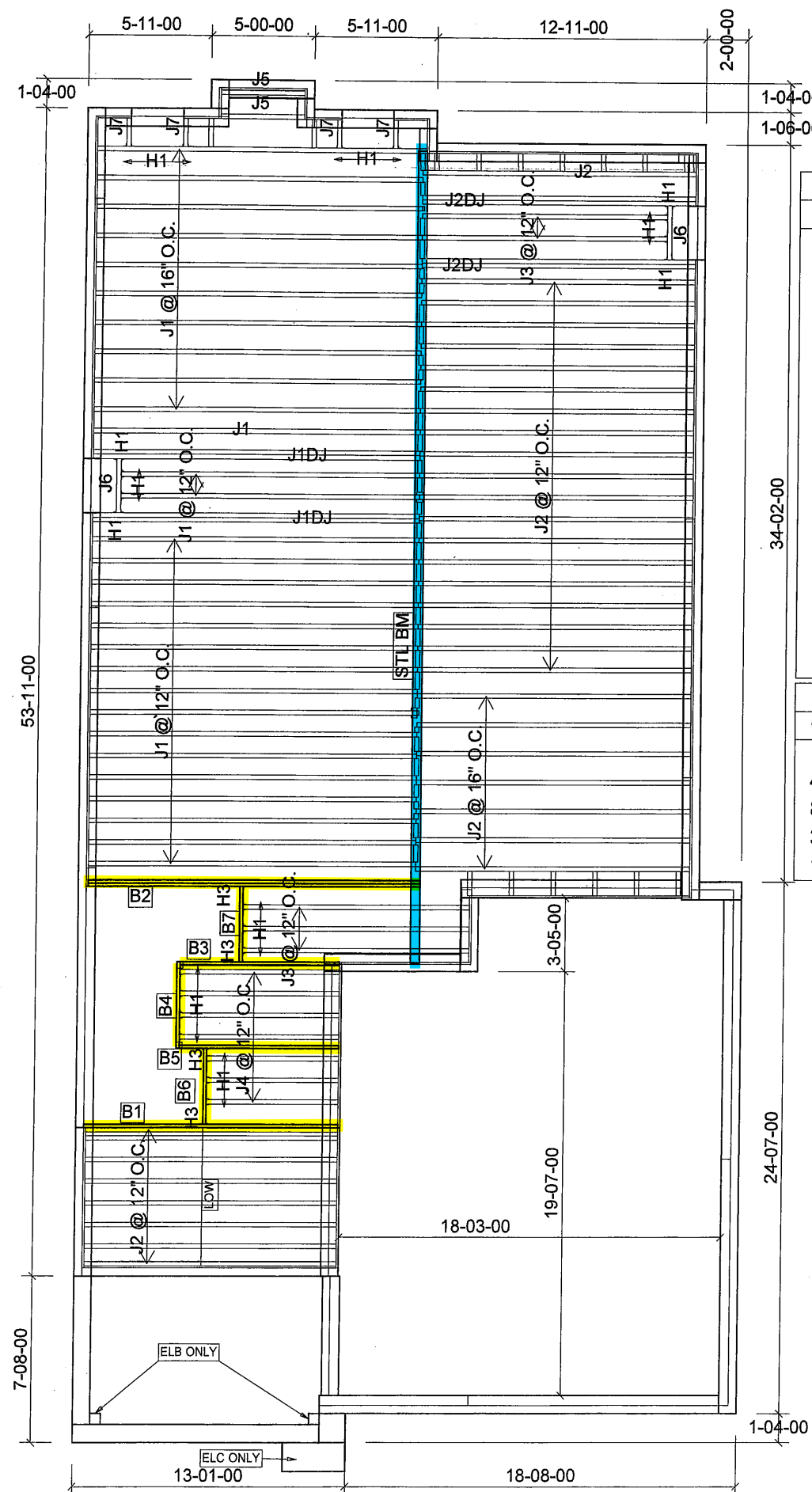


FROM PLAN DATED: JAN 2018  
BUILDER: BAYVIEW WELLINGTON  
SITE: GREEN VALLEY EAST  
MODEL: S38-6 BAROSSA 6  
ELEVATION: A,B,C  
LOT:  
CITY: BRADFORD  
SALESMAN: M D  
DESIGNER: CZ  
REVISION:

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/ft<sup>2</sup>  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft  
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 15/02/2018

1st FLOOR

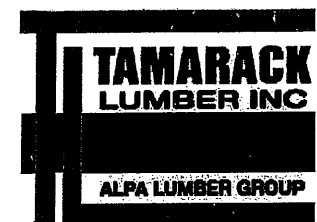


Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	29
J1DJ	16-00-00	9 1/2" NI-40x	2	4
J2	14-00-00	9 1/2" NI-40x	1	35
J2DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	5
J4	8-00-00	9 1/2" NI-40x	1	7
J5	6-00-00	9 1/2" NI-40x	1	2
J6	4-00-00	9 1/2" NI-40x	1	2
J7	2-00-00	9 1/2" NI-40x	1	4
B2	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	4-00-00	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

Connector Summary		
Qty	Manuf	Product
10	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
8	H1	IUS2.56/9.5
3	H3	HUS1.81/10
1	H3	HUS1.81/10

TOWN OF BRADFORD WEST GWILLIMBURY  
BUILDING DEPARTMENT  
PLANS EXAMINED  
ONTARIO BUILDING CODE APPLIES  
DATE: 2018-10-26  
INSPECTOR: BG

SITE COPY



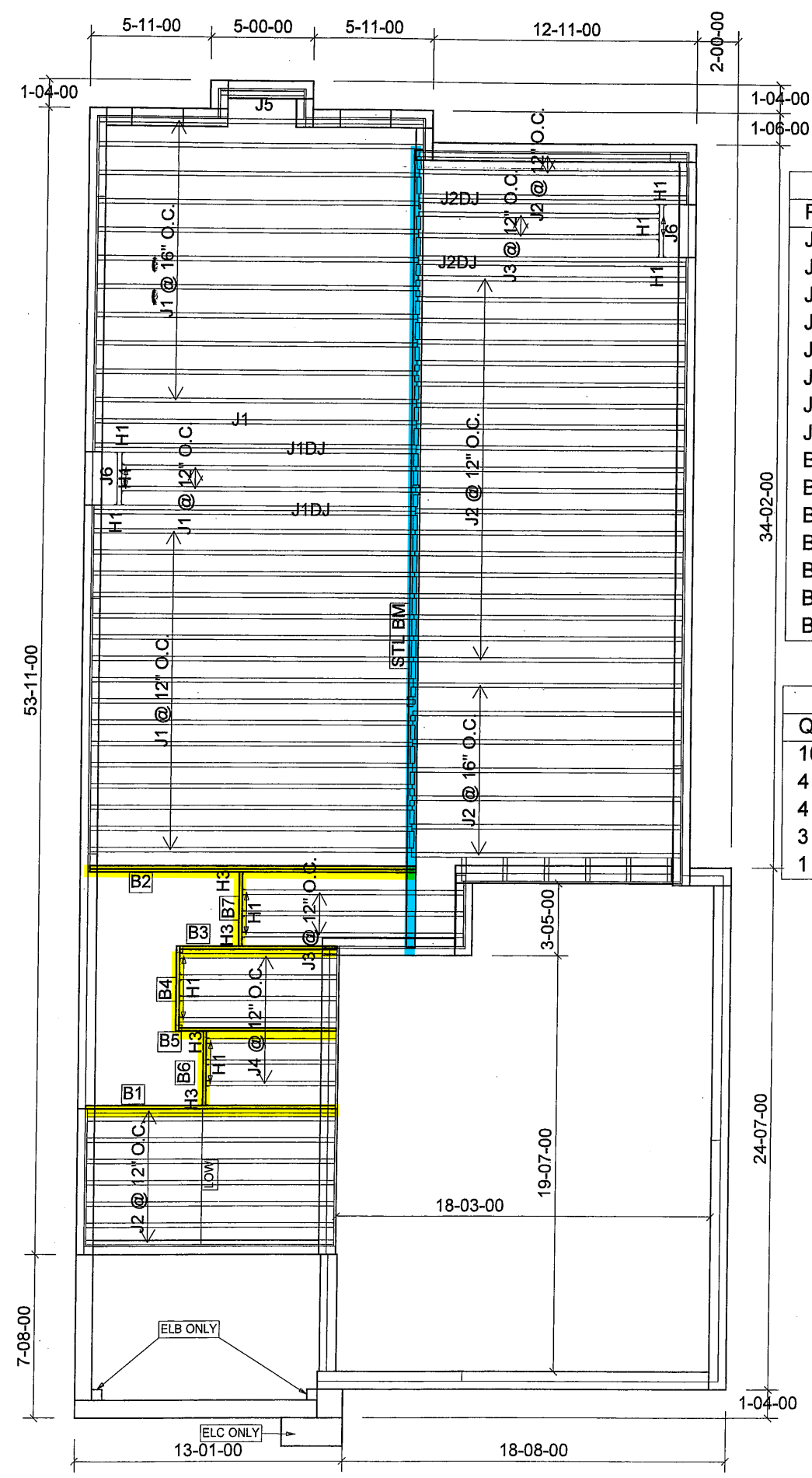
FROM PLAN DATED: JAN 2018  
BUILDER: BAYVIEW WELLINGTON  
SITE: GREEN VALLEY EAST  
MODEL: S38-6 BAROSSA 6  
ELEVATION: A,B,C  
LOT:  
CITY: BRADFORD  
SALESMAN: M D  
DESIGNER: CZ  
REVISION:

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  
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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: 5/8" GLUED AND NAILED

DATE: 15/02/2018

1st FLOOR

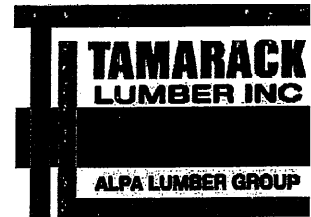
STANDARD WITH WOD & WOB



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	30
J1DJ	16-00-00	9 1/2" NI-40x	2	4
J2	14-00-00	9 1/2" NI-40x	1	36
J2DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	5
J4	8-00-00	9 1/2" NI-40x	1	7
J5	6-00-00	9 1/2" NI-40x	1	1
J6	4-00-00	9 1/2" NI-40x	1	2
B2	16-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B5	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B4	4-00-00	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

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

SITE COPY



FROM PLAN DATED: JAN 2017

BUILDER: BAYVIEW WELLINGTON

SITE: GREEN VALLEY EAST

MODEL: S38-6 BAROSSA 6

ELEVATION: A,B,C

LOT:

CITY: BRADFORD

SALESMAN: M D

DESIGNER: CZ

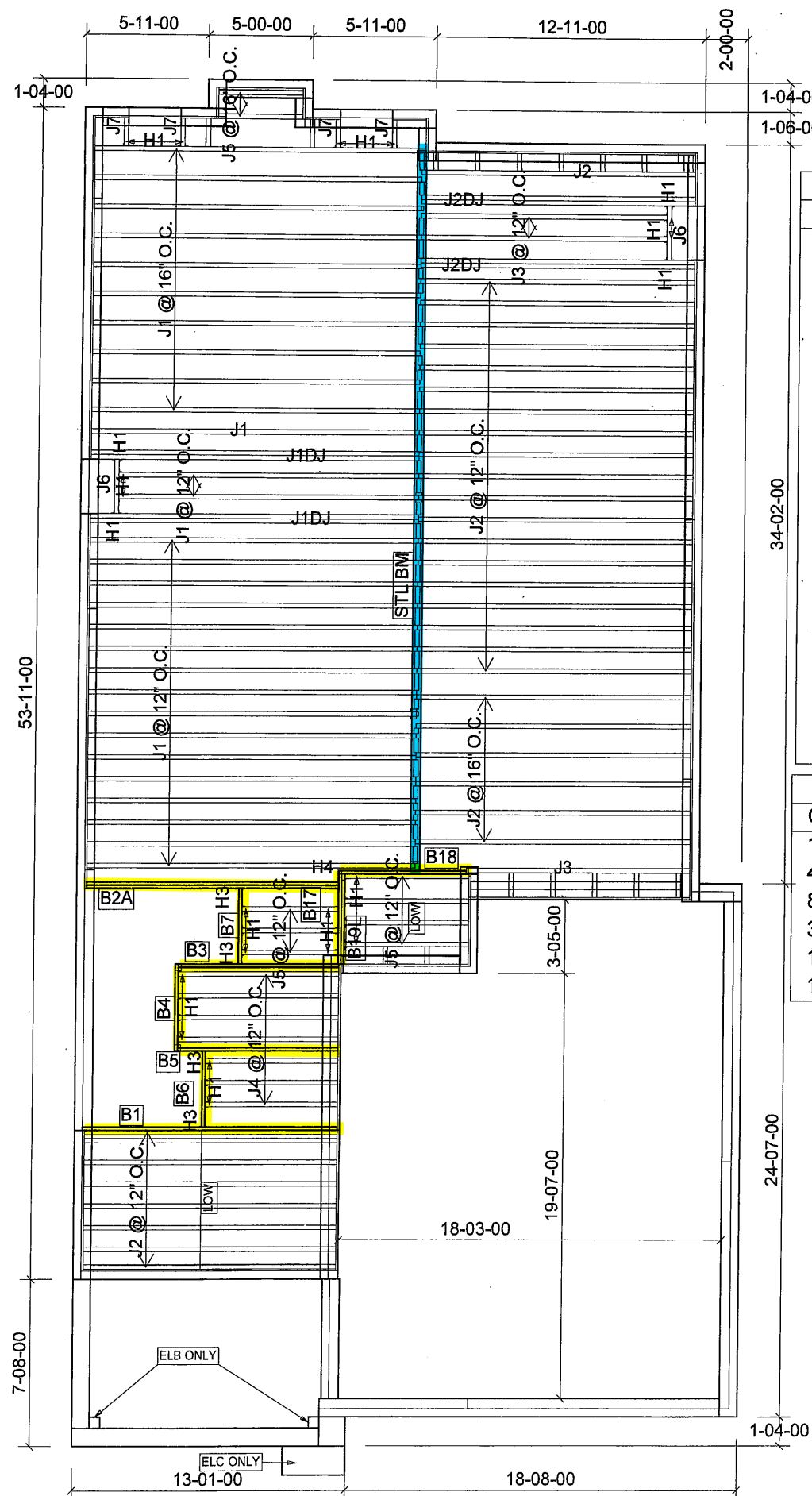
REVISION:

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  
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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: 5/8" GLUED AND NAILED

