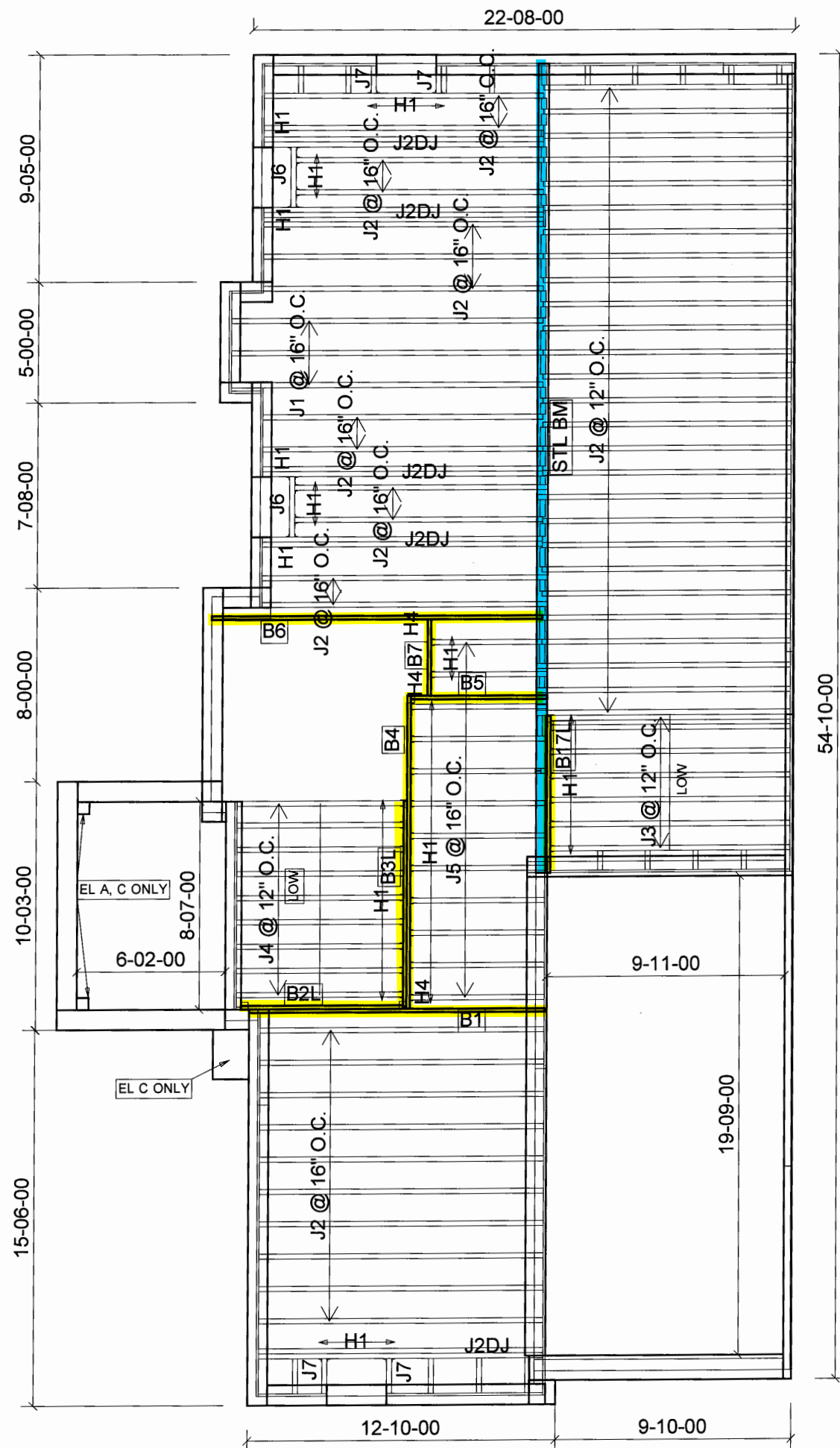
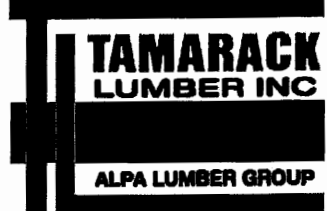




Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	3
J2	12-00-00	9 1/2" NI-40x	1	50
J2DJ	12-00-00	9 1/2" NI-40x	2	10
J3	10-00-00	9 1/2" NI-40x	1	7
J4	8-00-00	9 1/2" NI-40x	1	9
J5	6-00-00	9 1/2" NI-40x	1	12
J6	4-00-00	9 1/2" NI-40x	1	2
J7	2-00-00	9 1/2" NI-40x	1	4
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3L	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
28	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
3	H4	HUS1.81/10

TOWN OF BRADFORD WEST GWILLIMBURY
BUILDING DEPARTMENT
PLANS EXAMINED
ONTARIO BUILDING CODE APPLIES
DATE: 2018-10-23
INSPECTOR: BG



FROM PLAN DATED: OCT 2016
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY ESTATES
MODEL: SD25-5C SONOMA 5
ELEVATION: A,C
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

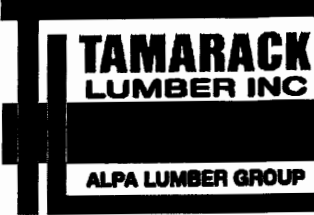
NOTES:
REFER TO THE NORDIC
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SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
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FIGURE 1. CANTILEVERED JOISTS
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I-JOIST 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/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 02/03/2018

1st FLOOR

SUNKEN

SITE COPY



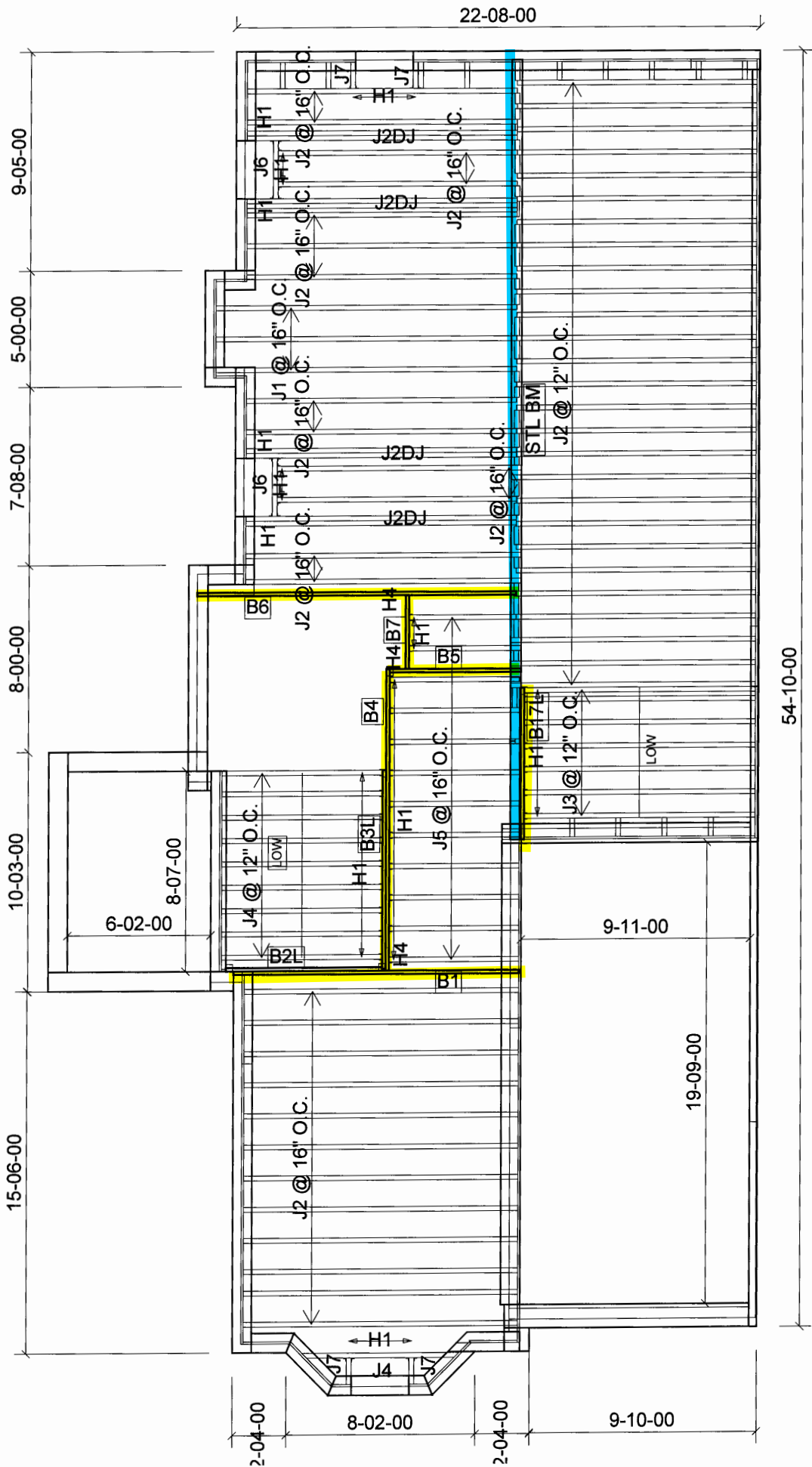
FROM PLAN DATED: OCT 2016
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY ESTATES
MODEL: SD25-5C SONOMA 5
ELEVATION: B
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

NOTES:
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LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 02/03/2018

1st FLOOR

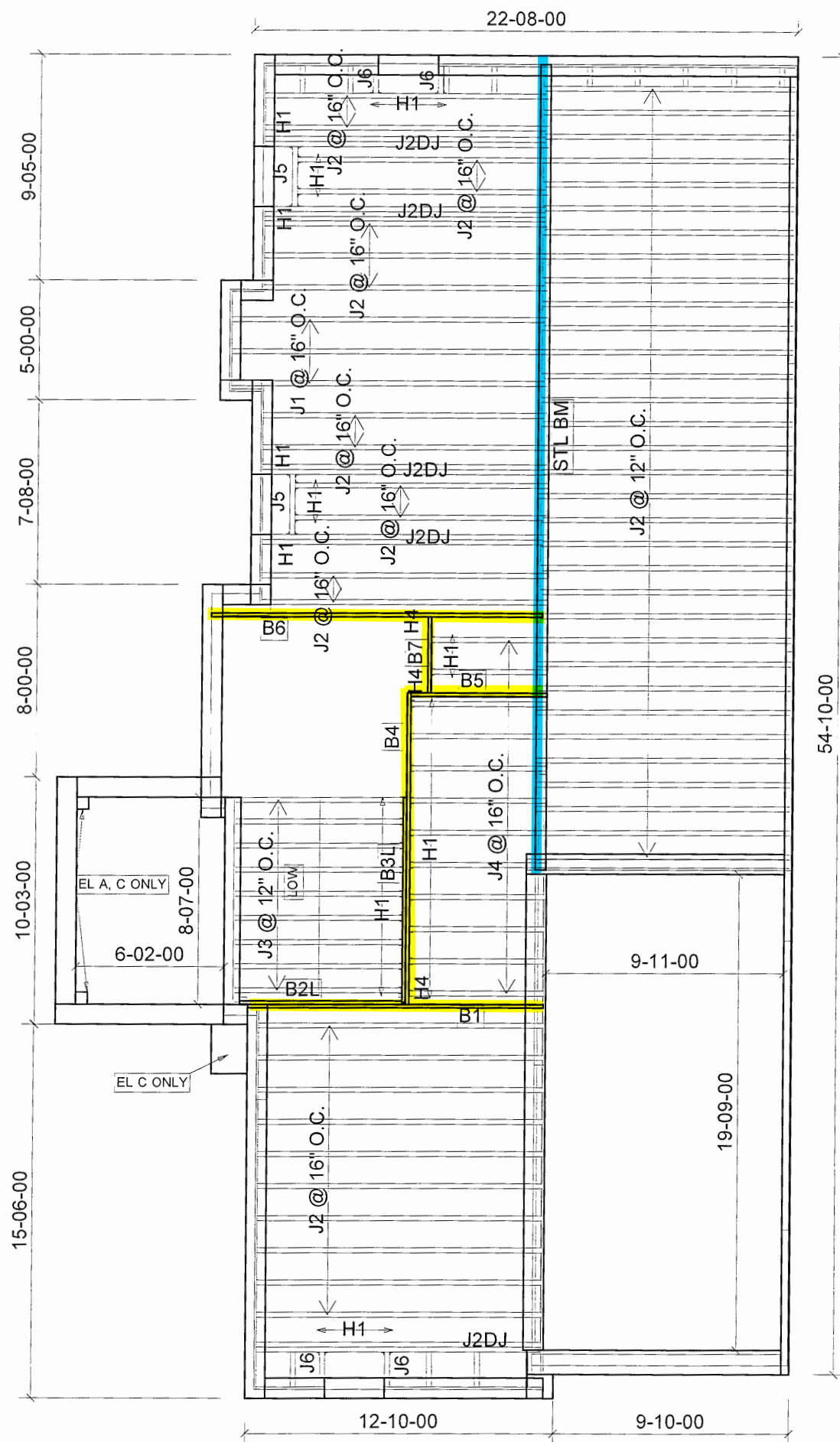
SUNKEN



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	3
J2	12-00-00	9 1/2" NI-40x	1	52
J2DJ	12-00-00	9 1/2" NI-40x	2	8
J3	10-00-00	9 1/2" NI-40x	1	7
J4	8-00-00	9 1/2" NI-40x	1	10
J5	6-00-00	9 1/2" NI-40x	1	12
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
B4	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3L	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

