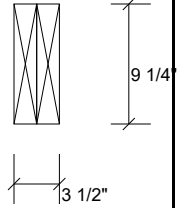
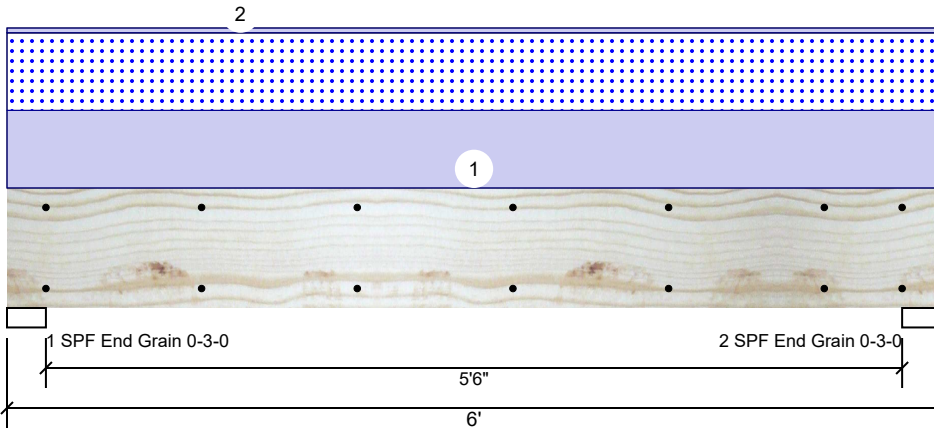


HDR-1 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

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: | 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 | 1576 | 1464 | 0 | 0 |
| 2 | Vertical | 0 | 1576 | 1464 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF End Grain | 3.000" | Vert | 34% | 1576 / 1464 | 3040 | L | D+S |
| 2 - SPF End Grain | 3.000" | Vert | 34% | 1576 / 1464 | 3040 | L | D+S |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|----------|---------------|-------------|-------|------|
| Moment | 4007 ft-lb | 3' | 14423 ft-lb | 0.278 (28%) | D+S | L |
| Unbraced | 4007 ft-lb | 3' | 10944 ft-lb | 0.366 (37%) | D+S | L |
| Shear | 2011 lb | 1' 1/4" | 7943 lb | 0.253 (25%) | D+S | L |
| LL Defl inch | 0.031 (L/2200) | 3' | 0.141 (L/480) | 0.218 (22%) | S | L |
| TL Defl inch | 0.064 (L/1060) | 3' | 0.188 (L/360) | 0.340 (34%) | D+S | L |

Design Notes

- 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.
- Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- Refer to last page of calculations for fasteners required for specified loads.
- Girders are designed to be supported on the bottom edge only.
- Top loads must be supported equally by all plies.
- Top must be laterally braced at end bearings.
- Bottom must be laterally braced at end bearings.
- 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 | 488 PLF | 0 PLF | 488 PLF | 0 PLF | 0 PLF | B2 TRUSS |
| 2 | Uniform | | | Top | 30 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | WALL |
| | Self Weight | | | | 7 PLF | | | | | |

Notes

Calculated Structural 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

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

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

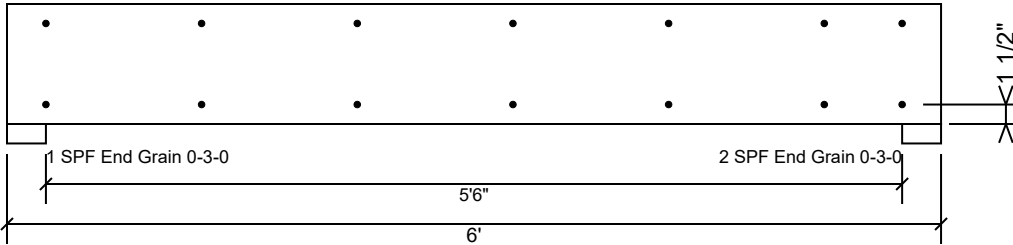
This design is valid until 6/28/2026

Manufacturer Info

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

HDR-1 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

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".

| | |
|--------------------------|-----------|
| Capacity | 0.0 % |
| Load | 0.0 PLF |
| Yield Limit per Foot | 163.7 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

