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

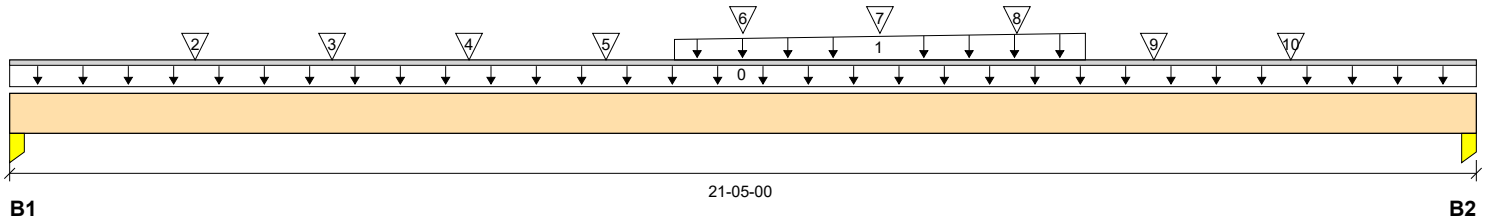
PASSED

Roof\Dropped Beams\BM3(i21) (Dropped Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | August 31, 2021 12:11:41

Build 7968

Job name:		File name:	2100762A.mmdl
Address:		Description:	Roof\Dropped Beams\BM3(i21)
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, 2"		550 / 0		161 / 445	503 / 0
B2, 2"		550 / 0		161 / 445	502 / 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	Trapezoidal (lb/ft)	L	09-08-08		Top					43	n\a
					15-08-08						56	
2	BE(c1)	Conc. Pt. (lbs)	L	02-08-08	02-08-08	Top		120			142	n\a
3	BE(c1)	Conc. Pt. (lbs)	L	04-08-08	04-08-08	Top		74			110	n\a
4	BE(c1)	Conc. Pt. (lbs)	L	06-08-08	06-08-08	Top		89			106	n\a
5	BE(c1)	Conc. Pt. (lbs)	L	08-08-08	08-08-08	Top		84			100	n\a
6	BE(c1)	Conc. Pt. (lbs)	L	10-08-08	10-08-08	Top		64				n\a
7	BE(c1)	Conc. Pt. (lbs)	L	12-08-08	12-08-08	Top		84				n\a
8	BE(c1)	Conc. Pt. (lbs)	L	14-08-08	14-08-08	Top		89				n\a
9	BE(c1)	Conc. Pt. (lbs)	L	16-08-08	16-08-08	Top		74			110	n\a
10	BE(c1)	Conc. Pt. (lbs)	L	18-08-08	18-08-08	Top		120			142	n\a

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	6002 ft-lbs	78.5%	125%	1	10-08-08
End Shear	1039 lbs	9.0%	125%	1	00-11-04
Total Load Deflection	L/361 (0.704")	66.4%	n\a	1	10-08-08
Live Load Deflection	L/746 (0.341")	48.3%	n\a	110	10-08-08
Max Defl.	0.704"	70.4%	n\a	1	10-08-08
Span / Depth	27.5				

Bearing Supports

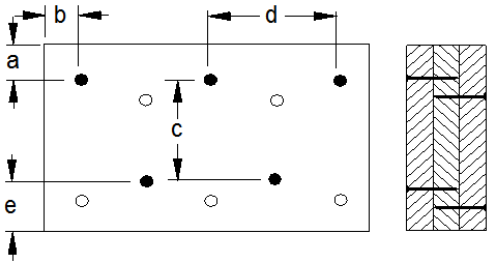
		Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Column	2" x 5-1/4"	1052 lbs	13.8%	13.4%	Unspecified
B2	Column	2" x 5-1/4"	1052 lbs	13.8%	13.4%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets arbitrary (1") Maximum Total load deflection criteria.
Design meets arbitrary (0.75") Maximum live load deflection criteria.
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.
Calculations assume unbraced length of Top: 21-05-00, Bottom: 21-05-00.

