

FROM PLAN DATED: FEB 2016

BUILDER:
GREENPARK

SITE:
STARTIME

MODEL: BRIDGEFORD 3

ELEVATION: 1

LOT:
CITY: VAUGHAN

SALESMAN: MARIO
DESIGNER: AJ
REVISION:

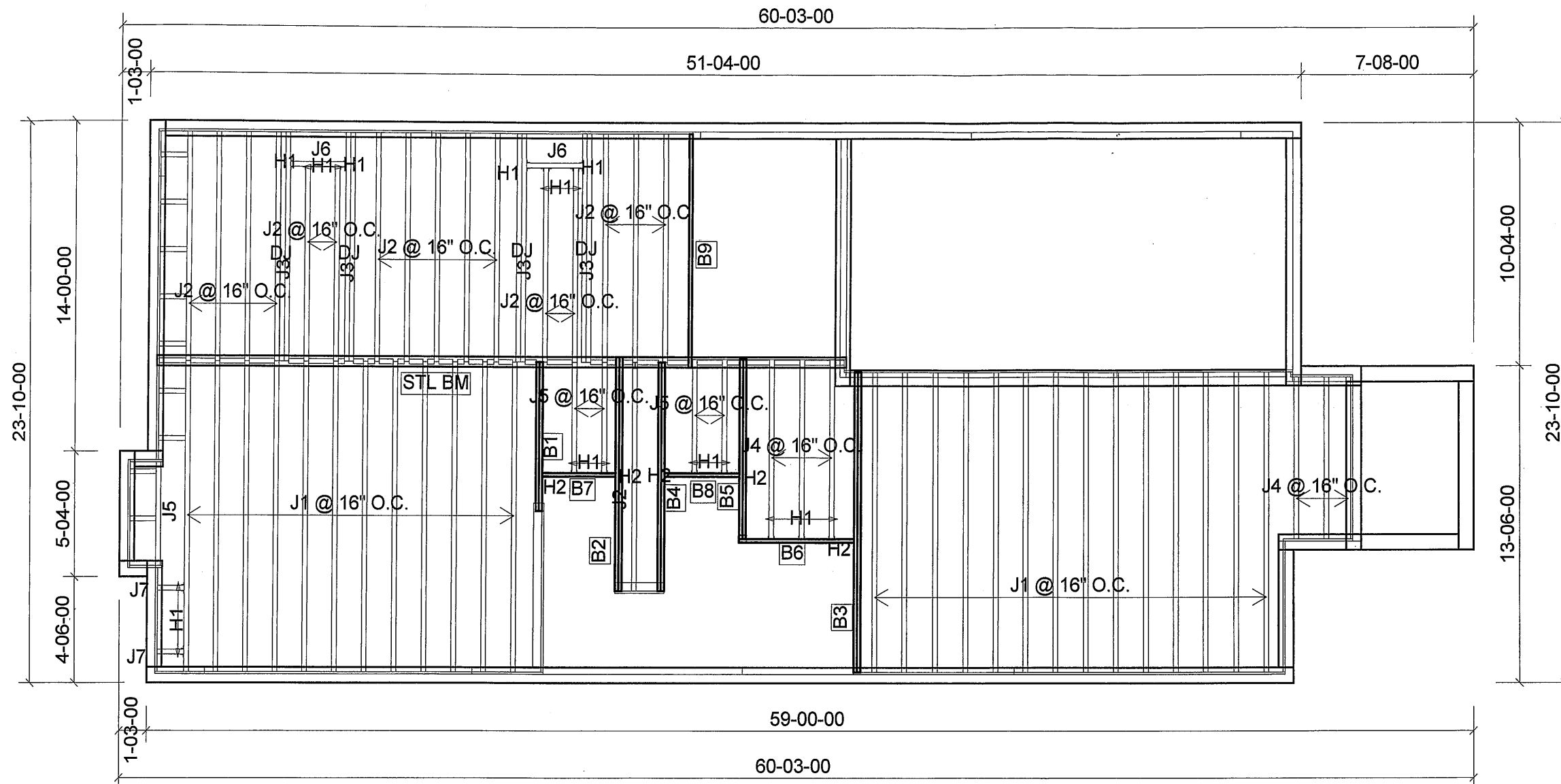
NOTES:
CERAMIC TILE APPLICATION
AS PER O.B.C. 9.30.6.
SQUASH BLOCKS
2x4 OR 2x6 #2 S.P.F. REQ'D UNDER
INTERIOR UNIFORM LOAD BEARING
WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS.
CANTILEVERED JOISTS
REQUIRE I-JOIST BLOCKING ALONG
BEARING AND RIMBOARD CLOSURE
AT
ENDS.
REFER TO THE NORDIC
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: 3/4" GLUED AND NAILED

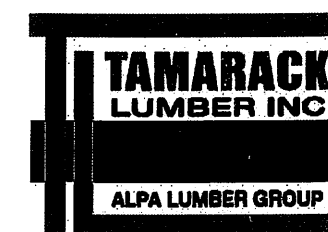
DATE: 5/3/2016

1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	26
J2	10-00-00	9 1/2" NI-40x	1	17
J3	10-00-00	9 1/2" NI-40x	2	8
J4	8-00-00	9 1/2" NI-40x	1	6
J5	6-00-00	9 1/2" NI-40x	1	5
J6	4-00-00	9 1/2" NI-40x	1	2
J7	2-00-00	9 1/2" NI-40x	1	2
B3	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B8	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
7	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
1	H1	HUS1.81/9.5
4	H2	HUS1.81/9.5



FROM PLAN DATED: FEB 2016

BUILDER:
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MODEL: BRIDGEFORD 3

ELEVATION: 2

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CITY: VAUGHAN

SALESMAN: MARIO
DESIGNER: AJ
REVISION:

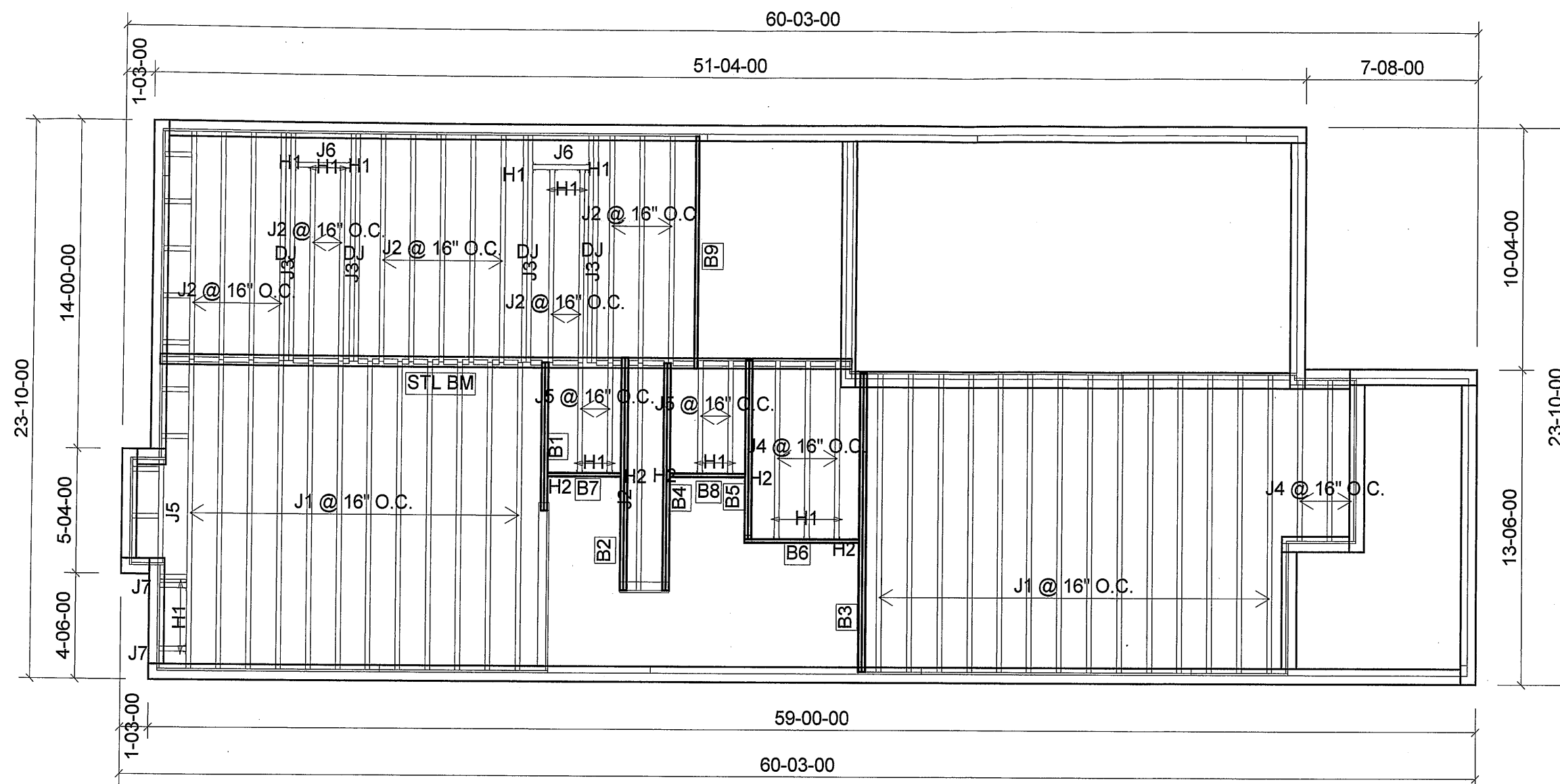
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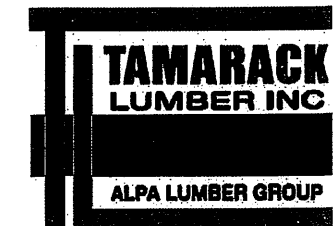
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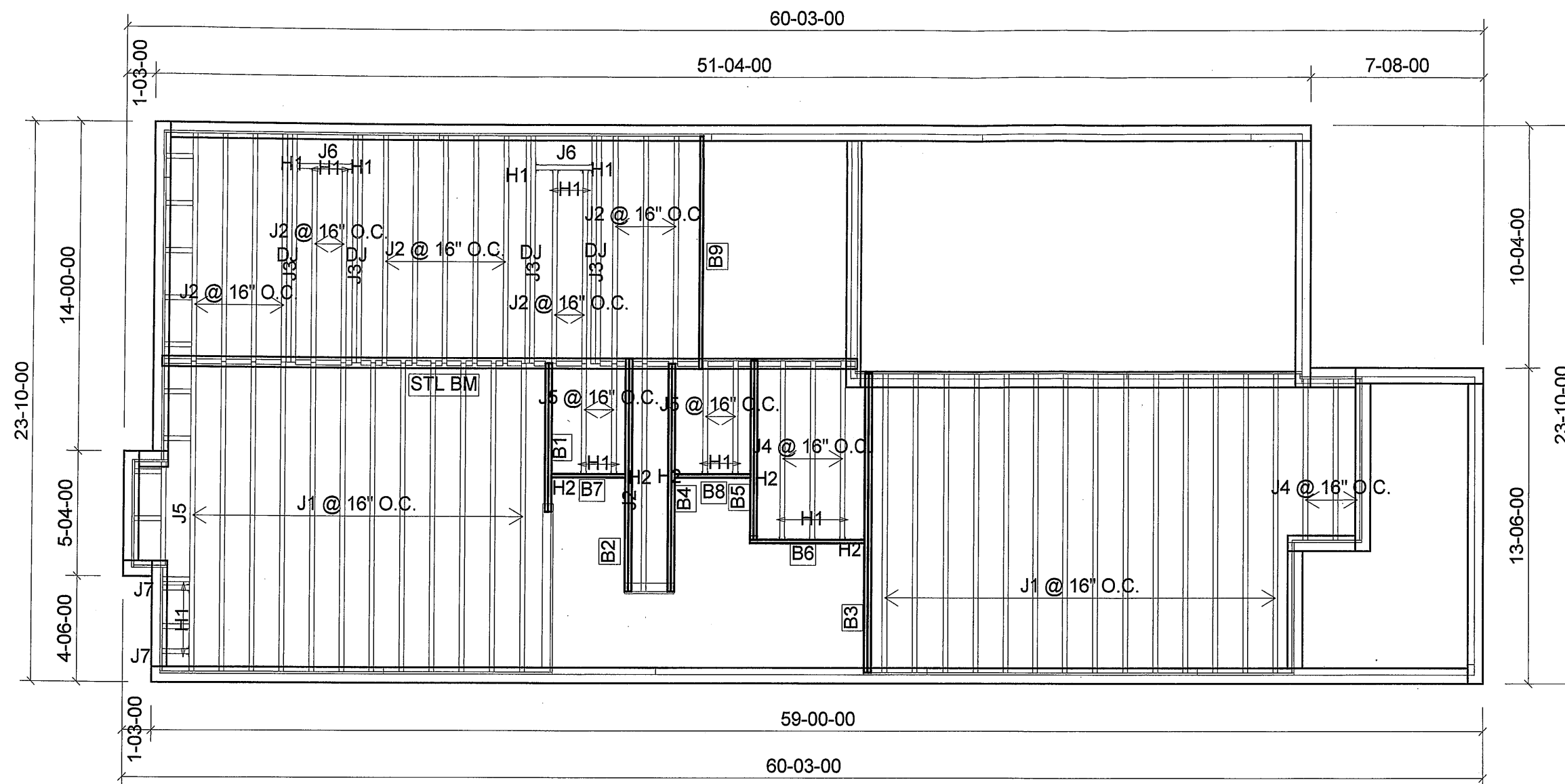
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DESIGNER: AJ
REVISION:

