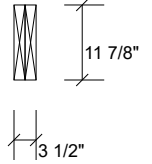
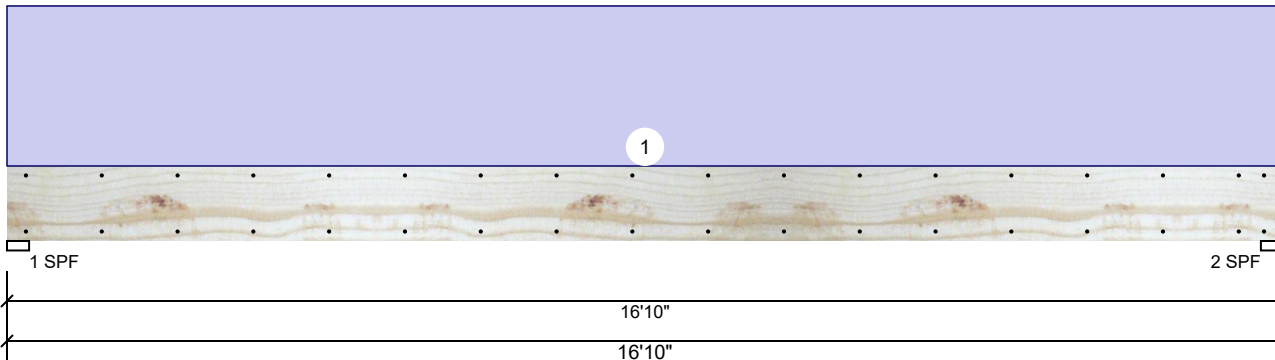


GDH Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



Member Information

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

| | |
|----------------|--------------|
| Application: | Floor |
| Design Method: | ASD |
| Building Code: | IBC/IRC 2015 |
| Load Sharing: | No |
| Deck: | Not Checked |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 0 | 2182 | 0 | 0 | 0 |
| 2 | Vertical | 0 | 2182 | 0 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|---------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF | 3.500" | Vert | 42% | 2182 / 0 | 2182 | Uniform | D |
| 2 - SPF | 3.500" | Vert | 42% | 2182 / 0 | 2182 | Uniform | D |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|---------------|-----------|---------------|--------------|-------|---------|
| Moment | 8689 ft-lb | 8'5" | 17919 ft-lb | 0.485 (48%) | D | Uniform |
| Unbraced | 8689 ft-lb | 8'5" | 8702 ft-lb | 0.998 (100%) | D | Uniform |
| Shear | 1859 lb | 15'6 5/8" | 7980 lb | 0.233 (23%) | D | Uniform |
| LL Defl inch | 0.000 (L/999) | 0 | 999.000 (L/0) | 0.000 (0%) | | |
| TL Defl inch | 0.453 (L/433) | 8'5 1/16" | 0.546 (L/360) | 0.831 (83%) | D | Uniform |

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 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 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 10'8 15/16" 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 | 250 PLF | 0 PLF | 0 PLF | 0 PLF | 0 PLF | |
| | Self Weight | | | | 9 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

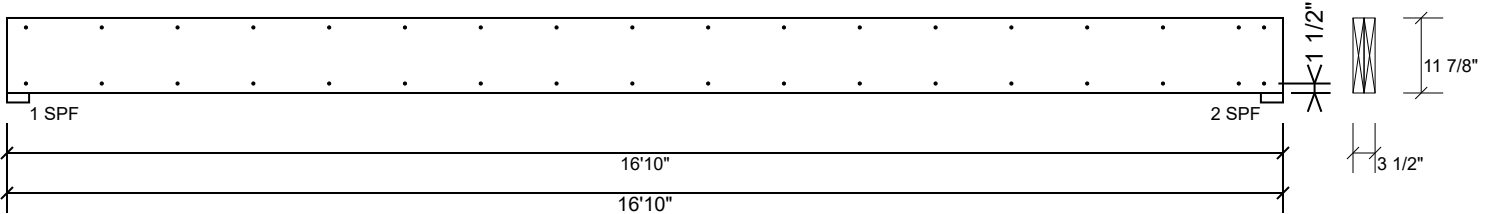
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 910-864-TRUS