DATE: 15/02/2018

1st FLOOR

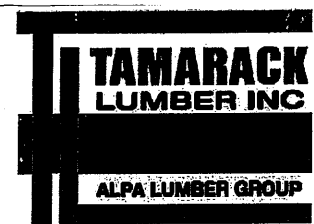
SUNKEN



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	29
J1DJ	16-00-00	9 1/2" NI-40x	2	4
J2	14-00-00	9 1/2" NI-40x	1	34
J2DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	3
J4	8-00-00	9 1/2" NI-40x	1	7
J5	6-00-00	9 1/2" NI-40x	1	9
J6	4-00-00	9 1/2" NI-40x	1	2
J7	2-00-00	9 1/2" NI-40x	1	4
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B2A	14-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2
B18	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B5	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B17	6-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B19L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B4	4-00-00	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

Connector Summary		
Qty	Manuf	Product
17	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
8	H1	IUS2.56/9.5
3	H3	HUS1.81/10
1	H3	HUS1.81/10
1	H4	HGUS410

SITE COPY



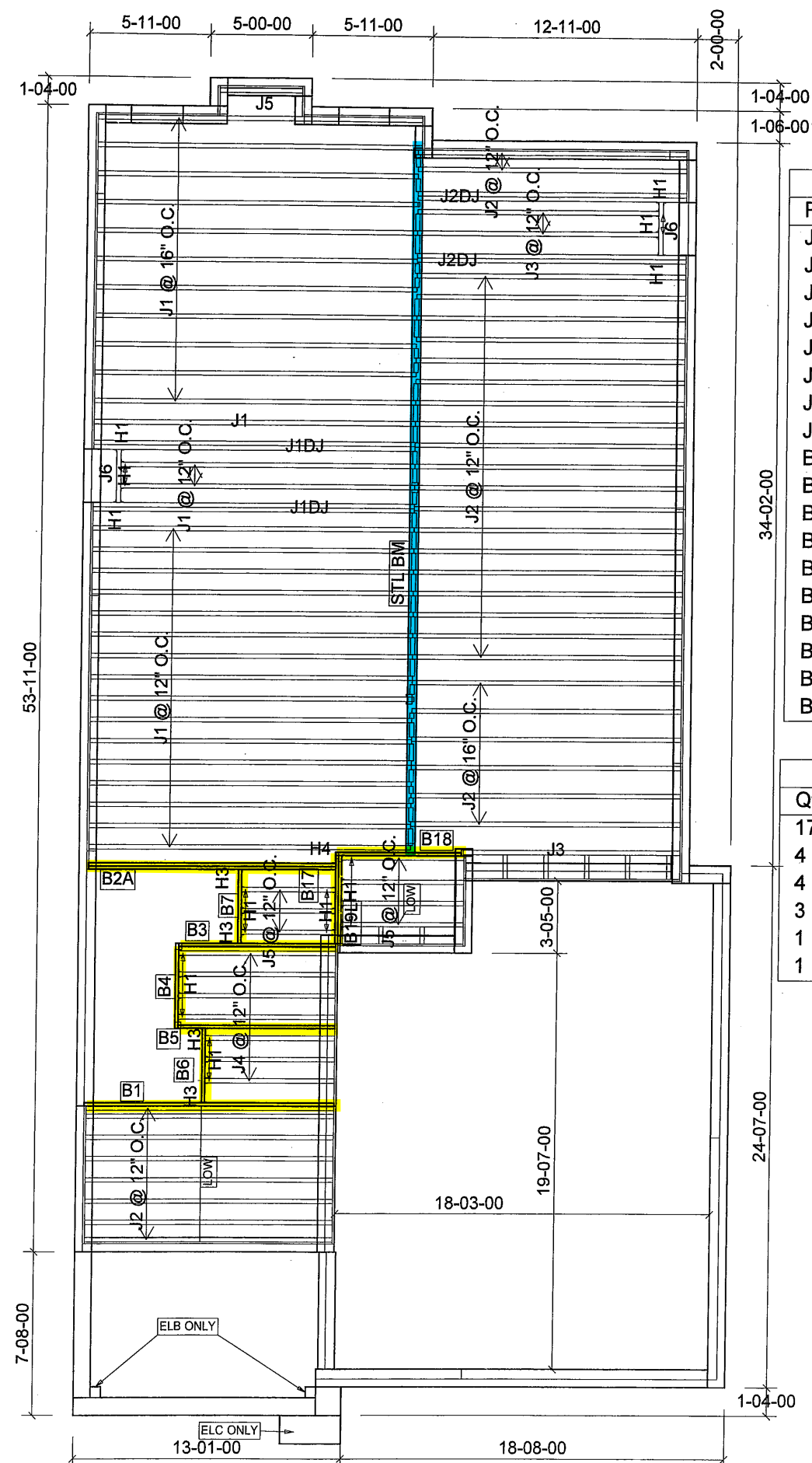
FROM PLAN DATED: JAN 2017  
BUILDER: BAYVIEW WELLINGTON  
SITE: GREEN VALLEY EAST  
MODEL: S38-6 BAROSSA 6  
ELEVATION: A,B,C  
LOT:  
CITY: BRADFORD  
SALESMAN: M D  
DESIGNER: CZ  
REVISION:

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  
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FIGURE 1. CANTILEVERED JOISTS  
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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/ft<sup>2</sup>  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft  
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 15/02/2018

1st FLOOR

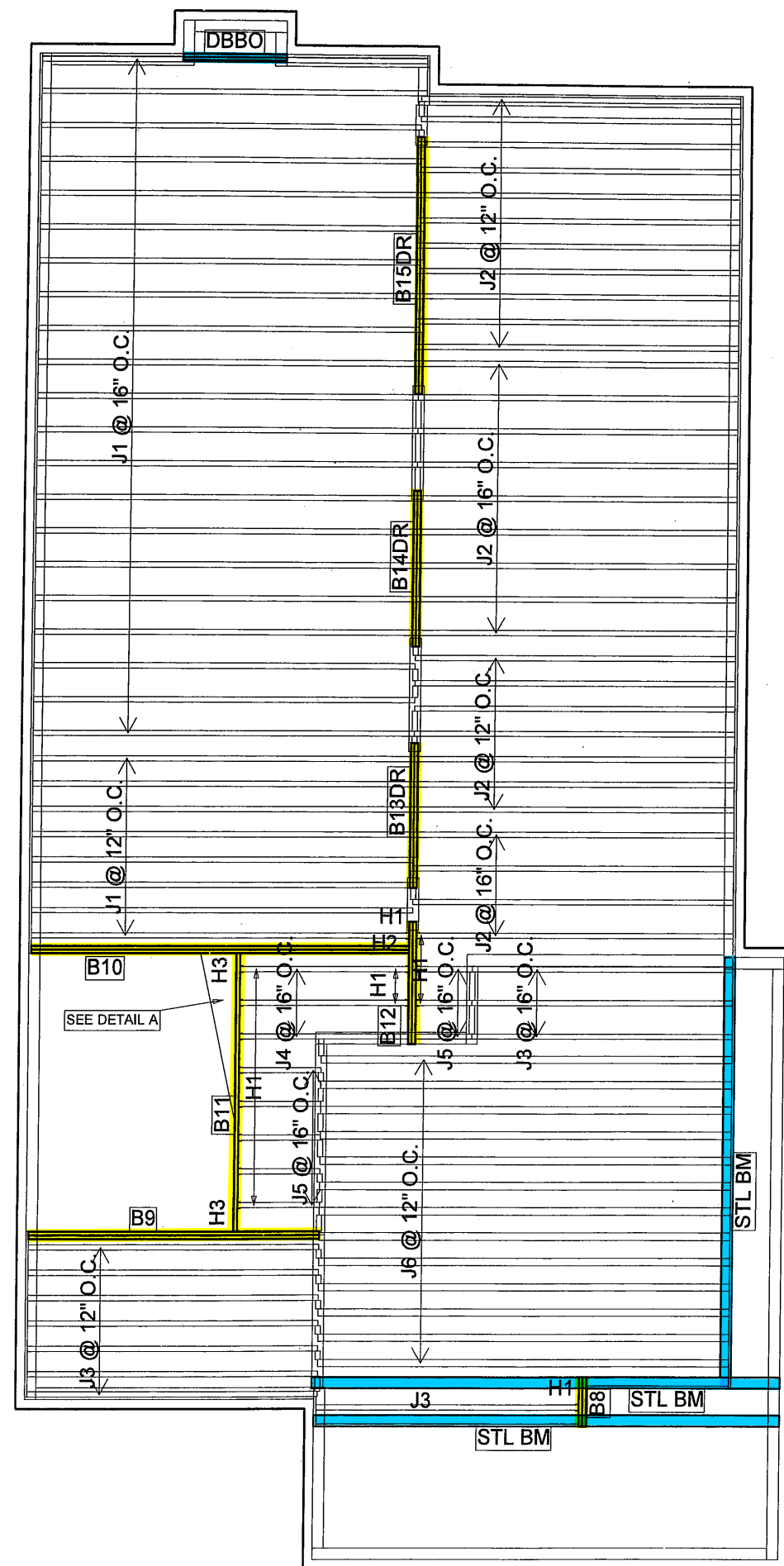
SUNKEN WITH WOD & WOB



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	30
J1DJ	16-00-00	9 1/2" NI-40x	2	4
J2	14-00-00	9 1/2" NI-40x	1	35
J2DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	3
J4	8-00-00	9 1/2" NI-40x	1	7
J5	6-00-00	9 1/2" NI-40x	1	8
J6	4-00-00	9 1/2" NI-40x	1	2
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B2A	14-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2
B18	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B5	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B17	6-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B19L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B4	4-00-00	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

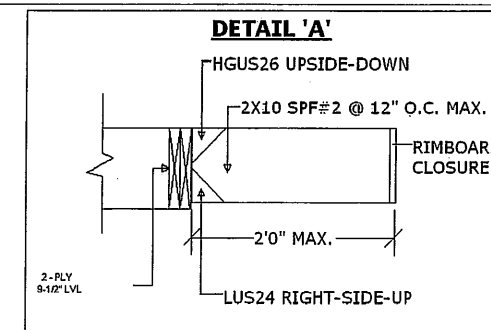
Connector Summary		
Qty	Manuf	Product
17	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
3	H3	HUS1.81/10
1	H3	HUS1.81/10
1	H4	HGUS410

SITE COPY

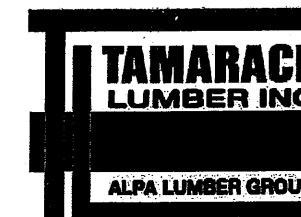


Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	29
J2	14-00-00	9 1/2" NI-40x	1	31
J3	12-00-00	9 1/2" NI-40x	1	11
J4	8-00-00	9 1/2" NI-40x	1	3
J5	4-00-00	9 1/2" NI-40x	1	8
J6	18-00-00	9 1/2" NI-80	1	13
B10	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15DR	12-00-00	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	2	2
B14DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
8	H1	IUS2.56/9.5
7	H1	IUS2.56/9.5
1	H2	HGUS410
2	H3	HUS1.81/10



**SITE COPY**



FROM PLAN DATED: JAN 2018  
 BUILDER: BAYVIEW WELLINGTON  
 SITE: GREEN VALLEY EAST  
 MODEL: S38-6 BAROSSA 6  
 ELEVATION: A,B  
 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  
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 SEE FIGURE 7 TABLES 4 & 5 FOR  
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 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**

FROM PLAN DATED: JAN 2018

BUILDER: BAYVIEW WELLINGTON

SITE: GREEN VALLEY EAST

MODEL: S38-6 BAROSSA 6

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

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 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/ft<sup>2</sup>

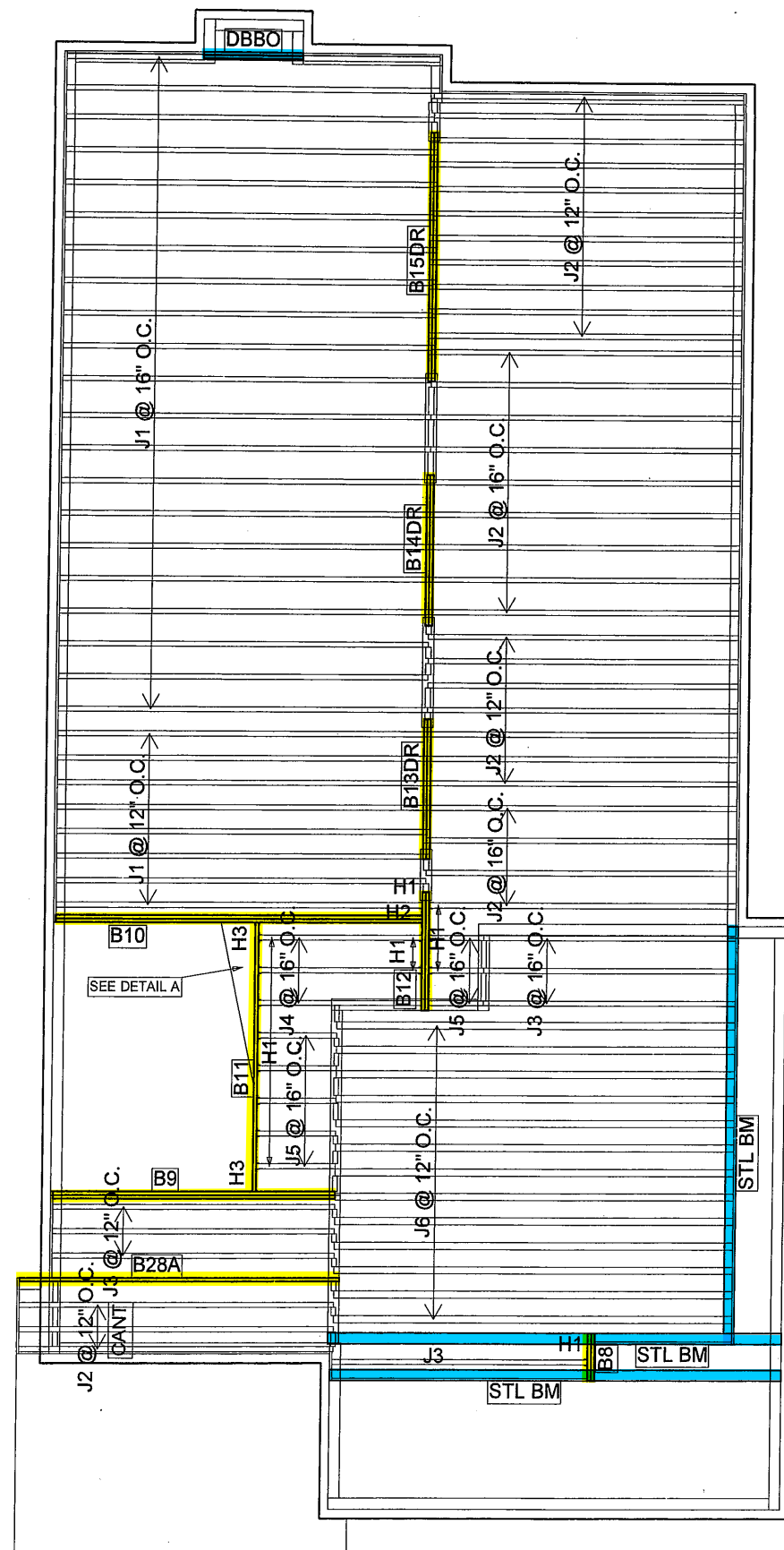
DEAD LOAD: 15.0 lb/ft

TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

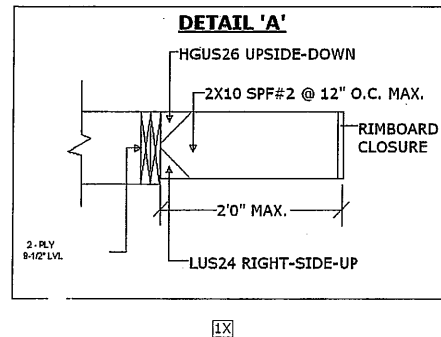
DATE: 15/02/2018

2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	29
J2	14-00-00	9 1/2" NI-40x	1	34
J3	12-00-00	9 1/2" NI-40x	1	7
J4	8-00-00	9 1/2" NI-40x	1	3
J5	4-00-00	9 1/2" NI-40x	1	8
J6	18-00-00	9 1/2" NI-80	1	13
B10	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B28A	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B11	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15DR	12-00-00	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	2	2
B14DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
8	H1	IUS2.56/9.5
7	H1	IUS2.56/9.5
1	H2	HGUS410
2	H3	HUS1.81/10



