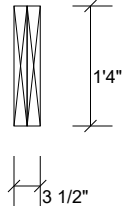
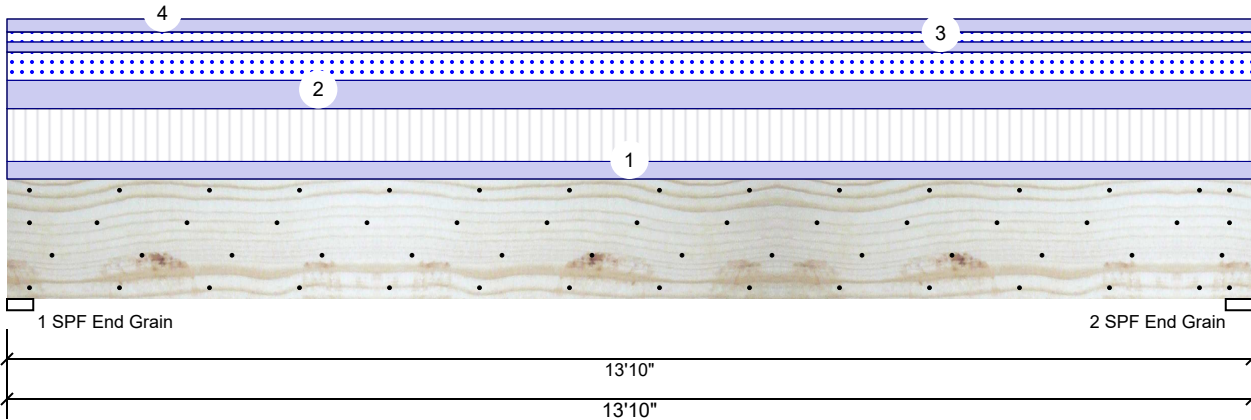


**BM1 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED**

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		
Temperature:	Temp <= 100°F		

**Reactions UNPATTERNED lb (Uplift)**

Brg	Live	Dead	Snow	Wind	Const
1	2829	3773	2054	0	0
2	2829	3773	2054	0	0

**Bearings**

Bearing	Length	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	70%	3773 / 3662	7435	L	D+0.75(L+S)
2 - SPF End Grain	3.500"	70%	3773 / 3662	7435	L	D+0.75(L+S)

**Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	21409 ft-lb	6'11"	34565 ft-lb	0.619 (62%)	D+L	L
Unbraced	24112 ft-lb	6'11"	24173 ft-lb	0.997 (100%)	D+0.75(L+S)	L
Shear	5951 lb	1'6 5/8"	11947 lb	0.498 (50%)	D+L	L
LL Defl inch	0.185 (L/869)	6'11 1/16"	0.335 (L/480)	0.550 (55%)	0.75(L+S)	L
TL Defl inch	0.376 (L/428)	6'11 1/16"	0.447 (L/360)	0.840 (84%)	D+0.75(L+S)	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 Bottom braced at 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			Near Face	136 PLF	409 PLF	0 PLF	0 PLF	0 PLF	FLOOR
2	Uniform			Top	219 PLF	0 PLF	219 PLF	0 PLF	0 PLF	B2
3	Uniform			Far Face	78 PLF	0 PLF	78 PLF	0 PLF	0 PLF	C2
4	Uniform			Top	100 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
	Self Weight				12 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 12/11/2021

**Manufacturer Info**

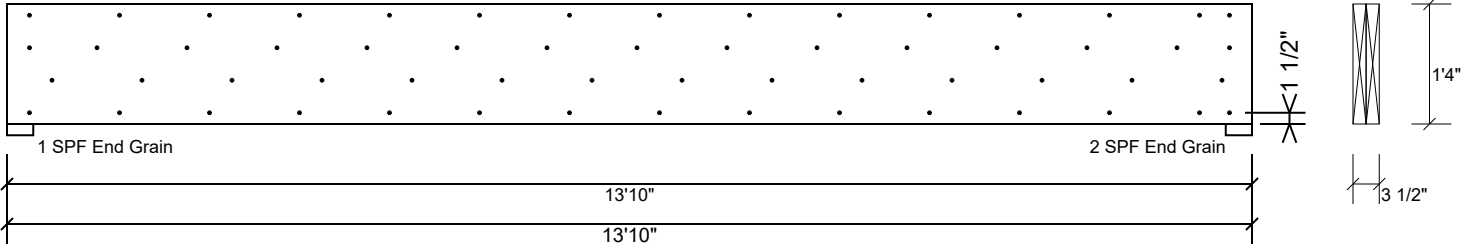
Metsä Wood  
 301 Merritt 7 Building, 2nd Floor  
 Norwalk, CT 06851  
 (800) 622-5850  
 www.metsawood.com/us  
 ICC-ES: ESR-3633