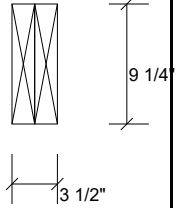
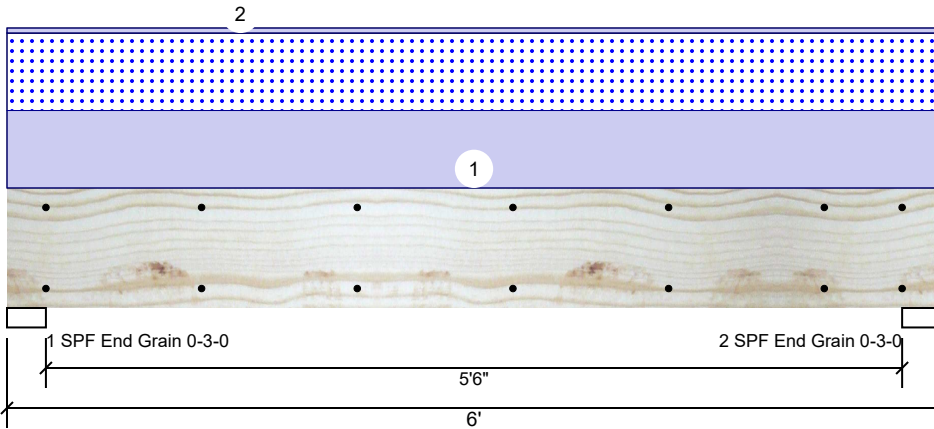
This design is valid until 6/28/2026

Manufacturer Info

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

HDR-2 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: | 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 | 1498 | 1386 | 0 | 0 |
| 2 | Vertical | 0 | 1498 | 1386 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF End Grain | 3.000" | Vert | 33% | 1498 / 1386 | 2884 | L | D+S |
| 2 - SPF End Grain | 3.000" | Vert | 33% | 1498 / 1386 | 2884 | L | D+S |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|----------|---------------|-------------|-------|------|
| Moment | 3802 ft-lb | 3' | 14423 ft-lb | 0.264 (26%) | D+S | L |
| Unbraced | 3802 ft-lb | 3' | 10944 ft-lb | 0.347 (35%) | D+S | L |
| Shear | 1908 lb | 1' 1/4" | 7943 lb | 0.240 (24%) | D+S | L |
| LL Defl inch | 0.029 (L/2324) | 3' | 0.141 (L/480) | 0.207 (21%) | S | L |
| TL Defl inch | 0.060 (L/1117) | 3' | 0.188 (L/360) | 0.322 (32%) | D+S | L |

Design Notes

- 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.
- Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- Refer to last page of calculations for fasteners required for specified loads.
- Girders are designed to be supported on the bottom edge only.
- Top loads must be supported equally by all plies.
- Top must be laterally braced at end bearings.
- Bottom must be laterally braced at end bearings.
- 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 | 462 PLF | 0 PLF | 462 PLF | 0 PLF | 0 PLF | B2 TRUSS |
| 2 | Uniform | | | Top | 30 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | WALL |
| | Self Weight | | | | 7 PLF | | | | | |

Notes

Calculated Structural 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

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

chemicals

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

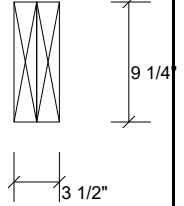
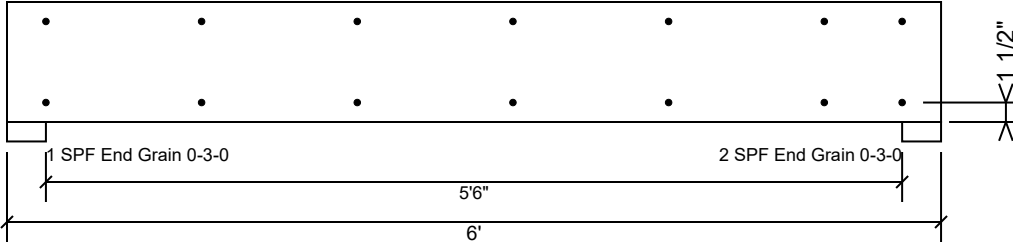
This design is valid until 6/28/2026

Manufacturer Info

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

HDR-2 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

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".

| | |
|--------------------------|-----------|
| Capacity | 0.0 % |
| Load | 0.0 PLF |
| Yield Limit per Foot | 163.7 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

