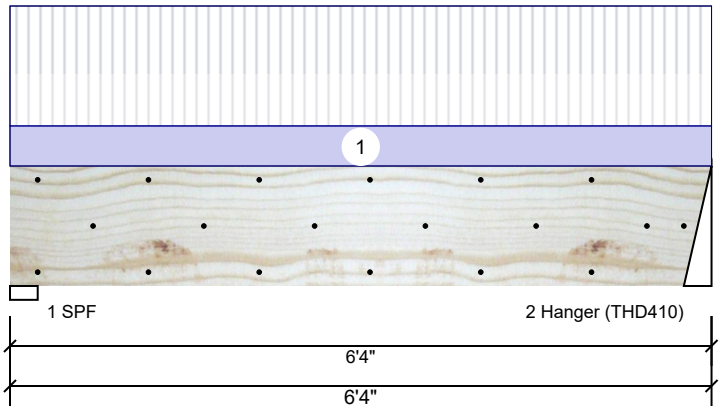
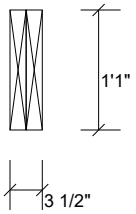
BM4 Kerto-S LVL 1.750" X 13.000" 2-Ply - PASSED

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	1441	513	0	0	0
2	1441	513	0	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.000"	44%	513 / 1441	1954	L	D+L
2 - Hanger	3.000"	21%	513 / 1441	1954	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2739 ft-lb	3'2"	23540 ft-lb	0.116 (12%)	D+L	L
Unbraced	2739 ft-lb	3'2"	15248 ft-lb	0.180 (18%)	D+L	L
Shear	1170 lb	1'3 1/4"	9707 lb	0.121 (12%)	D+L	L
LL Defl inch	0.015 (L/4710)	3'2"	0.149 (L/480)	0.100 (10%)	L	L
TL Defl inch	0.021 (L/3473)	3'2"	0.199 (L/360)	0.100 (10%)	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 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 braced at bearings.
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	152 PLF	455 PLF	0 PLF	0 PLF	0 PLF	F03 FL. TRUSSES
	Self Weight				10 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
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www.metsawood.com/us
ICC-ES: ESR-3633

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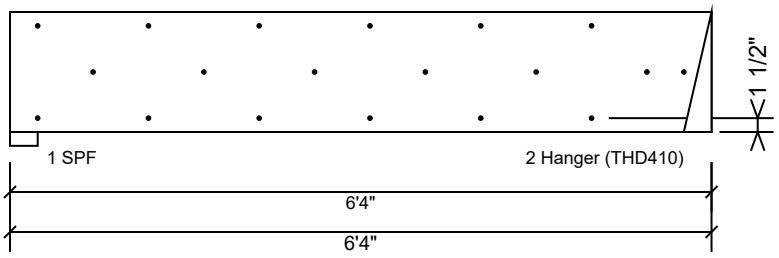
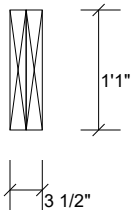
28314
910-864-TRUS

BM4 Kerto-S LVL 1.750" X 13.000" 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.
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

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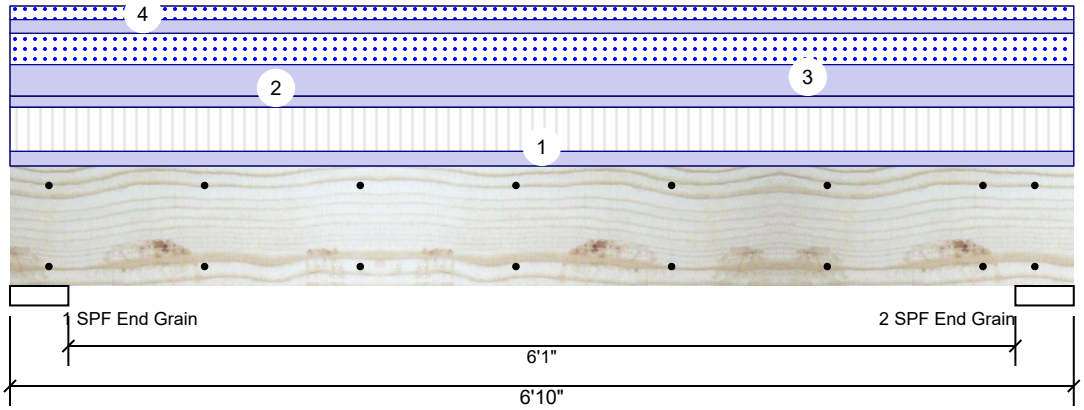
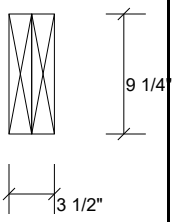
BM6 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

