Client:

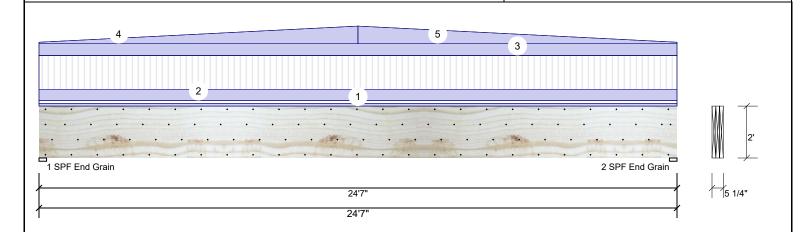
Project: Address: Ben Stout Real Estate

1/7/2021

Input by: David Landry Job Name: Lot 2 Sierra Villas Project #: J0121-0105

1.750" X 24.000" **Kerto-S LVL** 3-Ply - PASSED BM<sub>1</sub>

Level: Level



| Type:              | Girder        | Application:   | Floor        | Brg      |
|--------------------|---------------|----------------|--------------|----------|
| Plies:             | 3             | Design Method: | ASD          | 1        |
| Moisture Condition | on: Dry       | Building Code: | IBC/IRC 2015 | 2        |
| Deflection LL:     | 480           | Load Sharing:  | Yes          |          |
| Deflection TL:     | 360           | Deck:          | Not Checked  |          |
| Importance:        | Normal        | Ceiling:       | Gypsum 1/2"  |          |
| Temperature:       | Temp <= 100°F |                |              | <u> </u> |
|                    | •             |                |              | Ве       |
|                    |               |                |              |          |

| Reaction | s UNPAT | TERNED IL | (Uplift) |      |       |
|----------|---------|-----------|----------|------|-------|
| Brg      | Live    | Dead      | Snow     | Wind | Const |
| 1        | 4253    | 4788      | 344      | 0    | 0     |
| 2        | 4253    | 4788      | 344      | 0    | 0     |

### earings Bearing Length Cap. React D/L lb Total Ld. Case Ld. Comb. 1-SPF 3.500" 4788 / 4253 9041 L End Grain 2 - SPF 3.500" 57% 4788 / 4253 9041 L D+L End Grain

### **Analysis Results**

Member Information

| Analysis     | Actual         | Location   | Allowed       | Capacity        | Comb. | Case |
|--------------|----------------|------------|---------------|-----------------|-------|------|
| Moment       | 55677 ft-lb    | 12'3 1/2"  | 114169 ft-lb  | 0.488 (49%)     | D+L   | L    |
| Unbraced     | 55677 ft-lb    | 12'3 1/2"  | 55925 ft-lb   | 0.996<br>(100%) | D+L   | L    |
| Shear        | 8539 lb        | 2'2 5/8"   | 26880 lb      | 0.318 (32%)     | D+L   | L    |
| LL Defl inch | 0.242 (L/1198) | 12'3 9/16" | 0.604 (L/480) | 0.400 (40%)     | L     | L    |
| TL Defl inch | 0.531 (L/545)  | 12'3 9/16" | 0.805 (L/360) | 0.660 (66%)     | D+L   | L    |

### **Design Notes**

- 1 Fasten all plies using 4 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at a maximum of 4'8 1/4" o.c.
- 6 Lateral slenderness ratio based on single ply width.

| ID | Load Type     | Location | Trib Width | Side      | Dead 0.9 | Live 1  | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |
|----|---------------|----------|------------|-----------|----------|---------|-----------|----------|-------------|----------|
| 1  | Uniform       |          |            | Near Face | 28 PLF   | 0 PLF   | 28 PLF    | 0 PLF    | 0 PLF       | M2       |
| 2  | Uniform       |          |            | Far Face  | 116 PLF  | 346 PLF | 0 PLF     | 0 PLF    | 0 PLF       | F1, F3   |
| 3  | Uniform       |          |            | Тор       | 120 PLF  | 0 PLF   | 0 PLF     | 0 PLF    | 0 PLF       | Wall     |
| 4  | Tapered Start | 0-0-0    |            | Тор       | 15 PLF   | 0 PLF   | 0 PLF     | 0 PLF    | 0 PLF       | B1GE     |
|    | End           | 12-3-8   |            |           | 180 PLF  | 0 PLF   | 0 PLF     | 0 PLF    | 0 PLF       |          |
| 5  | Tapered Start | 12-3-8   |            | Тор       | 180 PLF  | 0 PLF   | 0 PLF     | 0 PLF    | 0 PLF       | B1GE     |

Continued on page 2...

