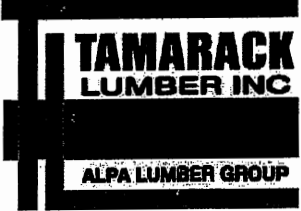


Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	8
J2	14-00-00	9 1/2" NI-40x	1	26
J2DJ	14-00-00	9 1/2" NI-40x	2	8
J3	12-00-00	9 1/2" NI-40x	1	24
J3DJ	12-00-00	9 1/2" NI-40x	2	4
J4	8-00-00	9 1/2" NI-40x	1	3
J5	6-00-00	9 1/2" NI-40x	1	18
J6	4-00-00	9 1/2" NI-40x	1	3
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	4-00-00	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
11	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
19	H1	IUS2.56/9.5
5	H1	IUS2.56/9.5
2	H2	HUS1.81/10
2	H2	HUS1.81/10

TOWN OF BRADFORD WEST GWILLIMBURY
BUILDING DEPARTMENT
PLANS EXAMINED
ONTARIO BUILDING CODE APPLIES
DATE: 2018-11-14
INSPECTOR: BG



FROM PLAN DATED: JAN 2017
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY EAST
MODEL: S38-15 BAROSSA 15
ELEVATION: A,B,C
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

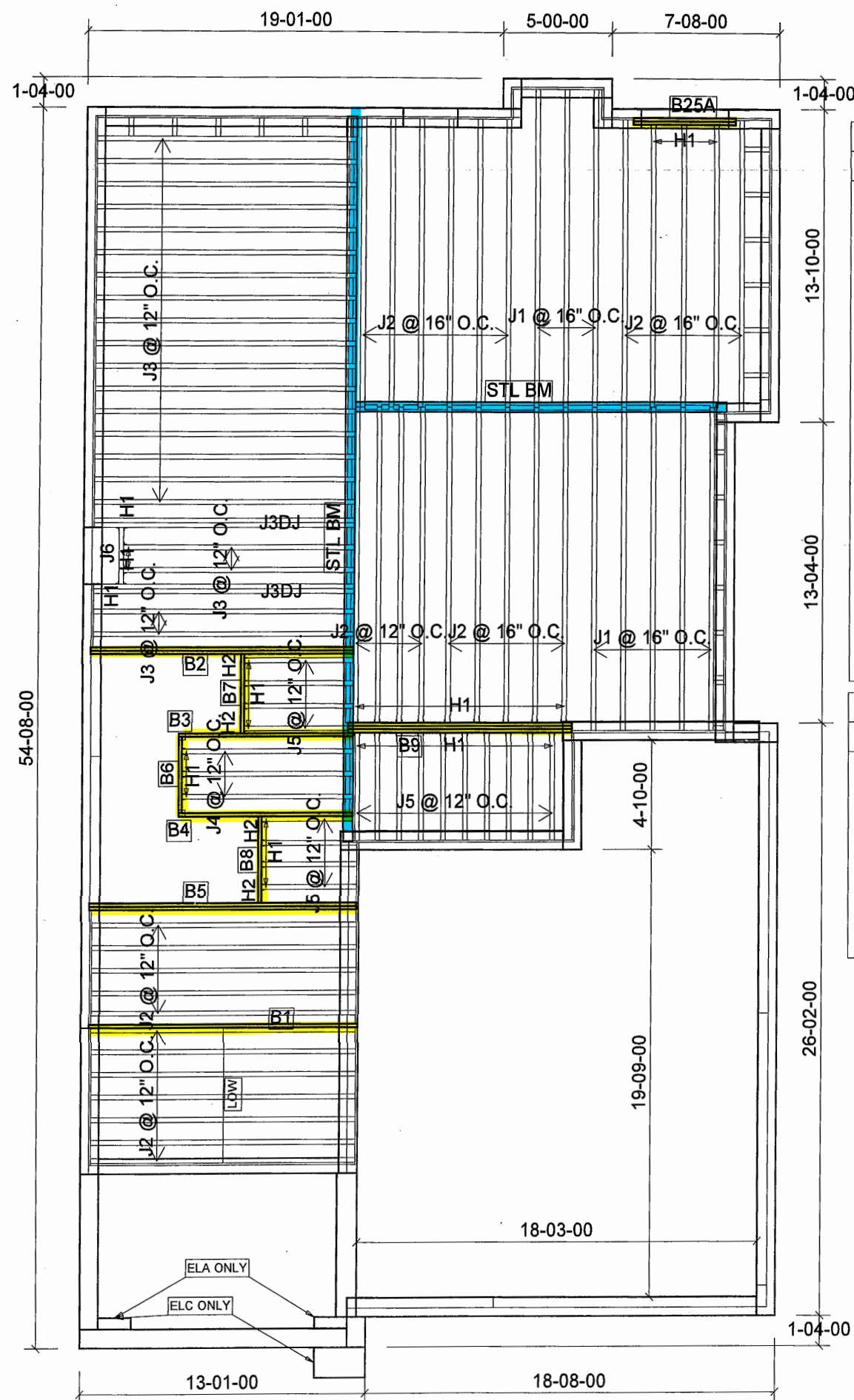
NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS. SEE
FIGURE 1. CANTILEVERED JOISTS
INCLUDING CANT' OVER BRICK REQ.
I-JOIST BLOCKING ALONG BEARING
AND RIMBOARD CLOSURE AT ENDS.
SEE FIGURES 4 & 5 FOR
REINFORCEMENT REQUIREMENTS.
FOR HOLES INCLUDING DUCT
CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7, TABLES 1 & 2.
CERAMIC TILE APPLICATION AS PER
O.B.C 9.30.6.
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 15/02/2018

1st FLOOR

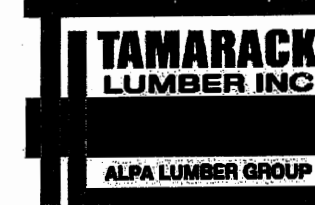
STANDARD

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	8
J2	14-00-00	9 1/2" NI-40x	1	32
J3	12-00-00	9 1/2" NI-40x	1	21
J3DJ	12-00-00	9 1/2" NI-40x	2	4
J4	8-00-00	9 1/2" NI-40x	1	3
J5	6-00-00	9 1/2" NI-40x	1	18
J6	4-00-00	9 1/2" NI-40x	1	1
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B25A	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	4-00-00	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
11	H1	IUS2.56/9.5
3	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
19	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
2	H2	HUS1.81/10
2	H2	HUS1.81/10



FROM PLAN DATED: JAN 2017
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY EAST
MODEL: S38-15 BAROSSA 15
ELEVATION: A,B,C
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

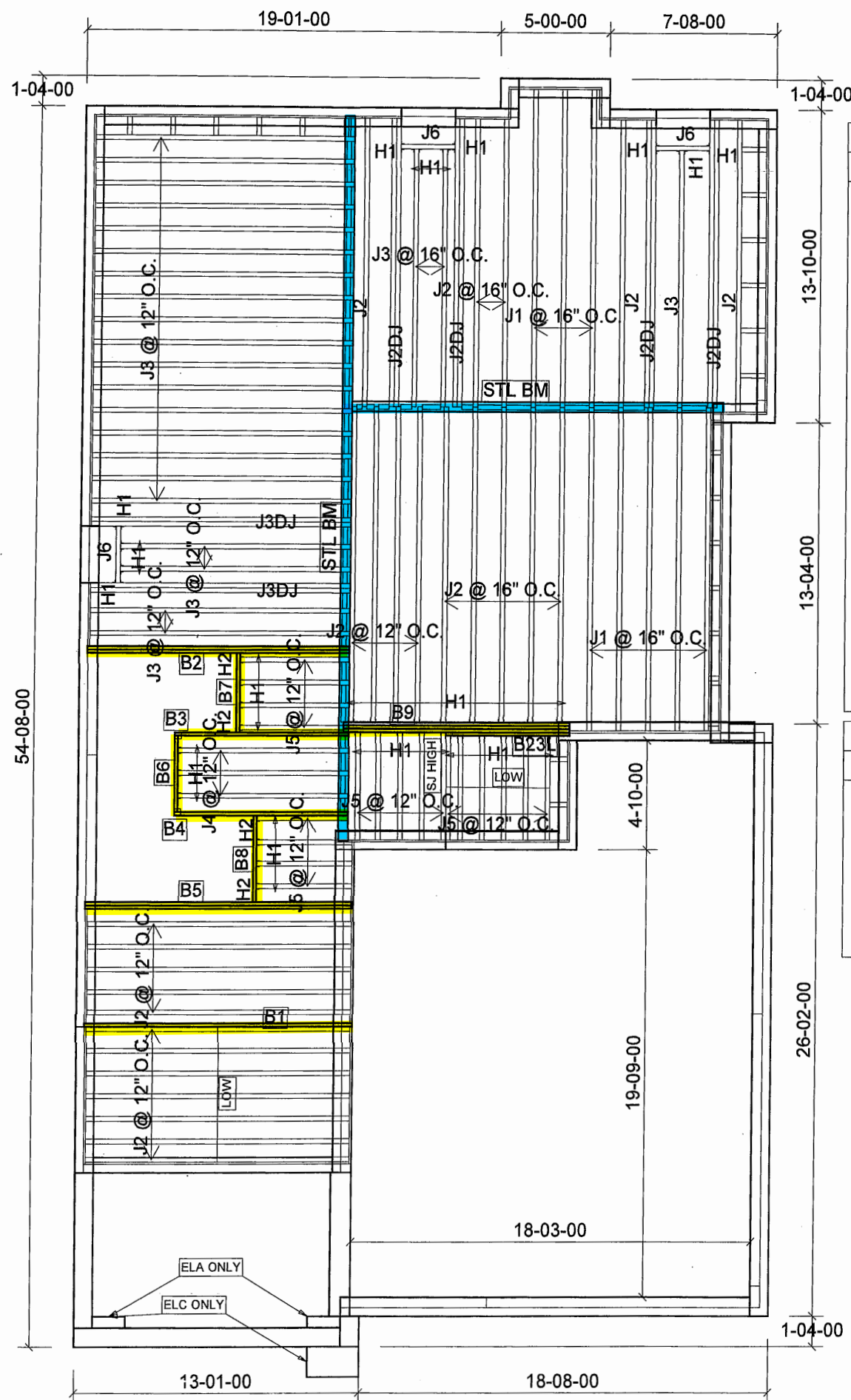
NOTES:
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S.P.F REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS. SEE
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I-JOIST BLOCKING ALONG BEARING
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REINFORCEMENT REQUIREMENTS.
FOR HOLES INCLUDING DUCT
CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7, TABLES 1 & 2.
CERAMIC TILE APPLICATION AS PER
O.B.C 9.30.6.
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 15/02/2018

1st FLOOR

STANDARD WITH WOD. &WOB

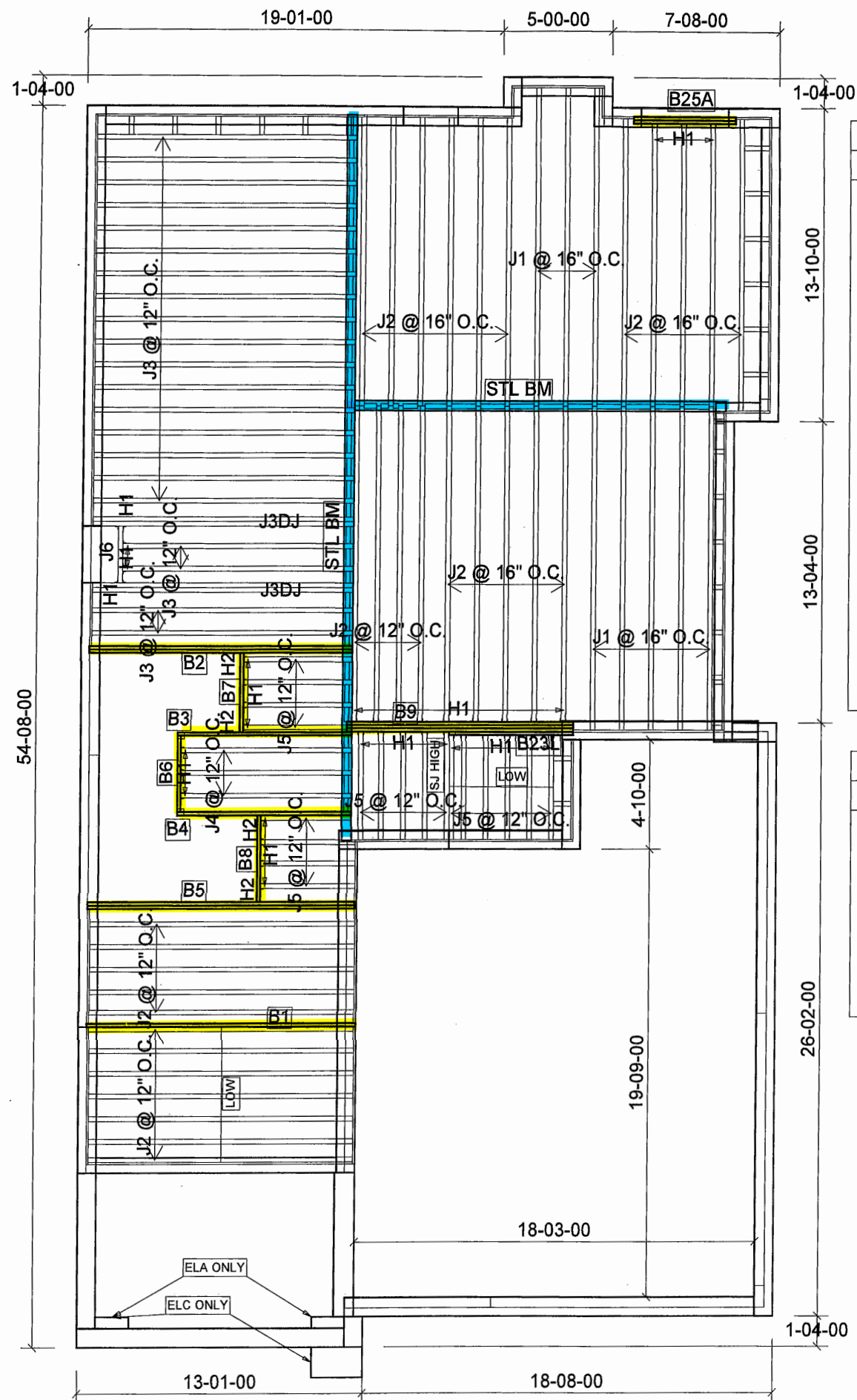
SITE COPY



Connector Summary		
Qty	Manuf	Product
17	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
14	H1	IUS2.56/9.5
5	H1	IUS2.56/9.5
2	H2	HUS1.81/10
2	H2	HUS1.81/10

1st FLOOR

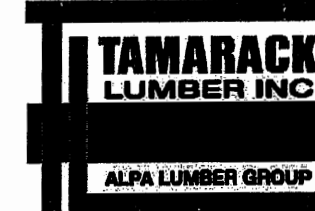
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Connector Summary		
Qty	Manuf	Product
17	H1	IUS2.56/9.5
3	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
14	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
2	H2	HUS1.81/10
2	H2	HUS1.81/10