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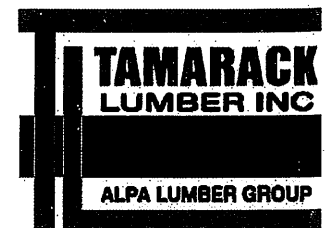
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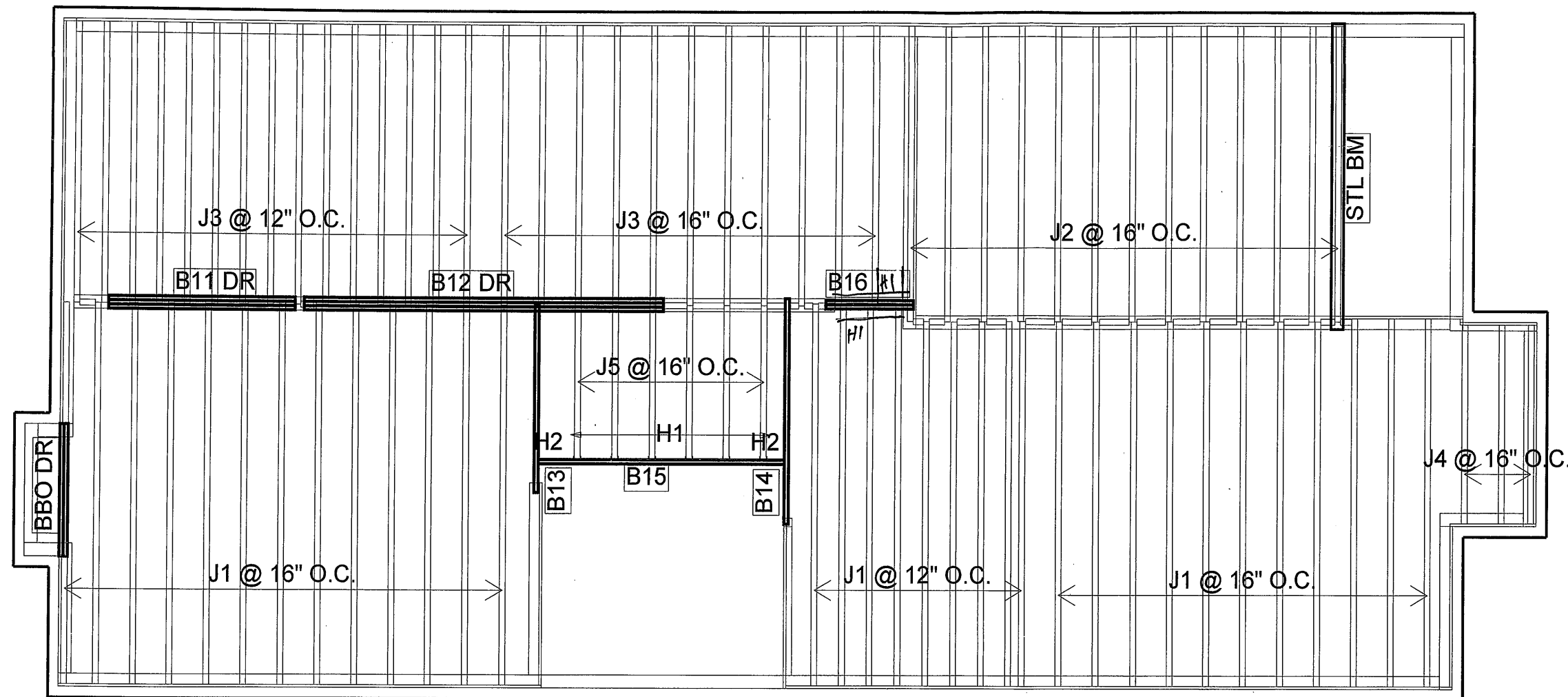
SALESMAN: MARIO
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TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

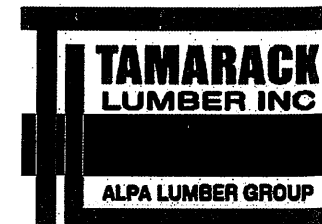
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2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	33
J2	12-00-00	9 1/2" NI-40x	1	13
J3	10-00-00	9 1/2" NI-40x	1	26
J4	8-00-00	9 1/2" NI-40x	1	3
J5	6-00-00	9 1/2" NI-40x	1	6
B12 DR	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B15	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B13	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B14	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B11 DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B16	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
6	H1	IUS2.56/9.5
2	H2	HUS1.81/9.5



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BUILDER:
GREENPARK

SITE:
STARTIME

MODEL: BRIDGEFORD 3

ELEVATION: 2

LOT:
CITY: VAUGHAN

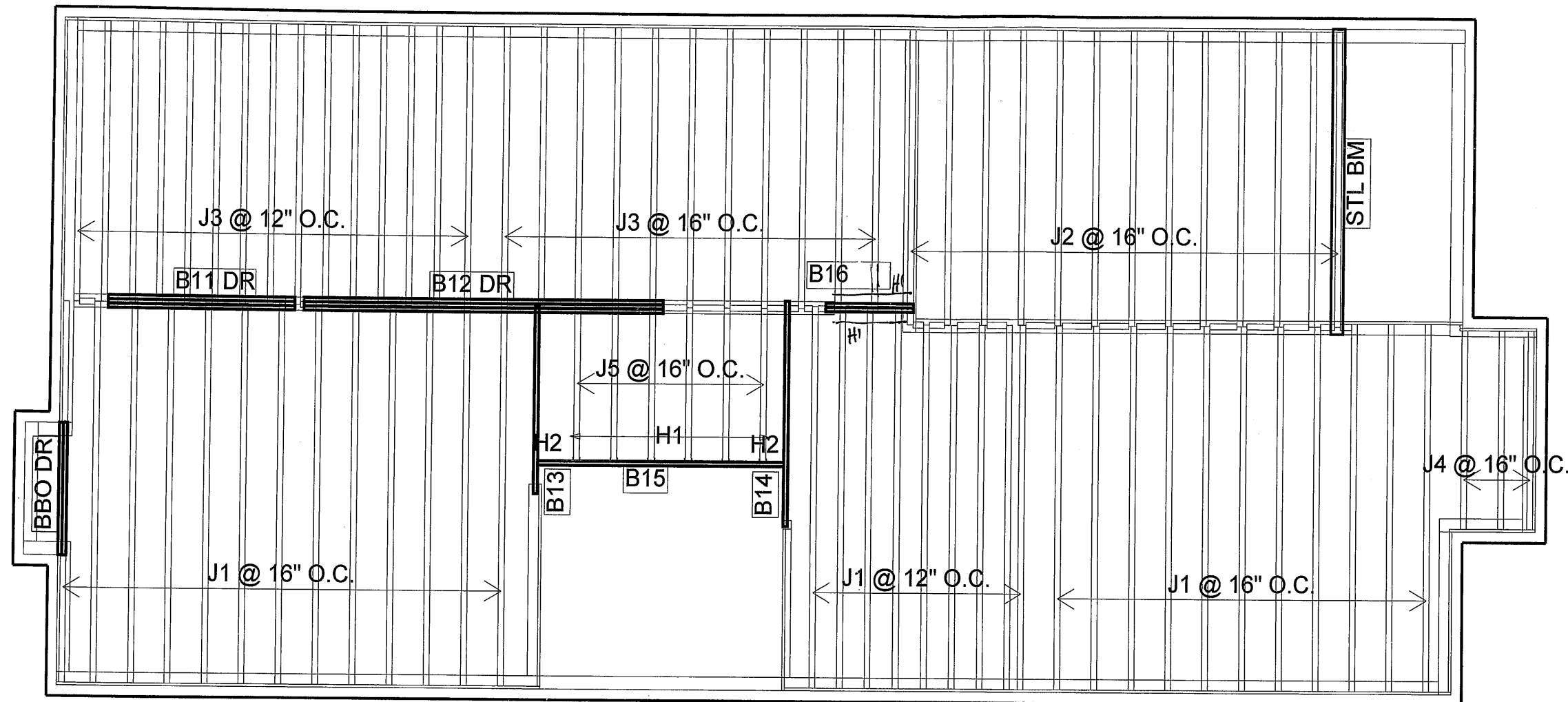
SALESMAN: MARIO
DESIGNER: AJ
REVISION:

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TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

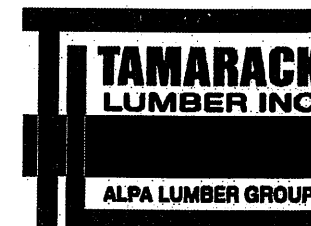
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2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	33
J2	12-00-00	9 1/2" NI-40x	1	13
J3	10-00-00	9 1/2" NI-40x	1	26
J4	8-00-00	9 1/2" NI-40x	1	3
J5	6-00-00	9 1/2" NI-40x	1	6
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Qty	Manuf	Product
6	H1	IUS2.56/9.5
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MODEL: BRIDGEFORD 3

ELEVATION: 3

LOT:
CITY: VAUGHAN

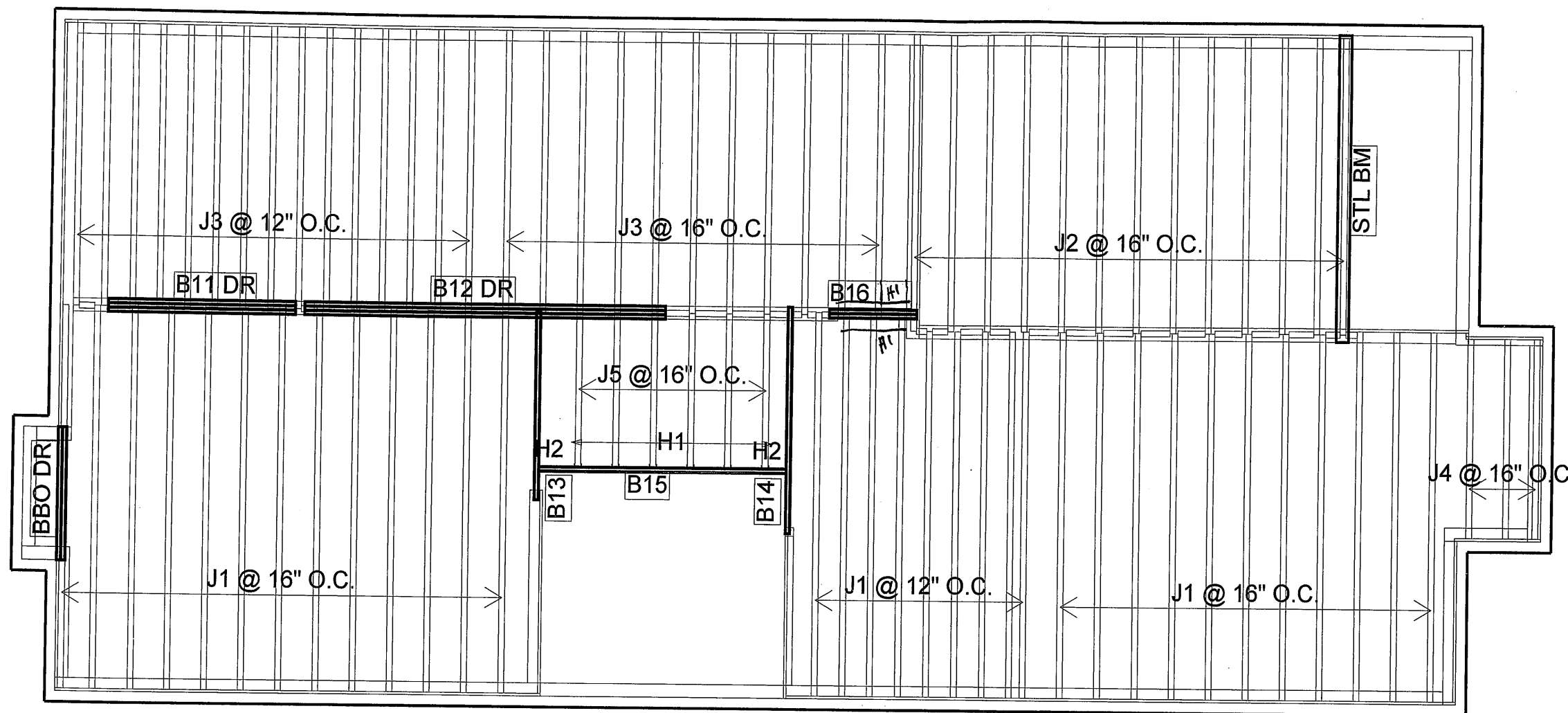
SALESMAN: MARIO
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REVISION:

