Boise Cascade

Double 1-3/4" x 9-1/4" VERSA-LAM® 2.0 3100 SP

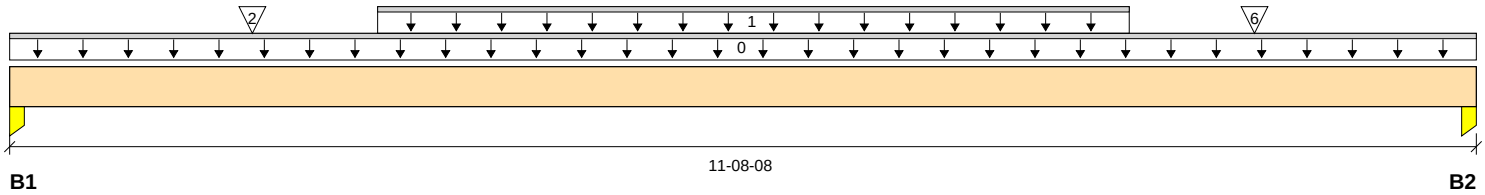
PASSED

1st Floor\Dropped Beams\BM2(i55) (Dropped Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | February 24, 2021 15:08:58

Build 7493

Job name:		File name:	2100199A.mmdl
Address:		Description:	1st Floor\Dropped Beams\BM2(i55)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	



Total Horizontal Product Length = 11-08-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 5-1/2"		323 / 0		83 / 278	294 / 0
B2, 2"		333 / 0		91 / 407	325 / 0

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 100%	Dead 90%	Snow 115%	Wind 160%	Roof Live 125%	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-08-08	Top		9				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-11-04	08-11-04	Top		48			48	n\a
2	M4(c5)	Conc. Pt. (lbs)	L	01-11-04	01-11-04	Top		117			140	n\a
6	M4(c1)	Conc. Pt. (lbs)	L	09-11-04	09-11-04	Top		144			194	n\a

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	1843 ft-lbs	11.3%	125%	1	05-11-04
Neg. Moment	-83 ft-lbs	0.4%	160%	90	09-11-04
End Shear	650 lbs	8.4%	125%	1	10-09-04
Total Load Deflection	L/999 (0.09")	n\a	n\a	1	06-00-12
Live Load Deflection	L/999 (0.043")	n\a	n\a	92	06-00-12
Max Defl.	0.09"	n\a	n\a	1	06-00-12
Span / Depth	14.5				

Bearing Supports

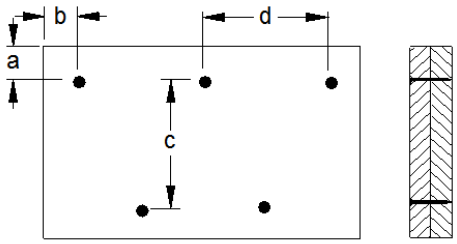
		Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Column	5-1/2" x 3-1/2"	616 lbs	4.4%	4.3%	Unspecified
B2	Column	2" x 3-1/2"	658 lbs	13.0%	12.5%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets arbitrary (1") Maximum Total load deflection criteria.
Design meets arbitrary (0.75") Maximum live load deflection criteria.
Calculations assume unbraced length of Top: 01-10-08, Bottom: 01-10-08.
BC CALC® analysis is based on IBC 2012.
Wind loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.