NOtes
Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive
- Handling & Installation
- LVL beams must not be cut or drilled
  Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals

  2 Damaged Beams must not be used

- Design assumes top edge is laterally restrained
  Provide lateral support at bearing points to avoid
  lateral displacement and rotation
- For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Metsä Wood 301 Merritt 7 Building, 2nd Floor Norwalk, CT 06851 (800) 622-5850 www.metsawood.com/us ICC-ES: ESR-3633

Manufacturer Info

Comtech, Inc. 1001 S. Reilly Road, Suite #639 Fayetteville, NC USA 28314 910-864-TRUS



Page 1 of 7



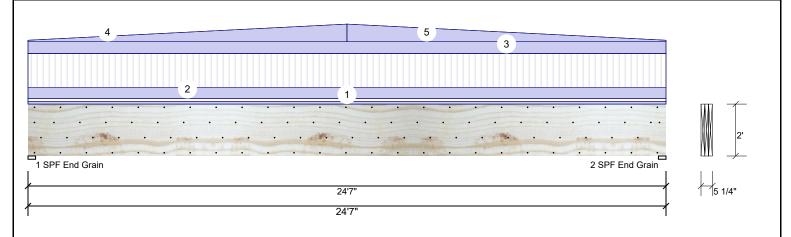
Client: Ben Stout Real Estate

Project: Address: Date:

1/7/2021 Input by: David Landry Job Name: Lot 2 Sierra Villas Project #: J0121-0105

3-Ply - PASSED 1.750" X 24.000" **Kerto-S LVL** BM<sub>1</sub>

Level: Level



.Continued from page 1

ID Load Type Location Trib Width Side Dead 0.9 Live 1 Snow 1.15 Wind 1.6 Const. 1.25 Comments End 24-7-0 15 PLF 0 PLF 0 PLF 0 PLF 0 PLF

> 28 PLF Self Weight

### Notes

NOtes
Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

## Handling & Installation

- Handling & Installation

  1. UVI beams must not be cut or drilled

  2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals

  3. Damaged Beams must not be used

  4. Design assumes top edge is laterally restrained

  5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

Metsä Wood 301 Merritt 7 Building, 2nd Floor Norwalk, CT 06851 (800) 622-5850 www.metsawood.com/us ICC-ES: ESR-3633

Manufacturer Info

Comtech, Inc. 1001 S. Reilly Road, Suite #639 Fayetteville, NC USA 28314 910-864-TRUS



Page 2 of 7

Client:

Project: Address: Ben Stout Real Estate

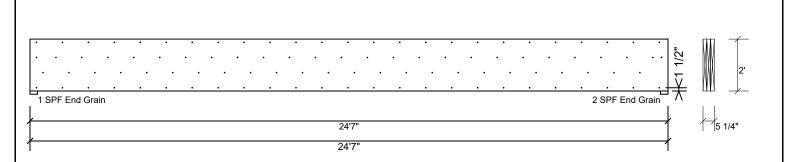
1/7/2021 Input by:

David Landry Job Name: Lot 2 Sierra Villas Project #: J0121-0105

Page 3 of 7

1.750" X 24.000" **Kerto-S LVL** 3-Ply - PASSED BM<sub>1</sub>

Level: Level



## Multi-Ply Analysis

Fasten all plies using 4 rows of 10d Box nails (.128x3") at 12" o.c.. Nail from both sides. Maximum end distance not to exceed

| Capacity                 | 94.1 %    |
|--------------------------|-----------|
| Load                     | 308.0 PLF |
| Yield Limit per Foot     | 327.4 PLF |
| Yield Limit per Fastener | 81.9 lb.  |
| Yield Mode               | IV        |
| Edge Distance            | 1 1/2"    |
| Min. End Distance        | 3"        |
| Load Combination         | D+L       |
| Duration Factor          | 1.00      |