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SUBFLOOR: 5/8" GLUED AND NAILED

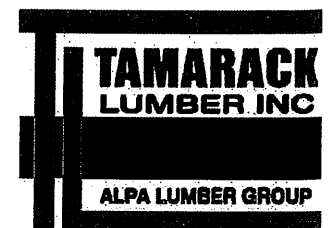
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2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	33
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J3	10-00-00	9 1/2" NI-40x	1	26
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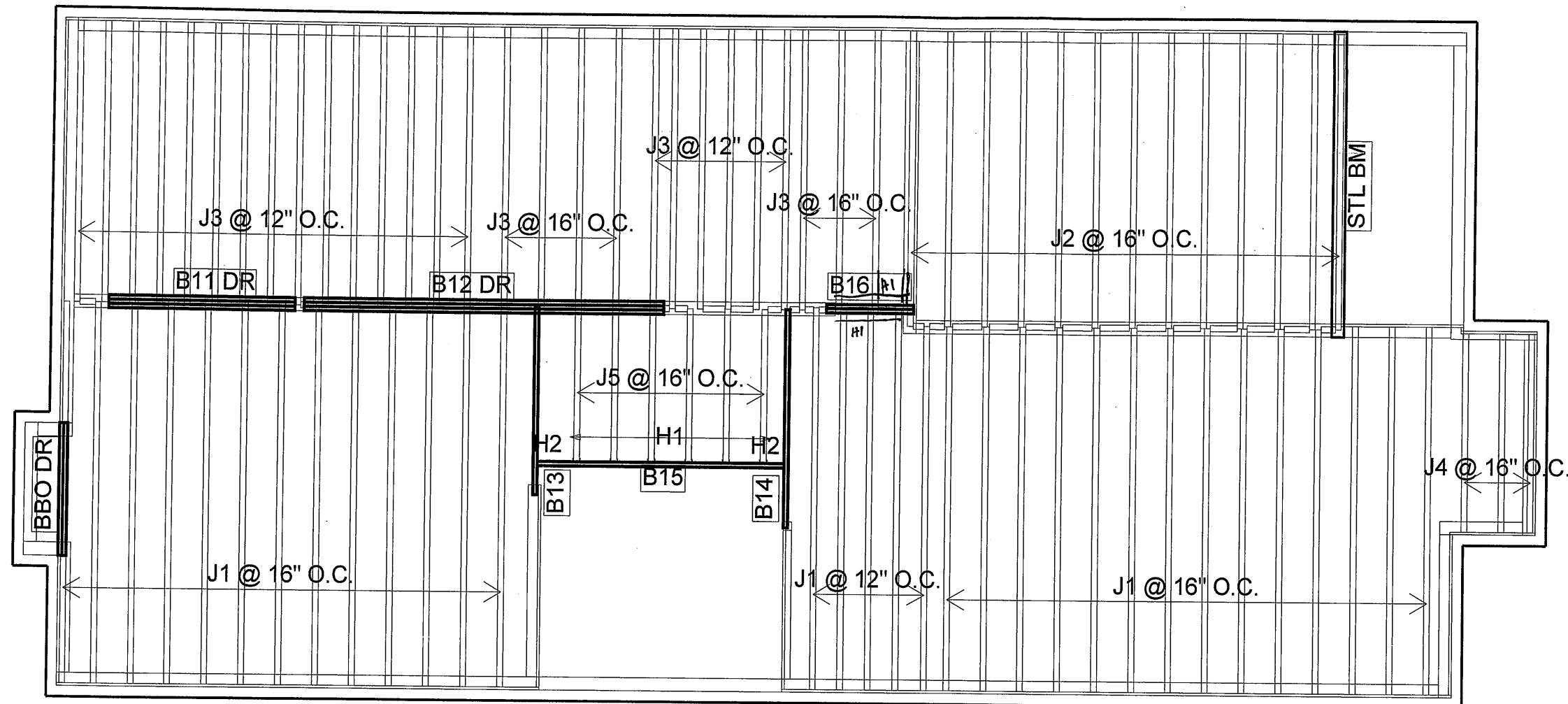
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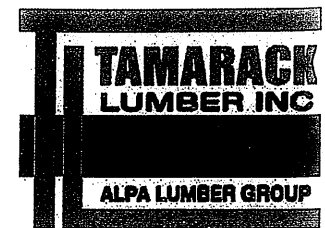
2nd FLOOR

3 BEDROOM OPT



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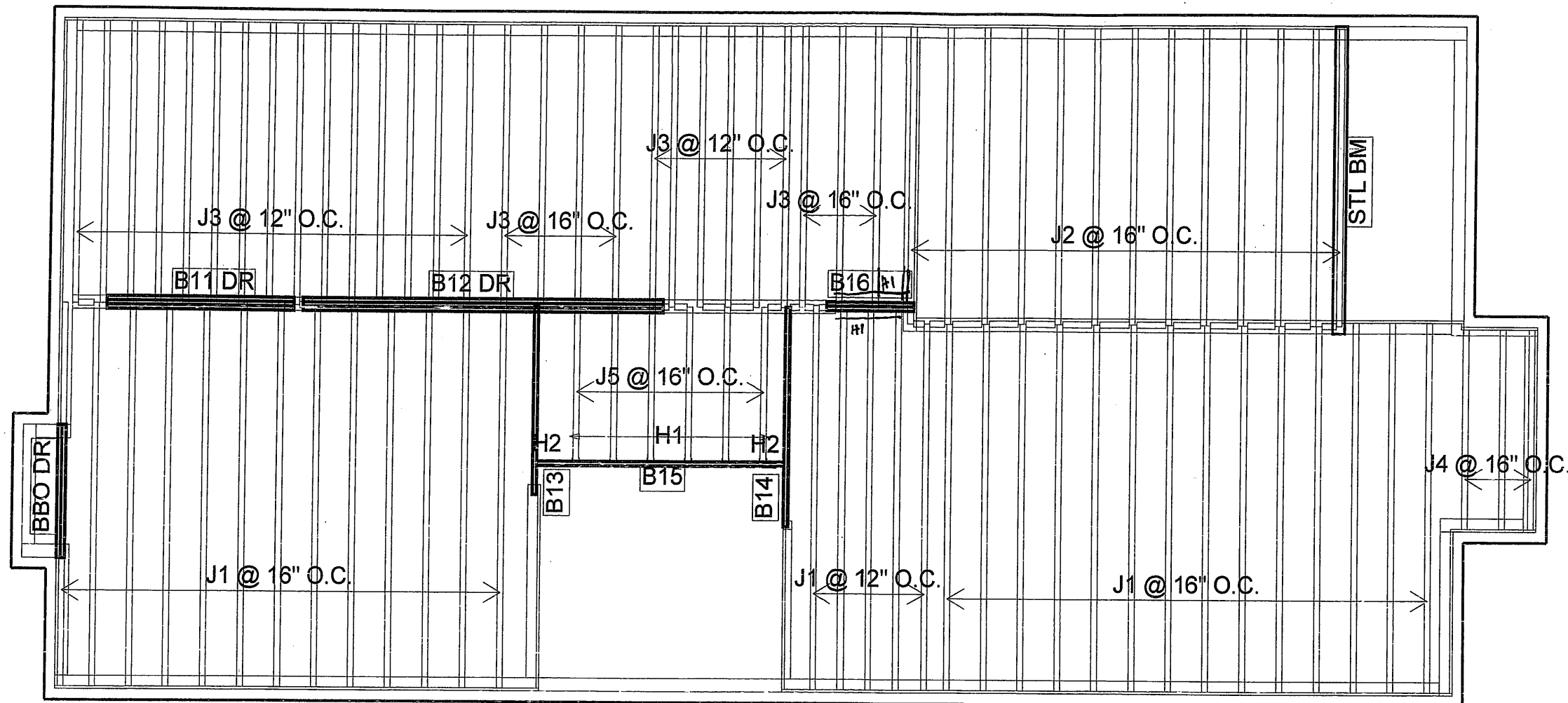
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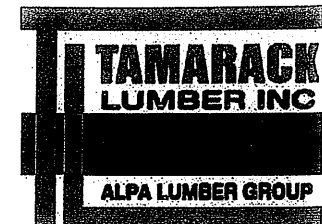
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3 BEDROOM OPT



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Qty	Manuf	Product
6	H1	IUS2.56/9.5
2	H2	HUS1.81/9.5



FROM PLAN DATED: FEB 2016

BUILDER:
GREENPARK

SITE:
STARTIME

MODEL: BRIDGEFORD 3

ELEVATION: 3

LOT:
CITY: VAUGHAN

SALESMAN: MARIO
DESIGNER: AJ
REVISION:

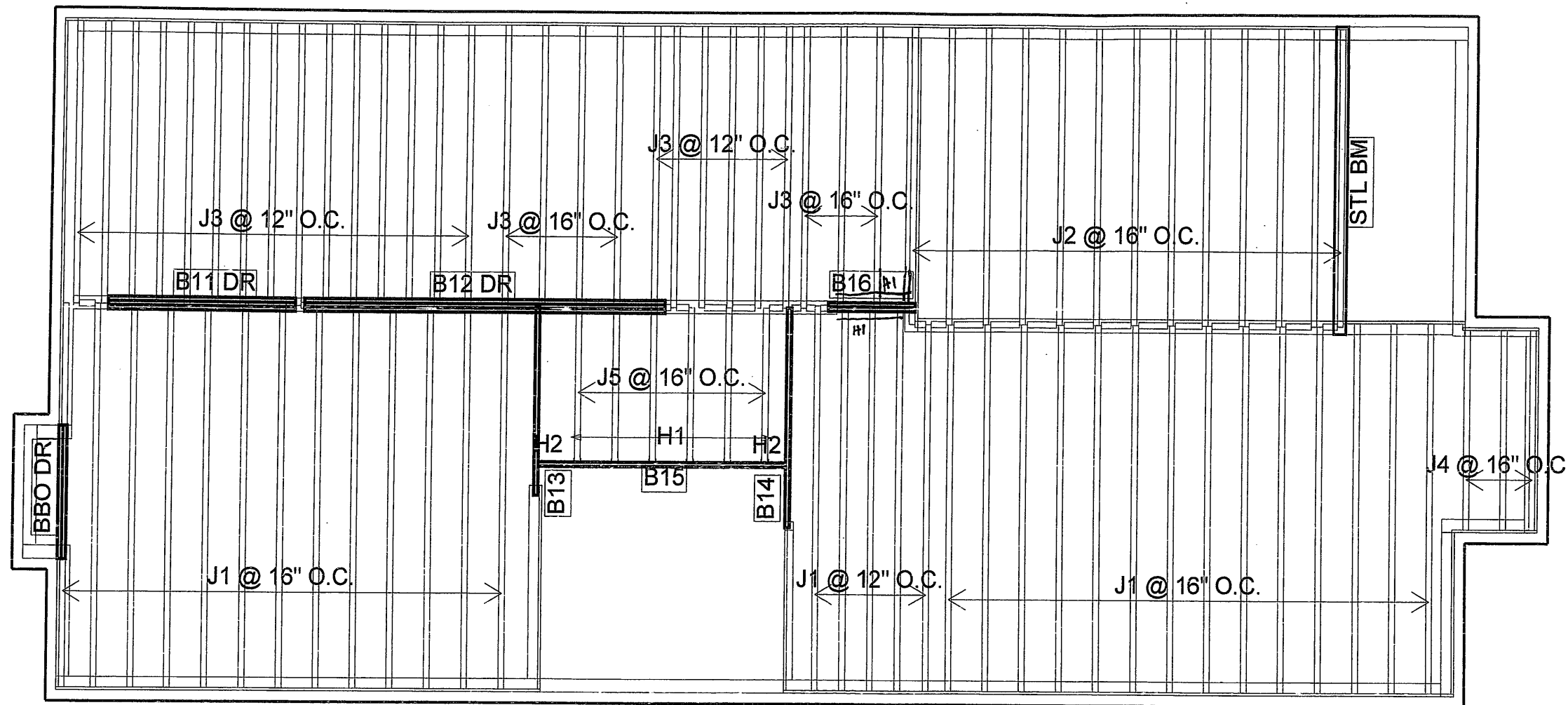
NOTES:
CERAMIC TILE APPLICATION
AS PER O.B.C. 9.30.6.
SQUASH BLOCKS
2x4 OR 2x6 #2 S.P.F. REQ'D UNDER
INTERIOR UNIFORM LOAD BEARING
WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS.
CANTILEVERED JOISTS
REQUIRE I-JOIST BLOCKING ALONG
BEARING AND RIMBOARD CLOSURE
AT
ENDS.
REFER TO THE NORDIC
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: 5/3/2016