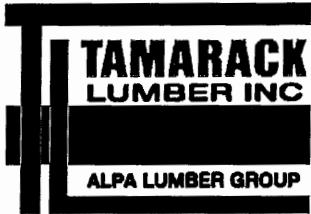
Connector Summary		
Qty	Manuf	Product
28	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
8	H1	IUS2.56/9.5
3	H4	HUS1.81/10

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	3
J2	12-00-00	9 1/2" NI-40x	1	56
J2DJ	12-00-00	9 1/2" NI-40x	2	10
J3	8-00-00	9 1/2" NI-40x	1	9
J4	6-00-00	9 1/2" NI-40x	1	12
J5	4-00-00	9 1/2" NI-40x	1	2
J6	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
B4	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3L	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
21	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
3	H4	HUS1.81/10



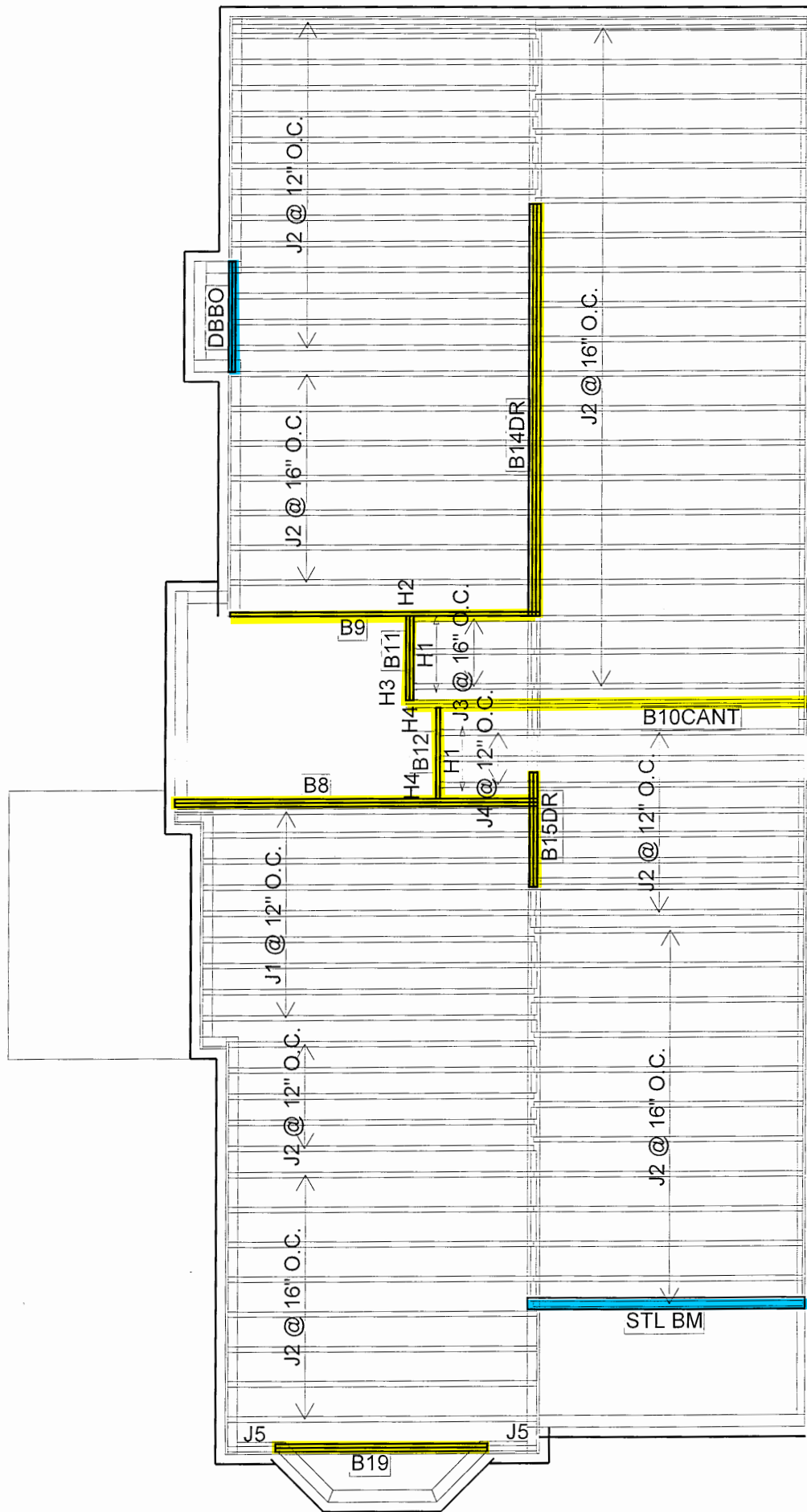
FROM PLAN DATED: OCT 2016
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY ESTATES
MODEL: SD25-5C SONOMA 5
ELEVATION: A,C
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

NOTES:
REFER TO THE NORDIC
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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: 30/08/2017

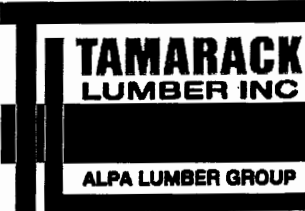
1st FLOOR

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	9
J2	12-00-00	9 1/2" NI-40x	1	74
J3	6-00-00	9 1/2" NI-40x	1	3
J4	4-00-00	9 1/2" NI-40x	1	3
J5	2-00-00	9 1/2" NI-40x	1	2
B10CANT	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B19	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B11	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14DR	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/9.5
3	H1	IUS2.56/9.5
1	H2	HGUS410
1	H3	HUC410
2	H4	HUS1.81/10



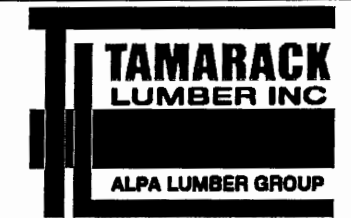
FROM PLAN DATED: OCT 2016
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY ESTATES
MODEL: SD25-5C SONOMA 5
ELEVATION: **B**
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

NOTES:
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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: 30/08/2017

2nd FLOOR

SITE COPY



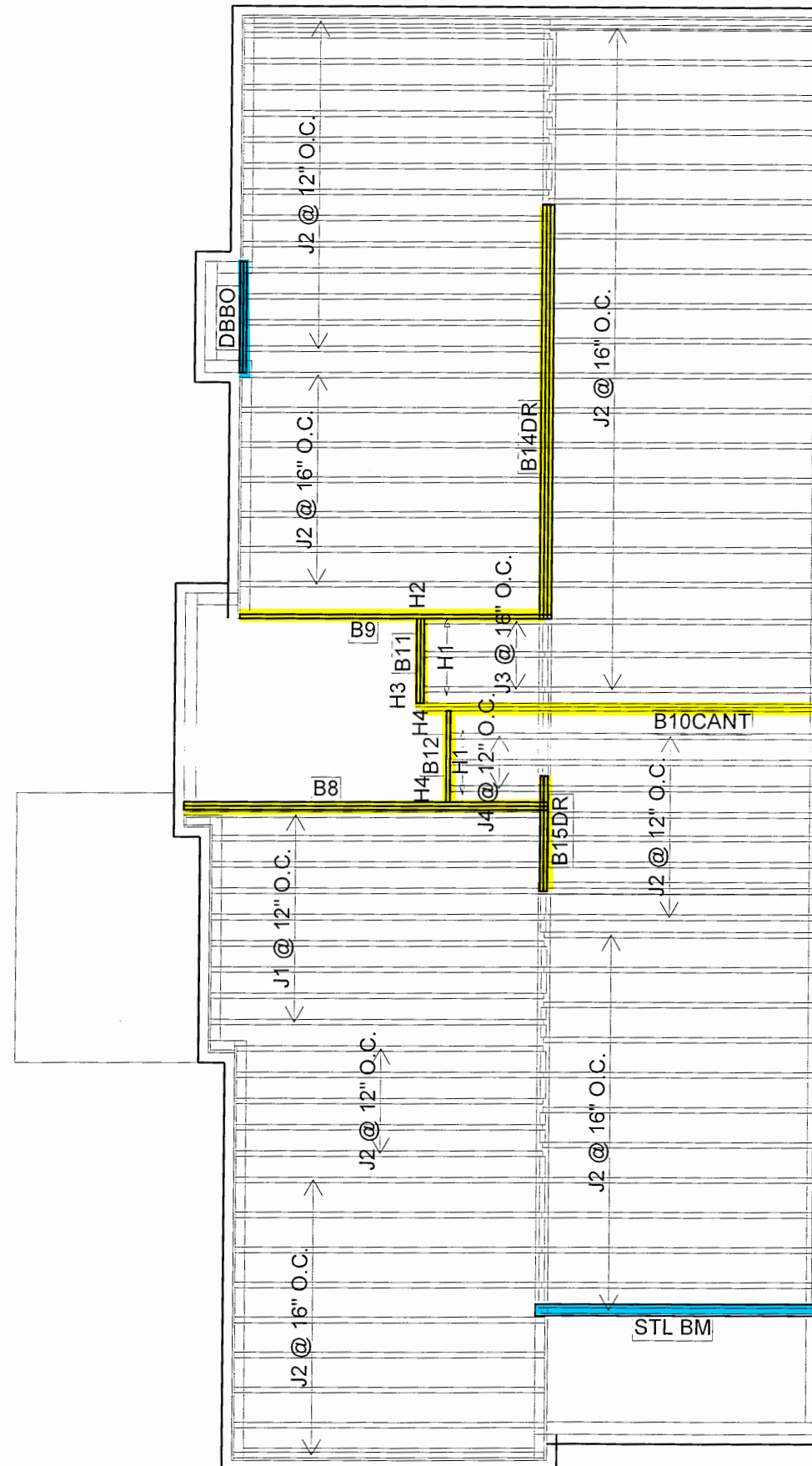
FROM PLAN DATED: OCT 2016
BUILDER: BAYVIEW WELLINGTON
SITE: GREEN VALLEY ESTATES
MODEL: SD25-5C SONOMA 5
ELEVATION: A,C
LOT:
CITY: BRADFORD
SALESMAN: M D
DESIGNER: CZ
REVISION:

NOTES:
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APPLICATION AS PER O.B.C. 9.30.6
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LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 30/08/2017

2nd FLOOR

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	9
J2	12-00-00	9 1/2" NI-40x	1	75
J3	6-00-00	9 1/2" NI-40x	1	3
J4	4-00-00	9 1/2" NI-40x	1	3
B10CANT	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B11	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14DR	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/9.5
3	H1	IUS2.56/9.5
1	H2	HGUS410
1	H3	HUC410
2	H4	HUS1.81/10



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i3504)

BC CALC® Design Report



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

August 30, 2017 13:10:09

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

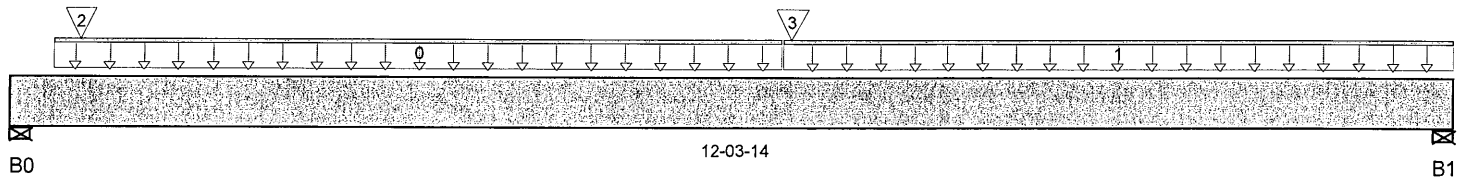
Description: Designs\Flush Beams\Basement\Flush Beams\B1(i3504)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 12-03-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 10"	542 / 0	328 / 0		
B1, 4-3/8"	572 / 0	331 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-04-08	06-07-00	18	9			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	06-07-00	12-03-14	27	13			n/a
2	E1(i694)	Conc. Pt. (lbs)	L	00-07-04	00-07-04	35	29			n/a
3	B4(i3540)	Conc. Pt. (lbs)	L	06-07-14	06-07-14	818	440			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,819 ft-lbs	12,704 ft-lbs	45.8%	1	06-07-14
End Shear	1,200 lbs	5,785 lbs	20.7%	1	11-02-00
Total Load Defl.	L/434 (0.311")	0.562"	55.3%	4	06-06-01
Live Load Defl.	L/680 (0.199")	0.375"	53%	5	06-06-01
Max Defl.	0.311"	n/a	n/a	4	06-06-01
Span / Depth	14.2	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 Wall/Plate	10" x 1-3/4"	1,224 lbs	13.1%	5.7%	Unspecified
B1 Wall/Plate	4-3/8" x 1-3/4"	1,272 lbs	31.1%	13.6%	Unspecified