SITE COPY



# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i3549)

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

September 19, 2017 16:00:02

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

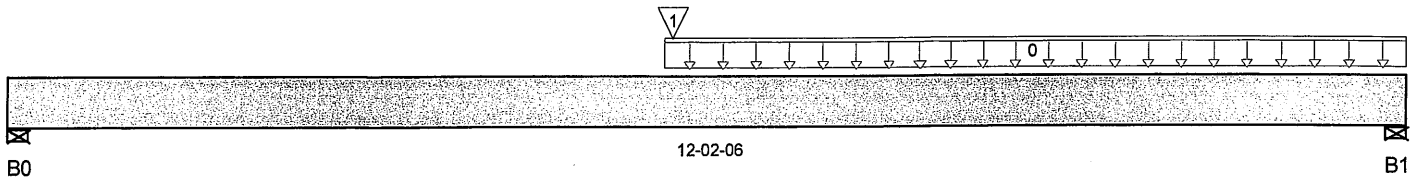
Description: Designs\Flush Beams\Basement\Flush Beams\B1(i3549)

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"	350 / 0	193 / 0		
B1, 4-3/8"	388 / 0	203 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	05-08-08	12-02-06	24	9			n/a
1	B6(i3525)	Conc. Pt. (lbs)	L	05-09-06	05-09-06	583	280			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,025 ft-lbs	8,003 ft-lbs	50.3%	1	05-09-06
End Shear	774 lbs	5,785 lbs	13.4%	1	11-00-08
Total Load Defl.	L/615 (0.224")	0.575"	39%	4	06-01-05
Live Load Defl.	L/933 (0.148")	0.383"	38.6%	5	06-01-05
Max Defl.	0.224"	1"	22.4%	4	06-01-05
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"	766 lbs	14.9%	6.5%	Unspecified
B1 Wall/Plate	4-3/8" x 1-3/4"	835 lbs	20.4%	8.9%	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 unbraced length of Top: 05-03-00, Bottom: 05-03-00.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

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DWG NO. TAM 9706  
STRUCTURAL  
COMPONENT ONLY

BC CALC® Design Report

**Basement\Flush Beams\B2(i3146)**

Dry | 1 span | No cant.

February 15, 2018 16:38:19

Build 6215

Job name:

File name: S38-6 BAROSSA 6EL C.mmdl

Address:

Description: Basement\Flush Beams\B2(i3146)

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

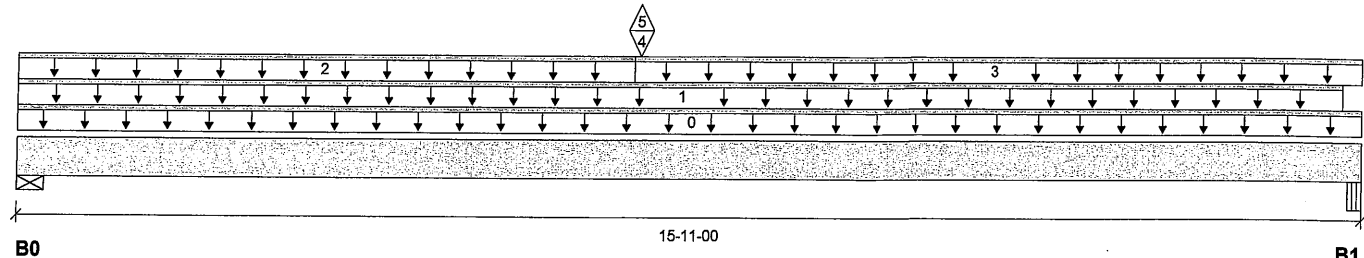
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 15-11-00

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

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	550 / 1	315 / 0		
B1, 5-1/4"	573 / 0	320 / 0		

**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	15-11-00		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	15-08-06	18	7			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-03-06	6	2			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-03-06	15-11-00	22	8			n/a
4	B7(i3220)	Conc. Pt. (lbs)	L	07-04-04	07-04-04	605	288			n/a
5	B7(i3220)	Conc. Pt. (lbs)	L	07-04-04	07-04-04	-1				n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7,004 ft-lbs	23,220 ft-lbs	30.2 %	1	07-04-04
End Shear	1,151 lbs	11,571 lbs	9.9 %	1	01-01-14
Total Load Deflection	L/509 (0.359")	n/a	47.1 %	6	07-09-12
Live Load Deflection	L/785 (0.233")	n/a	45.8 %	8	07-09-12
Max Defl.	0.359"	n/a	35.9 %	6	07-09-12
Span / Depth	19.2				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 4-3/8" x 3-1/2"	1,218 lbs	14.9 %	6.5 %	Unspecified
B1	Beam 5-1/4" x 3-1/2"	1,259 lbs	12.8 %	5.6 %	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**  
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.



BC CALC® Design Report

Build 6215

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

February 15, 2018 16:38:19

File name: S38-6 BAROSSA 6EL C.mmdl

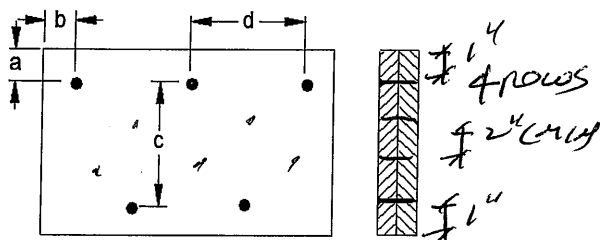
Description: Basement\Flush Beams\B2(i3146)

Specifier:

Designer: CZ

Company:

## Connection Diagram



a minimum = 0"

b minimum = 3"

c = 3-1/2"

d = 6"

Calculated Side Load = 79.5 lb/ft

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

Connectors are: Nails

3-1/2" ARDOX SPIRAL

## Disclosure

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. 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 (800)232-0788 before installation.

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DWG NO. TAM 9709-18  
STRUCTURAL  
COMPONENT ONLY



BC CALC® Design Report

Dry | 1 span | No cant.

February 15, 2018 16:38:06

Build 6215

Job name:

File name: S38-6 BAROSSA 6-SUNKEN.mmdl

Address:

Description: Basement\Flush Beams\B2A(i3979)

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

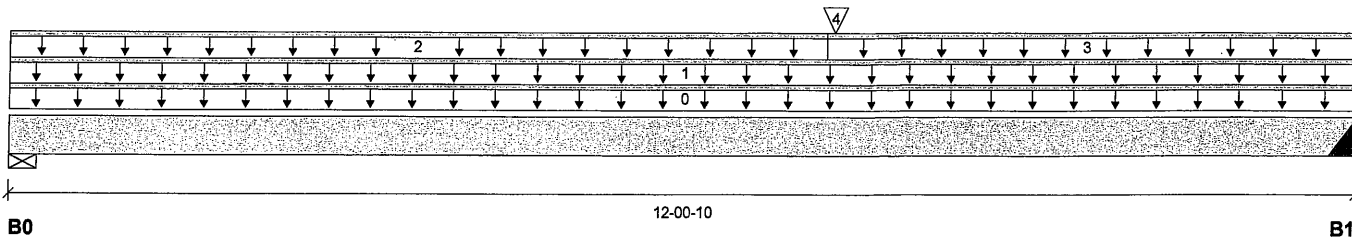
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 12-00-10

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

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	378 / 0	225 / 0		
B1, 2"	536 / 0	295 / 0		

**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	12-00-10	10				00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-00-10	18	7			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-03-06	6	2			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-03-06	12-00-10	22	8			n/a
4	B7(i3978)	Conc. Pt. (lbs)	L	07-04-04	07-04-04	550	268			n/a

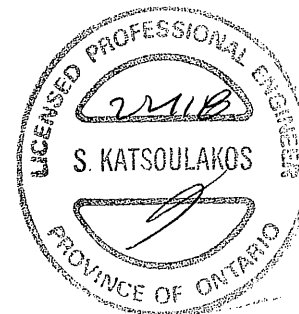
**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4,391 ft-lbs	23,220 ft-lbs	18.9 %	1	07-04-04
End Shear	1,086 lbs	11,571 lbs	9.4 %	1	11-01-02
Total Load Deflection	L/1,084 (0.129")	n/a	22.1 %	4	06-03-14
Live Load Deflection	L/999 (0.083")	n/a	n/a	5	06-03-14
Max Defl.	0.129"	n/a	12.9 %	4	06-03-14
Span / Depth	14.7				

Bearing Supports			Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	4-3/8" x 3-1/2"	848 lbs	10.4 %	4.5 %	Unspecified	
B1	Hanger	2" x 3-1/2"	1,173 lbs	n/a	13.7 %	HGUS410	

**Cautions**

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



BC CALC® Design Report  
Build 6215

Basement\Flush Beams\B2A(i3979)

Dry | 1 span | No cant.

February 15, 2018 16:38:06

Job name:

File name: S38-6 BAROSSA 6-SUNKEN.mmdl

Address:

Description: Basement\Flush Beams\B2A(i3979)

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

Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:

## 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.

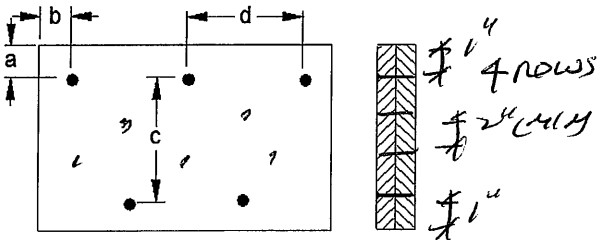
Design based on Dry Service Condition.

CONFORMS TO OBC 2012

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.

## Connection Diagram



a minimum = 1"  
b minimum = 3"

c = 1-1/2"  
d = 6"

Calculated Side Load = 96.2 lb/ft

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

Connectors are: Nails

3-1/2" ARDOX SPIRAL

## Disclosure

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DWG NO. TAM 9710-18  
STRUCTURAL  
COMPONENT ONLY



# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B3(i3136)

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

September 14, 2017 15:33:29

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

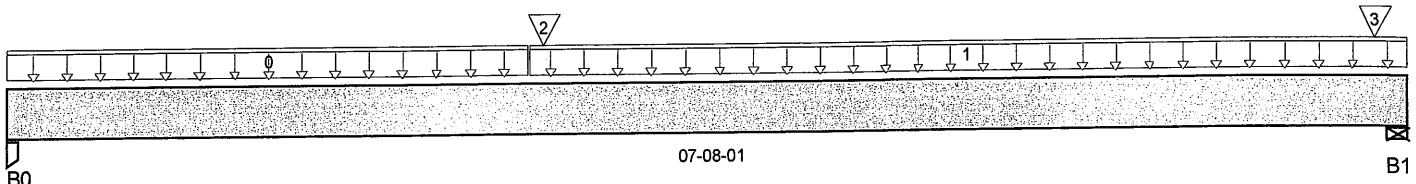
Description: Designs\Flush Beams\Basement\Flush Beams\B3(i3136)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 07-08-01

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

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	396 / 0	204 / 0		
B1, 4-5/16"	504 / 0	261 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-10-04	9	3			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	02-10-04	07-08-01	20	8			n/a
2	B7(i3151)	Conc. Pt. (lbs)	L	02-11-02	02-11-02	569	275			n/a
3	3(i729)	Conc. Pt. (lbs)	L	07-05-14	07-05-14	209	107			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,314 ft-lbs	12,704 ft-lbs	18.2%	1	02-11-02
End Shear	827 lbs	5,785 lbs	14.3%	1	00-11-04
Total Load Defl.	L/999 (0.051")	n/a	n/a	4	03-05-14
Live Load Defl.	L/999 (0.034")	n/a	n/a	5	03-05-14
Max Defl.	0.051"	n/a	n/a	4	03-05-14
Span / Depth	9.2	n/a	n/a		00-00-00

## Disclosure

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

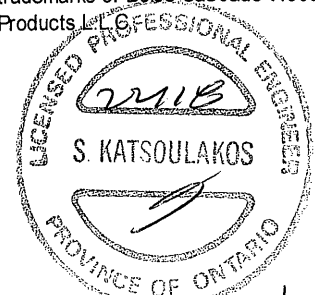
	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	1-3/4" x 1-3/4"	850 lbs	34.2%	22.7%	Unspecified
B1 Wall/Plate	4-5/16" x 1-3/4"	1,082 lbs	26.8%	11.8%	Unspecified

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 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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# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i3128)

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

September 14, 2017 15:33:28

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

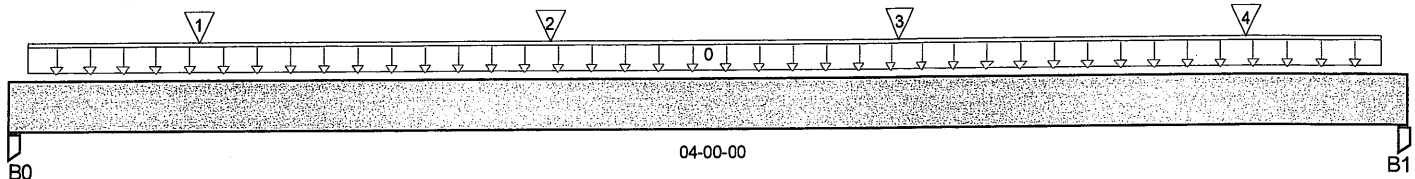
Description: Designs\Flush Beams\Basement\Flush Beams\B4(i3128)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-00-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	262 / 0	225 / 0		
B1, 3-1/2"	271 / 0	227 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-10	03-11-02		60			n/a
1	J4(i3119)	Conc. Pt. (lbs)	L	00-06-08	00-06-08	115	43			n/a
2	J4(i3106)	Conc. Pt. (lbs)	L	01-06-08	01-06-08	154	58			n/a
3	J4(i3132)	Conc. Pt. (lbs)	L	02-06-08	02-06-08	154	58			n/a
4	J4(i3096)	Conc. Pt. (lbs)	L	03-06-08	03-06-08	110	41			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	574 ft-lbs	12,704 ft-lbs	4.5%	1	01-09-14
End Shear	436 lbs	5,785 lbs	7.5%	1	01-01-00
Total Load Defl.	L/999 (0.004")	n/a	n/a	4	02-00-02
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	02-00-02
Max Defl.	0.004"	n/a	n/a	4	02-00-02
Span / Depth	4.5	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 1-3/4"	675 lbs	13.6%	9%	Unspecified
B1 Post	3-1/2" x 1-3/4"	690 lbs	13.9%	9.2%	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



