

Vernon Schmidt  
Builders FirstSource  
Aberdeen/Southern Pines/Fayetteville, NC

Per information you provided, I understand there is concern regarding bottom flange nailing in Boise Cascade BCI® joists at the subject project.

- 14" BCI® 4500s joist, two-spanning 16'-8 1/2" and 15'-11"
- Joist labels: FJ-1(i1496), FJ-1(i1503), FJ-1(i1504), FJ-1(i1504)(1), FJ-1(i1512), FJ-1(i1516), FJ-1(i1517), FJ-1(i1519), FJ-1(i1529) FJ-1(i1530), FJ-1(i1531), FJ-1(i1532), FJ-1(i1533), & FJ-1(i1536). See partial layout in figure 1 and attached BC Calc® Design Reports.

- 14" BCI® 4500s joist, two-spanning 16'-8 1/2" and 15'-11"
- Joist label: FJ-1(i1509). See partial layout in figure 1 and attached BC Calc® Design Reports.

- 14" BCI® 4500s joist, clear-spanning 16'-4 3/4"
- Joist label: FJ-4(i1523). See partial layout in figure 1 and attached BC Calc® Design Reports.



Lot 4 Ila's Way  
82 Boston River Drive  
Dunn, NC

Simpson IU1.81/14 hangers have been installed to support one end of the above joists. The IUS hangers do not require nails in the joist as shown in figure 2 and attached page 144 from Simpson Strong-Tie Wood Construction Connectors 2024-2025 C-C-2024 catalog.

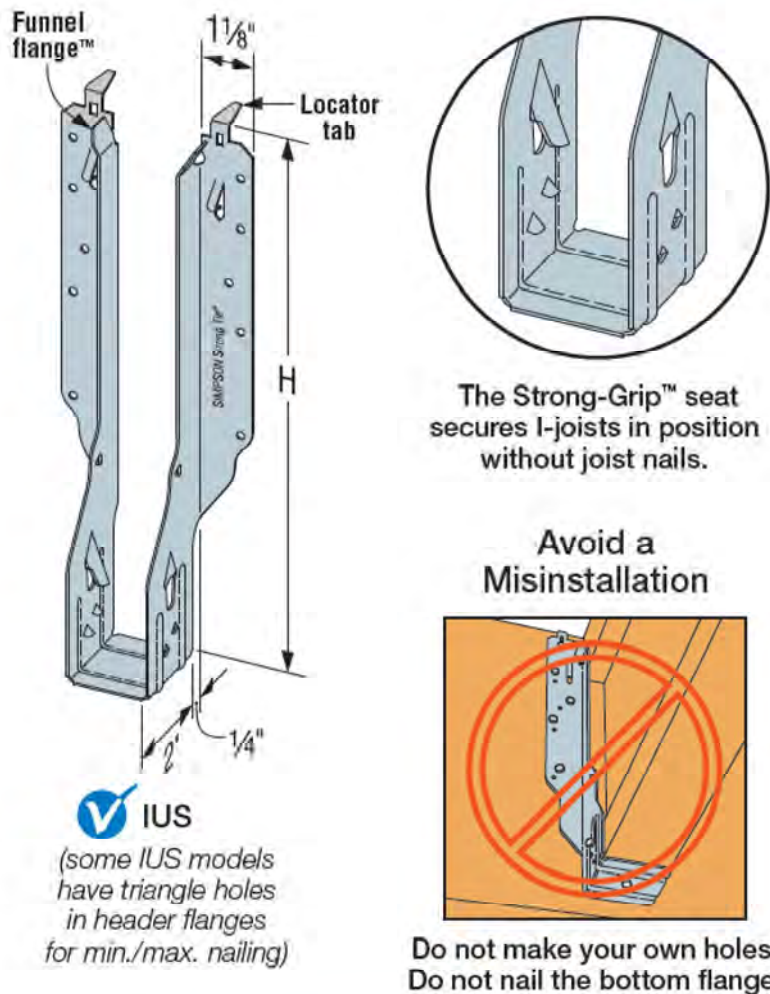


Figure 2: Simpson StrongTie IUS hanger information

Nails have been driven through the sides of the hangers into the bottom flanges as shown in images 1-6.

Lot 4 Ila's Way  
82 Boston River Drive  
Dunn, NC



Image 1: Bottom flange nailing in 14" BCI® 4500s joists, provided by Builders FirstSource



Image 2: Bottom flange nailing in 14" BCI® 4500s joists, provided by Builders FirstSource



Lot 4 Ila's Way  
82 Boston River Drive  
Dunn, NC



Image 3: Bottom flange nailing in 14" BCI® 4500s joists, provided by Builders FirstSource



Image 4: Bottom flange nailing in 14" BCI® 4500s joists, provided by Builders FirstSource

Lot 4 Ila's Way  
82 Boston River Drive  
Dunn, NC

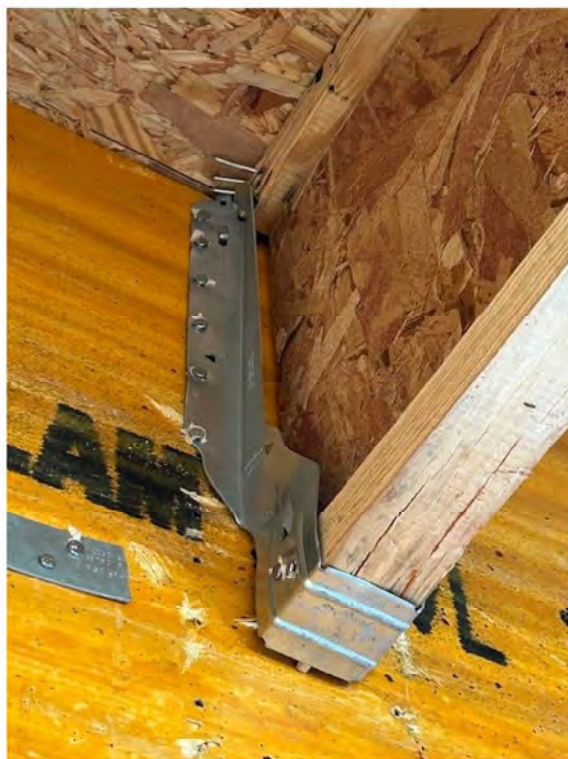


Image 5: Bottom flange nailing in 14" BCI® 4500s joists, provided by Builders FirstSource



Image 6: Bottom flange nailing in 14" BCI® 4500s joists, provided by Builders FirstSource



Lot 4 Ila's Way  
82 Boston River Drive  
Dunn, NC

No repair is required for the joists listed above with flange splitting that does not exceed a maximum length of 3" measured from the inside face of the hanger.

Joists listed above with flange splitting exceeding 3" up to a maximum length of 12" measured from the inside face of the hanger shall be reinforced per the attached repair detail.

This review was for Boise Cascade individual building components only and not for the building system as a whole. Refer to hanger manufacturer for review of the hangers.

All information on the attached BC Calc® Design Reports was provided by you. No one from Boise Cascade has visited the subject project to verify the conditions reported. Our review was based on the information you provided. This review shall be considered null and void if the actual conditions vary from those reported.

If you have any questions regarding this matter, please feel free to contact me at (800) 524-7209 or [dougmcfarland@bc.com](mailto:dougmcfarland@bc.com).

Sincerely,



Doug McFarland, P.E.  
Product Engineer

Attachments (18)



This certification is for Boise Cascade individual building components only and not for the building system as a whole. The component design attached to this report was provided by others. No one from Boise Cascade has visited the subject property or reviewed the project documents for product conformance. The building designer of record 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, connections, etc. is the responsibility of the building designer of record.

## IUS/MIU

## I-Joist Hangers



This product is preferable to similar connectors because of (a) easier installation, (b) higher loads, (c) lower installed cost, or a combination of these features.

The IUS is a hybrid hanger that incorporates the advantages of the face-mount and top-mount hanger. Installation is fast with the Strong-Grip™ seat, easy-to-reach face nails and self-jigging locator tabs.

The MIU series hangers are designed for commercial and high-load I-joist applications without requiring web stiffeners. The MIU features Positive Angle Nailing (PAN), which minimizes splitting of the flanges while permitting time-saving nailing from a better angle.

**Material:** IUS — 18 gauge; MIU — 16 gauge

**Finish:** Galvanized

#### Uplift Loads:

- Models have optional triangle joist nail holes for additional uplift. Properly attached web stiffeners are required.
- MIU — add four additional 0.148" x 1 1/2" joist nails for a total uplift load of 975 lb.
- IUS — add web stiffeners and two 0.148" x 1 1/2" joist nails in the triangle holes for a total uplift of 365 lb.

#### Installation:

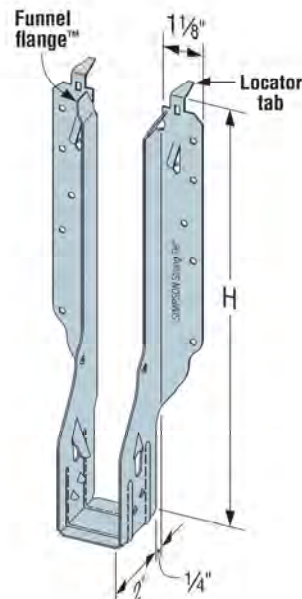
- Use all specified fasteners. Verify that the header can take the required fasteners specified in the table. **Do not overspread hanger.** Side flanges should be in contact with top chord of I-joist. See pp. 99–100 for more installation information.
- IUS — fasten hanger to header. Position I-joist into hanger and snap into place. No joist nailing required. Some IUS models have triangle and round header nail holes. To achieve max. download, fill both round and triangle holes.
- IUS — Locator tabs are not structural. They may be bent back to adjust for hanger placement.
- IUS — for rimboard applications see technical bulletin T-C-RIMBDHGR at [strongtie.com](http://strongtie.com).
- IUS — I-joists with web stiffeners or rectangular sections can be used with the installation of (2) 0.148" x 1 1/2" nails into the optional triangle joist nails.
- IUS — web stiffeners are not required with I-joists when the top flange is laterally supported by the sides of the hanger unless required by I-joist manufacturer.

#### Options:

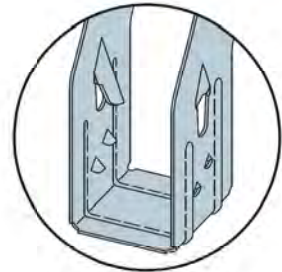
- These hangers cannot be modified. However, these models will normally accommodate a skew of up to 5°. For sloped joists up to 1/4:12 there is no reduction; between 1/4:12 and up to 1/2:12, tests show a 10% reduction in ultimate hanger strength. Local crushing of the bottom flange or excessive deflection may be limiting; check with joist manufacturer for specific limitations on bearing of this type.

**Codes:** See p. 13 for Code Reference Key Chart

**Web Applications:** Visit [app.strongtie.com/hs](http://app.strongtie.com/hs) to access our Hanger Selector web application.

