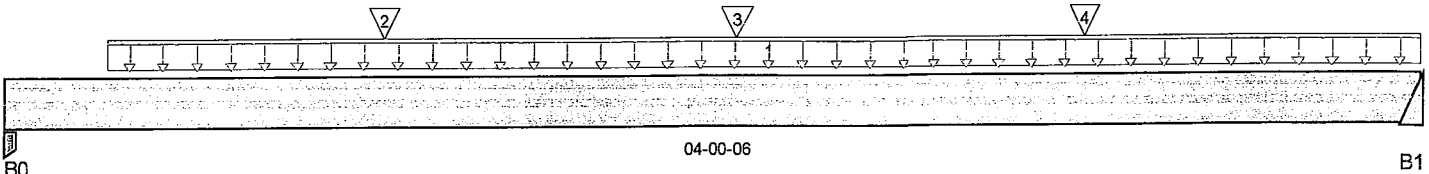
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:46:04 AM kgervais



Total Horizontal Product Length = 04-00-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	697 / 0	359 / 0		
B1	688 / 0	353 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	User Load	Unf. Lin. (lb/ft)	L	00-03-08	04-00-06	240	120			n/a
2	J4(i1960)	Conc. Pt. (lbs)	L	01-00-14	01-00-14	194	97			n/a
3	J4(i1948)	Conc. Pt. (lbs)	L	02-00-14	02-00-14	187	94			n/a
4	J6(i2102)	Conc. Pt. (lbs)	L	03-00-14	03-00-14	106	53			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,520 ft-lbs	12,704 ft-lbs	12%	1	02-00-14
End Shear	1,078 lbs	5,785 lbs	18.6%	1	01-01-00
Total Load Defl.	L/999 (0.01")	n/a	n/a	4	02-00-14
Live Load Defl.	L/999 (0.007")	n/a	n/a	5	02-00-14
Max Defl.	0.01"	n/a	n/a	4	02-00-14
Span / Depth	4.7	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 1-3/4"	1,494 lbs	37.5%	20%	Unspecified
B1 Hanger	2" x 1-3/4"	1,473 lbs	n/a	34.5%	Hanger

Notes

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

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

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

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 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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BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B11L(i124

Specifier:

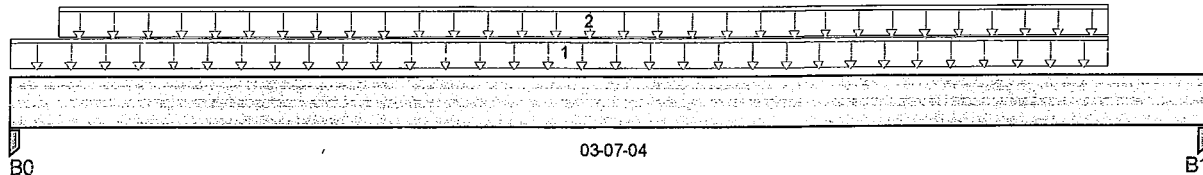
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:46:05 AM kgervais



Total Horizontal Product Length = 03-07-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	417 / 0	217 / 0		
B1, 3-1/2"	421 / 0	219 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-03-12	21	11			n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-01-12	03-03-12	240	120			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	760 ft-lbs	12,704 ft-lbs	6%	1	01-08-12
End Shear	445 lbs	5,785 lbs	7.7%	1	00-11-04
Total Load Defl.	L/999 (0.004")	n/a	n/a	4	01-08-12
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	01-08-12
Max Defl.	0.004"	n/a	n/a	4	01-08-12
Span / Depth	4.2	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 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	1-3/4" x 1-3/4"	897 lbs	45.1%	24%	Unspecified
B1 Post	3-1/2" x 1-3/4"	905 lbs	22.7%	12.1%	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 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

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Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B12L(i203

Specifier:

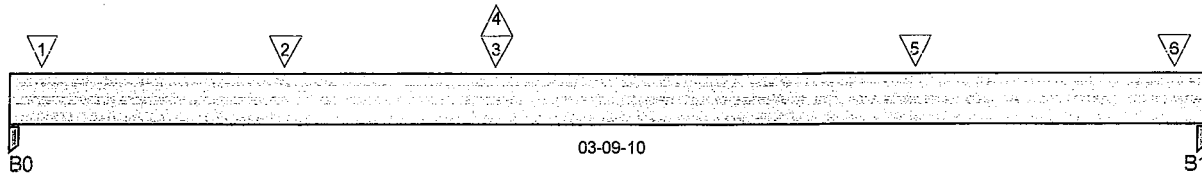
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:46:06 AM kgervais



Total Horizontal Product Length = 03-09-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,684 / 33	969 / 0		
B1, 1-3/4"	1,125 / 20	644 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	J6(i1962)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	52	26			n/a
2	J6(i1952)	Conc. Pt. (lbs)	L	00-10-08	00-10-08	111	56			n/a
3	-	Conc. Pt. (lbs)	L	01-06-07	01-06-07	2,425	1,383			n/a
4	-	Conc. Pt. (lbs)	L	01-06-07	01-06-07	-53				n/a
5	J6(i1961)	Conc. Pt. (lbs)	L	02-10-08	02-10-08	108	54			n/a
6	J6(i1954)	Conc. Pt. (lbs)	L	03-08-06	03-08-06	113	57			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,519 ft-lbs	25,408 ft-lbs	17.8%	1	01-06-04
End Shear	3,551 lbs	11,571 lbs	30.7%	1	01-01-00
Total Load Defl.	L/999 (0.011")	n/a	n/a	6	01-10-08
Live Load Defl.	L/999 (0.007")	n/a	n/a	8	01-10-08
Max Defl.	0.011"	n/a	n/a	6	01-10-08
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 Post	3-1/2" x 3-1/2"	3,737 lbs	47%	25%	Unspecified
B1 Post	1-3/4" x 3-1/2"	2,492 lbs	62.6%	33.4%	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 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


DWG NO. TAM 44736-17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B12L(i2

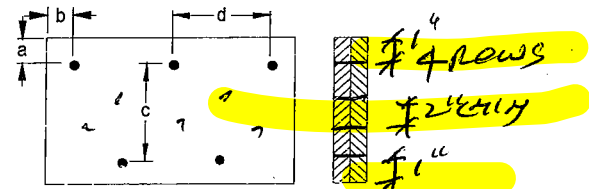
Specifier:

Designer: AJ

Company:

Misc:

Connection Diagram



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

Calculated Side Load = 291.2 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: 16d Ring Nail 3-1/2 in.

3 1/2" ARDOX SPIRAL

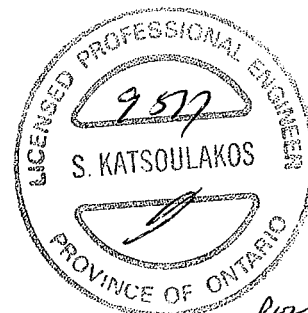
Disclosure

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DWG NO. TAM 44736-17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B13L(i196

Specifier:

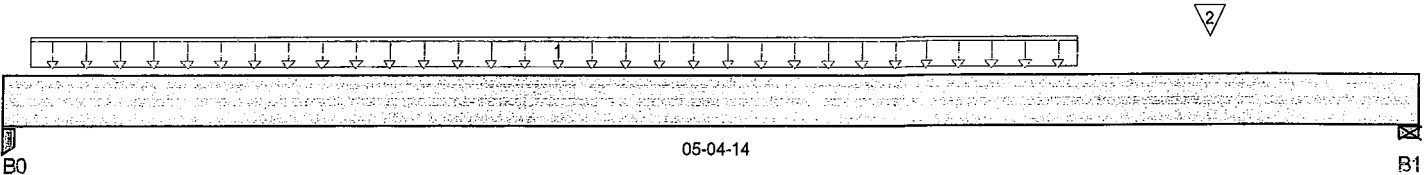
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

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Total Horizontal Product Length = 05-04-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	338 / 0	181 / 0		
B1, 4-3/8"	335 / 0	182 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-01-04	04-01-04	136	68			n/a
2	J5(i1940)	Conc. Pt. (lbs)	L	04-07-04	04-07-04	129	65			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	962 ft-lbs	12,704 ft-lbs	7.6%	1	02-07-04
End Shear	606 lbs	5,785 lbs	10.5%	1	00-11-04
Total Load Defl.	L/999 (0.012")	n/a	n/a	4	02-07-04
Live Load Defl.	L/999 (0.008")	n/a	n/a	5	02-07-04
Max Defl.	0.012"	n/a	n/a	4	02-07-04
Span / Depth	6.3	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 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	1-3/4" x 1-3/4"	734 lbs	36.9%	19.6%	Unspecified
B1 Wall/Plate	4-3/8" x 1-3/4"	730 lbs	22.3%	7.8%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume Member is Fully Braced.
 Resistance Factor phi has been applied to all presented results per CSA086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA086.
 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

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BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B14L(i199

Specifier:

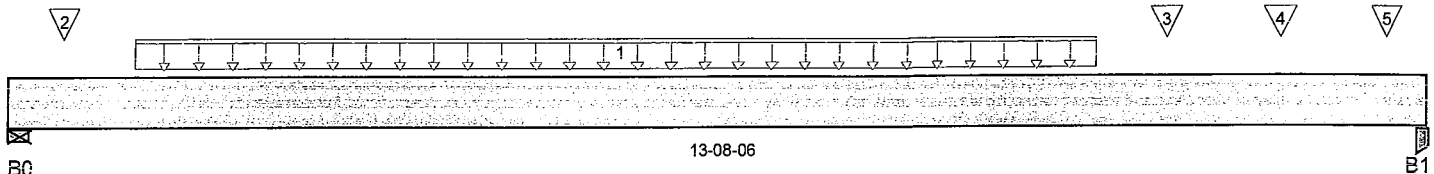
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

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Total Horizontal Product Length = 13-08-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	1,276 / 0	702 / 0		
B1, 1-3/4"	1,228 / 0	679 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-02-06	10-06-06	193	96			n/a
2	J4(i2053)	Conc. Pt. (lbs)	L	00-06-06	00-06-06	188	94			n/a
3	J4(i1994)	Conc. Pt. (lbs)	L	11-02-06	11-02-06	232	116			n/a
4	J5(i1944)	Conc. Pt. (lbs)	L	12-03-10	12-03-10	146	73			n/a
5	J5(i1958)	Conc. Pt. (lbs)	L	13-03-10	13-03-10	139	70			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	9,467 ft-lbs	25,408 ft-lbs	37.3%	1	07-02-06
End Shear	2,548 lbs	11,571 lbs	22%	1	00-11-14
Total Load Defl.	L/371 (0.436")	0.674"	64.7%	4	06-10-06
Live Load Defl.	L/575 (0.281")	0.449"	62.6%	5	06-10-06
Max Defl.	0.436"	n/a	n/a	4	06-10-06
Span / Depth	17	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	2-3/8" x 3-1/2"	2,792 lbs	78.6%	27.5%	Unspecified
B1 Post	1-3/4" x 3-1/2"	2,691 lbs	67.6%	36%	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 CSA086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA086.
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


BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B14L(i1

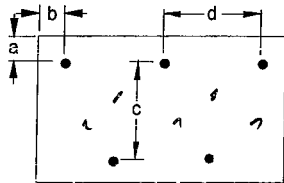
Specifier:

Designer: AJ

Company:

Misc:

Connection Diagram



Handwritten notes:
#1 & rows
#2" only
#1"

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

Calculated Side Load = 401.9 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 in.