**SITE COPY**

DWG NO. TAM 9712-18  
 STRUCTURAL  
 COMPONENT ONLY



# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i3128)

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

September 14, 2017 15:33:28

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code:BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA6-SUNKEN.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B4(i312

Specifier:

Designer: CZ

Company:

Misc:

## Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise 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\B5(i3118)

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

September 14, 2017 15:33:28

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

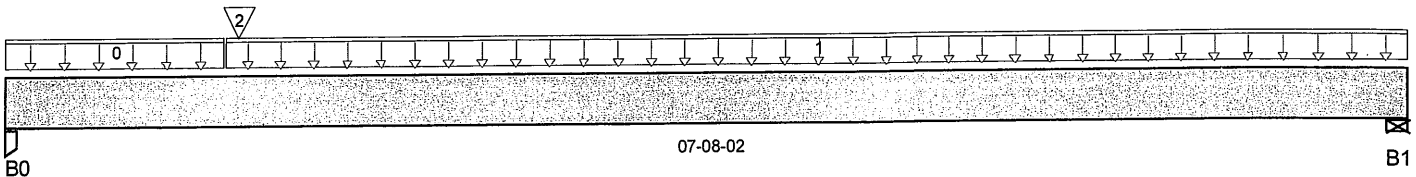
Description: Designs\Flush Beams\Basement\Flush Beams\B5(i3118)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 07-08-02

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

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	584 / 0	288 / 0		
B1, 4-3/8"	178 / 0	96 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-02-04	11	4			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-02-04	07-08-02	20	7			n/a
2	B6(i3090)	Conc. Pt. (lbs)	L	01-03-02	01-03-02	620	293			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,434 ft-lbs	12,704 ft-lbs	11.3%	1	01-03-02
End Shear	1,211 lbs	5,785 lbs	20.9%	1	00-11-04
Total Load Defl.	L/999 (0.032")	n/a	n/a	4	03-03-13
Live Load Defl.	L/999 (0.021")	n/a	n/a	5	03-03-13
Max Defl.	0.032"	n/a	n/a	4	03-03-13
Span / Depth	9.2	n/a	n/a		00-00-00

## Disclosure

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

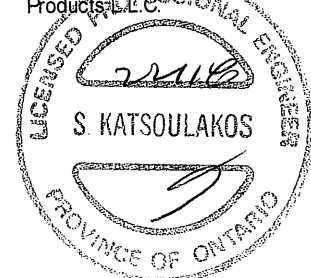
## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	1-3/4" x 1-3/4"	1,236 lbs	49.7%	33.1%	Unspecified
B1 Wall/Plate	4-3/8" x 1-3/4"	387 lbs	9.5%	4.1%	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

CONFORMS TO OBC 2012



# SITE COPY

DWG NO. TAM 9713.18  
 STRUCTURAL  
 COMPONENT ONLY



# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B6(i3090)

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

September 14, 2017 15:33:29

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

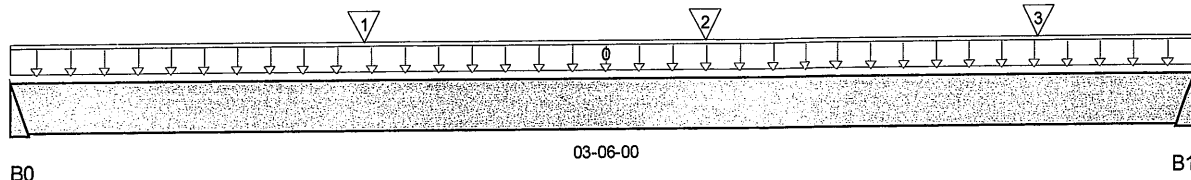
Description: Designs\Flush Beams\Basement\Flush Beams\B6(i3090)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 03-06-00

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

Bearing	Live	Dead	Snow	Wind
B0	582 / 0	279 / 0		
B1	621 / 0	294 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	240	120			n/a
1	J4(i3116)	Conc. Pt. (lbs)	L	01-00-08	01-00-08	139	52			n/a
2	J4(i3091)	Conc. Pt. (lbs)	L	02-00-08	02-00-08	127	48			n/a
3	J4(i3138)	Conc. Pt. (lbs)	L	03-00-08	03-00-08	97	36			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,032 ft-lbs	12,704 ft-lbs	8.1%	1	01-09-14
End Shear	728 lbs	5,785 lbs	12.6%	1	00-11-08
Total Load Defl.	L/999 (0.006")	n/a	n/a	4	01-09-02
Live Load Defl.	L/999 (0.004")	n/a	n/a	5	01-09-02
Max Defl.	0.006"	n/a	n/a	4	01-09-02
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"	1,222 lbs	n/a	28.6%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	1,299 lbs	n/a	30.4%	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.

CONFORMS TO OBC 2012

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



# SITE COPY

DWG NO. TAM 9714-18  
 STRUCTURAL  
 COMPONENT ONLY



# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B6(i3090)

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

September 14, 2017 15:33:29

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B6(i3090

Specifier:

Designer: CZ

Company:

Misc:

## Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise 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\B7(i3151)

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

September 14, 2017 15:33:28

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA6-SUNKEN.mmdl

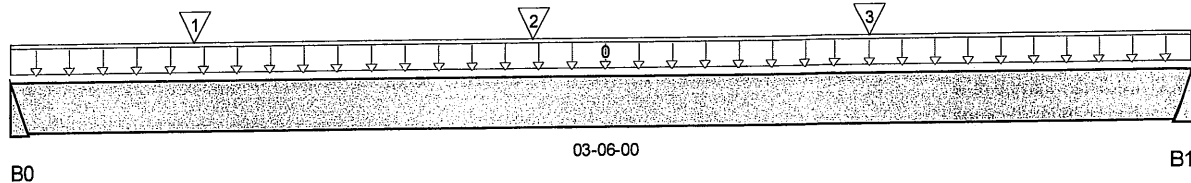
Description: Designs\Flush Beams\Basement\Flush Beams\B7(i3151)

Specifier:

Designer: CZ

Company:

Msc:



Total Horizontal Product Length = 03-06-00

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

Bearing	Live	Dead	Snow	Wind
B0	570 / 0	275 / 0		
B1	547 / 0	266 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	240	120			n/a
1	J5(i3145)	Conc. Pt. (lbs)	L	00-06-08	00-06-08	79	30			n/a
2	J5(i3155)	Conc. Pt. (lbs)	L	01-06-08	01-06-08	98	37			n/a
3	J5(i3149)	Conc. Pt. (lbs)	L	02-06-08	02-06-08	100	37			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	958 ft-lbs	12,704 ft-lbs	7.5%	1	01-07-10
End Shear	659 lbs	5,785 lbs	11.4%	1	02-06-08
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	01-09-02
Live Load Defl.	L/999 (0.004")	n/a	n/a	5	01-09-02
Max Defl.	0.005"	n/a	n/a	4	01-09-02
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"	1,198 lbs	n/a	28.1%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	1,153 lbs	n/a	27%	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.

CONFORMS TO OBC 2012

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



# SITE COPY



# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B7(i3151)

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

September 14, 2017 15:33:28

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA6-SUNKEN.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B7(i315

Specifier:

Designer: CZ

Company:

Misc:

## Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise 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\Flush Beams\B8(i2931)

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

September 14, 2017 15:33:30

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

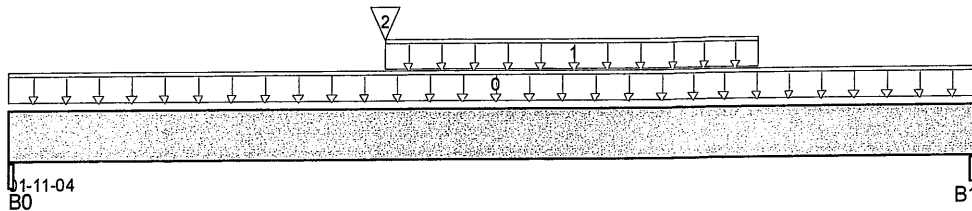
Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i2931)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 01-11-04

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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	220 / 0	206 / 0		
B1, 5-1/4"	122 / 0	169 / 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	01-11-04	33	130		99	n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-09-00	01-06-00	6				n/a
2	J3(i2998)	Conc. Pt. (lbs)	L	00-09-00	00-09-00	272	102			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	172 ft-lbs	25,408 ft-lbs	0.7%	1	00-09-00
End Shear	90 lbs	11,571 lbs	0.8%	2	00-08-08
Total Load Defl.	L/999 (0")	n/a	n/a	4	00-11-03
Max Defl.	0"	n/a	n/a	4	00-11-03
Span / Depth	1.5	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	5-1/4" x 3-1/2"	587 lbs	6%	2.6%	Unspecified
B1 Beam	5-1/4" x 3-1/2"	395 lbs	4%	1.8%	Unspecified

## Notes

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

Design meets User specified (1") Maximum total 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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Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B8(i2931)**

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

September 14, 2017 15:33:30

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

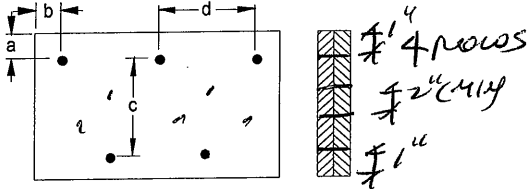
Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i2931

Specifier:

Designer: CZ

Company:

Misc:

**Connection Diagram**

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

Calculated Side Load = 276.5 lb/ft

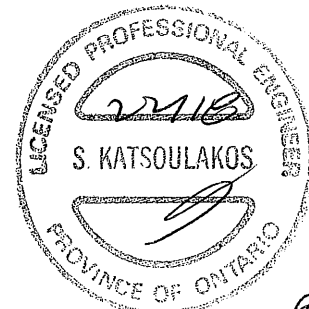
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: 16d Nails

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

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DWG NO. TAM 9716-18  
 STRUCTURAL  
 COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B9(i3305)

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

September 14, 2017 15:33:30

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmd

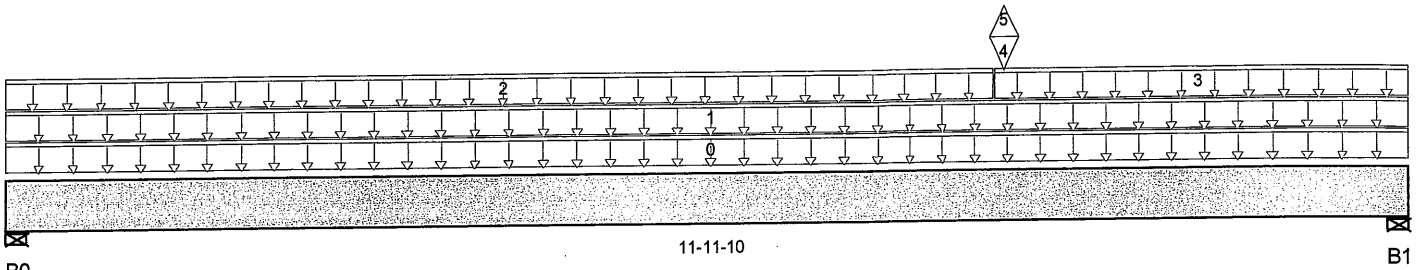
Description: Designs\Flush Beams\1st Floor\Flush Beams\B9(i3305)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 11-11-10

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

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	447 / 1	626 / 0		
B1, 2-3/4"	1,010 / 2	882 / 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	11-11-10		60			n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-11-10	10	4			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-05-06	6	2			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	08-05-06	11-11-10	24	9			n/a
4	B11(i3309)	Conc. Pt. (lbs)	L	08-06-04	08-06-04	1,209	582			n/a
5	B11(i3309)	Conc. Pt. (lbs)	L	08-06-04	08-06-04	-3				n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,684 ft-lbs	25,408 ft-lbs	30.2%	1	08-06-04
End Shear	2,462 lbs	11,571 lbs	21.3%	1	10-11-06
Total Load Defl.	L/610 (0.226")	0.575"	39.3%	6	06-06-02
Live Load Defl.	L/999 (0.117")	n/a	n/a	8	06-07-08
Max Defl.	0.226"	1"	22.6%	6	06-06-02
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 3-1/2"	1,453 lbs	17.8%	7.8%	Unspecified
B1 Wall/Plate	2-3/4" x 3-1/2"	2,617 lbs	50.9%	22.3%	Unspecified

## Notes



P6 1/2

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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: S38-6 BAROSSA 6-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B9(i3305)

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

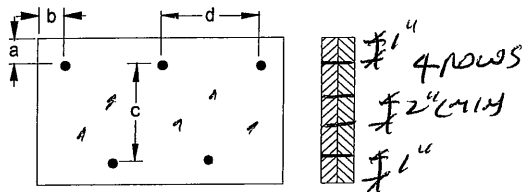
**CONFORMS TO OBC 2012**

## Disclosure

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## Connection Diagram



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

Calculated Side Load = 211.9 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





# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B10(i3306)

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

September 14, 2017 15:33:30

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

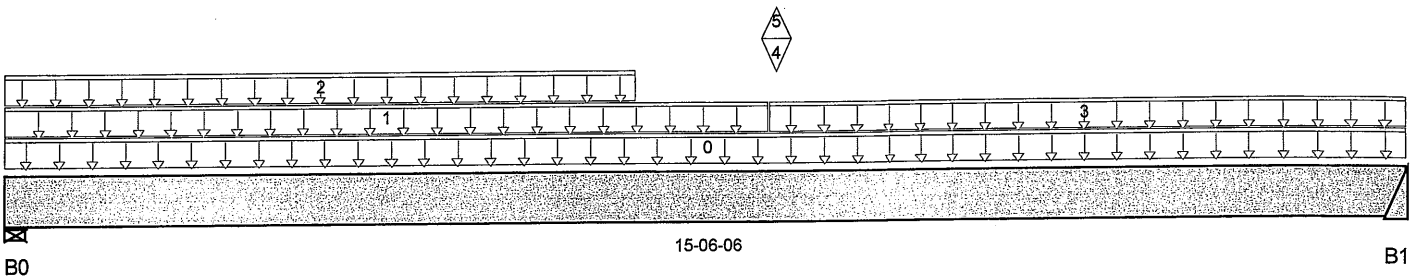
Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i3306)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 15-06-06

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

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	481 / 4	609 / 0		
B1	578 / 4	406 / 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	15-06-06	11	4			n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-05-06	6	2			n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-00-00	06-11-14		60			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	08-05-06	15-06-06	15	6			n/a
4	B11(i3309)	Conc. Pt. (lbs)	L	08-06-04	08-06-04	726	321			n/a
5	B11(i3309)	Conc. Pt. (lbs)	L	08-06-04	08-06-04	-8				n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,904 ft-lbs	25,408 ft-lbs	31.1%	1	08-06-04
End Shear	1,344 lbs	11,571 lbs	11.6%	1	01-01-14
Total Load Defl.	L/446 (0.407")	0.756"	53.8%	6	07-10-13
Live Load Defl.	L/792 (0.229")	0.504"	45.5%	8	08-01-00
Max Defl.	0.407"	1"	40.7%	6	07-10-13
Span / Depth	19.1	n/a	n/a		00-00-00

## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/8" x 3-1/2"	1,483 lbs	18.1%	7.9%	Unspecified
B1 Hanger	2" x 3-1/2"	1,374 lbs	n/a	16.1%	HGUS410

## Notes



pg 1/2

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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: S38-6 BAROSSA6-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i3306)

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.