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		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	1548	2508	1579	0	0
2	1548	2508	1579	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	4.500"	35%	2508 / 2345	4853	L	D+0.75(L+S)
2 - SPF End Grain	4.500"	35%	2508 / 2345	4853	L	D+0.75(L+S)

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6844 ft-lb	3'5"	14423 ft-lb	0.474 (47%)	D+0.75(L+S)	L
Unbraced	6844 ft-lb	3'5"	10370 ft-lb	0.660 (66%)	D+0.75(L+S)	L
Shear	3503 lb	1'1"	7943 lb	0.441 (44%)	D+0.75(L+S)	L
LL Defl inch	0.061 (L/1212)	3'5"	0.155 (L/480)	0.400 (40%)	0.75(L+S)	L
TL Defl inch	0.127 (L/586)	3'5"	0.207 (L/360)	0.610 (61%)	D+0.75(L+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 braced at bearings.
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	151 PLF	453 PLF	0 PLF	0 PLF	0 PLF	F03 FL. TRUSSES
2	Uniform			Top	114 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL ABOVE
3	Uniform			Top	322 PLF	0 PLF	322 PLF	0 PLF	0 PLF	A03 RF. TRUSSES
4	Uniform			Far Face	140 PLF	0 PLF	140 PLF	0 PLF	0 PLF	M01 RF. TRUSSES
	Self Weight				7 PLF					

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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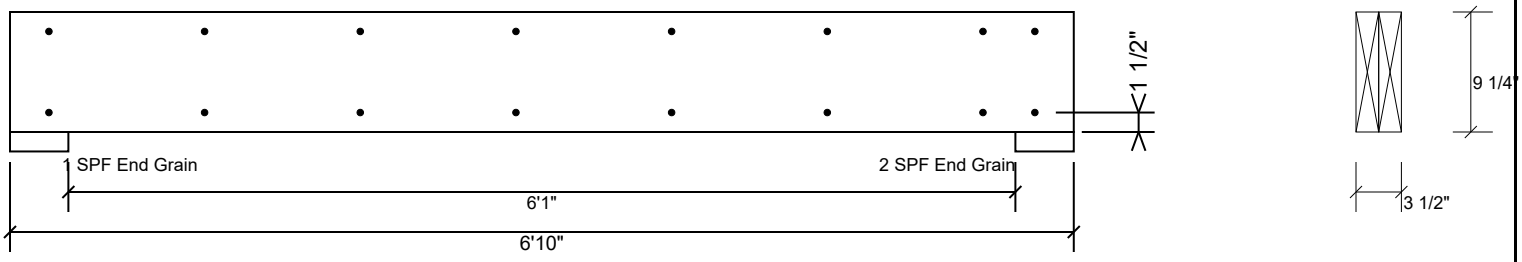
BM6 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

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	85.5 %
Load	140.0 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	D+S
Duration Factor	1.15

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

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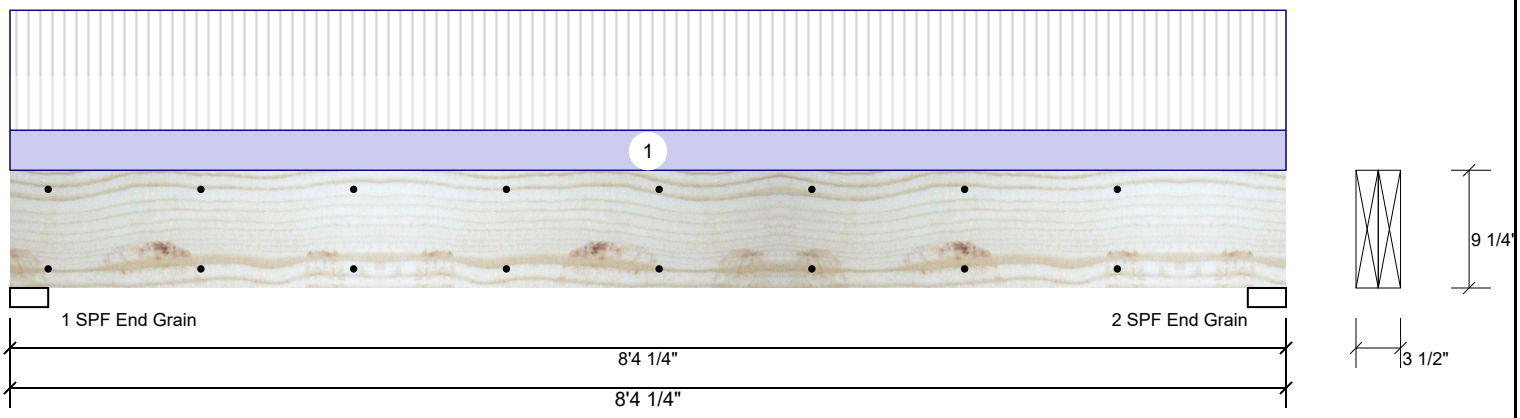
BM3 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