Job name:		File name:	2100199A.mmdl
Address:		Description:	1st Floor\Dropped Beams\BM2(i55)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	

Connection Diagram: Full Length of Member



a minimum = 2" c = 5-1/4"
b minimum = 3" d = 24"

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

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER® , AJS™, ALLJOIST® , BC RIM BOARD™, BCI® , BOISE GLULAM™, BC FloorValue® , VERSA-LAM®, VERSA-RIM PLUS® ,

Boise Cascade

Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

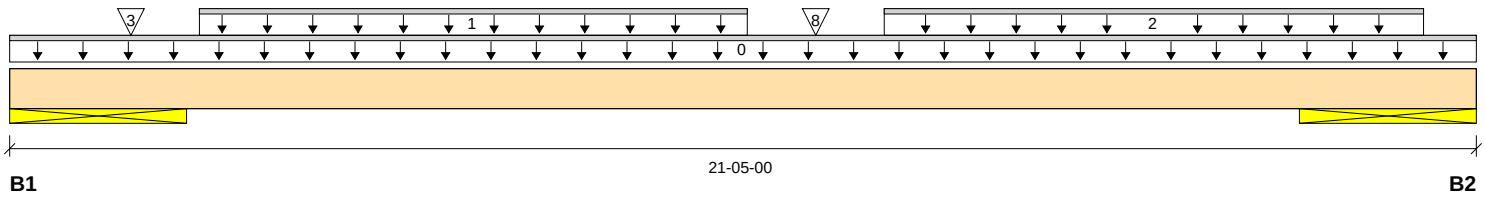
PASSED

1st Floor\Dropped Beams\GDH(i57) (Dropped Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | February 24, 2021 15:08:58

Build 7493

Job name:		File name:	2100199A.mmdl
Address:		Description:	1st Floor\Dropped Beams\GDH(i57)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	



Total Horizontal Product Length = 21-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 31"		1115 / 0		295 / 1109	1051 / 0
B2, 31"		1027 / 0		245 / 690	872 / 0

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 100%	Dead 90%	Snow 115%	Wind 160%	Roof Live 125%	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	21-05-00	Top		14				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-09-04	10-09-04	Top		88			88	n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	12-09-04	20-07-12	Top		88			88	n\a
3	M2(c1)	Conc. Pt. (lbs)	L	01-09-04	01-09-04	Top		266			356	n\a
8	M1(c5)	Conc. Pt. (lbs)	L	11-09-04	11-09-04	Top		171			166	n\a

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	5923 ft-lbs	16.8%	125%	1	09-09-04
End Shear	1141 lbs	9.8%	125%	1	03-09-00
Total Load Deflection	L/1111 (0.177")	21.6%	n\a	1	10-09-04
Live Load Deflection	L/999 (0.081")	n\a	n\a	98	10-09-04
Max Defl.	0.177"	17.7%	n\a	1	10-09-04
Span / Depth	14.0				
Conc. Load (B1)	622 lbs	6.8%	100%		
Conc. Load (B2)	355 lbs	3.9%	100%		

Bearing Supports

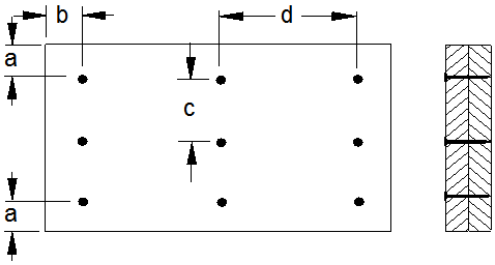
		Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Wall/Plate	31" x 3-1/2"	2166 lbs	4.7%	2.7%	Spruce-Pine-Fir
B2	Wall/Plate	31" x 3-1/2"	1899 lbs	4.1%	2.3%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets arbitrary (1") Maximum Total load deflection criteria.
Design meets arbitrary (0.75") Maximum live load deflection criteria.
Calculations assume unbraced length of Top: 01-10-08, Bottom: 01-10-08.
BC CALC® analysis is based on IBC 2012.
Wind loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.