CONFORMS TO OBC 2012

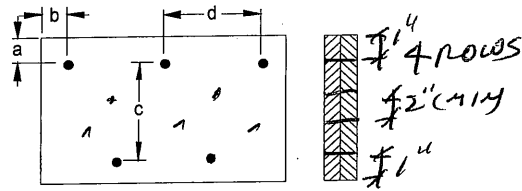
Design based on Dry Service Condition.

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 = 95.2 lb/ft

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

Connectors are: Nails

3-1/2" ARDOX SPIRAL

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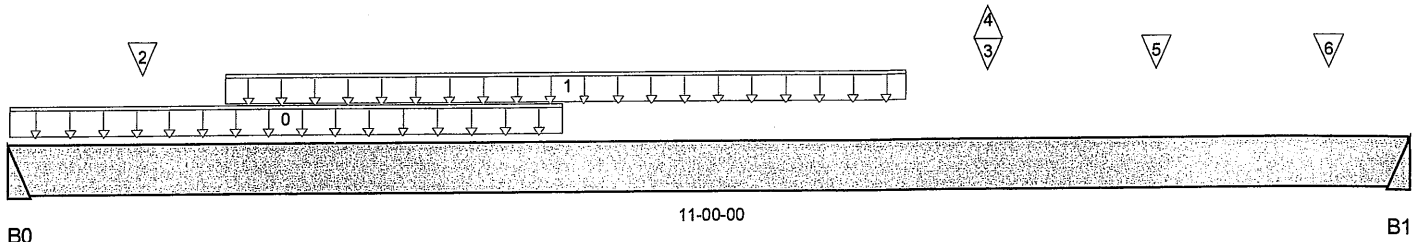


BC CALC® Design Report



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

File Name: S38-6 BAROSSA 6-SUNKEN.mmd  
Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i3309)  
Specifier:  
Designer: CZ  
Company:  
Misc:



Total Horizontal Product Length = 11-00-00

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

Bearing	Live	Dead	Snow	Wind
B0	1,214 / 3	584 / 0		
B1	721 / 8	318 / 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	00-00-03	04-04-03	240	120			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-08-08	07-00-08	70	26			n/a
2	J5(i2956)	Conc. Pt. (lbs)	L	01-00-08	01-00-08	89	33			n/a
3	J4(i3307)	Conc. Pt. (lbs)	L	07-08-08	07-08-08	85	28			n/a
4	J4(i3307)	Conc. Pt. (lbs)	L	07-08-08	07-08-08	-11				n/a
5	J4(i2848)	Conc. Pt. (lbs)	L	09-00-08	09-00-08	193	72			n/a
6	J4(i2783)	Conc. Pt. (lbs)	L	10-04-08	10-04-08	152	57			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,972 ft-lbs	12,704 ft-lbs	39.1%	1	03-10-07
End Shear	2,064 lbs	5,785 lbs	35.7%	1	00-11-08
Total Load Defl.	L/457 (0.283")	0.54"	52.5%	6	05-02-08
Live Load Defl.	L/670 (0.193")	0.36"	53.7%	8	05-02-08
Max Defl.	0.283"	1"	28.3%	6	05-02-08
Span / Depth	13.6	n/a	n/a		00-00-00

**Bearing Supports**

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	2,551 lbs	n/a	59.7%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	1,480 lbs	n/a	34.7%	HUS1.81/10

**Notes**



P6 1/2



Boise Cascade

**Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B11(i3309)**

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

September 14, 2017 15:33:30

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA6-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i3309)

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.

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**

DWG NO. TAM 9719-18  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...\B12(i3368)

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

September 19, 2017 15:59:38

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA6-SUNKEN.mmdl

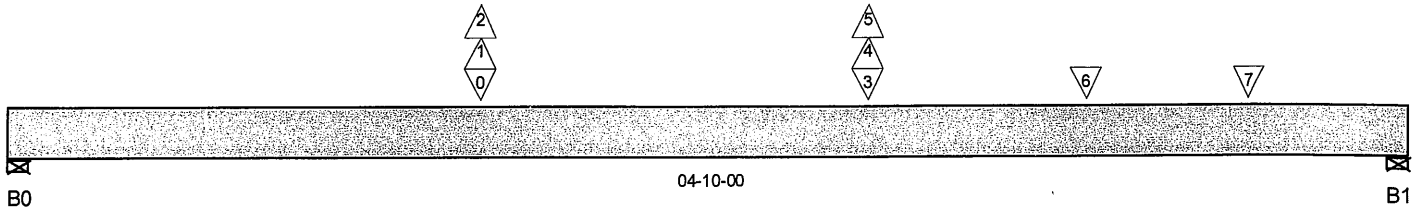
Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i3368)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-10-00

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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	421 / 280	114 / 0		
B1, 4"	1,222 / 236	543 / 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	01-07-08	01-07-08	260	72			n/a
1	-	Conc. Pt. (lbs)	L	01-07-08	01-07-08		-71			n/a
2	-	Conc. Pt. (lbs)	L	01-07-08	01-07-08	-256				n/a
3	-	Conc. Pt. (lbs)	L	02-11-08	02-11-08	219	57			n/a
4	-	Conc. Pt. (lbs)	L	02-11-08	02-11-08		-71			n/a
5	-	Conc. Pt. (lbs)	L	02-11-08	02-11-08	-256				n/a
6	B10(i3448)	Conc. Pt. (lbs)	L	03-08-12	03-08-12	575	403			n/a
7	-	Conc. Pt. (lbs)	L	04-03-08	04-03-08	589	221			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,436 ft-lbs	25,408 ft-lbs	5.7%	1	03-08-12
Neg. Moment	-400 ft-lbs	-25,408 ft-lbs	1.6%	4	01-07-08
End Shear	1,608 lbs	11,571 lbs	13.9%	1	03-08-08
Uplift	317 lbs	n/a	n/a	4	00-00-00
Total Load Defl.	L/999 (0.006")	n/a	n/a	6	02-07-08
Live Load Defl.	L/999 (0.004")	n/a	n/a	8	02-07-08
Total Neg. Defl.	L/999 (-0.001")	n/a	n/a	7	02-01-00
Max Defl.	0.006"	n/a	n/a	6	02-07-08
Span / Depth	5.3	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"	774 lbs	7.5%	3.3%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	2,512 lbs	33.6%	14.7%	Unspecified

## Cautions

Uplift of 317 lbs found at span 1 - Left. (Simpson 1-H2SA @ B0)

## Notes

**SITE COPY**



DWG NO. TAM 9720-18  
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: S38-6 BAROSSA 6-SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i3368

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.

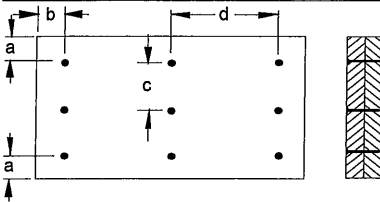
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

CONFORMS TO OBC 2012

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram



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

Calculated Side Load = 533.8 lb/ft

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

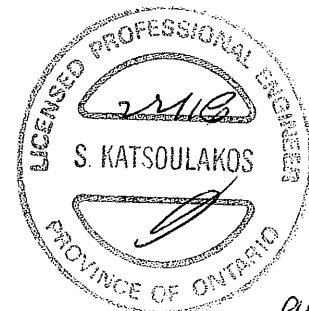
Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

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

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# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...\B13DR(i2838)

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

September 14, 2017 15:33:29

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmd

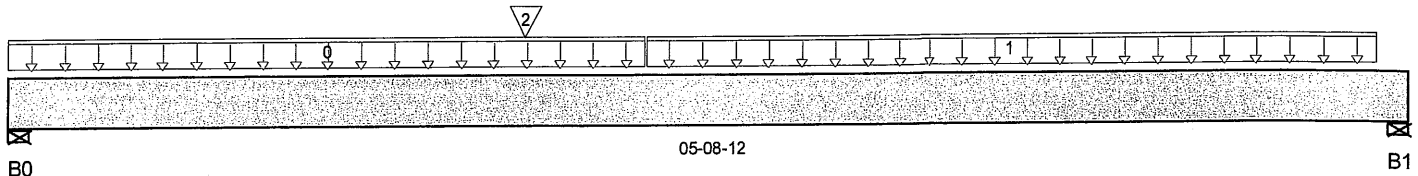
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B13I

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 05-08-12

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

Bearing	Live	Dead	Snow	Wind
B0, 4-3/4"	1,735 / 0	679 / 0		
B1, 4"	1,538 / 0	605 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	02-07-04	396	149			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-07-04	05-07-04	647	243			n/a
2	J3(i2857)	Conc. Pt. (lbs)	L	02-01-04	02-01-04	301	113			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,821 ft-lbs	25,408 ft-lbs	15%	1	03-01-04
End Shear	2,408 lbs	11,571 lbs	20.8%	1	01-02-04
Total Load Defl.	L/999 (0.025")	n/a	n/a	4	02-11-00
Live Load Defl.	L/999 (0.018")	n/a	n/a	5	02-11-00
Max Defl.	0.025"	n/a	n/a	4	02-11-00
Span / Depth	6.5	n/a	n/a		00-00-00

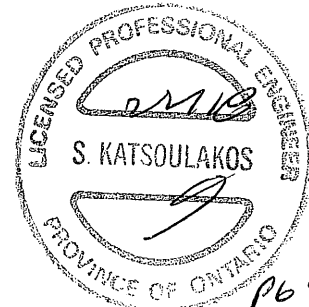
## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/4" x 3-1/2"	3,451 lbs	25.6%	17%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	3,064 lbs	26.9%	17.9%	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 unbraced length of Top: 00-02-12, Bottom: 00-02-12.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



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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: S38-6 BAROSSA6-SUNKEN.mmdl

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

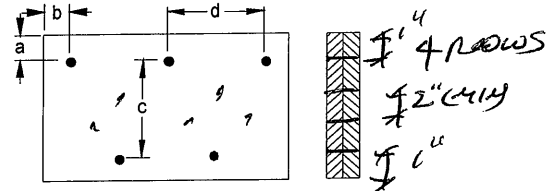
Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram



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.

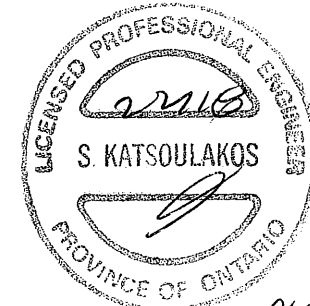
Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

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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: S38-6 BAROSSA 6-SUNKEN.mmdl

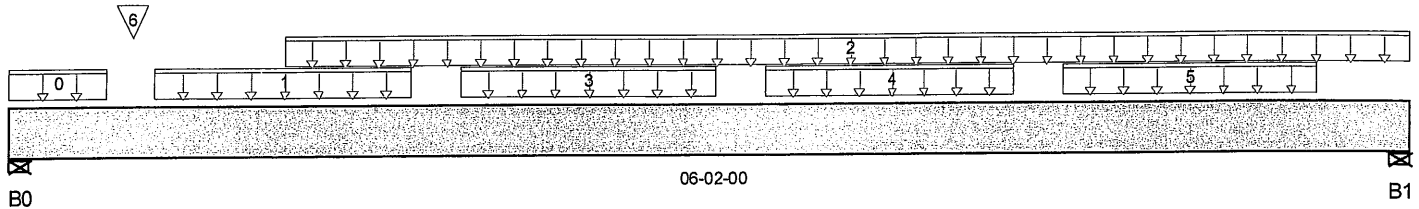
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B14I

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 06-02-00

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

Bearing	Live	Dead	Snow	Wind
B0, 4"	1,765 / 0	877 / 0		
B1, 4"	1,972 / 0	943 / 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(i2106)	Unf. Lin. (lb/ft)	L	00-00-00	00-05-04		60			n/a
1	Bk1(i2489)	Unf. Lin. (lb/ft)	L	00-07-12	01-09-04		60			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-02-08	06-02-00	610	239			n/a
3	Bk1(i2489)	Unf. Lin. (lb/ft)	L	01-11-12	03-01-04		60			n/a
4	Bk1(i2489)	Unf. Lin. (lb/ft)	L	03-03-12	04-05-04		60			n/a
5	Bk1(i2489)	Unf. Lin. (lb/ft)	L	04-07-12	05-09-04		60			n/a
6	-	Conc. Pt. (lbs)	L	00-06-08	00-06-08	713	280			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,824 ft-lbs	25,408 ft-lbs	19%	1	03-02-08
End Shear	2,659 lbs	11,571 lbs	23%	1	01-01-08
Total Load Defl.	L/999 (0.037")	n/a	n/a	4	03-01-04
Live Load Defl.	L/999 (0.025")	n/a	n/a	5	03-01-04
Max Defl.	0.037"	n/a	n/a	4	03-01-04
Span / Depth	7.1	n/a	n/a		00-00-00

## Bearing Supports

B0	Wall/Plate	4" x 3-1/2"	3,743 lbs	32.9%	21.9%	Unspecified
B1	Wall/Plate	4" x 3-1/2"	4,137 lbs	36.4%	24.2%	Unspecified

## Notes



BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.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: 00-02-09, Bottom: 00-02-09.