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		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	3254	1116	0	0	0
2	3254	1116	0	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.000"	48%	1116 / 3254	4370	L	D+L
2 - SPF End Grain	3.000"	48%	1116 / 3254	4370	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	8326 ft-lb	4'2 1/8"	12542 ft-lb	0.664 (66%)	D+L	L
Unbraced	8326 ft-lb	4'2 1/8"	8569 ft-lb	0.972 (97%)	D+L	L
Shear	3367 lb	7'4 3/4"	6907 lb	0.488 (49%)	D+L	L
LL Defl inch	0.176 (L/544)	4'2 3/16"	0.199 (L/480)	0.880 (88%)	L	L
TL Defl inch	0.236 (L/405)	4'2 3/16"	0.266 (L/360)	0.890 (89%)	D+L	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 braced at bearings.
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	260 PLF	779 PLF	0 PLF	0 PLF	0 PLF	F01 FL. TRUSSES
	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

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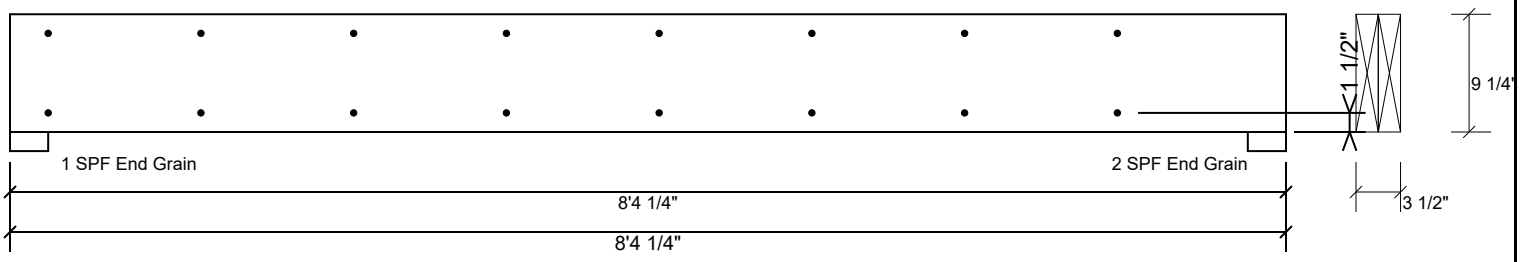
BM3 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

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

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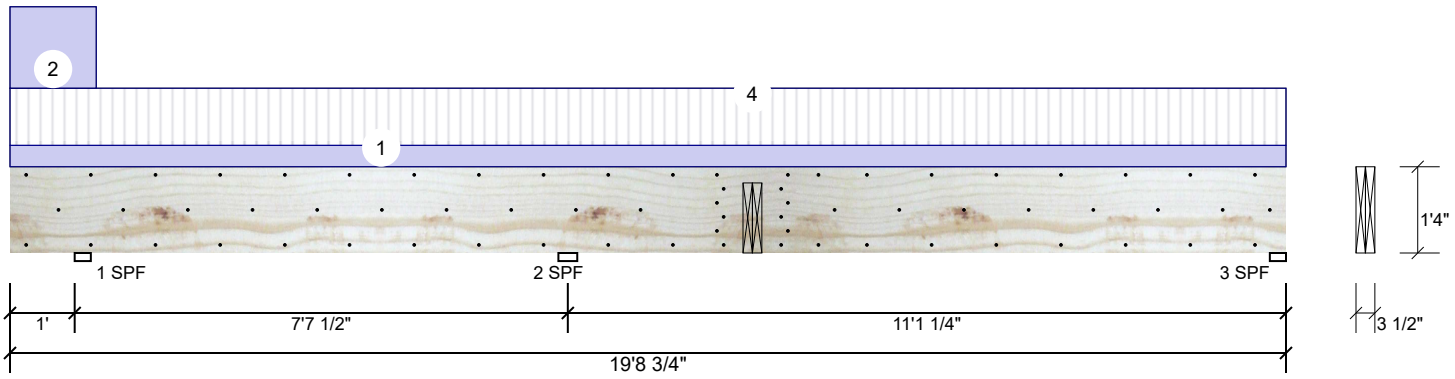
BM2 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