SUNKEN WITH WOD & WOB

SITE COPY

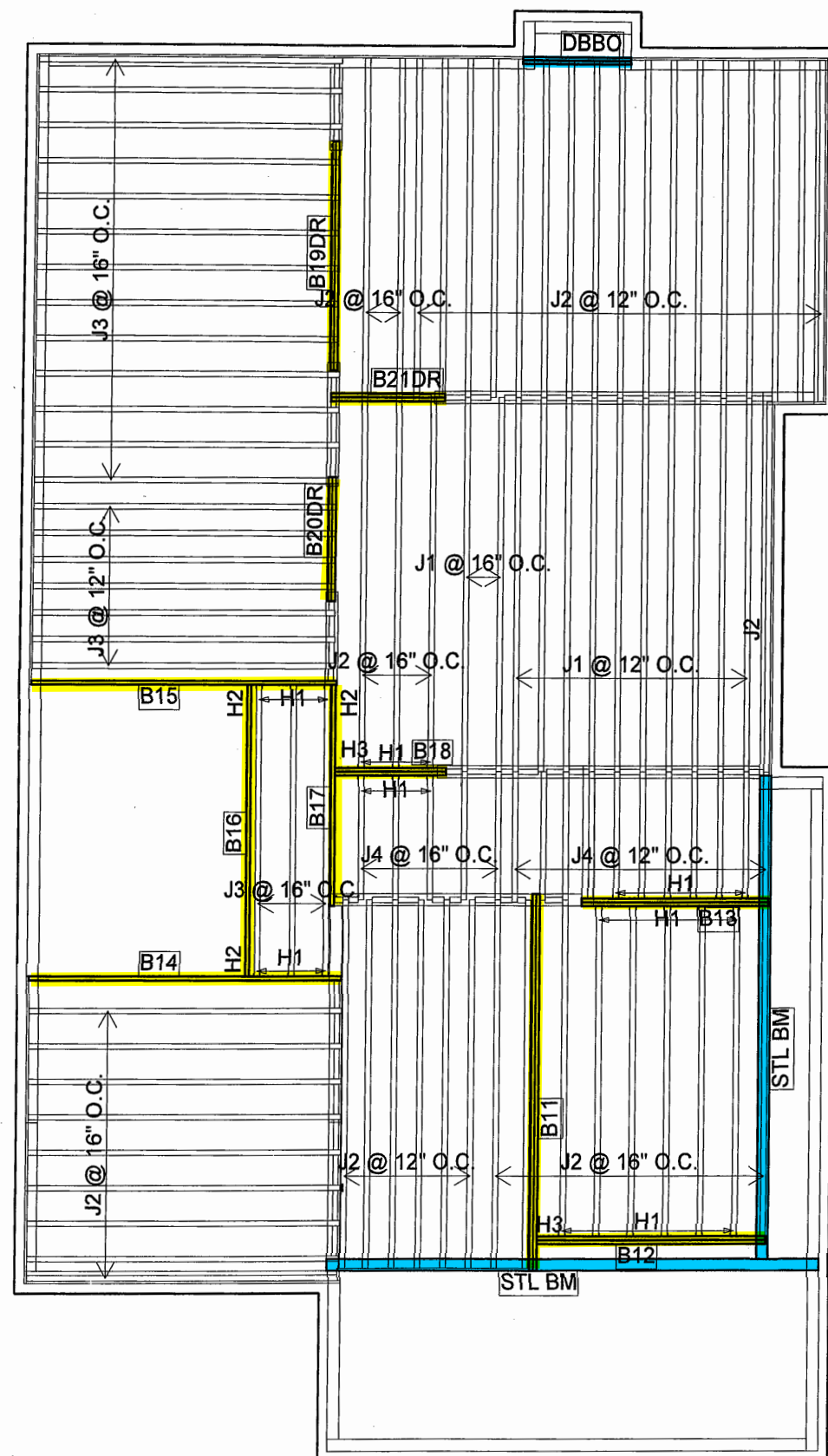


FROM PLAN DATED: JAN 2017
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY EAST
MODEL: S38-15 BAROSSA 15
ELEVATION: **A**
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F. REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS. SEE
FIGURE 1. CANTILEVERED JOISTS
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SEE FIGURE 7 TABLES 4 & 5 FOR
REINFORCEMENT REQUIREMENTS.
FOR HOLES INCLUDING DUCT
CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7 TABLES 1 & 2 OF THE
INSTALLATION GUIDE. CERAMIC TILE
APPLICATION AS PER O.B.C. 9.30.6
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 15/02/2018

2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	12
J2	14-00-00	9 1/2" NI-40x	1	47
J3	12-00-00	9 1/2" NI-40x	1	23
J4	6-00-00	9 1/2" NI-40x	1	16
B11	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B16	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B19DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B18	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B20DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B21DR	6-00-00	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
23	H1	IUS2.56/9.5
3	H2	HUS1.81/10
1	H3	HGUS410
1	H3	HGUS410

SITE COPY

FROM PLAN DATED: JAN 2017
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY EAST
MODEL: S38-15 BAROSSA 15
ELEVATION: C
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

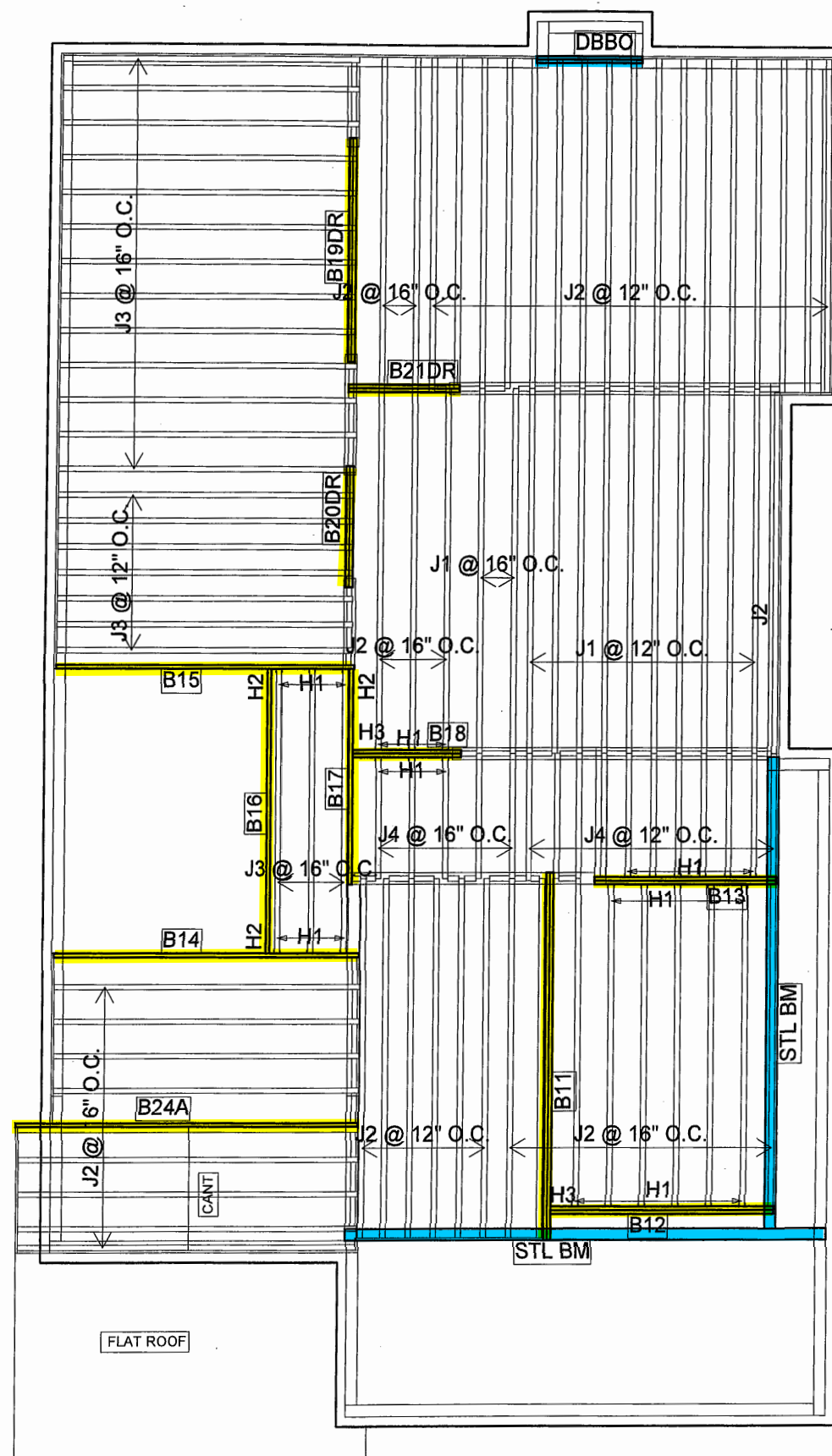
NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F. REQ'D UNDER INTERIOR
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AND RIMBOARD CLOSURE AT ENDS.
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REINFORCEMENT REQUIREMENTS.
FOR HOLES INCLUDING DUCT
CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7 TABLES 1 & 2 OF THE
INSTALLATION GUIDE. CERAMIC TILE
APPLICATION AS PER O.B.C. 9.30.6
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 15/02/2018

2nd FLOOR

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	12
J2	14-00-00	9 1/2" NI-40x	1	47
J3	12-00-00	9 1/2" NI-40x	1	23
J4	6-00-00	9 1/2" NI-40x	1	16
B11	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B24A	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B16	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B19DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B18	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B20DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B21DR	6-00-00	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
23	H1	IUS2.56/9.5
3	H2	HUS1.81/10
1	H3	HGUS410
1	H3	HGUS410



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i2492)

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

September 20, 2017 14:30:43

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

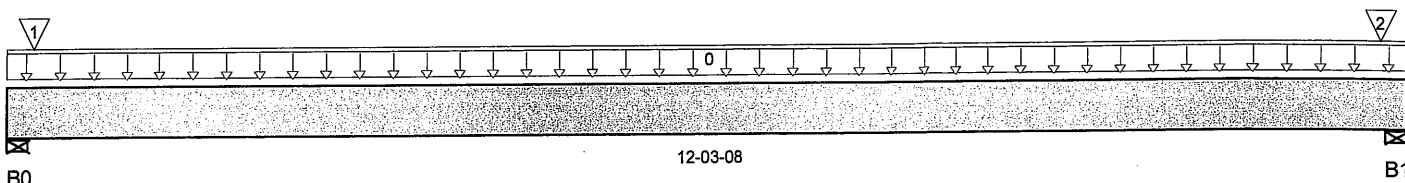
Description: Designs\Flush Beams\Basement\Flush Beams\B1(i2492)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 12-03-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	119 / 0	86 / 0		
B1, 5-1/2"	119 / 0	86 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-03-08	13	5			n/a
1	E2(i312)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	40	27			n/a
2	2(i503)	Conc. Pt. (lbs)	L	12-00-12	12-00-12	40	27			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	520 ft-lbs	12,704 ft-lbs	4.1%	1	06-01-12
End Shear	154 lbs	5,785 lbs	2.7%	1	01-03-00
Total Load Defl.	L/999 (0.036")	n/a	n/a	4	06-01-12
Live Load Defl.	L/999 (0.02")	n/a	n/a	5	06-01-12
Max Defl.	0.036"	n/a	n/a	4	06-01-12
Span / Depth	14.5	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 Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 1-3/4"	287 lbs	5.6%	2.4%	Unspecified
B1 Wall/Plate	5-1/2" x 1-3/4"	287 lbs	5.6%	2.4%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

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



DWG NO. TAM 9750-18
STRUCTURAL COMPONENT ONLY

SITE COPY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B2(i3011)

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

September 20, 2017 14:30:42

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports:

CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmd

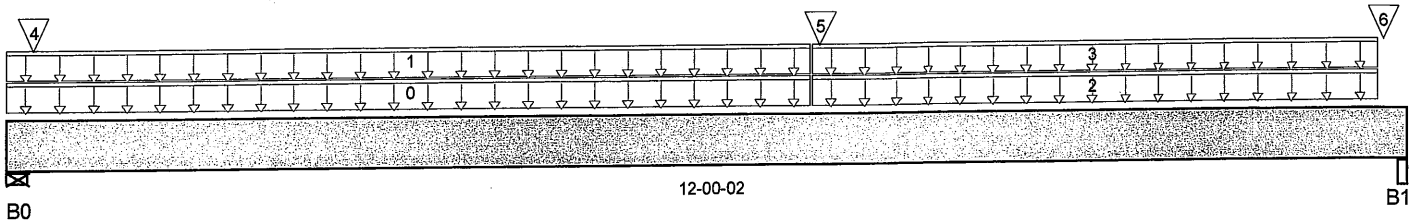
Description: Designs\Flush Beams\Basement\Flush Beams\B2(i3011)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 12-00-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	552 / 0	782 / 0		
B1, 5-1/4"	2,187 / 0	1,594 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	0	Unf. Lin. (lb/ft)	L	00-00-00	06-10-08		50			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-10-08	17	7			n/a
2	0	Unf. Lin. (lb/ft)	L	06-10-08	11-09-04		61			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	06-10-08	11-09-04	21	8			n/a
4	E4(i315)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	193	251			n/a
5	B7(i2939)	Conc. Pt. (lbs)	L	06-11-06	06-11-06	601	287			n/a
6	8(i515)	Conc. Pt. (lbs)	L	11-09-10	11-09-10	1,723	995			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,254 ft-lbs	25,408 ft-lbs	20.7%	1	06-11-06
End Shear	1,314 lbs	11,571 lbs	11.4%	1	10-09-06
Total Load Defl.	L/888 (0.152")	0.562"	27%	4	06-02-01
Live Load Defl.	L/999 (0.073")	n/a	n/a	5	06-02-01
Max Defl.	0.152"	1"	15.2%	4	06-02-01
Span / Depth	14.2	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	1,806 lbs	17.6%	7.7%	Unspecified
B1 Beam	5-1/4" x 3-1/2"	5,273 lbs	53.7%	23.5%	Unspecified

Notes



SITE COPY



BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B2(i301

Specifier:

Designer: CZ

Company:

Msc:

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

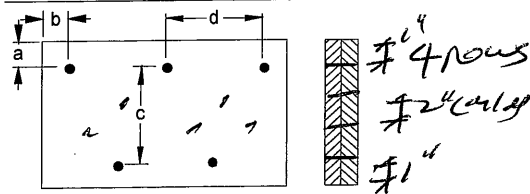
CONFORMS TO OBC 2012

Disclosure

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

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

Connection Diagram



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

Calculated Side Load = 104.9 lb/ft

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

Connectors are: Nails
3-1/2" ARDOX SPIRAL





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement/Flush Beams/B3(i2561)