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

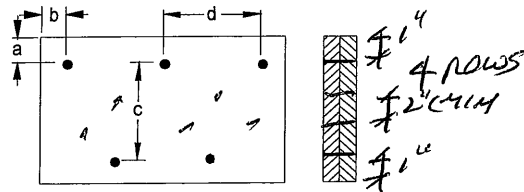
CONFORMS TO OBC 2012

Disclosure

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Connection Diagram



a minimum = 1" c = 3-1/2" u  
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 Nails

3-1/2" ARDOX SPIRAL



**BC CALC® Design Report**


Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

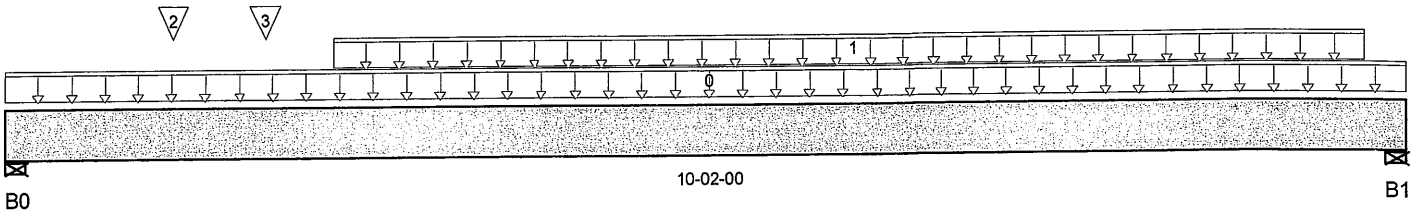
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B15I

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 10-02-00

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

Bearing	Live	Dead	Snow	Wind
B0, 4"	2,571 / 0	1,318 / 0		
B1, 4"	2,850 / 0	1,423 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	10-02-00	60				n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-04-08	09-10-08	605	227			n/a
2	-	Conc. Pt. (lbs)	L	01-02-08	01-02-08	670	251			n/a
3	J3(i2813)	Conc. Pt. (lbs)	L	01-10-08	01-10-08	215	81			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	14,044 ft-lbs	25,408 ft-lbs	55.3%	1	05-02-08
End Shear	5,407 lbs	11,571 lbs	46.7%	1	01-01-08
Total Load Defl.	L/351 (0.329")	0.481"	68.4%	4	05-00-08
Live Load Defl.	L/526 (0.22")	0.321"	68.5%	5	05-00-08
Max Defl.	0.329"	1"	32.9%	4	05-00-08
Span / Depth	12.2	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"	5,505 lbs	48.4%	32.2%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	6,053 lbs	53.2%	35.4%	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 unbraced length of Top: 00-04-07, Bottom: 00-04-07.  
 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® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

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

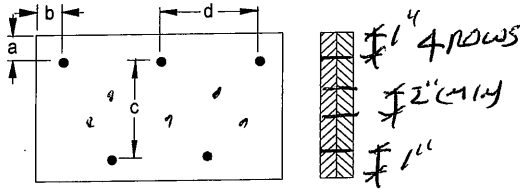
Specifier:

Designer: CZ

Company:

Msc:

### Connection Diagram



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 Nails

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

### Disclosure

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

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BC CALC® Design Report



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

September 14, 2017 15:33:29

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

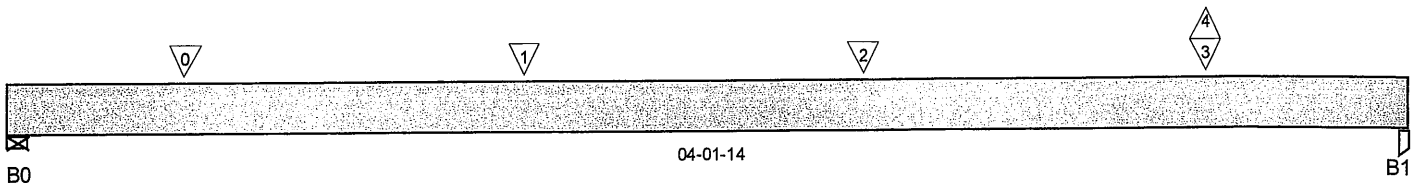
Description: Designs\Flush Beams\Basement\Flush Beams\B17(i3232

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-01-14

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

Bearing	Live	Dead	Snow	Wind
B0, 4-7/8"	221 / 0	97 / 0		
B1, 1-3/4"	323 / 2	156 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J5(i3145)	Conc. Pt. (lbs)	L	00-06-06	00-06-06	78	29			n/a
1	J5(i3155)	Conc. Pt. (lbs)	L	01-06-06	01-06-06	98	37			n/a
2	J5(i3149)	Conc. Pt. (lbs)	L	02-06-06	02-06-06	100	37			n/a
3	B2(i3150)	Conc. Pt. (lbs)	L	03-06-12	03-06-12	266	129			n/a
4	B2(i3150)	Conc. Pt. (lbs)	L	03-06-12	03-06-12	-2				n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	462 ft-lbs	12,704 ft-lbs	3.6%	1	02-06-06
End Shear	431 lbs	5,785 lbs	7.4%	1	03-02-10
Total Load Defl.	L/999 (0.003")	n/a	n/a	6	02-03-06
Live Load Defl.	L/999 (0.002")	n/a	n/a	8	02-03-06
Max Defl.	0.003"	n/a	n/a	6	02-03-06
Span / Depth	4.7	n/a	n/a		00-00-00

### Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise 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	4-7/8" x 1-3/4"	453 lbs	9.9%	4.4%	Unspecified
B1 Post	1-3/4" x 1-3/4"	680 lbs	27.3%	18.2%	Unspecified

### Notes

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

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

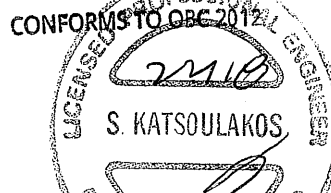
Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



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**SITE COPY**

DWG NO. TAM 9724-18  
STRUCTURAL  
COMPONENT ONLY

BC CALC® Design Report



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

September 14, 2017 15:33:28

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

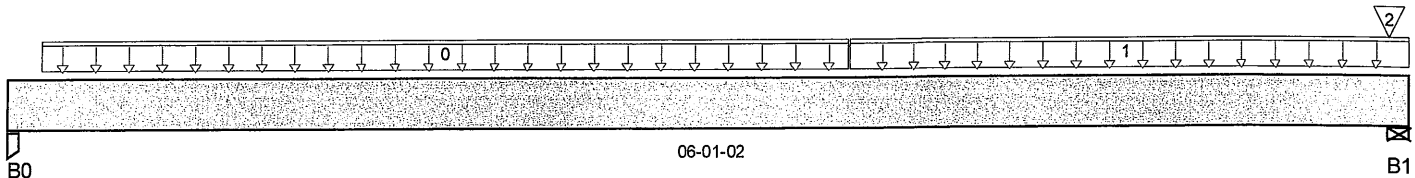
Description: Designs\Flush Beams\Basement\Flush Beams\B18(i3315

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 06-01-02

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

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	31 / 0	26 / 0		
B1, 3-3/8"	69 / 0	41 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-01-12	03-07-12	7	3			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-07-12	06-01-02	30	11			n/a
2	FC2 Floor Material	Conc. Pt. (lbs)	L	06-00-01	06-00-01	1				n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	150 ft-lbs	12,704 ft-lbs	1.2%	1	03-08-13
End Shear	84 lbs	5,785 lbs	1.5%	1	05-00-04
Total Load Defl.	L/999 (0.003")	n/a	n/a	6	03-01-10
Live Load Defl.	L/999 (0.001")	n/a	n/a	8	03-01-10
Max Defl.	0.003"	n/a	n/a	6	03-01-10
Span / Depth	7.3	n/a	n/a		00-00-00

### Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	1-3/4" x 1-3/4"	79 lbs	3.2%	2.1%	Unspecified
B1 Wall/Plate	3-3/8" x 1-3/4"	154 lbs	1.8%	2.1%	Unspecified

### Notes

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

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

Calculations assume member is fully braced.

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

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

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 Basementl...B19L(i3318)

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

September 14, 2017 15:33:28

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: S38-6 BAROSSA 6-SUNKEN.mmdl

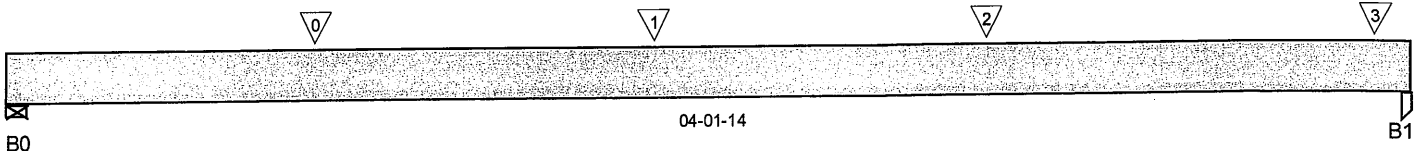
Description: Designs\Flush Beams\Basement\Flush Beams\B19L(i331

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-01-14

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

Bearing	Live	Dead	Snow	Wind
B0, 5-7/16"	207 / 0	114 / 0		
B1, 3-1/2"	236 / 0	128 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J5(i3319)	Conc. Pt. (lbs)	L	00-10-14	00-10-14	118	59			n/a
1	J5(i3290)	Conc. Pt. (lbs)	L	01-10-14	01-10-14	118	59			n/a
2	J5(i3294)	Conc. Pt. (lbs)	L	02-10-14	02-10-14	133	67			n/a
3	J5(i3292)	Conc. Pt. (lbs)	L	04-00-10	04-00-10	74	37			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	01-10-14
End Shear	351 lbs	5,785 lbs	6.1%	1	03-00-14
Total Load Defl.	L/999 (0.003")	n/a	n/a	4	02-01-14
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	02-01-14
Max Defl.	0.003"	n/a	n/a	4	02-01-14
Span / Depth	4.5	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	5-7/16" x 1-3/4"	453 lbs	8.9%	3.9%	Unspecified
B1 Post	3-1/2" x 1-3/4"	514 lbs	10.3%	6.9%	Unspecified

## Notes

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

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

Calculations assume member is fully braced.

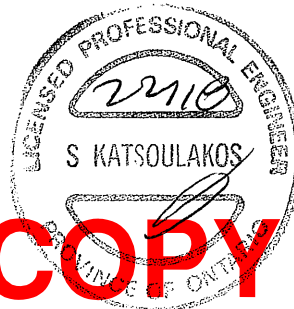
Resistance Factor phi has been applied to all presented results per CSA O86.

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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**SITE COPY**

DWG NO. TAM 9726-8  
STRUCTURAL  
COMPONENT ONLY

BC CALC® Design Report  
Build 6215

1st Floor\Flush Beams\B28A(i3677)

Dry | 2 spans | L cant.

February 16, 2018 08:01:52

Job name:

File name: S38-6 BAROSSA 6EL C.mmdl

Address:

Description: 1st Floor\Flush Beams\B28A(i3677)

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

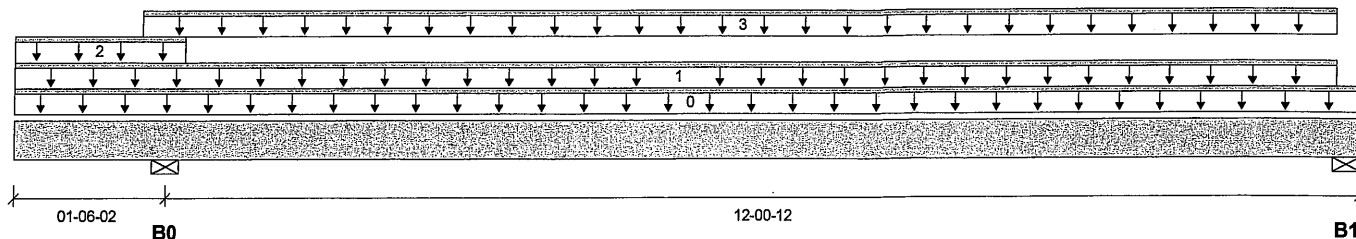
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	334 / 0	193 / 0	535 / 0	
B1, 5-1/2"	240 / 6	116 / 0	0 / 29	

### 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	13-06-14		5			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-04-02	21	8			n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-00-00	01-08-07	33	30	297		n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	01-03-06	13-04-02	19	7			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,412 ft-lbs	11,610 ft-lbs	12.2 %	45	07-05-02
Neg. Moment	-603 ft-lbs	-11,610 ft-lbs	5.2 %	49	01-06-02
End Shear	417 lbs	5,785 lbs	7.2 %	45	12-03-14
Cont. Shear	436 lbs	5,785 lbs	7.5 %	13	02-06-06
Total Load Deflection	L/999 (0.097")	n/a	n/a	108	07-05-02
Live Load Deflection	L/999 (0.067")	n/a	n/a	160	07-03-05
Total Neg. Defl.	2xL/1,998 (-0.039")	n/a	n/a	108	00-00-00
Max Defl.	0.097"	n/a	n/a	108	07-05-02
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"	1,210 lbs	23.5 %	10.3 %	Unspecified
B1	Wall/Plate 5-1/2" x 1-3/4"	505 lbs	9.8 %	4.3 %	Unspecified

### Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Calculations assume member is fully braced.  
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.

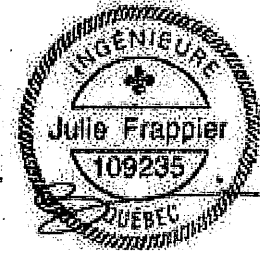
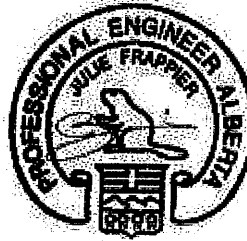
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### Disclosure

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. 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 (800)232-0788 before installation.