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	94	243	0	0	0
2	2305	973	0	0	0
3	621	287	0	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.000"	13%	230 / 366	596 (-63)	LL_	D+L
2 - SPF	3.500"	65%	994 / 2364	3358	_LL	D+L
3 - SPF	3.000"	20%	278 / 620	899	L_L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-3543 ft-lb	8'7 1/2"	34565 ft-lb	0.103 (10%)	D+L	_LL
Unbraced	-3543 ft-lb	8'7 1/2"	15635 ft-lb	0.227 (23%)	D+L	_LL
Pos Moment	3140 ft-lb	12'4 11/16"	34565 ft-lb	0.091 (9%)	D+L	L_L
Unbraced	3140 ft-lb	12'4 11/16"	12544 ft-lb	0.250 (25%)	D+L	L_L
Shear	2274 lb	9'11 1/2"	11947 lb	0.190 (19%)	D+L	_LL
LL Defl inch	0.027 (L/4886)	13'5 15/16"	0.273 (L/480)	0.100 (10%)	L	L_L
TL Defl inch	0.037 (L/3498)	13'6 1/2"	0.364 (L/360)	0.100 (10%)	D+L	L_L
LL Cant	0.001 (2L/16363)	Lt Cant	0.200 (2L/480)	0.007 (1%)	L	L_L
TL Cant	0.002 (2L/12927)	Lt Cant	0.300 (2L/360)	0.006 (1%)	D+L	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 Concentrated load fastener specification is in addition to hanger fasteners if a hanger is present.
4 Girders are designed to be supported on the bottom edge only.
5 Top loads must be supported equally by all plies.
6 Tie-down connection required at bearing 1 for uplift 63 lb (Combination D+L, Load Case __L).
7 Top braced at bearings.
8 Bottom braced at bearings.
9 Lateral slenderness ratio based on single ply width.

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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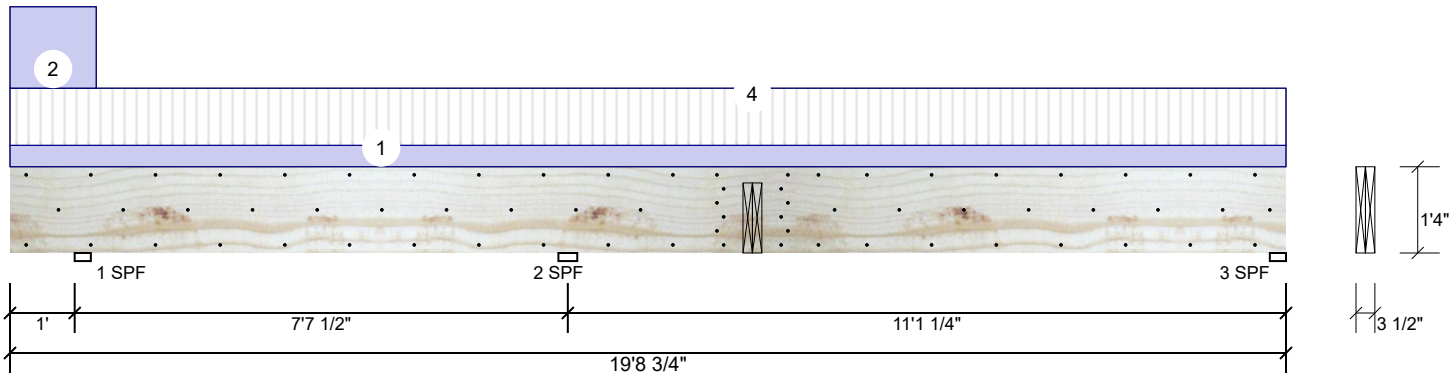

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Top	30 PLF	80 PLF	0 PLF	0 PLF	0 PLF	FL. LOADING
2	Part. Uniform	0-0-0 to 1-4-0		Top	114 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL ABOVE
4	Point	11-5-12		Far Face	513 lb	1441 lb	0 lb	0 lb	0 lb	7'-FB. @ FOYER Brg 2
	Self Weight				12 PLF					