Handwritten note: 3 1/2" ARDOX SPIRAL

Disclosure

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Town of Innisfil Certified Model

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Handwritten: DWG NO. TAM 44738-17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B15

Specifier:

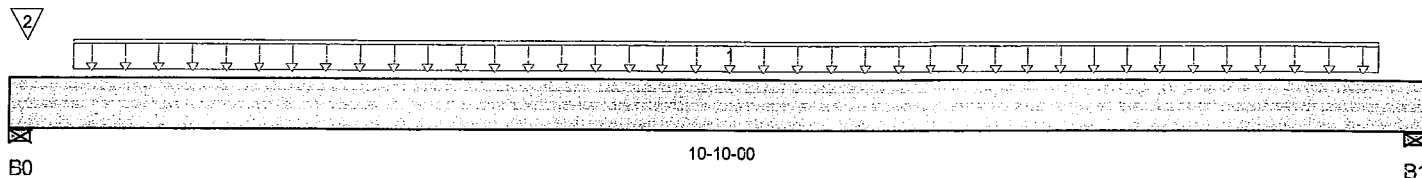
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:46:37 AM kgervais



Total Horizontal Product Length = 10-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	1,955 / 0	1,035 / 0		
B1, 4"	1,768 / 0	941 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-05-12	10-05-12	324	163			n/a
2	J7(i1691)	Conc. Pt. (lbs)	L	00-01-08	00-01-08	318	159			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	9,743 ft-lbs	25,408 ft-lbs	38.3%	1	05-01-08
End Shear	3,525 lbs	11,571 lbs	30.5%	1	01-01-08
Total Load Defl.	L/471 (0.262")	0.515"	50.9%	4	05-03-04
Live Load Defl.	L/722 (0.171")	0.343"	49.9%	5	05-03-04
Max Defl.	0.262"	n/a	n/a	4	05-03-04
Span / Depth	13	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4" x 3-1/2"	4,226 lbs	46.5%	24.7%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	3,829 lbs	42.1%	22.4%	Unspecified

Notes

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

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

Calculation assumes member is partially braced. See engineering report for the unbraced length.

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


p612

 DWG NO. TAM 44739-17
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

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

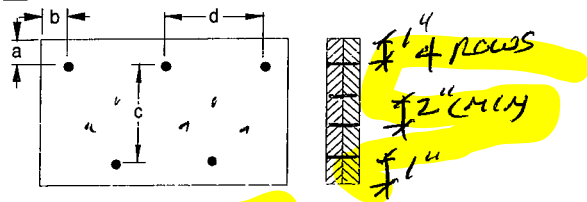
Specifier:

Designer: AJ

Company:

Msc:

Connection Diagram



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

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

Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

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DWG NO. TAM 44739-17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B17

Specifier:

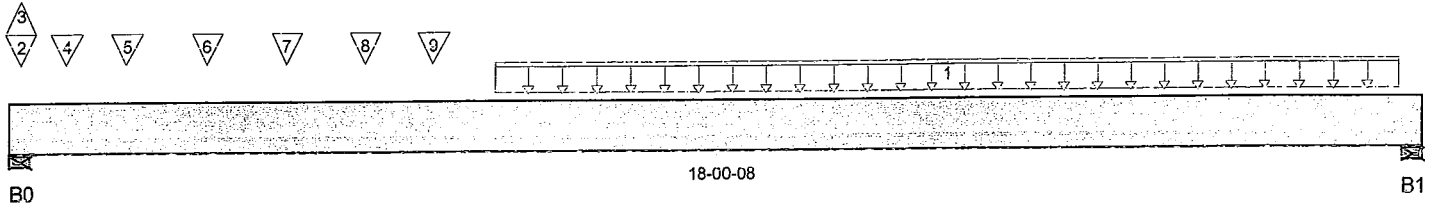
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

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Total Horizontal Product Length = 18-00-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-1/2"	4,628 / 140	2,487 / 0		
B1, 4"	3,547 / 0	1,959 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.66	Snow 1.00	Wind 1.15	Trib.
1	Smoothed Load	Unf. Lin. (lb/ft)	L	06-02-00	17-09-00	394	196			n/a
2	B23(i2112)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	628	295			n/a
3	B23(i2112)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	-140				n/a
4	J2(i1980)	Conc. Pt. (lbs)	L	00-08-12	00-08-12	270	135			n/a
5	-	Conc. Pt. (lbs)	L	01-05-14	01-05-14	592	296			n/a
6	-	Conc. Pt. (lbs)	L	02-06-01	02-06-01	555	278			n/a
7	-	Conc. Pt. (lbs)	L	03-06-01	03-06-01	555	278			n/a
8	-	Conc. Pt. (lbs)	L	04-06-02	04-06-02	572	287			n/a
9	-	Conc. Pt. (lbs)	L	05-04-08	05-04-08	446	223			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pcs. Moment	34,120 ft-lbs	82,449 ft-lbs	41.4%	1	08-02-00
End Shear	8,153 lbs	25,578 lbs	31.9%	1	01-06-08
Total Load Defl.	L/376 (0.558")	0.873"	63.9%	6	09-01-00
Live Load Defl.	L/582 (0.36")	0.582"	61.8%	8	09-01-00
Max Defl.	0.558"	n/a	n/a	6	09-01-00
Span / Depth	15	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-1/2" x 5-1/4"	10,051 lbs	65.5%	34.9%	Unspecified
B1 Wall/Plate	4" x 5-1/4"	7,769 lbs	57%	30.3%	Unspecified

Notes



BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

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

Specifier:

Designer: AJ

Company:

Misc:

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

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

Calculation assumes member is partially braced. See engineering report for the unbraced length.

Resistance Factor phi has been applied to all presented results per CSA086.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA086.

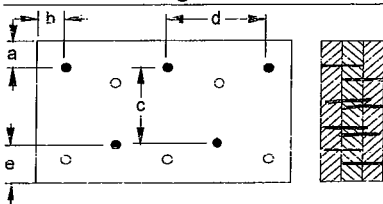
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

CONFORMS TO DBC 2012

Connection Diagram



4 rows

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

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.

Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of BOISE 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 Model

04/01/2018 8:46:57 AM kgervais



DWG NO. TAM 4474017
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B20

Specifier:

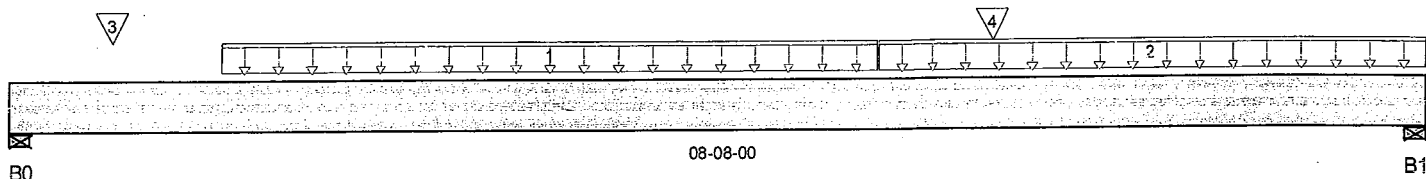
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:46:59 AM kgervais



Total Horizontal Product Length = 08-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	2,031 / 0	1,064 / 0		
B1, 4"	2,157 / 0	1,136 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-08	05-03-08	446	223			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	05-03-08	08-08-00	296	148			n/a
3	-	Conc. Pt. (lbs)	L	00-07-08	00-07-08	533	266			n/a
4	B22(i1254)	Conc. Pt. (lbs)	L	06-00-02	06-00-02	873	460			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	9,357 ft-lbs	25,408 ft-lbs	36.8%	1	04-07-08
End Shear	3,935 lbs	11,571 lbs	34%	1	07-06-08
Total Load Defl.	L/630 (0.155")	0.406"	38.1%	4	04-04-08
Live Load Defl.	L/999 (0.101")	n/a	n/a	5	04-04-08
Max Defl.	0.155"	n/a	n/a	4	04-04-08
Span / Depth	10.3	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4" x 3-1/2"	4,377 lbs	48.1%	25.6%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	4,656 lbs	51.2%	27.3%	Unspecified

Notes

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

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

Calculation assumes member is partially braced. See engineering report for the unbraced length.

Resistance Factor phi has been applied to all presented results per CSA086.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA086.

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


BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports:

CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B2

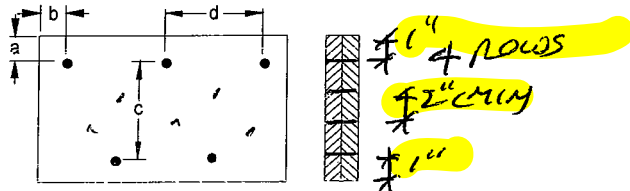
Specifier:

Designer: AJ

Company:

Misc:

Connection Diagram



a minimum = 1" c = 7-1/2" 6"
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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04/01/2018 8:47:10 AM kgervais



per

DWG NO. TAM 4474/17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B16

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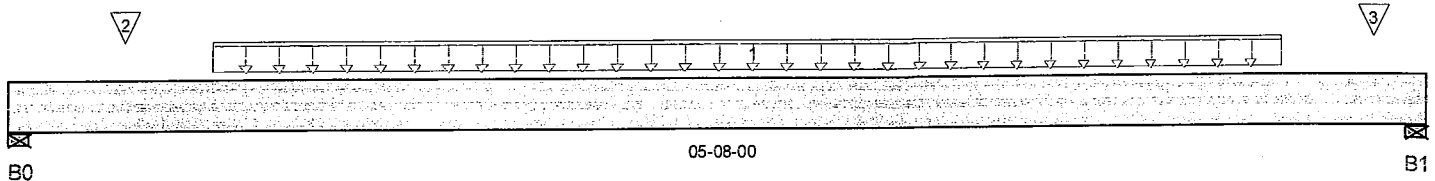
Designer: AJ

Company:

Misc:

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04/01/2018 8:47:11 AM kgervais



Total Horizontal Product Length = 05-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	961 / 0	510 / 0		
B1, 4"	1,052 / 0	556 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-09-12	05-01-04	302	152			n/a
2	J7(i1709)	Conc. Pt. (lbs)	L	00-05-08	00-05-08	318	159			n/a
3	J7(i1714)	Conc. Pt. (lbs)	L	05-05-08	05-05-08	318	159			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,395 ft-lbs	25,408 ft-lbs	9.4%	1	02-05-08
End Shear	1,576 lbs	11,571 lbs	13.6%	1	04-06-08
Total Load Defl.	L/999 (0.016")	n/a	n/a	4	02-10-07
Live Load Defl.	L/999 (0.01")	n/a	n/a	5	02-10-07
Max Defl.	0.016"	n/a	n/a	4	02-10-07
Span / Depth	6.5	n/a	n/a		00-00-00

Bearing Supports

B0	Wall/Plate	4" x 3-1/2"	2,080 lbs	22.9%	12.2%	Unspecified
B1	Wall/Plate	4" x 3-1/2"	2,273 lbs	25%	13.3%	Unspecified

Notes

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

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

Calculation assumes member is partially braced. See engineering report for the unbraced length.

