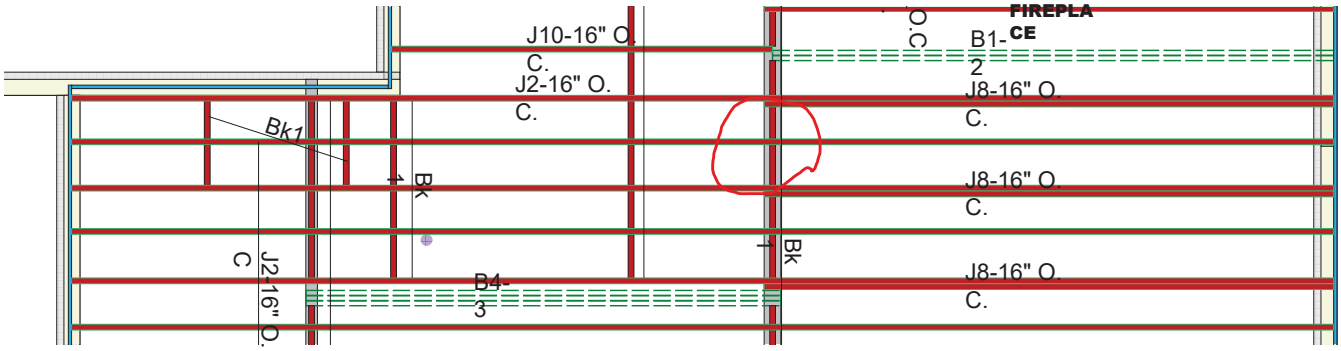
Lot 81 Summer View Farms
2315 SW Serena Place
Lee's Summit, MO, 64082
Midwest Lumber

Enlarged Affected Plan Area:



Photos:

Boise Cascade® ENGINEERED WOOD PRODUCTS

Single 9-1/2" BCI® 5000s-1.8

Foundation\Floor Joists\J2-16_ O_C_(i7573) (Joist)

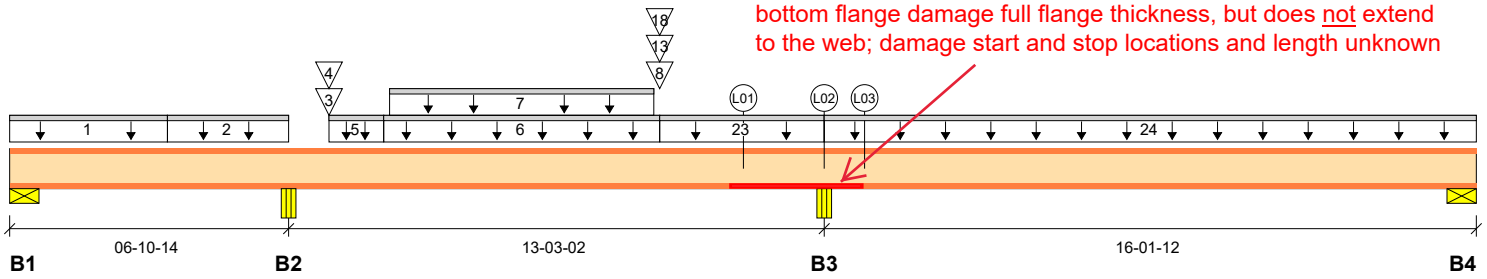
PASSES when repaired as shown

BC CALC® Member Report
Dry | 3 spans | No cant. | 16" OCS | Repetitive | Glued & nailed
December 23, 2024 16:05:16

Build 8931

Job name:	Lot 81 Summer View Farms	File name:	BC CALC Project
Address:	2315 SW Serena Place	Description:	
City, State, Zip:	Lee's Summit, MO, 64082	Specifier:	
Customer:	Midwest Lumber	Designer:	
Code reports:	ESR-1336	Company:	Boise Cascade BMD - Lee's Summit

Repair is Required



Total Horizontal Product Length = 36-03-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 2-7/8"	204 / 109	0 / 30	0 / 20		
B2, 4"	689 / 0	350 / 0	68 / 0		
B3, 5-3/4"	992 / 0	447 / 0	116 / 0		
B4, 4-3/8"	345 / 33	61 / 0	0 / 9		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 100%	Dead 90%	Snow 115%	Wind 160%	Roof Live 125%	OCS
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	03-10-14	Top	52	13				n\a
2	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	03-10-14	06-10-14	Top	52	13				n\a
3	Bk1(i7908)	Conc. Pt. (lbs)	L	07-10-14	07-10-14	Front	13	3				n\a
4	Bk1(i7927)	Conc. Pt. (lbs)	L	07-10-14	07-10-14	Back	12	3				n\a
5	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	07-10-14	09-03-02	Top	52	13				n\a
6	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	09-03-02	16-01-02	Top	52	13				n\a
7	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	09-04-14	15-11-06	Top		26				n\a
8	35(i4426)	Conc. Pt. (lbs)	L	16-01-02	16-01-02	Top	23	28	20			n\a
13	Bk1(i7841)	Conc. Pt. (lbs)	L	16-01-02	16-01-02	Front	82	98	70			n\a
18	Bk1(i7868)	Conc. Pt. (lbs)	L	16-01-02	16-01-02	Back	60	85	65			n\a
23	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	16-01-02	20-02-00	Top	52	13				n\a
24	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	20-02-00	36-03-12	Top	48	12				n\a