Notes

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

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



Boise Cascade

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B2L(i3649)

BC CALC® Design Report



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

August 30, 2017 13:10:09

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

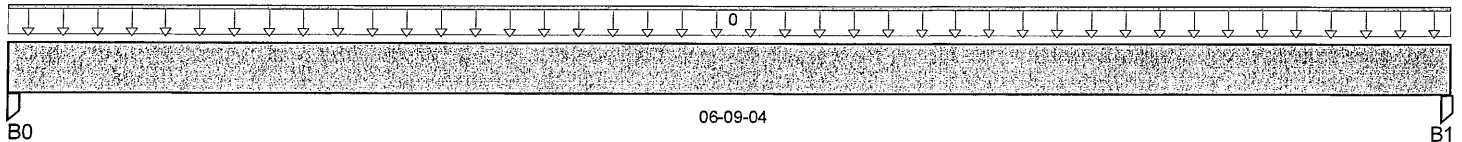
Description: Designs\Flush Beams\Basement\Flush Beams\B2L(i3649

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 06-09-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	40 / 0	37 / 0		
B1, 1-3/4"	39 / 0	35 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-09-04	12	6			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	161 ft-lbs	12,704 ft-lbs	1.3%	1	03-05-08
End Shear	73 lbs	5,785 lbs	1.3%	1	01-01-00
Total Load Defl.	L/999 (0.003")	n/a	n/a	4	03-05-08
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	03-05-08
Max Defl.	0.003"	n/a	n/a	4	03-05-08
Span / Depth	8.2	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	3-1/2" x 1-3/4"	107 lbs	2.1%	1.4%	Unspecified
B1 Post	1-3/4" x 1-3/4"	102 lbs	4.1%	2.7%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

BC CALC® Design Report



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

August 30, 2017 13:10:08

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

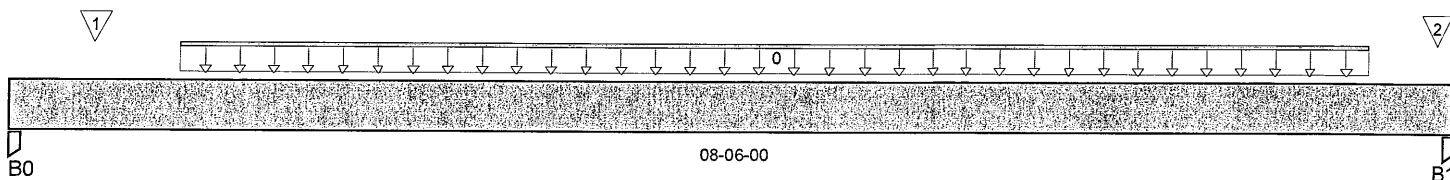
Description: Designs\Flush Beams\Basement\Flush Beams\B3L(i3623

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 08-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-1/2"	573 / 0	304 / 0		
B1, 3-1/2"	612 / 0	325 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	01-00-00	08-00-00	143	71			n/a
1	J4 (i3651)	Conc. Pt. (lbs)	L	00-06-00	00-06-00	113	56			n/a
2	J4 (i3641)	Conc. Pt. (lbs)	L	08-04-12	08-04-12	71	36			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,559 ft-lbs	12,704 ft-lbs	20.1%	1	04-06-00
End Shear	1,136 lbs	5,785 lbs	19.6%	1	07-05-00
Total Load Defl.	L/999 (0.086")	n/a	n/a	4	04-03-00
Live Load Defl.	L/999 (0.056")	n/a	n/a	5	04-03-00
Max Defl.	0.086"	n/a	n/a	4	04-03-00
Span / Depth	10.3	n/a	n/a		00-00-00

Disclosure

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Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	2-1/2" x 1-3/4"	1,239 lbs	34.9%	23.2%	Unspecified
B1 Post	3-1/2" x 1-3/4"	1,325 lbs	26.7%	17.7%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA 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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Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i3540)

BC CALC® Design Report



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

August 30, 2017 13:10:08

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

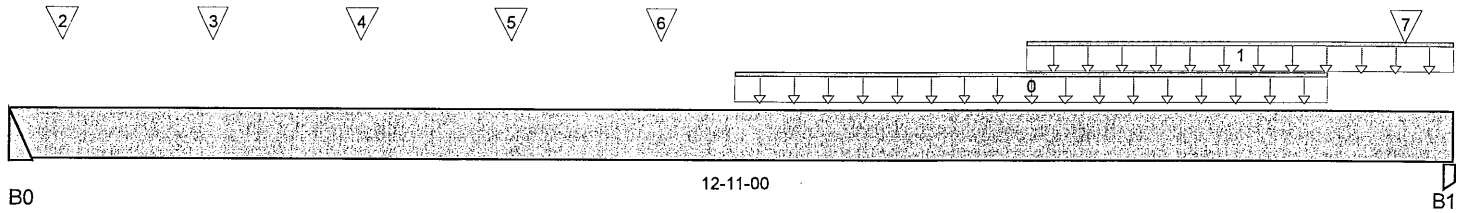
Description: Designs\Flush Beams\Basement\Flush Beams\B4(i3540)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 12-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	825 / 0	443 / 0		
B1, 3-1/2"	1,497 / 0	778 / 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	06-05-08	11-09-08	113	56			n/a
1	User Load	Unf. Lin. (lb/ft)	L	09-01-00	12-11-00	240	120			n/a
2	J5(i3601)	Conc. Pt. (lbs)	L	00-05-08	00-05-08	104	52			n/a
3	J5(i3551)	Conc. Pt. (lbs)	L	01-09-08	01-09-08	149	75			n/a
4	J5(i3492)	Conc. Pt. (lbs)	L	03-01-08	03-01-08	149	75			n/a
5	J5(i3608)	Conc. Pt. (lbs)	L	04-05-08	04-05-08	200	100			n/a
6	J5(i3477)	Conc. Pt. (lbs)	L	05-09-08	05-09-08	99	49			n/a
7	J5(i3521)	Conc. Pt. (lbs)	L	12-05-08	12-05-08	97	48			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,578 ft-lbs	12,704 ft-lbs	51.8%	1	07-01-08
End Shear	2,496 lbs	5,785 lbs	43.2%	1	11-10-00
Total Load Defl.	L/281 (0.538")	0.629"	85.5%	4	06-07-08
Live Load Defl.	L/429 (0.352")	0.419"	83.8%	5	06-07-08
Max Defl.	0.538"	n/a	n/a	4	06-07-08
Span / Depth	15.9	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	1,792 lbs	n/a	42%	HUS1.81/10
B1 Post	3-1/2" x 1-3/4"	3,218 lbs	64.7%	43.1%	Unspecified

Notes



Boise Cascade

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i3540)

BC CALC® Design Report



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

August 30, 2017 13:10:08

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B4(i354

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.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Disclosure

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Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B5(i3496)

BC CALC® Design Report



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

August 30, 2017 13:10:09

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports:

CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

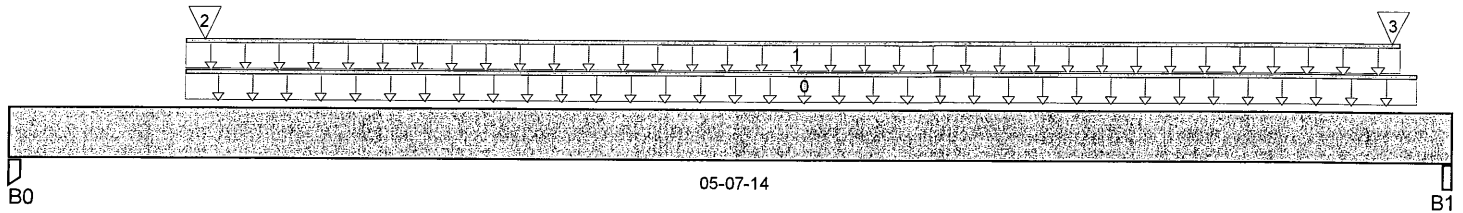
Description: Designs\Flush Beams\Basement\Flush Beams\B5(i3496)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 05-07-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	491 / 0	265 / 0		
B1, 5-5/16"	1,463 / 0	920 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-08-04	05-06-03	8	4			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-08-04	05-05-07	19	9			n/a
2	B7(i3526)	Conc. Pt. (lbs)	L	00-09-02	00-09-02	495	255			n/a
3	6(i949)	Conc. Pt. (lbs)	L	05-05-00	05-05-00	1,324	835			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	714 ft-lbs	12,704 ft-lbs	5.6%	1	00-09-02
End Shear	821 lbs	5,785 lbs	14.2%	1	00-11-04
Total Load Defl.	L/999 (0.009")	n/a	n/a	4	02-05-09
Live Load Defl.	L/999 (0.006")	n/a	n/a	5	02-04-14
Max Defl.	0.009"	n/a	n/a	4	02-05-09
Span / Depth	6.6	n/a	n/a		00-00-00

Disclosure

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Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	1-3/4" x 1-3/4"	1,067 lbs	42.9%	28.6%	Unspecified
B1 Beam	5-5/16" x 1-3/4"	3,345 lbs	67.4%	29.5%	Unspecified

Notes

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

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Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports:

CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

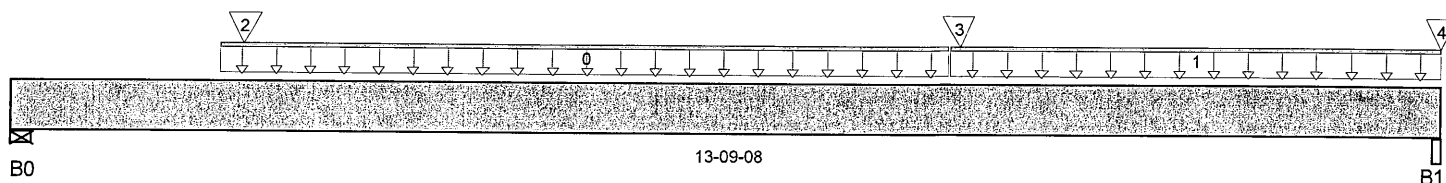
Description: Designs\Flush Beams\Basement\Flush Beams\B6(i3603)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 13-09-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	468 / 0	424 / 0		
B1, 2-11/16"	555 / 0	352 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-00-00	09-00-08	12	6			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	09-00-08	13-09-08	31	16			n/a
2	E7(i717)	Conc. Pt. (lbs)	L	02-02-12	02-02-12	260	308			n/a
3	B7(i3526)	Conc. Pt. (lbs)	L	09-01-06	09-01-06	489	252			n/a
4	6(i949)	Conc. Pt. (lbs)	L	13-09-04	13-09-04	40	32			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,500 ft-lbs	12,291 ft-lbs	36.6%	1	09-01-06
End Shear	1,224 lbs	5,785 lbs	21.2%	1	01-03-00
Total Load Defl.	L/425 (0.374")	0.662"	56.5%	4	07-01-08
Live Load Defl.	L/712 (0.223")	0.441"	50.6%	5	07-04-01
Max Defl.	0.374"	n/a	n/a	4	07-01-08
Span / Depth	16.7	n/a	n/a		00-00-00

Disclosure

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Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 1-3/4"	1,231 lbs	24%	10.5%	Unspecified
B1 Beam	2-11/16" x 1-3/4"	1,271 lbs	50.6%	22.2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 01-06-08, Bottom: 01-06-08.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

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Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports:

CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

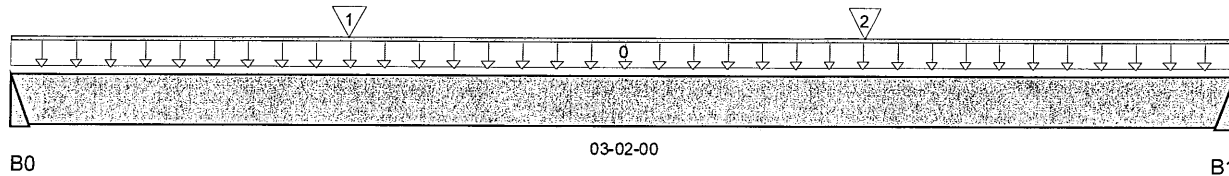
Description: Designs\Flush Beams\Basement\Flush Beams\B7(i3526)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 03-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	495 / 0	255 / 0		
B1	489 / 0	252 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	240	120			n/a
1	J5(i3554)	Conc. Pt. (lbs)	L	00-10-08	00-10-08	112	56			n/a
2	J5(i3513)	Conc. Pt. (lbs)	L	02-02-08	02-02-08	112	56			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	758 ft-lbs	12,704 ft-lbs	6%	1	01-07-00
End Shear	554 lbs	5,785 lbs	9.6%	1	02-02-08
Total Load Defl.	L/999 (0.003")	n/a	n/a	4	01-07-00
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	01-07-00
Max Defl.	0.003"	n/a	n/a	4	01-07-00
Span / Depth	3.7	n/a	n/a		00-00-00