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 UBC 2012


BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

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

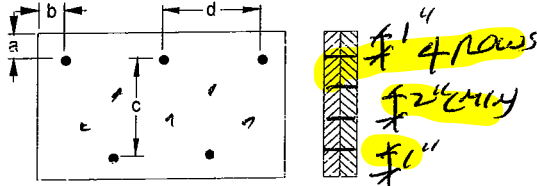
Specifier:

Designer: AJ

Company:

Misc:

Connection Diagram



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

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Member has no side loads.

Connectors are: 16d

3 1/2" ARDOX SPIRAL

Disclosure

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DWG NO. TAM 4474217
STRUCTURAL
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BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B24(i1588)

Specifier:

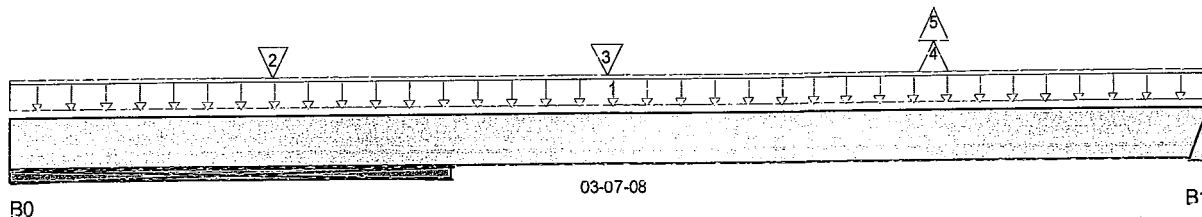
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:47:22 AM kgervais



Total Horizontal Product Length = 03-07-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 16"	635/82	299/0		
B1	135/171	0/6		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-07-08	21	11			n/a
2	J7(i1715)	Conc. Pt. (lbs)	L	00-09-08	00-09-08	321	160			n/a
3	J7(i1716)	Conc. Pt. (lbs)	L	01-09-08	01-09-08	321	160			n/a
4	J7(i1828)	Conc. Pt. (lbs)	L	02-09-08	02-09-08	51	-101			n/a
5	J7(i1828)	Conc. Pt. (lbs)	L	02-09-08	02-09-08	-253				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	290 ft-lbs	25,408 ft-lbs	1.1%	1	01-09-08
Neg. Moment	-201 ft-lbs	-25,408 ft-lbs	0.8%	2	02-09-08
Neg. Moment	-201 ft-lbs	-25,408 ft-lbs	0.8%	2	02-09-08
End Shear	251 lbs	11,571 lbs	2.2%	4	02-08-00
Uplift	265 lbs	n/a	n/a	2	03-07-08
Total Load Defl.	L/999 (0")	n/a	n/a	6	02-03-02
Live Load Defl.	L/999 (0")	n/a	n/a	8	02-03-09
Total Neg. Defl.	L/999 (-0")	n/a	n/a	7	02-07-09
Max Defl.	0"	n/a	n/a	6	02-03-02
Span / Depth	2.8	n/a	n/a		00-00-00
Distributed Load(B0)	45 lb/ft	n/a	n/a	0	n/a
Concentrated Load(B0)	682 lbs	16,813 lbs	4.1%	0	n/a

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	16" x 3-1/2"	1,326 lbs	5.5%	1.9%	Unspecified
B1 Hanger	2" x 3-1/2"	197 lbs	n/a	3.1%	Hanger
B1 Hanger Uplift	2" x 3-1/2"	265 lbs	n/a	0.02	Hanger

Cautions

Uplift of 265 lbs found at span 1 - Right. (SIMPSON H605410 CD-B1)

Notes

Page 1 of 2



DWG NO. TAM 44743-17
STRUCTURAL
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BC CALC® Design Report



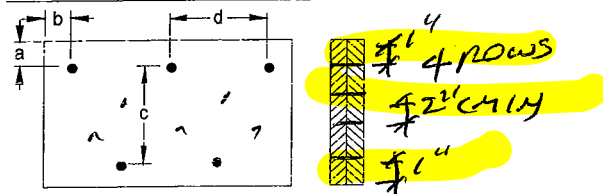
Build 4340
Job Name:
Address:
City, Province, Postal Code: INNISFILL,
Customer:
Code reports: CCMC 12472-R

File Name: S45-3.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B24(i1588)
Specifier:
Designer: AJ
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 CSA086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA086.
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

Connection Diagram



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

Calculated Side Load = 266.6 lb/ft

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

3 1/2" ARDOX SPIRAL

Disclosure

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04/01/2018 8:47:33 AM kgervais



DWG NO. TAM 4474317
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B18(i1509)

Specifier:

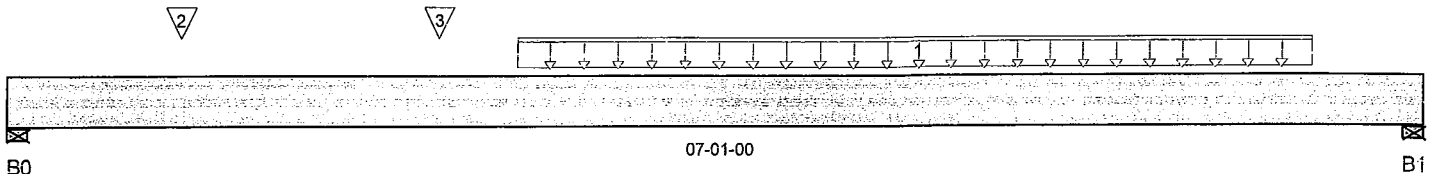
Designer: AJ

Company:

Misc:

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04/01/2018 8:47:35 AM kgervais



Total Horizontal Product Length = 07-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	1,262 / 0	663 / 0		
B1, 4"	1,239 / 0	652 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-06-08	06-06-08	374	186			n/a
2	-	Conc. Pt. (lbs)	L	00-10-06	00-10-06	463	231			n/a
3	-	Conc. Pt. (lbs)	L	02-01-13	02-01-13	545	272			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,509 ft-lbs	25,408 ft-lbs	17.7%	1	03-07-08
End Shear	2,387 lbs	11,571 lbs	20.6%	1	01-01-08
Total Load Defl.	L/999 (0.048")	n/a	n/a	4	03-06-04
Live Load Defl.	L/999 (0.032")	n/a	n/a	5	03-06-04
Max Defl.	0.048"	n/a	n/a	4	03-06-04
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 Wall/Plate	4" x 3-1/2"	2,722 lbs	45.5%	15.9%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	2,673 lbs	44.7%	15.7%	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 CSA086.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA086.

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

 DWG NO. TAM 4474417
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B18(i1509)

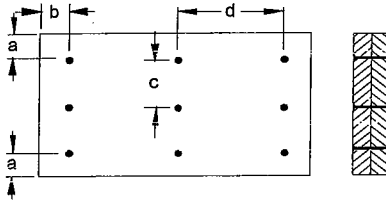
Specifier:

Designer: AJ

Company:

Misc:

Connection Diagram



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

Calculated Side Load = 556.2 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: 16d Nails

3 1/2" ARDOX SPIRAL

Town of Innisfil Certified Model

04/01/2018 8:47:44 AM kgervais

Disclosure

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DWONG, YAM 44744-17
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B19(i2072)

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

September 20, 2016 15:19:49

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B19(i2072)

Specifier:

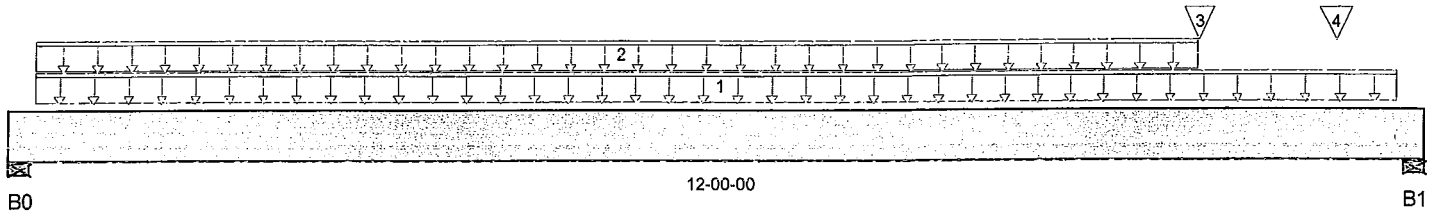
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:47:46 AM kgervais



Total Horizontal Product Length = 12-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	771 / 0	418 / 0		
B1, 5-1/2"	950 / 0	528 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	11-09-04	12	6			n/a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	10-01-04	120	60			n/a
3	B21(i1273)	Conc. Pt. (lbs)	L	10-01-04	10-01-04	70	63			n/a
4	J1(i2038)	Conc. Pt. (lbs)	L	11-03-00	11-03-00	320	160			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,625 ft-lbs	12,704 ft-lbs	36.4%	1	06-01-02
End Shear	1,613 lbs	5,785 lbs	27.9%	1	10-09-00
Total Load Defl.	L/452 (0.298")	0.56"	53.1%	4	05-11-07
Live Load Defl.	L/699 (0.192")	0.374"	51.5%	5	05-11-07
Max Defl.	0.298"	n/a	n/a	4	05-11-07
Span / Depth	14.2	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 1-3/4"	1,679 lbs	40.8%	14.3%	Unspecified
B1 Wall/Plate	5-1/2" x 1-3/4"	2,085 lbs	50.7%	17.8%	Unspecified

Notes

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

Disclosure

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CONFORMS TO OBC 2012

DWG NO. TAM 44745-17
 STRUCTURAL
 COMPONENT ONLY



BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B21(i1273)

Specifier:

