Boise Cascade

Single 5-1/4" x 7" VERSA-LAM® 1.8 2750 SP

Dry | 7' 0" Column Freestanding

September 8, 201

BC CALC® Design Report

Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 09/12/17

Build 6080
Job Name: 20' RIDGE BEAM-LEFT SIDE
Address: 5 Monument Street
City, State, Zip: PORTLAND, ME
Customer: HANCOCK LUMBER
Code reports: ESR-1040

File Name: BC CALC Project
Description: Designs\CL01
Specifier:
Designer: GUY DOYON
Company: HANCOCK LUMBER COMPANY
Misc:

Column Freestanding

Load Summary

Tag	Description	Load Type	Start	End	Live 100%	Dead 90%	Snow 115%	Wind 160%	Roof Live 125%
1		Conc. Pt. (lbs)	00-00-00	00-00-00	2,000	2,320	11,960		

Bracing	Elevation	Sheathing
Top	07-00-00	
Base	00-00-00	

Controls Summary	Value	% Allowable	Duration	Load Case
Axial Compression	n/a	15.9%	115%	2
Slenderness Ratio	16	32%	n/a	0

Cautions

Design does not consider perpendicular to grain stress on the sill plate or other supporting member.

Notes

A generic column cap was used in the analysis of the column. Make sure to install and size the cap. BC Calc does not perform shear wall or connection design for in-plane load transfer.

User Notes

COLUMN WHERE 2 RIDGES JOIN AT WALL

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 (800)232-0788 before installation.

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Column

Boise Cascade

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

Roof Bear

Dry | 1 span | No cantilevers | 0/12 slope

September 8, 201

Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 09/12/17

BC CALC® Design Report

Build 6080

Job Name: 20' RIDGE BEAM-LEFT SIDE
Address: 5 Monument Street ER-C
City, State, Zip: PORTLAND, ME
Customer: HANCOCK LUMBER
Code reports: ESR-1040

File Name: BC CALC Project
Description: Designs\RB02
Specifier:
Designer: GUY DOYON
Company: HANCOCK LUMBER COMPANY
Misc:

Total Horizontal Product Length = 20-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B0, 5-1/8"		1,243 / 0	8,000 / 0		
B1, 5-1/8"		1,243 / 0	8,000 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 100%	Dead 90%	Snow 115%	Wind 160%	Roof Live 125%	Trib.
1	Standard Load	Unf. Area (lb/ft^2)	L	00-00-00	20-00-00		10	80			10-00-00

Controls Summary

	Value	%Allowable	Duration	Case	Location
Pos. Moment	42,908 ft-lbs	66.6%	115%	4	10-00-00
End Shear	7,616 lbs	41.5%	115%	4	01-09-02
Total Load Defl.	L/289 (0.8")	62.3%	n/a	4	10-00-00
Live Load Defl.	L/334 (0.693")	71.9%	n/a	5	10-00-00
Max Defl.	0.8"	80%	n/a	4	10-00-00
Span / Depth	14.5	n/a	n/a	0	00-00-00
Squash Blocks	Valid				

Bearing Supports

		Dim. (L x W)	Value	% Allow Support	% Allow Member	Material
B0	Post	5-1/8" x 5-1/4"	9,243 lbs	11.5%	45.8%	Versa-Lam 1.7
B1	Post	5-1/8" x 5-1/4"	9,243 lbs	11.5%	45.8%	Versa-Lam 1.7

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 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.
Calculations assume member is fully braced.
Design based on Dry Service Condition.

Boise Cascade

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

Roof Bear

Dry | 1 span | No cantilevers | 0/12 slope

September 8, 201

BC CALC® Design Report

Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 09/12/17

Build 6080
Job Name: 20' RIDGE BEAM-LEFT SIDE
Address: 5 Monument Street
City, State, Zip: PORTLAND, ME
Customer: HANCOCK LUMBER
Code reports: ESR-1040

File Name: BC CALC Project
Description: Designs\RB02
Specifier:
Designer: GUY DOYON
Company: HANCOCK LUMBER COMPANY
Misc:

Connection Diagram

a minimum = 2" c = 12"
b minimum = 2-1/2" d = 24"

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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Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Roof Bea

Dry | 1 span | No cantilevers | 0/12 slope

September 8, 201

Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 09/12/17

BC CALC® Design Report

Build 6080
Job Name: 9' RIDGE BEAM-RIGHT SIDE
Address: 5 Monument Street
City, State, Zip: PORTLAND, ME
Customer: HANCOCK LUMBER
Code reports: ESR-1040

