



Double 1-3/4" x 14" VERSA-LAM® LVL 2.1E 3100 SP

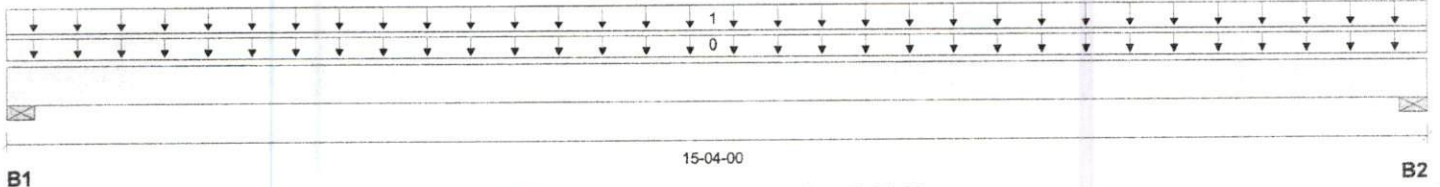
PASSED

FB04 (Flush Beam) B-3
Dry | 1 span | No cant.

October 1, 2024 01:27:58

BC CALC® Member Report
Build 8892
Job name:
Address:
City, State, Zip:
Customer:
Code reports: ESR-1040

File name:
Description:
Specifier:
Designer: William Johnson
Company: Lariat Construction Co., Inc



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 3-1/2"	1840 / 0	569 / 0			
B2, 3-1/2"	1840 / 0	569 / 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	15-04-00	Top		14				00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	15-04-00	Back	40	10				06-00-00

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	8690 ft-lbs	29.9%	100%	1	07-08-00
End Shear	1951 lbs	21.0%	100%	1	01-05-08
Total Load Deflection	L/792 (0.225")	60.6%	n/a	1	07-08-00
Live Load Deflection	L/1037 (0.172")	46.3%	n/a	2	07-08-00
Max Defl.	0.225"	22.5%	n/a	1	07-08-00
Span / Depth	12.8				

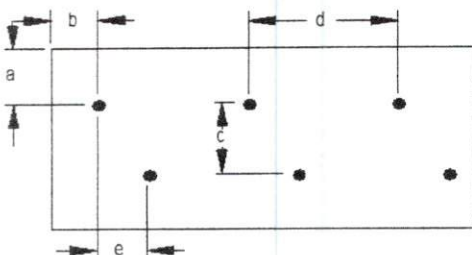
Bearing Supports

	Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	2409 lbs	n/a	26.2%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	2409 lbs	n/a	26.2%	Unspecified

Notes

- Design meets User specified (L/480) Total load deflection criteria.
- Design meets User specified (L/480) Live load deflection criteria.
- Design meets arbitrary (1") Maximum Total load deflection criteria.
- Design based on Dry Service Condition.
- BC CALC® analysis is based on IBC 2009.
- Calculations assume member is fully braced.

Connection Diagram: Full Length of Member





Double 1-3/4" x 14" VERSA-LAM® LVL 2.1E 3100 SP

PASSED

FB04 (Flush Beam)

Dry | 1 span | No cant.

October 1, 2024 01:27:58

BC CALC® Member Report

Build 8892

Job name:

Address:

City, State, Zip:

Customer:

Code reports: ESR-1040

File name:

Description:

Specifier:

Designer: William Johnson

Company: Lariat Construction Co., Inc

Connection Diagram: Full Length of Member

a minimum = 1-1/2"

c = 11"

b minimum = 4"

d = 24"

e minimum = 1"

Calculated Side Load = 300.0 lb/ft

Install screws from both sides, staggering screws by half of the spacing to avoid splitting.

Connectors are: SDS 1/4 x 3-1/2

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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Double 1-3/4" x 18" VERSA-LAM® LVL 2.1E 3100 SP

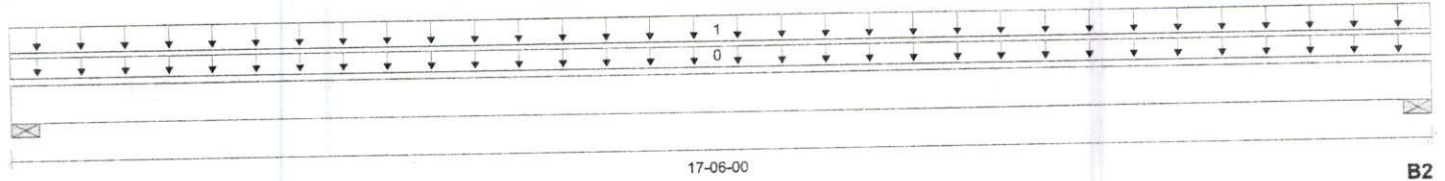
PASSED

FB03 (Flush Beam) 64
Dry | 1 span | No cant.