Job name:		File name:	2100199A.mmdl
Address:		Description:	1st Floor\Dropped Beams\GDH(i57)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	

Connection Diagram: Full Length of Member



a minimum = 2" c = 5"
b minimum = 3" d = 24"

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

Disclosure

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Boise Cascade

Double 1-3/4" x 9-1/4" VERSA-LAM® 2.0 3100 SP

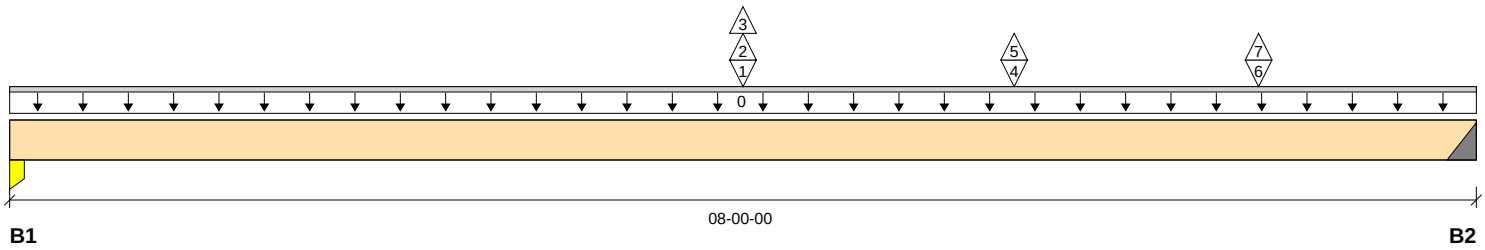
PASSED

1st Floor\Flush Beams\BM1(i60) (Flush Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | February 24, 2021 15:08:58

Build 7493

Job name:		File name:	2100199A.mmdl
Address:		Description:	1st Floor\Flush Beams\BM1(i60)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	



Total Horizontal Product Length = 08-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 5-1/2"	227 / 129	926 / 0		187 / 586	1198 / 526
B2, 2"	534 / 304	1101 / 0		204 / 666	1229 / 487

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 100%	Dead 90%	Snow 115%	Wind 160%	Roof Live 125%	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-00-00	Top		9				00-00-00
1	FB1(i59)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	167	1470			2173	n\a
2	FB1(i59)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	-94					n\a
3	FB1(i59)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top					-1013	n\a
4	F1(c6)	Conc. Pt. (lbs)	L	05-05-12	05-05-12	Top	305	305			183	n\a
5	F1(c6)	Conc. Pt. (lbs)	L	05-05-12	05-05-12	Top	-174					n\a
6	F1(c5)	Conc. Pt. (lbs)	L	06-09-12	06-09-12	Top	289	177			71	n\a
7	F1(c5)	Conc. Pt. (lbs)	L	06-09-12	06-09-12	Top	-165					n\a

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	7581 ft-lbs	47.4%	125%	3	04-00-00
End Shear	2415 lbs	31.4%	125%	5	07-00-12
Total Load Deflection	L/653 (0.138")	36.7%	n\a	3	04-02-04
Live Load Deflection	L/999 (0.078")	n\a	n\a	266	04-02-04
Max Defl.	0.138"	13.8%	n\a	3	04-02-04
Span / Depth	9.7				

Bearing Supports

		Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Column	5-1/2" x 3-1/2"	2124 lbs	15.2%	14.7%	Unspecified
B2	Hanger	2" x 3-1/2"	2515 lbs	n\a	47.9%	Hanger

Cautions

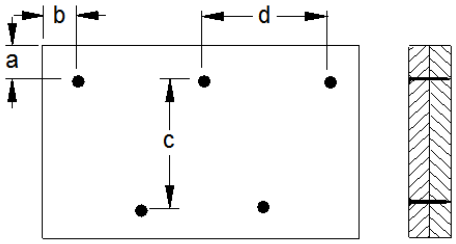
Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.

Job name:		File name:	2100199A.mmdl
Address:		Description:	1st Floor\Flush Beams\BM1(i60)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets arbitrary (1") Maximum Total load deflection criteria.
Design meets arbitrary (0.75") Maximum live load deflection criteria.
Calculations assume unbraced length of Top: 03-05-00, Bottom: 03-05-00.
Hanger Manufacturer: Unassigned
BC CALC® analysis is based on IBC 2012.
Wind loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.