Job name:		File name:	2100762A.mmdl
Address:		Description:	Roof\Dropped Beams\BM3(i21)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	

Connection Diagram: Full Length of Member



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

Calculated Side Load = 0.0 lb/ft
Nailing applies to both sides of the member
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® ,

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

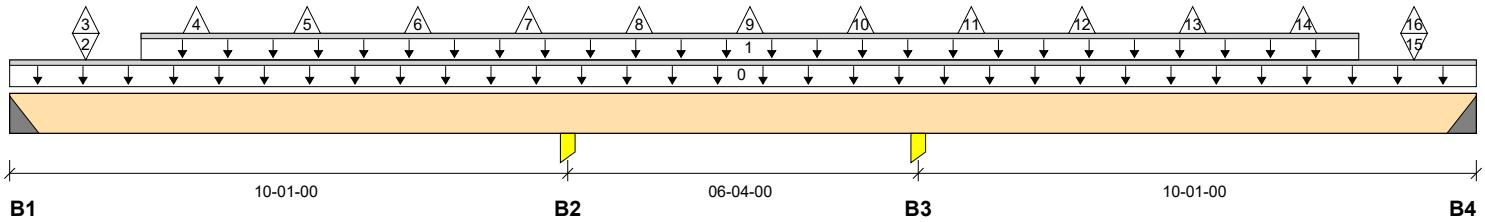
PASSED

Roof\Dropped Beams\BM4(i19) (Dropped Beam)

BC CALC® Member Report | Dry | 3 spans | No cant. | August 31, 2021 12:11:41

Build 7968

Job name:		File name:	2100762A.mmdl
Address:		Description:	Roof\Dropped Beams\BM4(i19)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	



Total Horizontal Product Length = 26-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 2"		111 / 0		190 / 329	324 / 35
B2, 5-1/2"		258 / 0		459 / 798	899 / 199
B3, 5-1/2"		259 / 0		464 / 804	904 / 199
B4, 2"		118 / 0		210 / 355	358 / 51

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	26-06-00	Top		9				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-04-08	24-04-08	Top		20			84	n\a
2	A(c9)	Conc. Pt. (lbs)	L	01-04-08	01-04-08	Top		33			145	n\a
3	A(c9)	Conc. Pt. (lbs)	L	01-04-08	01-04-08	Top					-9	n\a
4	A(c9)	Conc. Pt. (lbs)	L	03-04-08	03-04-08	Top					-11	n\a
5	A(c9)	Conc. Pt. (lbs)	L	05-04-08	05-04-08	Top					-11	n\a
6	A(c9)	Conc. Pt. (lbs)	L	07-04-08	07-04-08	Top					-11	n\a
7	A(c9)	Conc. Pt. (lbs)	L	09-04-08	09-04-08	Top					-11	n\a
8	A(c9)	Conc. Pt. (lbs)	L	11-04-08	11-04-08	Top					-11	n\a
9	A(c9)	Conc. Pt. (lbs)	L	13-04-08	13-04-08	Top					-11	n\a
10	A(c9)	Conc. Pt. (lbs)	L	15-04-08	15-04-08	Top					-11	n\a
11	A(c9)	Conc. Pt. (lbs)	L	17-04-08	17-04-08	Top					-11	n\a
12	A1(c12)	Conc. Pt. (lbs)	L	19-04-08	19-04-08	Top					-11	n\a
13	A1(c12)	Conc. Pt. (lbs)	L	21-04-08	21-04-08	Top					-11	n\a
14	A1(c12)	Conc. Pt. (lbs)	L	23-04-08	23-04-08	Top					-8	n\a
15	A1(c12)	Conc. Pt. (lbs)	L	25-04-08	25-04-08	Top		35			160	n\a
16	A1(c12)	Conc. Pt. (lbs)	L	25-04-08	25-04-08	Top					-28	n\a

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	1067 ft-lbs	6.5%	125%	3	21-04-08
Neg. Moment	-1065 ft-lbs	21.4%	125%	6	16-05-00
End Shear	468 lbs	6.1%	125%	3	25-06-12
Cont. Shear	654 lbs	8.5%	125%	6	17-05-00
Total Load Deflection	L/999 (0.037")	n\a	n\a	3	21-09-00
Live Load Deflection	L/999 (0.03")	n\a	n\a	376	21-09-00
Total Neg. Defl.	L/999 (-0.013")	n\a	n\a	3	13-03-00
Max Defl.	0.037"	n\a	n\a	3	21-09-00
Span / Depth	12.9				