October 1, 2024 01:08:48

BC CALC® Member Report
Build 8892
Job name:
Address:
City, State, Zip:
Customer:
Code reports: ESR-1040

File name:
Description:
Specifier:
Designer: William Johnson
Company: Lariat Construction Co., Inc



Total Horizontal Product Length = 17-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 3-1/2"	2713 / 0	1516 / 0			
B2, 3-1/2"	2713 / 0	1516 / 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	17-06-00	Top	18					00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	17-06-00	Back	20	10				15-06-00

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	17543 ft-lbs	37.6%	100%	1	08-09-00
End Shear	3363 lbs	28.1%	100%	1	01-09-08
Total Load Deflection	L/712 (0.287")	67.4%	n/a	1	08-09-00
Live Load Deflection	L/1110 (0.184")	43.3%	n/a	2	08-09-00
Max Defl.	0.287"	28.7%	n/a	1	08-09-00
Span / Depth	11.4				

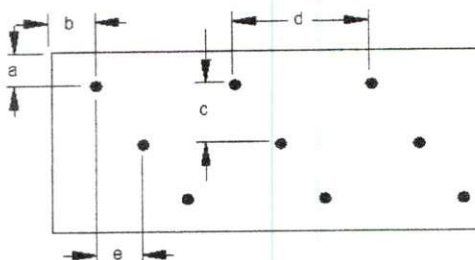
Bearing Supports

	Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	4228 lbs	n/a	46.0%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	4228 lbs	n/a	46.0%	Unspecified

Notes

- Design meets User specified (L/480) Total load deflection criteria.
- Design meets User specified (L/480) Live load deflection criteria.
- Design meets arbitrary (1") Maximum Total load deflection criteria.
- Design based on Dry Service Condition.
- BC CALC® analysis is based on IBC 2009.
- Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

Connection Diagram: Full Length of Member





Double 1-3/4" x 18" VERSA-LAM® LVL 2.1E 3100 SP

PASSED

FB03 (Flush Beam)
Dry | 1 span | No cant.

October 1, 2024 01:08:48

BC CALC® Member Report
Build 8892
Job name:
Address:
City, State, Zip:
Customer:
Code reports: ESR-1040

File name:
Description:
Specifier:
Designer: William Johnson
Company: Lariat Construction Co., Inc

Connection Diagram: Full Length of Member

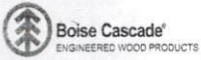
- a minimum = 1-1/2" c = 7-1/2"
- b minimum = 4" d = 24"
- e minimum = 1"

Calculated Side Load = 300.0 lb/ft
Install screws from both sides, staggering screws by half of the spacing to avoid splitting.
Connectors are: SDS 1/4 x 3-1/2

Disclosure

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Double 1-3/4" x 11-7/8" VERSA-LAM® LVL 2.1E 3100 SP

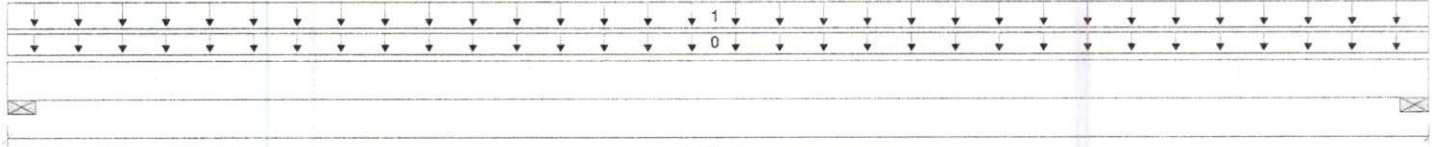
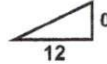
PASSED

RB07 (Roof Flush Beam) 85
Dry | 1 span | No cant.