### Notes

NOtes
Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

## Handling & Installation

- Informing & Installation

  I. VIL beams must not be cut or drilled

  Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals

  Damaged Beams must not be used

  Design assumes top edge is laterally restrained

  Design assumes top edge is laterally restrained is provide lateral support at bearing points to avoid lateral displacement and rotation

For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Metsä Wood 301 Merritt 7 Building, 2nd Floor Norwalk, CT 06851 (800) 622-5850 www.metsawood.com/us ICC-ES: ESR-3633

Manufacturer Info

Comtech, Inc. 1001 S. Reilly Road, Suite #639 Fayetteville, NC USA 28314 910-864-TRUS







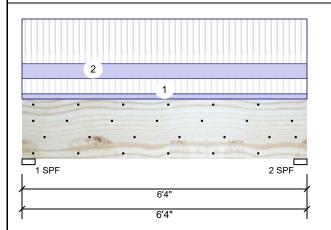
Client: Ben Stout Real Estate

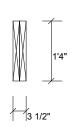
Project: Address: Date:

1/7/2021 Input by: David Landry Job Name: Lot 2 Sierra Villas Project #: J0121-0105

1.750" X 16.000" **Kerto-S LVL** 2-Ply - PASSED BM<sub>2</sub>

Level: Level





Page 4 of 7

## **Member Information**

Type: Plies: 2 Moisture Condition: Dry Deflection LL: 480 Deflection TL: 360 Importance: Normal Temperature: Temp <= 100°F

Application: Floor Design Method: ASD **Building Code: IBC/IRC 2015** Load Sharing: No Not Checked Deck: Ceiling: Gypsum 1/2"

Reactions UNPATTERNED Ib (Uplift) Brg Dead Snow Wind Live Const 1742 622 0 0 0 1 2 1742 622 0 0 0

## **Bearings**

Bearing Length Cap. React D/L lb Total Ld. Case Ld. Comb. 1-SPF 3.500" 622 / 1742 D+L 2364 L 2 - SPF 3.500" 45% 622 / 1742 2364 L D+I

### Analysis Results

| ſ | Analysis     | Actual         | Location | Allowed       | Capacity    | Comb. | Case |
|---|--------------|----------------|----------|---------------|-------------|-------|------|
|   | Moment       | 3243 ft-lb     | 3'2"     | 34565 ft-lb   | 0.094 (9%)  | D+L   | L    |
|   | Unbraced     | 3243 ft-lb     | 3'2"     | 19457 ft-lb   | 0.167 (17%) | D+L   | L    |
|   | Shear        | 2184 lb        | 4'9 3/8" | 11947 lb      | 0.183 (18%) | D+L   | L    |
|   | LL Defl inch | 0.011 (L/6331) | 3'2"     | 0.147 (L/480) | 0.080 (8%)  | L     | L    |
| l | TL Defl inch | 0.015 (L/4665) | 3'2"     | 0.197 (L/360) | 0.080 (8%)  | D+L   | L    |

### **Design Notes**

- 1 Fasten all plies using 4 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top braced at bearings.
- 5. Lateral clanderness ratio based on single bly width

| 5 Lateral sienderness ratio based on single ply width. |             |          |            |           |          |         |           |          |             |          |  |
|--|-------------|----------|------------|-----------|----------|---------|-----------|----------|-------------|----------|--|
| ID   | Load Type   | Location | Trib Width | Side      | Dead 0.9 | Live 1  | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |  |
| 1  | Uniform     |          |            | Near Face | 47 PLF   | 139 PLF | 0 PLF     | 0 PLF    | 0 PLF       | F5       |  |
| 2  | Uniform     |          |            | Far Face  | 137 PLF  | 411 PLF | 0 PLF     | 0 PLF    | 0 PLF       | F4       |  |
|  | Self Weight |          |            |           | 12 PI F  |         |           |          |             |          |  |

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

## Handling & Installation

- LVL beams must not be cut or drilled Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals Damaged Beams must not be used
- Design assumes top edge is laterally restrained
  Provide lateral support at bearing points to avoid
  lateral displacement and rotation
- 6. For flat roofs provide proper drainage to prevent ponding