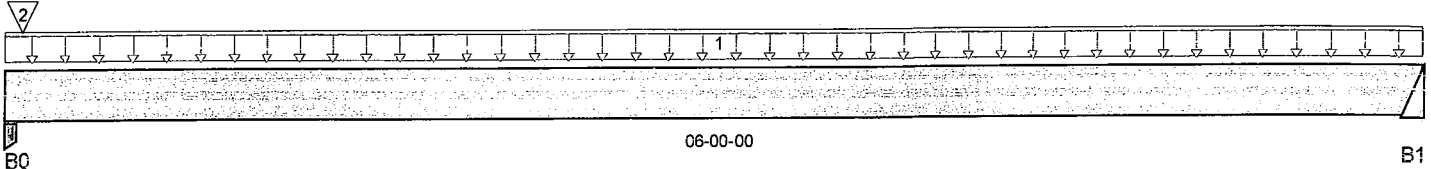
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:47:47 AM kgervais



Total Horizontal Product Length = 06-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	1,495 / 0	799 / 0		
B1	69 / 0	63 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	-00-00-00	06-00-00	23	11			n/a
2	B22(i1254)	Conc. Pt. (lbs)	L	00-00-14	00-00-14	1,426	736			n/a

Controls Summary

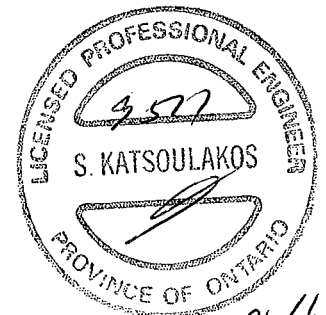
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	256 ft-lbs	25,408 ft-lbs	1%	1	02-11-14
End Shear	125 lbs	11,571 lbs	1.1%	1	00-11-04
Total Load Defl.	L/999 (0.002")	n/a	n/a	4	02-11-14
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	02-11-14
Max Defl.	0.002"	n/a	n/a	4	02-11-14
Span / Depth	7.3	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	1-3/4" x 3-1/2"	3,241 lbs	81.4%	43.4%	Unspecified
B1 Hanger	2" x 3-1/2"	183 lbs	n/a	2.1%	Hanger

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume Member is Fully Braced.
 Resistance Factor phi has been applied to all presented results per CSA 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
 Deflections less than 1/8" were ignored in the results.

CONFORMS TO OBC 2012


p6 1/2

 DWG NO. TAM44746-17
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B21(i1273)

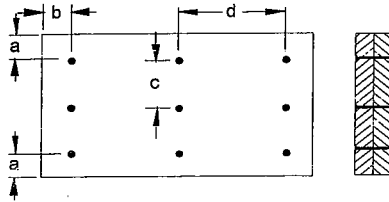
Specifier:

Designer: AJ

Company:

Misc:

Connection Diagram



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

Calculated Side Load = 528.2 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: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

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Town of Innisfil Certified Model

04/01/2018 8:47:55 AM kgervais



BOISE CASCADE
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B22(i1254)

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

September 20, 2016 15:19:50

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B22(i1254)

Specifier:

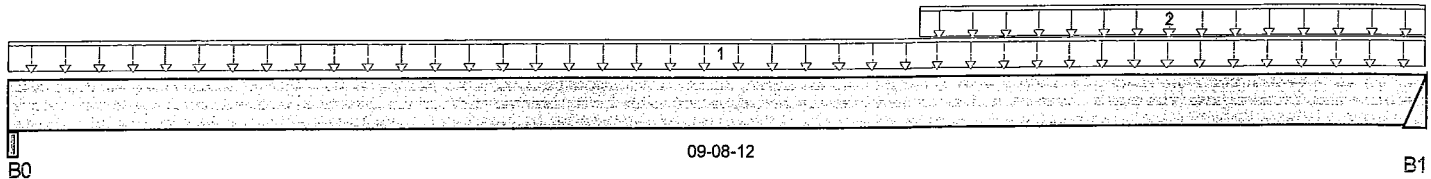
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:47:57 AM kgervais



Total Horizontal Product Length = 09-08-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	862 / 0	454 / 0		
B1	1,415 / 0	731 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-08-12	148	74			n/a
2	User Load	Unf. Lin. (lb/ft)	L	06-02-12	09-08-12	240	120			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,260 ft-lbs	12,704 ft-lbs	41.4%	1	05-09-12
End Shear	2,241 lbs	5,785 lbs	38.7%	1	08-09-04
Total Load Defl.	L/469 (0.244")	0.477"	51.1%	4	05-00-14
Live Load Defl.	L/715 (0.16")	0.318"	50.4%	5	05-00-14
Max Defl.	0.244"	n/a	n/a	4	05-00-14
Span / Depth	12.1	n/a	n/a		00-00-00

Disclosure

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Bearing Supports

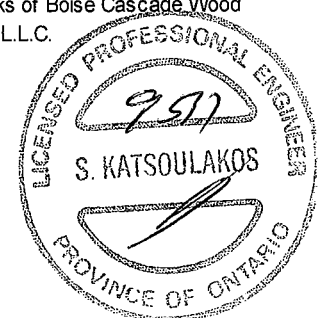
	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	1-3/4" x 1-3/4"	1,861 lbs	69.7%	49.8%	Unspecified
B1 Hanger	2" x 1-3/4"	3,037 lbs	n/a	71.1%	Hanger

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume Member is Fully Braced.
 Resistance Factor phi has been applied to all presented results per CSA 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Deflections less than 1/8" were ignored in the results.

CONFORMS TO OBC 2012

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BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B23(i2112)

Specifier:

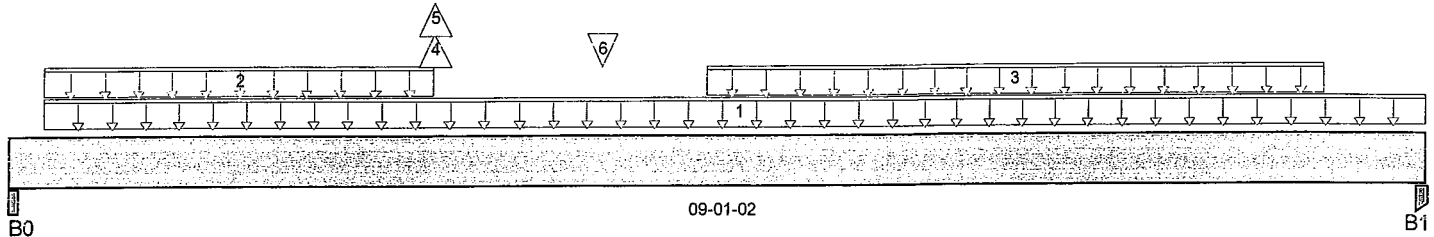
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:47:59 AM kgervais



Total Horizontal Product Length = 09-01-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	632 / 141	297 / 0		
B1, 1-3/4"	806 / 52	421 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1 FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	09-01-02	23	11			n/a
2 FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	02-08-10	20	10			n/a
3 Smoothed Load	Unf. Lin. (lb/ft)	L	04-05-06	08-05-06	201	100			n/a
4 B24(i1588)	Conc. Pt. (lbs)	L	02-08-10	02-08-10	140	-18			n/a
5 B24(i1588)	Conc. Pt. (lbs)	L	02-08-10	02-08-10	-193				n/a
6 J4(i1688)	Conc. Pt. (lbs)	L	03-09-06	03-09-06	243	121			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,995 ft-lbs	25,408 ft-lbs	15.7%	1	05-01-06
End Shear	1,679 lbs	11,571 lbs	14.5%	1	08-01-14
Total Load Defl.	L/999 (0.073")	n/a	n/a	6	04-09-06
Live Load Defl.	L/999 (0.049")	n/a	n/a	8	04-09-06
Max Defl.	0.073"	n/a	n/a	6	04-09-06
Span / Depth	10.9	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	5-1/4" x 3-1/2"	1,319 lbs	8.2%	5.9%	Unspecified
B1 Post	1-3/4" x 3-1/2"	1,736 lbs	43.6%	23.2%	Unspecified

Notes



p6/4

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B23(i2112)

Specifier:

Designer: AJ

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 CSA086.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA086.

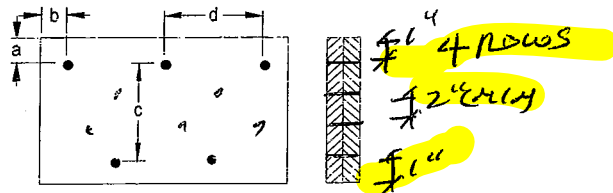
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

CONFORMS TO OBC 2012

Connection Diagram



a minimum = 0" c = 1-1/2"
b minimum = 3" d = 6"

Calculated Side Load = 241.4 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 8:48:08 AM kgervais





Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B25(i2144)

Specifier:

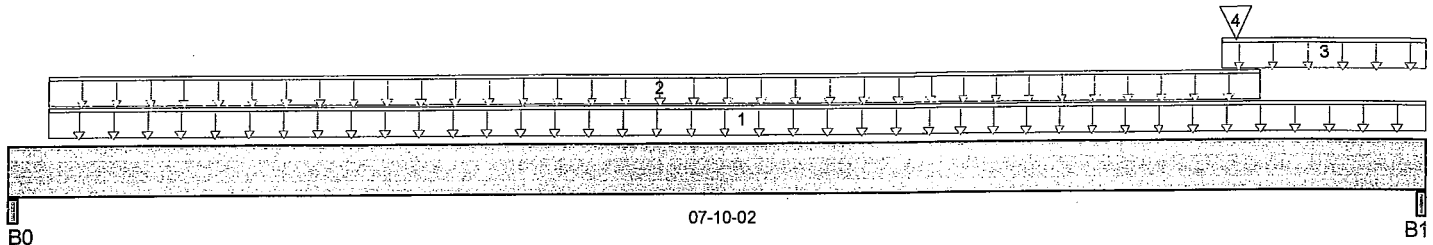
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:48:09 AM kgervais



Total Horizontal Product Length = 07-10-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	119 / 0	145 / 0	26 / 0	
B1, 4-1/8"	540 / 0	770 / 0	213 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	07-10-02	11	6			n/a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	06-11-04	5	2			n/a
3	User Load	Unf. Lin. (lb/ft)	L	06-08-10	07-10-02		100			n/a
4	B26(i2127)	Conc. Pt. (lbs)	L	06-09-08	06-09-08	533	664	239		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,358 ft-lbs	25,408 ft-lbs	5.3%	1	06-09-08
End Shear	1,607 lbs	11,571 lbs	13.9%	1	06-08-08
Total Load Defl.	L/999 (0.016")	n/a	n/a	35	04-04-12
Live Load Defl.	L/999 (0.008")	n/a	n/a	51	04-04-12
Max Defl.	0.016"	n/a	n/a	35	04-04-12
Span / Depth	9.1	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	5-1/4" x 3-1/2"	373 lbs	4.7%	1.7%	Unspecified
B1 Beam	4-1/8" x 3-1/2"	1,880 lbs	30.5%	10.7%	Unspecified

Notes

 DWG NO. YAM 4474917
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B25(i214

Specifier:

Designer: AJ

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 CSA086.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA086.