Bearing Supports

		Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Hanger	2" x 3-1/2"	439 lbs	n\a	8.4%	Hanger
B1	Uplift		131 lbs			
B2	Column	5-1/2" x 3-1/2"	1157 lbs	8.3%	8.0%	Unspecified

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

PASSED

Roof\Dropped Beams\BM4(i19) (Dropped Beam)

BC CALC® Member Report | Dry | 3 spans | No cant. | August 31, 2021 12:11:41

Build 7968

Job name:		File name:	2100762A.mmdl
Address:		Description:	Roof\Dropped Beams\BM4(i19)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	

Bearing Supports		Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B2	Uplift		324 lbs			
B3	Column	5-1/2" x 3-1/2"	1164 lbs	8.3%	8.1%	Unspecified
B3	Uplift		327 lbs			
B4	Hanger	2" x 3-1/2"	481 lbs	n\a	9.2%	Hanger
B4	Uplift		142 lbs			

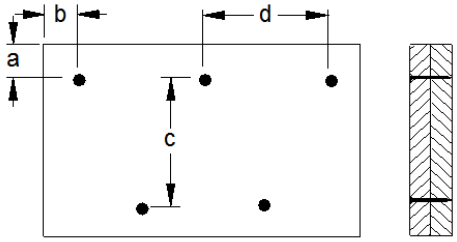
Cautions

Uplift of -324 lbs found at bearing B2.
Uplift of -327 lbs found at bearing B3.
Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.

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.
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.
Calculations assume unbraced length of Top: 01-10-08, Bottom: 26-06-00.

Connection Diagram: Full Length of Member



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

Calculated Side Load = 0.0 lb/ft
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® ENGINEERED WOOD PRODUCTS

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

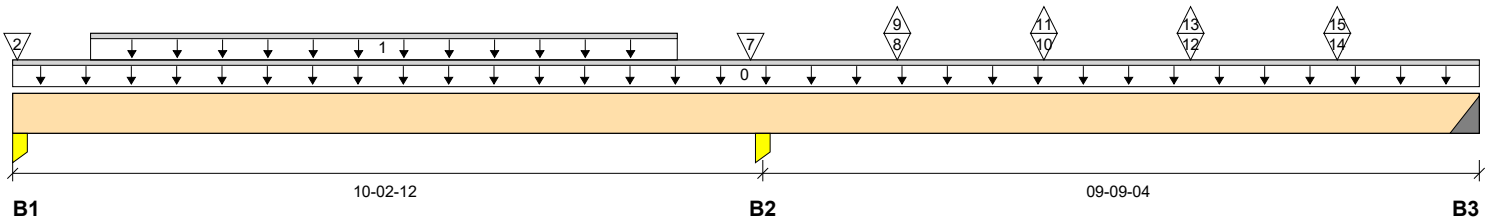
PASSED

Roof\Flush Beams\BM1(i22) (Flush Beam)

BC CALC® Member Report | Dry | 2 spans | No cant. | August 31, 2021 12:11:41

Build 7968

Job name:		File name:	2100762A.mmdl
Address:		Description:	Roof\Flush Beams\BM1(i22)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	



Total Horizontal Product Length = 20-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 5-1/2"		840 / 0		430 / 725	1036 / 155
B2, 5-1/2"		2965 / 0		853 / 1827	3087 / 26
B3, 2"		786 / 0		301 / 718	1065 / 178