GDH Kerto-S LVL 1.750" X 11.875" 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. |
| 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 11/3/2024

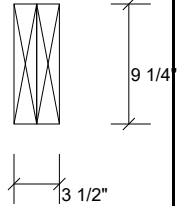
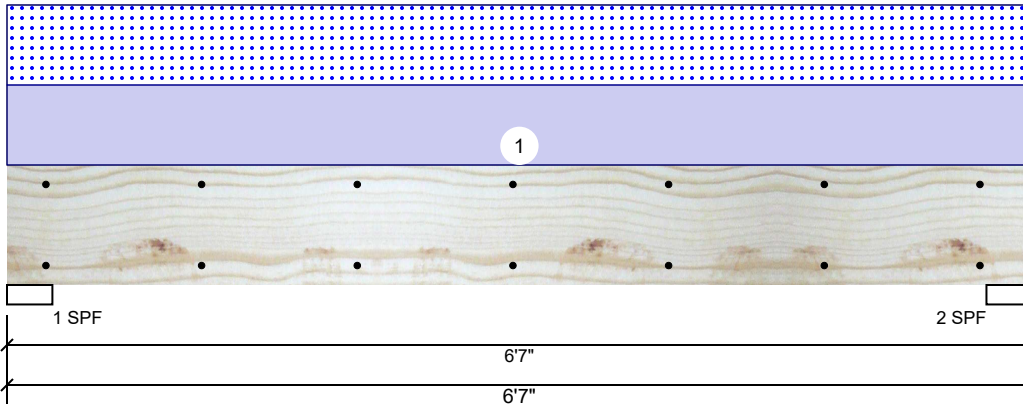
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BM1 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED Level: Level



Member Information

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

| | |
|----------------|--------------|
| Application: | Floor |
| Design Method: | ASD |
| Building Code: | IBC/IRC 2015 |
| Load Sharing: | No |
| Deck: | Not Checked |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 0 | 1564 | 1541 | 0 | 0 |
| 2 | Vertical | 0 | 1564 | 1541 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|---------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF | 3.500" | Vert | 60% | 1564 / 1541 | 3105 | L | D+S |
| 2 - SPF | 3.500" | Vert | 60% | 1564 / 1541 | 3105 | L | D+S |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|----------|---------------|-------------|-------|------|
| Moment | 4423 ft-lb | 3' 1/2" | 14423 ft-lb | 0.307 (31%) | D+S | L |
| Unbraced | 4423 ft-lb | 3' 1/2" | 10451 ft-lb | 0.423 (42%) | D+S | L |
| Shear | 2108 lb | 1' 3/4" | 7943 lb | 0.265 (27%) | D+S | L |
| LL Defl inch | 0.040 (L/1842) | 3' 1/2" | 0.153 (L/480) | 0.261 (26%) | S | L |
| TL Defl inch | 0.080 (L/914) | 3' 1/2" | 0.204 (L/360) | 0.394 (39%) | 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 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 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 end bearings.
- 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 | 468 PLF | 0 PLF | 468 PLF | 0 PLF | 0 PLF | A1 |
| | 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