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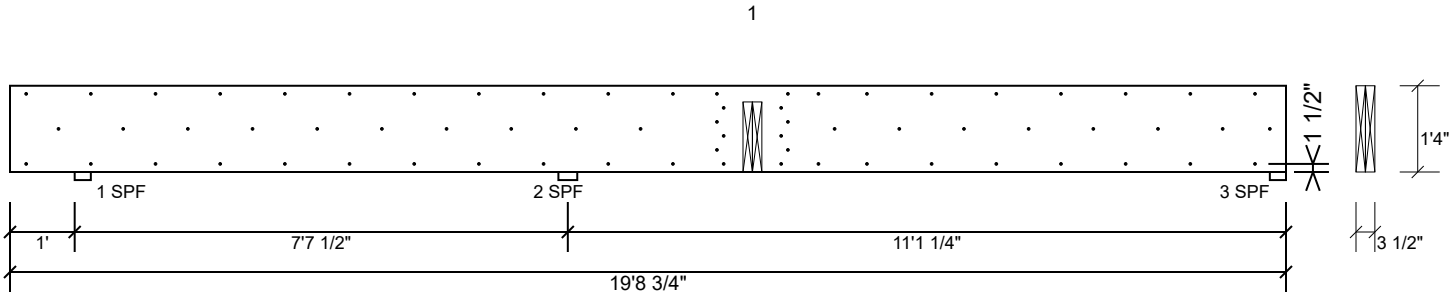
BM2 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. except for regions covered by concentrated load fastening. Maximum end distance not to exceed 6"

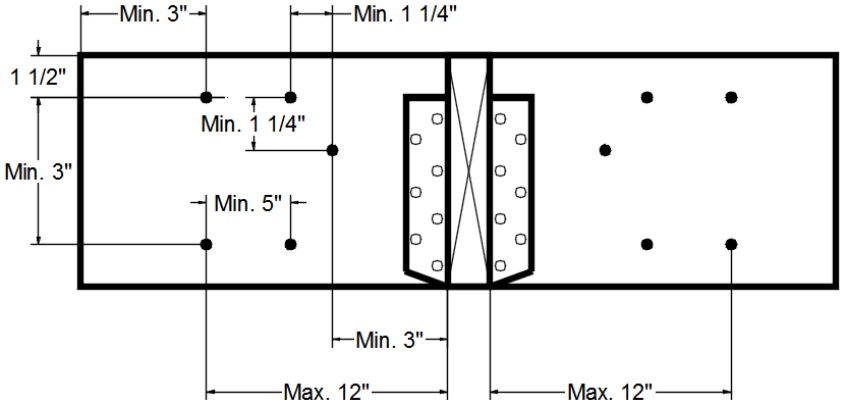
Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Concentrated Load

Fasten at concentrated side load at 11-5-12 with a minimum of (12) – 10d Box nails (.128x3") in the pattern shown.

Capacity	99.5 %
Load	977.1lb.
Total Yield Limit	982.0 lb.
Cg	0.9998
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Load Combination	D+L
Duration Factor	1.00