October 1, 2024 01:20:57

BC CALC® Member Report
Build 8892
Job name:
Address:
City, State, Zip:
Customer:
Code reports: ESR-1040

File name:
Description:
Specifier:
Designer: William Johnson
Company: Lariat Construction Co., Inc



B1 B2
15-04-00
Total Horizontal Product Length = 15-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 3-1/2"		552 / 0	920 / 0		
B2, 3-1/2"		552 / 0	920 / 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	15-04-00	Top		12				00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	15-04-00	Front		10	20			06-00-00

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	5311 ft-lbs	21.7%	115%	4	07-08-00
End Shear	1226 lbs	13.5%	115%	4	01-03-06
Total Load Deflection	L/810 (0.22")	59.2%	n/a	4	07-08-00
Live Load Deflection	L/1297 (0.138")	37.0%	n/a	5	07-08-00
Max Defl.	0.22"	22.0%	n/a	4	07-08-00
Span / Depth	15.0				

Bearing Supports

	Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	1472 lbs	n/a	16.0%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	1472 lbs	n/a	16.0%	Unspecified

Cautions

For roof members with slope (1/4)/12 or less final design must ensure that ponding instability will not occur.

For roof members with slope (1/2)/12 or less final design must account for Rain-on-Snow surcharge load.

Notes

Design meets User specified (L/480) Total load deflection criteria.

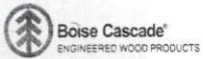
Design meets User specified (L/480) Live load deflection criteria.

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

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2009.

Calculations assume member is fully braced.



Double 1-3/4" x 11-7/8" VERSA-LAM® LVL 2.1E 3100 SP

PASSED

RB01 (Roof Flush Beam)

Dry | 1 span | No cant.

October 1, 2024 01:20:57

BC CALC® Member Report

Build 8892

Job name:

Address:

City, State, Zip:

Customer:

Code reports: ESR-1040

File name:

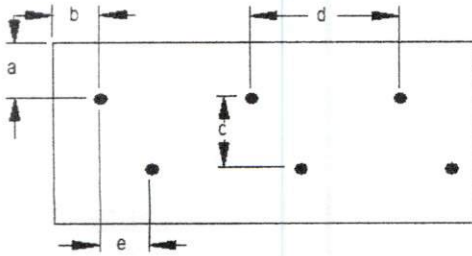
Description:

Specifier:

Designer: William Johnson

Company: Lariat Construction Co., Inc

Connection Diagram: Full Length of Member



a minimum = 1-1/2"

b minimum = 4"

c = 8-7/8"

d = 24"

e minimum = 1"

Calculated Side Load = 180.0 lb/ft

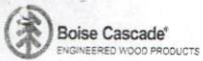
Install screws from both sides, staggering screws by half of the spacing to avoid splitting.

Connectors are: SDS 1/4 x 3-1/2

Disclosure

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Double 1-3/4" x 11-7/8" VERSA-LAM® LVL 1.8E 2650 SP

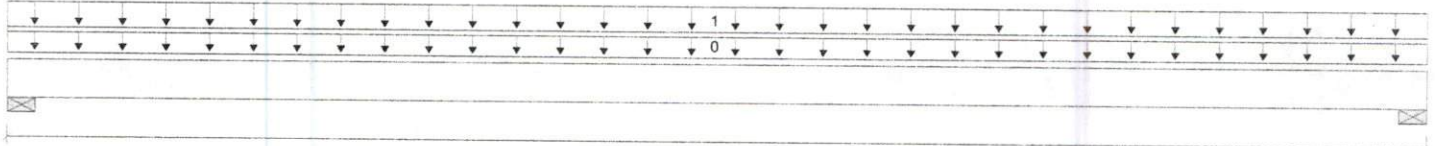
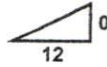
PASSED

RB01 (Roof Flush Beam) *B9*
Dry | 1 span | No cant.

October 1, 2024 00:12:34

BC CALC® Member Report
Build 8892
Job name:
Address:
City, State, Zip:
Customer:
Code reports: ESR-1040

File name:
Description:
Specifier:
Designer: William Johnson
Company: Lariat Construction Co., Inc



B1 18-00-00 B2
Total Horizontal Product Length = 18-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 3-1/2"		1188 / 0			
B2, 3-1/2"		1188 / 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	18-00-00	Top		12				00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	18-00-00	Front		10				12-00-00

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	5079 ft-lbs	31.0%	90%	0	09-00-00
End Shear	1019 lbs	14.3%	90%	0	01-03-06
Total Load Deflection	L/522 (0.403")	34.5%	n/a	2	09-00-00
Live Load Deflection	L/999 (0.068")	n/a	n/a	5	09-00-00
Max Defl.	0.403"	40.3%	n/a	2	09-00-00
Span / Depth	17.7				

Bearing Supports

	Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	1459 lbs	n/a	15.9%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	1459 lbs	n/a	15.9%	Unspecified

Cautions

Controlling Bearing value was generated by load case 1, using Man Load.
 Controlling Bearing value was generated by load case 3, using Man Load.
 For roof members with slope (1/4)/12 or less final design must ensure that ponding instability will not occur.
 For roof members with slope (1/2)/12 or less final design must account for Rain-on-Snow surcharge load.