Disclosure

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Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	1,062 lbs	n/a	24.9%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	1,048 lbs	n/a	24.5%	HUS1.81/10

Notes

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

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

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

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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(i3889)

BC CALC® Design Report



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

August 30, 2017 13:10:10

Build 5033

Job Name:

Address:

City, Province, Postal Code:BRADFORD,

Customer:

Code reports:

CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

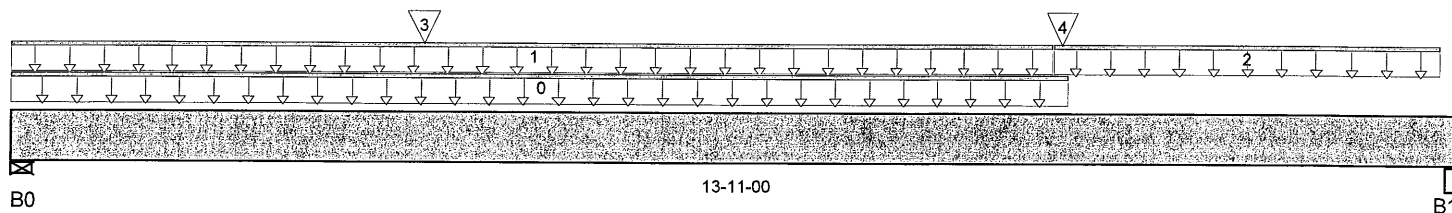
Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i3889)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 13-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	524 / 0	733 / 0		
B1, 3-1/2"	602 / 0	592 / 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	10-02-04		60			n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-00-08	10	5			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	10-00-08	13-09-04	20	10			n/a
3	User Load	Conc. Pt. (lbs)	L	03-11-08	03-11-08	420	218			n/a
4	B12(i3739)	Conc. Pt. (lbs)	L	10-01-06	10-01-06	535	276			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,882 ft-lbs	25,408 ft-lbs	23.2%	1	07-04-09
End Shear	1,590 lbs	11,571 lbs	13.7%	1	12-10-00
Total Load Defl.	L/556 (0.287")	0.665"	43.1%	4	07-00-00
Live Load Defl.	L/1,195 (0.134")	0.443"	30.1%	5	07-02-04
Max Defl.	0.287"	n/a	n/a	4	07-00-00
Span / Depth	16.8	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	1,702 lbs	16.6%	7.2%	Unspecified
B1 Beam	3-1/2" x 3-1/2"	1,643 lbs	12.3%	11%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

SITE COPY



Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B8(i3889)

BC CALC® Design Report



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

August 30, 2017 13:10:10

Build 5033

Job Name:

Address:

City, Province, Postal Code:BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

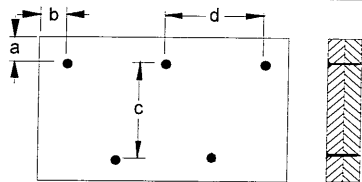
Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i3889

Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram

a minimum = 2" c = 5-1/2"

b minimum = 3" d = 24"

Calculated Side Load = 82.5 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: 3-1/4 in. Pneumatic Gun Nails

Disclosure

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Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B9(i3874)

BC CALC® Design Report



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

August 30, 2017 13:10:10

Build 5033

Job Name:

Address:

City, Province, Postal Code:BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

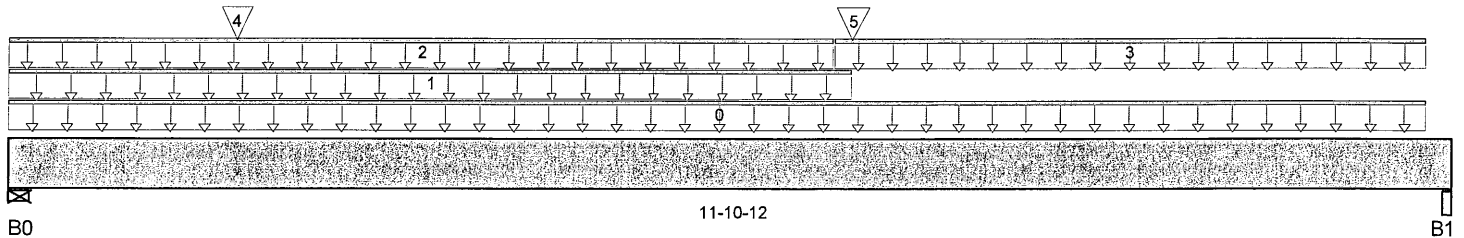
Description: Designs\Flush Beams\1st Floor\Flush Beams\B9(i3874)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 11-10-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	591 / 0	635 / 0		
B1, 5-1/4"	316 / 0	314 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-08-02	24	12			n/a
1	User Load	Unf. Lin. (lb/ft)	L	00-00-00	06-11-02		60			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-09-06	3				n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	06-09-06	11-08-02	4	2			n/a
4	User Load	Conc. Pt. (lbs)	L	01-10-06	01-10-06	420	218			n/a
5	B11(i3887)	Conc. Pt. (lbs)	L	06-11-02	06-11-02	165	98			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,360 ft-lbs	12,704 ft-lbs	26.4%	1	05-06-10
End Shear	1,520 lbs	5,785 lbs	26.3%	1	01-01-14
Total Load Defl.	L/599 (0.225")	0.561"	40.1%	4	05-08-07
Live Load Defl.	L/999 (0.106")	n/a	n/a	5	05-08-07
Max Defl.	0.225"	n/a	n/a	4	05-08-07
Span / Depth	14.2	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/8" x 1-3/4"	1,681 lbs	41.1%	18%	Unspecified
B1 Beam	5-1/4" x 1-3/4"	866 lbs	8.7%	7.7%	Unspecified

Notes



Boise Cascade

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B9(i3874)

BC CALC® Design Report



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

August 30, 2017 13:10:10

Build 5033

Job Name:

Address:

City, Province, Postal Code:BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B9(i3874

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.

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

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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Build 6080

Job Name:

BAYVIEW WELLINGTON

Address:

GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD,

Customer:

Code reports:

CCMC 12472-R

File Name: BC CALC Project

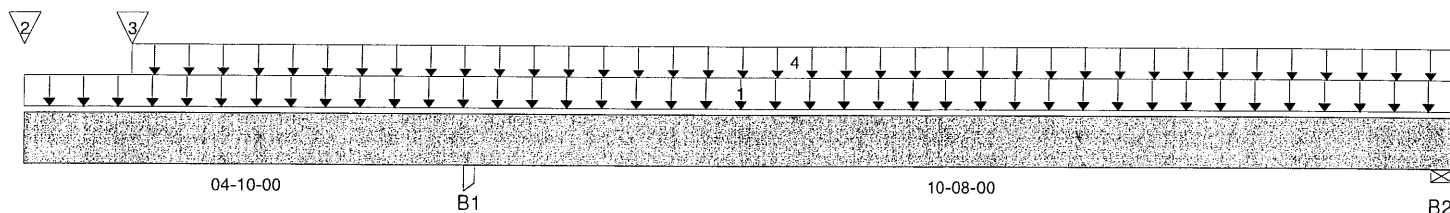
Description: Designs\B10

Specifier: SD 25-5C

Designer:

Company:

Misc:



Total Horizontal Product Length = 15-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,736 / 0	1,010 / 0		
B2, 3-1/2"	436 / 318	90 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	Standard Load	Unf. Area (lb/ft^2)	L	00-00-00	15-06-00	40	20			01-00-00
2	B11	Conc. Pt. (lbs)	L	00-00-00	00-00-00	145	88			n/a
3		Conc. Pt. (lbs)	L	01-02-00	01-02-00	515	266			n/a
4		Unf. Area (lb/ft^2)	L	01-02-00	15-06-00	40	20			01-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,476 ft-lbs	23,220 ft-lbs	6.4%	6	11-00-08
Neg. Moment	-7,337 ft-lbs	-23,220 ft-lbs	31.6%	1	04-10-00
End Shear	569 lbs	11,571 lbs	4.9%	3	14-05-00
Cont. Shear	2,042 lbs	11,571 lbs	17.7%	1	03-10-12
Total Load Defl.	2xL/304 (0.382")	0.483"	79%	9	00-00-00
Live Load Defl.	2xL/431 (0.269")	0.322"	83.5%	12	00-00-00
Total Neg. Defl.	L/999 (-0.1")	n/a	n/a	9	09-00-03
Max Defl.	-0.1"	n/a	n/a	9	09-00-03
Cant. Max Defl.	0.382"	1"	38.2%	9	00-00-00
Span / Depth	13.2	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Post	3-1/2" x 3-1/2"	3,866 lbs	n/a	25.9%	Unspecified
B2 Wall/Plate	3-1/2" x 3-1/2"	766 lbs	n/a	5.1%	Unspecified

Cautions

Uplift of 397 lbs found at span 2 - Right.

Long Cantilever: Sheathing required on bottom flange and adjacent back span or bracing designed by the design professional of record. Design professional of record must address uplift at supports.

Notes



Build 6080

Job Name:

BAYVIEW WELLINGTON

Address:

GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD,

Customer:

Code reports:

CCMC 12472-R

File Name: BC CALC Project

Description: Designs\B10

Specifier: SD 25-5C

Designer:

Company:

Misc:

Design meets User specified (2xL/240) Total load deflection criteria.

Design meets User specified (2xL/360) Live load deflection criteria.

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

Design meets arbitrary (1") Cantilever Maximum Total load deflection criteria.

Calculations assume member is fully braced.

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

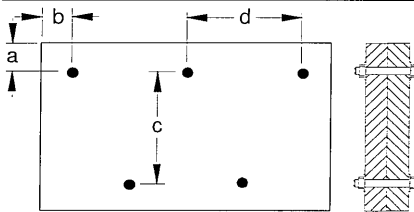
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

Connection Diagram



a minimum = 2" c = 5-1/2"

b minimum = 2-1/2" d = 24"

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.

Bolts are assumed to be Grade A307 or Grade 2 or higher.

Member has no side loads.

Connectors are: 1/2 in. Staggered Through Bolt

Disclosure

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

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Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

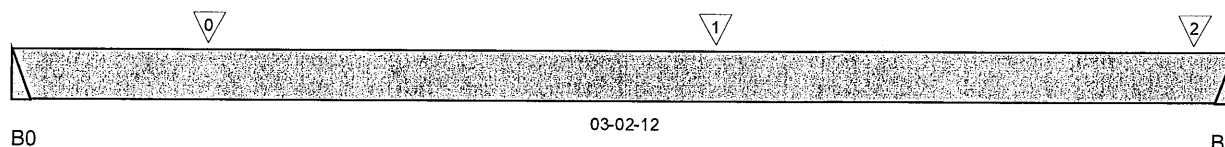
Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i3887)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 03-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	145 / 0	88 / 0		
B1	163 / 0	97 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J3(i3784)	Conc. Pt. (lbs)	L	00-06-04	00-06-04	104	52			n/a
1	J3(i3785)	Conc. Pt. (lbs)	L	01-10-04	01-10-04	131	66			n/a
2	J3(i3786)	Conc. Pt. (lbs)	L	03-01-08	03-01-08	73	36			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	257 ft-lbs	25,408 ft-lbs	1%	1	01-10-04
End Shear	200 lbs	11,571 lbs	1.7%	1	02-03-04
Total Load Defl.	L/999 (0.001")	n/a	n/a	4	01-07-09
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-07-09
Max Defl.	0.001"	n/a	n/a	4	01-07-09
Span / Depth	3.8	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 3-1/2"	327 lbs	n/a	3.8%	HUC410
B1 Hanger	2" x 3-1/2"	366 lbs	n/a	4.3%	HGUS410

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i3887)

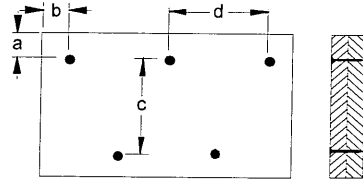
Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram



a minimum = 2" c = 5-1/2"

b minimum = 3" d = 24"

Calculated Side Load = 202.7 lb/ft

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

Connectors are: 3-1/4 in. Pneumatic Gun Nails

Disclosure

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Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

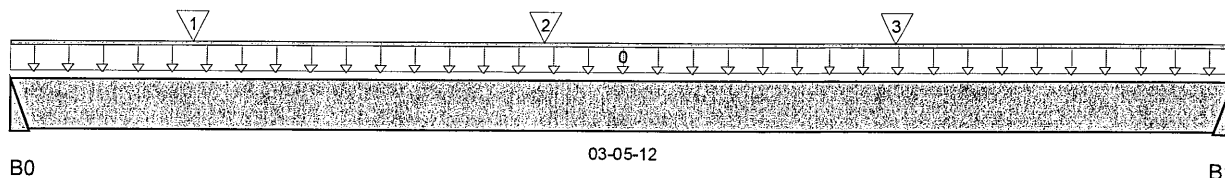
Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i3739);