Min/Max fastener distances for Concentrated Side Loads



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

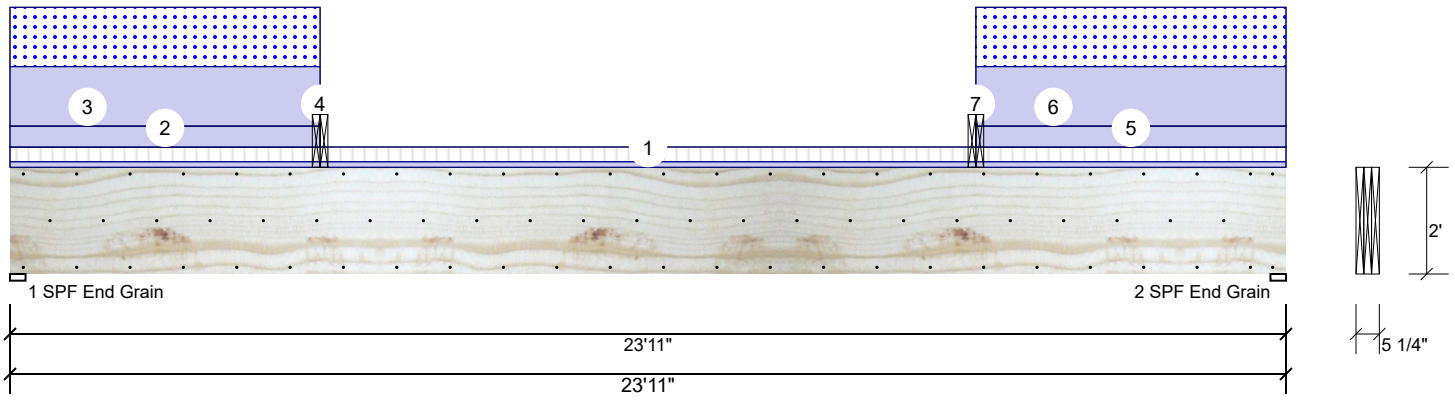
Manufacturer Info

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

BM5 Kerto-S LVL 1.750" X 24.000" 3-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	3	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	480	Load Sharing:	Yes
Deflection TL:	360	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	957	5205	3791	0	0
2	957	5205	3791	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	56%	5205 / 3791	8996	L	D+S
2 - SPF End Grain	3.500"	56%	5205 / 3791	8996	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	37841 ft-lb	11'11 1/2"	131295 ft-lb	0.288 (29%)	D+0.75(L+S)	L
Unbraced	37841 ft-lb	11'11 1/2"	37957 ft-lb	0.997 (100%)	D+0.75(L+S)	L
Shear	7185 lb	21'8 3/8"	30912 lb	0.232 (23%)	D+S	L
LL Defl inch	0.160 (L/1763)	11'11 9/16"	0.587 (L/480)	0.270 (27%)	S	L
TL Defl inch	0.378 (L/746)	11'11 9/16"	0.783 (L/360)	0.480 (48%)	D+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 7'1 1/8" 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			Top	30 PLF	80 PLF	0 PLF	0 PLF	0 PLF	FL. LOADING
2	Part. Uniform	0-0-0 to 5-9-12		Top	114 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL ABOVE
3	Part. Uniform	0-0-0 to 5-9-12		Top	322 PLF	0 PLF	322 PLF	0 PLF	0 PLF	A01 RF. TRUSSES
4	Point	5-9-12		Top	1977 lb	0 lb	1919 lb	0 lb	0 lb	13'-FB. @ PLAY ROOM Brg 1
5	Part. Uniform	18-1-4 to 23-11-0		Top	114 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL ABOVE

Continued on page 2...

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

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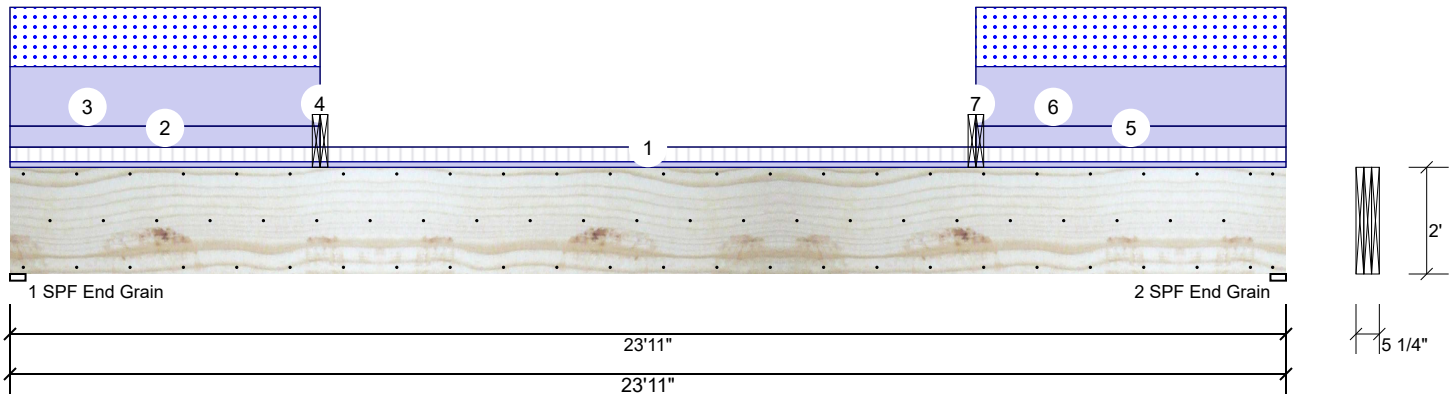
BM5 Kerto-S LVL 1.750" X 24.000" 3-Ply - PASSED

Level: Level



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ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
6	Part. Uniform	18-1-4 to 23-11-0		Top	322 PLF	0 PLF	322 PLF	0 PLF	0 PLF	A01 RF. TRUSSES
7	Point	18-1-4		Top	1977 lb	0 lb	1919 lb	0 lb	0 lb	13'-FB. @ PLAY ROOM Brg 2
	Self Weight				28 PLF					

Notes

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Lumber

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Handling & Installation

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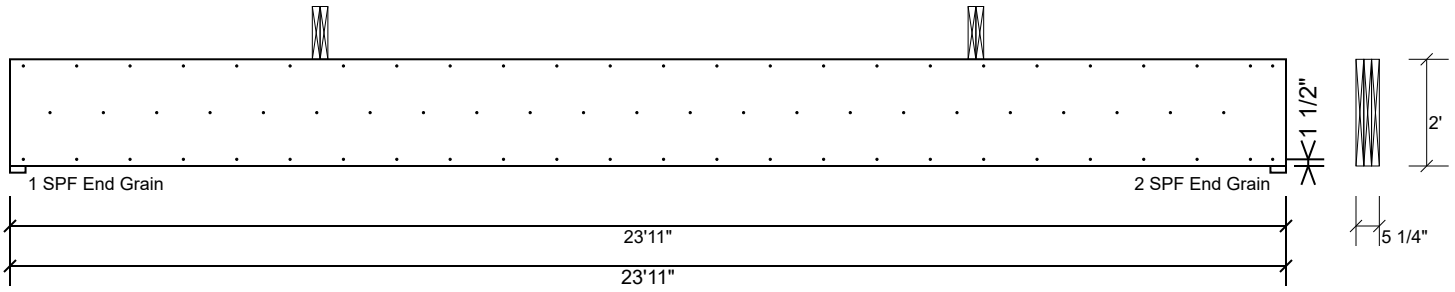