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	20-00-00	Top		9				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-00-12	09-00-12	Top		232			245	n\a
2	BE(c1)	Conc. Pt. (lbs)	L	00-00-12	00-00-12	Top		100			146	n\a
7	B1(c5)	Conc. Pt. (lbs)	L	10-00-12	10-00-12	Top		473			508	n\a
8	B1(c5)	Conc. Pt. (lbs)	L	12-00-12	12-00-12	Top		464			494	n\a
9	B1(c5)	Conc. Pt. (lbs)	L	12-00-12	12-00-12	Top					-2	n\a
10	B1(c5)	Conc. Pt. (lbs)	L	14-00-12	14-00-12	Top		449			488	n\a
11	B1(c5)	Conc. Pt. (lbs)	L	14-00-12	14-00-12	Top					-4	n\a
12	B1(c5)	Conc. Pt. (lbs)	L	16-00-12	16-00-12	Top		456			516	n\a
13	B1(c5)	Conc. Pt. (lbs)	L	16-00-12	16-00-12	Top					-28	n\a
14	B1(c5)	Conc. Pt. (lbs)	L	18-00-12	18-00-12	Top		605			770	n\a
15	B1(c5)	Conc. Pt. (lbs)	L	18-00-12	18-00-12	Top					-18	n\a

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	4270 ft-lbs	26.1%	125%	4	16-00-12
Neg. Moment	-4346 ft-lbs	67.4%	125%	4	10-02-12
End Shear	1842 lbs	24.0%	125%	4	19-00-12
Cont. Shear	2621 lbs	34.1%	125%	1	11-02-12
Total Load Deflection	L/918 (0.126")	26.2%	n\a	4	15-06-12
Live Load Deflection	L/999 (0.082")	n\a	n\a	236	15-05-04
Total Neg. Defl.	L/999 (-0.013")	n\a	n\a	4	08-07-12
Max Defl.	0.126"	12.6%	n\a	4	15-06-12
Span / Depth	12.8				

Bearing Supports

		Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Column	5-1/2" x 3-1/2"	1876 lbs	13.4%	13.0%	Unspecified
B2	Column	5-1/2" x 3-1/2"	6052 lbs	43.4%	41.9%	Unspecified
B3	Hanger	2" x 3-1/2"	1851 lbs	n\a	35.3%	Hanger

Cautions

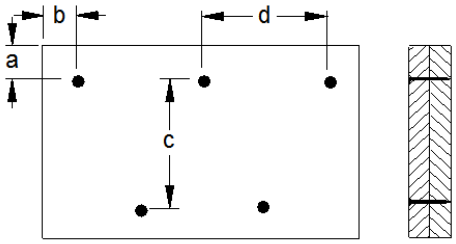
Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.

Job name:		File name:	2100762A.mmdl
Address:		Description:	Roof\Flush Beams\BM1(i22)
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.
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.
Calculations assume unbraced length of Top: 01-10-08, Bottom: 19-06-12.

Connection Diagram: Full Length of Member



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

Calculated Side Load = 0.0 lb/ft
Connectors are: 3-1/4 in. Pneumatic Gun Nails

Disclosure

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

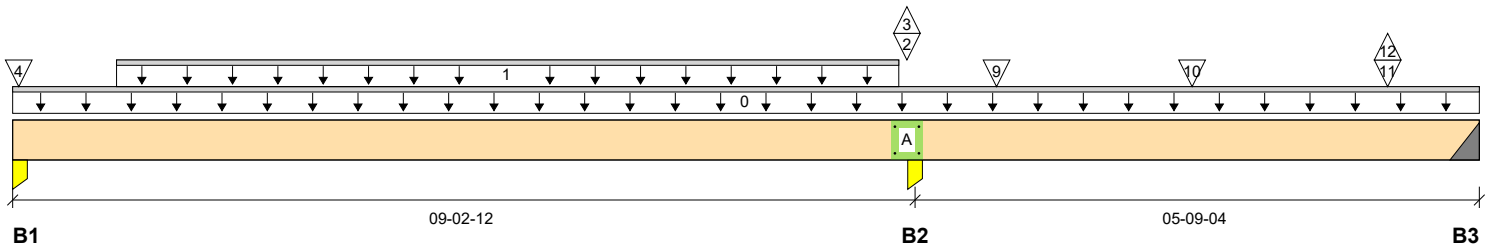
PASSED

Roof\Flush Beams\BM2(i20) (Flush Beam)