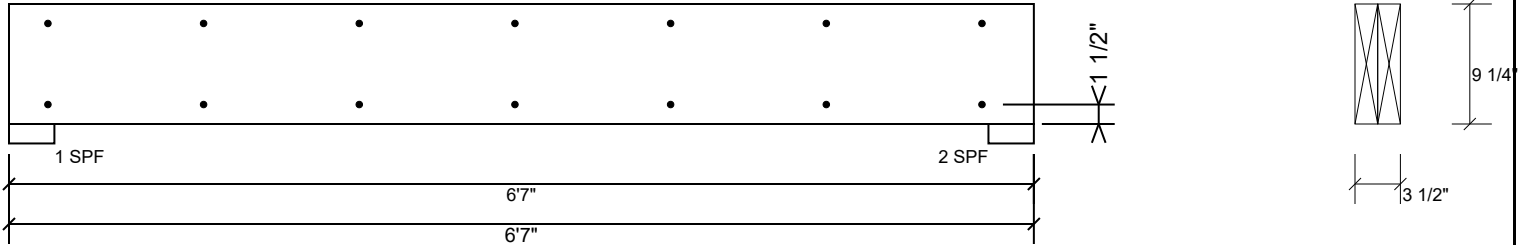
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BM1 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

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. |
| 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 11/3/2024

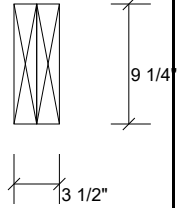
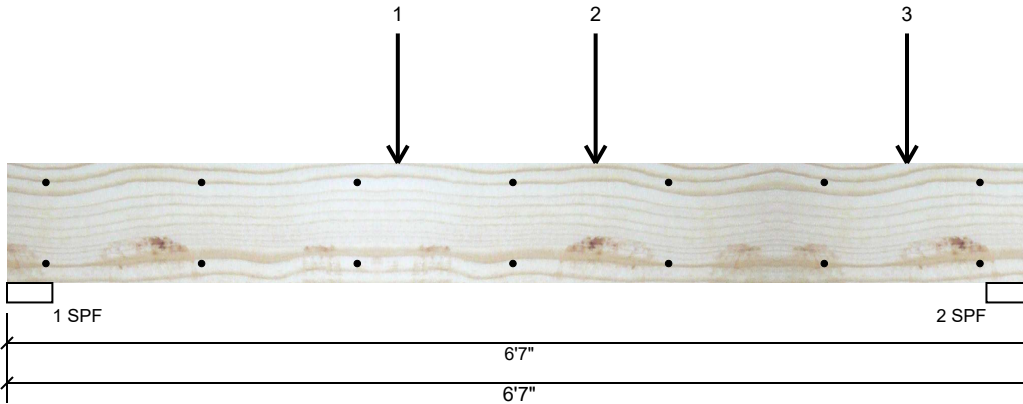
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BM2 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED Level: Level



Member Information

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

| | |
|----------------|--------------|
| Application: | Floor |
| Design Method: | ASD |
| Building Code: | IBC/IRC 2015 |
| Load Sharing: | No |
| Deck: | Not Checked |

Reactions UNPATTERNED lb (Uplift)

| Brg | Direction | Live | Dead | Snow | Wind | Const |
|-----|-----------|------|------|------|------|-------|
| 1 | Vertical | 0 | 1380 | 1357 | 0 | 0 |
| 2 | Vertical | 0 | 1696 | 1672 | 0 | 0 |

Bearings

| Bearing | Length | Dir. | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb. |
|---------|--------|------|------|--------------|-------|----------|-----------|
| 1 - SPF | 3.500" | Vert | 53% | 1380 / 1357 | 2737 | L | D+S |
| 2 - SPF | 3.500" | Vert | 65% | 1696 / 1672 | 3368 | L | D+S |

Analysis Results

| Analysis | Actual | Location | Allowed | Capacity | Comb. | Case |
|--------------|----------------|-----------|---------------|-------------|-------|------|
| Moment | 6221 ft-lb | 2'6 1/8" | 14423 ft-lb | 0.431 (43%) | D+S | L |
| Unbraced | 6221 ft-lb | 2'6 1/8" | 10451 ft-lb | 0.595 (60%) | D+S | L |
| Shear | 2870 lb | 5'6 1/4" | 7943 lb | 0.361 (36%) | D+S | L |
| LL Defl inch | 0.052 (L/1405) | 3'2 1/16" | 0.153 (L/480) | 0.342 (34%) | S | L |
| TL Defl inch | 0.105 (L/698) | 3'2 1/16" | 0.204 (L/360) | 0.515 (52%) | 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 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 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 end bearings.
- 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 | Point | 2-6-2 | | Top | 1561 lb | 0 lb | 1561 lb | 0 lb | 0 lb | C2 |
| | Bearing Length | 0-3-8 | | | | | | | | |
| 2 | Point | 3-9-6 | | Top | 734 lb | 0 lb | 734 lb | 0 lb | 0 lb | C1 |
| | Bearing Length | 0-3-8 | | | | | | | | |
| 3 | Point | 5-9-6 | | Top | 734 lb | 0 lb | 734 lb | 0 lb | 0 lb | C1 |