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

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

CONFORMS TO OBC 2012

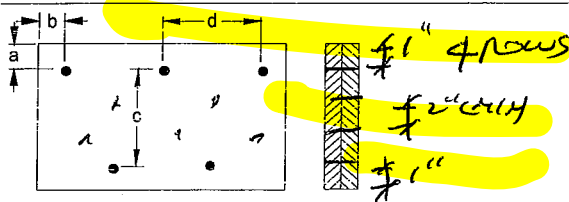
Disclosure

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Connection Diagram



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

Calculated Side Load = 266.2 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: 3 1/2" ARDOX SPIRAL Nails

Town of Innisfil Certified Model

04/01/2018 8:48:18 AM kgervais





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...\B26(i2127)

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

September 20, 2016 15:19:50

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B26(i2127)

Specifier:

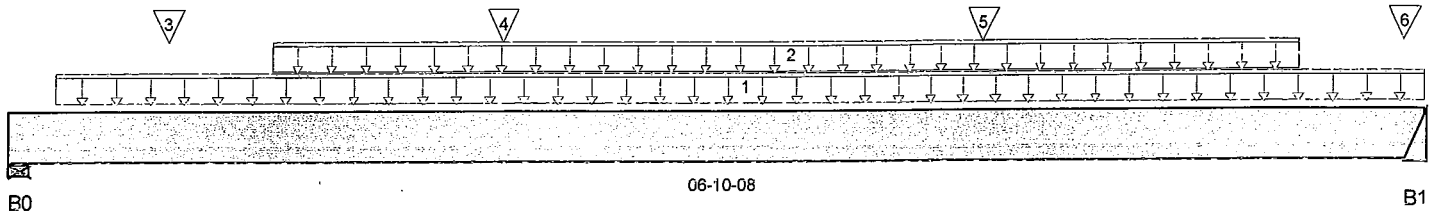
Designer: AJ

Company:

Misc:

Town of Innisfil Certified Model

04/01/2018 8:48:20 AM kgervais



Total Horizontal Product Length = 06-10-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/4"	483 / 0	626 / 0	228 / 0	
B1	538 / 0	672 / 0	240 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	User Load	Unf. Lin. (lb/ft)	L	00-02-12	06-10-08		100			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-04	06-03-04	137	69			n/a
3	J5(i1684)	Conc. Pt. (lbs)	L	00-09-04	00-09-04	118	59			n/a
4	User Load	Conc. Pt. (lbs)	L	02-04-10	02-04-10	66	60	234		n/a
5	User Load	Conc. Pt. (lbs)	L	04-08-10	04-08-10	66	60	234		n/a
6	J5(i1678)	Conc. Pt. (lbs)	L	06-09-04	06-09-04	86	43			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,942 ft-lbs	25,408 ft-lbs	11.6%	1	03-09-04
End Shear	1,453 lbs	11,571 lbs	12.6%	1	05-11-00
Total Load Defl.	L/999 (0.035")	n/a	n/a	35	03-06-04
Live Load Defl.	L/999 (0.018")	n/a	n/a	51	03-06-04
Max Defl.	0.035"	n/a	n/a	35	03-06-04
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 Wall/Plate	2-3/4" x 3-1/2"	1,621 lbs	39.4%	13.8%	Unspecified
B1 Hanger	2" x 3-1/2"	1,767 lbs	n/a	20.7%	Hanger

Notes



P614

BC CALC® Design Report



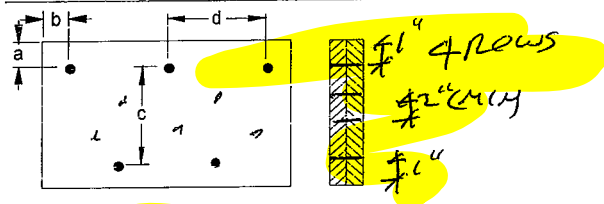
Build 4340
Job Name:
Address:
City, Province, Postal Code: INNISFILL,
Customer:
Code reports: CCMC 12472-R

File Name: S45-3.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B26(i2127)
Specifier:
Designer: AJ
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 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
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
Deflections less than 1/8" were ignored in the results.

CONFORMS TO OBC 2012

Connection Diagram



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

Calculated Side Load = 285.0 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Connectors are: 16d Nail 3-1/2 in.

3 1/2" ARDOX SPIRAL

Disclosure

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Town of Innisfil Certified Model

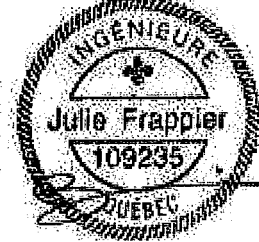
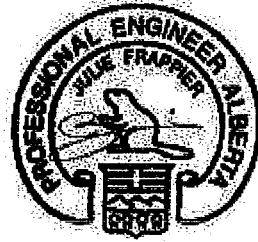
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DWG NO. YAM 4475017
STRUCTURAL
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Maximum Floor Spans

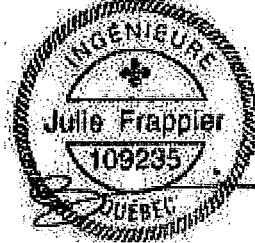
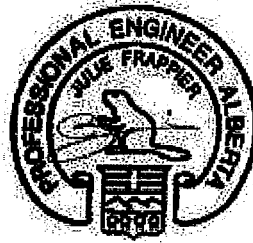
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing



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

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"
11-7/8"	NI-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10"
	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	17'-5"	16'-2"
	NI-40x	21'-10"	20'-4"	19'-4"	17'-8"	22'-5"	20'-6"	19'-4"	17'-8"
	NI-60	22'-1"	20'-7"	19'-7"	18'-4"	22'-8"	20'-10"	19'-8"	18'-4"
14"	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	22'-3"	21'-2"	19'-9"
	NI-80	23'-7"	21'-11"	20'-11"	19'-9"	24'-1"	22'-6"	21'-5"	20'-0"
	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"
	NI-40x	24'-5"	22'-9"	21'-8"	19'-5"	25'-1"	23'-2"	21'-9"	19'-5"
16"	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10"
	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"	23'-9"	22'-4"
	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"

- 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.



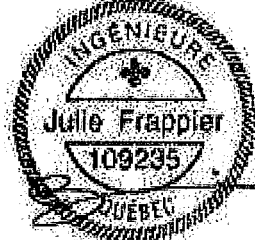
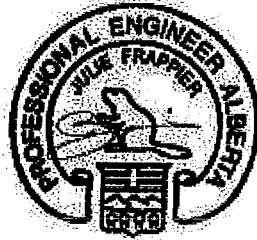
Maximum Floor Spans

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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



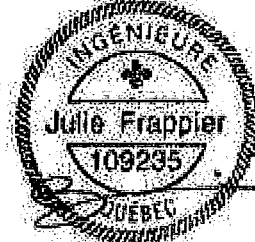
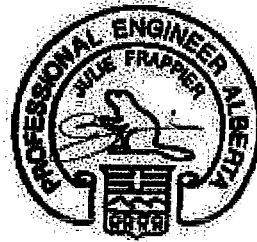
Maximum Floor Spans

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

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

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

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



Maximum Floor Spans

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

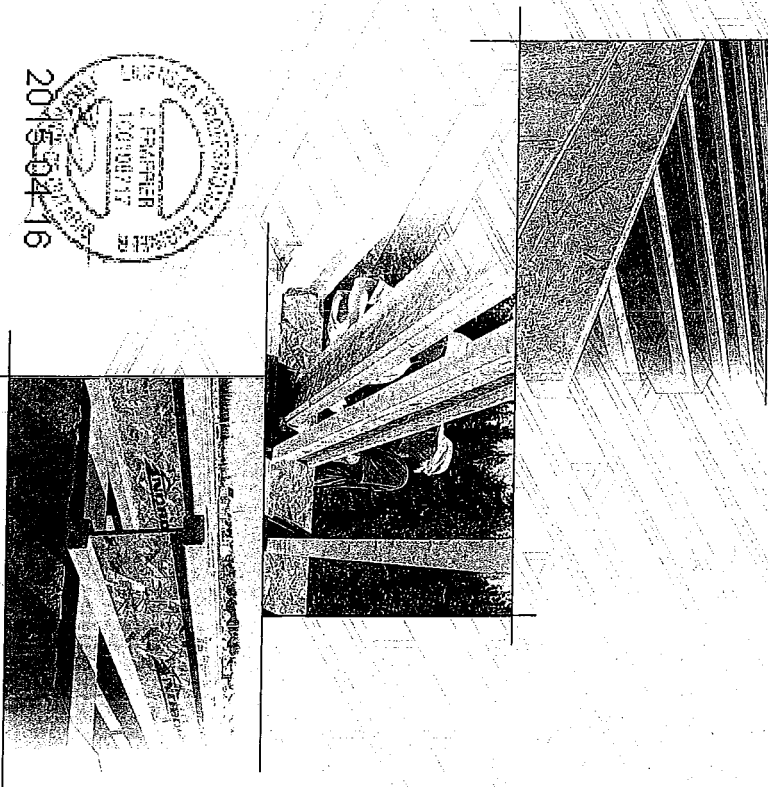
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

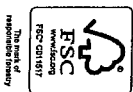


INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



2015-04-16

Distributed by:



N-C301 / November 2014

SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

WARNING

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

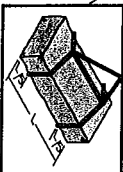
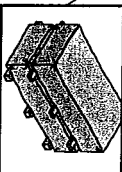
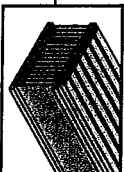
Avoid Accidents by Following these Important Guidelines:

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

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

STORAGE AND HANDLING GUIDELINES

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



MAXIMUM FLOOR SPANS

1. Maximum **clear** spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
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, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGSBS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate 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 uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

WEB STIFFENERS

RECOMMENDATIONS:

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

SI units conversion: 1 inch = 25.4 mm

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

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
12"	12"	5.1	4.2	3.9	3.5	16.3	15.4	14.10	14.7
12"	12"	16.1	15.2	14.8	14.9	17.5	16.5	15.10	15.5
12"	12"	16.8	15.4	14.10	14.3	17.7	16.7	15.6.1	16.1
12"	12"	17.1	16.1	15.6	15.7	18.7	17.4	16.9	16.10
12"	12"	17.5	16.5	15.8	15.9	19.10	17.6	16.1	17.0
12"	12"	18.1	16.9	15.5	15.6	19.4	17.8	16.8	17.3
12"	12"	18.4	17.0	16.5	16.6	20.0	18.4	17.9	17.7
12"	12"	18.5	17.3	16.7	16.9	20.3	18.9	18.4	18.1
12"	12"	18.6	18.0	17.4	17.5	21.3	19.1	18.0	18.1
12"	12"	18.9	18.5	17.6	17.7	21.5	19.3	19.4	19.4
12"	12"	20.2	18.7	17.5	17.6	22.5	20.7	19.8	19.9
12"	12"	20.4	18.9	17.1	18.0	22.5	20.9	19.10	19.1
12"	12"	20.1	18.7	17.10	17.5	22.7	20.6	19.8	19.4
12"	12"	20.5	18.1	18.1	18.2	22.7	20.10	20.0	20.3
12"	12"	21.7	20.0	19.1	19.2	23.0	22.1	21.1	21.2
12"	12"	21.1	20.3	19.4	19.5	23.4	22.5	21.5	21.6
12"	12"	22.5	20.8	19.7	19.10	24.9	22.10	21.10	21.10
12"	12"	22.6	20.1	19.11	20.0	25.0	22.10	22.0	22.2
12"	12"	22.5	20.8	19.9	19.10	24.7	22.9	21.9	22.10
12"	12"	23.6	21.9	20.9	20.10	24.7	24.0	22.11	23.0
12"	12"	23.5	22.1	21.1	21.5	24.5	24.5	23.5	23.4
12"	12"	24.5	22.6	21.5	21.5	25.1	24.5	23.9	23.9
12"	12"	24.8	22.9	21.9	21.10	25.3	25.2	24.0	24.1