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



**BM1 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED**

Level: Level


**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"

Capacity	83.2 %
Load	272.5 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**

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**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 12/11/2021

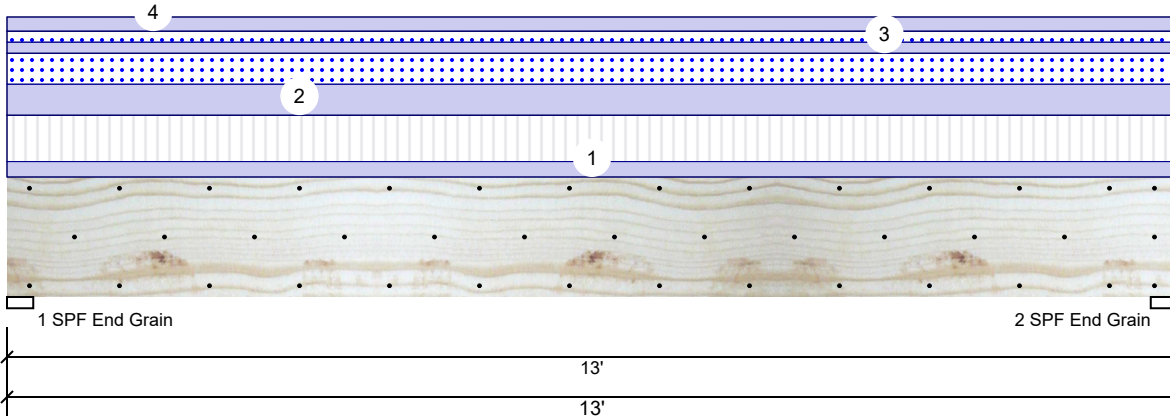
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**BM2 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED**

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	
Temperature: Temp <= 100°F	

**Reactions UNPATTERNED lb (Uplift)**

Brg	Live	Dead	Snow	Wind	Const
1	2132	3370	1931	0	0
2	2132	3370	1931	0	0

**Bearings**

Bearing	Length	Cap.	React D/L	Ib	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	60%	3370 / 3047	6417	L	D+0.75(L+S)	
2 - SPF End Grain	3.500"	60%	3370 / 3047	6417	L	D+0.75(L+S)	

**Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	19474 ft-lb	6'6"	39750 ft-lb	0.490 (49%)	D+0.75(L+S)	L
Unbraced	19474 ft-lb	6'6"	19516 ft-lb	0.998 (100%)	D+0.75(L+S)	L
Shear	4875 lb	1'6 5/8"	11947 lb	0.408 (41%)	D+L	L
LL Defl inch	0.129 (L/1169)	6'6"	0.314 (L/480)	0.410 (41%)	0.75(L+S)	L
TL Defl inch	0.272 (L/555)	6'6"	0.419 (L/360)	0.650 (65%)	D+0.75(L+S)	L

**Design Notes**

- 1 Fasten all plies using 3 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 5'11 5/8" o.c.
- 6 Bottom braced at 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			Near Face	109 PLF	328 PLF	0 PLF	0 PLF	0 PLF	FLOOR
2	Uniform			Top	219 PLF	0 PLF	219 PLF	0 PLF	0 PLF	B3
3	Uniform			Far Face	78 PLF	0 PLF	78 PLF	0 PLF	0 PLF	C2
4	Uniform			Top	100 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
	Self Weight				12 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 12/11/2021

**Manufacturer Info**

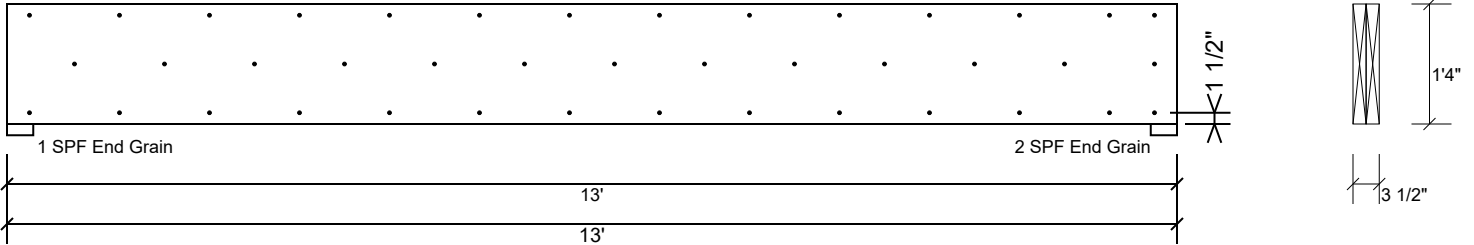
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**BM2 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED**

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	89.0 %
Load	218.5 PLF
Yield Limit per Foot	245.6 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**

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 12/11/2021

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