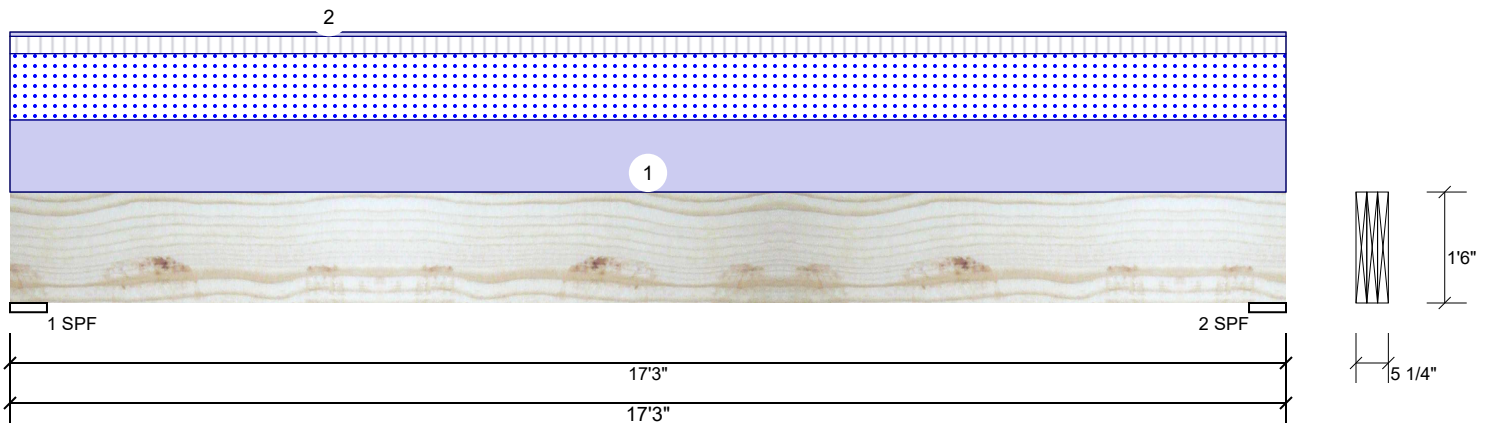
| | | | |
|---|---|---|---|
| Client: | Signature Home Builders | Date: | 2/9/2023 |
| Project: | | Input by: | Hampton Horrocks |
| Address: | | Job Name: | Lot 85 South Creek |
| | | Project #: | J0223-0629 |

# GDH Kerto-S LVL 1.750" X 18.000" 3-Ply - PASSED

Level: Level




## Member Information

| | | | |
|---|---|---|---|
| Type: | Girder | Application: | Floor |
| Plies: | 3 | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | Yes |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

## Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|---|---|---|---|---|---|---|
| 1 | Vertical | 871 | 4019 | 3329 | 0 | 0 |
| 2 | Vertical | 871 | 4019 | 3329 | 0 | 0 |

## Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|---|---|---|---|---|---|---|---|
| 1 - SPF | 6.000" | Vert | 55% | 4019 / 3329 | 7349 | L | D+S |
| 2 - SPF | 6.000" | Vert | 55% | 4019 / 3329 | 7349 | L | D+S |

## Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|---|---|---|---|---|---|---|
| Moment | 28630 ft-lb | 8'7 1/2" | 77108 ft-lb | 0.371 (37%) | D+S | L |
| Unbraced | 28630 ft-lb | 8'7 1/2" | 28739 ft-lb | 0.996 (100%) | D+S | L |
| Shear | 5676 lb | 2' | 23184 lb | 0.245 (24%) | D+S | L |
| LL Defl inch | 0.139 (L/1417) | 8'7 9/16" | 0.410 (L/480) | 0.339 (34%) | S | L |
| TL Defl inch | 0.306 (L/642) | 8'7 9/16" | 0.820 (L/240) | 0.374 (37%) | D+S | L |

## Design Notes

1. Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
2. Girders are designed to be supported on the bottom edge only.
3. Multiple plies must be fastened together as per manufacturer's details.
4. Top loads must be supported equally by all plies.
5. Top must be laterally braced at a maximum of 6'11 3/4" o.c.
6. Bottom must be laterally braced at end bearings.
7. 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 | | | Top | 420 PLF | 101 PLF | 386 PLF | 0 PLF | 0 PLF | A1 |
| 2 | Uniform | | | Top | 25 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | wall |
| | Self Weight | | | | 21 PLF | | | | | |