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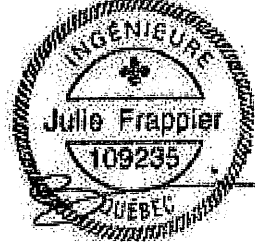
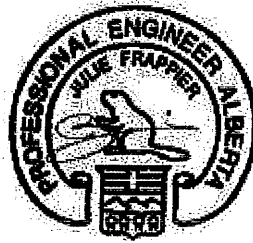
## Maximum Floor Spans

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

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

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

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



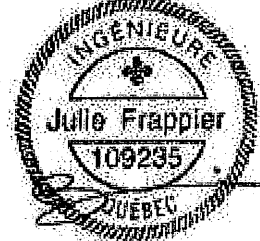
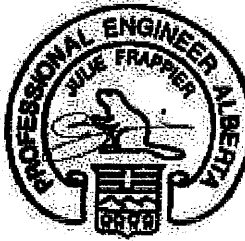
## Maximum Floor Spans

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

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



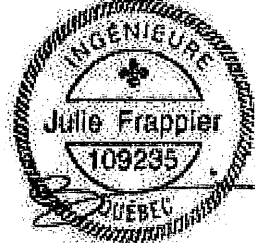
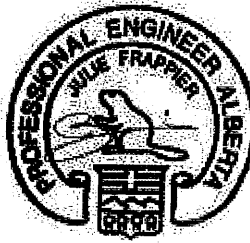
## Maximum Floor Spans

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

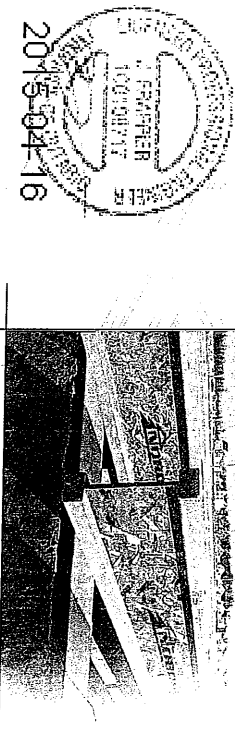
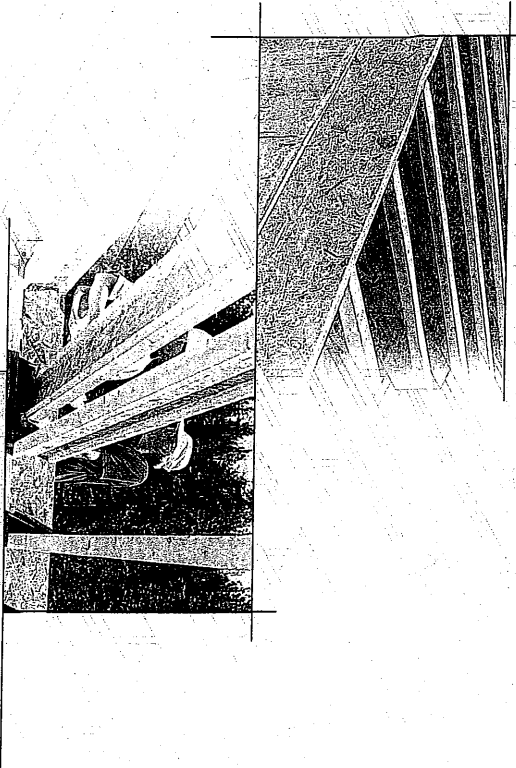
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"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

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

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



# INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:

2015-04-16



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.

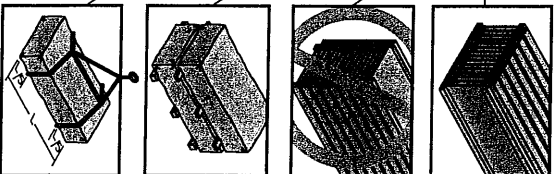
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines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



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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

1. The serviceability 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 CGCS-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 for the intermediate bearings. 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 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 C086-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm  
1 foot = 0.305 m

**RECOMMENDATIONS:**

- A **bearing stiffener** is required in all engineered applications with factored reactions greater than shown in the H-101 stiffness table found of the *H-101 Construction Guide* (C101). The gap between the stiffener and the flange is at the top.

Flange width  
2-1/2" or 3-1/2"

Approx. 2" I

Approx. 2" I

Approx. 2" I

1/8" - 1/4" Gap

(4) 2-1/2" nails,  
3" nails required  
for I-joists with 3-1/2"  
flange width

No Gap

**BEARING STIFFENER**  
(bearing stiffener)

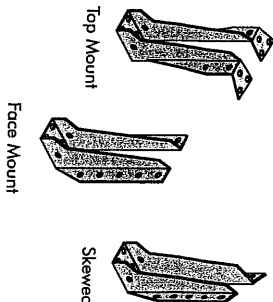
Tight Joint No Gap

Gap

Joist Depth	Joist Series	Simple spans				Multiple spans			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
120	120	5.1	1.42	13.9	3.5	16.3	5.4	14.10	14.7
100	100	6.11	1.52	14.8	4.9	17.5	6.5	15.10	15.5
80	80	6.3	1.54	14.10	4.1	17.7	6.7	16.0	16.1
60	60	7.1	1.61	15.6	5.7	18.7	7.4	16.9	16.1
40	40	7.3	1.63	15.8	5.9	18.7	7.4	16.9	16.1
20	20	16.3	1.6	15.8	5.9	18.10	7.6	6.1	17.0
10	10	16.3	1.6	15.8	5.9	18.4	7.3	6.8	16.7
5	5	18.1	1.7	16.5	6.6	20.0	18.6	17.9	17.7
3	3	18.4	1.73	16.7	6.9	20.3	18.9	18.0	18.1
2	2	19.6	1.8	17.4	12.5	21.6	19.1	19.0	19.1
1	1	19.3	1.83	17.6	12.7	21.9	20.2	19.3	19.4
0	0	20.2	1.87	17.10	12.11	22.3	20.7	19.8	19.9
0	0	20.4	1.89	17.11	12.0	22.5	20.9	9.10	19.1
0	0	20.1	1.87	17.10	12.0	22.2	20.6	9.3	19.4
0	0	20.5	1.81	18.1	18.2	22.7	20.1	20.1	20.3
0	0	21.7	20.0	19.1	18.2	23.10	22.1	21.4	21.2
0	0	21.1	20.3	19.4	19.5	24.3	22.5	21.5	21.6
0	0	22.5	20.8	19.9	19.10	24.9	23.10	21.5	21.6
0	0	22.2	20.1	19.11	20.0	25.0	23.1	22.0	22.2
0	0	22.3	20.8	19.9	19.10	24.7	22.9	21.9	21.10
0	0	22.6	21.9	20.9	20.10	25.0	23.0	22.1	22.3
0	0	22.11	22.1	21.5	21.2	26.5	24.5	23.3	23.4
0	0	22.5	22.6	21.5	21.6	26.11	24.10	23.9	23.9
0	0	24.8	22.9	21.9	21.10	27.3	25.2	24.0	24.1

## NORDIC I-JOIST SERIES

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.



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

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	23 pieces per unit
S-PF No.2	19501 MSR	2100F MSR	1950F MSR	2100F MSR	2400F MSR	NPG	Lumber

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

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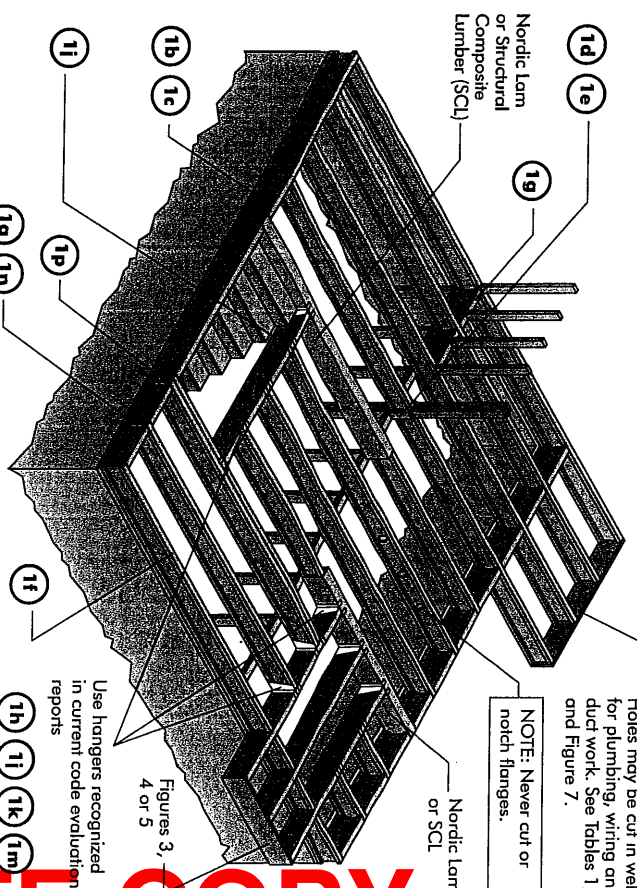
# INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, consult 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

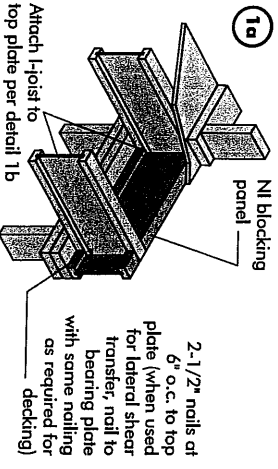
Some framing requirements such as erection bracing and blocking panels have been omitted for clarity.



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.

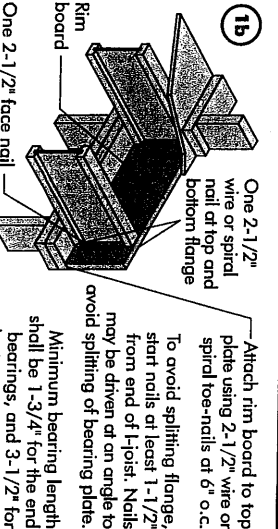
Use hangers recognized in current code evaluation reports

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.



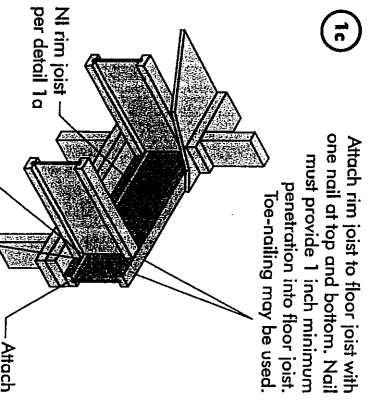
Blocking Panel or NI Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

\*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.



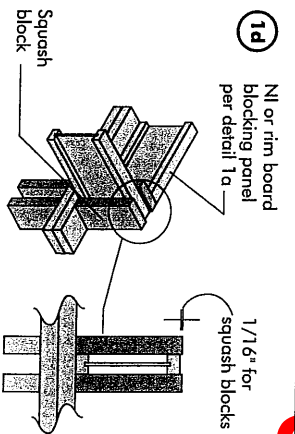
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

\*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
	6,600

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

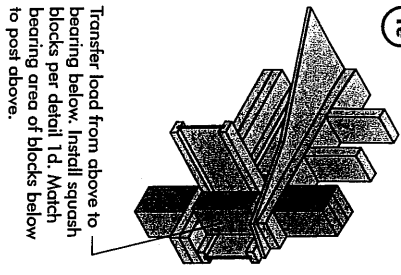


Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)
3-1/2" wide	5,500
5-1/2" wide	8,500
1-1/8" Rim Board Plus	4,300
	6,600

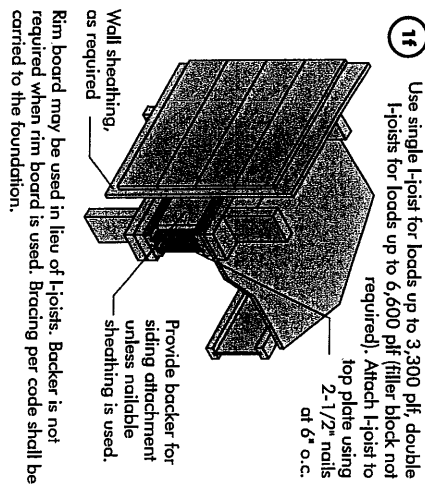
Provide lateral bracing per detail 1a, 1b, or 1c

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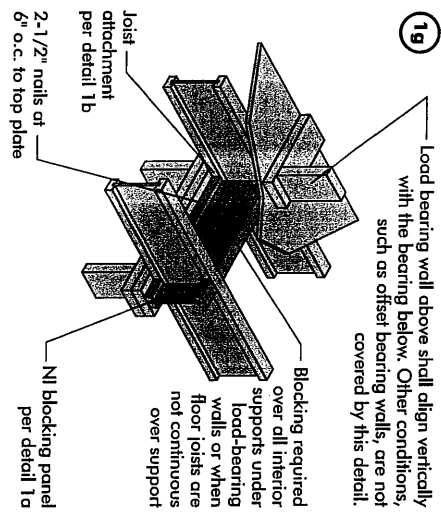
1e



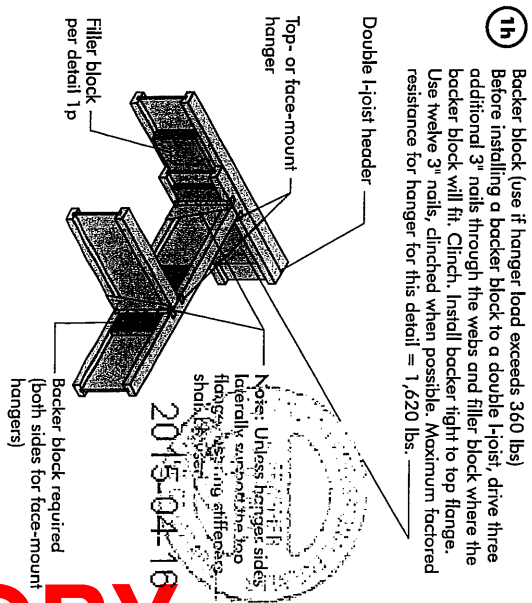
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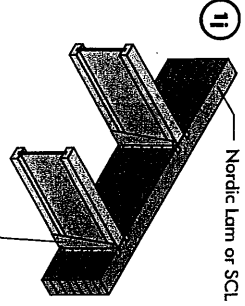
1g



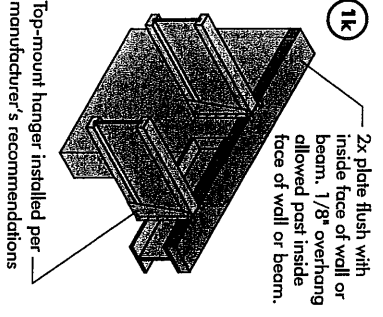
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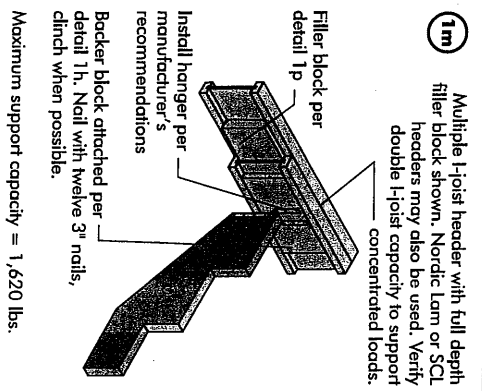
1i



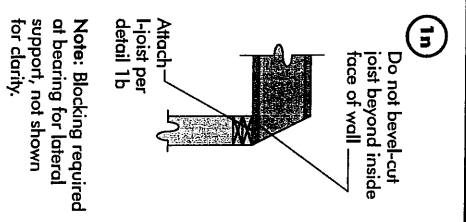
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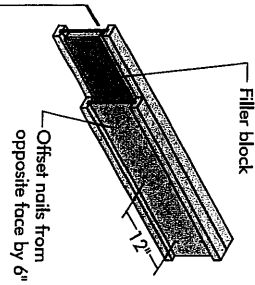
1m



1n



1p



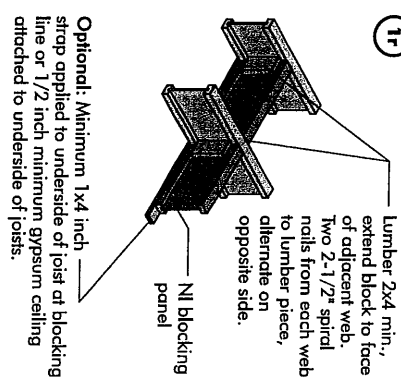
Notes:

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 lbf/ft. Verify double I-joist capacity.