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

September 20, 2017 14:30:42

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

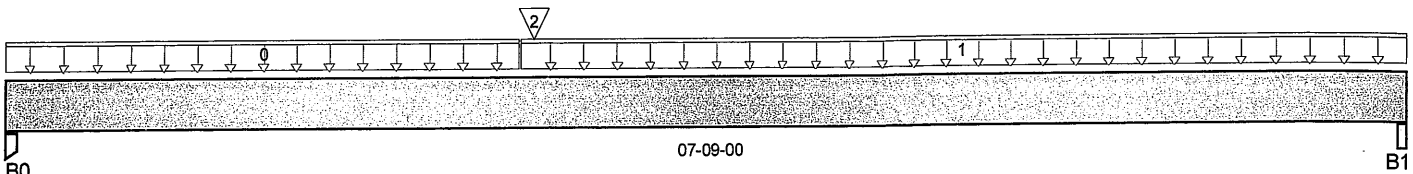
Description: Designs\Flush Beams\Basement\Flush Beams\B3(i2561)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 07-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	444 / 0	224 / 0		
B1, 2-5/8"	283 / 0	146 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-10-00	16	6			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-10-00	07-09-00	17	6			n/a
2	B7(i2939)	Conc. Pt. (lbs)	L	02-10-14	02-10-14	596	284			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,375 ft-lbs	12,704 ft-lbs	18.7%	1	02-10-14
End Shear	905 lbs	5,785 lbs	15.6%	1	01-01-00
Total Load Defl.	L/999 (0.053")	n/a	n/a	4	03-08-04
Live Load Defl.	L/999 (0.035")	n/a	n/a	5	03-08-04
Max Defl.	0.053"	n/a	n/a	4	03-08-04
Span / Depth	9.3	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 1-3/4"	945 lbs	19%	12.7%	Unspecified
B1 Beam	2-5/8" x 1-3/4"	607 lbs	24.8%	10.8%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Disclosure

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

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DWG NO. TAM 9752-18
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i3193)

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

September 20, 2017 14:30:42

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

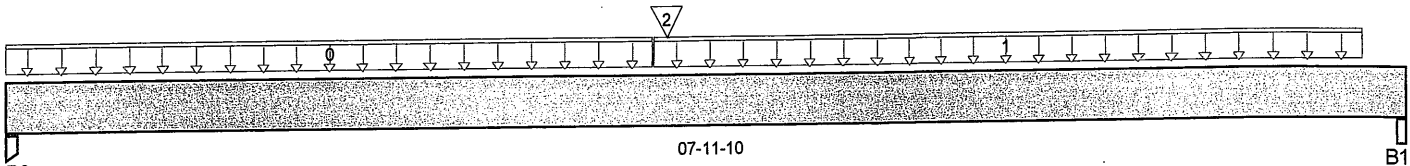
Description: Designs\Flush Beams\Basement\Flush Beams\B4(i3193)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 07-11-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	371 / 0	190 / 0		
B1, 5-1/4"	348 / 0	179 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-08-00	17	7			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-08-00	07-08-12	20	7			n/a
2	B8(i3192)	Conc. Pt. (lbs)	L	03-08-14	03-08-14	574	276			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,507 ft-lbs	12,704 ft-lbs	19.7%	1	03-08-14
End Shear	751 lbs	5,785 lbs	13%	1	01-01-00
Total Load Defl.	L/999 (0.057")	n/a	n/a	4	03-10-00
Live Load Defl.	L/999 (0.038")	n/a	n/a	5	03-10-00
Max Defl.	0.057"	n/a	n/a	4	03-10-00
Span / Depth	9.3	n/a	n/a		00-00-00

Disclosure

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

Bearing Supports

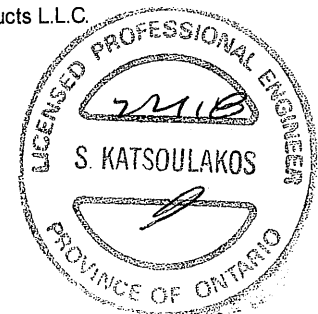
	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 1-3/4"	795 lbs	16%	10.6%	Unspecified
B1 Beam	5-1/4" x 1-3/4"	746 lbs	15.2%	6.7%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

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Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B5(i3173)

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

September 20, 2017 14:30:43

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

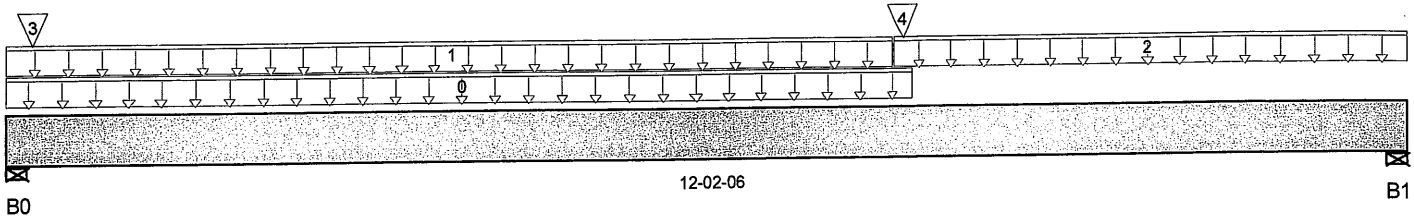
Description: Designs\Flush Beams\Basement\Flush Beams\B5(i3173)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 12-02-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	457 / 0	763 / 0		
B1, 4-3/8"	539 / 0	448 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0 0	Unf. Lin. (lb/ft)	L	00-00-00	07-10-10		60			n/a
1 FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-08-08	19	7			n/a
2 FC1 Floor Material	Unf. Lin. (lb/ft)	L	07-08-08	12-02-06	33	13			n/a
3 E2(i312)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	122	229			n/a
4 B8(i3192)	Conc. Pt. (lbs)	L	07-09-06	07-09-06	577	280			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,877 ft-lbs	25,408 ft-lbs	19.2%	1	07-09-06
End Shear	1,279 lbs	11,571 lbs	11.1%	1	11-00-08
Total Load Defl.	L/913 (0.151")	0.575"	26.3%	4	06-04-12
Live Load Defl.	L/999 (0.075")	n/a	n/a	5	06-05-15
Max Defl.	0.151"	1"	15.1%	4	06-04-12
Span / Depth	14.5	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	1,069 lbs	16%	7%	Unspecified
B1 Wall/Plate	4-3/8" x 3-1/2"	1,369 lbs	16.7%	7.3%	Unspecified

Notes



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Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B5(i3173)

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

September 20, 2017 14:30:43

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B5(i3173)

Specifier:

Designer: CZ

Company:

Misc:

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume member is fully braced.

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

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

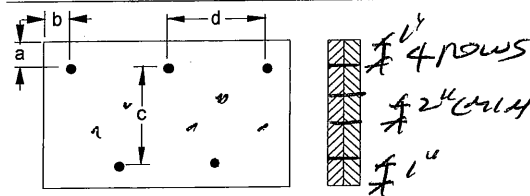
CONFORMS TO OBC 2012

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Disclosure

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Connection Diagram

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

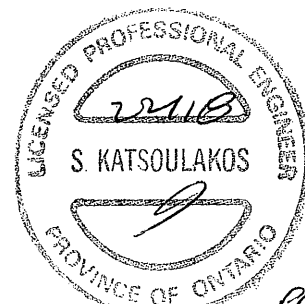
Calculated Side Load = 99.6 lb/ft

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

Connectors are: Nails

^
3-1/2" ARDOX SPIRAL

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P62

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DWG NO. TAM 4754-18
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B6(i2931)

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

September 20, 2017 14:30:42

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports:

CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

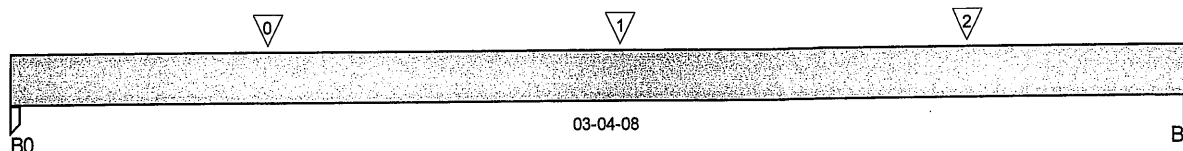
Description: Designs\Flush Beams\Basement\Flush Beams\B6(i2931)

Specifier:

Designer: CZ

Company:

Msc:



Total Horizontal Product Length = 03-04-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	216 / 0	89 / 0		
B1, 1-3/4"	224 / 0	92 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J6(i2964)	Conc. Pt. (lbs)	L	00-08-12	00-08-12	145	54			n/a
1	J6(i2511)	Conc. Pt. (lbs)	L	01-08-12	01-08-12	157	59			n/a
2	J6(i2506)	Conc. Pt. (lbs)	L	02-08-12	02-08-12	138	52			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	424 ft-lbs	12,704 ft-lbs	3.3%	1	01-08-12
End Shear	355 lbs	5,785 lbs	6.1%	1	00-11-04
Total Load Defl.	L/999 (0.002")	n/a	n/a	4	01-08-02
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	01-08-02
Max Defl.	0.002"	n/a	n/a	4	01-08-02
Span / Depth	4.1	n/a	n/a		00-00-00

Disclosure

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Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	1-3/4" x 1-3/4"	436 lbs	17.5%	11.7%	Unspecified
B1 Post	1-3/4" x 1-3/4"	451 lbs	18.1%	12.1%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

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.



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Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B7(i2939)

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

September 20, 2017 14:30:42

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

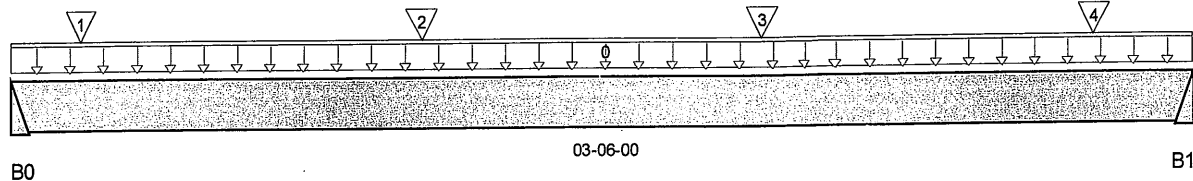
Description: Designs\Flush Beams\Basement\Flush Beams\B7(i2939)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 03-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	599 / 0	285 / 0		
B1	598 / 0	286 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	0	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	240	120			n/a
1	J7(i2693)	Conc. Pt. (lbs)	L	00-02-08	00-02-08	73	27			n/a
2	J7(i2879)	Conc. Pt. (lbs)	L	01-02-08	01-02-08	101	38			n/a
3	J7(i2625)	Conc. Pt. (lbs)	L	02-02-08	02-02-08	101	38			n/a
4	J7(i3016)	Conc. Pt. (lbs)	L	03-02-08	03-02-08	82	31			n/a

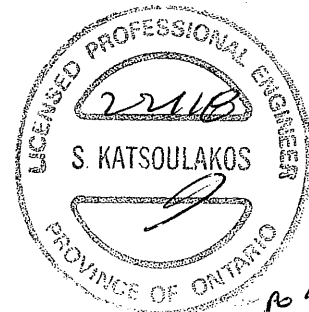
Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	950 ft-lbs	12,704 ft-lbs	7.5%	1	01-09-04
End Shear	625 lbs	5,785 lbs	10.8%	1	00-11-08
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	01-08-14
Live Load Defl.	L/999 (0.004")	n/a	n/a	5	01-08-14
Max Defl.	0.005"	n/a	n/a	4	01-08-14
Span / Depth	4.2	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	1,255 lbs	n/a	29.4%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	1,254 lbs	n/a	29.4%	HUS1.81/10

Notes



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DWG NO. TAM 9156-18
STRUCTURAL
COMPONENT ONLY



BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B7(i2939)

Specifier:

Designer: CZ

Company:

Misc:

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Disclosure

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

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Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B8(i3192)

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

September 20, 2017 14:30:42

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

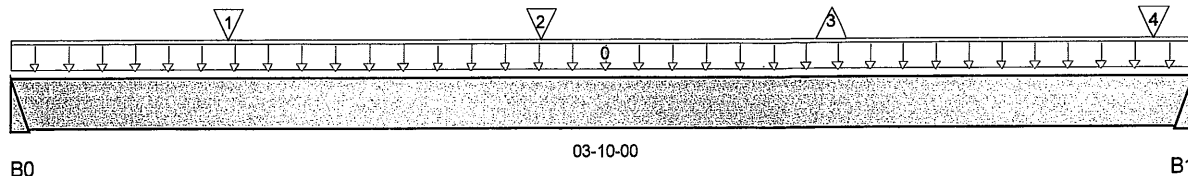
Description: Designs\Flush Beams\Basement\Flush Beams\B8(i3192)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 03-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	579 / 0	281 / 0		
B1	572 / 0	275 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	0	Unf. Lin. (lb/ft)	L	00-00-00	03-10-00	240	120			n/a
1	J5(i2637)	Conc. Pt. (lbs)	L	00-08-08	00-08-08	80	30			n/a
2	J5(i2643)	Conc. Pt. (lbs)	L	01-08-08	01-08-08	84	32			n/a
3	J5(i3212)	Conc. Pt. (lbs)	L	02-07-14	02-07-14	16	-3			n/a
4	J5(i3151)	Conc. Pt. (lbs)	L	03-08-08	03-08-08	51	19			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,048 ft-lbs	12,704 ft-lbs	8.3%	1	01-08-08
End Shear	675 lbs	5,785 lbs	11.7%	1	00-11-08
Total Load Defl.	L/999 (0.007")	n/a	n/a	4	01-10-10
Live Load Defl.	L/999 (0.005")	n/a	n/a	5	01-10-10
Max Defl.	0.007"	n/a	n/a	4	01-10-10
Span / Depth	4.6	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	1,219 lbs	n/a	28.6%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	1,203 lbs	n/a	28.2%	HUS1.81/10

Notes



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DWG NO. TAM 9757-18
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B8(i3192)

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

September 20, 2017 14:30:42

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B8(i3192)

Specifier:

Designer: CZ

Company:

Misc:

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum total load deflection criteria.
Design meets User specified (0.75") Maximum live load deflection criteria.
Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Disclosure

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

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SITE COPY



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B9(i3170)

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

September 20, 2017 14:30:43

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

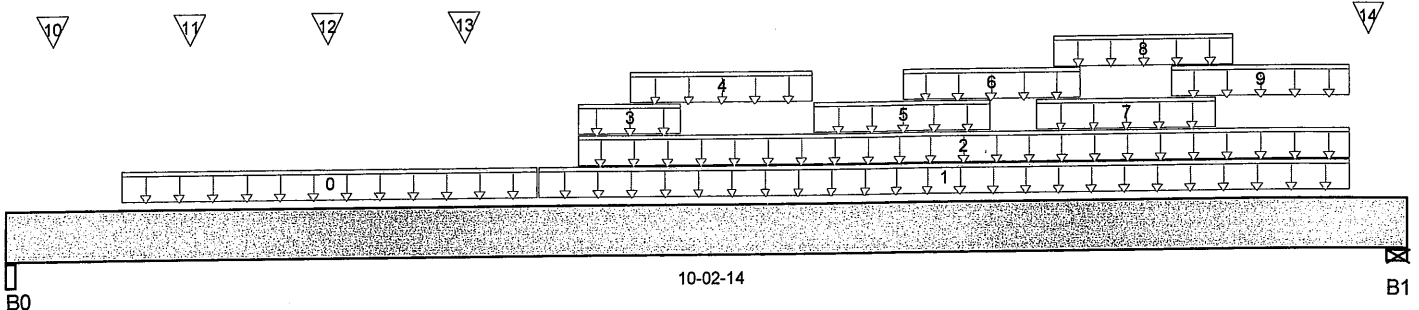
Description: Designs\Flush Beams\Basement\Flush Beams\B9(i3170)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 10-02-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-5/8"	2,915 / 0	1,317 / 0		
B1, 4-11/16"	4,130 / 0	1,985 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-00	03-10-08	88	33			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	03-10-08	09-10-00	350	131			n/a
2	10(i521)	Unf. Lin. (lb/ft)	L	04-02-00	09-10-00		81			n/a
3	10(i521)	Unf. Lin. (lb/ft)	L	04-02-00	04-11-00	1,166	466			n/a
4	10(i521)	Unf. Lin. (lb/ft)	L	04-06-08	05-10-08	380	143			n/a
5	10(i521)	Unf. Lin. (lb/ft)	L	05-10-08	07-02-08	284	106			n/a
6	10(i521)	Unf. Lin. (lb/ft)	L	06-06-08	07-10-08	241	90			n/a
7	10(i521)	Unf. Lin. (lb/ft)	L	07-06-08	08-10-08	217	81			n/a
8	10(i521)	Unf. Lin. (lb/ft)	L	07-08-00	09-00-00	67	25			n/a
9	10(i521)	Unf. Lin. (lb/ft)	L	08-06-08	09-10-00	285	108			n/a
10	J1(i3167)	Conc. Pt. (lbs)	L	00-04-00	00-04-00	194	75			n/a
11	J1(i3158)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	292	110			n/a
12	J1(i3158)	Conc. Pt. (lbs)	L	02-04-00	02-04-00	292	110			n/a
13	J1(i3157)	Conc. Pt. (lbs)	L	03-04-00	03-04-00	323	121			n/a
14	-	Conc. Pt. (lbs)	L	09-11-08	09-11-08	674	283			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	18,963 ft-lbs	39,636 ft-lbs	47.8%	1	04-11-00
End Shear	7,224 lbs	17,356 lbs	41.6%	1	09-00-11
Total Load Defl.	L/397 (0.295")	0.488"	60.4%	4	04-11-00
Live Load Defl.	L/583 (0.201")	0.325"	61.7%	5	04-11-00
Max Defl.	0.295"	1"	29.5%	4	04-11-00
Span / Depth	12.3	n/a	n/a		00-00-00

Bearing Supports

Dim. (L x W)

Demand

Demand /
Resistance
Support

Demand /
Resistance
Member

Material



SITE COPY



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B9(i3170)

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

September 20, 2017 14:30:43

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B9(i3170)

Specifier:

Designer: CZ

Company:

Misc:

B0	Beam	2-5/8" x 5-1/4"	6,019 lbs	81.8%	35.8%	Unspecified
B1	Wall/Plate	4-1 1/16" x 5-1/4"	8,675 lbs	66.1%	28.9%	Unspecified

Notes

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume member is fully braced.