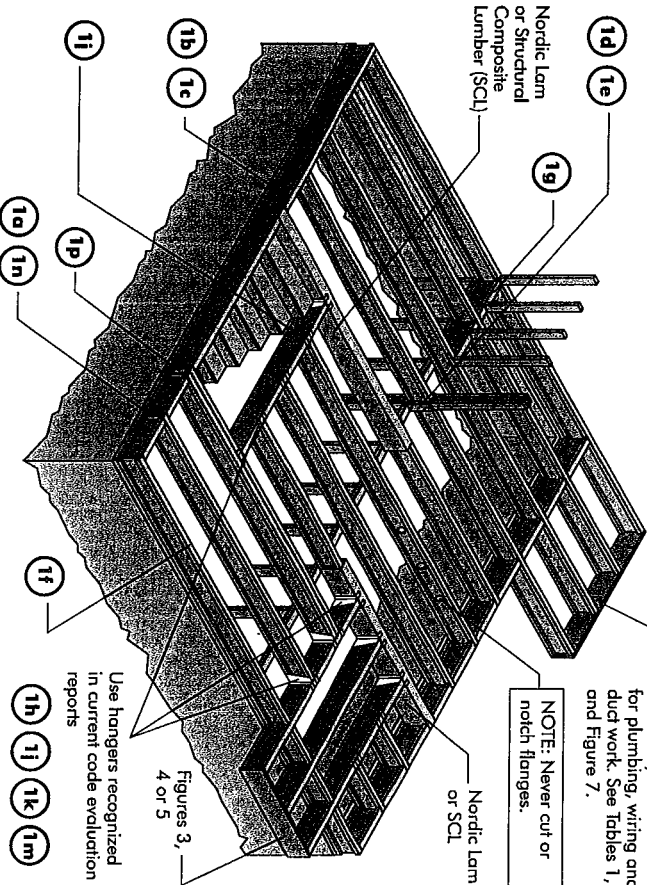
INSTALLING NORDIC I-JOISTS

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

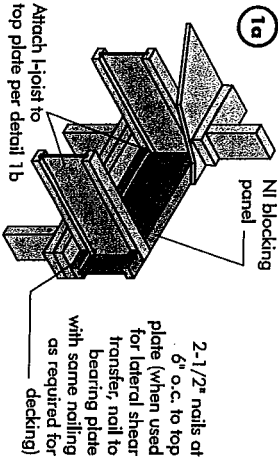
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FIGURE 1
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

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

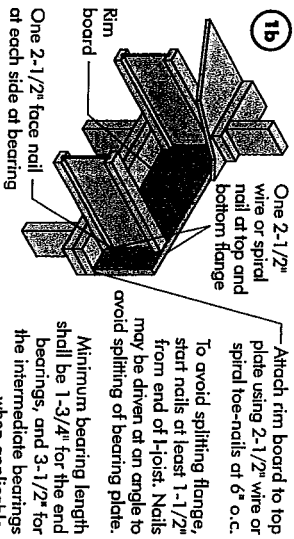


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



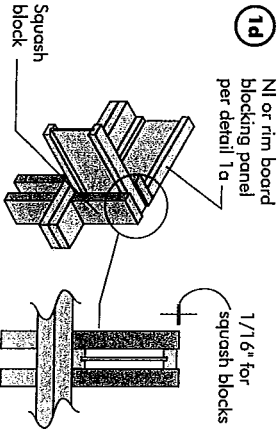
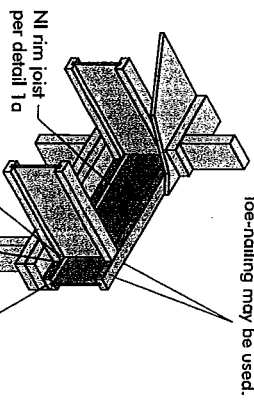
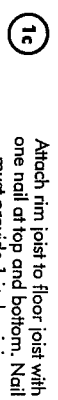
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (psf)
NI Joists	3,300

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



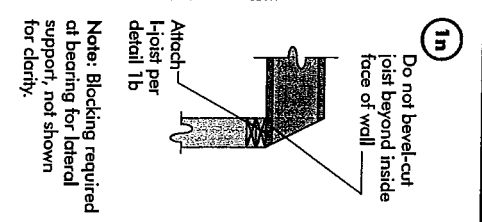
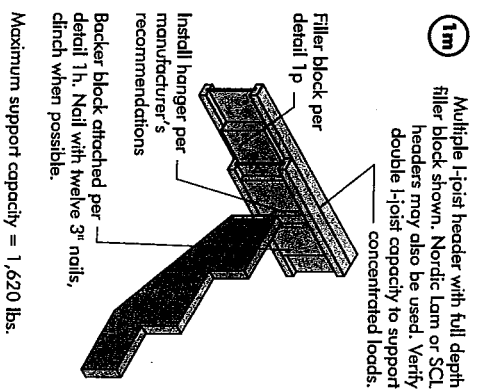
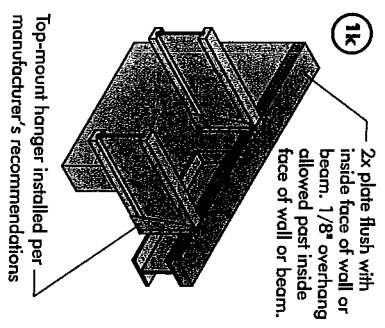
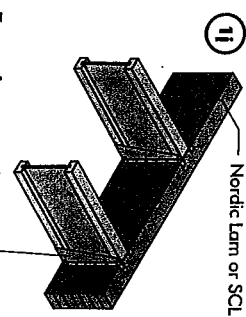
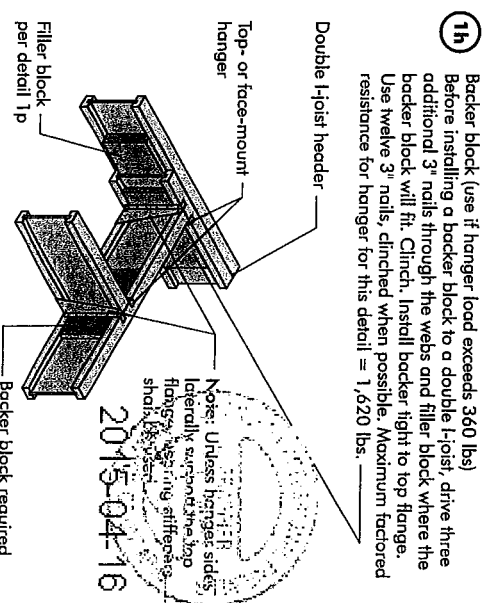
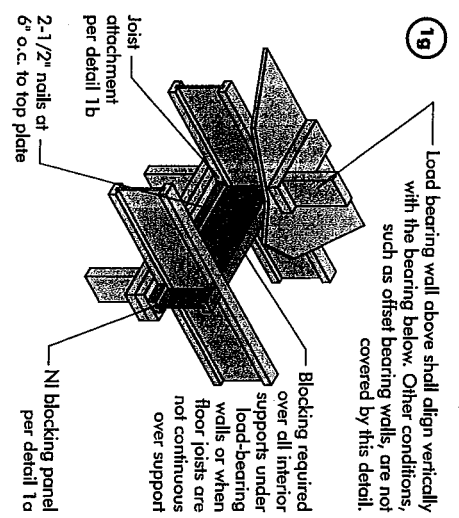
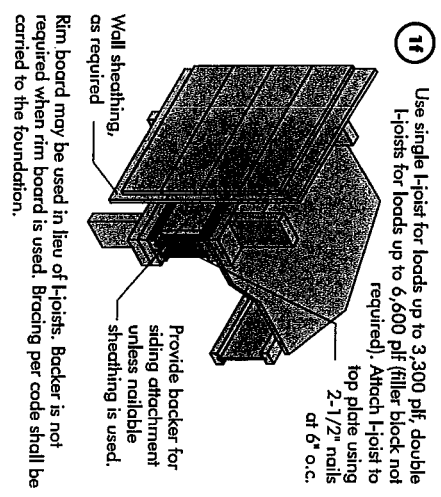
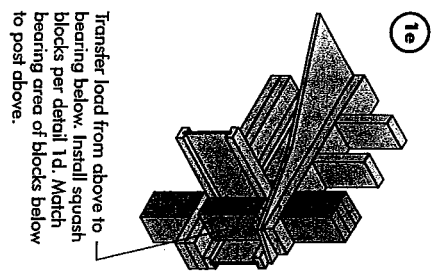
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (psf)
1-1/8" Rim Board Plus	8,090

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



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

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

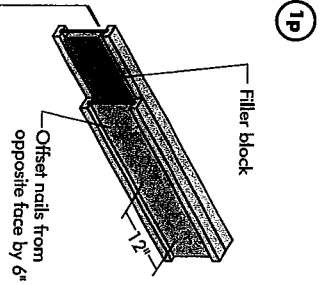


BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

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

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

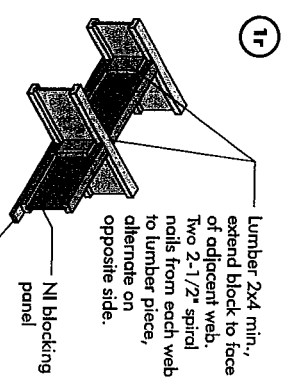
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.
 For nailing schedules for multiple beams, see the manufacturer's recommendations.