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 03-05-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	536 / 0	276 / 0		
B1	515 / 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	03-05-12	240	120			n/a
1	J4(i3843)	Conc. Pt. (lbs)	L	00-06-04	00-06-04	64	32			n/a
2	J4(i3844)	Conc. Pt. (lbs)	L	01-06-04	01-06-04	74	37			n/a
3	J4(i3899)	Conc. Pt. (lbs)	L	02-06-04	02-06-04	78	39			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	902 ft-lbs	12,704 ft-lbs	7.1%	1	01-07-12
End Shear	611 lbs	5,785 lbs	10.6%	1	02-06-04
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	01-08-14
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	01-08-14
Max Defl.	0.005"	n/a	n/a	4	01-08-14
Span / Depth	4.1	n/a	n/a		00-00-00

Disclosure

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Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	1,149 lbs	n/a	26.9%	HUS1.81/10
B1 Hanger	2" x 1-3/4"	1,106 lbs	n/a	25.9%	HUS1.81/10

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

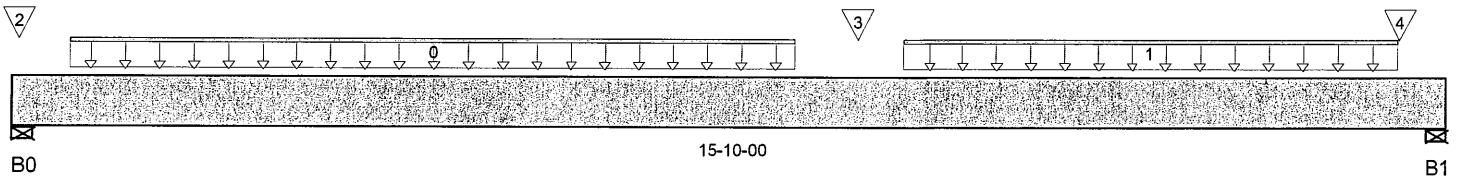
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B14I

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 15'-10'-00"

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 6"	3,544 / 0	2,072 / 0		
B1, 4"	3,326 / 0	1,804 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-07-08	08-07-08	438	219			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	09-09-08	15-03-08	414	206			n/a
2	B9(i3874)	Conc. Pt. (lbs)	L	00-00-14	00-00-14	313	311			n/a
3	-	Conc. Pt. (lbs)	L	09-03-08	09-03-08	547	273			n/a
4	J2(i3879)	Conc. Pt. (lbs)	L	15-03-08	15-03-08	230	115			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	27,526 ft-lbs	60,415 ft-lbs	45.6%	1	07-11-08
End Shear	6,769 lbs	21,696 lbs	31.2%	1	01-05-14
Total Load Defl.	L/333 (0.545")	0.756"	72.1%	4	07-11-08
Live Load Defl.	L/513 (0.354")	0.504"	70.2%	5	07-11-08
Max Defl.	0.545"	n/a	n/a	4	07-11-08
Span / Depth	15.3	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	6" x 5-1/4"	7,907 lbs	30.9%	20.6%	Unspecified
B1 Wall/Plate	4" x 5-1/4"	7,243 lbs	42.5%	28.3%	Unspecified

Notes

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

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

Calculations assume unbraced length of Top: 00-04-03, Bottom: 00-04-03.

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



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

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

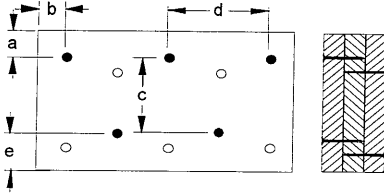
Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram



a minimum = 2" c = 6-7/8"

b minimum = 3" d = 24"

e minimum = 3"

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

Nailing schedule applies to both sides of the member.

Member has no side loads.

Connectors are: 16d Sinker Nails

Disclosure

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Build 5033

Job Name:

Address:

City, Province, Postal Code:BRADFORD,

Customer:

Code reports:

CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

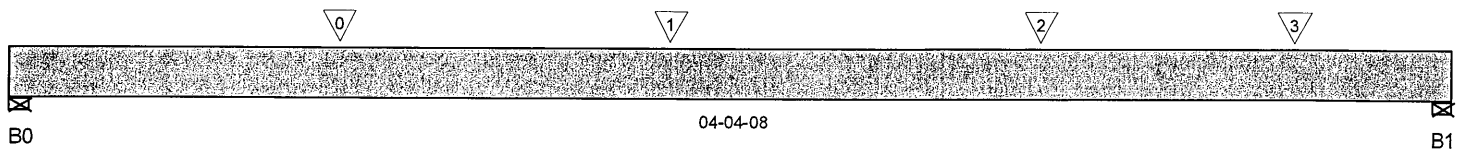
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B15I

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-04-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	873 / 0	523 / 0		
B1, 4"	1,246 / 0	866 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	-	Conc. Pt. (lbs)	L	01-00-00	01-00-00	455	227			n/a
1	-	Conc. Pt. (lbs)	L	02-00-00	02-00-00	432	216			n/a
2	-	Conc. Pt. (lbs)	L	03-01-08	03-01-08	963	770			n/a
3	-	Conc. Pt. (lbs)	L	03-10-12	03-10-12	266	132			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,440 ft-lbs	25,408 ft-lbs	9.6%	1	02-10-12
End Shear	2,476 lbs	11,571 lbs	21.4%	1	03-03-00
Total Load Defl.	L/999 (0.009")	n/a	n/a	4	02-02-11
Live Load Defl.	L/999 (0.006")	n/a	n/a	5	02-02-11
Max Defl.	0.009"	n/a	n/a	4	02-02-11
Span / Depth	4.8	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4" x 3-1/2"	1,963 lbs	17.3%	11.5%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	2,951 lbs	26%	17.3%	Unspecified

Notes

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

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

Calculations assume unbraced length of Top: 00-02-00, Bottom: 00-02-00.

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



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

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

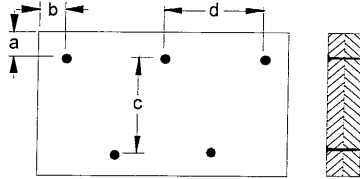
Specifier:

Designer: CZ

Company:

Misc:

Connection Diagram



a minimum = 2" c = 5-1/2"

b minimum = 3" d = 24"

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

Member has no side loads.

Connectors are: 16d Sinker Nails

Disclosure

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Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

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File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

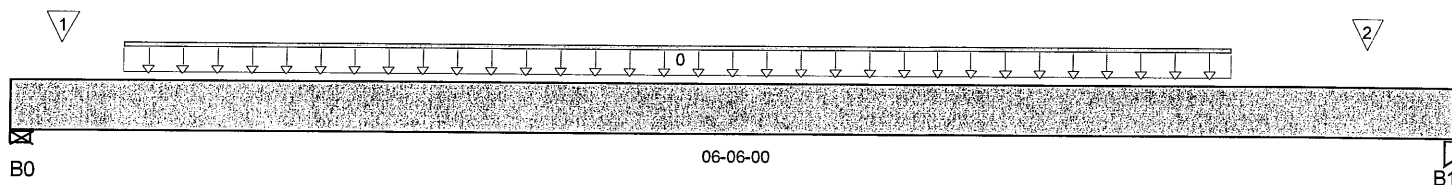
Description: Designs\Flush Beams\Basement\Flush Beams\B17L(i347

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 06-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 6-15/16"	586 / 0	322 / 0		
B1, 3-1/2"	632 / 0	330 / 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	00-06-00	05-06-00	202	101			n/a
1	1(i845)	Conc. Pt. (lbs)	L	00-02-12	00-02-12		15			n/a
2	-	Conc. Pt. (lbs)	L	06-01-03	06-01-03	203	101			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,806 ft-lbs	12,704 ft-lbs	14.2%	1	03-00-00
End Shear	1,047 lbs	5,785 lbs	18.1%	1	01-04-07
Total Load Defl.	L/999 (0.03")	n/a	n/a	4	03-04-08
Live Load Defl.	L/999 (0.02")	n/a	n/a	5	03-04-08
Max Defl.	0.03"	n/a	n/a	4	03-04-08
Span / Depth	7.3	n/a	n/a		00-00-00

Disclosure

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

Bearing Supports

B0	Wall/Plate	6-15/16" x 1-3/4"	1,282 lbs	19.8%	8.7%	Unspecified
B1	Post	3-1/2" x 1-3/4"	1,361 lbs	27.4%	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

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



Build 5033

Job Name:

Address:

City, Province, Postal Code: BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

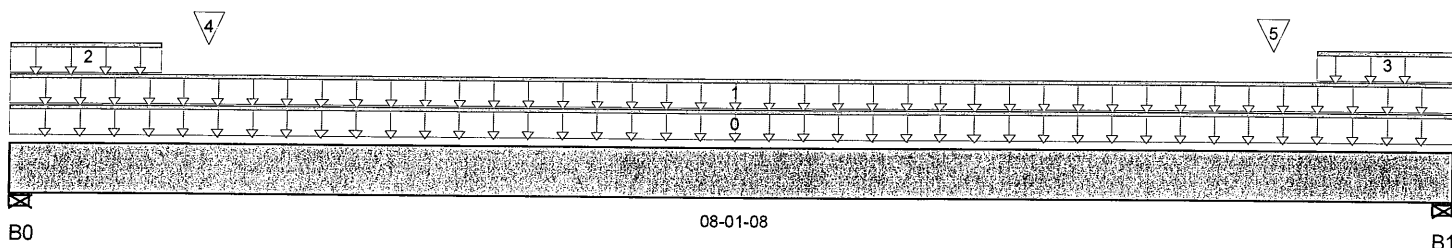
Description: Designs\Flush Beams\1st Floor\Flush Beams\B19(i3904)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 08-01-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 7"	383 / 0	855 / 0	597 / 0	
B1, 6"	375 / 0	832 / 0	585 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	LOWROOF	Unf. Lin. (lb/ft)	L	00-00-00	08-01-08	33	130	72		n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-01-08	27	13			n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-00-00	00-10-04	33	130	72		n/a
3	User Load	Unf. Lin. (lb/ft)	L	07-04-04	08-01-08	33	130	72		n/a
4	User Load	Conc. Pt. (lbs)	L	01-01-04	01-01-04	110	116	240		n/a
5	User Load	Conc. Pt. (lbs)	L	07-01-04	07-01-04	110	116	240		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,452 ft-lbs	25,408 ft-lbs	9.7%	13	04-01-04
End Shear	1,342 lbs	11,571 lbs	11.6%	13	01-04-08
Total Load Defl.	L/999 (0.036")	n/a	n/a	45	04-01-04
Live Load Defl.	L/999 (0.016")	n/a	n/a	61	04-01-04
Max Defl.	0.036"	n/a	n/a	45	04-01-04
Span / Depth	9	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0	7" x 3-1/2"	2,156 lbs	16.4%	7.2%	Unspecified
B1	6" x 3-1/2"	2,105 lbs	18.7%	8.2%	Unspecified

Notes



Build 5033

Job Name:

Address:

City, Province, Postal Code:BRADFORD,

Customer:

Code reports: CCMC 12472-R

File Name: SD25-5 SONOMA 5 EL B SUNKEN.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B19(i3904)

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.

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.

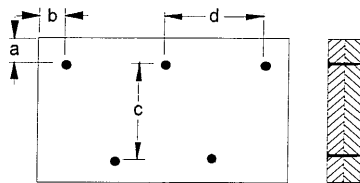
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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.

Connection Diagram



a minimum = 2" c = 5-1/2"

b minimum = 3" d = 24"

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

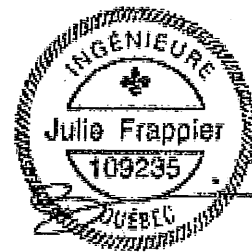
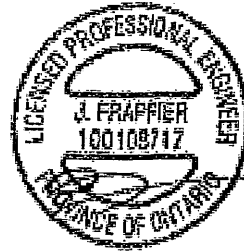
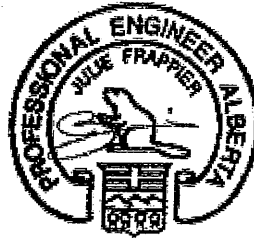
Member has no side loads.