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

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

O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

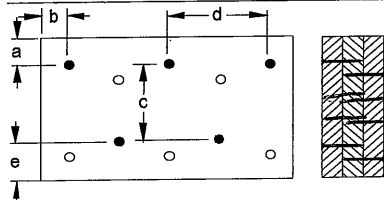
CONFORMS TO OBC 2012

Disclosure

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

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Connection Diagram



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

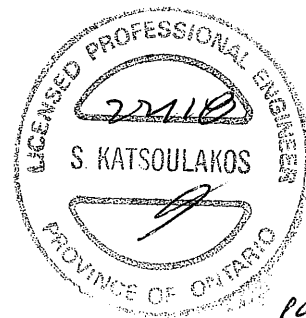
Calculated Side Load = 582.6 lb/ft

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

Nailing schedule applies to both sides of the member.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



SITE COPY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...B11(i3186)

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

September 20, 2017 14:30:44

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

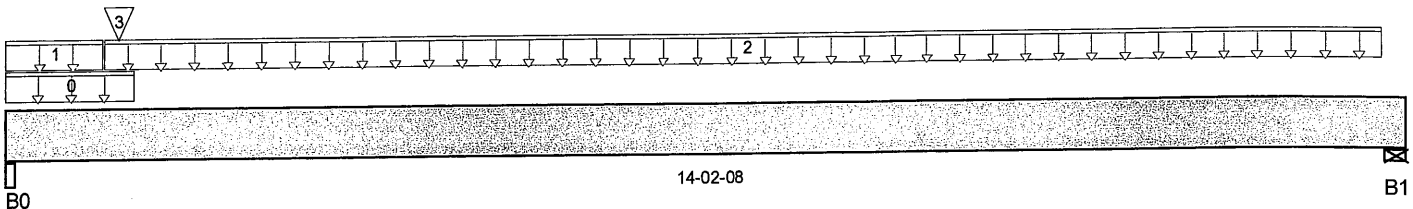
Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i3186)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 14-02-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	1,601 / 0	1,334 / 0		
B1, 5-1/2"	283 / 0	211 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	low roof	Unf. Lin. (lb/ft)	L	00-00-00	01-03-14				33	n/a
1	E19(i2220)	Unf. Lin. (lb/ft)	L	00-00-00	01-00-00	33	111		99	n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	01-00-00	13-11-12	29	11			n/a
3	-	Conc. Pt. (lbs)	L	01-01-13	01-01-13	1,453	1,140		1,296	n/a

Controls Summary

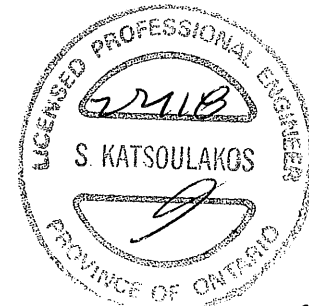
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,287 ft-lbs	25,408 ft-lbs	12.9%	1	04-00-10
End Shear	3,559 lbs	11,571 lbs	30.8%	1	01-02-12
Total Load Defl.	L/1,059 (0.152")	0.672"	22.7%	4	06-07-02
Live Load Defl.	L/999 (0.087")	n/a	n/a	5	06-07-02
Max Defl.	0.152"	1"	15.2%	4	06-07-02
Span / Depth	17	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	5-1/4" x 3-1/2"	4,069 lbs	41.5%	18.1%	Unspecified
B1 Wall/Plate	5-1/2" x 3-1/2"	688 lbs	6.7%	2.9%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9



SITE COPY

DWG NO. TAM 9759-18
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B11(i3186)

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

September 20, 2017 14:30:44

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports:

CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i3186)

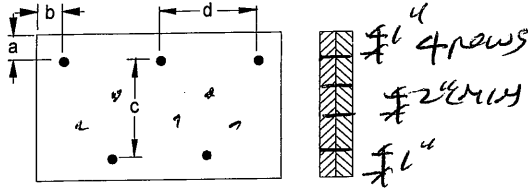
Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram



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

Calculated Side Load = 246.4 lb/ft

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

Connectors are: Nails

3-1/2" ARDOX SPIRAL

Disclosure

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Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...B12(i3181)

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

September 20, 2017 14:30:44

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

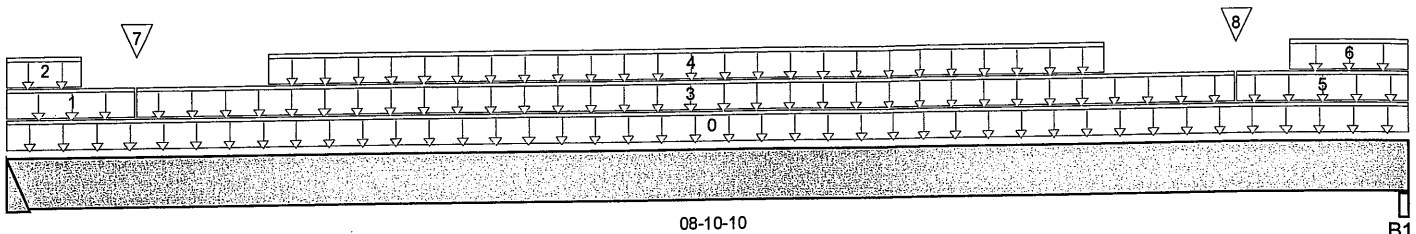
Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i3181)

Specifier:

Designer: CZ

Company:

Misc:



B0

B1

Total Horizontal Product Length = 08-10-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	1,439 / 0	1,101 / 0		
B1, 4-1/8"	1,434 / 0	1,126 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	low roof	Unf. Lin. (lb/ft)	L	00-00-00	08-10-10	50	45		149	n/a
1	E23(i2224)	Unf. Lin. (lb/ft)	L	00-00-00	00-09-12		81			n/a
2	E23(i2224)	Unf. Lin. (lb/ft)	L	00-00-00	00-05-12				132	n/a
3	E22(i2223)	Unf. Lin. (lb/ft)	L	00-09-12	07-09-12		61			n/a
4	Smoothed Load	Unf. Lin. (lb/ft)	L	01-07-12	06-11-12	261	98			n/a
5	E18(i2221)	Unf. Lin. (lb/ft)	L	07-09-12	08-10-10		81			n/a
6	E18(i2221)	Unf. Lin. (lb/ft)	L	08-01-11	08-10-10	44	40		132	n/a
7	-	Conc. Pt. (lbs)	L	00-09-12	00-09-12	492	297		506	n/a
8	-	Conc. Pt. (lbs)	L	07-09-11	07-09-11	491	297		506	n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,891 ft-lbs	25,408 ft-lbs	27.1%	1	04-05-12
End Shear	3,235 lbs	11,571 lbs	28%	1	07-09-00
Total Load Defl.	L/784 (0.13")	0.425"	30.6%	4	04-03-12
Live Load Defl.	L/999 (0.076")	n/a	n/a	5	04-03-12
Max Defl.	0.13"	1"	13%	4	04-03-12
Span / Depth	10.7	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 3-1/2"	3,535 lbs	n/a	41.4%	HGUS410
B1 Beam	4-1/8" x 3-1/2"	3,559 lbs	46.2%	20.2%	Unspecified

Notes





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B12(i3181)

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

September 20, 2017 14:30:44

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i3181

Specifier:

Designer: CZ

Company:

Misc:

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

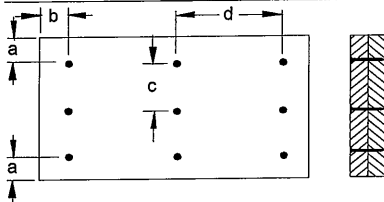
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Disclosure

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Connection Diagram



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

Calculated Side Load = 451.1 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 Nails

3-1/2" ARDOX SPIRAL

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BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmd

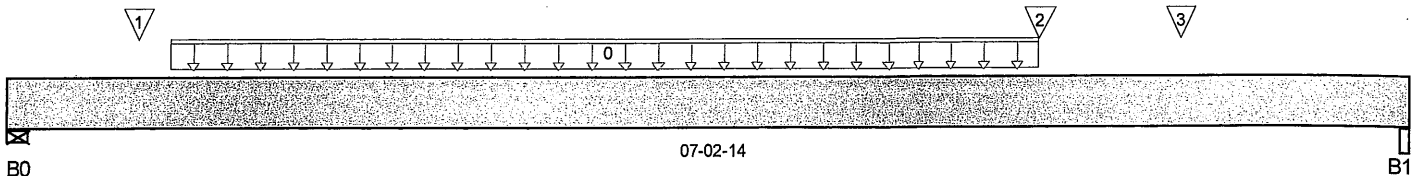
Description: Designs\Flush Beams\1st Floor\Flush Beams\B13(i3197)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 07-02-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	1,215 / 0	490 / 0		
B1, 4-1/8"	1,040 / 0	424 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-00	05-04-00	314	118			n/a
1	J2(i3174)	Conc. Pt. (lbs)	L	00-08-00	00-08-00	340	127			n/a
2	J4(i3118)	Conc. Pt. (lbs)	L	05-04-00	05-04-00	98	37			n/a
3	-	Conc. Pt. (lbs)	L	06-00-14	06-00-14	404	151			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,831 ft-lbs	25,408 ft-lbs	15.1%	1	03-04-00
End Shear	2,024 lbs	11,571 lbs	17.5%	1	06-01-04
Total Load Defl.	L/999 (0.041")	n/a	n/a	4	03-08-08
Live Load Defl.	L/999 (0.029")	n/a	n/a	5	03-08-08
Max Defl.	0.041"	n/a	n/a	4	03-08-08
Span / Depth	8.3	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	2,436 lbs	23.7%	10.4%	Unspecified
B1 Beam	4-1/8" x 3-1/2"	2,089 lbs	27.1%	11.9%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B13(i3197)

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

September 20, 2017 14:30:44

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B13(i3197)

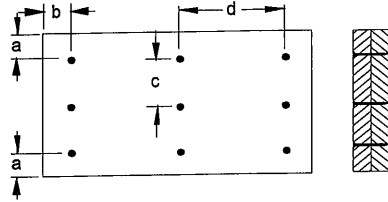
Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram



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

Calculated Side Load = 455.1 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.

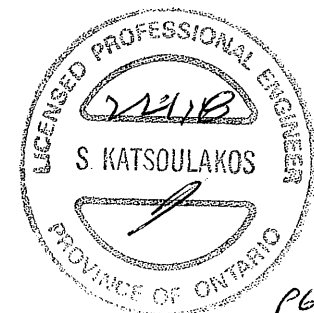
Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

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PG 42

DWG NO. TAM 9761-18
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

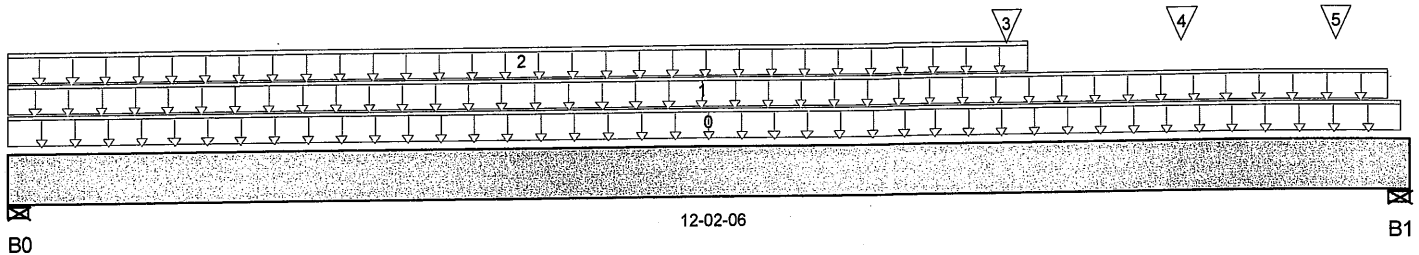
Description: Designs\Flush Beams\1st Floor\Flush Beams\B14(i2517)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 12-02-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	311 / 0	521 / 0		
B1, 5-1/2"	891 / 0	759 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	12-01-08		60			n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-00-04	24	9			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-10-14	3				n/a
3	-	Conc. Pt. (lbs)	L	08-08-08	08-08-08	383	187			n/a
4	J3(i2733)	Conc. Pt. (lbs)	L	10-02-14	10-02-14	297	111			n/a
5	J3(i2732)	Conc. Pt. (lbs)	L	11-06-14	11-06-14	203	76			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,308 ft-lbs	12,704 ft-lbs	33.9%	1	08-04-00
End Shear	1,822 lbs	5,785 lbs	31.5%	1	10-11-06
Total Load Defl.	L/474 (0.291")	0.575"	50.6%	4	06-04-12
Live Load Defl.	L/1,040 (0.133")	0.383"	34.6%	5	06-07-08
Max Defl.	0.291"	1"	29.1%	4	06-04-12
Span / Depth	14.5	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/8" x 1-3/4"	730 lbs	27.5%	12%	Unspecified
B1 Wall/Plate	5-1/2" x 1-3/4"	2,284 lbs	44.4%	19.5%	Unspecified

Notes



P6 1/2



Boise Cascade

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B14(i2517)