2nd FLOOR

3 BEDROOM OPT



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	32
J2	12-00-00	9 1/2" NI-40x	1	13
J3	10-00-00	9 1/2" NI-40x	1	28
J4	8-00-00	9 1/2" NI-40x	1	3
J5	6-00-00	9 1/2" NI-40x	1	6
B12 DR	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B15	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B13	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B14	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B11 DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B16	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
6	H1	IUS2.56/9.5
2	H2	HUS1.81/9.5



Build 4340

Job Name:

Address:

City, Province, Postal Code: VAUGHAN,

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-1.mmdl

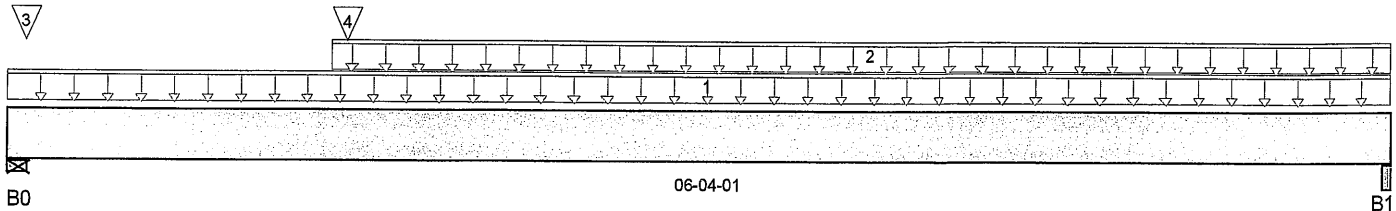
Description: Designs\Flush Beams\Basement\Flush Beams\B1(i1813)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 06-04-01

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	658 / 0	373 / 0		
B1, 2-11/16"	265 / 0	149 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1 FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-04-00	22	11			n/a
2 FC1 Floor Material	Unf. Lin. (lb/ft)	L	01-05-10	06-04-00	31	16			n/a
3 6(i305)	Conc. Pt. (lbs)	L	00-01-00	00-01-00	146	95			n/a
4 B7(i2003)	Conc. Pt. (lbs)	L	01-06-08	01-06-08	477	247			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,342 ft-lbs	12,704 ft-lbs	10.6%	1	01-06-08
End Shear	1,043 lbs	5,785 lbs	18%	1	01-01-08
Total Load Defl.	L/999 (0.022")	n/a	n/a	4	03-00-04
Live Load Defl.	L/999 (0.014")	n/a	n/a	5	03-00-04
Max Defl.	0.022"	n/a	n/a	4	03-00-04
Span / Depth	7.5	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 Wall/Plate	4" x 1-3/4"	1,454 lbs	38.9%	17%	Unspecified
B1 Beam	2-11/16" x 1-3/4"	585 lbs	23.3%	10.2%	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



DWG NO. TAM 27620-16
STRUCTURAL COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B2(i2000)

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

June 6, 2016 13:50:22

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: VAUGHAN,

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-1.mmdl

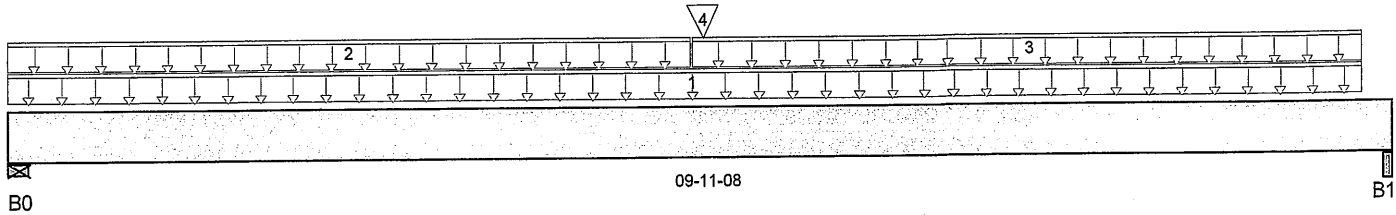
Description: Designs\Flush Beams\Basement\Flush Beams\B2(i2000)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 09-11-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	368 / 0	212 / 0		
B1, 5-1/4"	387 / 0	221 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1 FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-08-14	15	8			n/a
2 FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-10-08	3	1			n/a
3 FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-10-08	09-08-14	11	6			n/a
4 B7(i2003)	Conc. Pt. (lbs)	L	04-11-06	04-11-06	537	276			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,250 ft-lbs	12,704 ft-lbs	25.6%	1	04-11-06
End Shear	793 lbs	5,785 lbs	13.7%	1	08-08-12
Total Load Defl.	L/999 (0.119")	n/a	n/a	4	04-11-06
Live Load Defl.	L/999 (0.077")	n/a	n/a	5	04-11-06
Max Defl.	0.119"	n/a	n/a	4	04-11-06
Span / Depth	11.7	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.

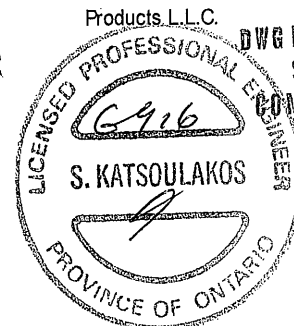
Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/8" x 1-3/4"	816 lbs	20%	8.7%	Unspecified
B1 Beam	5-1/4" x 1-3/4"	857 lbs	17.5%	7.6%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume 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 UBC 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 LLC.



DWG NO. TAM 22624-16
 STRUCTURAL
 COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i1900)

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

June 6, 2016 13:50:22

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: VAUGHAN,

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-1.mmdl

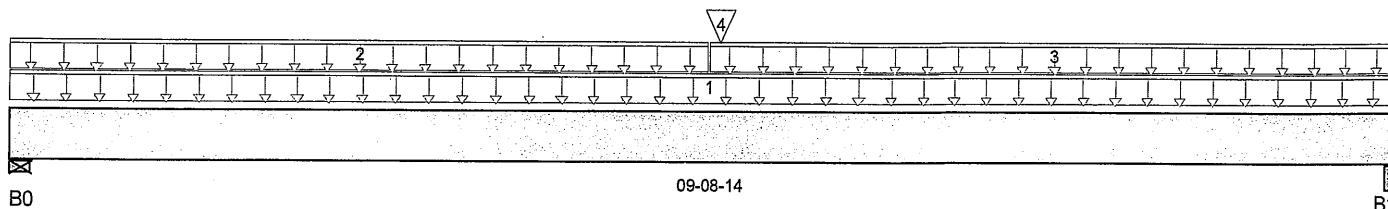
Description: Designs\Flush Beams\Basement\Flush Beams\B4(i1900)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 09-08-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	419 / 0	238 / 0		
B1, 2-5/8"	478 / 0	266 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-08-14	25	13			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-10-08	3	1			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-10-08	09-08-14	28	14			n/a
4	B8(i1996)	Conc. Pt. (lbs)	L	04-11-06	04-11-06	501	259			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,500 ft-lbs	12,704 ft-lbs	27.6%	1	04-11-06
End Shear	930 lbs	5,785 lbs	16.1%	1	08-08-12
Total Load Defl.	L/845 (0.132")	0.464"	28.4%	4	04-11-06
Live Load Defl.	L/999 (0.085")	n/a	n/a	5	04-11-06
Max Defl.	0.132"	n/a	n/a	4	04-11-06
Span / Depth	11.7	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

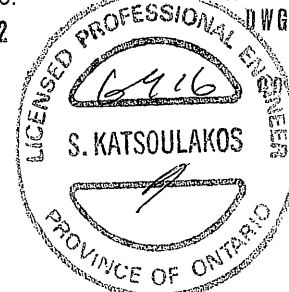
	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/8" x 1-3/4"	926 lbs	22.7%	9.9%	Unspecified
B1 Beam	2-5/8" x 1-3/4"	1,050 lbs	42.8%	18.7%	Unspecified

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



DWG NO. TAM 27622-10
 STRUCTURAL
 COMPONENT ONLY



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

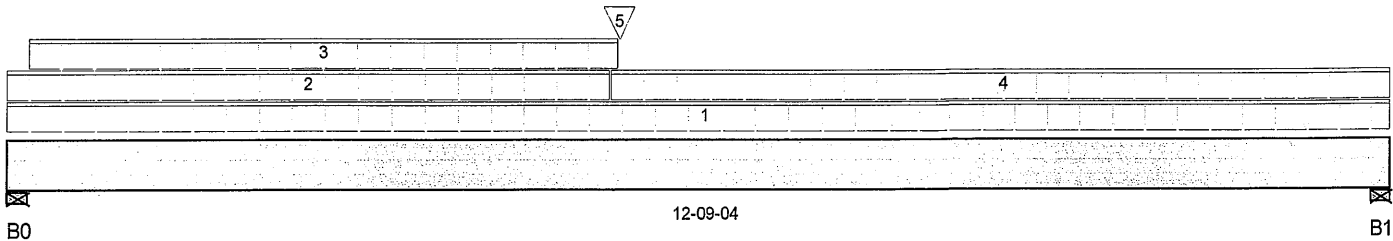
Description: Designs\Flush Beams\Basment\Flush Beams\B3(i931)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 12-09-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	332 / 0	524 / 0		
B1, 2-3/8"	350 / 0	331 / 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	12-09-04	15	6			n/a
2	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-06-06	6	2			n/a
3	User Load	Unf. Lin. (lb/ft)	L	00-02-06	05-07-04		60			n/a
4	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	05-06-06	12-09-04	23	9			n/a
5	B6(i937)	Conc. Pt. (lbs)	L	05-07-04	05-07-04	287	260			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,362 ft-lbs	25,408 ft-lbs	17.2%	1	05-07-04
End Shear	1,040 lbs	11,571 lbs	9%	1	00-11-14
Total Load Defl.	L/937 (0.16")	0.625"	25.6%	4	06-02-03
Live Load Defl.	L/999 (0.074")	n/a	n/a	5	06-04-08
Max Defl.	0.16"	n/a	n/a	4	06-02-03
Span / Depth	15.8	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	2-3/8" x 3-1/2"	1,153 lbs	26%	11.4%	Unspecified
B1 Wall/Plate	2-3/8" x 3-1/2"	940 lbs	21.2%	9.3%	Unspecified

Notes

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

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

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 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 27623-10
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B3(i931)

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

May 3, 2016 08:51:16

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B3(i931

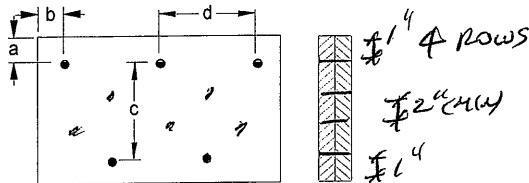
Specifier:

Designer:

Company:

Misc:

Connection Diagram



a minimum = 1" c = 1 1/2"
b minimum = 3" d = 12"

Calculated Side Load = 62.2 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.