Metsä Wood 301 Merritt 7 Building, 2nd Floor Norwalk, CT 06851 (800) 622-5850 www.metsawood.com/us ICC-ES: ESR-3633

Manufacturer Info

Comtech, Inc. 1001 S. Reilly Road, Suite #639 Fayetteville, NC USA 28314 910-864-TRUS





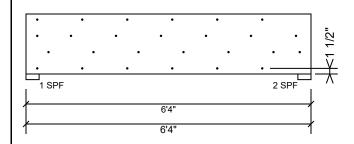
Client: Ben Stout Real Estate

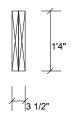
Project: Address: Date: 1/7/2021 Input by: David Landry

> Job Name: Lot 2 Sierra Villas Project #: J0121-0105

1.750" X 16.000" 2-Ply - PASSED **Kerto-S LVL** BM<sub>2</sub>

Level: Level





Page 5 of 7

## Multi-Ply Analysis

Fasten all plies using 4 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

| rasterrain plies asing + rows | or 100 box 110113 (.120x3 ) at |
|-------------------------------|--------------------------------|
| Capacity                      | 83.7 %                         |
| Load                          | 274.0 PLF                      |
| Yield Limit per Foot          | 327.4 PLF                      |
| Yield Limit per Fastener      | 81.9 lb.                       |
| Yield Mode                    | IV                             |
| Edge Distance                 | 1 1/2"                         |
| Min. End Distance             | 3"                             |
| Load Combination              | D+L                            |
| Duration Factor               | 1.00                           |

### Notes

NOtes
Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

## Handling & Installation

- Handling & Installation

  1. UVI beams must not be cut or drilled

  2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals

  3. Damaged Beams must not be used

  4. Design assumes top edge is laterally restrained

  5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

Metsä Wood 301 Merritt 7 Building, 2nd Floor Norwalk, CT 06851 (800) 622-5850 www.metsawood.com/us ICC-ES: ESR-3633

Manufacturer Info

Comtech, Inc. 1001 S. Reilly Road, Suite #639 Fayetteville, NC USA 28314 910-864-TRUS





Client:

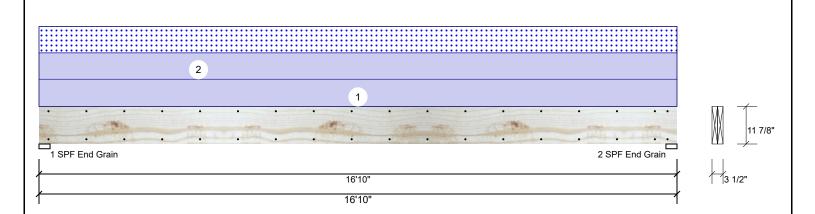
Project: Address: Ben Stout Real Estate

Date: 1/7/2021

Input by: David Landry Job Name: Lot 2 Sierra Villas Project #: J0121-0105

**Kerto-S LVL** 2-Ply - PASSED 1.750" X 11.875" **GDH** 

Level: Level



End Grain

End Grain

2 - SPF 3.500"

### Member Information Reactions UNPATTERNED Ib (Uplift) Application: Brg Live Wind Type: Floor Dead Snow Plies: 2 Design Method: ASD 0 1071 488 1 Moisture Condition: Dry **Building Code: IBC/IRC 2015** 2 0 1071 488 Deflection LL: 480 Load Sharing: No Deflection TL: 360 Not Checked Deck: Importance: Normal Ceiling: Gypsum 1/2" Temperature: Temp <= 100°F **Bearings** Bearing Length Cap. React D/L lb Total Ld. Case 1-SPF 3.500" 1071 / 488 1559 L