File Name: BC CALC Project
Description: Designs\RB01
Specifier:
Designer: GUY DOYON
Company: HANCOCK LUMBER COMPANY
Misc:

Total Horizontal Product Length = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B0, 3-1/2"		538 / 0	3,960 / 0		
B1, 3-1/2"		538 / 0	3,960 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 100%	Dead 90%	Snow 115%	Wind 160%	Roof Live 125%	Trib.
1	Standard Load	Unf. Area (lb/ft^2)	L	00-00-00	09-00-00		10	80			11-00-00

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	9,117 ft-lbs	56.8%	115%	4	04-06-00
End Shear	3,415 lbs	47%	115%	4	01-01-00
Total Load Defl.	L/428 (0.239")	42%	n/a	4	04-06-00
Live Load Defl.	L/486 (0.211")	49.3%	n/a	5	04-06-00
Max Defl.	0.239"	23.9%	n/a	4	04-06-00
Span / Depth	10.8	n/a	n/a	0	00-00-00
Squash Blocks	Valid				

Bearing Supports

		Dim. (L x W)	Value	% Allow Support	% Allow Member	Material
B0	Post	3-1/2" x 3-1/2"	4,498 lbs	n/a	49%	Unspecified
B1	Post	3-1/2" x 3-1/2"	4,498 lbs	n/a	49%	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 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.
Calculations assume member is fully braced.
Design based on Dry Service Condition.

Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Roof Bear

Dry | 1 span | No cantilevers | 0/12 slope

September 8, 201

Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 09/12/17

BC CALC® Design Report

Build 6080
Job Name: 9' RIDGE BEAM-RIGHT SIDE
Address: 5 Monument Street
City, State, Zip: PORTLAND, ME
Customer: HANCOCK LUMBER
Code reports: ESR-1040

File Name: BC CALC Project
Description: Designs\RB01
Specifier:
Designer: GUY DOYON
Company: HANCOCK LUMBER COMPANY
Misc:

Connection Diagram

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

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

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 (800)232-0788 before installation.

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Boise Cascade

Triple 2 x 8 SPF #2

Dry | 1 span | No cantilevers | 0/12 slope

Wall Head

September 8, 201

BC CALC® Design Report

Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 09/12/17

Build 6080
Job Name: 6'-4" HEADER FOR WINDOWS
Address: 5 Monument Street
City, State, Zip: PORTLAND, ME
Customer: HANCOCK LUMBER
Code reports: NLGA

File Name: BC CALC Project
Description: Designs\FB02
Specifier:
Designer: GUY DOYON
Company: HANCOCK LUMBER COMPANY
Misc:

Total Horizontal Product Length = 06-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B0, 3-1/2"		317 / 0	2,340 / 0		
B1, 3-1/2"		317 / 0	2,340 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 100%	Dead 90%	Snow 115%	Wind 160%	Roof Live 125%	Trib.
1	Standard Load	Unf. Area (lb/ft^2)	L	00-00-00	06-06-00		10	80			09-00-00

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	3,730 ft-lbs	94%	115%	1	03-03-00
End Shear	1,924 lbs	57%	115%	1	00-10-12
Total Load Defl.	L/999 (0.122")	n/a	n/a	1	03-03-00
Live Load Defl.	L/999 (0.108")	n/a	n/a	2	03-03-00
Max Defl.	0.122"	n/a	n/a	1	03-03-00
Span / Depth	10	n/a	n/a	0	00-00-00
Squash Blocks	Valid				

Bearing Supports

		Dim. (L x W)	Value	% Allow Support	% Allow Member	Material
B0	Post	3-1/2" x 3-1/2"	2,657 lbs	n/a	51%	Unspecified
B1	Post	3-1/2" x 3-1/2"	2,657 lbs	n/a	51%	Unspecified

Cautions

Member is not fully supported at post B0. A connector is required at this bearing.
Member is not fully supported at post B1. A connector is required at this bearing.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets arbitrary (0.5") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Design based on Dry Service Condition.
The analysis of solid sawn wood members is in accordance with the NDS and is limited to the output shown above. All other support and design for these products, including but not limited to notching, connections, installation, and engineer/architect certification is the responsibility of the project's design professional of record.

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