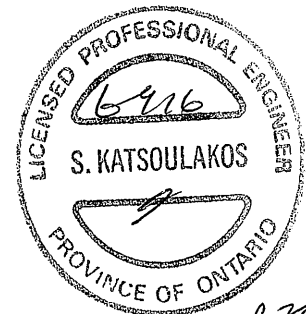
Connectors are: 3x3x3 Nails

3 1/2" ARDQX SPIRAL

Disclosure

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OWG NO. TAM 27623-16
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report


Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

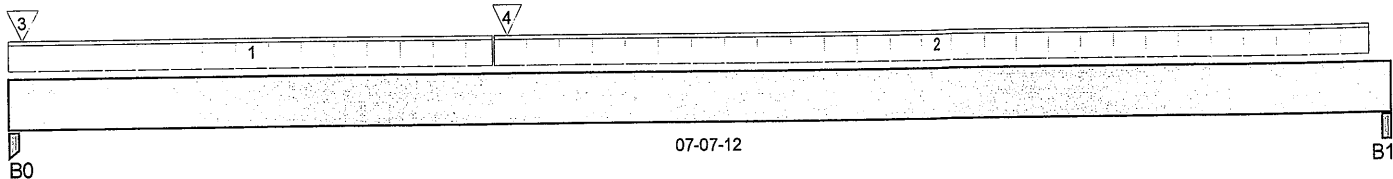
Description: Designs\Flush Beams\Basement\Flush Beams\B5(1962)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 07-07-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	961 / 0	525 / 0		
B1, 4-1/8"	348 / 0	189 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-07-14	28	11			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-07-14	07-06-04	42	16			n/a
3	PBO2(i375)	Conc. Pt. (lbs)	L	00-00-14	00-00-14	493	276			n/a
4	B8(i955)	Conc. Pt. (lbs)	L	02-08-12	02-08-12	538	260			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,427 ft-lbs	25,408 ft-lbs	9.6%	1	02-08-12
End Shear	950 lbs	11,571 lbs	8.2%	1	00-11-04
Total Load Defl.	L/999 (0.028")	n/a	n/a	4	03-06-11
Live Load Defl.	L/999 (0.018")	n/a	n/a	5	03-06-00
Max Defl.	0.028"	n/a	n/a	4	03-06-11
Span / Depth	9.2	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	1-3/4" x 3-1/2"	2,098 lbs	42.2%	28.1%	Unspecified
B1 Beam	4-1/8" x 3-1/2"	758 lbs	9.8%	4.3%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume Member is Fully Braced.
 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 CBC 2012



P012

 DWG NO. TAM 27624-16
 STRUCTURAL
 COMPONENT ONLY



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B5(i962

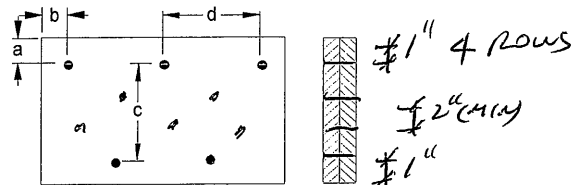
Specifier:

Designer:

Company:

Misc:

Connection Diagram



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

Calculated Side Load = 153.2 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

3 1/2" ARDOX SPIRAL

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.



DWG NO. TAM 27624-16
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B6(i937)

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

May 3, 2016 08:51:17

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

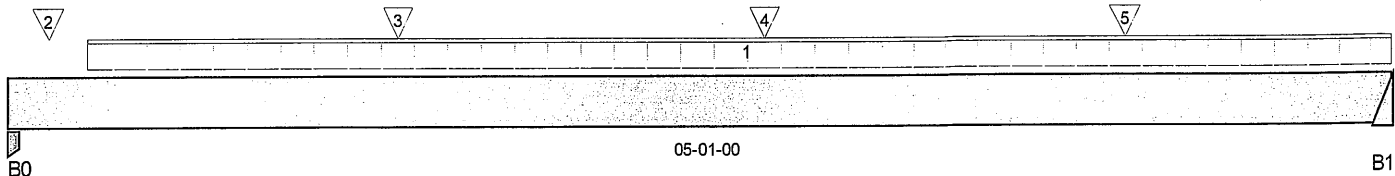
Description: Designs\Flush Beams\Basement\Flush Beams\B6(i937)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 05-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	780 / 0	534 / 0		
B1	313 / 0	278 / 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	05-01-00		60			n/a
2	PBO2(i375)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	493	276			n/a
3	J4(i959)	Conc. Pt. (lbs)	L	01-05-00	01-05-00	207	77			n/a
4	J4(i1042)	Conc. Pt. (lbs)	L	02-09-00	02-09-00	205	77			n/a
5	J4(i1123)	Conc. Pt. (lbs)	L	04-01-00	04-01-00	188	70			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,107 ft-lbs	12,704 ft-lbs	8.7%	1	02-09-00
End Shear	739 lbs	5,785 lbs	12.8%	1	04-01-08
Total Load Defl.	L/999 (0.012")	n/a	n/a	4	02-07-00
Live Load Defl.	L/999 (0.007")	n/a	n/a	5	02-07-00
Max Defl.	0.012"	n/a	n/a	4	02-07-00
Span / Depth	6	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"	1,838 lbs	37%	24.6%	Unspecified
B1 Hanger	2" x 1-3/4"	817 lbs	n/a	19.1%	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 UBC 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:

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

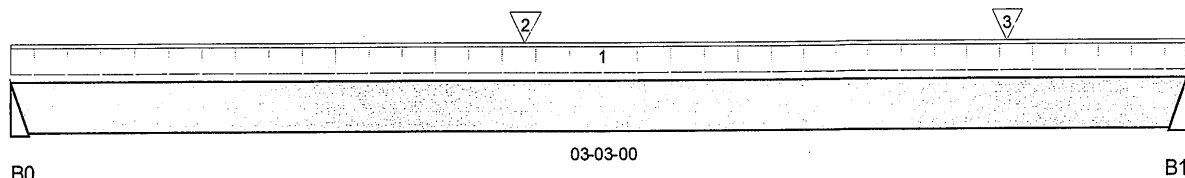
Description: Designs\Flush Beams\Basement\Flush Beams\B7(i964)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 03-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	483 / 0	238 / 0		
B1	534 / 0	257 / 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	00-00-00	03-03-00	240	120			n/a
2	J5(i1152)	Conc. Pt. (lbs)	L	01-05-00	01-05-00	141	53			n/a
3	J5(i1041)	Conc. Pt. (lbs)	L	02-09-00	02-09-00	96	36			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	825 ft-lbs	12,704 ft-lbs	6.5%	1	01-05-05
End Shear	527 lbs	5,785 lbs	9.1%	1	00-11-08
Total Load Defl.	L/999 (0.004")	n/a	n/a	4	01-07-10
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	01-07-10
Max Defl.	0.004"	n/a	n/a	4	01-07-10
Span / Depth	3.8	n/a	n/a		00-00-00

Disclosure

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Bearing Supports

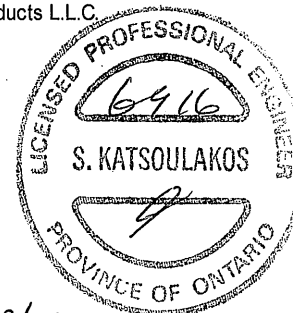
	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	1,021 lbs	n/a	23.9%	Hanger
B1 Hanger	2" x 1-3/4"	1,123 lbs	n/a	26.3%	Hanger

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:

Customer:

Code reports:

CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

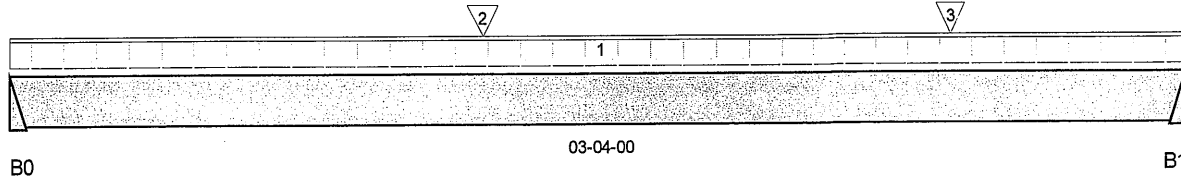
Description: Designs\Flush Beams\Basement\Flush Beams\B8(i955)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 03-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	502 / 0	246 / 0		
B1	539 / 0	260 / 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	00-00-00	03-04-00	240	120			n/a
2	J5(i932)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	137	51			n/a
3	J5(i943)	Conc. Pt. (lbs)	L	02-08-00	02-08-00	104	39			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	858 ft-lbs	12,704 ft-lbs	6.8%	1	01-06-06
End Shear	566 lbs	5,785 lbs	9.8%	1	00-11-08
Total Load Defl.	L/999 (0.004")	n/a	n/a	4	01-07-15
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	01-07-15
Max Defl.	0.004"	n/a	n/a	4	01-07-15
Span / Depth	3.9	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	1,060 lbs	n/a	24.8%	Hanger
B1 Hanger	2" x 1-3/4"	1,134 lbs	n/a	26.6%	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:

Customer:

Code reports:

CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

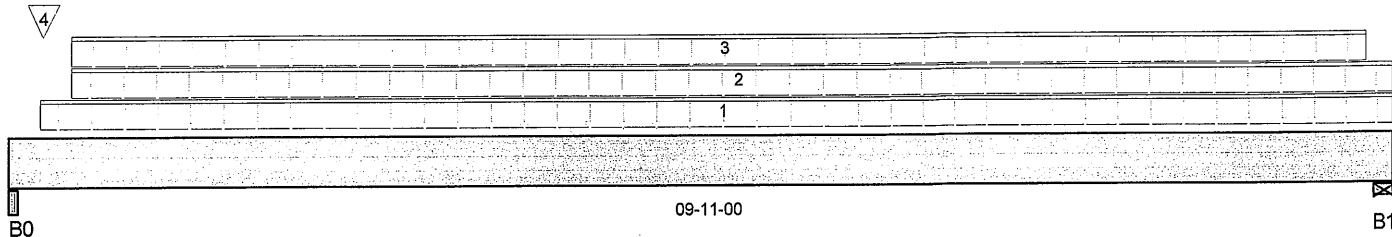
Description: Designs\Flush Beams\Basement\Flush Beams\B9(i960)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 09-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	167 / 0	377 / 0		
B1, 2-3/8"	122 / 0	347 / 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	00-02-10	09-11-00	22	8			n/a
2	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	00-05-04	09-11-00	3	1			n/a
3	User Load	Unf. Lin. (lb/ft)	L	00-05-04	09-08-10		60			n/a
4	5(i296)	Conc. Pt. (lbs)	L	00-02-14	00-02-14	44	28			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,150 ft-lbs	8,258 ft-lbs	13.9%	0	05-00-15
End Shear	400 lbs	3,761 lbs	10.6%	0	01-02-12
Total Load Defl.	L/999 (0.07")	n/a	n/a	4	05-00-15
Live Load Defl.	L/999 (0.018")	n/a	n/a	5	05-00-15
Max Defl.	0.07"	n/a	n/a	4	05-00-15
Span / Depth	11.9	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 1-3/4"	528 lbs	16.5%	7.2%	Unspecified
B1 Wall/Plate	2-3/8" x 1-3/4"	486 lbs	33.7%	14.8%	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

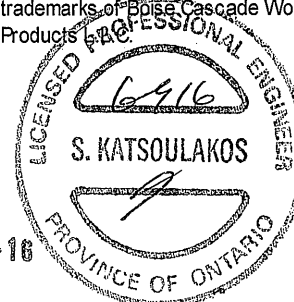
Deflections less than 1/8" were ignored in the results.

Disclosure

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CONFORMS TO OBC 2012



BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

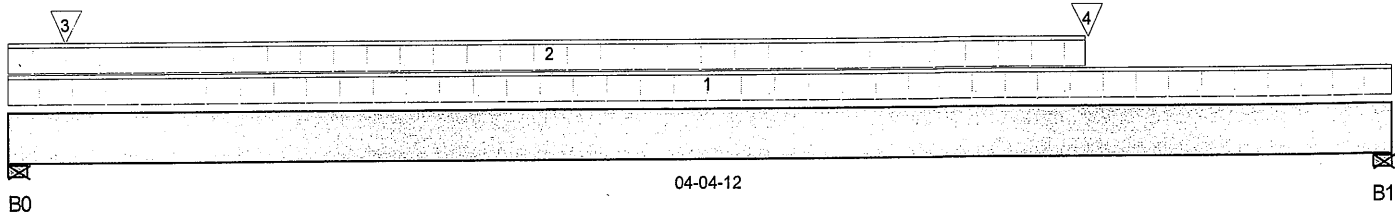
Description: Designs\Flush Beams\Basement\Flush Beams\B10(i1136

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 04-04-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	199 / 0	159 / 0		
B1, 2-3/8"	116 / 0	66 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-04-12	28	10			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-04-14	25	10			n/a
3	E13(i273)	Conc. Pt. (lbs)	L	00-02-03	00-02-03	80	94			n/a
4	Bk1(i1142)	Conc. Pt. (lbs)	L	03-04-14	03-04-14	26	10			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	267 ft-lbs	25,408 ft-lbs	1.1%	1	02-02-10
End Shear	189 lbs	11,571 lbs	1.6%	1	03-04-14
Total Load Defl.	L/999 (0.001")	n/a	n/a	4	02-02-04
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	02-02-10
Max Defl.	0.001"	n/a	n/a	4	02-02-04
Span / Depth	5.2	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	2-3/8" x 3-1/2"	498 lbs	11.2%	4.9%	Unspecified
B1 Wall/Plate	2-3/8" x 3-1/2"	256 lbs	5.8%	2.5%	Unspecified

Notes

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

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

Calculations assume Member is Fully Braced.

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

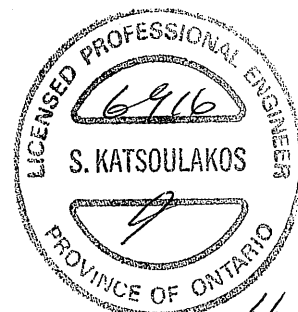
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA086.