Multi-Ply Analysis

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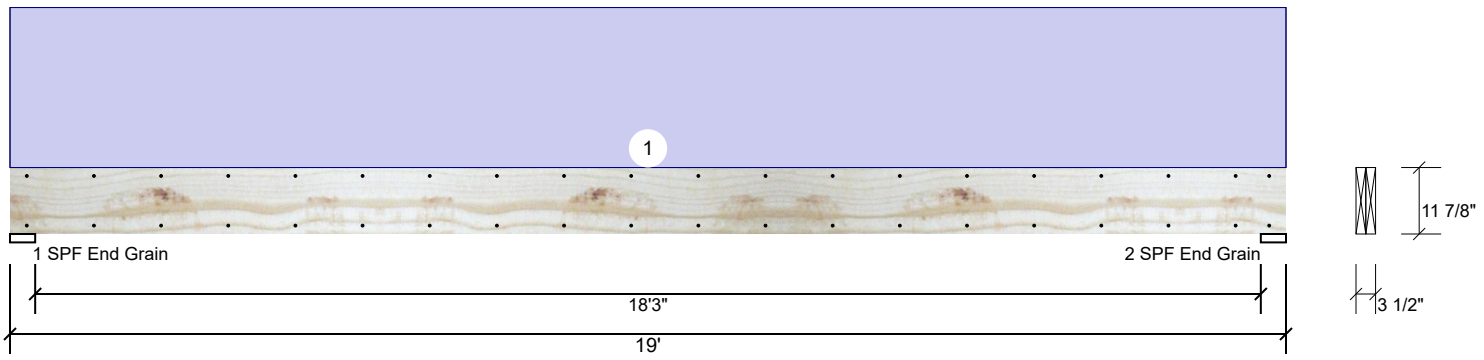
GDH Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

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 lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	2016	0	0	0
2	0	2016	0	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	4.500"	15%	2016 / 0	2016	Uniform	D
2 - SPF End Grain	4.500"	15%	2016 / 0	2016	Uniform	D

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	8957 ft-lb	9'6"	17919 ft-lb	0.500 (50%)	D	Uniform
Unbraced	8957 ft-lb	9'6"	8966 ft-lb	0.999 (100%)	D	Uniform
Shear	1740 lb	17'8 3/8"	7980 lb	0.218 (22%)	D	Uniform
LL Defl inch	0.000 (L/999)	0	999.000 (L/0)	0.000 (0%)		
TL Defl inch	0.582 (L/379)	9'6 1/16"	0.612 (L/360)	0.950 (95%)	D	Uniform

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 10'4 1/8" 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			Top	203 PLF	0 PLF	0 PLF	0 PLF	0 PLF	END WALL / GABLE
	Self Weight				9 PLF					

Notes

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Lumber

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Handling & Installation

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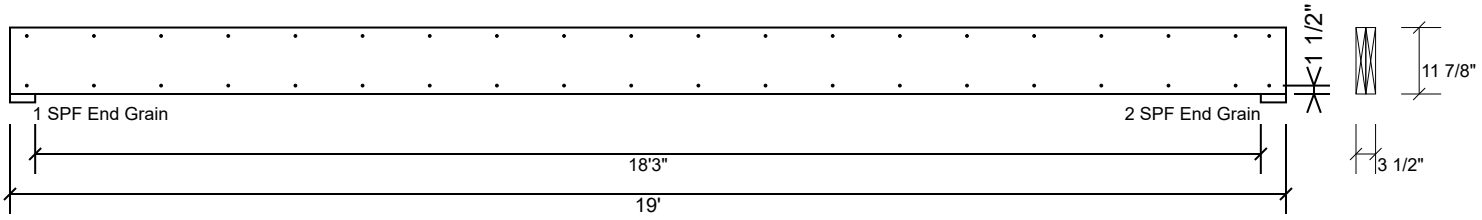

Multi-Ply Analysis

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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Handling & Installation