Connectors are: 16d Sinker Nails

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

Maximum Floor Spans

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



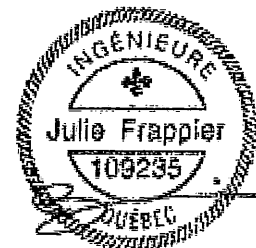
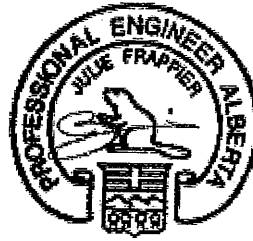
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

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

Maximum Floor Spans

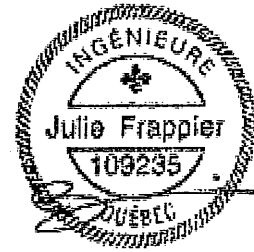
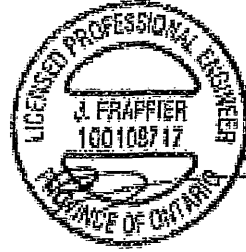
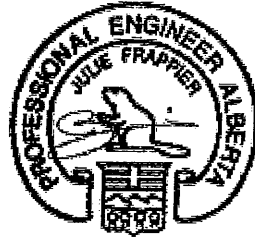
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing



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

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

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



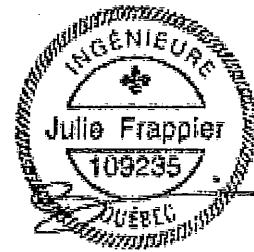
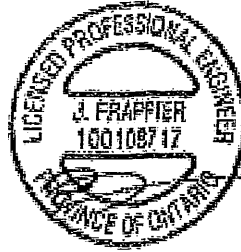
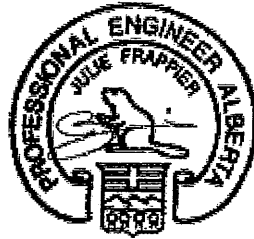
Maximum Floor Spans

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

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

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

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



Maximum Floor Spans

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

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

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

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

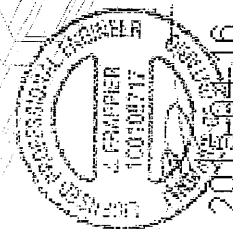
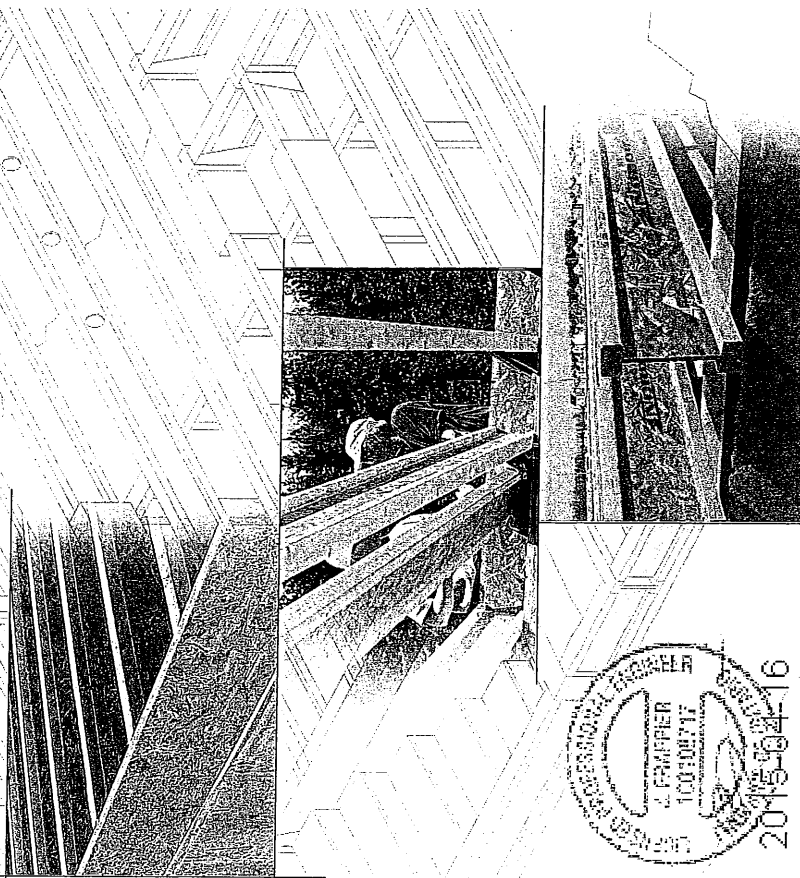


NORDIC

ENGINEERED WOOD

INSTALLATION GUIDE

FOR RESIDENTIAL FLOORS



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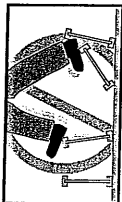
WARNING

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.



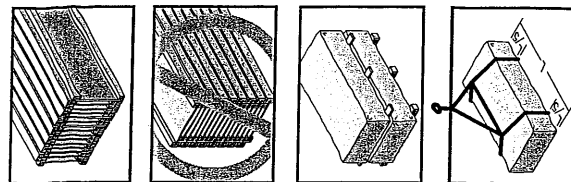
Do not walk on I-joists until fully fastened and braced, or serious injuries can result.



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

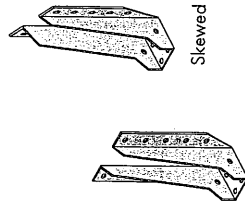
STORAGE AND HANDLING GUIDELINES

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.



I-JOIST HANGERS

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



Top Mount

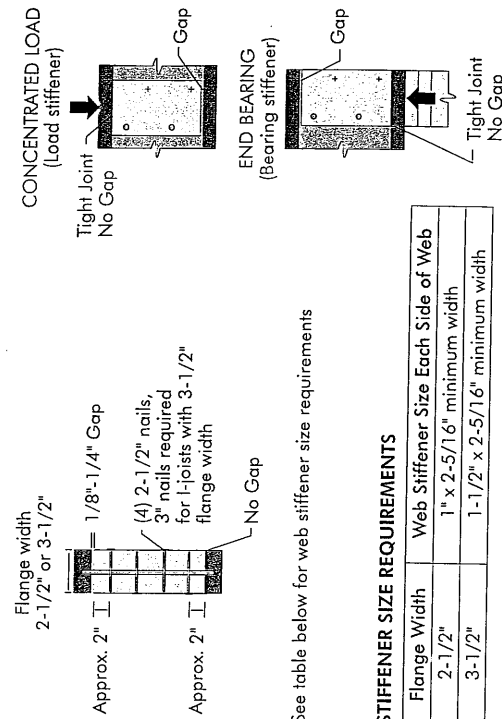
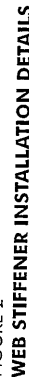
Face Mount

NORDIC I-JOIST SERIES

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

- See table below for web stiffener size requirements

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



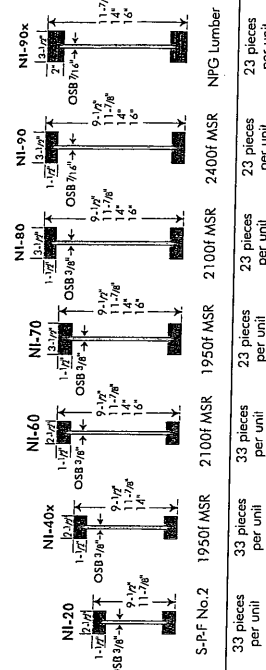
See table below for web stiffener size requirements

of units conversion: 1 inch = 25.4 mm

Joist Depth	Joist Series	Simple spans		Multiple spans					
		On centre spacing		On centre spacing					
		12"	16"	12"	16"				
9-1/2"	Ni20	15.1"	14.2"	13.9"	13.5"	16.3"	15.4"	15.10"	14.7"
	Ni40x	16.1"	15.2"	14.8"	14.9"	17.5"	16.5"	15.10"	15.5"
	Ni60	16.3"	15.4"	14.10"	14.11"	17.7"	16.7"	16.0"	16.1"
	Ni70	17.1"	16.1"	15.6"	15.7"	18.7"	17.4"	16.9"	16.10"
	Ni80	17.3"	16.3"	15.8"	15.9"	18.10"	17.6"	16.11"	17.0"
	Ni20	16.11"	16.0"	15.5"	15.6"	18.4"	17.3"	16.8"	16.7"
10-7/8"	Ni40x	18.1"	17.0"	16.5"	16.6"	20.0"	18.6"	17.9"	17.7"
	Ni60	18.4"	17.3"	16.7"	16.9"	20.3"	18.9"	18.0"	18.1"
	Ni70	19.6"	18.0"	17.4"	17.5"	21.6"	19.11"	19.0"	19.1"
	Ni80	19.9"	18.3"	17.6"	17.7"	21.9"	20.2"	19.3"	19.4"
	Ni90	20.2"	18.7"	17.10"	17.11"	22.3"	20.7"	19.8"	19.9"
	Ni90x	20.4"	18.9"	17.11"	18.0"	22.5"	20.9"	19.8"	19.11"
14"	Ni40x	20.1"	18.7"	17.10"	17.11"	22.2"	20.6"	19.8"	19.4"
	Ni60	20.5"	18.11"	18.1"	18.2"	22.7"	20.11"	20.0"	20.1"
	Ni70	21.7"	20.0"	19.1"	19.2"	23.10"	22.1"	21.1"	21.2"
	Ni80	21.11"	20.3"	19.4"	19.5"	24.3"	22.5"	21.5"	21.6"
	Ni90	22.5"	20.8"	19.9"	19.10"	24.9"	22.10"	21.10"	21.10"
	Ni90x	22.7"	20.11"	19.11"	20.0"	25.0"	23.1"	22.0"	22.2"
16"	Ni60	22.3"	20.8"	19.9"	19.10"	24.7"	22.9"	21.9"	21.10"
	Ni70	23.6"	21.9"	20.9"	20.10"	26.0"	24.0"	23.0"	23.10"
	Ni80	23.11"	22.1"	21.1"	21.2"	26.5"	24.5"	23.3"	23.4"
	Ni90	24.5"	22.6"	21.5"	21.6"	28.11"	24.10"	23.9"	23.9"
	Ni90x	24.8"	22.9"	21.9"	21.10"	27.3"	25.2"	24.0"	24.1"

CCMC EVALUATION REPORT 13032 D

NORDIC I-JOIST SERIES

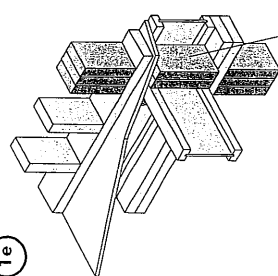


Chantiers Chibougamau Ltd. harvests its own trees, products to adhere to strict quality control procedure manufacturing process. Every phase of the operation finished product, reflects our commitment to quality.

Nordic Engineered Wood I-joists
lumber in their flanges, ensuring
longer span carrying capacity.

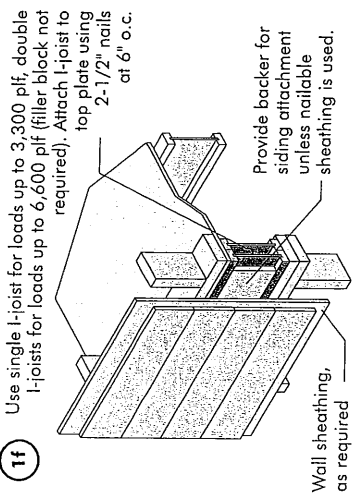
of units conversion: 1 inch = 25.4 mm

1e



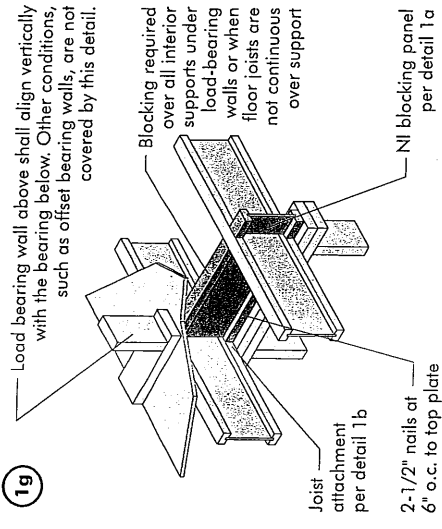
Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.

1f



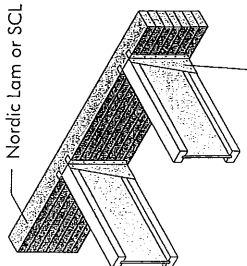
Use single I-joist for loads up to 3,300 plf, double I-joists for loads up to 6,600 plf (filler block not required). Attach I-joist to top plate using 2-1/2" nails at 6" o.c.

1g



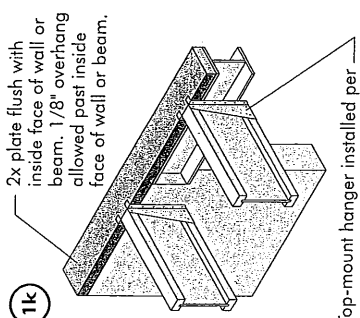
Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.

1j



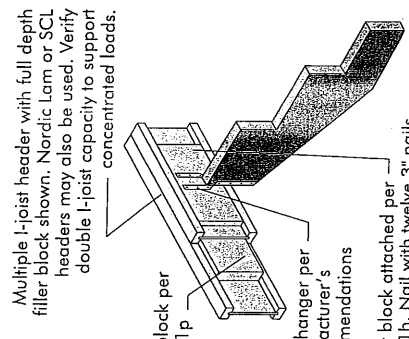
Top- or face-mount hanger installed per manufacturer's recommendations. For nailing schedules for multiple beams, see the manufacturer's recommendations. Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

1k



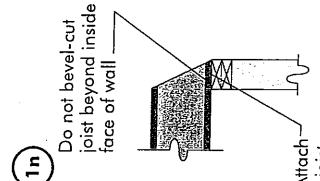
2x plate flush with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.