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





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\...\B10(i1136)

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

May 3, 2016 08:51:18

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B10(i11

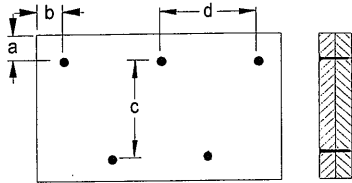
Specifier:

Designer:

Company:

Misc:

Connection Diagram



a minimum = 2" c = 5-1/2"
b minimum = 3" d = 4"

Calculated Side Load = 12.1 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" x 0.131") 3/4" x 2 1/2"

3 1/2" ARDOX SPIRAL

Disclosure

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pczh

DWG NO. TAM27629-16
STRUCTURAL
COMPONENT ONLY



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B11 DR(i855)

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

May 3, 2016 08:51:18

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

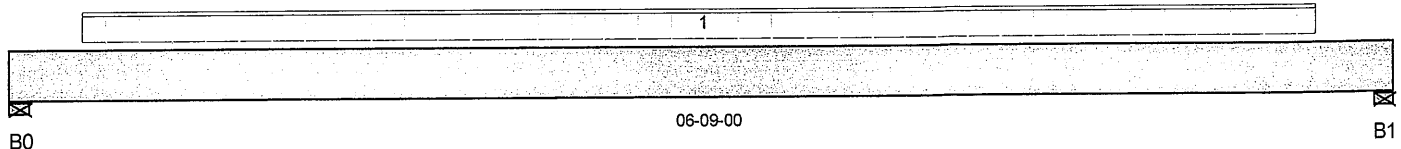
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B11

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 06-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	1,374 / 0	565 / 0		
B1, 4"	1,507 / 0	614 / 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	00-04-04	06-04-04	480	180			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,435 ft-lbs	39,636 ft-lbs	11.2%	1	03-07-08
End Shear	2,475 lbs	17,356 lbs	14.3%	1	01-01-08
Total Load Defl.	L/999 (0.028")	n/a	n/a	4	03-04-00
Live Load Defl.	L/999 (0.02")	n/a	n/a	5	03-04-00
Max Defl.	0.028"	n/a	n/a	4	03-04-00
Span / Depth	7.8	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4" x 5-1/4"	2,768 lbs	16.2%	10.8%	Unspecified
B1 Wall/Plate	4" x 5-1/4"	3,028 lbs	17.8%	11.8%	Unspecified

Notes

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

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

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 CBC 2012



DWG NO. TAM 2763016
STRUCTURAL
COMPONENT ONLY



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...B11 DR(i855)

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

May 3, 2016 08:51:18

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmd

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

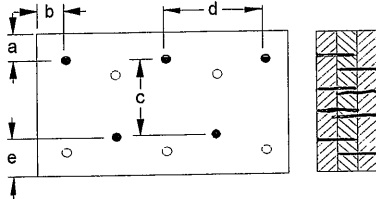
Specifier:

Designer:

Company:

Misc:

Connection Diagram



a minimum = 1"
b minimum = 3"
c = 6 1/2"
d = 12"
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

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DWG NO. TAM 27630-16
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

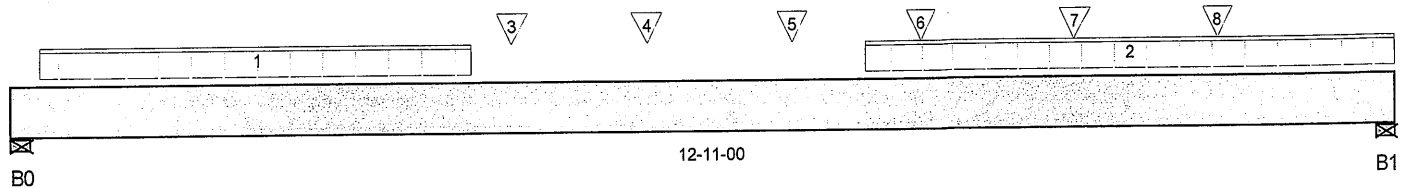
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B12

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 12-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	2,787 / 0	1,146 / 0		
B1, 4"	2,441 / 0	1,024 / 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	00-03-04	04-03-04	474	178			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	07-10-08	12-11-00	214	80			n/a
3	-	Conc. Pt. (lbs)	L	04-07-08	04-07-08	548	205			n/a
4	-	Conc. Pt. (lbs)	L	05-10-08	05-10-08	580	217			n/a
5	-	Conc. Pt. (lbs)	L	07-02-08	07-02-08	591	222			n/a
6	B13(i942)	Conc. Pt. (lbs)	L	08-04-12	08-04-12	238	109			n/a
7	J5(i849)	Conc. Pt. (lbs)	L	09-10-08	09-10-08	154	58			n/a
8	J5(i791)	Conc. Pt. (lbs)	L	11-02-08	11-02-08	146	55			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	16,171 ft-lbs	39,636 ft-lbs	40.8%	1	05-10-08
End Shear	4,920 lbs	17,356 lbs	28.3%	1	01-01-08
Total Load Defl.	L/362 (0.411")	0.619"	66.4%	4	06-04-08
Live Load Defl.	L/512 (0.29")	0.412"	70.3%	5	06-04-08
Max Defl.	0.411"	n/a	n/a	4	06-04-08
Span / Depth	15.6	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4" x 5-1/4"	5,612 lbs	32.9%	21.9%	Unspecified
B1 Wall/Plate	4" x 5-1/4"	4,942 lbs	29%	19.3%	Unspecified

Notes


 DWG NO. TAM27631-16
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

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

Specifier:

Designer:

Company:

Misc:

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

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

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.

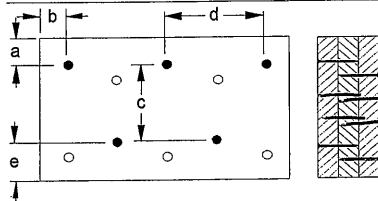
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

CONFORMS TO OBC 2012

Connection Diagram



4 rows

a minimum = 1"
b minimum = 3"
c = 6 1/2"
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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DWG NO. TAM27631-16
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B13(i942)

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

May 3, 2016 08:51:18

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

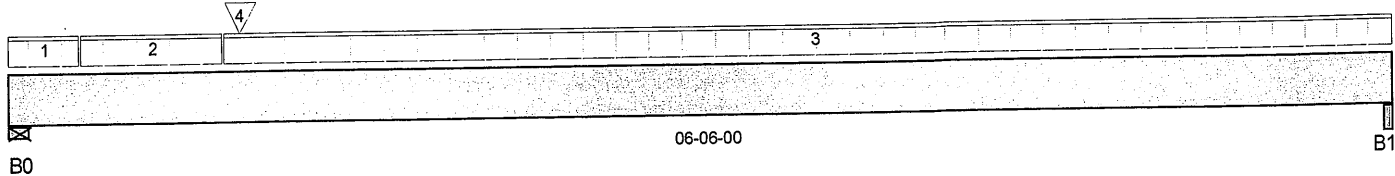
Description: Designs\Flush Beams\1st Floor\Flush Beams\B13(i942)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 06-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	648 / 0	294 / 0		
B1, 2-3/8"	244 / 0	112 / 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	00-04-00	28				n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-04-00	01-00-00	25	9			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-00-00	06-06-00	53	20			n/a
4	B15(i933)	Conc. Pt. (lbs)	L	01-00-14	01-00-14	572	255			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,083 ft-lbs	12,704 ft-lbs	8.5%	1	01-11-06
End Shear	1,237 lbs	5,785 lbs	21.4%	1	01-01-08
Total Load Defl.	L/999 (0.02")	n/a	n/a	4	03-01-06
Live Load Defl.	L/999 (0.014")	n/a	n/a	5	03-01-06
Max Defl.	0.02"	n/a	n/a	4	03-01-06
Span / Depth	7.7	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 1-3/4"	1,340 lbs	35.8%	15.7%	Unspecified
B1 Beam	2-3/8" x 1-3/4"	505 lbs	11.2%	10%	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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DWG NO. TAM 22632-16
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B14(i948)

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

May 3, 2016 08:51:18

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

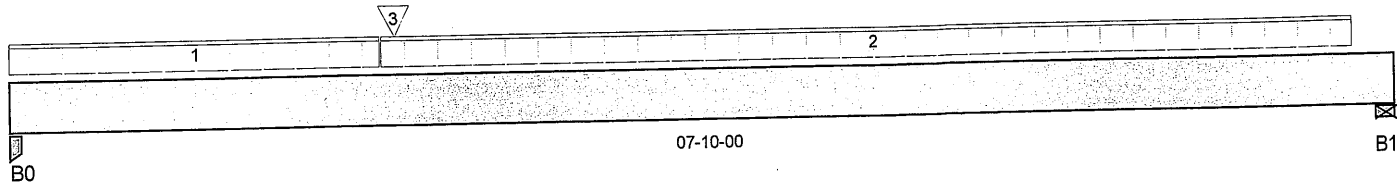
Description: Designs\Flush Beams\1st Floor\Flush Beams\B14(i948)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 07-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-1/2"	917 / 0	437 / 0		
B1, 5-1/2"	442 / 0	214 / 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	02-01-00	22	8			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	02-01-00	07-07-00	37	14			n/a
3	B15(i933)	Conc. Pt. (lbs)	L	02-01-14	02-01-14	1,111	520			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,751 ft-lbs	12,704 ft-lbs	29.5%	1	02-01-14
End Shear	1,873 lbs	5,785 lbs	32.4%	1	01-00-00
Total Load Defl.	L/999 (0.082")	n/a	n/a	4	03-05-10
Live Load Defl.	L/999 (0.055")	n/a	n/a	5	03-05-10
Max Defl.	0.082"	n/a	n/a	4	03-05-10
Span / Depth	9.2	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	2-1/2" x 1-3/4"	1,922 lbs	54.1%	36%	Unspecified
B1 Wall/Plate	5-1/2" x 1-3/4"	931 lbs	18.1%	7.9%	Unspecified

Notes

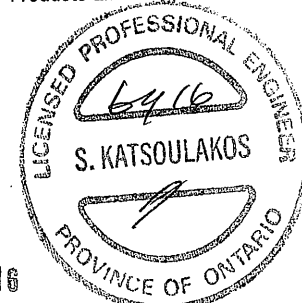
Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume Member is Fully Braced.
 Resistance Factor phi has been applied to all presented results per CSA 086.
 BC CALC® analysis is based on Canadian Limit 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 QBC 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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04060.TAM 27633-16
 STRUCTURAL
 COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor Flush Beams\B15(i933)

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

May 3, 2016 08:51:19

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-2.mmdl

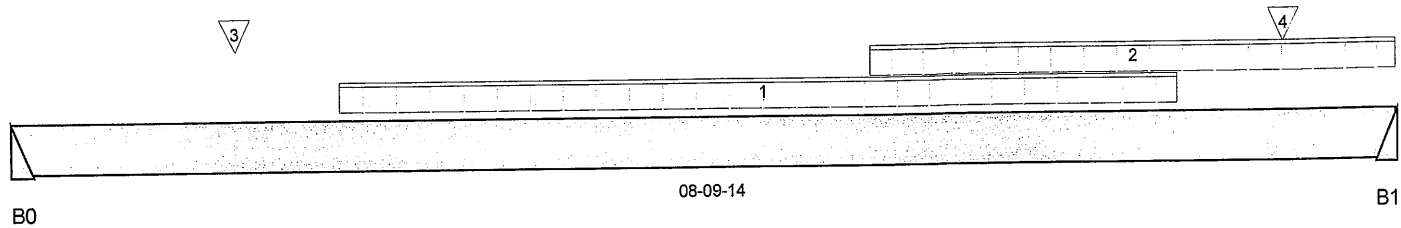
Description: Designs\Flush Beams\1st Floor\Flush Beams\B15(i933)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 08-09-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	566 / 0	252 / 0		
B1	1,117 / 0	524 / 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	02-00-14	07-04-14	110	41			n/a
2	User Load	Unf. Lin. (lb/ft)	L	05-04-14	08-09-14	240	120			n/a
3	J5(i849)	Conc. Pt. (lbs)	L	01-04-14	01-04-14	156	58			n/a
4	J5(i864)	Conc. Pt. (lbs)	L	08-00-14	08-00-14	119	45			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,699 ft-lbs	12,704 ft-lbs	29.1%	1	05-04-14
End Shear	1,774 lbs	5,785 lbs	30.7%	1	07-10-06
Total Load Defl.	L/770 (0.134")	0.431"	31.2%	4	04-06-14
Live Load Defl.	L/999 (0.092")	n/a	n/a	5	04-06-14
Max Defl.	0.134"	n/a	n/a	4	04-06-14
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 Hanger	2" x 1-3/4"	1,164 lbs	n/a	27.3%	Hanger
B1 Hanger	2" x 1-3/4"	2,330 lbs	n/a	54.6%	Hanger