Connection Diagram: Full Length of Member



a minimum = 2" c = 5-1/4"
b minimum = 3" d = 24"

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

Disclosure

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BC CALC®, BC FRAMER® , AJS™, ALLJOIST® , BC RIM BOARD™, BCI® , BOISE GLULAM™, BC FloorValue® , VERSA-LAM®, VERSA-RIM PLUS® ,

Boise Cascade

Quadruple 1-3/4" x 16" VERSA-LAM® 2.0 3100 SP

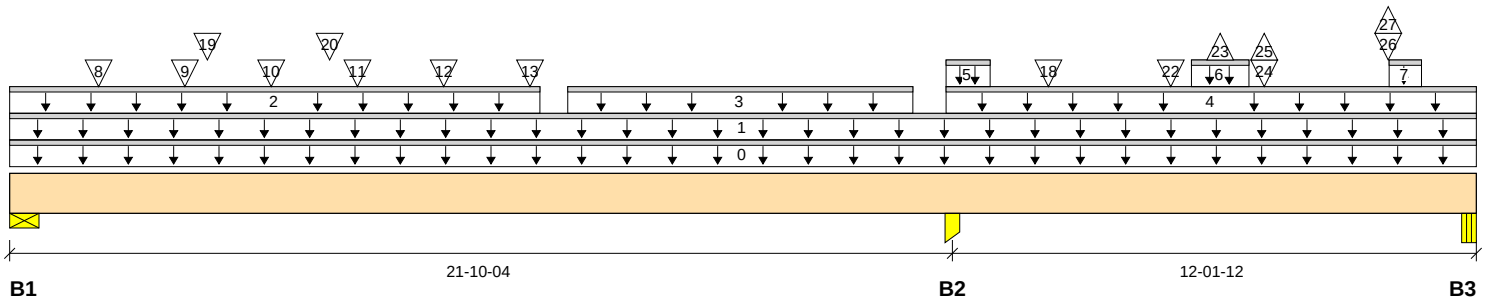
PASSED

1st Floor\Flush Beams\FB1(i59) (Flush Beam)

BC CALC® Member Report — Dry | 2 spans | No cant. — February 24, 2021 15:08:58

Build 7493

Job name:		File name:	2100199A.mmdl
Address:		Description:	1st Floor\Flush Beams\FB1(i59)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	



Total Horizontal Product Length = 34-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 3-1/2"	275 / 9	4333 / 0		1287 / 2637	3761 / 131
B2, 3-1/2"	666 / 0	8818 / 0		2046 / 4297	7303 / 12
B3, 3-1/2"	167 / 94	1468 / 0		323 / 964	2172 / 1033