1m



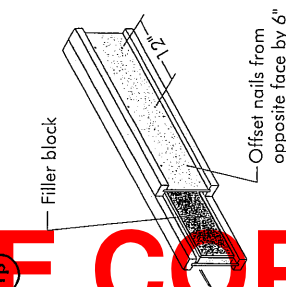
Multiple I-joist header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

1n



Do not bevel-cut joist beyond inside face of wall.

1p



1/8" to 1/4" gap between top flange and filler block

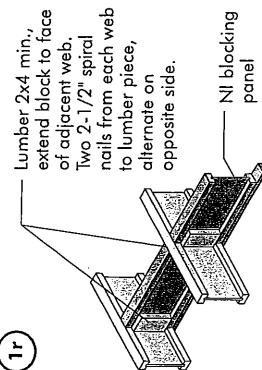
Notes:

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

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

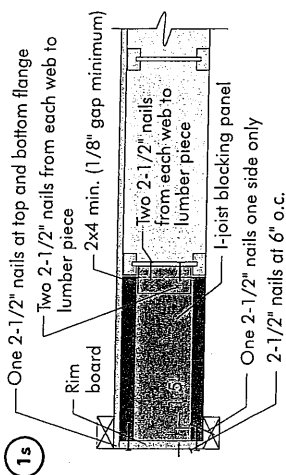
Flange Size	Joist Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2" 11-7/8" 14" 16"	2-1/8" x 6" 2-1/8" x 8" 2-1/8" x 10" 2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2" 11-7/8" 14" 16"	3" x 6" 3" x 8" 3" x 10" 3" x 12"
3-1/2" x 2"	11-7/8" 14" 16"	3" x 7" 3" x 9" 3" x 11"

1r



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

1s

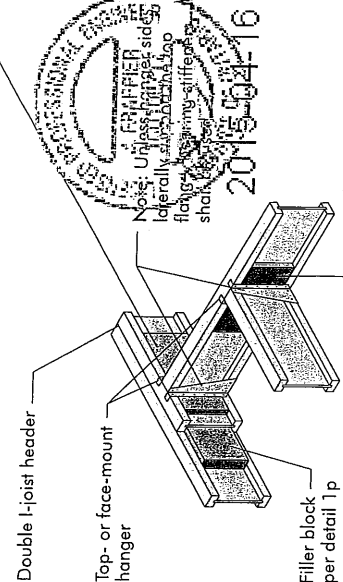


Notes:

- 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.

1h

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



For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

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

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

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

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

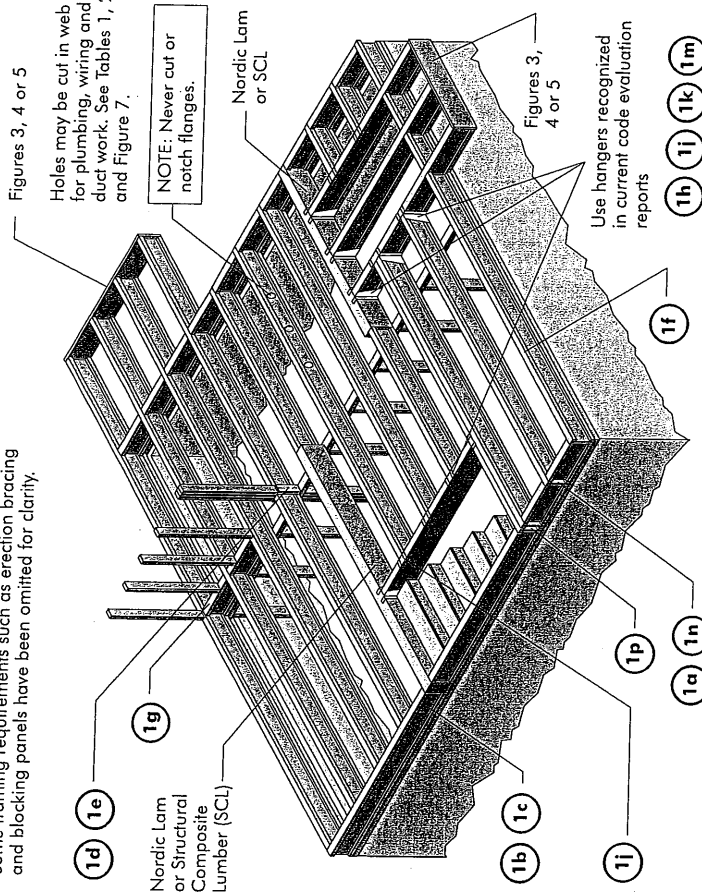
INSTALLING NORDIC I-JOISTS

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

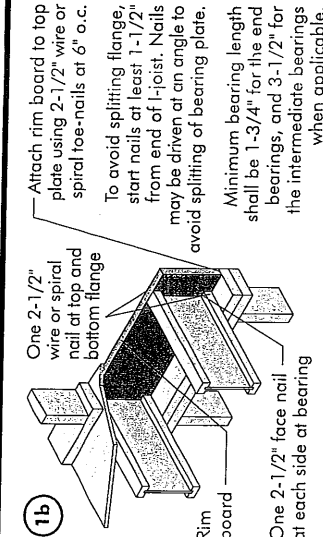
FIGURE 1

TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

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

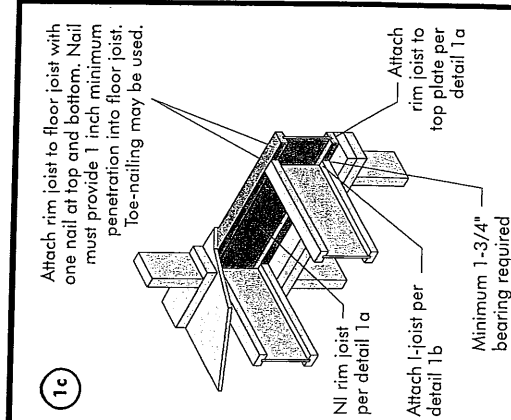


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



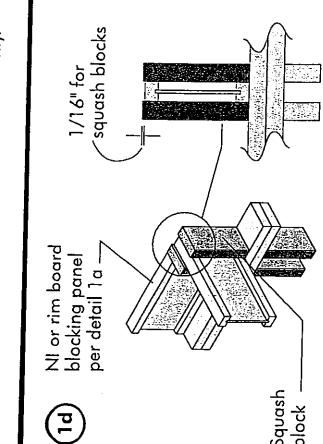
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

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



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

*The uniform vertical load is limited to a rim board depth of 1.6 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

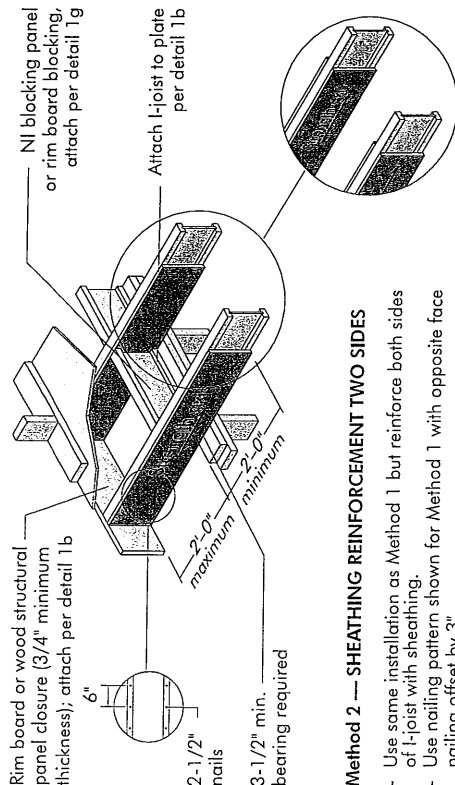


Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,300

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

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- Use same installation as Method 1 but reinforce both sides of L-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 L-joist to plate at all supports per detail 1b. Verify reinforced L-joist capacity.

Alternate Method 2 — DOUBLE L-JOIST

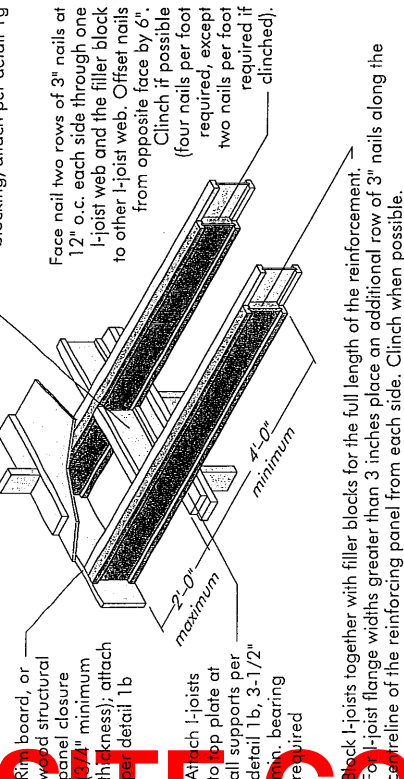
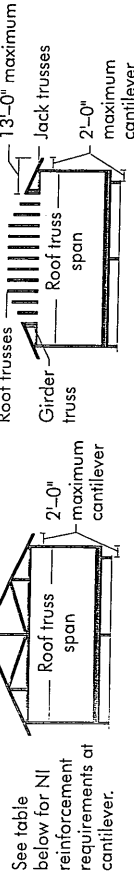


FIGURE 4 (continued)



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

CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)									
		LL = 30 psf, DL = 15 psf					LL = 40 psf, DL = 15 psf				
		JOIST SPACING (in.)					JOIST SPACING (in.)				
		12	16	19.2	24		12	16	19.2	24	
9-1/2"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	1	1	X		N	1	2	X	
	32	N	1	2	X		N	2	X	X	
	34	N	1	2	X		N	2	X	X	
11-7/8"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	1		N	1	2	X	
	30	N	N	1	1		N	1	2	X	
	32	N	N	1	1		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
14"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
16"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
18"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
20"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
22"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
24"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
26"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
28"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
30"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
32"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
34"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
36"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
38"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
40"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	
42"	26	N	N	1	2		N	1	2	X	
	28	N	N	1	2		N	1	2	X	
	30	N	N	1	2		N	1	2	X	
	32	N	N	1	2		N	1	2	X	
	34	N	N	1	2		N	1	2	X	

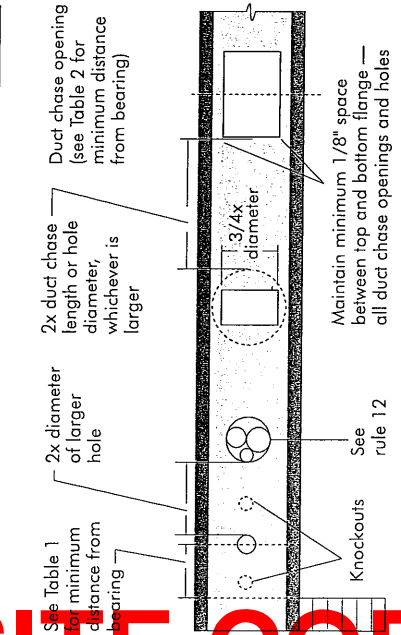
- N = No reinforcement required.
 - 1 = NI reinforced with 3/4" wood structural panel on one side only.
 - 2 = NI reinforced with 3/4" wood structural panel on both sides, or double L-joist.
 - X = Try a deeper joist or closer spacing.
2. Maximum design load shall be: 15 psf roof live load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
- For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
 - 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.
 - 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.
 - 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. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- 3. Whenever possible, field-cut holes should be centred on the middle of the web.
- 4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
- 5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- 6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- 7. A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- 8. Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
- 9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- 10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- 11. Limit three maximum size holes per span, of which one may be a duct chase opening.
- 12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

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



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

Holes in webs should be cut with a sharp saw.

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

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (ft.-in.)												Span adjustment Factor		
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4		11	12
9-1/2"	NI-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-0"	---	---	---	---	---	---	---	---	13-6"
	NI-40x	0-7"	1-6"	3-0"	4-4"	6-0"	6-4"	---	---	---	---	---	---	---	---	14-9"
	NI-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---	---	---	14-11"
	NI-80	2-0"	3-4"	4-9"	6-3"	8-0"	8-4"	---	---	---	---	---	---	---	---	15-7"
11-7/8"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-5"	---	---	---	---	---	15-9"
	NI-40x	0-7"	0-8"	1-3"	2-8"	4-0"	4-4"	5-5"	7-0"	8-1"	---	---	---	---	---	16-6"
	NI-60	0-7"	1-8"	3-0"	4-3"	5-9"	6-0"	7-3"	8-10"	10-0"	---	---	---	---	---	16-9"
	NI-80	1-3"	2-6"	4-0"	5-4"	6-9"	7-2"	8-4"	10-0"	11-2"	---	---	---	---	---	17-5"
14"	NI-20	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-0"	10-2"	---	---	---	---	---	17-7"
	NI-40x	0-7"	0-8"	0-9"	2-5"	4-4"	4-9"	6-3"	---	---	---	---	---	---	---	17-11"
	NI-60	0-7"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	6-6"	8-3"	10-2"	---	---	18-0"
	NI-80	0-8"	1-10"	3-0"	4-5"	5-10"	6-2"	7-3"	8-9"	9-9"	10-4"	12-0"	13-5"	---	---	18-2"
16"	NI-20	0-7"	0-8"	0-10"	2-5"	4-0"	4-5"	5-9"	7-5"	8-5"	9-4"	11-4"	12-11"	---	---	19-5"
	NI-40x	0-7"	0-8"	0-8"	2-0"	3-9"	4-2"	5-5"	7-3"	8-5"	9-2"	---	---	---	---	19-9"
	NI-60	0-7"	0-8"	0-8"	1-6"	2-10"	3-2"	4-2"	5-6"	6-4"	7-0"	8-5"	9-8"	10-2"	---	20-0"
	NI-80	0-7"	1-3"	2-6"	3-10"	5-3"	6-3"	7-8"	8-6"	9-2"	10-8"	12-0"	13-5"	14-0"	15-0"	20-10"
18"	NI-20	0-7"	0-8"	0-9"	2-0"	3-6"	4-0"	5-0"	6-9"	7-9"	8-4"	10-2"	11-8"	12-0"	---	21-6"
	NI-40x	0-7"	0-8"	0-9"	2-0"	3-6"	4-0"	5-0"	6-9"	7-9"	8-4"	10-2"	11-8"	12-0"	---	21-10"

Above table may be used for I-joist spacing of 24 inches on centre or less.

