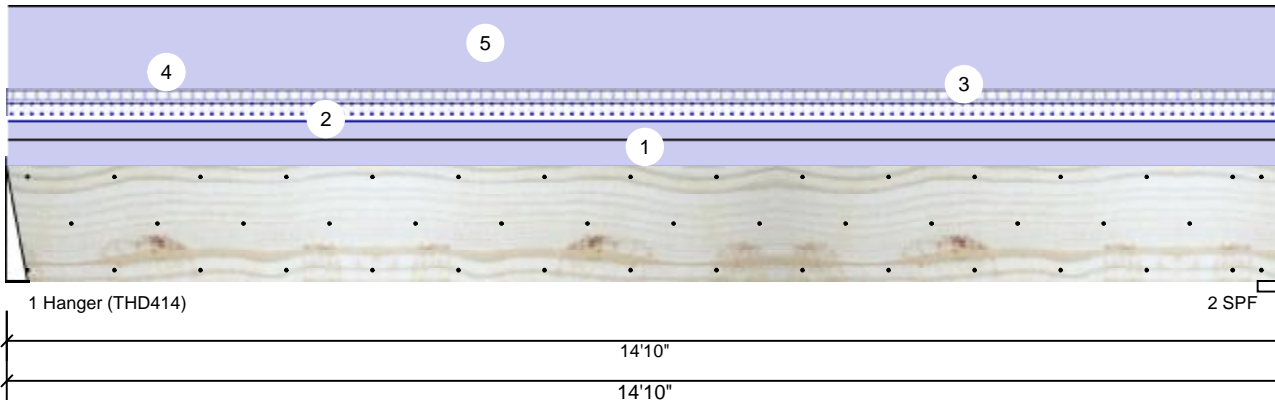


**BM1 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED**

Level: Level



**Member Information**

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

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

**Reactions UNPATTERNED Ib (Uplift)**

Brg	Live	Dead	Snow	Wind	Const
1	296	4522	577	0	0
2	298	4548	580	0	0

**Bearings**

Bearing	Length	Cap. React	D/L Ib	Total Ld.	Case	Ld. Comb.
1 - Hanger	3.000"	57%	4522 / 655	5177	L	D+0.75(L+S)
2 - SPF	3.500"	100%	4548 / 658	5206	L	D+0.75(L+S)

**Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	15931 ft-lb	7'4 3/4"	31109 ft-lb	0.512 (51%)	D	Uniform
Unbraced	18237 ft-lb	7'4 3/4"	18282 ft-lb	0.998 (100%)	D+0.75(L+S)	L
Shear	3723 lb	1'6 1/8"	10752 lb	0.346 (35%)	D	Uniform
LL Defl inch	0.041 (L/4231)	7'4 13/16"	0.361 (L/480)	0.110 (11%)	0.75(L+S)	L
TL Defl inch	0.324 (L/535)	7'4 13/16"	0.481 (L/360)	0.670 (67%)	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 Fill all hanger nailing holes.
- 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 6'4 7/8" o.c.
- 7 Bottom braced at 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	125 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Exterior Wall
2	Uniform			Near Face	78 PLF	0 PLF	78 PLF	0 PLF	0 PLF	M1
3	Uniform			Far Face	15 PLF	40 PLF	0 PLF	0 PLF	0 PLF	Floor Load
4	Uniform			Top	130 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Exterior Load
5	Uniform			Top	251 PLF	0 PLF	0 PLF	0 PLF	0 PLF	A1GE
	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 1/8/2023

**Manufacturer Info**

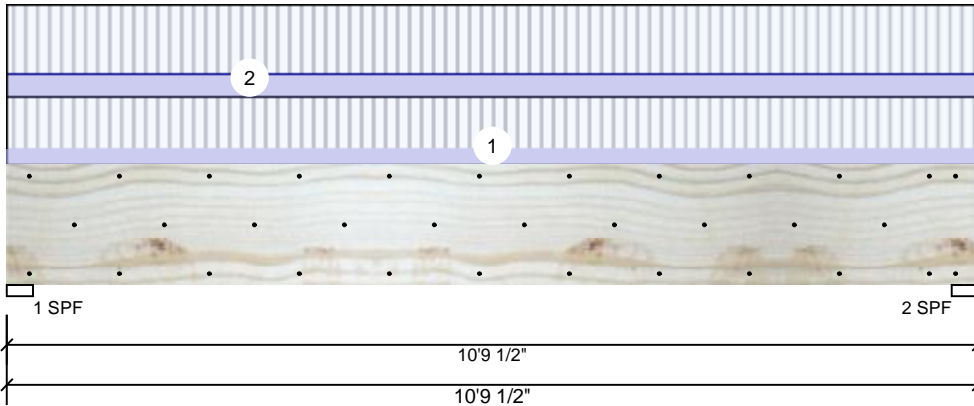
Metsä Wood  
 301 Merritt 7 Building, 2nd Floor  
 Norwalk, CT 06851  
 (800) 622-5850  
[www.metsawood.com/us](http://www.metsawood.com/us)  
 ICC-ES: ESR-3633