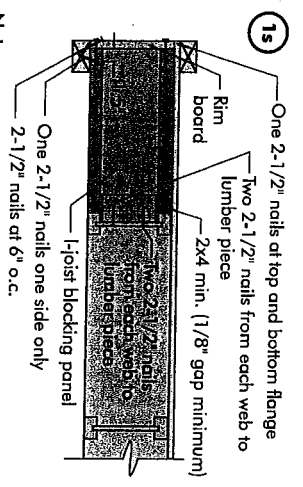
- Notes:**
- Support back of I-joist web during nailing to prevent damage to web/flange connection.
 - Leave a 1/8 to 1/4-inch gap between top flange of filler block and bottom of top I-joist flange.
 - Filler block is required between joists for full length of span.
 - Nail joists together with two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

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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



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

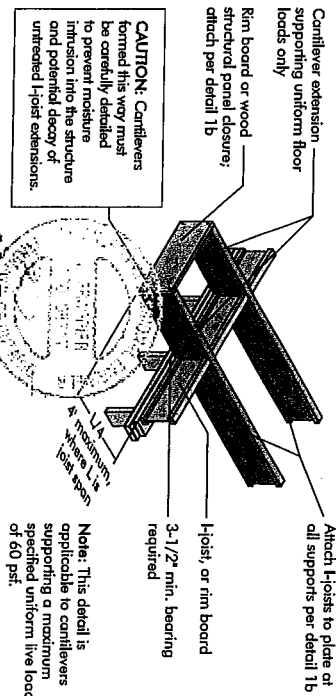


Notes:

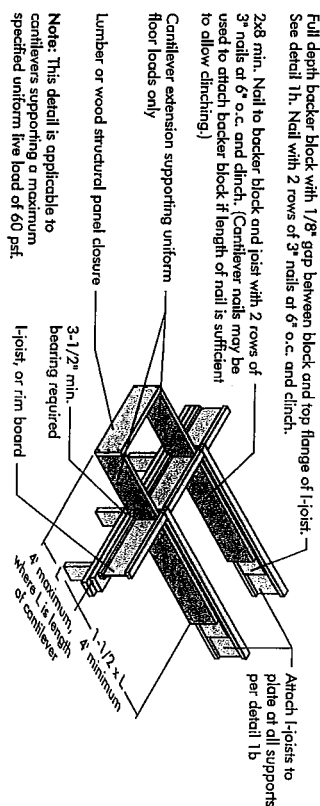
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

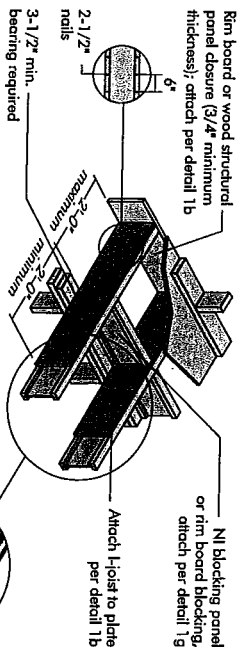


3b) LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



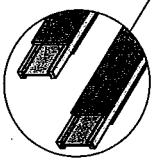
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

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

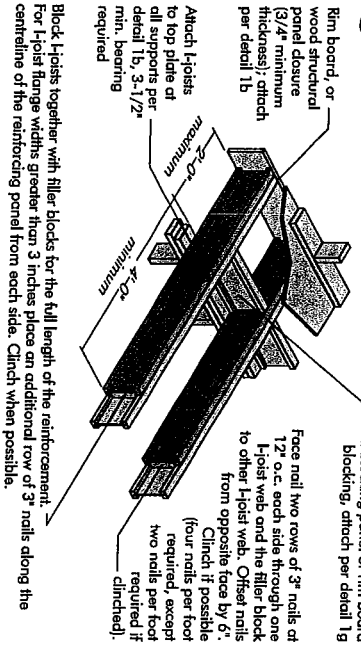
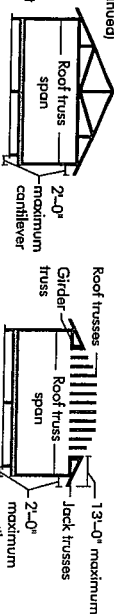


FIGURE 4 (continued)



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			
		JOIST SPACING (in.)				JOIST SPACING (in.)				JOIST SPACING (in.)			
12	12	1	1	1	1	1	1	1	1	1	1	1	1
	16	1	1	1	1	1	1	1	1	1	1	1	
	19.2	1	1	1	1	1	1	1	1	1	1	1	
	24	1	1	1	1	1	1	1	1	1	1	1	
	28	1	1	1	1	1	1	1	1	1	1	1	
	32	1	1	1	1	1	1	1	1	1	1	1	
	36	1	1	1	1	1	1	1	1	1	1	1	
	40	1	1	1	1	1	1	1	1	1	1	1	
	44	1	1	1	1	1	1	1	1	1	1	1	
	48	1	1	1	1	1	1	1	1	1	1	1	
16	12	1	1	1	1	1	1	1	1	1	1	1	
	16	1	1	1	1	1	1	1	1	1	1	1	
	19.2	1	1	1	1	1	1	1	1	1	1	1	
	24	1	1	1	1	1	1	1	1	1	1	1	
	28	1	1	1	1	1	1	1	1	1	1	1	
	32	1	1	1	1	1	1	1	1	1	1	1	
	36	1	1	1	1	1	1	1	1	1	1	1	
	40	1	1	1	1	1	1	1	1	1	1	1	
	44	1	1	1	1	1	1	1	1	1	1	1	
	48	1	1	1	1	1	1	1	1	1	1	1	
24	12	1	1	1	1	1	1	1	1	1	1	1	
	16	1	1	1	1	1	1	1	1	1	1	1	
	19.2	1	1	1	1	1	1	1	1	1	1	1	
	24	1	1	1	1	1	1	1	1	1	1	1	
	28	1	1	1	1	1	1	1	1	1	1	1	
	32	1	1	1	1	1	1	1	1	1	1	1	
	36	1	1	1	1	1	1	1	1	1	1	1	
	40	1	1	1	1	1	1	1	1	1	1	1	
	44	1	1	1	1	1	1	1	1	1	1	1	
	48	1	1	1	1	1	1	1	1	1	1	1	
32	12	1	1	1	1	1	1	1	1	1	1	1	
	16	1	1	1	1	1	1	1	1	1	1	1	
	19.2	1	1	1	1	1	1	1	1	1	1	1	
	24	1	1	1	1	1	1	1	1	1	1	1	
	28	1	1	1	1	1	1	1	1	1	1	1	
	32	1	1	1	1	1	1	1	1	1	1	1	
	36	1	1	1	1	1	1	1	1	1	1	1	
	40	1	1	1	1	1	1	1	1	1	1	1	
	44	1	1	1	1	1	1	1	1	1	1	1	
	48	1	1	1	1	1	1	1	1	1	1	1	

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS.

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS.

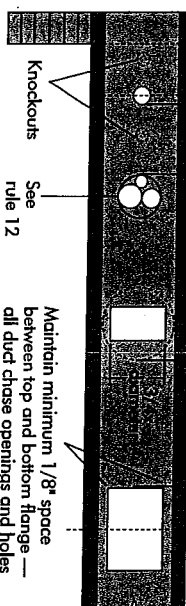
1. The distance between the inside edge of the support and the centerline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut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

See table 1 for minimum distance from bearing —

2x diameter of larger hole

2x duct chase length or hole diameter, whichever is larger

Duct chase opening (see table 2 for minimum distance from bearing)



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

[illegible]

1. Above table may be used for I-joint spacing of 24 inches on centre or less.
2. Hole location distance is measured from inside face of supports to centre of hole
3. Distances in this chart are based on uniformly loaded joists.

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

$$\text{Reduced} = \frac{\text{Total}}{\text{SAF}}$$

$$\text{Reduced} = \frac{\text{Actual}}{\text{SAF}} \times D$$

L_{actual}	=	distance span not be less than 6 inches from the face of the support to edge of the hole.
SAF	=	The actual measured span distance between the inside faces of supports (if).
D	=	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 $\frac{\text{Actual}}{\text{SAF}}$ is greater than 1, use 1 in the above calculation for $\frac{\text{Actual}}{\text{SAF}}$