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

OPTIONAL:

The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Span Table) as given above may be reduced as follows:

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

- Where:
- Reduced = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications
- Actual = The actual measured span distance between the inside faces of supports (ft.)
- SAF = Span Adjustment Factor given in this table
- D = The minimum distance from the inside face of any support to centre of hole from this table.
- If $\frac{\text{Actual}}{\text{SAF}}$ is greater than 1, use 1 in the above calculation for $\frac{\text{Actual}}{\text{SAF}}$

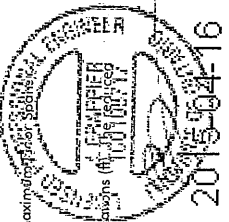


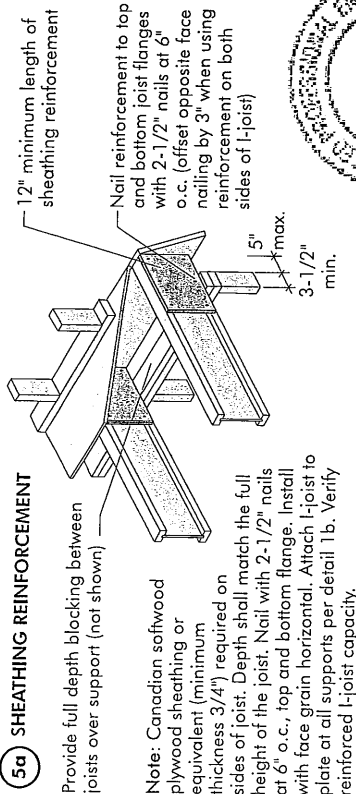
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (ft.-in.)											
		8	10	12	14	16	18	20	22	24	26	28	30
9-1/2"	NI-20	4-11"	4-5"	4-10"	5-4"	5-8"	6-1"	6-6"	7-1"	7-5"	7-8"	8-2"	8-6"
	NI-40x	5-3"	5-8"	6-0"	6-5"	6-10"	6-7"	7-3"	7-8"	8-0"	8-3"	8-7"	9-1"
	NI-60	6-2"	6-7"	6-2"	6-7"	7-1"	7-5"	7-8"	8-2"	8-3"	8-7"	9-1"	9-5"
	NI-80	7-1"	7-6"	7-1"	7-6"	8-0"	8-3"	8-7"	9-1"	9-5"	9-9"	10-3"	10-7"
11-7/8"	NI-20	5-9"	6-2"	6-6"	7-1"	7-5"	7-8"	8-2"	8-6"	9-0"	9-4"	9-8"	10-2"
	NI-40x	6-8"	7-2"	7-6"	8-1"	8-5"	8-9"	9-3"	9-7"	10-1"	10-5"	10-9"	11-3"
	NI-60	7-7"	8-1"	8-5"	8-9"	9-3"	9-7"	10-1"	10-5"	10-9"	11-3"	11-7"	12-1"
	NI-80	8-6"	9-0"	9-4"	9-8"	10-2"	10-6"	11-0"	11-4"	11-8"	12-2"	12-6"	13-0"
14"	NI-20	6-8"	7-2"	7-6"	8-1"	8-5"	8-9"	9-3"	9-7"	10-1"	10-5"	10-9"	11-3"
	NI-40x	7-7"	8-1"	8-5"	8-9"	9-3"	9-7"	10-1"	10-5"	10-9"	11-3"	11-7"	12-1"
	NI-60	8-6"	9-0"	9-4"	9-8"	10-2"	10-6"	11-0"	11-4"	11-8"	12-2"	12-6"	13-0"
	NI-80	9-5"	9-9"	10-3"	10-7"	11-1"	11-5"	11-9"	12-3"	12-7"	13-1"	13-5"	13-9"
16"	NI-20	7-7"	8-1"	8-5"	8-9"	9-3"	9-7"	10-1"	10-5"	10-9"	11-3"	11-7"	12-1"
	NI-40x	8-6"	9-0"	9-4"	9-8"	10-2"	10-6"	11-0"	11-4"	11-8"	12-2"	12-6"	13-0"
	NI-60	9-5"	9-9"	10-3"	10-7"	11-1"	11-5"	11-9"	12-3"	12-7"	13-1"	13-5"	13-9"
	NI-80	10-4"	10-8"	11-2"	11-6"	12-0"	12-4"	12-8"	13-2"	13-6"	14-0"	14-4"	14-8"
18"	NI-20	8-6"	9-0"	9-4"	9-8"	10-2"	10-6"	11-0"	11-4"	11-8"	12-2"	12-6"	13-0"
	NI-40x	9-5"	9-9"	10-3"	10-7"	11-1"	11-5"	11-9"	12-3"	12-7"	13-1"	13-5"	13-9"
	NI-60	10-4"	10-8"	11-2"	11-6"	12-0"	12-4"	12-8"	13-2"	13-6"	14-0"	14-4"	14-8"
	NI-80	11-3"	11-7"	12-1"	12-5"	12-9"	13-3"	13-7"	14-1"	14-5"	14-9"	15-3"	15-7"

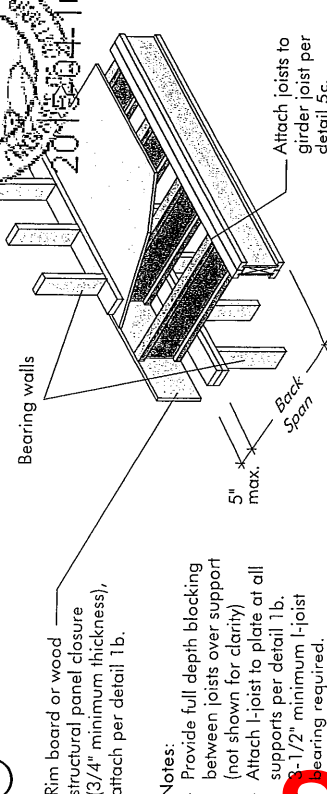
- 1. Above table may be used for I-joist spacing of 24 inches on centre or less.
- 2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
- 3. The above table is based on simple-span joists only. For other applications, contact your local distributor.
- 4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 13 psf, and a live load deflection limit of L/480. For other applications, contact your local distributor.

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

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

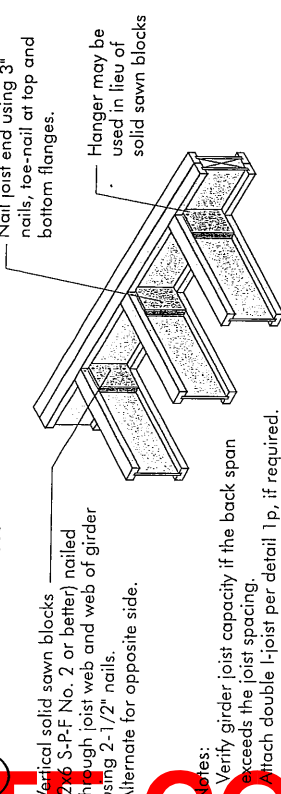
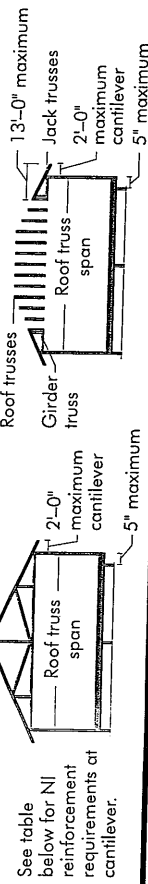


FIGURE 5 (continued)



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

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)									
		LL = 30 psf, DL = 15 psf					LL = 40 psf, DL = 15 psf				
		JOIST SPACING (in.)					JOIST SPACING (in.)				
		12	16	19.2	24		12	16	19.2	24	
9'-1/2"	26	1	X	X	X	2	2	X	X	X	2
	28	1	X	X	X	2	2	X	X	X	X
	30	1	X	X	X	2	2	X	X	X	X
	32	2	X	X	X	2	2	X	X	X	X
	34	2	X	X	X	2	2	X	X	X	X
11'-7/8"	26	N	2	X	X	2	2	X	X	X	X
	28	N	2	X	X	2	2	X	X	X	X
	30	1	2	X	X	2	2	X	X	X	X
	32	1	2	X	X	2	2	X	X	X	X
	34	1	2	X	X	2	2	X	X	X	X
14'	26	N	2	X	X	2	2	X	X	X	X
	28	N	2	X	X	2	2	X	X	X	X
	30	N	2	X	X	2	2	X	X	X	X
	32	N	2	X	X	2	2	X	X	X	X
	34	N	2	X	X	2	2	X	X	X	X
16'	26	N	2	X	X	2	2	X	X	X	X
	28	N	2	X	X	2	2	X	X	X	X
	30	N	2	X	X	2	2	X	X	X	X
	32	N	2	X	X	2	2	X	X	X	X
	34	N	2	X	X	2	2	X	X	X	X

- 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.
- Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 plf wall load. Wall load is based on 3'-0" maximum width window or door openings.
- For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
- 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.
- For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
- Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

SITE COPY

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
10. **Complete all nailing of each panel before glue sets.** Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

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

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

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

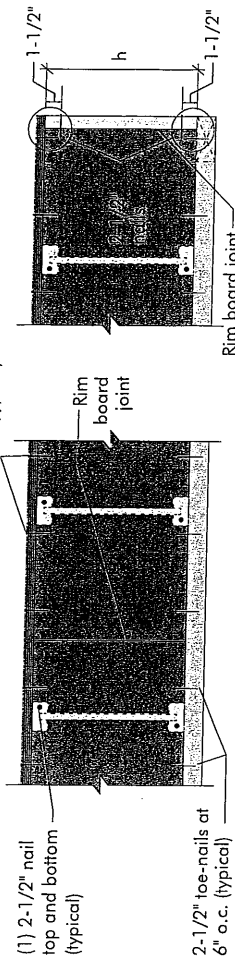
IMPORTANT NOTE:

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

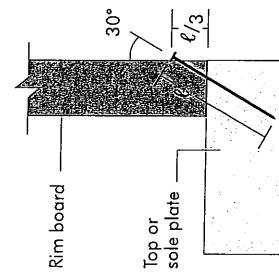
RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

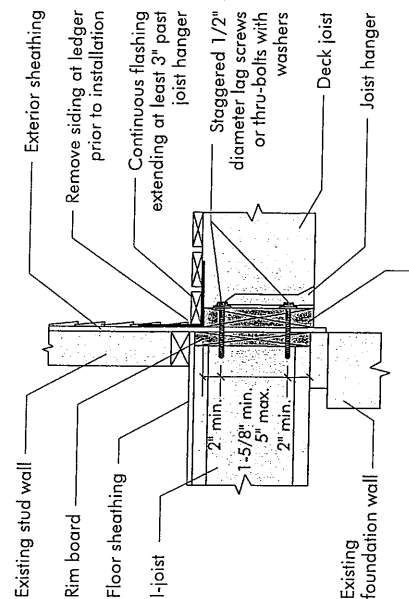
Rim board joint between floor joists 2-1/2" nails at 6" o.c. (typical)



8b TOE-NAIL CONNECTION AT RIM BOARD



8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



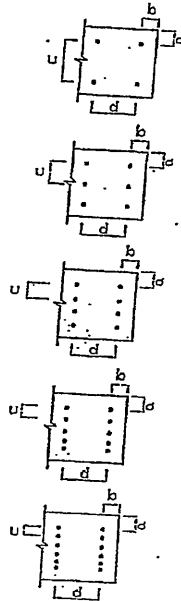
PRODUCT WARRANTY

Chantiers Chibougamau guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

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

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



NOTES:

- (1) MINIMUM LUMBER EDGE DISTANCE "a" = 1"
- (2) MINIMUM LUMBER END DISTANCE "b" = 2"
- (3) MINIMUM NAIL ROW SPACING "c" = 2"
- (4) STAGGER NAILS "d/2" BETWEEN PLIES 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
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