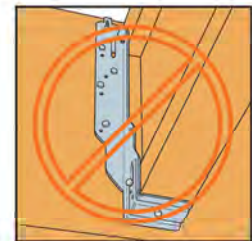


**IUS**  
(some IUS models have triangle holes in header flanges for min./max. nailing)



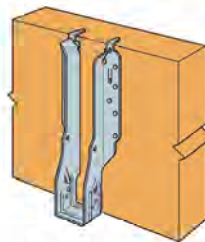
The Strong-Grip™ seat secures I-joists in position without joist nails.

#### Avoid a Misinstallation

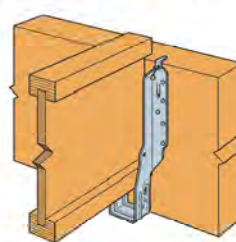


Do not make your own holes. Do not nail the bottom flange.

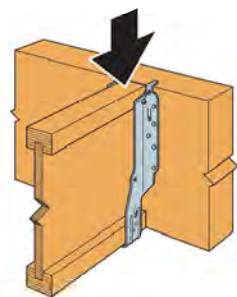
## IUS Installation Sequence



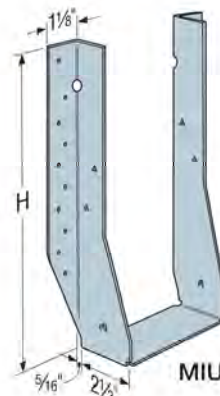
**Step 1**  
Attach the IUS to the header.



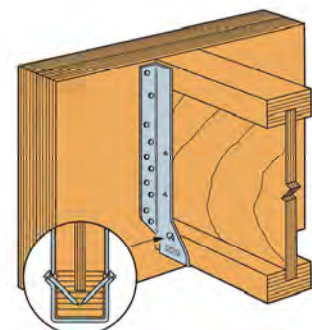
**Step 2**  
Slide the I-joist downward into the IUS until it rests above the large teardrop.



**Step 3**  
Firmly push or snap I-joist fully into the seat of the IUS.



**MIU**



**MIU with Correct PAN Installation**





# Single 14" BCI® 4500s-1.8

**PASSED**

## JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1496) (Joist)

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1496)

City, State, Zip: Dunn, NC

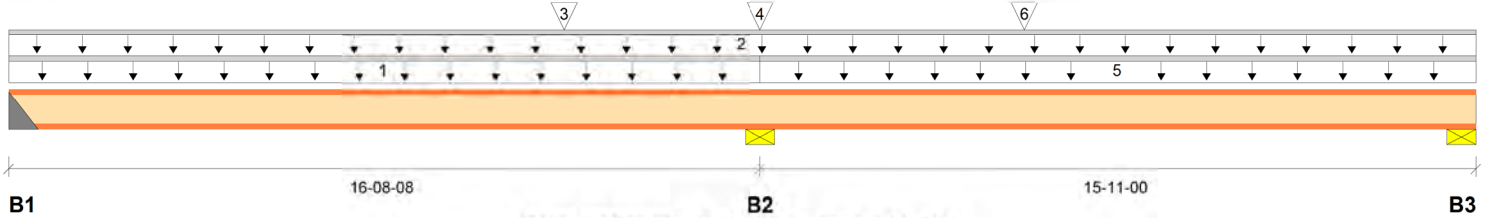
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS



Total Horizontal Product Length = 32-07-08

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

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 472 / 50 | 123 / 0 |      |      |           |
| B2, 3-1/2" | 1222 / 0 | 587 / 0 |      |      |           |
| B3, 2-1/2" | 407 / 69 | 101 / 0 |      |      |           |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Roof Live | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 16-08-08 | Top  | 29   | 7    |      |      |           | n/a |
| 2   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 32-07-08 | Top  | 35   | 9    |      |      |           | n/a |
| 3   | 3(i28)                             | Conc. Pt. (lbs)   | L    | 12-04-03 | 12-04-03 | Top  |      | 150  |      |      |           | n/a |
| 4   | 11(i36)                            | Conc. Pt. (lbs)   | L    | 16-08-08 | 16-08-08 | Top  |      | 61   |      |      |           | n/a |
| 5   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 16-08-08 | 32-07-08 | Top  | 22   | 6    |      |      |           | n/a |
| 6   | 21(i46)                            | Conc. Pt. (lbs)   | L    | 22-07-00 | 22-07-00 | Top  |      | 105  |      |      |           | n/a |

### Controls Summary

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2156 ft-lbs     | 60.2%       | 100%     | 2    | 07-06-06 |
| Neg. Moment           | -2766 ft-lbs    | 77.1%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 596 lbs         | 55.4%       | 100%     | 2    | 00-00-00 |
| Int. Reaction         | 1809 lbs        | 77.0%       | 100%     | 1    | 16-08-08 |
| End Shear             | 582 lbs         | 31.9%       | 100%     | 2    | 00-02-00 |
| Cont. Shear           | 930 lbs         | 50.9%       | 100%     | 1    | 16-06-12 |
| Total Load Deflection | L/855 (0.233")  | 28.1%       | n/a      | 2    | 08-00-09 |
| Live Load Deflection  | L/1094 (0.182") | 43.9%       | n/a      | 5    | 08-00-09 |
| Total Neg. Defl.      | L/999 (-0.036") | n/a         | n/a      | 2    | 21-01-14 |
| Max Defl.             | 0.233"          | 15.5%       | n/a      | 2    | 08-00-09 |
| Span / Depth          | 14.2            |             |          |      |          |

### Bearing Supports

|    | Dim. (LxW) | Value           | % Allow Support | % Allow Member | Material    |
|----|------------|-----------------|-----------------|----------------|-------------|
| B1 | Hanger     | 2" x 1-3/4"     | 596 lbs         | 41.7%          | IUS1.81/14  |
| B2 | Wall/Plate | 3-1/2" x 1-3/4" | 1809 lbs        | 69.5%          | Unspecified |
| B3 | Wall/Plate | 2-1/2" x 1-3/4" | 509 lbs         | 27.3%          | Unspecified |

### Cautions

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.

Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.



**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1496) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name:

JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description:

1st Floor\Floor Joists\FJ-1(i1496)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer:

VS

Code reports: ESR-1336

Company:

BFS

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

**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.


**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1503) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1503)

City, State, Zip: Dunn, NC

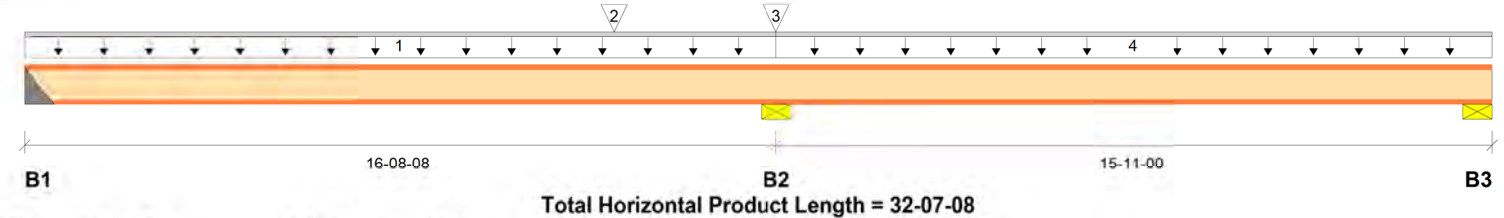
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS


**Reaction Summary (Unfactored Down / Uplift) (lbs)**

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 472 / 39 | 123 / 0 |      |      |           |
| B2, 3-1/2" | 1095 / 0 | 380 / 0 |      |      |           |
| B3, 2-1/2" | 314 / 69 | 53 / 0  |      |      |           |

**Load Summary**

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | 100% | 90% | 115% | 160% | Roof Live 125% | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|-----|------|------|----------------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 16-08-08 | Top  | 64   | 16  |      |      |                | n/a |
| 2   | 2(i27)                             | Conc. Pt. (lbs)   | L    | 13-01-04 | 13-01-04 | Top  |      | 104 |      |      |                | n/a |
| 3   | 11(i36)                            | Conc. Pt. (lbs)   | L    | 16-08-08 | 16-08-08 | Top  |      | 9   |      |      |                | n/a |
| 4   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 16-08-08 | 32-07-08 | Top  | 44   | 11  |      |      |                | n/a |

**Controls Summary**

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2154 ft-lbs     | 60.1%       | 100%     | 2    | 07-04-13 |
| Neg. Moment           | -2301 ft-lbs    | 64.2%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 595 lbs         | 55.4%       | 100%     | 2    | 00-00-00 |
| Int. Reaction         | 1475 lbs        | 62.8%       | 100%     | 1    | 16-08-08 |
| End Shear             | 582 lbs         | 31.9%       | 100%     | 2    | 00-02-00 |
| Cont. Shear           | 872 lbs         | 47.8%       | 100%     | 1    | 16-06-12 |
| Total Load Deflection | L/854 (0.233")  | 28.1%       | n/a      | 2    | 07-11-07 |
| Live Load Deflection  | L/1094 (0.182") | 43.9%       | n/a      | 5    | 07-11-07 |
| Total Neg. Defl.      | L/999 (-0.059") | n/a         | n/a      | 2    | 22-06-13 |
| Max Defl.             | 0.233"          | 15.6%       | n/a      | 2    | 07-11-07 |
| Span / Depth          | 14.2            |             |          |      |          |

**Bearing Supports**

|    | Dim. (LxW) | Value           | % Allow Support | % Allow Member | Material    |
|----|------------|-----------------|-----------------|----------------|-------------|
| B1 | Hanger     | 2" x 1-3/4"     | 595 lbs         | 41.6%          | IUS1.81/14  |
| B2 | Wall/Plate | 3-1/2" x 1-3/4" | 1475 lbs        | 56.7%          | Unspecified |
| B3 | Wall/Plate | 2-1/2" x 1-3/4" | 367 lbs         | 19.8%          | Unspecified |

**Cautions**

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.  
 Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.