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	1481 ft-lbs	54.4%	100%	3	14-08-10
Neg. Moment	-1978 ft-lbs	72.6%	100%	5	20-02-00
End Reaction	406 lbs	36.1%	100%	2	36-03-12
Int. Reaction	1439 lbs	57.0%	100%	5	20-02-00
End Shear	384 lbs	26.1%	100%	2	35-11-06
Cont. Shear	820 lbs	55.6%	100%	5	19-11-02
Total Load Deflection	L/732 (0.217")	49.2%	n\a	3	14-01-05
Live Load Deflection	L/809 (0.235")	59.3%	n\a	37	28-07-06
Total Neg. Defl.	L/999 (-0.063")	n\a	n\a	3	25-04-02
Max Defl.	0.247"	24.7%	n\a	2	28-10-00
Span / Depth	20.0				

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Code reports:	ESR-1336	Company:	Boise Cascade BMD - Lee's Summit

Repair is Required

Location Analysis Summary (Load Case)

Tag	Description	Location	Pos. Mom. (ft-lbs)	Neg. Mom. (ft-lbs)	Shear (lbs)	Total Defl. (in)	Live Defl. (in)
L01		18-02-00	250(4)	-687(2)	-706(5)	-0.099(3)	-0.062(38)
L02		20-02-00	0(NA)	-1978(5)	-836(5)	0(5)	0(40)
L03		21-02-00	0(NA)	-1405(5)	543(5)	-0.032(2)	-0.037(37)

Bearing Supports		Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Wall/Plate	2-7/8" x 2"	175 lbs	7.1%	16.3%	Spruce-Pine-Fir
B1	Uplift		139 lbs			
B2	Beam	4" x 2"	1039 lbs	30.5%	46.7%	Spruce-Pine-Fir
B3	Beam	5-3/4" x 2"	1439 lbs	29.3%	57.0%	Spruce-Pine-Fir
B4	Wall/Plate	4-3/8" x 2"	406 lbs	10.9%	36.1%	Spruce-Pine-Fir

Cautions

Uplift of -139 lbs found at bearing B1.

Notes

Design meets User specified (L/360) Total load deflection criteria.
Design meets User specified (L/480) Live load deflection criteria.
Design meets arbitrary (1") Maximum Total load deflection criteria.
Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
BC CALC® analysis is based on IBC 2021.
Calculations assume member is fully braced.

User Notes

This certification is for a Boise Cascade individual building component only and not for the building system as a whole. The component design as shown on this report is based upon loadings and dimensions provided by others. Building designer is responsible for determining that the dimensions and loads for each component match those required by the plans and by the actual end use of the component. Verification of framing methods, bracing design, support conditions, connection, etc. is the responsibility of the building designer.

Disclosure

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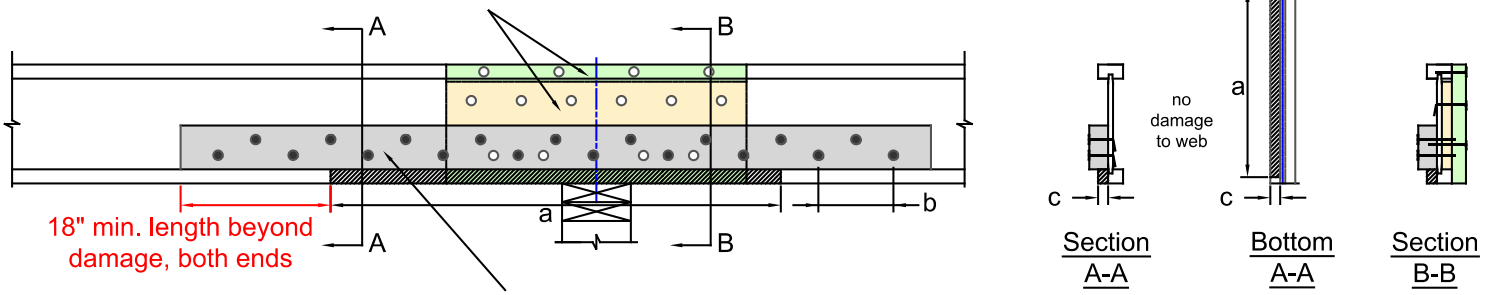
Code reports:	ESR-1336	Company:	Boise Cascade BMD - Lee's Summit

Required Repair: Jack up /shore up I-joist before repair installation.

Apply construction adhesive to cover all contact surfaces. **Backer:** Install 3/4" - 7/8" APA Rated Sheathing x (clear web depth - 1/4") x **2'-0"** min. length backer tight-fit to the top of the bottom flange centered at the bearing opposite the damaged side. **Reinforcer:** Install 1 1/8" APA Rated Rim Board x 9 1/2" depth x **2'-0"** min. length, tight-fit to the top of the bearing, centered at the bearing opposite the damaged side. **Through web:** fasten with 2 staggered rows 10d nails at 4" o.c., clinched downward where possible. **Through top flange only:** fasten with 1 row 8d nails at 6" o.c..



Apply construction adhesive to cover all contact surfaces. Min. 2x4 x (**1'-6"** min. beyond both ends of bottom flange damage) #2 & Btr. SPF & Btr. KD-19, or VERSA-LAM® LVL reinforcement damaged flange side of web, tight-fit to top of bottom flange

1) Center backer and reinforcer at the center of the bearing support.
2) Center 2x4 at the center of the flange damage and extend 1'-6" min. beyond the ends of the damage.

Scott Rutland, P.E.
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12/24/2024