Notes

Design meets Code minimum (L/180) Total load deflection criteria.
 Design meets Code minimum (L/240) Live load deflection criteria.
 Design meets arbitrary (1") Maximum Total load deflection criteria.
 Design based on Dry Service Condition.
 BC CALC® analysis is based on IBC 2009.
 Calculations assume member is fully braced.



RB01 (Roof Flush Beam)

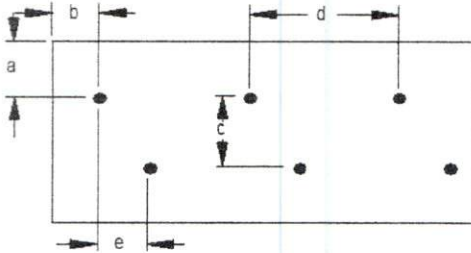
Dry | 1 span | No cant.

October 1, 2024 00:12:34

BC CALC® Member Report
Build 8892
Job name:
Address:
City, State, Zip:
Customer:
Code reports: ESR-1040

File name:
Description:
Specifier:
Designer: William Johnson
Company: Lariat Construction Co., Inc

Connection Diagram: Full Length of Member



a minimum = 1-1/2" c = 8-7/8"
b minimum = 4" d = 24"
e minimum = 1"

Calculated Side Load = 110.0 lb/ft
Install screws from both sides, staggering screws by half of the spacing to avoid splitting.
Connectors are: SDS 1/4 x 3-1/2

Disclosure

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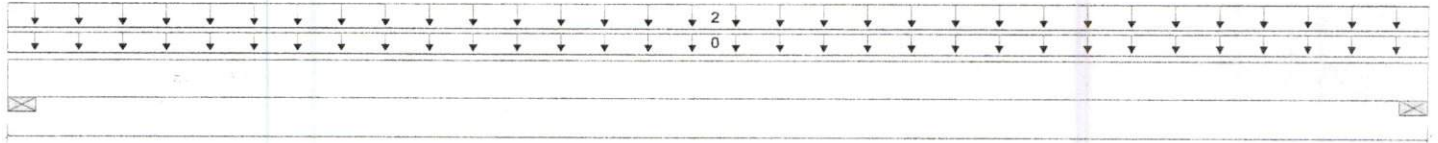


FB02 (Drop Beam) B7
Dry | 1 span | No cant.

October 1, 2024 00:49:00

BC CALC® Member Report
Build 8892
Job name:
Address:
City, State, Zip:
Customer:
Code reports: ESR-1040

File name:
Description:
Specifier:
Designer: William Johnson
Company: Lariat Construction Co., Inc



B1 B2
17-00-00
Total Horizontal Product Length = 17-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 3-1/2"	2097 / 0	757 / 0			2097 / 0
B2, 3-1/2"	2097 / 0	757 / 0			2097 / 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	17-00-00	Top		27				00-00-00
2		Unf. Area (lb/ft²)	L	00-00-00	17-00-00	Top	40	10			40	06-02-00

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	15700 ft-lbs	84.2%	125%	3	08-06-00
End Shear	3079 lbs	13.7%	125%	3	01-09-08
Total Load Deflection	L/1221 (0.163")	39.3%	n/a	3	08-06-00
Live Load Deflection	L/1515 (0.131")	31.7%	n/a	6	08-06-00
Max Defl.	0.163"	16.3%	n/a	3	08-06-00
Span / Depth	11.0				

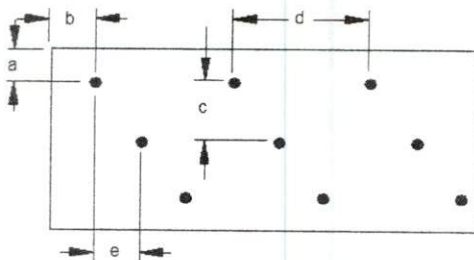
Bearing Supports

	Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Wall/Plate 3-1/2" x 5-1/4"	3902 lbs	n/a	28.3%	Unspecified
B2	Wall/Plate 3-1/2" x 5-1/4"	3902 lbs	n/a	28.3%	Unspecified

Notes

- Design meets User specified (L/480) Total load deflection criteria.
- Design meets User specified (L/480) Live load deflection criteria.
- Design meets arbitrary (1") Maximum Total load deflection criteria.
- Design based on Dry Service Condition.
- BC CALC® analysis is based on IBC 2009.
- Calculations assume member is braced at ends. See engineering report for the unbraced length.