**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1503) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name:

JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description:

1st Floor\Floor Joists\FJ-1(i1503)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer:

VS

Code reports: ESR-1336

Company:

BFS

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

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# Single 14" BCI® 4500s-1.8

**PASSED**

## JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1504) (Joist)

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1504)

City, State, Zip: Dunn, NC

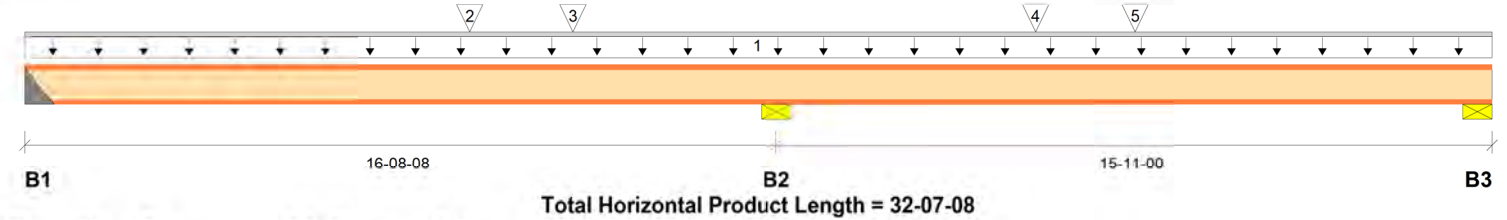
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS



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

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 472 / 56 | 138 / 0 |      |      |           |
| B2, 3-1/2" | 1286 / 0 | 659 / 0 |      |      |           |
| B3, 2-1/2" | 455 / 69 | 154 / 0 |      |      |           |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Roof Live | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 32-07-08 | Top  | 64   | 16   |      |      |           | n/a |
| 2   | 8(i33)                             | Conc. Pt. (lbs)   | L    | 09-10-12 | 09-10-12 | Top  |      | 104  |      |      |           | n/a |
| 3   | 9(i34)                             | Conc. Pt. (lbs)   | L    | 12-02-04 | 12-02-04 | Top  |      | 104  |      |      |           | n/a |
| 4   | 19(i44)                            | Conc. Pt. (lbs)   | L    | 22-05-12 | 22-05-12 | Top  |      | 104  |      |      |           | n/a |
| 5   | 20(i45)                            | Conc. Pt. (lbs)   | L    | 24-08-04 | 24-08-04 | Top  |      | 117  |      |      |           | n/a |

### Controls Summary

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2262 ft-lbs     | 63.1%       | 100%     | 2    | 07-09-01 |
| Neg. Moment           | -3151 ft-lbs    | 87.9%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 610 lbs         | 56.7%       | 100%     | 2    | 00-00-00 |
| Int. Reaction         | 1945 lbs        | 82.8%       | 100%     | 1    | 16-08-08 |
| End Shear             | 597 lbs         | 32.7%       | 100%     | 2    | 00-02-00 |
| Cont. Shear           | 979 lbs         | 53.7%       | 100%     | 1    | 16-06-12 |
| Total Load Deflection | L/824 (0.242")  | 29.1%       | n/a      | 2    | 08-00-04 |
| Live Load Deflection  | L/1094 (0.182") | 43.9%       | n/a      | 5    | 08-00-04 |
| Total Neg. Defl.      | L/999 (-0.022") | n/a         | n/a      | 2    | 19-08-05 |
| Max Defl.             | 0.242"          | 16.1%       | n/a      | 2    | 08-00-04 |
| Span / Depth          | 14.2            |             |          |      |          |

### Bearing Supports

|    | Dim. (LxW) | Value           | % Allow Support | % Allow Member | Material    |
|----|------------|-----------------|-----------------|----------------|-------------|
| B1 | Hanger     | 2" x 1-3/4"     | 610 lbs         | 42.7%          | IUS1.81/14  |
| B2 | Wall/Plate | 3-1/2" x 1-3/4" | 1945 lbs        | 74.7%          | Unspecified |
| B3 | Wall/Plate | 2-1/2" x 1-3/4" | 609 lbs         | 32.8%          | Unspecified |

### Cautions

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.  
 Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.



**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1504) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name:

JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description:

1st Floor\Floor Joists\FJ-1(i1504)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer:

VS

Code reports: ESR-1336

Company:

BFS

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

**Disclosure**

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**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1504)(1) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1504)(1)

City, State, Zip: Dunn, NC

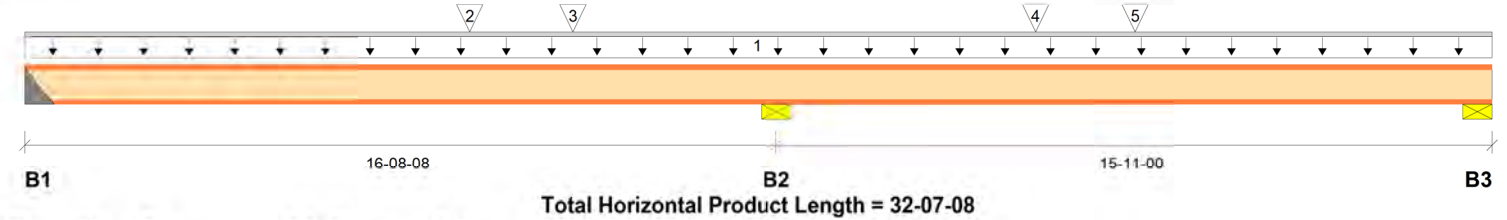
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS


**Reaction Summary (Unfactored Down / Uplift) (lbs)**

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 472 / 56 | 138 / 0 |      |      |           |
| B2, 3-1/2" | 1286 / 0 | 659 / 0 |      |      |           |
| B3, 2-1/2" | 455 / 69 | 154 / 0 |      |      |           |

**Load Summary**

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Roof Live | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 32-07-08 | Top  | 64   | 16   |      |      |           | n/a |
| 2   | 8(i33)                             | Conc. Pt. (lbs)   | L    | 09-10-12 | 09-10-12 | Top  |      | 104  |      |      |           | n/a |
| 3   | 9(i34)                             | Conc. Pt. (lbs)   | L    | 12-02-04 | 12-02-04 | Top  |      | 104  |      |      |           | n/a |
| 4   | 19(i44)                            | Conc. Pt. (lbs)   | L    | 22-05-12 | 22-05-12 | Top  |      | 104  |      |      |           | n/a |
| 5   | 20(i45)                            | Conc. Pt. (lbs)   | L    | 24-08-04 | 24-08-04 | Top  |      | 117  |      |      |           | n/a |

**Controls Summary**

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2262 ft-lbs     | 63.1%       | 100%     | 2    | 07-09-01 |
| Neg. Moment           | -3151 ft-lbs    | 87.9%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 610 lbs         | 56.7%       | 100%     | 2    | 00-00-00 |
| Int. Reaction         | 1945 lbs        | 82.8%       | 100%     | 1    | 16-08-08 |
| End Shear             | 597 lbs         | 32.7%       | 100%     | 2    | 00-02-00 |
| Cont. Shear           | 979 lbs         | 53.7%       | 100%     | 1    | 16-06-12 |
| Total Load Deflection | L/824 (0.242")  | 29.1%       | n/a      | 2    | 08-00-04 |
| Live Load Deflection  | L/1094 (0.182") | 43.9%       | n/a      | 5    | 08-00-04 |
| Total Neg. Defl.      | L/999 (-0.022") | n/a         | n/a      | 2    | 19-08-05 |
| Max Defl.             | 0.242"          | 16.1%       | n/a      | 2    | 08-00-04 |
| Span / Depth          | 14.2            |             |          |      |          |

**Bearing Supports**

|    | Dim. (LxW) | Value           | % Allow Support | % Allow Member | Material    |
|----|------------|-----------------|-----------------|----------------|-------------|
| B1 | Hanger     | 2" x 1-3/4"     | 610 lbs         | 42.7%          | IUS1.81/14  |
| B2 | Wall/Plate | 3-1/2" x 1-3/4" | 1945 lbs        | 74.7%          | Unspecified |
| B3 | Wall/Plate | 2-1/2" x 1-3/4" | 609 lbs         | 32.8%          | Unspecified |

**Cautions**

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.  
 Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.

**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1504)(1) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1504)(1)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

**Disclosure**

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# Single 14" BCI® 4500s-1.8

**PASSED**

## JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1512) (Joist)

BC CALC® Member Report

Dry | 2 spans | No cant. | 24" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1512)

City, State, Zip: Dunn, NC

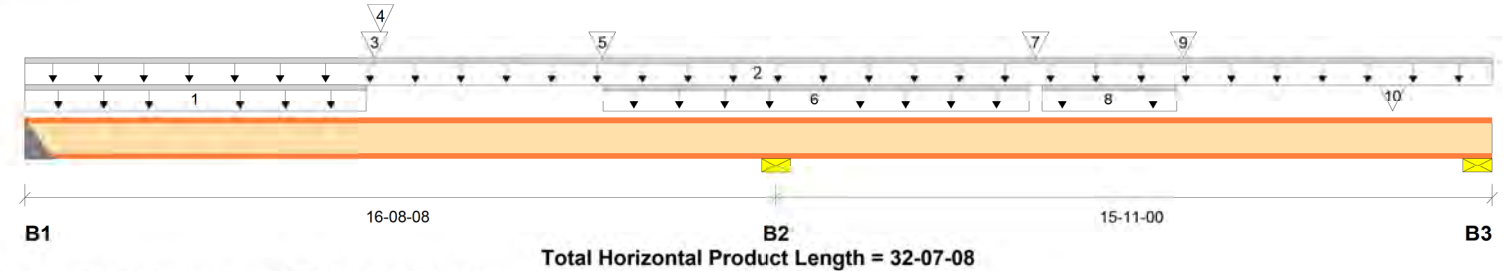
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS



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

| Bearing    | Live     | Dead     | Snow | Wind | Roof Live |
|------------|----------|----------|------|------|-----------|
| B1, 2"     | 236 / 28 | 424 / 0  |      |      |           |
| B2, 3-1/2" | 643 / 0  | 1140 / 0 |      |      |           |
| B3, 2-1/2" | 227 / 35 | 178 / 0  |      |      |           |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live 100% | Dead 90% | Snow 115% | Wind 160% | Roof Live 125% | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|-----------|----------|-----------|-----------|----------------|-----|
| 1   | 5(i30)                             | Unf. Lin. (lb/ft) | L    | 00-00-00 | 07-07-02 | Top  |           | 65       |           |           |                | n/a |
| 2   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 32-07-08 | Top  | 32        | 8        |           |           |                | n/a |
| 3   | 4(i29)                             | Conc. Pt. (lbs)   | L    | 07-09-06 | 07-09-06 | Top  |           | 23       |           |           |                | n/a |
| 4   | 3(i28)                             | Conc. Pt. (lbs)   | L    | 07-11-00 | 07-11-00 | Top  |           | 49       |           |           |                | n/a |
| 5   | 7(i32)                             | Conc. Pt. (lbs)   | L    | 12-10-01 | 12-10-01 | Top  |           | 18       |           |           |                | n/a |
| 6   | 6(i31)                             | Unf. Lin. (lb/ft) | L    | 12-10-05 | 22-04-00 | Top  |           | 65       |           |           |                | n/a |
| 7   | 19(i44)                            | Conc. Pt. (lbs)   | L    | 22-05-12 | 22-05-12 | Top  |           | 17       |           |           |                | n/a |
| 8   | 18(i43)                            | Unf. Lin. (lb/ft) | L    | 22-07-08 | 25-07-08 | Top  |           | 65       |           |           |                | n/a |
| 9   | 17(i42)                            | Conc. Pt. (lbs)   | L    | 25-09-04 | 25-09-04 | Top  |           | 17       |           |           |                | n/a |
| 10  | 33(i1539)                          | Conc. Pt. (lbs)   | L    | 30-05-00 | 30-05-00 | Top  |           | 52       |           |           |                | n/a |

### Controls Summary

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2005 ft-lbs     | 55.9%       | 100%     | 2    | 06-02-11 |
| Neg. Moment           | -2655 ft-lbs    | 74.0%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 660 lbs         | 61.4%       | 100%     | 2    | 00-00-00 |
| Int. Reaction         | 1783 lbs        | 75.9%       | 100%     | 1    | 16-08-08 |
| End Shear             | 642 lbs         | 35.2%       | 100%     | 2    | 00-02-00 |
| Cont. Shear           | 897 lbs         | 49.1%       | 100%     | 1    | 16-10-04 |
| Total Load Deflection | L/1047 (0.19")  | 22.9%       | n/a      | 2    | 07-04-12 |
| Live Load Deflection  | L/999 (0.089")  | n/a         | n/a      | 5    | 08-00-14 |
| Total Neg. Defl.      | L/999 (-0.001") | n/a         | n/a      | 2    | 17-03-08 |
| Max Defl.             | 0.19"           | 12.7%       | n/a      | 2    | 07-04-12 |
| Span / Depth          | 14.2            |             |          |      |          |

### Bearing Supports

|    | Dim. (LxW) | Value           | % Allow Support | % Allow Member | Material    |
|----|------------|-----------------|-----------------|----------------|-------------|
| B1 | Hanger     | 2" x 1-3/4"     | 660 lbs         | 46.1%          | IUS1.81/14  |
| B2 | Wall/Plate | 3-1/2" x 1-3/4" | 1783 lbs        | 68.5%          | Unspecified |
| B3 | Wall/Plate | 2-1/2" x 1-3/4" | 406 lbs         | 21.8%          | Unspecified |

**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1512) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 24" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name:

JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description:

1st Floor\Floor Joists\FJ-1(i1512)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer:

VS

Code reports: ESR-1336

Company:

BFS

**Cautions**

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.

Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

**Disclosure**

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# Single 14" BCI® 4500s-1.8

**PASSED**

## JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1516) (Joist)

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1516)

City, State, Zip: Dunn, NC

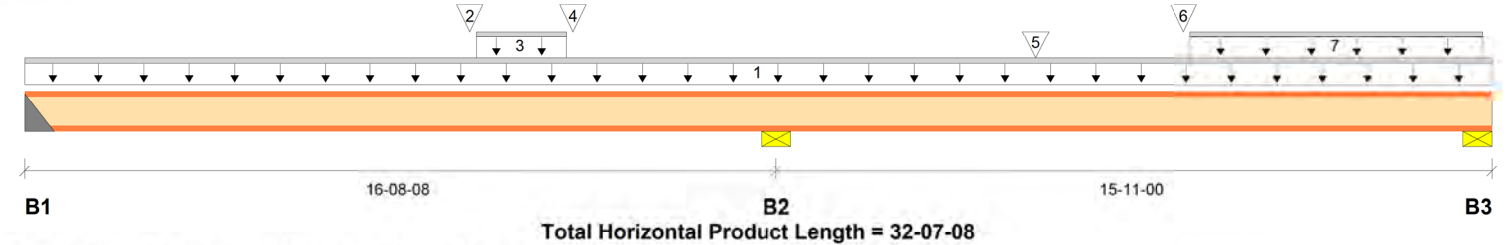
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS



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

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 472 / 56 | 139 / 0 |      |      |           |
| B2, 3-1/2" | 1286 / 0 | 833 / 0 |      |      |           |
| B3, 2-1/2" | 455 / 69 | 464 / 0 |      |      |           |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Roof Live | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 32-07-08 | Top  | 64   | 16   |      |      |           | n/a |
| 2   | 8(i33)                             | Conc. Pt. (lbs)   | L    | 09-10-12 | 09-10-12 | Top  |      | 89   |      |      |           | n/a |
| 3   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 10-00-08 | 12-00-08 | Top  |      | 45   |      |      |           | n/a |
| 4   | 9(i34)                             | Conc. Pt. (lbs)   | L    | 12-02-04 | 12-02-04 | Top  |      | 104  |      |      |           | n/a |
| 5   | 19(i44)                            | Conc. Pt. (lbs)   | L    | 22-05-12 | 22-05-12 | Top  |      | 104  |      |      |           | n/a |
| 6   | 17(i42)                            | Conc. Pt. (lbs)   | L    | 25-09-04 | 25-09-04 | Top  |      | 104  |      |      |           | n/a |
| 7   | 14(i39)                            | Unf. Lin. (lb/ft) | L    | 25-11-00 | 32-05-00 | Top  |      | 65   |      |      |           | n/a |

### Controls Summary

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2863 ft-lbs     | 79.9%       | 100%     | 3    | 26-03-00 |
| Neg. Moment           | -3538 ft-lbs    | 98.7%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 919 lbs         | 76.6%       | 100%     | 3    | 32-07-08 |
| Int. Reaction         | 2119 lbs        | 90.2%       | 100%     | 1    | 16-08-08 |
| End Shear             | 902 lbs         | 49.4%       | 100%     | 3    | 32-05-00 |
| Cont. Shear           | 1054 lbs        | 57.7%       | 100%     | 1    | 16-06-12 |
| Total Load Deflection | L/718 (0.264")  | 33.4%       | n/a      | 3    | 25-04-05 |
| Live Load Deflection  | L/1094 (0.182") | 43.9%       | n/a      | 5    | 08-00-04 |
| Total Neg. Defl.      | L/999 (-0.019") | n/a         | n/a      | 3    | 14-02-05 |
| Max Defl.             | 0.264"          | 17.6%       | n/a      | 3    | 25-04-05 |
| Span / Depth          | 14.2            |             |          |      |          |

### Bearing Supports

|               | Dim. (LxW)      | Value    | % Allow Support | % Allow Member | Material    |
|---------------|-----------------|----------|-----------------|----------------|-------------|
| B1 Hanger     | 2" x 1-3/4"     | 612 lbs  | 42.8%           | 56.9%          | IUS1.81/14  |
| B2 Wall/Plate | 3-1/2" x 1-3/4" | 2119 lbs | 81.4%           | 90.2%          | Unspecified |
| B3 Wall/Plate | 2-1/2" x 1-3/4" | 919 lbs  | 49.4%           | 76.6%          | Unspecified |

### Cautions

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.

Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.



**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1516) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1516)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

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# Single 14" BCI® 4500s-1.8

**PASSED**

## JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1517) (Joist)

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1517)

City, State, Zip: Dunn, NC

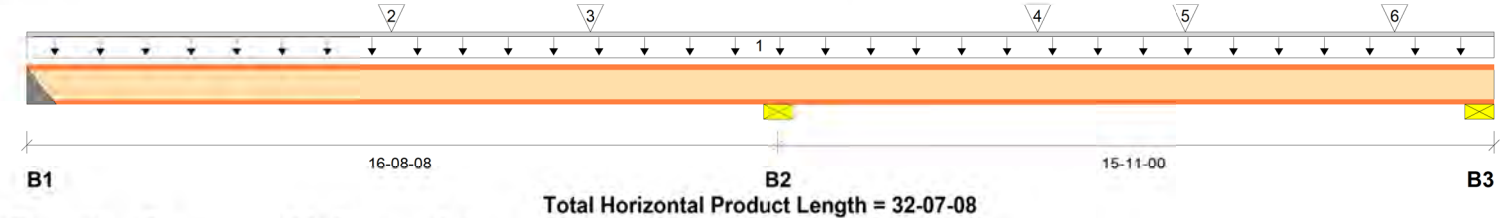
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS



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

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 293 / 35 | 106 / 0 |      |      |           |
| B2, 3-1/2" | 799 / 0  | 445 / 0 |      |      |           |
| B3, 2-1/2" | 282 / 43 | 148 / 0 |      |      |           |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | 100% | 90% | 115% | 160% | Roof Live 125% | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|-----|------|------|----------------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 32-07-08 | Top  | 40   | 10  |      |      |                | n/a |
| 2   | 4(i29)                             | Conc. Pt. (lbs)   | L    | 08-01-06 | 08-01-06 | Top  |      | 90  |      |      |                | n/a |
| 3   | 7(i32)                             | Conc. Pt. (lbs)   | L    | 12-06-06 | 12-06-06 | Top  |      | 90  |      |      |                | n/a |
| 4   | 19(i44)                            | Conc. Pt. (lbs)   | L    | 22-05-12 | 22-05-12 | Top  |      | 65  |      |      |                | n/a |
| 5   | 17(i42)                            | Conc. Pt. (lbs)   | L    | 25-09-04 | 25-09-04 | Top  |      | 65  |      |      |                | n/a |
| 6   | 33(i1539)                          | Conc. Pt. (lbs)   | L    | 30-05-00 | 30-05-00 | Top  |      | 65  |      |      |                | n/a |

### Controls Summary

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 1562 ft-lbs     | 43.6%       | 100%     | 2    | 08-01-06 |
| Neg. Moment           | -2037 ft-lbs    | 56.8%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 399 lbs         | 37.1%       | 100%     | 2    | 00-00-00 |
| Int. Reaction         | 1244 lbs        | 53.0%       | 100%     | 1    | 16-08-08 |
| End Shear             | 420 lbs         | 23.0%       | 100%     | 3    | 32-05-00 |
| Cont. Shear           | 639 lbs         | 35.0%       | 100%     | 1    | 16-06-12 |
| Total Load Deflection | L/1230 (0.162") | 19.5%       | n/a      | 2    | 08-01-06 |
| Live Load Deflection  | L/999 (0.113")  | n/a         | n/a      | 5    | 07-10-13 |
| Total Neg. Defl.      | L/999 (-0.015") | n/a         | n/a      | 2    | 19-08-05 |
| Max Defl.             | 0.162"          | 10.8%       | n/a      | 2    | 08-01-06 |
| Span / Depth          | 14.2            |             |          |      |          |

### Bearing Supports

|    | Dim. (LxW) | Value           | % Allow Support | % Allow Member | Material    |
|----|------------|-----------------|-----------------|----------------|-------------|
| B1 | Hanger     | 2" x 1-3/4"     | 399 lbs         | 27.9%          | IUS1.81/14  |
| B2 | Wall/Plate | 3-1/2" x 1-3/4" | 1244 lbs        | 47.8%          | Unspecified |
| B3 | Wall/Plate | 2-1/2" x 1-3/4" | 430 lbs         | 23.2%          | Unspecified |

### Cautions

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.  
 Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.

**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1517) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name:

JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description:

1st Floor\Floor Joists\FJ-1(i1517)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer:

VS

Code reports: ESR-1336

Company:

BFS

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

**Disclosure**

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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.