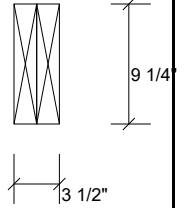
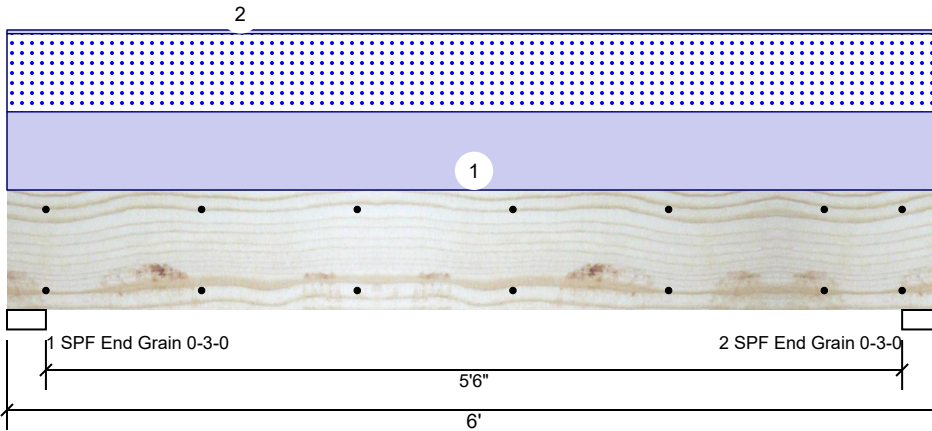
This design is valid until 6/28/2026

Manufacturer Info

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

HDR-3 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: | 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 | 2044 | 1932 | 0 | 0 |
| 2 | Vertical | 0 | 2044 | 1932 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF End Grain | 3.000" | Vert | 45% | 2044 / 1932 | 3976 | L | D+S |
| 2 - SPF End Grain | 3.000" | Vert | 45% | 2044 / 1932 | 3976 | L | D+S |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|----------|---------------|-------------|-------|------|
| Moment | 5241 ft-lb | 3' | 14423 ft-lb | 0.363 (36%) | D+S | L |
| Unbraced | 5241 ft-lb | 3' | 10944 ft-lb | 0.479 (48%) | D+S | L |
| Shear | 2628 lb | 1' 1/4" | 7943 lb | 0.331 (33%) | D+S | L |
| LL Defl inch | 0.040 (L/1667) | 3' | 0.141 (L/480) | 0.288 (29%) | S | L |
| TL Defl inch | 0.083 (L/810) | 3' | 0.188 (L/360) | 0.444 (44%) | D+S | L |

Design Notes

- 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.
- Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- Refer to last page of calculations for fasteners required for specified loads.
- Girders are designed to be supported on the bottom edge only.
- Top loads must be supported equally by all plies.
- Top must be laterally braced at end bearings.
- Bottom must be laterally braced at end bearings.
- 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 | 644 PLF | 0 PLF | 644 PLF | 0 PLF | 0 PLF | A2 TRUSS |
| 2 | Uniform | | | Top | 30 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | WALL |
| | Self Weight | | | | 7 PLF | | | | | |

Notes

Calculated Structural 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

- 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

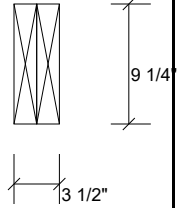
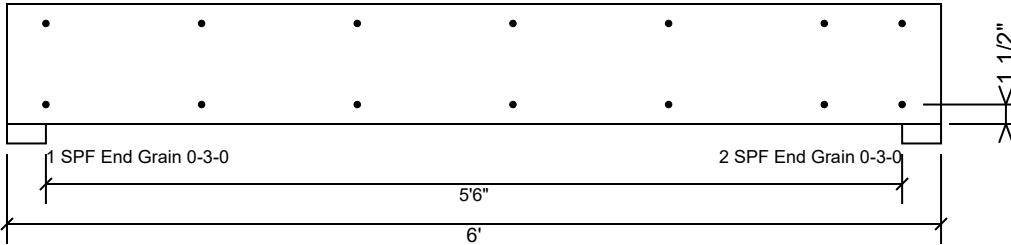
This design is valid until 6/28/2026

Manufacturer Info

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

HDR-3 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

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".

| | |
|--------------------------|-----------|
| Capacity | 0.0 % |
| Load | 0.0 PLF |
| Yield Limit per Foot | 163.7 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