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

September 20, 2017 14:30:43

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B14(i2517)

Specifier:

Designer: CZ

Company:

Misc:

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

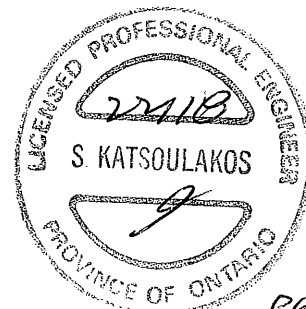
CONFORMS TO OBC 2012

Importance Factor : Normal Part code : Part 9

Disclosure

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

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P64

DWG NO. TAM 976248
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BC CALC® Design Report



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

September 20, 2017 14:30:44

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

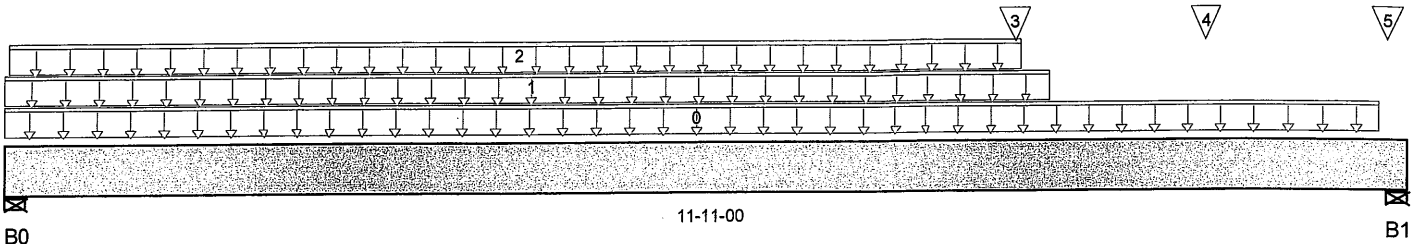
Description: Designs\Flush Beams\1st Floor\Flush Beams\B15(i2530)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 11-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	376 / 0	531 / 0		
B1, 5-1/4"	1,675 / 0	957 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-08-05	13	5			n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-10-14	3				n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-00-07	08-07-15		60			n/a
3	-	Conc. Pt. (lbs)	L	08-07-02	08-07-02	956	474			n/a
4	J3(i2733)	Conc. Pt. (lbs)	L	10-02-14	10-02-14	297	111			n/a
5	-	Conc. Pt. (lbs)	L	11-08-15	11-08-15	624	263			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,067 ft-lbs	12,704 ft-lbs	47.8%	1	08-06-04
End Shear	2,412 lbs	5,785 lbs	41.7%	1	10-08-04
Total Load Defl.	L/386 (0.35")	0.562"	62.2%	4	06-04-12
Live Load Defl.	L/733 (0.184")	0.375"	49.1%	5	06-04-12
Max Defl.	0.35"	1"	35%	4	06-04-12
Span / Depth	14.2	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/8" x 1-3/4"	1,228 lbs	30%	13.2%	Unspecified
B1 Wall/Plate	5-1/4" x 1-3/4"	3,709 lbs	75.6%	33.1%	Unspecified

Notes





Boise Cascade

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B15(i2530)

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

September 20, 2017 14:30:44

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B15(i2530)

Specifier:

Designer: CZ

Company:

Misc:

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012**Disclosure**

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

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P64

DWG NO. TAM 9763-18
STRUCTURAL
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BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

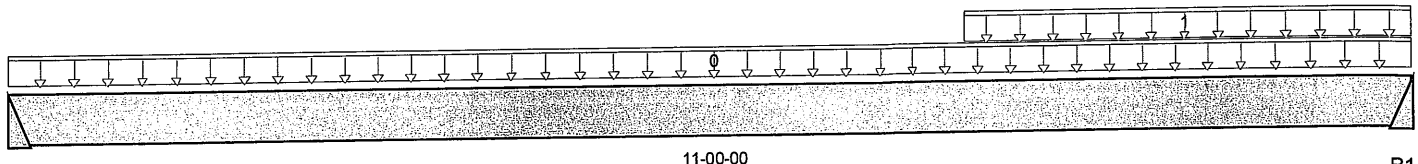
Description: Designs\Flush Beams\1st Floor\Flush Beams\B16(i2592)

Specifier:

Designer: CZ

Company:

Misc:



B0

B1

Total Horizontal Product Length = 11-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	179 / 0	110 / 0		
B1	762 / 0	401 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-00-00	9	3			n/a
1	User Load	Unf. Lin. (lb/ft)	L	07-06-00	11-00-00	240	120			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,365 ft-lbs	12,704 ft-lbs	18.6%	1	07-11-12
End Shear	1,133 lbs	5,785 lbs	19.6%	1	10-00-08
Total Load Defl.	L/999 (0.12")	n/a	n/a	4	06-00-13
Live Load Defl.	L/999 (0.077")	n/a	n/a	5	06-00-13
Max Defl.	0.12"	n/a	n/a	4	06-00-13
Span / Depth	13.6	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"	405 lbs	n/a	9.5%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	1,645 lbs	n/a	38.5%	HUS1.81/10

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



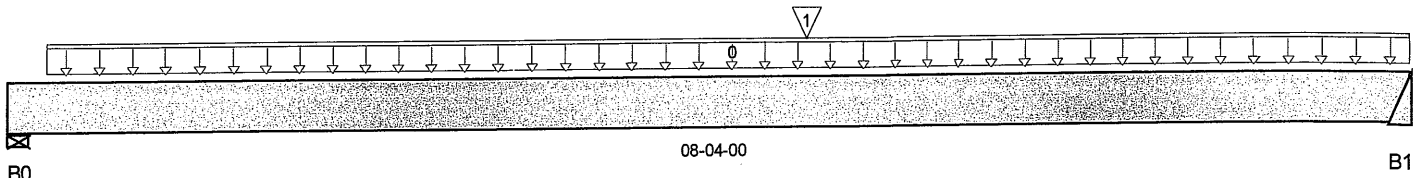
DWG NO. TAM 9764-18
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



Build 5033
Job Name:
Address:
City, Province, Postal Code: BRADFORD,
Customer:
Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B17(i2914)
Specifier:
Designer: CZ
Company:
Misc:



Total Horizontal Product Length = 08-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	383 / 0	173 / 0		
B1	446 / 0	197 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	08-04-00	27	10			n/a
1	B18(i2993)	Conc. Pt. (lbs)	L	04-08-12	04-08-12	613	249			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,827 ft-lbs	12,704 ft-lbs	22.3%	1	04-08-12
End Shear	860 lbs	5,785 lbs	14.9%	1	07-04-08
Total Load Defl.	L/999 (0.073")	n/a	n/a	4	04-04-13
Live Load Defl.	L/999 (0.051")	n/a	n/a	5	04-04-13
Max Defl.	0.073"	n/a	n/a	4	04-04-13
Span / Depth	9.9	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 1-3/4"	790 lbs	15.4%	6.7%	Unspecified
B1 Hanger	2" x 1-3/4"	916 lbs	n/a	21.5%	HUS1.81/10

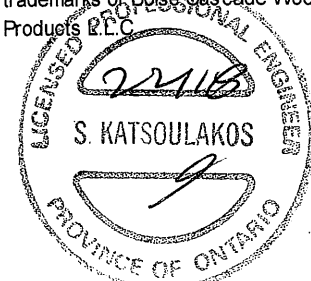
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum total load deflection criteria.
Design meets User specified (0.75") Maximum live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

Disclosure

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

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Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...\B18(i2993)

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

September 20, 2017 14:30:44

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

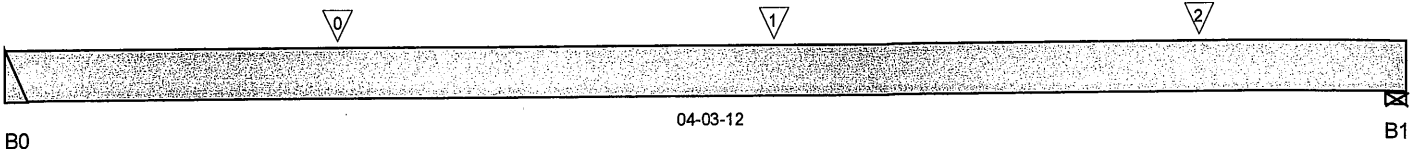
Description: Designs\Flush Beams\1st Floor\Flush Beams\B18(i2993)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-03-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	625 / 0	254 / 0		
B1, 4"	862 / 0	344 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	-	Conc. Pt. (lbs)	L	01-00-04	01-00-04	471	177			n/a
1	-	Conc. Pt. (lbs)	L	02-04-04	02-04-04	508	190			n/a
2	-	Conc. Pt. (lbs)	L	03-08-04	03-08-04	508	190			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,553 ft-lbs	25,408 ft-lbs	6.1%	1	02-04-04
End Shear	1,244 lbs	11,571 lbs	10.7%	1	00-11-08
Total Load Defl.	L/999 (0.006")	n/a	n/a	4	02-01-04
Live Load Defl.	L/999 (0.004")	n/a	n/a	5	02-01-04
Max Defl.	0.006"	n/a	n/a	4	02-01-04
Span / Depth	5	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 3-1/2"	1,255 lbs	n/a	14.7%	HGUS410
B1 Wall/Plate	4" x 3-1/2"	1,723 lbs	23.1%	10.1%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



P6 1/2

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DWG NO. TAM 9766-18
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...\B18(i2993)

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

September 20, 2017 14:30:44

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B18(i2993)

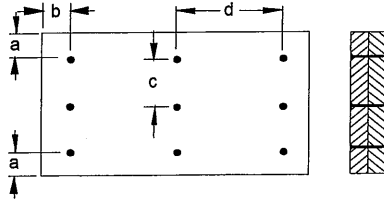
Specifier:

Designer: CZ

Company:

Misc:


Connection Diagram



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

Calculated Side Load = 519.3 lb/ft

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

Connectors are: 16d  Nails

3-1/2" ARDOX SPIRAL

Disclosure

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Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B19DR(i2593)

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

September 20, 2017 14:30:43

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

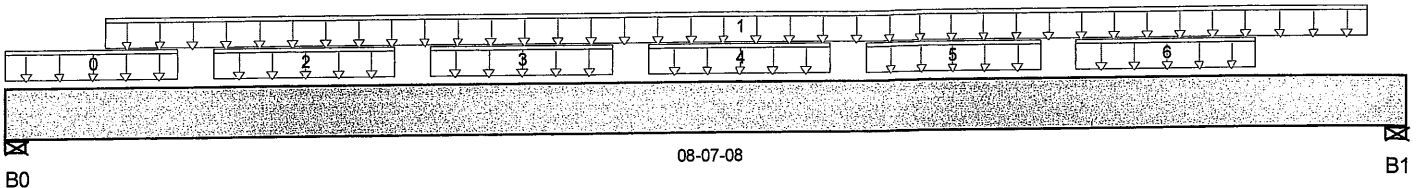
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B19I

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 08-07-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	972 / 0	405 / 0		
B1, 4"	1,067 / 0	440 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Bk1(i2805)	Unf. Lin. (lb/ft)	L	00-00-00	01-00-12	24	9			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-07-04	08-04-12	239	89			n/a
2	Bk1(i2966)	Unf. Lin. (lb/ft)	L	01-03-04	02-04-12	24	9			n/a
3	Bk1(i2900)	Unf. Lin. (lb/ft)	L	02-07-04	03-08-12	24	9			n/a
4	Bk1(i2808)	Unf. Lin. (lb/ft)	L	03-11-04	05-00-12	24	9			n/a
5	Bk1(i2945)	Unf. Lin. (lb/ft)	L	05-03-04	06-04-12	24	9			n/a
6	Bk1(i2991)	Unf. Lin. (lb/ft)	L	06-07-04	07-08-12	24	9			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,240 ft-lbs	25,408 ft-lbs	16.7%	1	03-10-00
End Shear	1,936 lbs	11,571 lbs	16.7%	1	01-01-00
Total Load Defl.	L/999 (0.07")	n/a	n/a	4	04-04-05
Live Load Defl.	L/999 (0.05")	n/a	n/a	5	04-04-05
Max Defl.	0.07"	n/a	n/a	4	04-04-05
Span / Depth	10.3	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	1,963 lbs	19.7%	13.1%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	2,151 lbs	18.9%	12.6%	Unspecified

Notes



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BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

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

Specifier:

Designer: CZ

Company:

Misc:

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume unbraced length of Top: 00-03-10, Bottom: 00-03-10.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

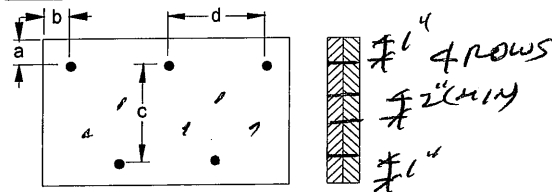
CONFORMS TO OBC 2012

Disclosure

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Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

Connection Diagram



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

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 Spike Nails

3-1/2" ARDOX SPIRAL

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Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B20DR(i2943)

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

September 20, 2017 14:30:43

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

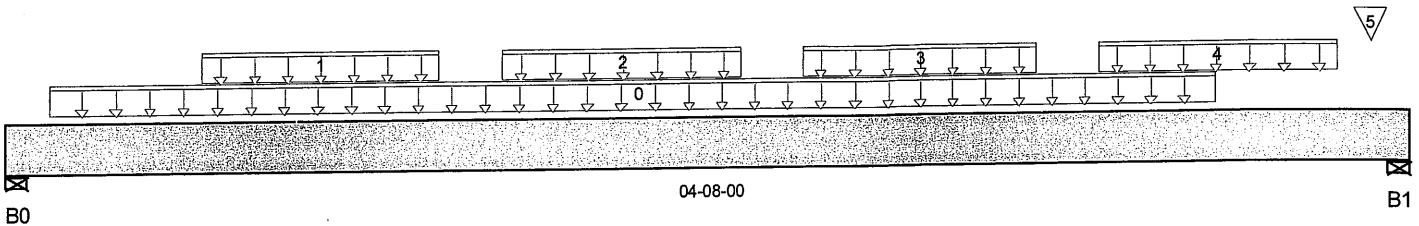
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B20I

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	579 / 0	240 / 0		
B1, 4"	713 / 0	290 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-01-12	04-00-08	240	90			n/a
1	Bk1(i2798)	Unf. Lin. (lb/ft)	L	00-07-12	01-05-04	24	9			n/a
2	Bk1(i2799)	Unf. Lin. (lb/ft)	L	01-07-12	02-05-04	24	9			n/a
3	Bk1(i2941)	Unf. Lin. (lb/ft)	L	02-07-12	03-05-04	24	9			n/a
4	Bk1(i2801)	Unf. Lin. (lb/ft)	L	03-07-12	04-05-04	24	9			n/a
5	J3(i2880)	Conc. Pt. (lbs)	L	04-06-08	04-06-08	266	100			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,110 ft-lbs	25,408 ft-lbs	4.4%	1	02-06-08
End Shear	883 lbs	11,571 lbs	7.6%	1	03-06-08
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	02-04-01
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	02-04-01
Max Defl.	0.005"	n/a	n/a	4	02-04-01
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	4" x 3-1/2"	1,169 lbs	10.3%	6.8%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	1,432 lbs	12.6%	8.4%	Unspecified

Notes



SITE COPY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

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

Specifier:

Designer: CZ

Company:

Misc:

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Design meets User specified (0.75") Maximum live load deflection criteria.