# Analysis Results

| Analysis     | Actual         | Location  | Allowed       | Capacity        | Comb. | Case |
|--------------|----------------|-----------|---------------|-----------------|-------|------|
| Moment       | 6209 ft-lb     | 8'5"      | 22897 ft-lb   | 0.271 (27%)     | D+S   | L    |
| Unbraced     | 6209 ft-lb     | 8'5"      | 6213 ft-lb    | 0.999<br>(100%) | D+S   | L    |
| Shear        | 1333 lb        | 1'2 5/8"  | 10197 lb      | 0.131 (13%)     | D+S   | L    |
| LL Defl inch | 0.101 (L/1937) | 8'5 1/16" | 0.409 (L/480) | 0.250 (25%)     | S     | L    |
| TL Defl inch | 0.324 (L/607)  | 8'5 1/16" | 0.546 (L/360) | 0.590 (59%)     | D+S   | L    |

### **Design Notes**

- 1 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at a maximum of 16' 3/8" o.c.
- 6 Lateral slenderness ratio based on single ply width.

|    |             | 3 1 7    |            |      |          |        |           |          |             |          |  |
|----|-------------|----------|------------|------|----------|--------|-----------|----------|-------------|----------|--|
| ID | Load Type   | Location | Trib Width | Side | Dead 0.9 | Live 1 | Snow 1.15 | Wind 1.6 | Const. 1.25 | Comments |  |
| 1  | Uniform     |          |            | Тор  | 60 PLF   | 0 PLF  | 0 PLF     | 0 PLF    | 0 PLF       | Wall     |  |
| 2  | Uniform     |          |            | Тор  | 58 PLF   | 0 PLF  | 58 PLF    | 0 PLF    | 0 PLF       | M2       |  |
|    | Self Weight |          |            |      | 9 PLF    |        |           |          |             |          |  |

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

### Handling & Installation

- LVL beams must not be cut or drilled Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals

  Damaged Beams must not be used
- Design assumes top edge is laterally restrained
  Provide lateral support at bearing points to avoid
  lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

Metsä Wood 301 Merritt 7 Building, 2nd Floor Norwalk, CT 06851 (800) 622-5850 www.metsawood.com/us ICC-ES: ESR-3633

Manufacturer Info

Comtech, Inc. 1001 S. Reilly Road, Suite #639 Fayetteville, NC USA 28314 910-864-TRUS



Page 6 of 7

Const

0

0

1559 L

1071 / 488

15%

0

0

Ld. Comb.

D+S

D+S

Client:

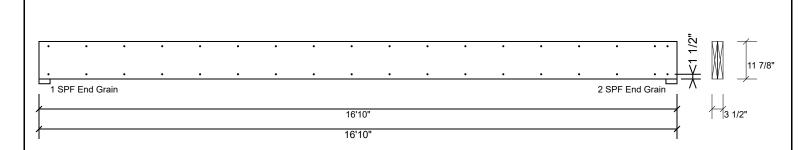
Project: Address: Ben Stout Real Estate

Date: 1/7/2021

Input by: David Landry Job Name: Lot 2 Sierra Villas Project #: J0121-0105

2-Ply - PASSED **Kerto-S LVL** 1.750" X 11.875" **GDH** 

Level: Level



## Multi-Ply Analysis

Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

| 1 3                      |           | • | , |
|--------------------------|-----------|---|---|
| Capacity                 | 0.0 %     |   |   |
| Load                     | 0.0 PLF   |   |   |
| Yield Limit per Foot     | 163.7 PLF |   |   |
| Yield Limit per Fastener | 81.9 lb.  |   |   |
| Yield Mode               | IV        |   |   |
| Edge Distance            | 1 1/2"    |   |   |
| Min. End Distance        | 3"        |   |   |
| Load Combination         |           |   |   |
| Duration Factor          | 1.00      |   |   |

### Notes

NOtes
Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

## Handling & Installation

- Handling & Installation

  1. UVI beams must not be cut or drilled

  2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals

  3. Damaged Beams must not be used

  4. Design assumes top edge is laterally restrained

  5. Provide lateral support at bearing points to avoid lateral displacement and rotation
- For flat roofs provide proper drainage to prevent ponding

Metsä Wood 301 Merritt 7 Building, 2nd Floor Norwalk, CT 06851 (800) 622-5850 www.metsawood.com/us ICC-ES: ESR-3633

Manufacturer Info

Comtech, Inc. 1001 S. Reilly Road, Suite #639 Fayetteville, NC USA 28314 910-864-TRUS



Page 7 of 7