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



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

Level: Level



**Member Information**

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

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

**Reactions UNPATTERNED Ib (Uplift)**

Brg	Live	Dead	Snow	Wind	Const
1	3389	1200	0	0	0
2	3389	1200	0	0	0

**Bearings**

Bearing	Length	Cap. React	D/L Ib	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	88%	1200 / 3389	4589	L	D+L
2 - SPF	3.500"	88%	1200 / 3389	4589	L	D+L

**Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	11397 ft-lb	5'4 3/4"	34565 ft-lb	0.330 (33%)	D+L	L
Unbraced	11397 ft-lb	5'4 3/4"	11746 ft-lb	0.970 (97%)	D+L	L
Shear	4386 lb	1'6 5/8"	11947 lb	0.367 (37%)	D+L	L
LL Defl inch	0.085 (L/1457)	5'4 3/4"	0.259 (L/480)	0.330 (33%)	L	L
TL Defl inch	0.115 (L/1076)	5'4 3/4"	0.345 (L/360)	0.330 (33%)	D+L	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 braced at bearings.
- 5 Bottom braced at bearings.
- 6 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			Far Face	89 PLF	267 PLF	0 PLF	0 PLF	0 PLF	F4
2	Uniform			Near Face	121 PLF	361 PLF	0 PLF	0 PLF	0 PLF	F2
	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

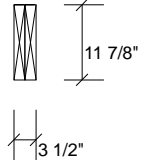
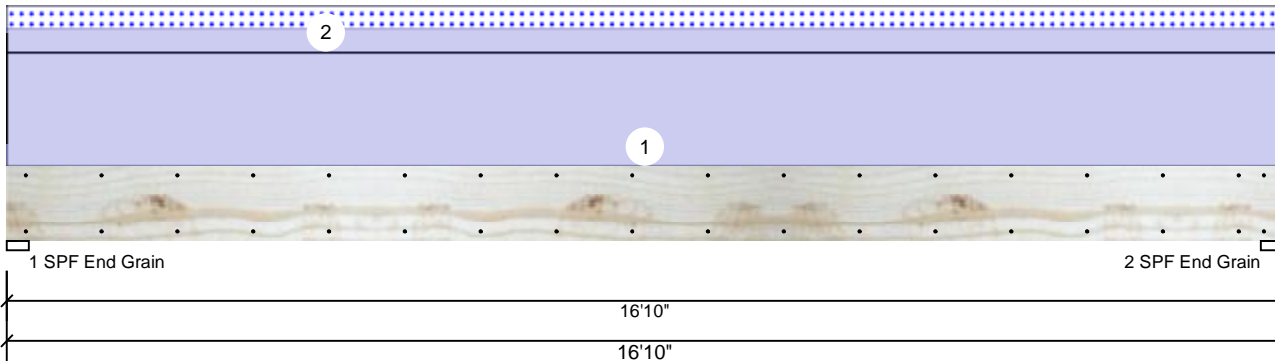
This design is valid until 1/8/2023

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

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

**GDH Kerto-S LVL 1.750" X 11.875" 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 Ib (Uplift)**

Brg	Live	Dead	Snow	Wind	Const
1	0	2098	337	0	0
2	0	2098	337	0	0

**Bearings**

Bearing	Length	Cap. React	D/L Ib	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	23%	2098 / 337	2434	L	D+S
2 - SPF End Grain	3.500"	23%	2098 / 337	2434	L	D+S

**Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	8354 ft-lb	8'5"	17919 ft-lb	0.466 (47%)	D	Uniform
Unbraced	9694 ft-lb	8'5"	9704 ft-lb	0.999 (100%)	D+S	L
Shear	1794 lb	1'2 5/8"	7980 lb	0.225 (22%)	D	Uniform
LL Defl inch	0.070 (L/2809)	8'5 1/16"	0.409 (L/480)	0.170 (17%)	S	L
TL Defl inch	0.506 (L/388)	8'5 1/16"	0.546 (L/360)	0.930 (93%)	D+S	L

**Design Notes**

- 1 Fasten all plies using 2 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 9'6 3/4" 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			Top	200 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Exterior Loads
2	Uniform			Top	40 PLF	0 PLF	40 PLF	0 PLF	0 PLF	2'-0" Gable End
	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

**Manufacturer Info**

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