# Single 14" BCI® 4500s-1.8

**PASSED**

## JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1519) (Joist)

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1519)

City, State, Zip: Dunn, NC

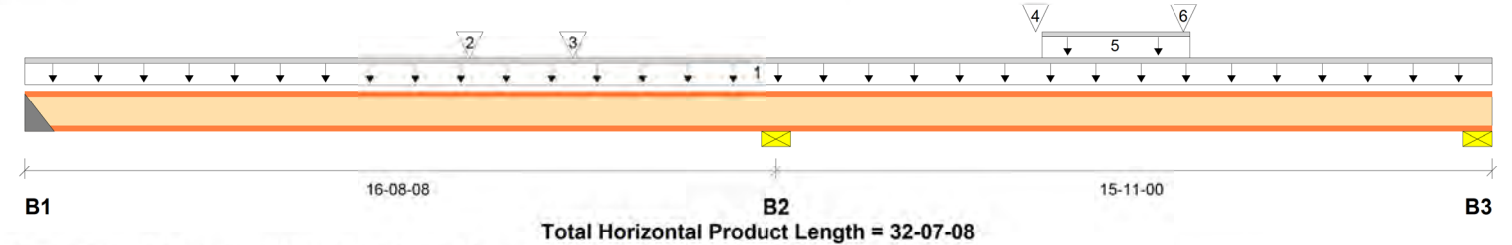
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS



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

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 472 / 56 | 131 / 0 |      |      |           |
| B2, 3-1/2" | 1286 / 0 | 710 / 0 |      |      |           |
| B3, 2-1/2" | 455 / 69 | 194 / 0 |      |      |           |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Roof Live | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 32-07-08 | Top  | 64   | 16   | 115% | 160% | 125%      | n/a |
| 2   | 8(i33)                             | Conc. Pt. (lbs)   | L    | 09-10-12 | 09-10-12 | Top  |      | 104  |      |      |           | n/a |
| 3   | 9(i34)                             | Conc. Pt. (lbs)   | L    | 12-02-04 | 12-02-04 | Top  |      | 104  |      |      |           | n/a |
| 4   | 19(i44)                            | Conc. Pt. (lbs)   | L    | 22-05-12 | 22-05-12 | Top  |      | 104  |      |      |           | n/a |
| 5   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 22-07-08 | 25-11-00 | Top  |      | 32   |      |      |           | n/a |
| 6   | 17(i42)                            | Conc. Pt. (lbs)   | L    | 25-09-04 | 25-09-04 | Top  |      | 95   |      |      |           | n/a |

### Controls Summary

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2471 ft-lbs     | 68.9%       | 100%     | 3    | 25-09-04 |
| Neg. Moment           | -3257 ft-lbs    | 90.9%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 604 lbs         | 56.2%       | 100%     | 2    | 00-00-00 |
| Int. Reaction         | 1996 lbs        | 84.9%       | 100%     | 1    | 16-08-08 |
| End Shear             | 632 lbs         | 34.6%       | 100%     | 3    | 32-05-00 |
| Cont. Shear           | 987 lbs         | 54.1%       | 100%     | 1    | 16-10-04 |
| Total Load Deflection | L/817 (0.232")  | 29.4%       | n/a      | 3    | 24-11-13 |
| Live Load Deflection  | L/1094 (0.182") | 43.9%       | n/a      | 5    | 08-00-04 |
| Total Neg. Defl.      | L/999 (-0.021") | n/a         | n/a      | 3    | 13-09-08 |
| Max Defl.             | 0.235"          | 15.7%       | n/a      | 2    | 08-00-04 |
| Span / Depth          | 14.2            |             |          |      |          |

### Bearing Supports

|               | Dim. (LxW)      | Value    | % Allow Support | % Allow Member | Material    |
|---------------|-----------------|----------|-----------------|----------------|-------------|
| B1 Hanger     | 2" x 1-3/4"     | 604 lbs  | 42.2%           | 56.2%          | IUS1.81/14  |
| B2 Wall/Plate | 3-1/2" x 1-3/4" | 1996 lbs | 76.7%           | 84.9%          | Unspecified |
| B3 Wall/Plate | 2-1/2" x 1-3/4" | 648 lbs  | 34.9%           | 54.0%          | Unspecified |

### Cautions

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.  
 Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.

**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1519) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name:

JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description:

1st Floor\Floor Joists\FJ-1(i1519)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer:

VS

Code reports: ESR-1336

Company:

BFS

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

**Disclosure**

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# Single 14" BCI® 4500s-1.8

**PASSED**

## JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1529) (Joist)

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1529)

City, State, Zip: Dunn, NC

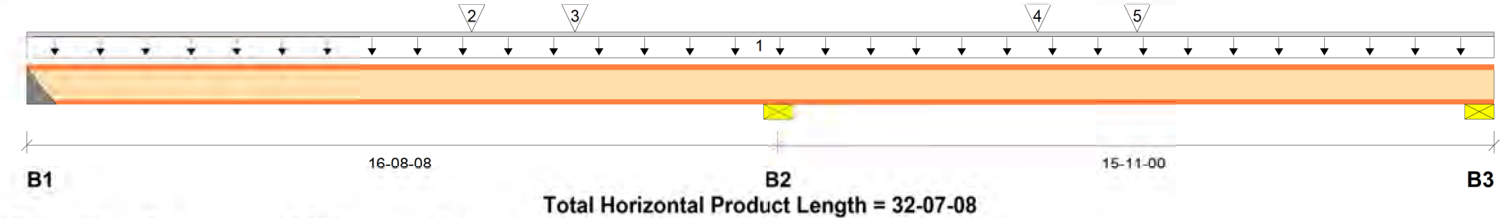
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS



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

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 472 / 56 | 148 / 0 |      |      |           |
| B2, 3-1/2" | 1286 / 0 | 766 / 0 |      |      |           |
| B3, 2-1/2" | 455 / 69 | 173 / 0 |      |      |           |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Roof Live | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 32-07-08 | Top  | 64   | 16   |      |      |           | n/a |
| 2   | 8(i33)                             | Conc. Pt. (lbs)   | L    | 09-10-12 | 09-10-12 | Top  |      | 137  |      |      |           | n/a |
| 3   | 9(i34)                             | Conc. Pt. (lbs)   | L    | 12-02-04 | 12-02-04 | Top  |      | 137  |      |      |           | n/a |
| 4   | 19(i44)                            | Conc. Pt. (lbs)   | L    | 22-05-12 | 22-05-12 | Top  |      | 137  |      |      |           | n/a |
| 5   | 20(i45)                            | Conc. Pt. (lbs)   | L    | 24-08-04 | 24-08-04 | Top  |      | 154  |      |      |           | n/a |

### Controls Summary

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2370 ft-lbs     | 66.1%       | 100%     | 3    | 24-08-04 |
| Neg. Moment           | -3347 ft-lbs    | 93.4%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 621 lbs         | 57.7%       | 100%     | 2    | 00-00-00 |
| Int. Reaction         | 2052 lbs        | 87.3%       | 100%     | 1    | 16-08-08 |
| End Shear             | 611 lbs         | 33.5%       | 100%     | 3    | 32-05-00 |
| Cont. Shear           | 1035 lbs        | 56.7%       | 100%     | 1    | 16-06-12 |
| Total Load Deflection | L/795 (0.251")  | 30.2%       | n/a      | 2    | 08-00-04 |
| Live Load Deflection  | L/1094 (0.182") | 43.9%       | n/a      | 5    | 08-00-04 |
| Total Neg. Defl.      | L/999 (-0.018") | n/a         | n/a      | 2    | 19-03-05 |
| Max Defl.             | 0.251"          | 16.7%       | n/a      | 2    | 08-00-04 |
| Span / Depth          | 14.2            |             |          |      |          |

### Bearing Supports

|    | Dim. (LxW) | Value           | % Allow Support | % Allow Member | Material    |
|----|------------|-----------------|-----------------|----------------|-------------|
| B1 | Hanger     | 2" x 1-3/4"     | 621 lbs         | 43.4%          | IUS1.81/14  |
| B2 | Wall/Plate | 3-1/2" x 1-3/4" | 2052 lbs        | 78.8%          | Unspecified |
| B3 | Wall/Plate | 2-1/2" x 1-3/4" | 628 lbs         | 33.7%          | Unspecified |

### Cautions

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.  
 Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.



**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1529) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name:

JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description:

1st Floor\Floor Joists\FJ-1(i1529)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer:

VS

Code reports: ESR-1336

Company:

BFS

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

**Disclosure**

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# Single 14" BCI® 4500s-1.8

**PASSED**

## JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1530) (Joist)

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1530)

City, State, Zip: Dunn, NC

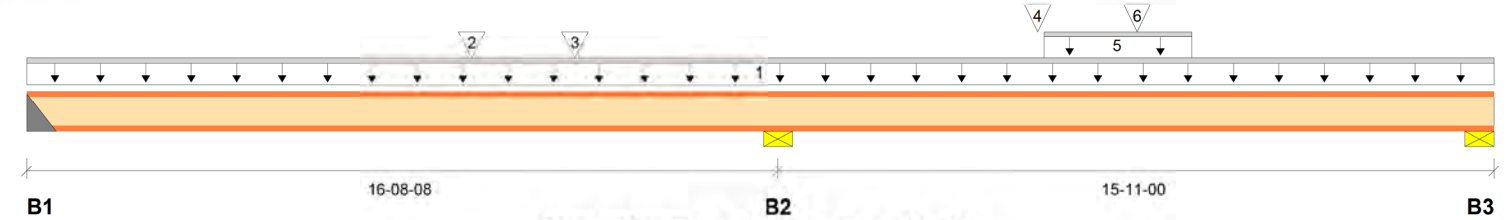
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS



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

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 472 / 56 | 130 / 0 |      |      |           |
| B2, 3-1/2" | 1286 / 0 | 726 / 0 |      |      |           |
| B3, 2-1/2" | 455 / 69 | 192 / 0 |      |      |           |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Roof Live | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 32-07-08 | Top  | 64   | 16   |      |      |           | n/a |
| 2   | 8(i33)                             | Conc. Pt. (lbs)   | L    | 09-10-12 | 09-10-12 | Top  |      | 104  |      |      |           | n/a |
| 3   | 9(i34)                             | Conc. Pt. (lbs)   | L    | 12-02-04 | 12-02-04 | Top  |      | 104  |      |      |           | n/a |
| 4   | 19(i44)                            | Conc. Pt. (lbs)   | L    | 22-05-12 | 22-05-12 | Top  |      | 104  |      |      |           | n/a |
| 5   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 22-07-08 | 25-11-00 | Top  |      | 33   |      |      |           | n/a |
| 6   | 20(i45)                            | Conc. Pt. (lbs)   | L    | 24-08-04 | 24-08-04 | Top  |      | 105  |      |      |           | n/a |

### Controls Summary

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2498 ft-lbs     | 69.7%       | 100%     | 3    | 24-11-15 |
| Neg. Moment           | -3285 ft-lbs    | 91.6%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 602 lbs         | 56.0%       | 100%     | 2    | 00-00-00 |
| Int. Reaction         | 2013 lbs        | 85.6%       | 100%     | 1    | 16-08-08 |
| End Shear             | 630 lbs         | 34.5%       | 100%     | 3    | 32-05-00 |
| Cont. Shear           | 1002 lbs        | 54.9%       | 100%     | 1    | 16-10-04 |
| Total Load Deflection | L/803 (0.236")  | 29.9%       | n/a      | 3    | 24-10-02 |
| Live Load Deflection  | L/1094 (0.182") | 43.9%       | n/a      | 5    | 08-00-04 |
| Total Neg. Defl.      | L/999 (-0.022") | n/a         | n/a      | 3    | 13-07-02 |
| Max Defl.             | 0.236"          | 15.7%       | n/a      | 3    | 24-10-02 |
| Span / Depth          | 14.2            |             |          |      |          |

### Bearing Supports

|               | Dim. (LxW)      | Value    | % Allow Support | % Allow Member | Material    |
|---------------|-----------------|----------|-----------------|----------------|-------------|
| B1 Hanger     | 2" x 1-3/4"     | 602 lbs  | 42.1%           | 56.0%          | IUS1.81/14  |
| B2 Wall/Plate | 3-1/2" x 1-3/4" | 2013 lbs | 77.3%           | 85.6%          | Unspecified |
| B3 Wall/Plate | 2-1/2" x 1-3/4" | 647 lbs  | 34.8%           | 53.9%          | Unspecified |

### Cautions

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.  
 Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.