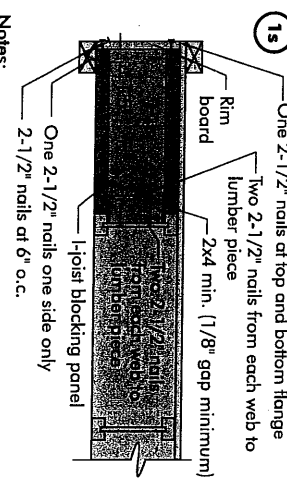
FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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

1r



1s



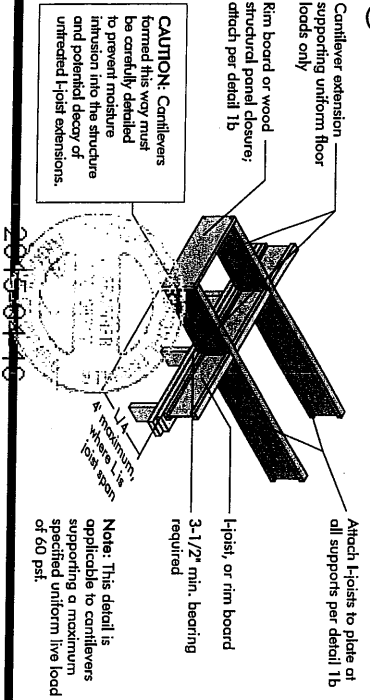
Notes:

- 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 spiral in this detail.

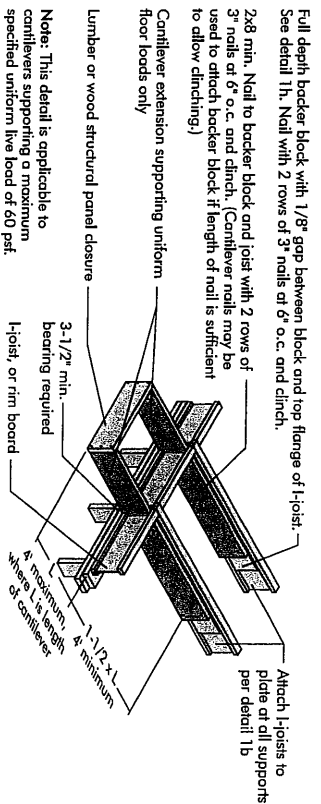
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## CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

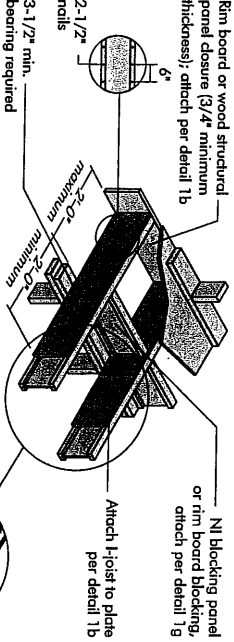


### 35 LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



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

### 40 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.

### 45 Alternate Method 2 — DOUBLE I-JOIST

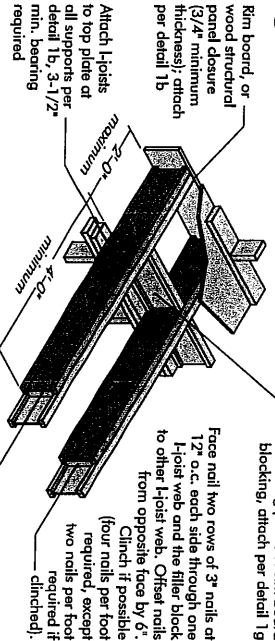
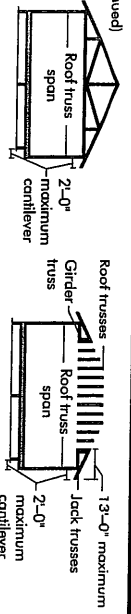


FIGURE 4 (continued)  
See table below for N1 reinforcement requirements at cantilever.



### CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)		ROOF LOADING (UNFACTORED)			
	LL = 30 psf, DL = 15 psf	JOIST SPACING (in.)	LL = 40 psf, DL = 15 psf	JOIST SPACING (in.)	LL = 50 psf, DL = 15 psf	JOIST SPACING (in.)
20	12	12	12	12	12	12
22	12	12	12	12	12	12
24	12	12	12	12	12	12
26	12	12	12	12	12	12
28	12	12	12	12	12	12
30	12	12	12	12	12	12
32	12	12	12	12	12	12
34	12	12	12	12	12	12
36	12	12	12	12	12	12
38	12	12	12	12	12	12
40	12	12	12	12	12	12
42	12	12	12	12	12	12

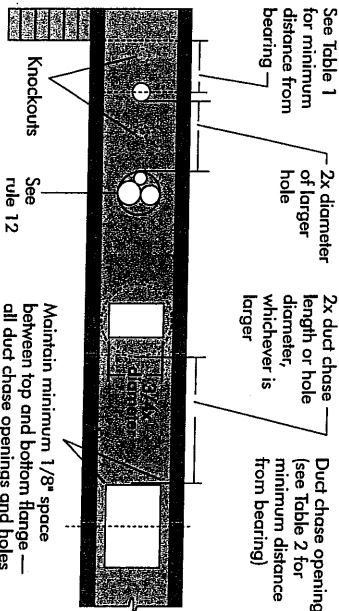
1. N = No reinforcement required.
2. N1 reinforced with 3/4" wood structural panel on one side only.
3. N2 reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. For larger openings, or multiple 3'-0" width openings spaced less than 8'-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

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

FIGURE 7  
FIELD-CUT HOLE LOCATOR



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

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

Minimum distance from inside face of any support to centre of hole (ft-in.)															Span adjustment Factor		
Joist Depth	Joist Series	2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4	
0	0	0.2	1.5	2.1	2.1	1.8	5.0	6.0	6.4								1.0
10	10	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
20	20	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
30	30	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
40	40	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
50	50	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
60	60	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
70	70	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
80	80	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
90	90	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
100	100	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
110	110	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
120	120	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
130	130	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
140	140	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
150	150	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
160	160	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
170	170	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
180	180	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
190	190	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
200	200	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
210	210	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
220	220	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
230	230	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
240	240	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
250	250	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
260	260	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
270	270	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
280	280	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
290	290	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
300	300	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
310	310	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
320	320	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
330	330	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
340	340	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
350	350	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
360	360	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
370	370	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
380	380	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
390	390	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
400	400	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
410	410	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
420	420	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
430	430	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
440	440	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
450	450	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
460	460	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
470	470	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
480	480	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
490	490	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
500	500	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
510	510	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
520	520	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
530	530	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
540	540	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
550	550	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
560	560	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
570	570	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
580	580	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
590	590	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
600	600	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
610	610	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
620	620	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
630	630	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
640	640	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
650	650	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
660	660	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
670	670	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
680	680	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
690	690	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
700	700	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
710	710	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
720	720	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
730	730	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
740	740	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
750	750	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
760	760	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
770	770	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
780	780	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
790	790	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
800	800	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
810	810	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
820	820	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
830	830	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
840	840	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
850	850	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
860	860	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
870	870	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
880	880	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
890	890	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
900	900	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
910	910	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
920	920	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
930	930	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
940	940	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
950	950	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
960	960	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
970	970	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
980	980	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
990	990	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0
1000	1000	0.2	1.5	3.0	4.1	4.1	5.0	6.0	6.4								1.0

1. Above table may be used for l-toist spacing of 24 inches on centre or less.

2. Hole location distance is measured from inside face of supports to centre of hole.

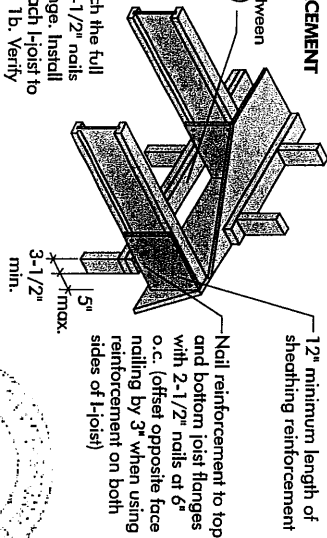
3. Distances in this chart are based on uniformly loaded joists.

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

## 5a SHEATHING REINFORCEMENT

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

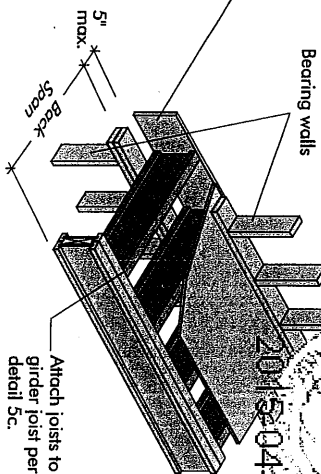
**Note:** Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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



## 5b SET-BACK DETAIL

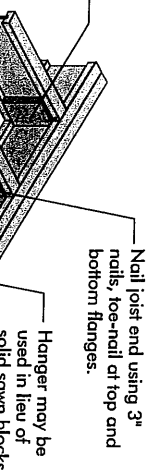
Kim board or wood structural panel closure attach per detail 1b.

**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.

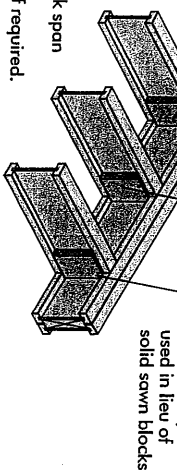


FIGURE 5 (continued)

See table below for NI reinforcement requirements at cantilever.

Roof trusses  
Roof truss span  
2-0" maximum cantilever  
5" maximum

Roof trusses  
Roof truss span  
2-0" maximum cantilever  
5" maximum

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

## BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)				ROOF LOADING (UNFACTORED)							
		LL = 30 psf, DL = 15 psf JOIST SPACING (in.)				LL = 40 psf, DL = 15 psf JOIST SPACING (in.)				LL = 50 psf, DL = 15 psf JOIST SPACING (in.)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
21-1/2"	26	1	X	X	X	2	X	X	X	3	X	X	X
	28	1	X	X	X	2	X	X	X	3	X	X	X
	30	2	X	X	X	2	X	X	X	3	X	X	X
	32	2	X	X	X	2	X	X	X	3	X	X	X
	34	2	X	X	X	2	X	X	X	3	X	X	X
21-7/8"	26	2	X	X	X	1	X	X	X	1	X	X	X
	28	2	X	X	X	1	X	X	X	1	X	X	X
	30	2	X	X	X	1	X	X	X	1	X	X	X
	32	2	X	X	X	2	X	X	X	2	X	X	X
	34	2	X	X	X	2	X	X	X	2	X	X	X
14"	26	1	1	2	X	2	2	X	X	1	1	2	X
	28	1	1	2	X	2	2	X	X	1	1	2	X
	30	2	2	X	X	2	2	X	X	2	2	X	X
	32	2	2	X	X	2	2	X	X	2	2	X	X
	34	2	2	X	X	2	2	X	X	2	2	X	X
16"	26	1	1	2	X	2	2	X	X	2	2	X	X
	28	1	1	2	X	2	2	X	X	2	2	X	X
	30	2	2	X	X	2	2	X	X	2	2	X	X
	32	2	2	X	X	2	2	X	X	2	2	X	X
	34	2	2	X	X	2	2	X	X	2	2	X	X
	36	2	2	X	X	2	2	X	X	2	2	X	X
	38	2	2	X	X	2	2	X	X	2	2	X	X
	40	2	2	X	X	2	2	X	X	2	2	X	X
	42	2	2	X	X	2	2	X	X	2	2	X	X
		42	2	2	X	X	2	2	X	X	2	2	X

1. N = No reinforcement required.  
1 = NI reinforced with 3/4" wood structural panel on one side only.  
2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.  
X = Try a deeper joist or closer spacing.

2. 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.

3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.

4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge beam, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.

5. Cantilevered joists supporting girder trusses, or roof beams may require additional reinforcing.

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# 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 topped 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 and joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

## FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Common Wire or Spiral Nails	Nail Size and Type	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.

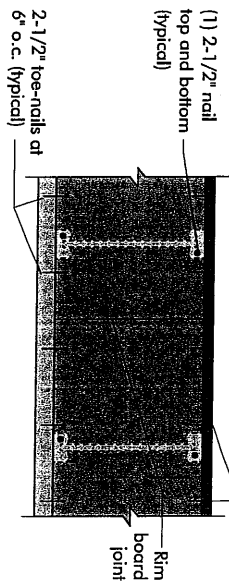
# RIM BOARD INSTALLATION DETAILS

## 8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

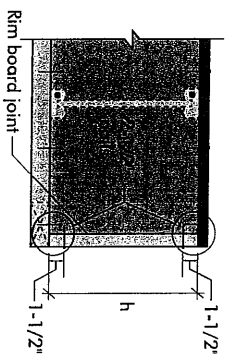
### Rim board Joint Between Floor Joists

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

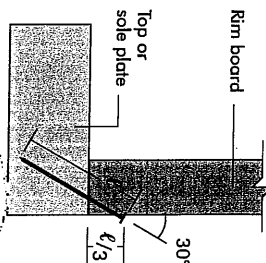
(1) 2-1/2" nail top and bottom (typical)



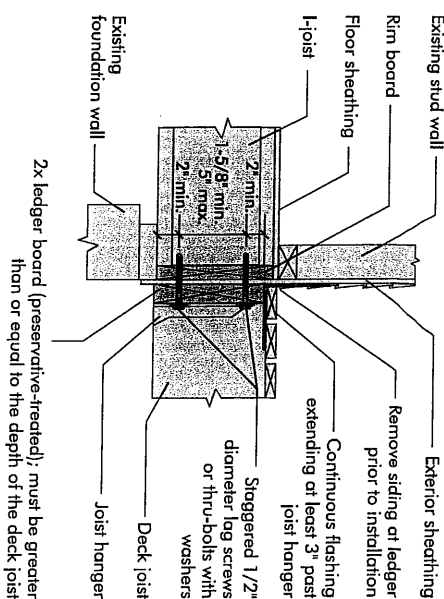
### Rim board Joint at Corner



## 8b TOE-NAIL CONNECTION AT RIM BOARD



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



2015-04-16

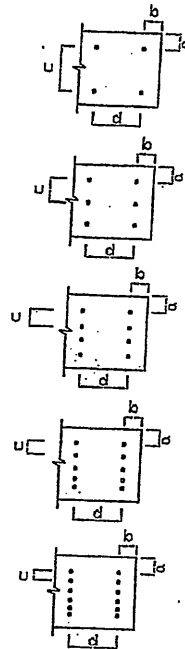
## PRODUCT WARRANTY

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

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

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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 NO X SEE

DWG #TAMN1001-14

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