Notes

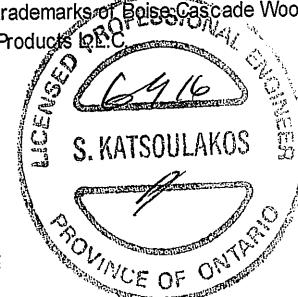
Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume Member is Fully Braced.
 Resistance Factor phi has been applied to all presented results per CSA 086.
 BC CALC® analysis is based on Canadian Limit 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 CBC 2012

Disclosure

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DWG NO. TAM 27634-16
 STRUCTURAL
 COMPONENT ONLY



Build 4340

Job Name:

Address:

City, Province, Postal Code: VAUGHAN,

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-1.mmdl

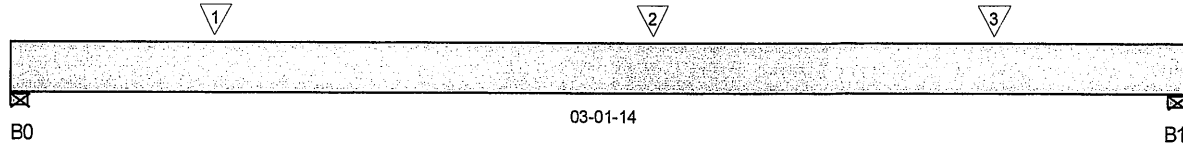
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B16

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 03-01-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	702 / 0	366 / 0		
B1, 4-3/8"	570 / 0	300 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	-	Conc. Pt. (lbs)	L	00-06-09	00-06-09	510	255			n/a
2	-	Conc. Pt. (lbs)	L	01-08-09	01-08-09	504	251			n/a
3	J1(i1476)	Conc. Pt. (lbs)	L	02-07-10	02-07-10	253	127			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	862 ft-lbs	25,408 ft-lbs	3.4%	1	01-07-10
End Shear	783 lbs	11,571 lbs	6.8%	1	02-00-00
Total Load Defl.	L/999 (0.001")	n/a	n/a	4	01-07-00
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	01-07-00
Max Defl.	0.001"	n/a	n/a	4	01-07-00
Span / Depth	3.3	n/a	n/a		00-00-00

Bearing Supports

B0	Wall/Plate	4" x 3-1/2"	1,510 lbs	13.3%	8.8%	Unspecified
B1	Wall/Plate	4-3/8" x 3-1/2"	1,229 lbs	9.9%	6.6%	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 CBC 2012



DWG NO. TAM 27635-16
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 4340

Job Name:

Address:

City, Province, Postal Code: VAUGHAN,

Customer:

Code reports: CCMC 12472-R

File Name: BRIDGEFORD 3 EL-1.mmdl

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

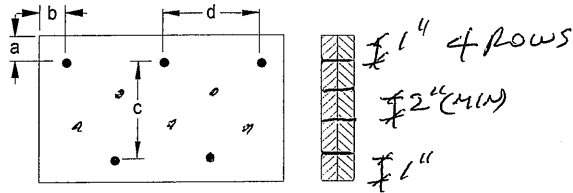
Specifier:

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 Nails (16d) 3 1/2" ARDOX SPIRAL

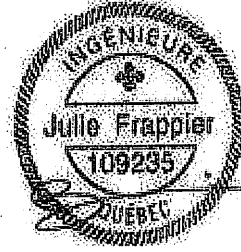
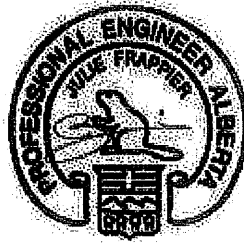
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DWG NO. TAM 27635-16
STRUCTURAL
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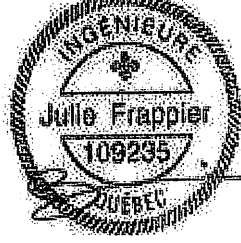
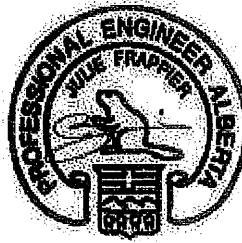
Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

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

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

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



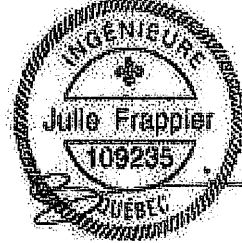
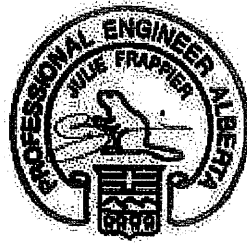
Maximum Floor Spans

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

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

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

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



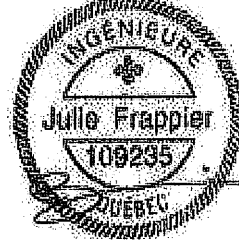
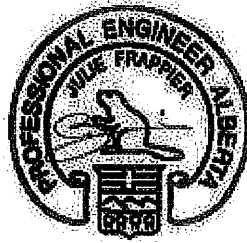
Maximum Floor Spans

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

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

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

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



Maximum Floor Spans

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

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

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

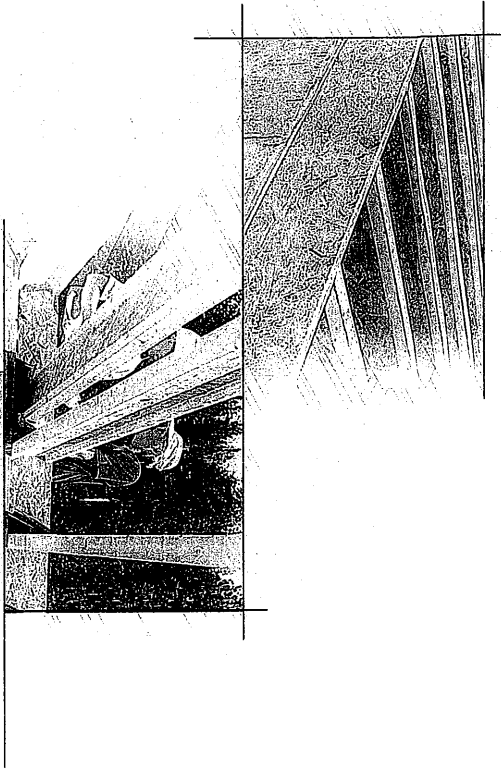
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load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

NORDIC

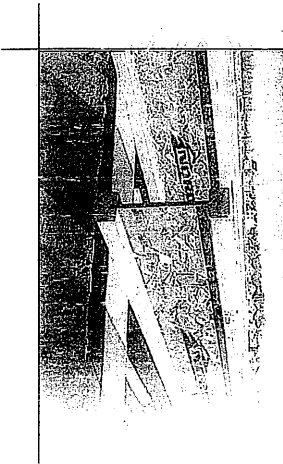
ENGINEERED WOOD



INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



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N-C301 / November 2014

SAFETY AND CONSTRUCTION PRECAUTIONS

WARNING

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

Avoid Accidents by Following these Important Guidelines:

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



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

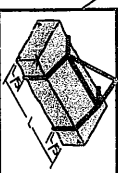
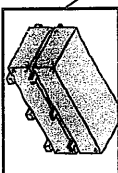


Never stack building materials over unsheathed I-joists. Once sheathed, do not over-stress I-joist with concentrated loads from building materials.

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

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or flowtime.
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.



I-JOIST HANGERS

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

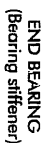
I-JOIST HANGERS

CCMC EVALUATION REPORT 13032-R

NORDIC I-JOIST SERIES

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS

See table below for web stiffener size requirements



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

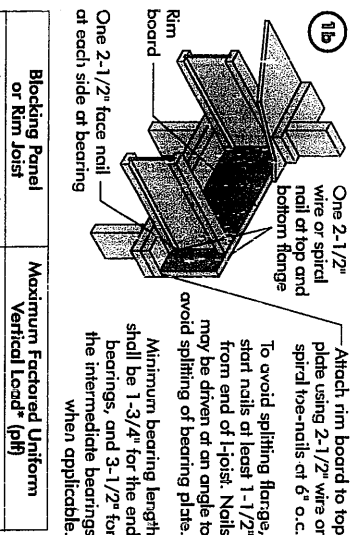
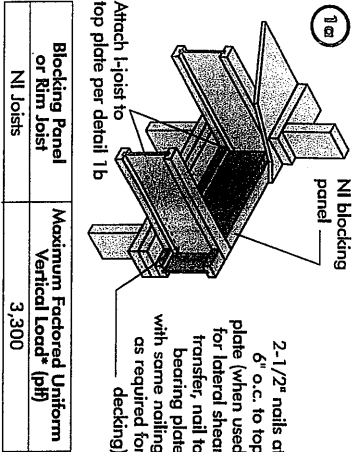
Nordic Engineered Wood Joists use only finger-jointed, black spruce lumber in their flanges, ensuring consistent quality, superior strength, and longer span carrying capacity.

2015-04-16

INSTALLING NORDIC I-JOISTS

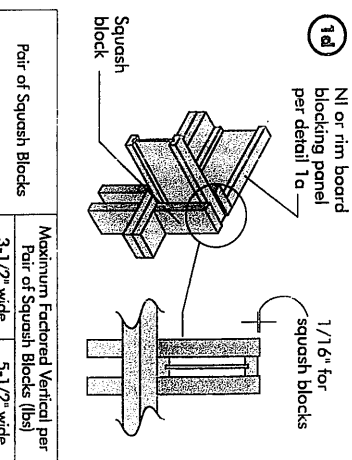
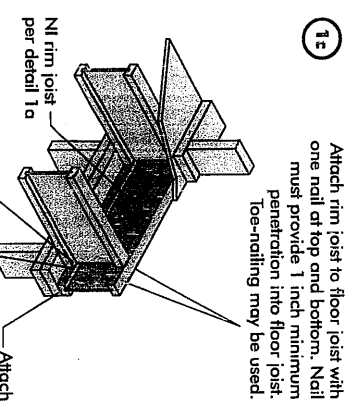
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple spans must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist end and a header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (triple 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.

2015-04-16



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

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

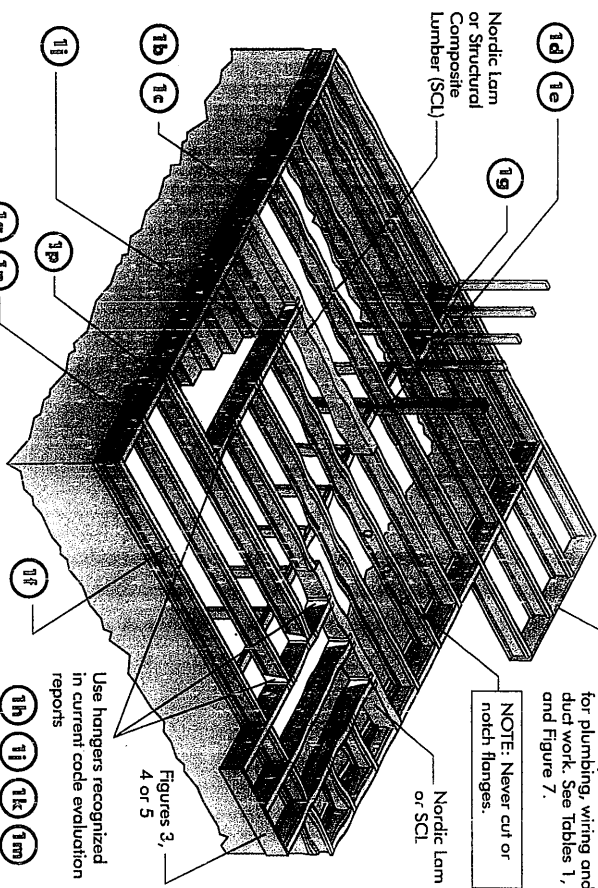


Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)
2x lumber	3,127 wide 5,500
1-1/8" Rim Board Plus	4,300 6,600

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

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

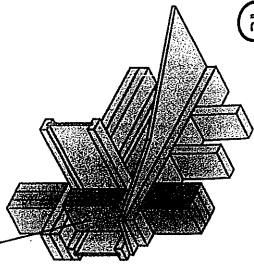
Some framing requirements such as erection bracing and blocking panels have been omitted for clarity.



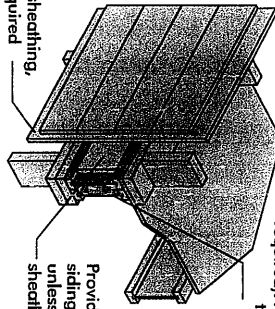
Figures 3, 4 or 5
Holes may be cut in web for plumbing, wiring and duct work. See tables 1, 2 and Figure 7.
NOTE: Never cut or notch flanges.