**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1530) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1530)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

**Disclosure**

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# Single 14" BCI® 4500s-1.8

**PASSED**

## JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1531) (Joist)

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1531)

City, State, Zip: Dunn, NC

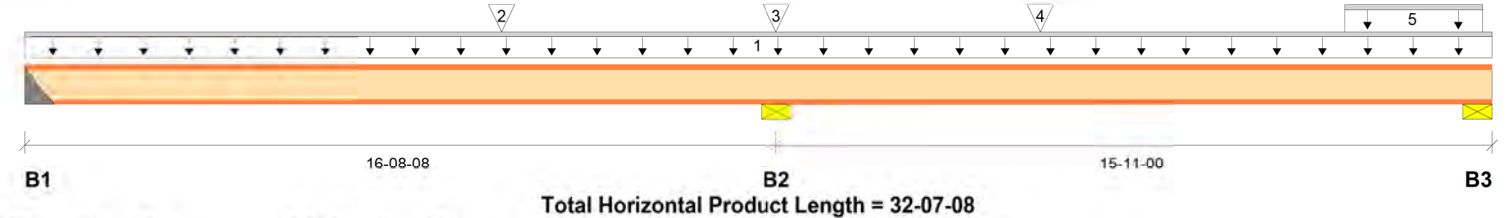
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS



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

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 494 / 59 | 139 / 0 |      |      |           |
| B2, 3-1/2" | 1345 / 0 | 679 / 0 |      |      |           |
| B3, 2-1/2" | 475 / 72 | 174 / 0 |      |      |           |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | 100% | 90% | 115% | 160% | Roof Live 125% | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|-----|------|------|----------------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 32-07-08 | Top  | 67   | 17  |      |      |                | n/a |
| 2   | 3(i28)                             | Conc. Pt. (lbs)   | L    | 10-07-04 | 10-07-04 | Top  |      | 154 |      |      |                | n/a |
| 3   | 11(i36)                            | Conc. Pt. (lbs)   | L    | 16-08-08 | 16-08-08 | Top  |      | 109 |      |      |                | n/a |
| 4   | 21(i46)                            | Conc. Pt. (lbs)   | L    | 22-07-00 | 22-07-00 | Top  |      | 122 |      |      |                | n/a |
| 5   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 29-04-04 | 32-05-00 | Top  |      | 20  |      |      |                | n/a |

### Controls Summary

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2329 ft-lbs     | 65.0%       | 100%     | 2    | 07-08-08 |
| Neg. Moment           | -3082 ft-lbs    | 86.0%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 633 lbs         | 58.9%       | 100%     | 2    | 00-00-00 |
| Int. Reaction         | 2024 lbs        | 86.1%       | 100%     | 1    | 16-08-08 |
| End Shear             | 633 lbs         | 34.7%       | 100%     | 3    | 32-05-00 |
| Cont. Shear           | 965 lbs         | 52.9%       | 100%     | 1    | 16-06-12 |
| Total Load Deflection | L/800 (0.249")  | 30.0%       | n/a      | 2    | 07-11-15 |
| Live Load Deflection  | L/1046 (0.191") | 45.9%       | n/a      | 5    | 07-11-15 |
| Total Neg. Defl.      | L/999 (-0.032") | n/a         | n/a      | 2    | 20-07-01 |
| Max Defl.             | 0.249"          | 16.6%       | n/a      | 2    | 07-11-15 |
| Span / Depth          | 14.2            |             |          |      |          |

### Bearing Supports

|    |            |                 |          |       |       |             |
|----|------------|-----------------|----------|-------|-------|-------------|
| B1 | Hanger     | 2" x 1-3/4"     | 633 lbs  | 44.3% | 58.9% | IUS1.81/14  |
| B2 | Wall/Plate | 3-1/2" x 1-3/4" | 2024 lbs | 77.8% | 86.1% | Unspecified |
| B3 | Wall/Plate | 2-1/2" x 1-3/4" | 650 lbs  | 35.0% | 54.2% | Unspecified |

### Cautions

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.  
 Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.

**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1531) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1531)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

**Disclosure**

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# Single 14" BCI® 4500s-1.8

**PASSED**

## JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1532) (Joist)

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1532)

City, State, Zip: Dunn, NC

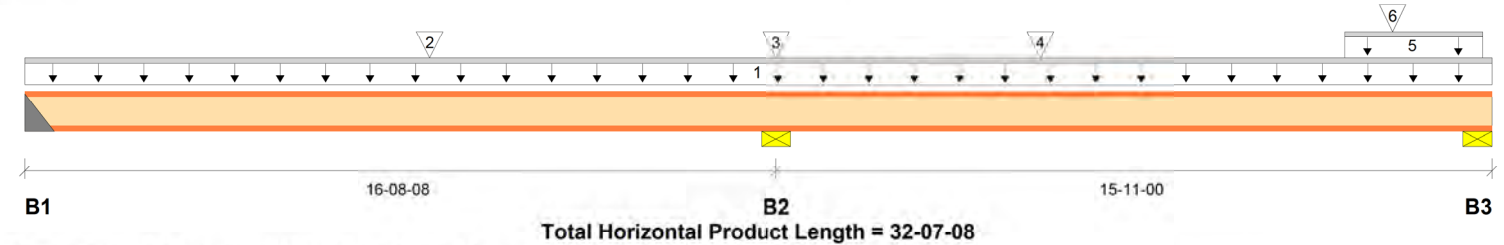
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS



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

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 415 / 49 | 123 / 0 |      |      |           |
| B2, 3-1/2" | 1131 / 0 | 639 / 0 |      |      |           |
| B3, 2-1/2" | 400 / 61 | 283 / 0 |      |      |           |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Roof Live | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 32-07-08 | Top  | 56   | 14   | 115% | 160% | 125%      | n/a |
| 2   | 3(i28)                             | Conc. Pt. (lbs)   | L    | 09-00-01 | 09-00-01 | Top  |      | 129  |      |      |           | n/a |
| 3   | 11(i36)                            | Conc. Pt. (lbs)   | L    | 16-08-08 | 16-08-08 | Top  |      | 121  |      |      |           | n/a |
| 4   | 21(i46)                            | Conc. Pt. (lbs)   | L    | 22-07-00 | 22-07-00 | Top  |      | 136  |      |      |           | n/a |
| 5   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 29-04-04 | 32-05-00 | Top  |      | 45   |      |      |           | n/a |
| 6   | 33(i1539)                          | Conc. Pt. (lbs)   | L    | 30-05-00 | 30-05-00 | Top  |      | 62   |      |      |           | n/a |

### Controls Summary

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2001 ft-lbs     | 55.8%       | 100%     | 2    | 07-06-13 |
| Neg. Moment           | -2699 ft-lbs    | 75.3%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 682 lbs         | 56.9%       | 100%     | 3    | 32-07-08 |
| Int. Reaction         | 1769 lbs        | 75.3%       | 100%     | 1    | 16-08-08 |
| End Shear             | 668 lbs         | 36.6%       | 100%     | 3    | 32-05-00 |
| Cont. Shear           | 823 lbs         | 45.1%       | 100%     | 1    | 16-10-04 |
| Total Load Deflection | L/959 (0.208")  | 25.0%       | n/a      | 2    | 08-00-09 |
| Live Load Deflection  | L/1244 (0.16")  | 38.6%       | n/a      | 5    | 08-00-09 |
| Total Neg. Defl.      | L/999 (-0.021") | n/a         | n/a      | 3    | 13-04-12 |
| Max Defl.             | 0.208"          | 13.9%       | n/a      | 2    | 08-00-09 |
| Span / Depth          | 14.2            |             |          |      |          |

### Bearing Supports

|    | Dim. (LxW) | Value           | % Allow Support | % Allow Member | Material    |
|----|------------|-----------------|-----------------|----------------|-------------|
| B1 | Hanger     | 2" x 1-3/4"     | 538 lbs         | 37.6%          | IUS1.81/14  |
| B2 | Wall/Plate | 3-1/2" x 1-3/4" | 1769 lbs        | 68.0%          | Unspecified |
| B3 | Wall/Plate | 2-1/2" x 1-3/4" | 682 lbs         | 36.7%          | 56.9%       |

### Cautions

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.  
 Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.



**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1532) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1532)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

**Disclosure**

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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.


**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1533) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 24" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1671)

City, State, Zip: Dunn, NC

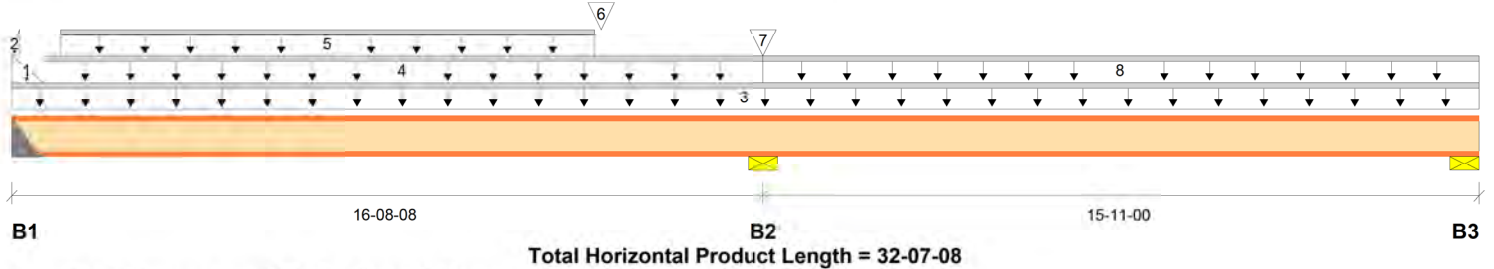
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS


**Reaction Summary (Unfactored Down / Uplift) (lbs)**

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 364 / 56 | 404 / 0 |      |      |           |
| B2, 3-1/2" | 1147 / 0 | 768 / 0 |      |      |           |
| B3, 2-1/2" | 455 / 55 | 47 / 0  |      |      |           |