Calculations assume unbraced length of Top: 00-01-06, Bottom: 00-01-06.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

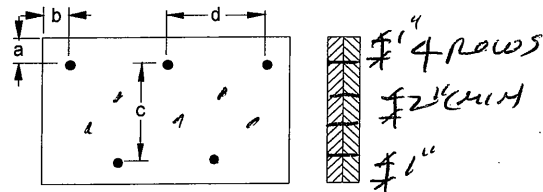
CONFORMS TO CBC 2012

Disclosure

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

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Connection Diagram



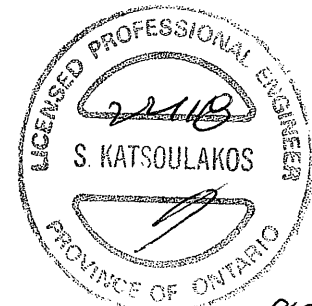
a minimum = 1" c = 1-1/2"
b minimum = 3" d = 6"

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 Sinker Nails

3-1/2" ARDOX SPIRAL





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B21DR(i3038)

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

September 20, 2017 14:30:43

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

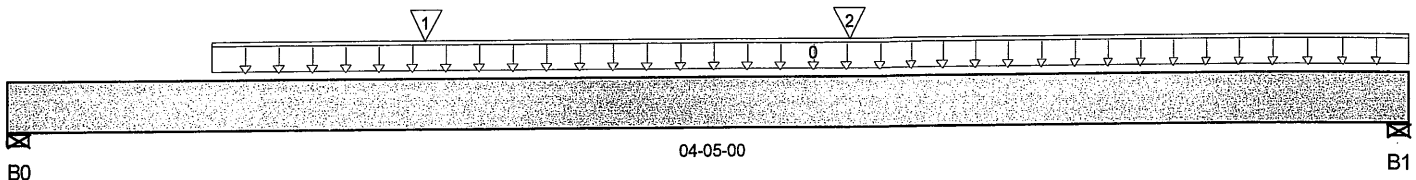
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B21I

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-3/4"	785 / 0	315 / 0		
B1, 4-3/4"	1,376 / 0	538 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-07-12	04-05-00	422	158			n/a
1	J2(i2746)	Conc. Pt. (lbs)	L	01-03-12	01-03-12	318	119			n/a
2	J2(i2745)	Conc. Pt. (lbs)	L	02-07-12	02-07-12	251	94			n/a

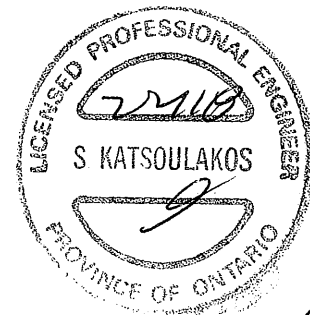
Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,926 ft-lbs	25,408 ft-lbs	7.6%	1	02-07-12
End Shear	1,557 lbs	11,571 lbs	13.5%	1	01-01-04
Total Load Defl.	L/999 (0.007")	n/a	n/a	4	02-02-04
Live Load Defl.	L/999 (0.005")	n/a	n/a	5	02-02-04
Max Defl.	0.007"	n/a	n/a	4	02-02-04
Span / Depth	4.8	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	3-3/4" x 3-1/2"	1,570 lbs	14.7%	9.8%	Unspecified
B1 Wall/Plate	4-3/4" x 3-1/2"	2,737 lbs	20.3%	13.5%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Design meets User specified (0.75") Maximum live load deflection criteria.
 Calculations assume unbraced length of Top: 00-11-06, Bottom: 00-11-06
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



pb 1/2

SITE COPY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C.mmdl

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

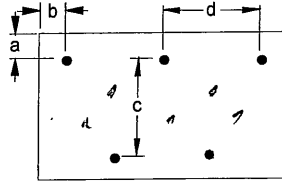
Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram



4 rows
2" (4 rows)
1"

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

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

Member has no side loads.

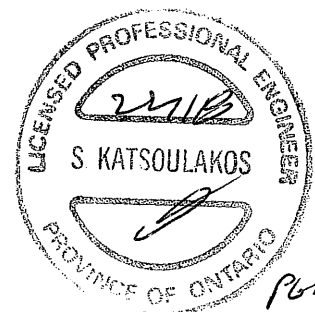
Connectors are: 16d 3" Nails

3-1/2" ARDOX SPIRAL

Disclosure

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Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-15C BAROSSA 15C-SUNKEN.mmdl

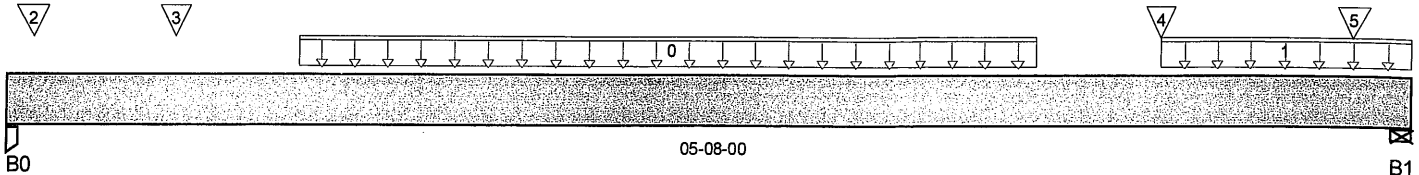
Description: Designs\Flush Beams\Basement\Flush Beams\B23L(i371

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 05-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	252 / 0	138 / 0		
B1, 6"	234 / 0	153 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0 Smoothed Load	Unf. Lin. (lb/ft)	L	01-02-00	04-02-00	92	46			n/a
1 FC4 Floor Material	Unf. Lin. (lb/ft)	L	04-08-00	05-08-00	14	7			n/a
2 J5(i3697)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	31	15			n/a
3 J5(i3696)	Conc. Pt. (lbs)	L	00-08-00	00-08-00	77	38			n/a
4 J5(i3691)	Conc. Pt. (lbs)	L	04-08-00	04-08-00	79	39			n/a
5 4(i505)	Conc. Pt. (lbs)	L	05-05-04	05-05-04	9	27			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	640 ft-lbs	12,704 ft-lbs	5%	1	02-08-00
End Shear	411 lbs	5,785 lbs	7.1%	1	04-04-08
Total Load Defl.	L/999 (0.008")	n/a	n/a	4	02-08-12
Live Load Defl.	L/999 (0.005")	n/a	n/a	5	02-08-12
Max Defl.	0.008"	n/a	n/a	4	02-08-12
Span / Depth	6.3	n/a	n/a		00-00-00

Disclosure

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

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 1-3/4"	551 lbs	11.1%	7.4%	Unspecified
B1 Wall/Plate	6" x 1-3/4"	543 lbs	3.7%	4.2%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

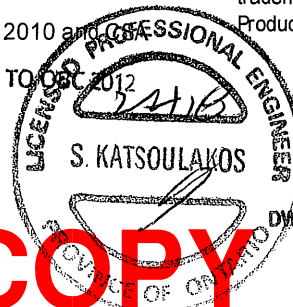
Resistance Factor phi has been applied to all presented results per CSA O86.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO



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1st Floor\Flush Beams\B24A(i3715)

Dry | 2 spans | L cant.

January 12, 2018 11:35:03

BC CALC® Design Report

Build 6215

Job name:

Address:

City, Province, Postal Code: BRA...RD

Customer:

Code reports: CCMC 12472-R

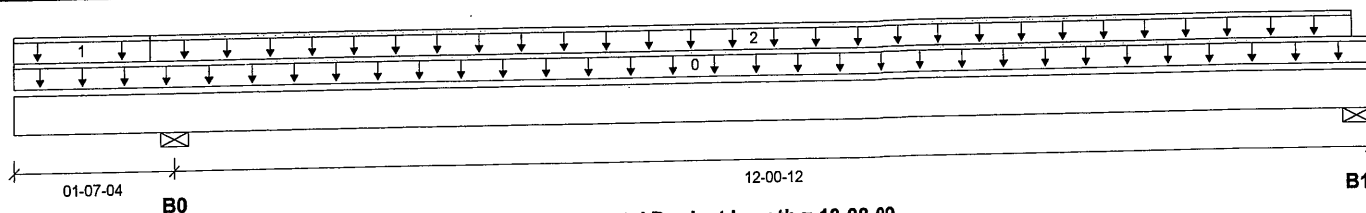
File name: S38-15C BAROSSA 15C EL C.mmdl

Description: 1st Floor\Flush Beams\B24A(i3715)

Specifier:

Designer: CZ

Company:



Total Horizontal Product Length = 13-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	430 / 0	254 / 0	308 / 0	
B1, 5-1/2"	323 / 8	143 / 0	0 / 22	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-08-00		5			00-00-00
1	User Load	Unf. Lin. (lb/ft)	L	00-00-00	01-04-08	72	65	208		n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	01-04-08	13-05-14	53	20			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,834 ft-lbs	11,610 ft-lbs	15.8 %	33	07-06-04
Neg. Moment	-550 ft-lbs	-11,610 ft-lbs	4.7 %	37	01-07-04
End Shear	543 lbs	5,785 lbs	9.4 %	33	12-05-00
Cont. Shear	567 lbs	5,785 lbs	9.8 %	1	02-07-08
Total Load Deflection	L/1,120 (0.125")	n/a	21.4 %	80	07-06-04
Live Load Deflection	L/999 (0.089")	n/a	n/a	118	07-04-07
Total Neg. Defl.	2xL/1,998 (-0.053")	n/a	n/a	80	00-00-00
Max Defl.	0.125"	n/a	n/a	80	07-06-04
Span / Depth	14.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 5-1/2" x 1-3/4"	1,117 lbs	21.7 %	9.5 %	Unspecified
B1	Wall/Plate 5-1/2" x 1-3/4"	663 lbs	12.9 %	5.6 %	Unspecified

Notes

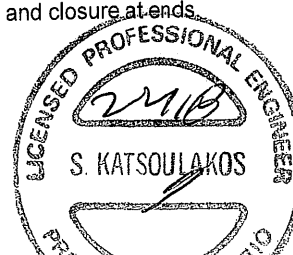
Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 01-04-08, Bottom: 01-04-08.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Unbalanced snow loads determined from building geometry were used in selected product's verification.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
 Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA).
 Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods.
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DWG NO. TAM 9771-18
 STRUCTURAL
 COMPONENT ONLY



BC CALC® Design Report
Build 6215

Basement\Flush Beams\B25A(i3747)

Dry | 1 span | No cant.

February 15, 2018 13:50:37

Job name:

File name: S38-15C BAROSSA 15C-SUNKEN WOD.mmdl

Address:

Description: Basement\Flush Beams\B25A(i3747)

City, Province, Postal Code: BRA...RD

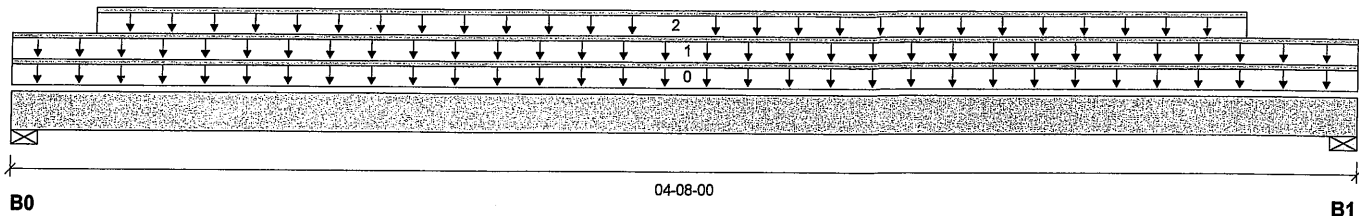
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 04-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	1,138 / 0	637 / 0		
B1, 4"	1,118 / 0	630 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-08-00	10				00-00-00
1	E9(i303)	Unf. Lin. (lb/ft)	L	00-00-00	04-08-00	262	179			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-08	04-03-08	258	97			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,529 ft-lbs	23,220 ft-lbs	10.9 %	1	02-03-08
End Shear	1,685 lbs	11,571 lbs	14.6 %	1	03-06-08
Total Load Deflection	L/999 (0.011")	n/a	n/a	4	02-04-00
Live Load Deflection	L/999 (0.007")	n/a	n/a	5	02-04-00
Max Defl.	0.011"	n/a	n/a	4	02-04-00
Span / Depth	5.2				

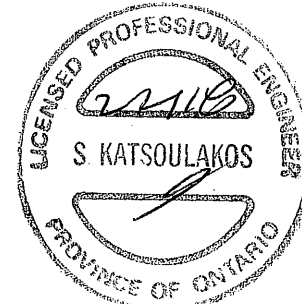
Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 4" x 3-1/2"	2,503 lbs	33.5 %	14.7 %	Unspecified
B1	Wall/Plate 4" x 3-1/2"	2,464 lbs	33.0 %	14.4 %	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
 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.

CONFORMS TO OBC 2012



DWG NO. TAM 9772-18
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report

Build 6215

Job name:

Address:

City, Province, Postal Code: BRA...RD

Customer:

Code reports: CCMC 12472-R

File name: S38-15C BAROSSA 15C-SUNKEN WOD.mmdl

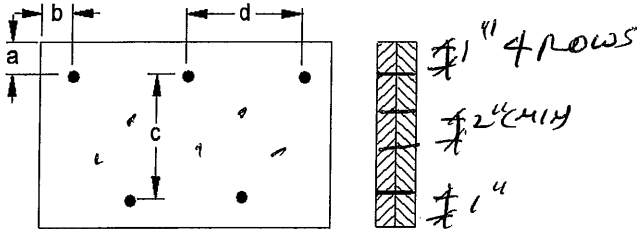
Description: Basement\Flush Beams\B25A(i3747)

Specifier:

Designer: CZ

Company:

Connection Diagram



a minimum = 1"
b minimum = 3"

c = 1-1/2"
d = 4"

Calculated Side Load = 435.7 lb/ft

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

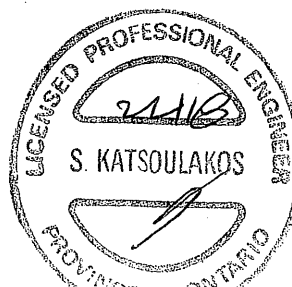
Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

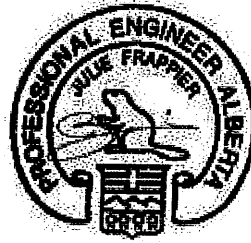
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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®, DWS NO. 1111-18, STRUCTURAL COMPONENT ONLY



Maximum Floor Spans

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



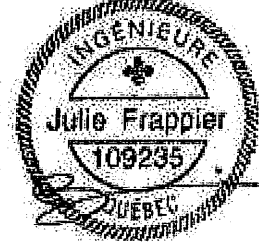
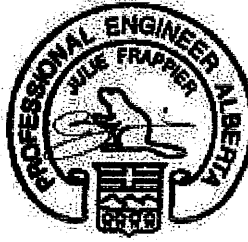
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

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

Maximum Floor Spans

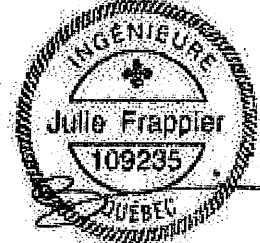
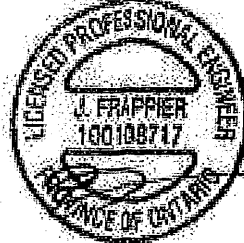
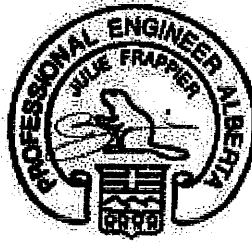
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing



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

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

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



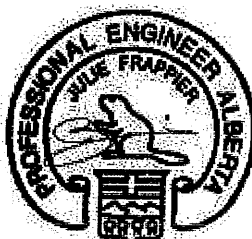
Maximum Floor Spans

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

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

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

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



Maximum Floor Spans

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

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

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

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

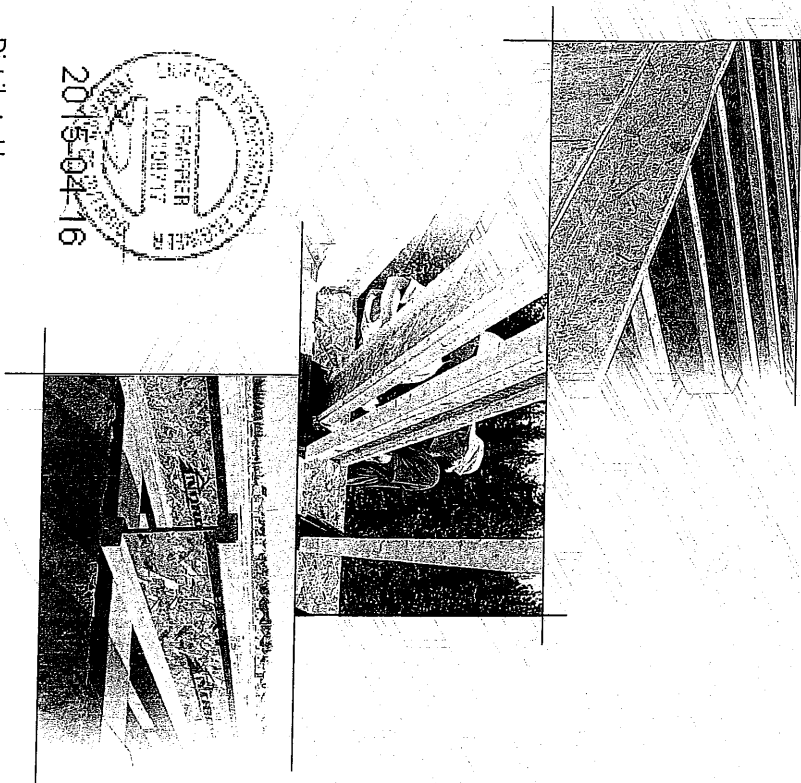
NORDIC

ENGINEERED WOOD



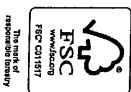
INSTALLATION GUIDE

FOR RESIDENTIAL FLOORS



2015-04-16

Distributed by:



N-C301 / November 2014

SAFETY AND CONSTRUCTION PRECAUTIONS

WARNING

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

Avoid Accidents by Following these Important Guidelines:

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

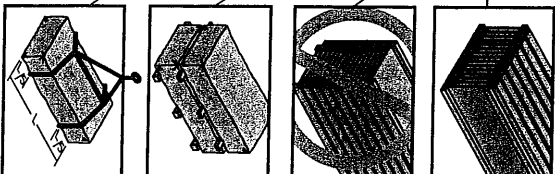
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines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



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

STORAGE AND HANDLING GUIDELINES

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



SITE COPY

MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19, 2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

WEB STIFFENERS

RECOMMENDATIONS:

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

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

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
12"	NI-20	15.2	14.2	13.9	13.5	16.5	15.4	15.1	14.7
12"	NI-40x	16.1	15.2	14.8	14.9	17.5	16.5	16.1	15.5
12"	NI-60	16.4	15.4	14.1	14.1	17.7	16.7	16.3	15.7
12"	NI-70	17.1	16.1	15.2	15.2	18.2	17.4	16.9	16.1
12"	NI-80	17.3	16.3	15.8	15.9	18.4	17.6	17.1	16.3
12"	NI-90	18.1	17.0	16.5	16.5	19.4	18.6	18.0	17.2
12"	NI-100	18.4	17.3	16.7	16.7	20.3	19.5	18.9	18.1
12"	NI-120	19.5	18.0	17.4	17.5	21.5	20.7	19.9	19.1
12"	NI-140	19.8	18.3	17.6	17.7	21.8	21.0	20.2	19.4
12"	NI-160	20.2	18.7	17.9	18.0	22.3	21.5	20.7	19.9
12"	NI-180	20.4	18.9	18.1	18.0	22.5	21.7	20.9	20.1
12"	NI-200	20.4	18.9	18.1	18.0	22.5	21.7	20.9	20.1
16"	NI-20	20.1	18.7	17.1	17.4	22.2	20.6	19.9	19.4
16"	NI-40x	20.5	18.1	17.1	17.4	22.7	21.1	20.4	20.1
16"	NI-60	21.2	20.0	19.1	19.2	23.3	21.7	21.0	20.7
16"	NI-70	21.5	20.3	19.4	19.5	23.6	22.0	21.3	21.0
16"	NI-80	22.5	20.8	19.9	19.9	24.3	22.5	21.8	21.5
16"	NI-90	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
16"	NI-100	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
16"	NI-120	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
16"	NI-140	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
16"	NI-160	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
16"	NI-180	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
16"	NI-200	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
19.2"	NI-20	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
19.2"	NI-40x	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
19.2"	NI-60	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
19.2"	NI-70	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
19.2"	NI-80	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
19.2"	NI-90	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
19.2"	NI-100	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
19.2"	NI-120	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
19.2"	NI-140	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
19.2"	NI-160	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
19.2"	NI-180	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
19.2"	NI-200	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
24"	NI-20	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
24"	NI-40x	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
24"	NI-60	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
24"	NI-70	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
24"	NI-80	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
24"	NI-90	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
24"	NI-100	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
24"	NI-120	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
24"	NI-140	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
24"	NI-160	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
24"	NI-180	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5
24"	NI-200	22.6	20.8	19.9	19.9	24.3	22.5	21.8	21.5

CGMC EVALUATION REPORT 13032-R

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.

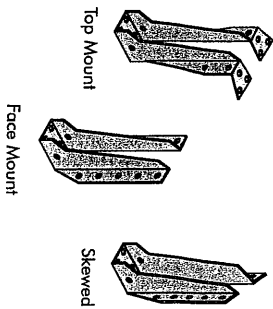
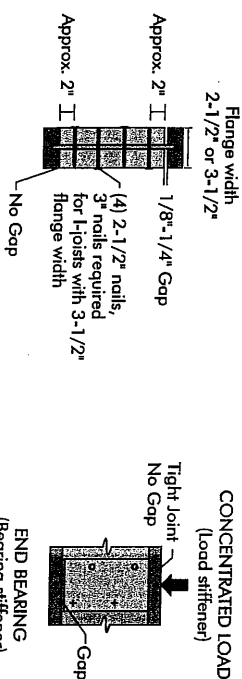
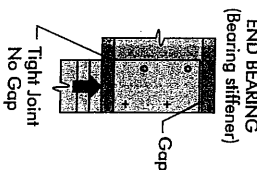


FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



See table below for web stiffener size requirements

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



NORDIC I-JOIST SERIES

S-RF No.2	1950F MSR	2100F MSR	1950F MSR	2100F MSR	2400F MSR	NIG Lumber
NI-20	NI-40x	NI-60	NI-70	NI-80	NI-90	NI-100
33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit

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

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

2015-04-16

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INSTALLING NORDIC I-JOISTS

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

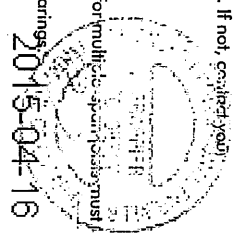
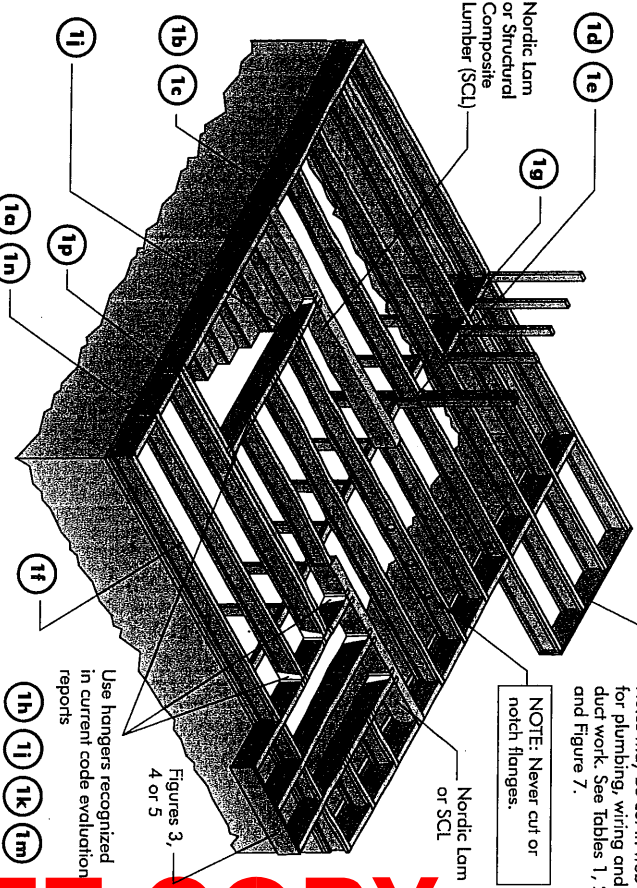


FIGURE 1
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

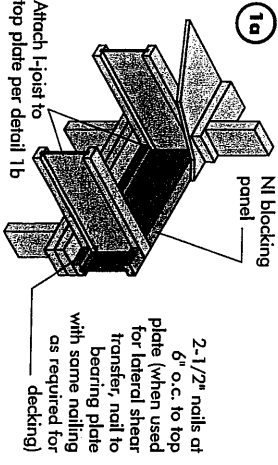
Some framing requirements such as erection bracing and blocking panels have been omitted for clarity.



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

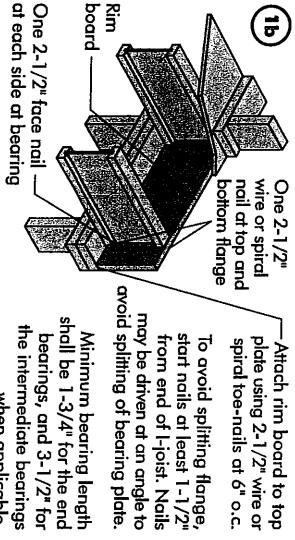
Use hangers recognized in current code evaluation reports

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



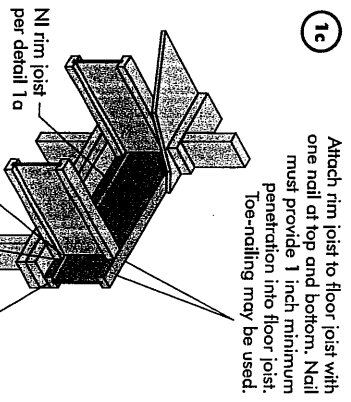
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

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



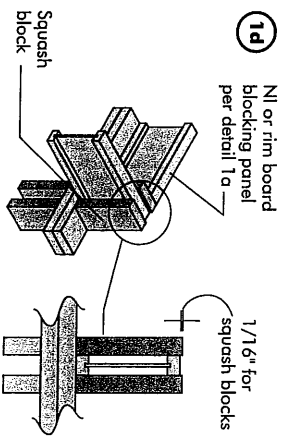
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

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



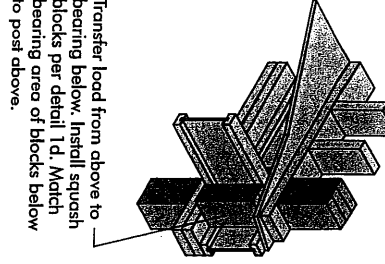
Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)
3-1/2" wide	5,500
5-1/2" wide	8,500
1-1/8" Rim Board Plus	4,300

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

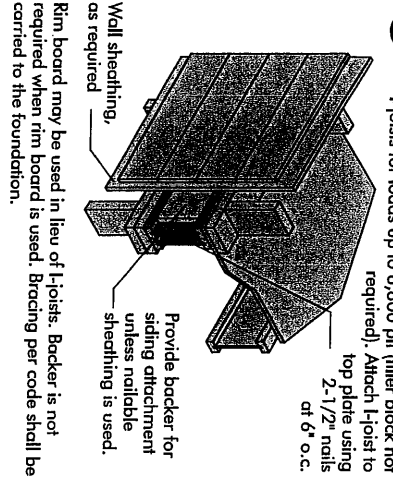


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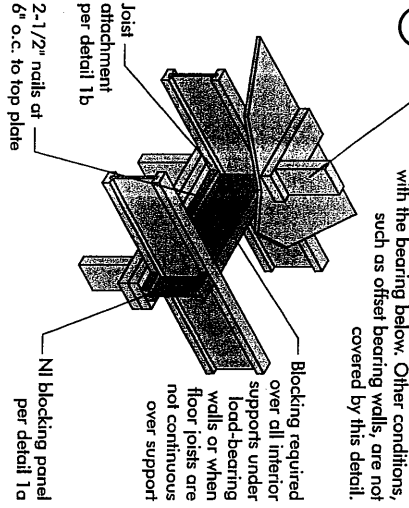
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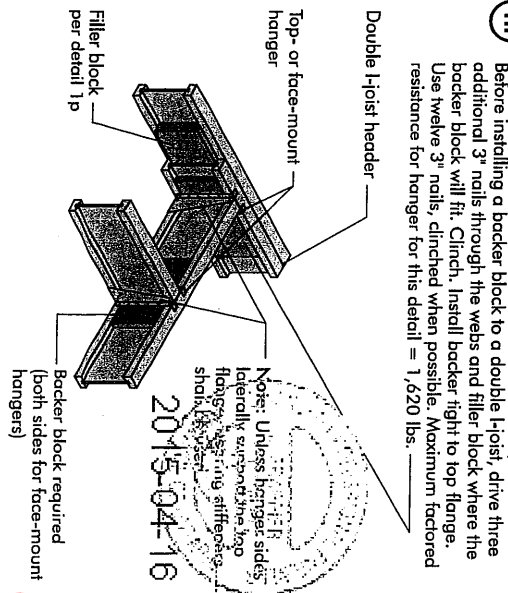
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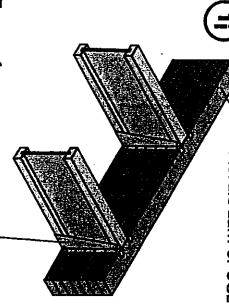
1g



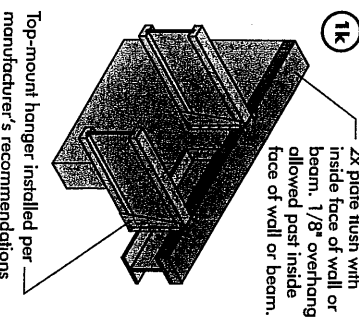
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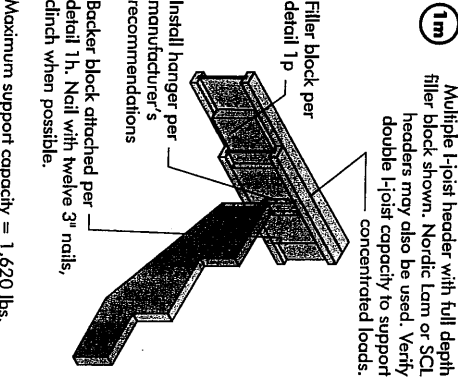
1i



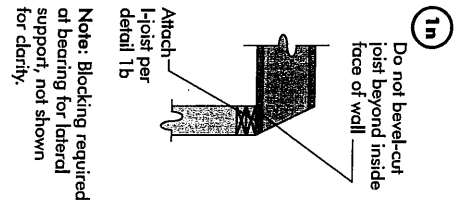
1k



1m



1n



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

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

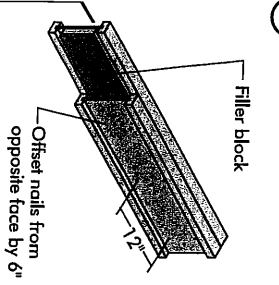
Note: Blocking required at bearing for lateral support, not shown for clarity.