BC CALC® Member Report | Dry | 2 spans | No cant. | August 31, 2021 12:11:41

Build 7968

Job name:		File name:	2100762A.mmdl
Address:		Description:	Roof\Flush Beams\BM2(i20)
City, State, Zip:		Specifier:	
Customer:		Designer:	
Code reports:	ESR-1040	Company:	



Total Horizontal Product Length = 15-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 5-1/2"		814 / 0		376 / 698	906 / 44
B2, 5-1/2"		2372 / 0		778 / 1527	2597 / 21
B3, 2"		365 / 0		95 / 187	625 / 264

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	15-00-00	Top		9				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-00-12	09-00-12	Top		232			245	n\a
2	BM4(i19)	Conc. Pt. (lbs)	L	09-01-12	09-01-12	Top		110			318	n\a
3	BM4(i19)	Conc. Pt. (lbs)	L	09-01-12	09-01-12	Top					-20	n\a
4	BE(c1)	Conc. Pt. (lbs)	L	00-00-12	00-00-12	Top		100			146	n\a
9	B1(c5)	Conc. Pt. (lbs)	L	10-00-12	10-00-12	Top		456			473	n\a
10	B1(c5)	Conc. Pt. (lbs)	L	12-00-12	12-00-12	Top		457			473	n\a
11	B1(c5)	Conc. Pt. (lbs)	L	14-00-12	14-00-12	Top		430			455	n\a
12	B1(c5)	Conc. Pt. (lbs)	L	14-00-12	14-00-12	Top					-5	n\a

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	3416 ft-lbs	20.9%	125%	3	04-00-12
Neg. Moment	-3709 ft-lbs	28.8%	125%	1	09-02-12
End Shear	1462 lbs	19.0%	125%	3	01-02-12
Cont. Shear	2464 lbs	32.0%	125%	1	08-02-12
Total Load Deflection	L/999 (0.086")	n\a	n\a	3	04-05-04
Live Load Deflection	L/999 (0.047")	n\a	n\a	235	04-06-00
Total Neg. Defl.	L/999 (-0.014")	n\a	n\a	3	11-03-02
Max Defl.	0.086"	n\a	n\a	3	04-05-04
Span / Depth	11.5				

Bearing Supports

		Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Column	5-1/2" x 3-1/2"	1720 lbs	12.3%	11.9%	Unspecified
B2	Column	5-1/2" x 3-1/2"	4970 lbs	35.6%	34.4%	Unspecified
B3	Hanger	2" x 3-1/2"	990 lbs	n\a	18.9%	Hanger

Cautions

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

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

PASSED

Roof\Flush Beams\BM2(i20) (Flush Beam)

BC CALC® Member Report | Dry | 2 spans | No cant. | August 31, 2021 12:11:41

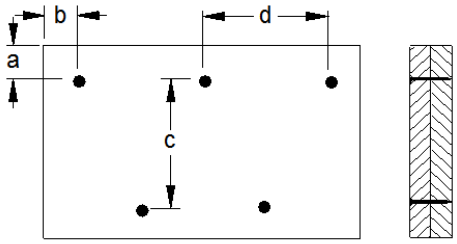
Build 7968

Job name:		File name:	2100762A.mmdl
Address:		Description:	Roof\Flush Beams\BM2(i20)
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.
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.
Calculations assume unbraced length of Top: 01-10-08, Bottom: 08-06-12.

Connection Diagram: Full Length of Member

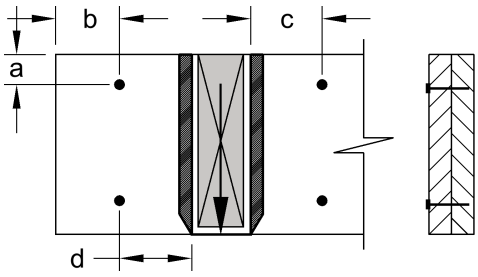


a minimum = 2" c = 5-1/4"
b minimum = 3" d = 24"

Calculated Side Load = 0.0 lb/ft
Connectors are: 3-1/4 in. Pneumatic Gun Nails

Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 86+90+87



a minimum = 2"
b minimum = 4"
c minimum = 4"
d maximum = 12"
Connectors are: 4 x 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.

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