**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) | Trapezoidal (lb/ft) | L    | 00-00-00 | 00-08-08 | Top  | 6         | 2        |           |           |                | n/a |
| 2   | FC1 Floor Decking (Plan View Fill) | Trapezoidal (lb/ft) | L    | 00-00-00 | 00-02-00 | Top  | 0         | 0        |           |           |                | n/a |
| 3   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft)   | L    | 00-00-00 | 32-07-08 | Top  | 32        | 8        |           |           |                | n/a |
| 4   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft)   | L    | 00-08-08 | 16-08-08 | Top  | 19        | 5        |           |           |                | n/a |
| 5   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft)   | L    | 01-01-00 | 12-11-08 | Top  |           | 52       |           |           |                | n/a |
| 6   | 2(i27)                             | Conc. Pt. (lbs)     | L    | 13-01-04 | 13-01-04 | Top  |           | 82       |           |           |                | n/a |
| 7   | 11(i36)                            | Conc. Pt. (lbs)     | L    | 16-08-08 | 16-08-08 | Top  |           | 57       |           |           |                | n/a |
| 8   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft)   | L    | 16-08-08 | 32-07-08 | Top  | 32        | 8        |           |           |                | n/a |

**Controls Summary**

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2922 ft-lbs     | 81.5%       | 100%     | 2    | 07-03-15 |
| Neg. Moment           | -3082 ft-lbs    | 86.0%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 768 lbs         | 53.3%       | 100%     | 2    | 00-00-00 |
| Int. Reaction         | 1915 lbs        | 81.5%       | 100%     | 1    | 16-08-08 |
| End Shear             | 759 lbs         | 41.6%       | 100%     | 2    | 00-02-00 |
| Cont. Shear           | 1023 lbs        | 56.0%       | 100%     | 1    | 16-06-12 |
| Total Load Deflection | L/658 (0.303")  | 36.5%       | n/a      | 2    | 07-10-07 |
| Live Load Deflection  | L/1266 (0.149") | 37.9%       | n/a      | 6    | 25-00-09 |
| Total Neg. Defl.      | L/999 (-0.07")  | n/a         | n/a      | 2    | 22-06-13 |
| Max Defl.             | 0.303"          | 20.2%       | n/a      | 2    | 07-10-07 |
| Span / Depth          | 14.2            |             |          |      |          |

**Bearing Supports**

|    | Dim. (LxW) | Value           | % Allow Support | % Allow Member | Material    |
|----|------------|-----------------|-----------------|----------------|-------------|
| B1 | Hanger     | 2" x 1-3/4"     | 768 lbs         | 56.5%          | IUS1.81/14  |
| B2 | Wall/Plate | 3-1/2" x 1-3/4" | 1915 lbs        | 73.6%          | Unspecified |
| B3 | Wall/Plate | 2-1/2" x 1-3/4" | 502 lbs         | 27.0%          | Unspecified |

**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1533) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 24" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1671)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS

**Cautions**

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

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# Single 14" BCI® 4500s-1.8

**PASSED**

## JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1536) (Joist)

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1536)

City, State, Zip: Dunn, NC

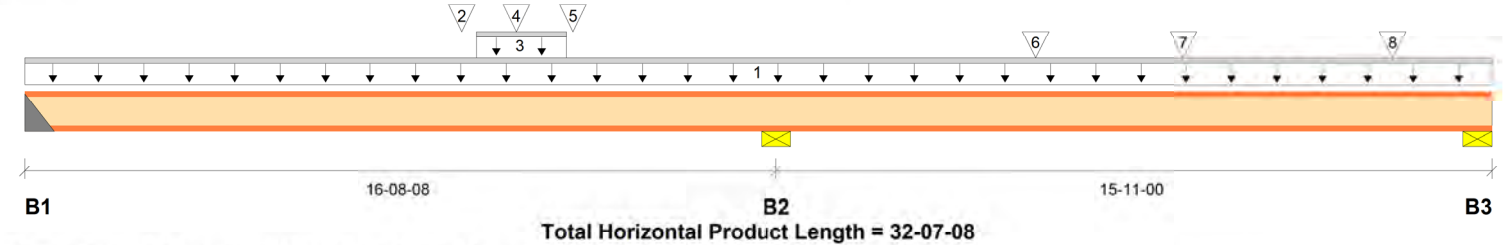
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS



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

| Bearing    | Live     | Dead    | Snow | Wind | Roof Live |
|------------|----------|---------|------|------|-----------|
| B1, 2"     | 472 / 56 | 197 / 0 |      |      |           |
| B2, 3-1/2" | 1286 / 0 | 871 / 0 |      |      |           |
| B3, 2-1/2" | 455 / 69 | 256 / 0 |      |      |           |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Roof Live | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 32-07-08 | Top  | 64   | 16   |      |      |           | n/a |
| 2   | 4(i29)                             | Conc. Pt. (lbs)   | L    | 09-08-10 | 09-08-10 | Top  |      | 120  |      |      |           | n/a |
| 3   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 10-00-08 | 12-00-08 | Top  |      | 20   |      |      |           | n/a |
| 4   | 7(i32)                             | Conc. Pt. (lbs)   | L    | 10-11-03 | 10-11-03 | Top  |      | 169  |      |      |           | n/a |
| 5   | 9(i34)                             | Conc. Pt. (lbs)   | L    | 12-02-04 | 12-02-04 | Top  |      | 120  |      |      |           | n/a |
| 6   | 19(i44)                            | Conc. Pt. (lbs)   | L    | 22-05-12 | 22-05-12 | Top  |      | 104  |      |      |           | n/a |
| 7   | 17(i42)                            | Conc. Pt. (lbs)   | L    | 25-09-04 | 25-09-04 | Top  |      | 104  |      |      |           | n/a |
| 8   | 33(i1539)                          | Conc. Pt. (lbs)   | L    | 30-05-00 | 30-05-00 | Top  |      | 146  |      |      |           | n/a |

### Controls Summary

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 2734 ft-lbs     | 76.3%       | 100%     | 2    | 08-04-14 |
| Neg. Moment           | -3560 ft-lbs    | 99.3%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 670 lbs         | 62.3%       | 100%     | 2    | 00-00-00 |
| Int. Reaction         | 2157 lbs        | 91.8%       | 100%     | 1    | 16-08-08 |
| End Shear             | 694 lbs         | 38.0%       | 100%     | 3    | 32-05-00 |
| Cont. Shear           | 1160 lbs        | 63.6%       | 100%     | 1    | 16-06-12 |
| Total Load Deflection | L/676 (0.295")  | 35.5%       | n/a      | 2    | 08-01-12 |
| Live Load Deflection  | L/1094 (0.182") | 43.9%       | n/a      | 5    | 07-10-10 |
| Total Neg. Defl.      | L/999 (-0.034") | n/a         | n/a      | 2    | 20-03-00 |
| Max Defl.             | 0.295"          | 19.6%       | n/a      | 2    | 08-01-12 |
| Span / Depth          | 14.2            |             |          |      |          |

### Bearing Supports

|    | Dim. (LxW) | Value           | % Allow Support | % Allow Member | Material    |
|----|------------|-----------------|-----------------|----------------|-------------|
| B1 | Hanger     | 2" x 1-3/4"     | 670 lbs         | 46.8%          | IUS1.81/14  |
| B2 | Wall/Plate | 3-1/2" x 1-3/4" | 2157 lbs        | 82.9%          | Unspecified |
| B3 | Wall/Plate | 2-1/2" x 1-3/4" | 711 lbs         | 38.2%          | Unspecified |

### Cautions

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.  
 Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.

**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1536) (Joist)**

BC CALC® Member Report

Dry | 2 spans | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name:

JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description:

1st Floor\Floor Joists\FJ-1(i1536)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer:

VS

Code reports: ESR-1336

Company:

BFS

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

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**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1509) (Joist)**

BC CALC® Member Report

Dry | 3 spans | No cant. | 24" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1509)

City, State, Zip: Dunn, NC

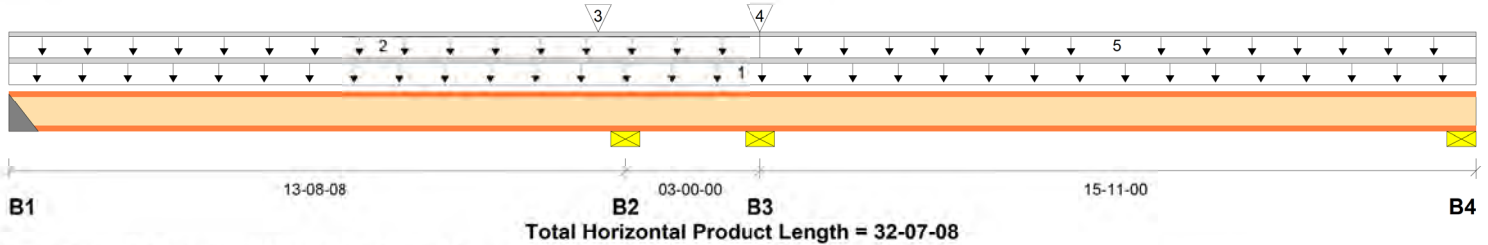
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS


**Reaction Summary (Unfactored Down / Uplift) (lbs)**

| Bearing    | Live       | Dead    | Snow | Wind | Roof Live |
|------------|------------|---------|------|------|-----------|
| B1, 2"     | 369 / 10   | 92 / 0  |      |      |           |
| B2, 3-1/2" | 906 / 317  | 237 / 0 |      |      |           |
| B3, 3-1/2" | 1112 / 200 | 249 / 0 |      |      |           |
| B4, 2-1/2" | 425 / 6    | 105 / 0 |      |      |           |

**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 | 32-07-08 | Top  | 32        | 8        |           |           |                | n/a |
| 2   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 16-08-08 | Top  | 32        | 8        |           |           |                | n/a |
| 3   | 2(i27)                             | Conc. Pt. (lbs)   | L    | 13-01-04 | 13-01-04 | Top  |           | 104      |           |           |                | n/a |
| 4   | 11(i36)                            | Conc. Pt. (lbs)   | L    | 16-08-08 | 16-08-08 | Top  |           | 57       |           |           |                | n/a |
| 5   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 16-08-08 | 32-07-08 | Top  | 32        | 8        |           |           |                | n/a |

**Controls Summary**

|                       | Value           | % Allowable | Duration | Case | Location |
|-----------------------|-----------------|-------------|----------|------|----------|
| Pos. Moment           | 1679 ft-lbs     | 46.8%       | 100%     | 5    | 26-01-00 |
| Neg. Moment           | -1853 ft-lbs    | 51.7%       | 100%     | 1    | 16-08-08 |
| End Reaction          | 530 lbs         | 44.2%       | 100%     | 5    | 32-07-08 |
| Int. Reaction         | 1362 lbs        | 57.9%       | 100%     | 5    | 16-08-08 |
| End Shear             | 513 lbs         | 28.1%       | 100%     | 5    | 32-05-00 |
| Cont. Shear           | 737 lbs         | 40.4%       | 100%     | 1    | 13-06-12 |
| Total Load Deflection | L/1218 (0.155") | 19.7%       | n/a      | 5    | 25-03-01 |
| Live Load Deflection  | L/1511 (0.125") | 31.8%       | n/a      | 10   | 25-03-01 |
| Total Neg. Defl.      | L/999 (-0.006") | n/a         | n/a      | 2    | 15-02-12 |
| Max Defl.             | 0.155"          | 10.4%       | n/a      | 5    | 25-03-01 |
| Span / Depth          | 13.5            |             |          |      |          |

**Bearing Supports**

| Bearing Supports |            | Dim. (LxW)      | Value    | % Allow Support | % Allow Member | Material    |
|------------------|------------|-----------------|----------|-----------------|----------------|-------------|
| B1               | Hanger     | 2" x 1-3/4"     | 461 lbs  | 32.2%           | 42.9%          | IUS1.81/14  |
| B2               | Wall/Plate | 3-1/2" x 1-3/4" | 1143 lbs | 43.9%           | 48.7%          | Unspecified |
| B2               | Uplift     |                 | 80 lbs   |                 |                |             |
| B3               | Wall/Plate | 3-1/2" x 1-3/4" | 1362 lbs | 52.3%           | 57.9%          | Unspecified |
| B4               | Wall/Plate | 2-1/2" x 1-3/4" | 530 lbs  | 28.5%           | 44.2%          | Unspecified |



**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-1(i1509) (Joist)**

BC CALC® Member Report

Dry | 3 spans | No cant. | 24" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-1(i1509)

City, State, Zip: Dunn, NC

Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS

**Cautions**

Uplift of -80 lbs found at bearing B2.

