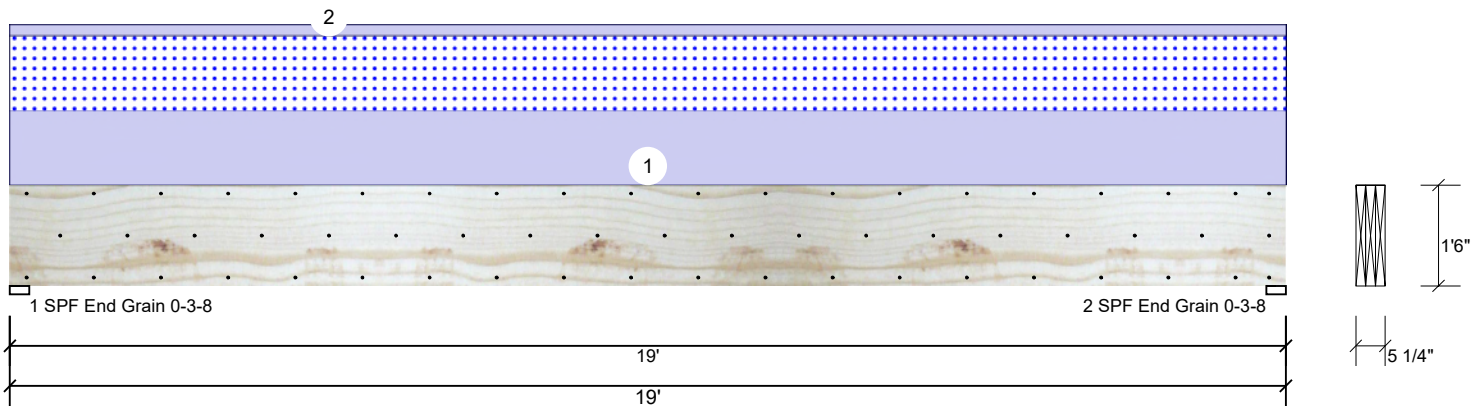
| | | | |
|---|---|---|---|
| Client: | WIMBERLY | Date: | 12/4/2023 |
| Project: | | Input by: | LENNY NORRIS |
| Address: | | Job Name: | BEACHAM RES |
| | | Project #: | |

# GDH 18' FL 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: | IRC 2018 |
| Deflection LL: | 480 | Load Sharing: | Yes |
| Deflection TL: | 360 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

## Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|---|---|---|---|---|---|---|
| 1 | Vertical | 0 | 4541 | 3772 | 0 | 0 |
| 2 | Vertical | 0 | 4541 | 3772 | 0 | 0 |

## Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|---|---|---|---|---|---|---|---|
| 1 - SPF End Grain | 3.500" | Vert | 54% | 4541 / 3772 | 8313 | L | D+S |
| 2 - SPF End Grain | 3.500" | Vert | 54% | 4541 / 3772 | 8313 | L | D+S |

## Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|---|---|---|---|---|---|---|
| Moment | 37687 ft-lb | 9'6" | 77108 ft-lb | 0.489 (49%) | D+S | L |
| Unbraced | 37687 ft-lb | 9'6" | 37844 ft-lb | 0.996 (100%) | D+S | L |
| Shear | 6776 lb | 1'9 1/2" | 23184 lb | 0.292 (29%) | D+S | L |
| LL Defl inch | 0.229 (L/974) | 9'6 1/16" | 0.464 (L/480) | 0.493 (49%) | S | L |
| TL Defl inch | 0.504 (L/442) | 9'6 1/16" | 0.619 (L/360) | 0.815 (81%) | 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. Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6". Nail from both sides.
3. Refer to last page of calculations for fasteners required for specified loads.
4. Girders are designed to be supported on the bottom edge only.
5. Top loads must be supported equally by all plies.
6. Top must be laterally braced at a maximum of 5'2 5/8" o.c.
7. Bottom must be laterally braced at end bearings.
8. 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 | 397 PLF | 0 PLF | 397 PLF | 0 PLF | 0 PLF | B2 TRUSS |
| 2 | Uniform | | | Top | 60 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | DEAD 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 5/29/2026

**Manufacturer Info**

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

| | | | |
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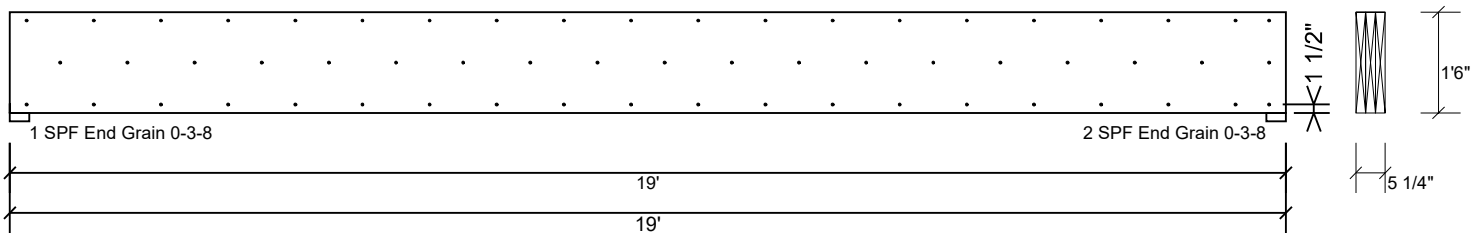
Level: Level




### Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Nail from both sides. Maximum end distance not to exceed 6".

| | |
|---|---|
| Capacity | 0.0 % |
| Load | 0.0 PLF |
| Yield Limit per Foot | 245.6 PLF |
| Yield Limit per Fastener | 81.9 lb. |
| $C_M$ | 1 |
| Yield Mode | IV |
| Edge Distance | 1 1/2" |
| Min. End Distance | 3" |
| Load Combination | |
| Duration Factor | 1.00 |

**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 5/29/2026

**Manufacturer Info**

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