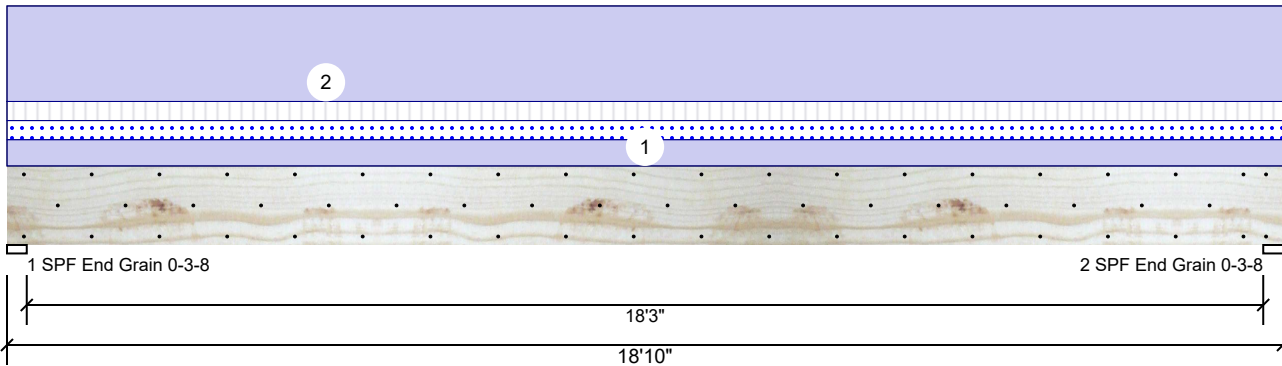
This design is valid until 6/28/2026

Manufacturer Info

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

GDH-18 Kerto-S LVL 1.750" X 14.000" 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: | 360 | Deck: | Not Checked |
| Importance: | Normal - II | | |
| Temperature: | Temp <= 100°F | | |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 377 | 2504 | 377 | 0 | 0 |
| 2 | Vertical | 377 | 2504 | 377 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|-------------------|--------|------|------|--------------|-------|----------|-------------|
| 1 - SPF End Grain | 3.500" | Vert | 30% | 2504 / 565 | 3069 | L | D+0.75(L+S) |
| 2 - SPF End Grain | 3.500" | Vert | 30% | 2504 / 565 | 3069 | L | D+0.75(L+S) |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|-----------|---------------|--------------|-------------|------|
| Moment | 12910 ft-lb | 9'5" | 26999 ft-lb | 0.478 (48%) | D+L | L |
| Unbraced | 13754 ft-lb | 9'5" | 13784 ft-lb | 0.998 (100%) | D+0.75(L+S) | L |
| Shear | 2447 lb | 1'5 1/2" | 10453 lb | 0.234 (23%) | D+L | L |
| LL Defl inch | 0.102 (L/2160) | 9'5 1/16" | 0.459 (L/480) | 0.222 (22%) | 0.75(L+S) | L |
| TL Defl inch | 0.555 (L/398) | 9'5 1/16" | 0.612 (L/360) | 0.905 (91%) | D+0.75(L+S) | L |

Design Notes

- 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.
- Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- Refer to last page of calculations for fasteners required for specified loads.
- Girders are designed to be supported on the bottom edge only.
- Top loads must be supported equally by all plies.
- Top must be laterally braced at a maximum of 7'5 9/16" o.c.
- Bottom must be laterally braced at end bearings.
- 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 | 55 PLF | 40 PLF | 40 PLF | 0 PLF | 0 PLF | R + F |
| 2 | Uniform | | | Top | 200 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | WALL |
| | Self Weight | | | | 11 PLF | | | | | |

Notes

Calculated Structural 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

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

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

This design is valid until 6/28/2026

Manufacturer Info

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

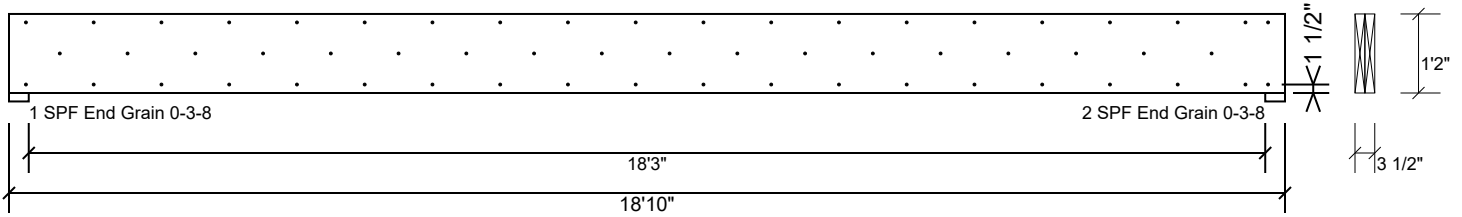


Client: Signature Homes
 Project:
 Address:

Date: 2/29/2024
 Input by: Anthony Williams
 Job Name: Lot 16 Williams Farms
 Project #: J0224-1259

GDH-18 Kerto-S LVL 1.750" X 14.000" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. 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
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6. For flat roofs provide proper drainage to prevent ponding

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