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.

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

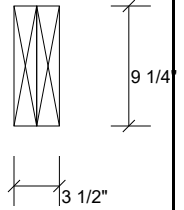
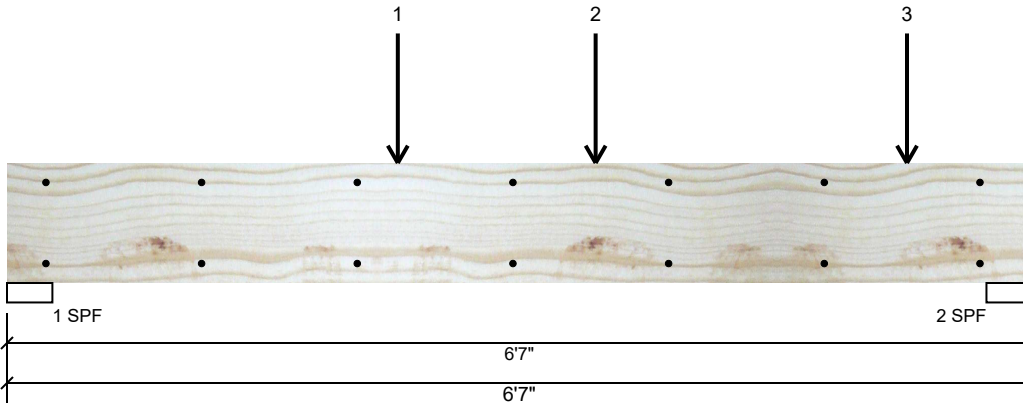
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BM2 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

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 |
|----|----------------|----------|------------|------|----------|--------|-----------|----------|-------------|----------|
| | Bearing Length | 0-3-8 | | | | | | | | |
| | 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
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This design is valid until 11/3/2024

Manufacturer Info

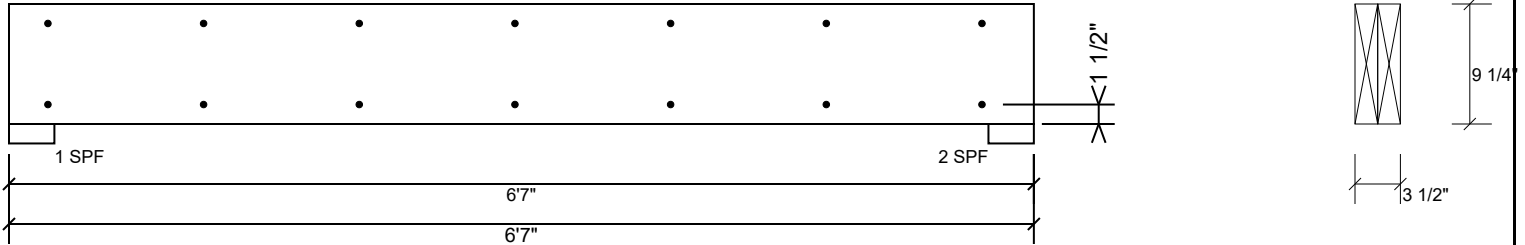
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BM2 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

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. |
| Yield Mode | IV |
| Edge Distance | 1 1/2" |
| Min. End Distance | 3" |
| Load Combination | |
| Duration Factor | 1.00 |

Notes

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Lumber

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2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

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