Use hangers recognized in current code evaluation reports
Figures 3, 4 or 5

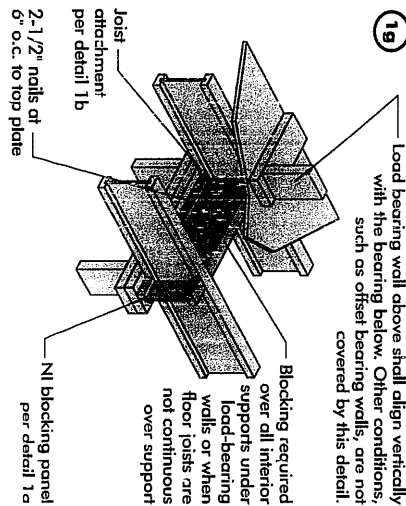
All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



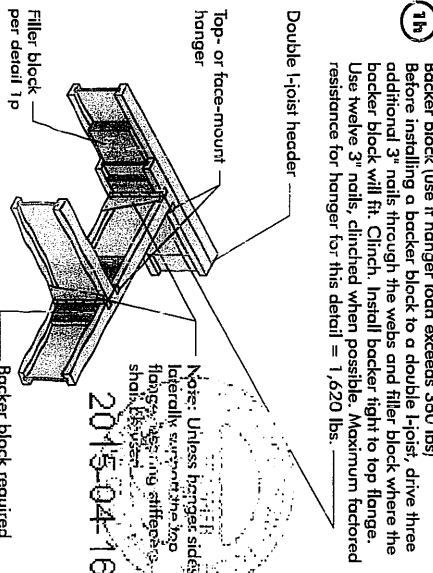
Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.



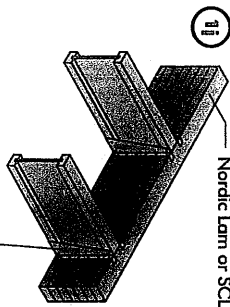
Use single I-joist for loads up to 3,300 pcf double I-joists for loads up to 6,600 pcf (filler block not required). Attach I-joist to top plate using 2-1/2" nails at 6" o.c.



Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.

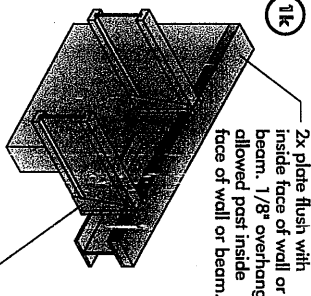


Backer block (use if hanger load exceeds 360 lbs) Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.



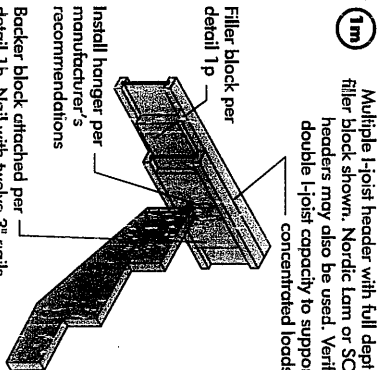
Top- or face-mount hanger installed per manufacturer's recommendations

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



Top-mount hanger installed per manufacturer's recommendations

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

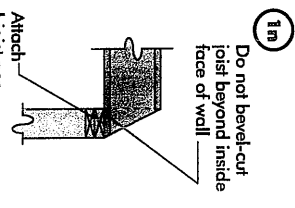


Filler block per detail 1p

Install hanger per manufacturer's recommendations

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

Maximum support capacity = 1,620 lbs.



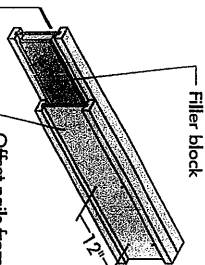
Attach I-joist per detail 1b

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

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-Q437 Standard.

** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

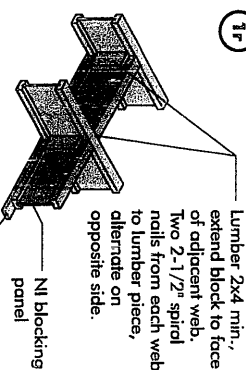


Offset nails from opposite face by 6"

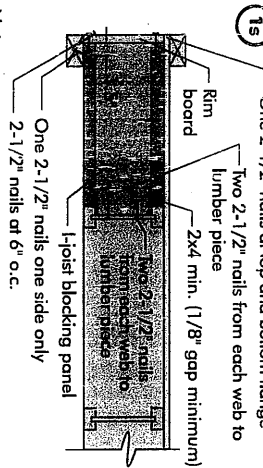
- Support back of I-joist web during nailing to prevent damage to web/flange connection.
- Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
- Filler block is required between joists for full length of span.
- Nail joists together with two rows of 3" nails at 12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



Optional: Minimum 1x4 inch strip applied to underside of joist or 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.

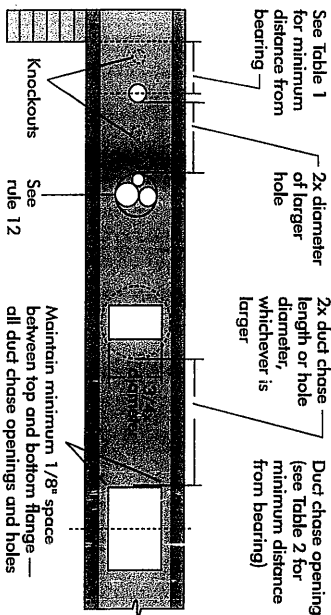
- All nails are common spiral in this detail.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

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

Joist Depth	Joist Series	2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4	Span adjustment Factor
Minimum distance from inside face of any support to centre of hole (ft-in.)																	
10	2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
12	3	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
14	4	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
16	5	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
18	6	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
20	6-1/4	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
22	7	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
24	8	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
26	8-5/8	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
28	9	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
30	10	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
32	10-3/4	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
34	11	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
36	12	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
38	12-3/4	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0
40		1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1.0

OPTIONAL:

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

The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Span, Section 1.1), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

$$\text{Reduced } D = \frac{\text{Actual } D}{\text{Maximum } D}$$

Where:

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

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

Maximum D = Span Adjustment Factor given in this table.

If Actual D is greater than 1, use 1 in the above calculation for Actual D .

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

Joist Depth	Joist Series	8	10	12	14	16	18	20	22	24
Minimum distance from inside face of any support to centre of opening (ft-in.)										
10	2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
12	3	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
14	4	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
16	5	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
18	6	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
20	6-1/4	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
22	7	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
24	8	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
26	8-5/8	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
28	9	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
30	10	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
32	10-3/4	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
34	11	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
36	12	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
38	12-3/4	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
40		1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2

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

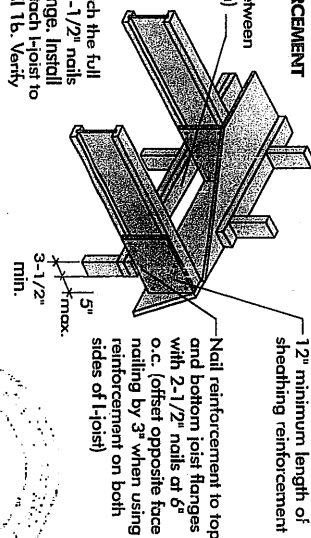
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BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

5a SHEATHING REINFORCEMENT

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

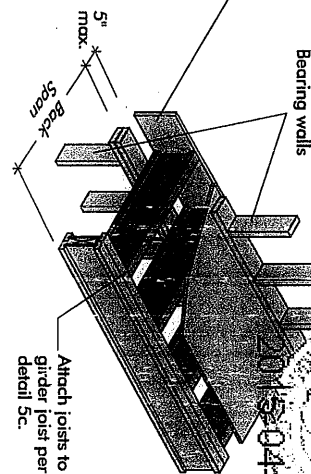
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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



5b SET-BACK DETAIL

Kim 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.

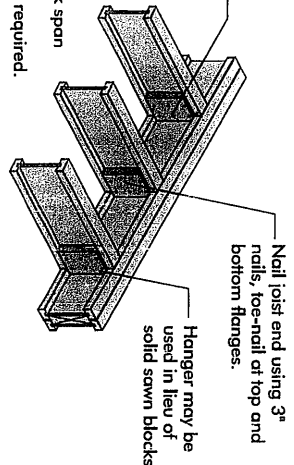
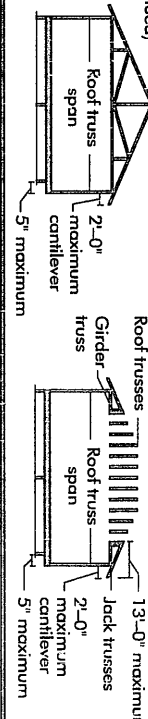


FIGURE 5 (continued)
See table below for NI reinforcement requirements at cantilever.



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

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS		ROOF LOADING (UNFACTORED)		LL = 50 psf, DL = 15 psf	
	SPAN (ft)	JOIST SPACING (in.)	SPAN (ft)	JOIST SPACING (in.)	SPAN (ft)	JOIST SPACING (in.)
9 1/2"	12	16	19.2	24	12	16
11 3/8"	12	16	19.2	24	12	16
12 1/2"	12	16	19.2	24	12	16
14"	12	16	19.2	24	12	16
16"	12	16	19.2	24	12	16

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

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.)	Common Wire or Spiral Nails	Nail Size and Type	Staples	Maximum Spacing of Fasteners
16	1/2	2"	1-3/4"	2"	6"
20	3/4	2"	1-3/4"	2"	6"
24	3/4	2"	1-3/4"	2"	6"
					12"

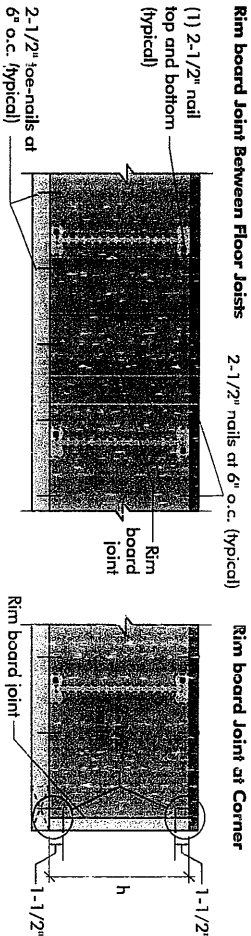
1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions 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.

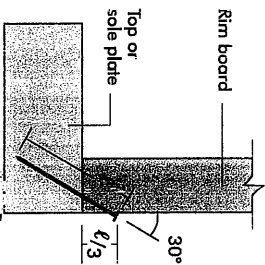
IMPORTANT NOTE:
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

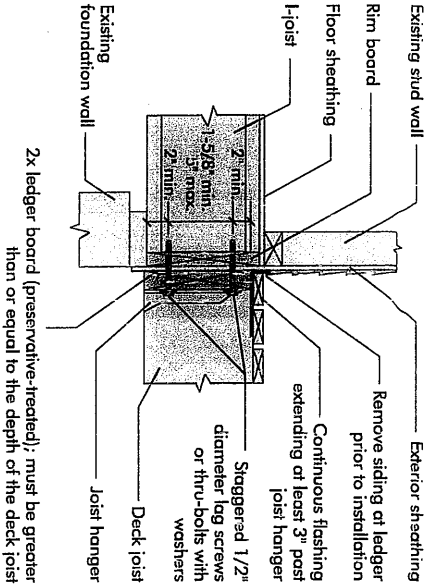
(8a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



(8b) TOE-NAIL CONNECTION AT RIM BOARD



(8c) 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

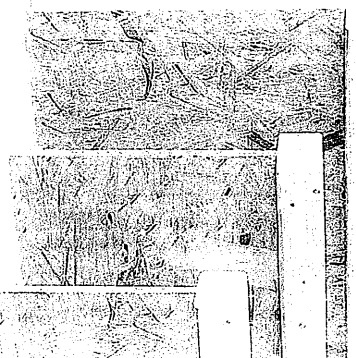


2015-04-16

PRODUCT WARRANTY

Customer Challenge guarantees that, in accordance with our specifications, Novus products are free from manufacturing defects in material and workmanship.

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



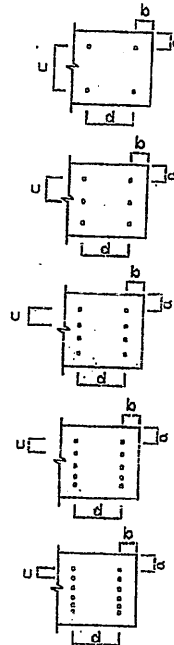
MICRO CITY

ENGINEERING SERVICES INC.

TEL: (519) 287-2242

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

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



NOTES:

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



DWG NO TAMN1001.14

STRUCTURAL
COMPONENT ONLY

TO BE USED ONLY
WITH BEAM CALCS
BEARING THE
STAMP BELOW

PROVIDE NAILING
DETAIL W/ X-SEE
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