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 100%	Dead 90%	Snow 115%	Wind 160%	Roof Live 125%	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	34-00-00	Top		32				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	34-00-00	Top	30	7				n\a
2	E19(i31)	Unf. Lin. (lb/ft)	L	00-00-00	12-03-08	Top		57				n\a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	12-11-04	20-11-04	Top		87			88	n\a
4	E15(i29)	Unf. Lin. (lb/ft)	L	21-08-08	34-00-00	Top		57				n\a
5	E15(i29)	Unf. Lin. (lb/ft)	L	21-08-08	22-08-12	Top		744			767	n\a
6	E15(i29)	Unf. Lin. (lb/ft)	L	27-04-12	28-08-12	Top		566			537	n\a
7	E15(i29)	Unf. Lin. (lb/ft)	L	31-11-12	32-08-12	Top		558			525	n\a
8	-	Conc. Pt. (lbs)	L	02-00-12	02-00-12	Top		1060			1154	n\a
9	-	Conc. Pt. (lbs)	L	04-00-12	04-00-12	Top		970			973	n\a
10	M2(c3)	Conc. Pt. (lbs)	L	06-00-12	06-00-12	Top		175			175	n\a
11	-	Conc. Pt. (lbs)	L	08-00-12	08-00-12	Top		970			973	n\a
12	-	Conc. Pt. (lbs)	L	10-00-12	10-00-12	Top		990			1013	n\a
13	-	Conc. Pt. (lbs)	L	12-00-12	12-00-12	Top		920			927	n\a
18	-	Conc. Pt. (lbs)	L	24-00-15	24-00-15	Top		1026			1196	n\a
19	E19(i31)	Conc. Pt. (lbs)	L	04-07-00	04-07-00	Top		384			382	n\a
20	E19(i31)	Conc. Pt. (lbs)	L	07-05-00	07-05-00	Top		418			416	n\a
22	E15(i29)	Conc. Pt. (lbs)	L	26-11-00	26-11-00	Top		589			594	n\a
23	E15(i29)	Conc. Pt. (lbs)	L	28-00-12	28-00-12	Top					-5	n\a
24	E15(i29)	Conc. Pt. (lbs)	L	29-01-00	29-01-00	Top		586			618	n\a
25	E15(i29)	Conc. Pt. (lbs)	L	29-01-00	29-01-00	Top					-13	n\a
26	-	Conc. Pt. (lbs)	L	31-11-08	31-11-08	Top		743			793	n\a
27	-	Conc. Pt. (lbs)	L	31-11-08	31-11-08	Top					-13	n\a

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	35295 ft-lbs	37.8%	125%	6	08-00-12
Neg. Moment	-32867 ft-lbs	35.2%	125%	4	21-10-04
End Shear	7936 lbs	29.8%	125%	6	01-07-08
Cont. Shear	8623 lbs	32.4%	125%	4	23-04-00
Total Load Deflection	L/538 (0.483")	44.6%	n\a	6	09-06-12
Live Load Deflection	L/1103 (0.235")	32.6%	n\a	269	09-06-12
Total Neg. Defl.	L/999 (-0.051")	n\a	n\a	6	25-11-04

Boise Cascade

Quadruple 1-3/4" x 16" VERSA-LAM® 2.0 3100 SP

PASSED

1st Floor\Flush Beams\FB1(i59) (Flush Beam)

BC CALC® Member Report | Dry | 2 spans | No cant. | February 24, 2021 15:08:58

Build 7493

Job name:		File name:	2100199A.mmdl
Address:		Description:	1st Floor\Flush Beams\FB1(i59)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	

Controls Summary

	Value	% Allowable	Duration	Case	Location
Max Defl.	0.483"	48.3%	n\a	6	09-06-12
Span / Depth	16.2				

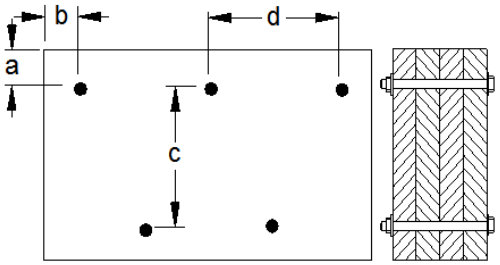
Bearing Supports

		Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Wall/Plate	3-1/2" x 7"	8094 lbs	77.7%	44.0%	Spruce-Pine-Fir
B2	Column	3-1/2" x 7"	16120 lbs	90.8%	87.7%	Unspecified
B3	Beam	3-1/2" x 7"	3640 lbs	19.8%	19.8%	VL 2.0 3100 SP

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets arbitrary (1") Maximum Total load deflection criteria.
Design meets arbitrary (0.75") Maximum live load deflection criteria.
Calculations assume member is fully braced.
BC CALC® analysis is based on IBC 2012.
Wind loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.

Connection Diagram: Full Length of Member



a minimum = 2-1/2" c = 11"
b minimum = 3-1/8" d = 18"

Calculated Side Load = 762.3 lb/ft
Bolts are assumed to be Grade A307 or Grade 2 or higher.
Connectors are: 5/8 in. Staggered Through Bolt

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