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

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

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

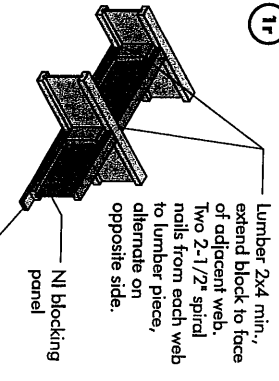
1p



Notes:

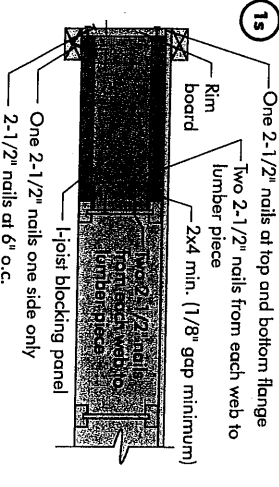
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. Nail joists together with two rows of 3" nails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

1r



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

1s

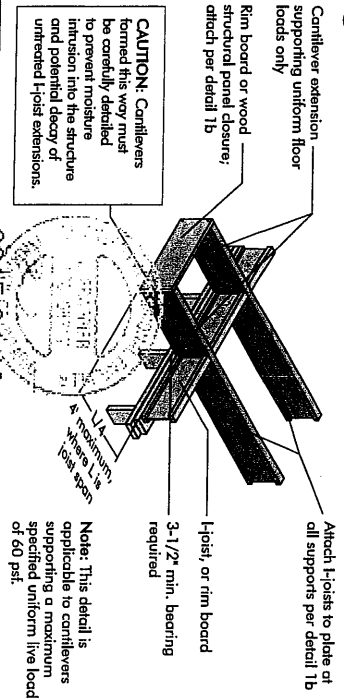


Notes:

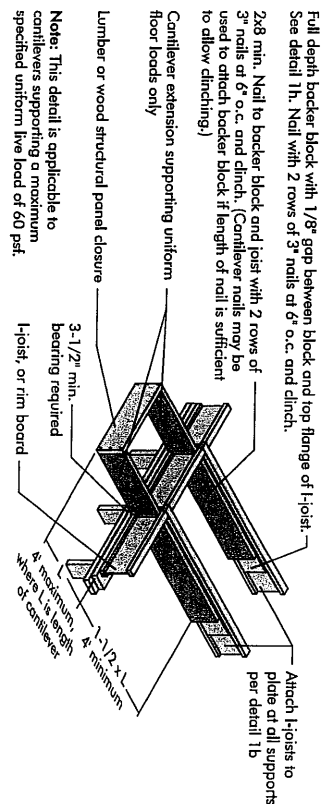
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spread in this detail.

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

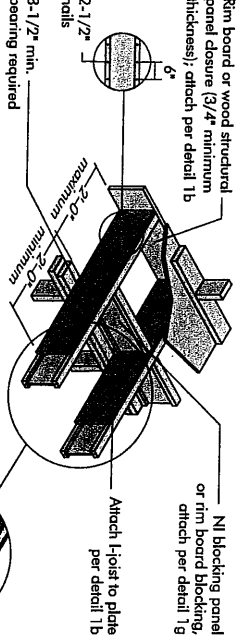


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

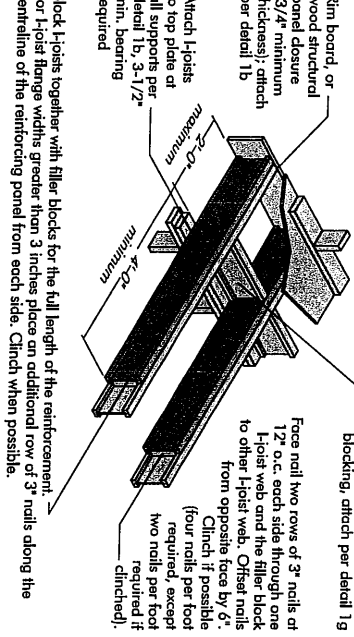


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

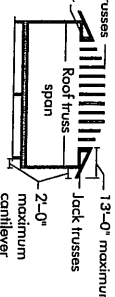
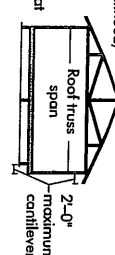
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

4b Alternate Method 2 — DOUBLE I-JOIST



Block I-joists together with filler blocks for the full length of the reinforcement. For I-joist flange widths greater than 3 inches place an additional row of 3" nails along the centerline of the reinforcing panel from each side. Clinch when possible.

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



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

CANTILEVER REINFORCEMENT METHODS ALLOWED

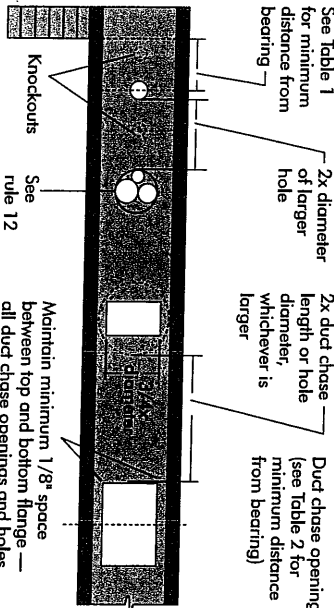
JOIST DEPTH (in.)	TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)			
		LL = 30 psf, DL = 15 psf JOIST SPACING (in.)			
12	12	1	1	1	1
	16	1	1	1	1
	19.2	1	1	1	1
	24	1	1	1	1
	28	1	1	1	1
16	12	1	1	1	1
	16	1	1	1	1
	19.2	1	1	1	1
	24	1	1	1	1
	28	1	1	1	1
19.2	12	1	1	1	1
	16	1	1	1	1
	19.2	1	1	1	1
	24	1	1	1	1
	28	1	1	1	1
24	12	1	1	1	1
	16	1	1	1	1
	19.2	1	1	1	1
	24	1	1	1	1
	28	1	1	1	1
28	12	1	1	1	1
	16	1	1	1	1
	19.2	1	1	1	1
	24	1	1	1	1
	28	1	1	1	1
36	12	1	1	1	1
	16	1	1	1	1
	19.2	1	1	1	1
	24	1	1	1	1
	28	1	1	1	1
42	12	1	1	1	1
	16	1	1	1	1
	19.2	1	1	1	1
	24	1	1	1	1
	28	1	1	1	1

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

FIGURE 7
FIELD-CUT HOLE LOCATOR



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



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

Knockouts are prescored holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on center along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

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

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (ft-in.)												Span adjustment Factor		
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4		11	12
10	N 100	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
12	N 120	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
14	N 140	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3
16	N 160	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4
18	N 180	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
20	N 200	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6
22	N 220	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7
24	N 240	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8
26	N 260	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
28	N 280	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
30	N 300	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1
32	N 320	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
34	N 340	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3
36	N 360	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4
38	N 380	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5
40	N 400	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6

Above table may be used for 1 1/2" joists, provided 24" is not exceeded.

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

OPTIONAL:

The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum 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:

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

Where:

- Reduced = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span application, as fit. The reduced distance shall not be less than 6 inches from the face of the support to edge of the hole.
- Actual = The actual measured span distance between the inside faces of supports (ft).
- SAF = Span Adjustment Factor given in this table.
- D = The minimum distance from the inside face of any support to centre of hole from this table.

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

TABLE 2

DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (ft-in.)												Duct chase length (in.)			
		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38
10	N 100	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
12	N 120	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3
14	N 140	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4
16	N 160	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
18	N 180	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6
20	N 200	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7
22	N 220	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8
24	N 240	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
26	N 260	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
28	N 280	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1
30	N 300	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
32	N 320	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3
34	N 340	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4
36	N 360	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5
38	N 380	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6
40	N 400	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7

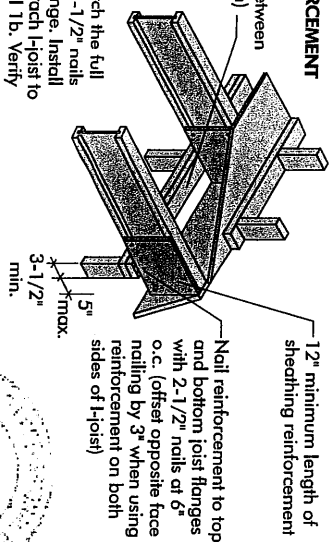
1. Above table may be used for I-joist spacing of 24 inches on center or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. The above table is based on simple-span joists only. For other applications, contact your local distributor.
4. Distances are based on uniformly loaded joist 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.

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

5a SHEATHING REINFORCEMENT

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

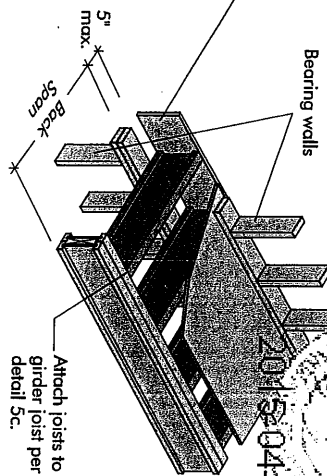
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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



5b SET-BACK DETAIL

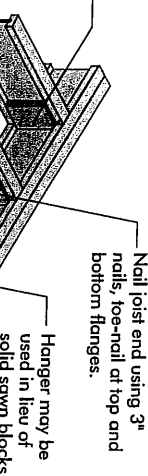
Kim board or wood structural panel closure attach per detail 1b.

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

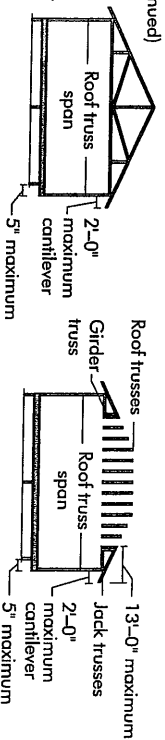
Vertical solid sawn blocks (2x6 S-P-F No. 2 or better) nailed through joist web and web of girder using 2-1/2" nails.



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 of cantilever.



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

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	LL = 30 psf, DL = 15 psf				ROOF LOADING (UNFACTORED)				LL = 50 psf, DL = 15 psf			
		JOIST SPACING (in.)				JOIST SPACING (in.)				JOIST SPACING (in.)			
12	12	1	1	1	1	1	1	1	1	1	1	1	1
12	16	1	1	1	1	1	1	1	1	1	1	1	1
12	19.2	1	1	1	1	1	1	1	1	1	1	1	1
12	24	1	1	1	1	1	1	1	1	1	1	1	1
16	12	1	1	1	1	1	1	1	1	1	1	1	1
16	16	1	1	1	1	1	1	1	1	1	1	1	1
16	19.2	1	1	1	1	1	1	1	1	1	1	1	1
16	24	1	1	1	1	1	1	1	1	1	1	1	1
24	12	1	1	1	1	1	1	1	1	1	1	1	1
24	16	1	1	1	1	1	1	1	1	1	1	1	1
24	19.2	1	1	1	1	1	1	1	1	1	1	1	1
24	24	1	1	1	1	1	1	1	1	1	1	1	1

1. N = No reinforcement required.
- 2 = 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 = Try a deeper joist or closer spacing.
- 5 = Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3-0" maximum width window or door openings.
- 6 = For larger openings, or multiple 3-0" width openings spaced less than 6-0" o.c., additional joists beneath the opening's cripple studs may be required.
- 7 = Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
- 8 = For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam.
- 9 = When the roof is framed using a ridge beam, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
- 10 = Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

SITE COPY

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 a 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	Maximum Spacing of Fasteners
16	5/8	2"	1-3/4"	2"
20	5/8	2"	1-3/4"	2"
24	3/4	2"	1-3/4"	2"

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

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

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

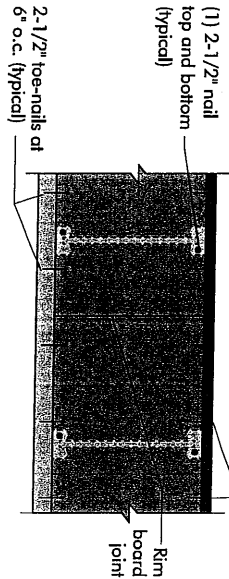
RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABOUT

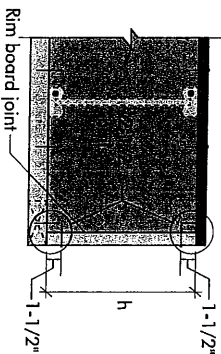
Rim board joint Between Floor Joists

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

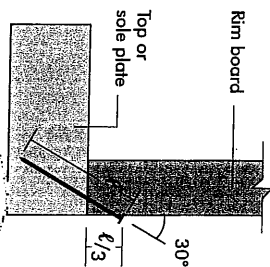
(1) 2-1/2" nail top and bottom (typical)



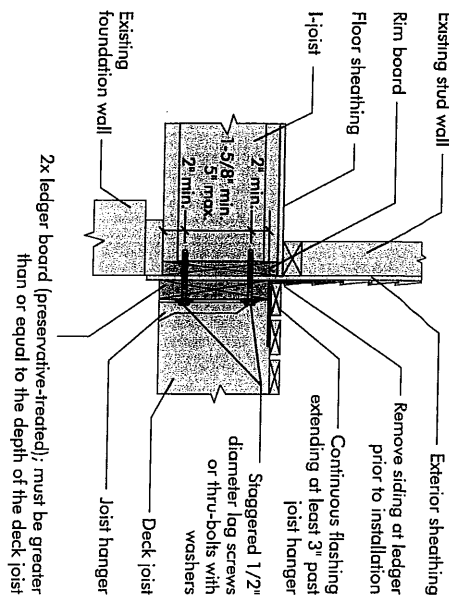
Rim board joint at Corner



8b TOE-NAIL CONNECTION AT RIM BOARD



8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



2015-04-16

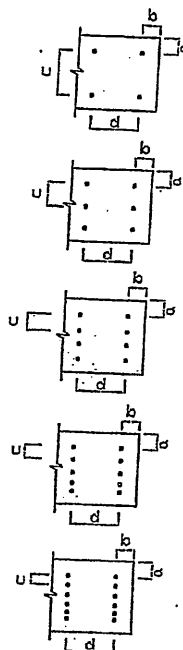
PRODUCT WARRANTY

Chambers Oblongum guarantees that, in accordance with our specifications, Nucle products are free from manufacturing defects in material and workmanship.

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

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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 N° X SEE
DWG #TAMN1001-14

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