



July 19, 2016

Summit Custom Homes, LLC  
120 SE 30<sup>th</sup> St  
Lee's Summit, MO 64082

Re: 3111 SE 3<sup>rd</sup> Ter  
Lot 115 Mill Creek  
Lee's Summit, MO  
Permit #: PRRES 2016-0787

Apex Engineers, Inc. observed the house under construction at the above referenced address. For the purpose of this report, the house will be referred to as facing north. Our firm has been asked to address the following items:

1. Engineer to address joists and LVL that terminate on the rear HVAC wall above the first floor.
  - a. If the I-Joists supporting the first floor around the HVAC are framed per the I-Joist layout, the current framing will be sufficient to support the loads imposed. See attached for calculations.

Our firm recommends approval of these structural items contingent upon verification that the first floor I-Joists are framed per the I-Joist layout.

**LIMITATIONS**

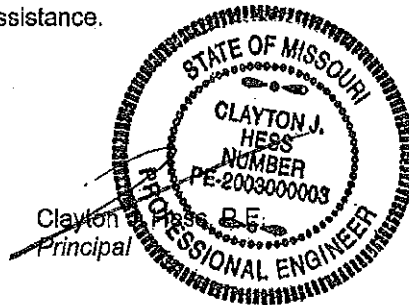
The scope of our services includes only those items specifically addressed herein. All other items are outside the scope of this report; including any environmental assessment (such as, but not limited to mold, mildew, or presence of any other toxic substance or environmental risks).

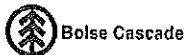
In addition, the scope our services does not include any evaluation of the building or site for job-site safety and/or hazardous conditions. All construction shall be performed in compliance with IRC and OSHA standards at all times. Our firm has not been retained to examine the site or building for any of these conditions. In addition, the contractor shall retain sole responsibility for the quality of work, for adhering to plans, specifications, appropriate codes, and, for repairing defects, deficiencies or omission, regardless of when they are found. By the use of this report it is understood the above conditions are agreed to.

Please call if Apex Engineers, Inc. can be of further assistance.

Best Regards,  
Apex Engineers, Inc.

Blake O. Hollingshead, EIT  
Project Engineer





# Single 9-1/2" BCI® 5000-1.7 DF

## Joist\J01

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope  
16 OCS | Non-Repetitive | Glued & nailed construction

August 9, 2016 16:16:23

Buld 4516

Job Name:

Address:

City, State, Zip: ,

Customer:

Code reports: ESR-1336

File Name: BC

Description: Designs\J01

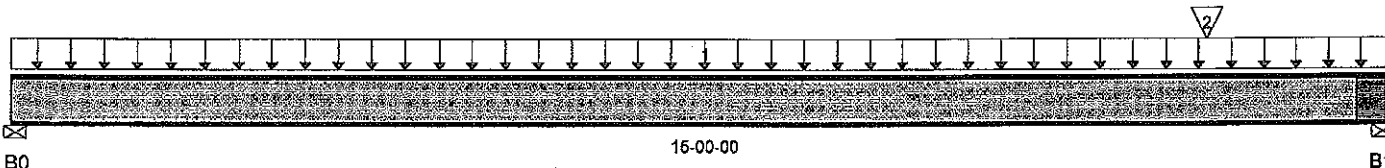
Specifier:

Designer: Bill SE 3RD ST

Company:

Misc:

( of 1



Total Horizontal Product Length = 15-00-00

### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B0, 2-1/2"	333 / 0	141 / 0			
B1, 2-1/2"	529 / 0	531 / 0			

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	100%	90%	115%	160%	125%	OCS
1		Unf. Area (lb/ft^2)	L	00-00-00	15-00-00	40	10				12
2		Conc. Pt. (lbs)	L	13-00-00	13-00-00	262	522				n/a

### Controls Summary

Value	% Allowable	Duration	Case	Location
Pos. Moment	2,176 ft-lbs	88.5%	100%	1 09-05-04
End Reaction	1,060 lbs	88.3%	100%	1 15-00-00
End Shear	1,050 lbs	71.2%	100%	1 14-09-08
Total Load Defl.	L/388 (0.455")	61.9%	n/a	1 07-11-04
Live Load Defl.	L/626 (0.282")	57.5%	n/a	2 07-09-00
Max Defl.	0.455"	45.5%	n/a	1 07-11-04
Vibration	14' 7"	91.2%	n/a	00-00-00
Span / Depth	18.6	n/a	n/a	0 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 (800)232-0788 before installation.

### Bearing Supports

Dim. (L x W)	Value	% Allow Support	% Allow Member	Material
B0 Wall/Plate 2-1/2" x 2"	474 lbs	n/a	45.7%	Unspecified
B1 Wall/Plate 2-1/2" x 2"	1,060 lbs	n/a	88.3%	Unspecified

### Vibration Summary

Subfloor: 23/32" OSB, Glue + Nail  
Strapping: None  
Gypsum Ceiling: 5/8"  
Bracing: None

### Cautions

Web stiffeners required at bearing B1.

### 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.  
Calculations assume Member is Fully Braced.  
Composite EI value based on 23/32" thick OSB sheathing glued and nailed to member.  
Design based on Dry Service Condition.  
Deflections less than 1/8" were ignored in the results.