Connection Diagram: Full Length of Member





Triple 1-3/4" x 18" VERSA-LAM® LVL 2.1E 3100 SP

PASSED

FB02 (Drop Beam)
Dry | 1 span | No cant.

October 1, 2024 00:49:00

BC CALC® Member Report
Build 8892

Job name:

File name:

Address:

Description:

City, State, Zip:

Specifier:

Customer:

Designer:

William Johnson

Code reports:

ESR-1040

Company:

Lariat Construction Co., Inc

Connection Diagram: Full Length of Member

a minimum = 1-1/2"

c = 7-1/2"

b minimum = 4"

d = 24"

e minimum = 1"

Calculated Side Load = 0.0 lb/ft

Install screws from both sides, staggering screws by half of the spacing to avoid splitting.

Connectors are: SDS 1/4 x 3-1/2

Disclosure

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FB01 (Drop Beam) *SB*
Dry | 1 span | No cant.

September 20, 2024 20:58:09

BC CALC® Member Report
Build 8892
Job name:
Address:
City, State, Zip:
Customer:
Code reports: ESR-1040

File name:
Description:
Specifier:
Designer: William Johnson
Company: Lariat Construction Co., Inc



B1 32-00-00 B2
Total Horizontal Product Length = 32-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 3-1/2"	7840 / 0	2738 / 0			
B2, 3-1/2"	7840 / 0	2738 / 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	32-00-00	Top		49				00-00-00
2		Unf. Area (lb/ft²)	L	00-00-00	32-00-00	Back	40	10				12-03-00

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	82220 ft-lbs	51.2%	100%	1	16-00-00
End Shear	9063 lbs	28.4%	100%	1	02-03-08
Total Load Deflection	L/410 (0.923")	58.5%	n/a	1	16-00-00
Live Load Deflection	L/553 (0.684")	86.8%	n/a	2	16-00-00
Max Defl.	0.923"	92.3%	n/a	1	16-00-00
Span / Depth	15.8				

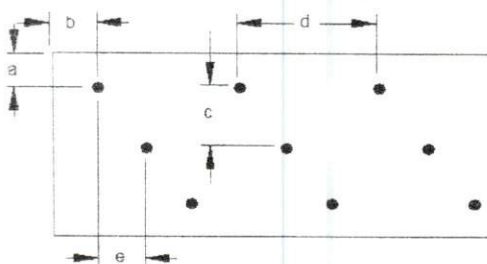
Bearing Supports

	Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Wall/Plate 3-1/2" x 7"	10578 lbs	n/a	57.6%	Unspecified
B2	Wall/Plate 3-1/2" x 7"	10578 lbs	n/a	57.6%	Unspecified

Notes

- Design meets Code minimum (L/240) Total load deflection criteria.
- Design meets User specified (L/480) Live load deflection criteria.
- Design meets arbitrary (1") Maximum Total load deflection criteria.
- Design based on Dry Service Condition.
- BC CALC® analysis is based on IBC 2009.
- To minimize rotation, 7" wide beams should be top-loaded or loaded from each side and properly braced.
- Calculations assume member is fully braced.

Connection Diagram: Full Length of Member





BC CALC® Member Report

Build 8892

Job name:

Address:

City, State, Zip:

Customer:

Code reports: ESR-1040

FB01 (Drop Beam)

Dry | 1 span | No cant.

September 20, 2024 20:58:09

File name:

Description:

Specifier:

Designer: William Johnson

Company: Lariat Construction Co., Inc

Connection Diagram: Full Length of Member

a minimum = 1-1/2"

c = 10-1/2"

b minimum = 4"

d = 24"

e minimum = 1"

Calculated Side Load = 306.3 lb/ft

Install screws from both sides, staggering screws by half of the spacing to avoid splitting.

Connectors are: SDS 1/4 x 6

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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