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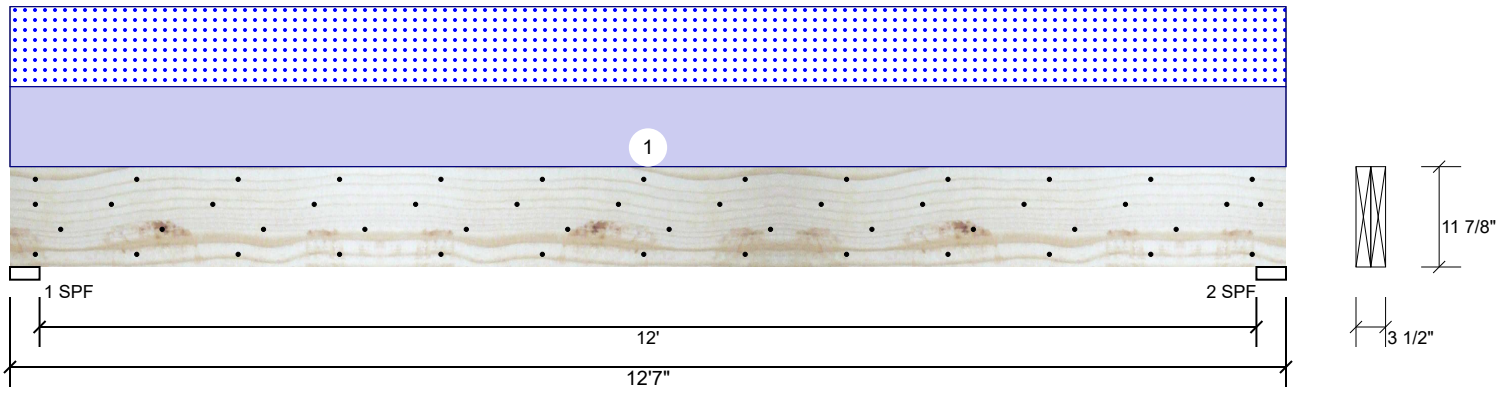

Member Information

Type:	Girder	Application:	Roof
Plies:	2	Slope:	0/12
Moisture Condition:	Dry	Design Method:	ASD
Deflection LL:	360	Building Code:	IBC/IRC 2015
Deflection TL:	240	Load Sharing:	No
Importance:	Normal	Deck:	Not Checked
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	1977	1919	0	0
2	0	1977	1919	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	75%	1977 / 1919	3896	L	D+S
2 - SPF	3.500"	75%	1977 / 1919	3896	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	11380 ft-lb	6'3 1/2"	22897 ft-lb	0.497 (50%)	D+S	L
Unbraced	11380 ft-lb	6'3 1/2"	11401 ft-lb	0.998 (100%)	D+S	L
Shear	3745 lb	1'2 5/8"	10197 lb	0.367 (37%)	D+S	L
LL Defl inch	0.167 (L/869)	6'3 1/2"	0.404 (L/360)	0.410 (41%)	S	L
TL Defl inch	0.340 (L/428)	6'3 1/2"	0.606 (L/240)	0.560 (56%)	D+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 must be laterally braced at a maximum of 7'9" o.c.
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	305 PLF	0 PLF	305 PLF	0 PLF	0 PLF	A02 RF. TRUSSES
	Self Weight				9 PLF					

Notes

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Lumber

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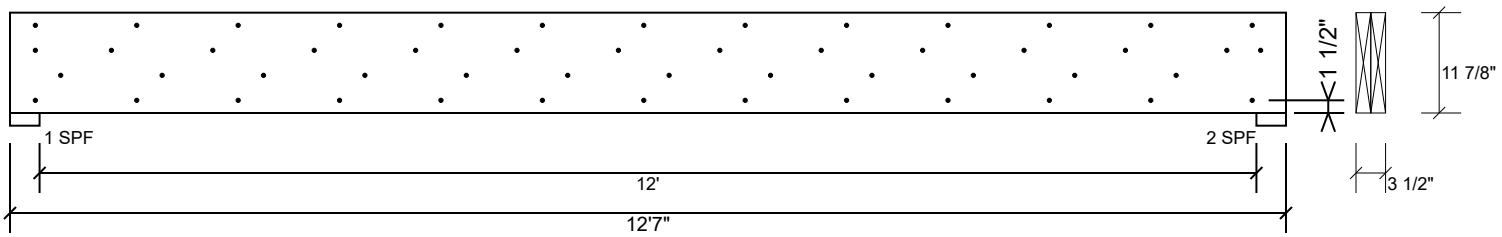

Multi-Ply Analysis

Fasten all plies using 4 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

Capacity	93.2 %
Load	305.0 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+S
Duration Factor	1.15

Notes

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Lumber

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