**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.

**Lumber**

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

**Handling & Installation**

1. LVL 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

This design is valid until 11/3/2024

**Manufacturer Info**

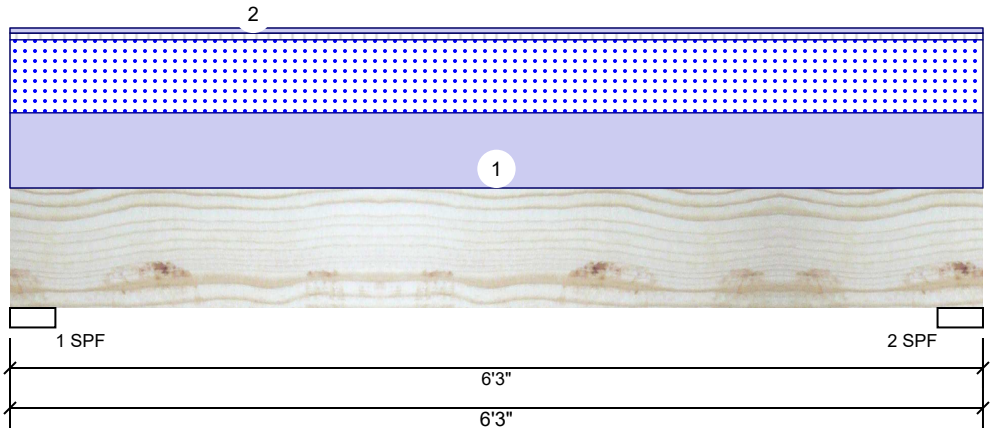
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

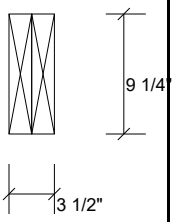
Comtech, Inc.
1001 S. Reilly Road, Suite #639
Fayetteville, NC
USA
28314
910-864-TRUS

| | | | |
|---|---|---|---|
| Client: | Signature Home Builders | Date: | 2/9/2023 |
| Project: | | Input by: | Hampton Horrocks |
| Address: | | Job Name: | Lot 85 South Creek |
| | | Project #: | J0223-0629 |

# BM1 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level




## Member Information

| | | | |
|---|---|---|---|
| Type: | Girder | Application: | Floor |
| Plies: | 2 | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | No |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

## Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|---|---|---|---|---|---|---|
| 1 | Vertical | 125 | 1507 | 1350 | 0 | 0 |
| 2 | Vertical | 125 | 1507 | 1350 | 0 | 0 |

## Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|---|---|---|---|---|---|---|---|
| 1 - SPF | 3.500" | Vert | 55% | 1507 / 1350 | 2857 | L | D+S |
| 2 - SPF | 3.500" | Vert | 55% | 1507 / 1350 | 2857 | L | D+S |

## Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|---|---|---|---|---|---|---|
| Moment | 3833 ft-lb | 3'1 1/2" | 14423 ft-lb | 0.266 (27%) | D+S | L |
| Unbraced | 3833 ft-lb | 3'1 1/2" | 10779 ft-lb | 0.356 (36%) | D+S | L |
| Shear | 1891 lb | 5'2 1/4" | 7943 lb | 0.238 (24%) | D+S | L |
| LL Defl inch | 0.030 (L/2306) | 3'1 1/2" | 0.145 (L/480) | 0.208 (21%) | S | L |
| TL Defl inch | 0.064 (L/1090) | 3'1 1/2" | 0.290 (L/240) | 0.220 (22%) | D+S | L |

## Design Notes

1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
2 Girders are designed to be supported on the bottom edge only.
3 Multiple plies must be fastened together as per manufacturer's details.
4 Top loads must be supported equally by all plies.
5 Top must be laterally braced at end bearings.
6 Bottom must be laterally braced at end bearings.
7 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 | | | Top | 445 PLF | 40 PLF | 432 PLF | 0 PLF | 0 PLF | A3 |
| 2 | Uniform | | | Top | 30 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | wall |
| | Self Weight | | | | 7 PLF | | | | | |