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.)											
		Duct chase length (in.)											
		8	10	12	14	16	18	20	22	24			
12-0	12-0	7-5	8-0	8-6	9-1	9-6	10-1	10-7	11-2	11-8	12-3	12-8	
12-6	12-6	7-7	8-2	8-8	9-3	9-8	10-3	10-9	11-4	11-9	12-4	12-9	
13-0	13-0	7-9	8-4	9-0	9-5	10-0	10-5	11-0	11-5	12-0	12-5	13-0	
13-6	13-6	8-1	8-6	9-2	9-7	10-2	10-7	11-2	11-7	12-2	12-7	13-2	
14-0	14-0	8-3	8-8	9-4	9-9	10-4	10-9	11-4	11-9	12-4	12-9	13-4	
14-6	14-6	8-5	9-0	9-6	10-1	10-6	11-1	11-6	12-1	12-6	13-1	13-6	
15-0	15-0	8-7	9-2	9-8	10-3	10-8	11-3	11-8	12-3	12-8	13-3	13-8	
15-6	15-6	8-9	9-4	10-0	10-5	11-0	11-5	12-0	12-5	13-0	13-5	14-0	
16-0	16-0	9-1	9-6	10-2	10-7	11-2	11-7	12-2	12-7	13-2	13-7	14-2	
16-6	16-6	9-3	9-8	10-4	10-9	11-4	11-9	12-4	12-9	13-4	13-9	14-4	
17-0	17-0	9-5	10-0	10-6	11-1	11-6	12-1	12-6	13-1	13-6	14-1	14-6	
17-6	17-6	9-7	10-2	10-8	11-3	11-8	12-3	12-8	13-3	13-8	14-3	14-8	
18-0	18-0	9-9	10-4	11-0	11-5	12-0	12-5	13-0	13-5	14-0	14-5	15-0	
18-6	18-6	10-1	10-6	11-2	11-7	12-2	12-7	13-2	13-7	14-2	14-7	15-2	
19-0	19-0	10-3	10-8	11-4	11-9	12-4	12-9	13-4	13-9	14-4	14-9	15-4	
19-6	19-6	10-5	11-0	11-6	12-1	12-6	13-1	13-6	14-1	14-6	15-1	15-6	
20-0	20-0	10-7	11-2	11-8	12-3	12-8	13-3	13-8	14-3	14-8	15-3	15-8	
20-6	20-6	10-9	11-4	12-0	12-5	13-0	13-5	14-0	14-5	15-0	15-5	16-0	
21-0	21-0	11-1	11-6	12-2	12-7	13-2	13-7	14-2	14-7	15-2	15-7	16-2	
21-6	21-6	11-3	11-8	12-4	12-9	13-4	13-9	14-4	14-9	15-4	15-9	16-4	
22-0	22-0	11-5	12-0	12-6	13-1	13-6	14-1	14-6	15-1	15-6	16-1	16-6	
22-6	22-6	11-7	12-2	12-8	13-3	13-8	14-3	14-8	15-3	15-8	16-3	16-8	
23-0	23-0	11-9	12-4	13-0	13-5	14-0	14-5	15-0	15-5	16-0	16-5	17-0	
23-6	23-6	12-1	12-6	13-2	13-7	14-2	14-7	15-2	15-7	16-2	16-7	17-2	
24-0	24-0	12-3	12-8	13-4	13-9	14-4	14-9	15-4	15-9	16-4	16-9	17-4	
24-6	24-6	12-5	13-0	13-6	14-1	14-6	15-1	15-6	16-1	16-6	17-1	17-6	
25-0	25-0	12-7	13-2	13-8	14-3	14-8	15-3	15-8	16-3	16-8	17-3	17-8	
25-6	25-6	12-9	13-4	14-0	14-5	15-0	15-5	16-0	16-5	17-0	17-5	18-0	
26-0	26-0	13-1	13-6	14-2	14-7	15-2	15-7	16-2	16-7	17-2	17-7	18-2	
26-6	26-6	13-3	13-8	14-4	14-9	15-4	15-9	16-4	16-9	17-4	17-9	18-4	
27-0	27-0	13-5	14-0	14-6	15-1	15-6	16-1	16-6	17-1	17-6	18-1	18-6	
27-6	27-6	13-7	14-2	14-8	15-3	15-8	16-3	16-8	17-3	17-8	18-3	18-8	
28-0	28-0	13-9	14-4	15-0	15-5	16-0	16-5	17-0	17-5	18-0	18-5	19-0	
28-6	28-6	14-1	14-6	15-2	15-7	16-2	16-7	17-2	17-7	18-2	18-7	19-2	
29-0	29-0	14-3	14-8	15-4	15-9	16-4	16-9	17-4	17-9	18-4	18-9	19-4	
29-6	29-6	14-5	15-0	15-6	16-1	16-6	17-1	17-6	18-1	18-6	19-1	19-6	
30-0	30-0	14-7	15-2	15-8	16-3	16-8	17-3	17-8	18-3	18-8	19-3	19-8	
30-6	30-6	14-9	15-4	16-0	16-5	17-0	17-5	18-0	18-5	19-0	19-5	20-0	
31-0	31-0	15-1	15-6	16-2	16-7	17-2	17-7	18-2	18-7	19-2	19-7	20-2	
31-6	31-6	15-3	15-8	16-4	16-9	17-4	17-9	18-4	18-9	19-4	19-9	20-4	
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41-0	41-0	19-1	19-6	20-2	20-7	21-2	21-7	22-2	22-7	23-2	23-7	24-2	
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43-6	43-6	20-1	20-6	21-2	21-7	22-2	22-7	23-2	23-7	24-2	24-7	25-2	
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44-6	44-6	20-5	21-0	21-6	22-1	22-6	23-1	23-6	24-1	24-6	25-1	25-6	
45-0	45-0	20-7	21-2	21-8	22-3	22-8	23-3	23-8	24-3	24-8	25-3	25-8	
45-6	45-6	20-9	21-4	22-0	22-5	23-0	23-5	24-0	24-5	25-0	25-5	26-0	
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47-6	47-6	21-7	22-2	22-8	23-3	23-8	24-3	24-8	25-3	25-8	26-3	26-8	
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60-6	60-6	26-9	27-4	28-0	28-5	29-0	29-5	30-0	30-5	31-0	31-5	32-0	
61-0	61-0	27-1	27-6	28-2	28-7	29-2	29-7	30-2	30-7	31-2	31-7	32-2	
61-6	61-6	27-3	27-8	28-4	28-9	29-4	29-9	30-4	30-9	31-4	31-9	32-4	
62-0	62-0	27-5	28-0	28-6	29-1	29-6	30-1	30-6	31-1	31-6	32-1	32-6	
62-6	62-6	27-7	28-2	28-8									

1. Joist spacing may be used for 1-joint spacing of 24 inches on centre or less.
2. Do not chase opening location distances as measured from inside face of supports to centre of opening.
3. The above table is based on simple-span joist only. For other applications, contact your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of $L/480$. For other applications, contact your local distributor.



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

Holes in webs should be cut with a sharp saw.

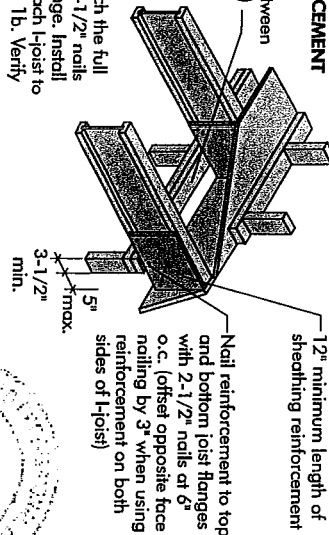
For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another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

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

5a SHEATHING REINFORCEMENT

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

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

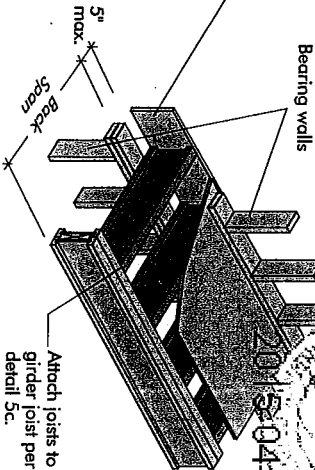


5b SET-BACK DETAIL

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

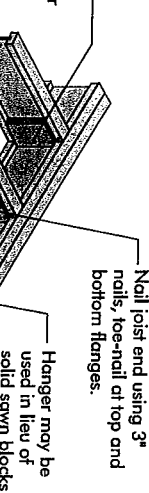
Notes:

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



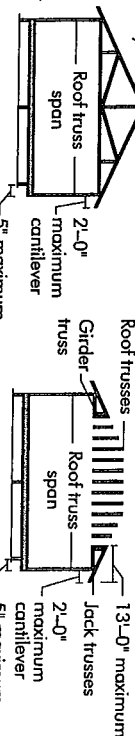
5c SET-BACK CONNECTION

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



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

FIGURE 5 (continued)



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

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)				LL = 50 psf, DL = 15 psf			
		LL = 30 psf, DL = 15 psf				JOIST SPACING (in.)			
		12	16	19.2	24	12	16	19.2	24
9-1/2"	26	X	X	X	X	X	X	X	X
	30	X	X	X	X	X	X	X	X
	32	X	X	X	X	X	X	X	X
	34	X	X	X	X	X	X	X	X
	36	X	X	X	X	X	X	X	X
11-7/8"	26	X	X	X	X	X	X	X	X
	30	X	X	X	X	X	X	X	X
	32	X	X	X	X	X	X	X	X
	34	X	X	X	X	X	X	X	X
	36	X	X	X	X	X	X	X	X
	38	X	X	X	X	X	X	X	X
	40	X	X	X	X	X	X	X	X
14"	26	X	X	X	X	X	X	X	X
	30	X	X	X	X	X	X	X	X
	32	X	X	X	X	X	X	X	X
	34	X	X	X	X	X	X	X	X
	36	X	X	X	X	X	X	X	X
	38	X	X	X	X	X	X	X	X
	40	X	X	X	X	X	X	X	X
16"	26	X	X	X	X	X	X	X	X
	30	X	X	X	X	X	X	X	X
	32	X	X	X	X	X	X	X	X
	34	X	X	X	X	X	X	X	X
	36	X	X	X	X	X	X	X	X
	38	X	X	X	X	X	X	X	X
	40	X	X	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, 35 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. Tap the second row of panels into place, using a block to protect groove edges.
9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
10. **Complete all nailing of each panel before glue sets.** Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

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

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

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

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.

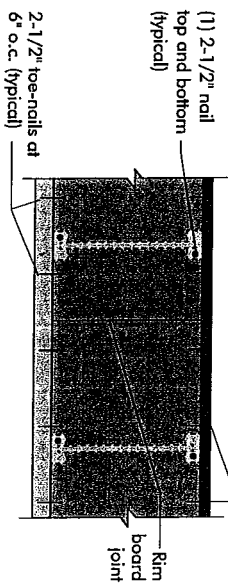
RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABOUT

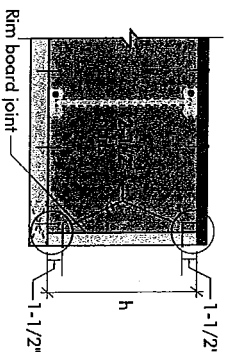
Rim board Joint Between Floor Joists

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

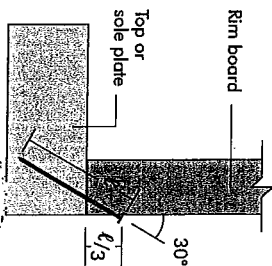
(1) 2-1/2" nail top and bottom (typical)



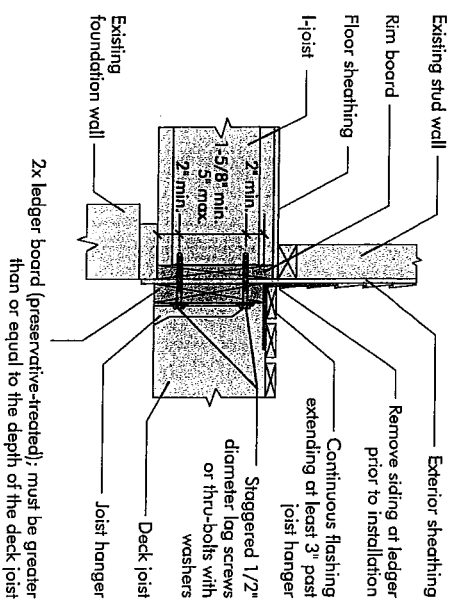
Rim board Joint at Corner



8b TOE-NAIL CONNECTION AT RIM BOARD



8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

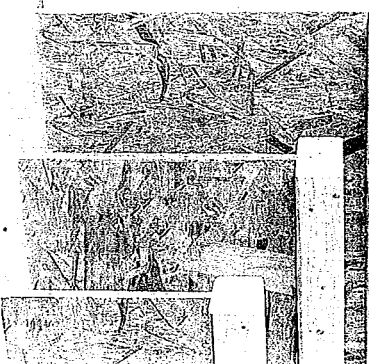


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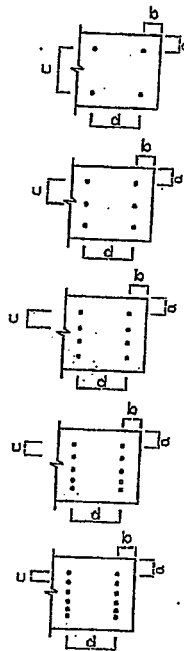
PRODUCT WARRANTY

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

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



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



NOTES:

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



DWG NO TAMN/1001.14

STRUCTURAL

COMPONENT ONLY

TO BE USED ONLY
WITH BEAM CALCS
BEARING THE
STAMP BELOW

PROVIDE NAILING

DETAIL NO X SEE

DWG #TAMN1001-14