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.

Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

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

Design meets arbitrary (1.5") Maximum Total load deflection criteria.

Hanger Manufacturer: Simpson Strong-Tie, Inc.

Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.

Design based on Dry Service Condition.

BC CALC® analysis is based on IBC 2015.

Calculations assume member is fully braced.

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**JOIST REPAIR AT HANGER\1st Floor\Floor Joists\FJ-4(i1523) (Joist)**

BC CALC® Member Report

Dry | 1 span | No cant. | 19.2" OCS | Repetitive | Glued &amp; nailed

August 18, 2025 12:02:15

Build 9038

Job name:

File name: JOIST REPAIR 1533 AT HANGER

Address: 82 Boston River Drive

Description: 1st Floor\Floor Joists\FJ-4(i1523)

City, State, Zip: Dunn, NC

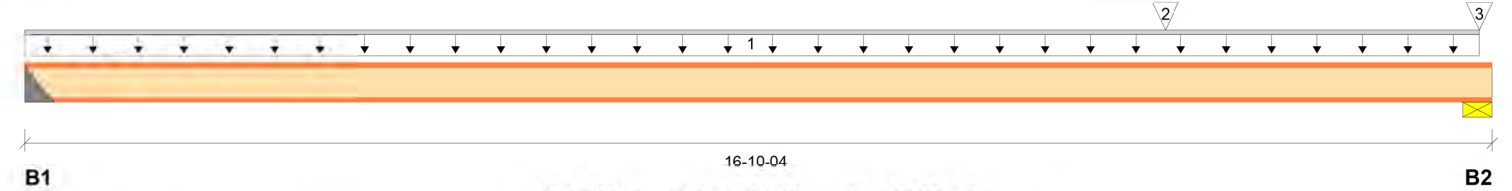
Specifier:

Customer: JSJ

Designer: VS

Code reports: ESR-1336

Company: BFS



Total Horizontal Product Length = 16-10-04

**Reaction Summary (Unfactored Down / Uplift) (lbs)**

| Bearing    | Live    | Dead    | Snow | Wind | Roof Live |
|------------|---------|---------|------|------|-----------|
| B1, 2"     | 511 / 0 | 148 / 0 |      |      |           |
| B2, 3-1/2" | 510 / 0 | 220 / 0 |      |      |           |

**Load Summary**

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | 100% | 90% | 115% | 160% | Roof Live 125% | OCS |
|-----|------------------------------------|-------------------|------|----------|----------|------|------|-----|------|------|----------------|-----|
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 16-08-08 | Top  | 61   | 15  |      |      |                | n/a |
| 2   | 2(i27)                             | Conc. Pt. (lbs)   | L    | 13-01-04 | 13-01-04 | Top  |      | 97  |      |      |                | n/a |
| 3   | 11(i36)                            | Conc. Pt. (lbs)   | L    | 16-08-08 | 16-08-08 | Top  |      | 16  |      |      |                | n/a |

**Controls Summary**

|                       | Value          | % Allowable | Duration | Case | Location |
|-----------------------|----------------|-------------|----------|------|----------|
| Pos. Moment           | 2778 ft-lbs    | 77.5%       | 100%     | 1    | 08-08-04 |
| End Reaction          | 659 lbs        | 61.3%       | 100%     | 1    | 00-00-00 |
| End Shear             | 702 lbs        | 38.5%       | 100%     | 1    | 16-06-12 |
| Total Load Deflection | L/637 (0.311") | 37.7%       | n/a      | 1    | 08-06-01 |
| Live Load Deflection  | L/854 (0.232") | 56.2%       | n/a      | 2    | 08-03-14 |
| Max Defl.             | 0.311"         | 20.8%       | n/a      | 1    | 08-06-01 |
| Span / Depth          | 14.2           |             |          |      |          |

**Bearing Supports**

|    | Dim. (LxW)                 | Value   | % Allow Support | % Allow Member | Material    |
|----|----------------------------|---------|-----------------|----------------|-------------|
| B1 | Hanger 2" x 1-3/4"         | 659 lbs | 46.1%           | 61.3%          | IUS1.81/14  |
| B2 | Wall/Plate 3-1/2" x 1-3/4" | 729 lbs | 28.0%           | 50.3%          | Unspecified |

**Cautions**

Header for the hanger IUS1.81/14 is a Double 1-3/4" x 24" LVL beam.  
 Hanger IUS1.81/14 requires (12) 10d face nails, (2) Strong-Grip joist nails.

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets User specified (L/480) Live load deflection criteria.  
 Design meets arbitrary (1.5") Maximum Total load deflection criteria.  
 Hanger Manufacturer: Simpson Strong-Tie, Inc.  
 Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.  
 Design based on Dry Service Condition.  
 BC CALC® analysis is based on IBC 2015.  
 Calculations assume member is fully braced.

**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.





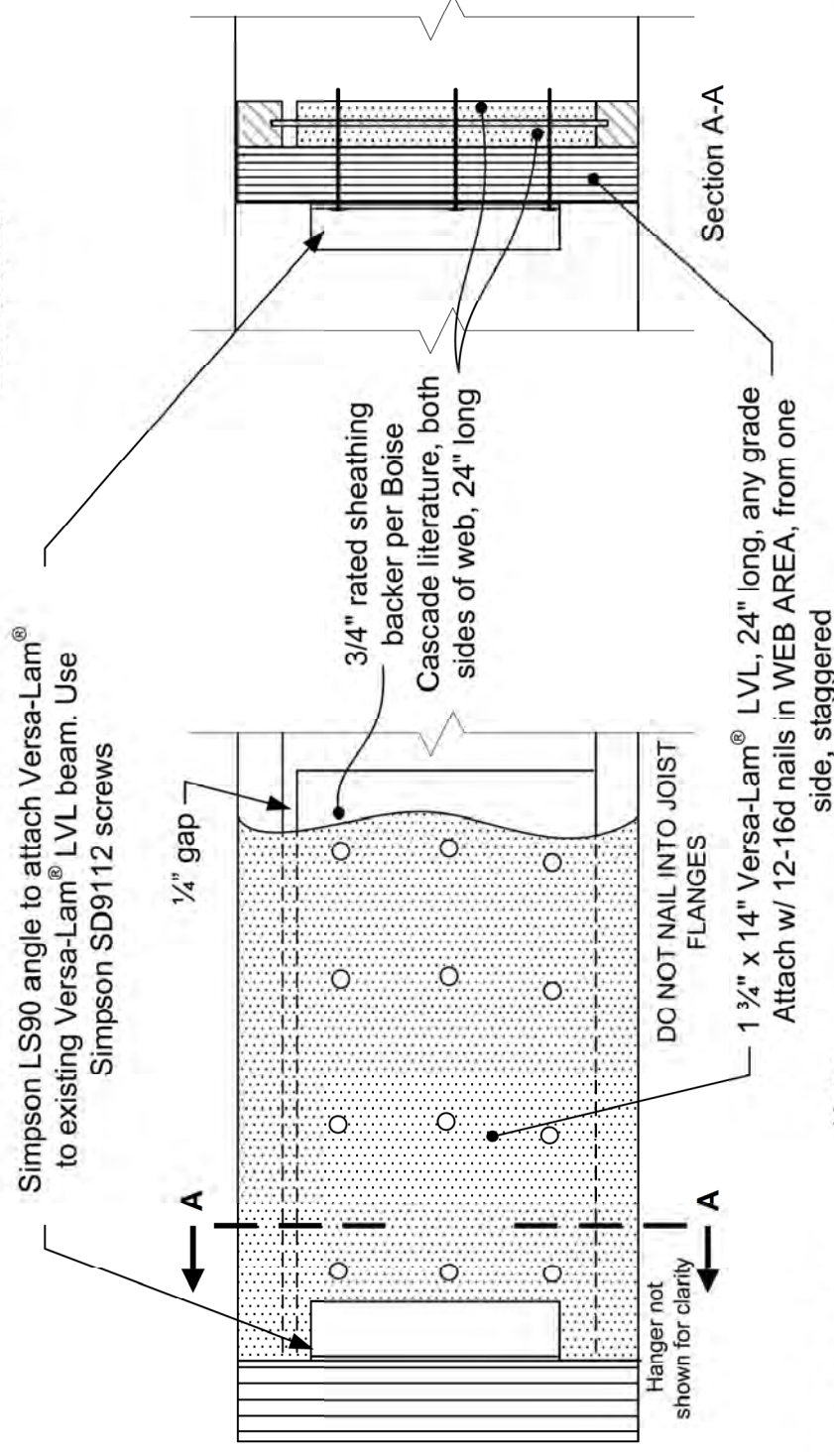
**Boise Cascade**  
**Engineered Wood Products**

**Eastern Region Office**  
3465 Lawrenceville-Suwanee Road, Suite A  
Suwanee, Georgia 30024-2410  
770-614-4010 1-800-524-7209 toll free

**Reinforcement for 14" BCI® 4500s**  
**Joists Damaged From Overnailing**

**at Hanger Bearing**

Project: Lot 4 Ila's Way  
Address: 82 Boston River Drive  
City, St: Dunn, NC  
Retailer: Builders FirstSource  
Distributor:  
Date: 8/18/25



Note:  
8d nail = 0.113" x 2 1/2" min  
10d nail = 0.128" x 3" min  
16d nail = 0.135" x 3 1/2" min

Note:  
Versa-Lam® LVL may be installed on either side of joist

**Not to Scale**

This certification is for repair of a Boise Cascade individual building component only and not for the component design or the building system as a whole. The component design attached to this report was provided by others. The building designer of record 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, connections, etc. is the responsibility of the building designer of record.