### 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.

### Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

### Handling & Installation

1. LVL 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

This design is valid until 11/3/2024

**Manufacturer Info**

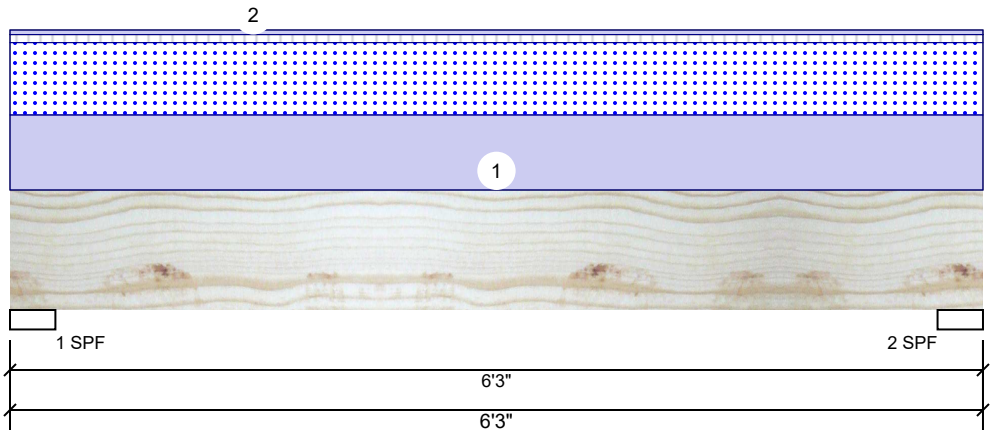
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

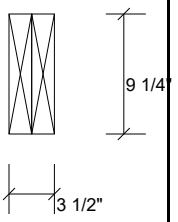
Comtech, Inc.
1001 S. Reilly Road, Suite #639
Fayetteville, NC
USA
28314
910-864-TRUS

| | | | |
|---|---|---|---|
| Client: | Signature Home Builders | Date: | 2/9/2023 |
| Project: | | Input by: | Hampton Horrocks |
| Address: | | Job Name: | Lot 85 South Creek |
| | | Project #: | J0223-0629 |

# BM2 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level




## Member Information

| | | | |
|---|---|---|---|
| Type: | Girder | Application: | Floor |
| Plies: | 2 | Design Method: | ASD |
| Moisture Condition: | Dry | Building Code: | IBC/IRC 2015 |
| Deflection LL: | 480 | Load Sharing: | No |
| Deflection TL: | 240 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

## Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|---|---|---|---|---|---|---|
| 1 | Vertical | 166 | 1660 | 1488 | 0 | 0 |
| 2 | Vertical | 166 | 1660 | 1488 | 0 | 0 |

## Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|---|---|---|---|---|---|---|---|
| 1 - SPF | 3.500" | Vert | 60% | 1660 / 1488 | 3147 | L | D+S |
| 2 - SPF | 3.500" | Vert | 60% | 1660 / 1488 | 3147 | L | D+S |

## Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|---|---|---|---|---|---|---|
| Moment | 4223 ft-lb | 3'1 1/2" | 14423 ft-lb | 0.293 (29%) | D+S | L |
| Unbraced | 4223 ft-lb | 3'1 1/2" | 10779 ft-lb | 0.392 (39%) | D+S | L |
| Shear | 2083 lb | 5'2 1/4" | 7943 lb | 0.262 (26%) | D+S | L |
| LL Defl inch | 0.033 (L/2093) | 3'1 1/2" | 0.145 (L/480) | 0.229 (23%) | S | L |
| TL Defl inch | 0.070 (L/989) | 3'1 1/2" | 0.290 (L/240) | 0.243 (24%) | D+S | L |

## Design Notes

1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
2 Girders are designed to be supported on the bottom edge only.
3 Multiple plies must be fastened together as per manufacturer's details.
4 Top loads must be supported equally by all plies.
5 Top must be laterally braced at end bearings.
6 Bottom must be laterally braced at end bearings.
7 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 | | | Top | 494 PLF | 53 PLF | 476 PLF | 0 PLF | 0 PLF | A3 |
| 2 | Uniform | | | Top | 30 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | wall |
| | Self Weight | | | | 7 PLF | | | | | |

**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.

**Lumber**

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**Handling & Installation**

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

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