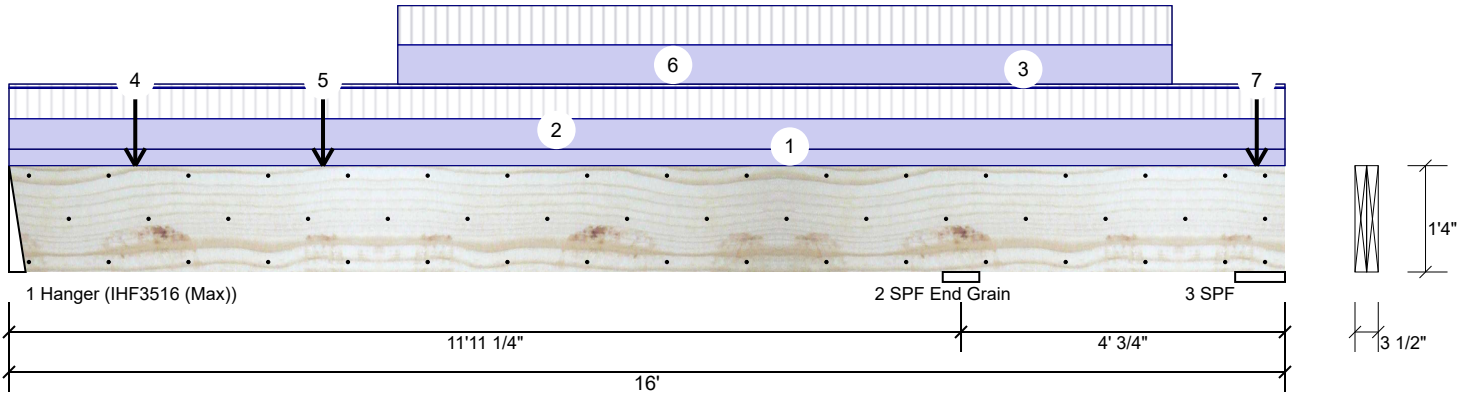


BM1 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	1583	2115	0	0	0
2	Vertical	5028	6275	0	0	0
3	Vertical	0 (-440)	(-539)	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - Hanger	2.500"	Vert	46%	2014 / 1515	3529	L_	D+L
2 - SPF End Grain	5.500"	Vert	68%	6717 / 5380	12097	LL	D+L
3 - SPF	7.500"	Vert	0%	-880 / -1290	-2170 (-2170)	L_	D+(D+L)

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-12576 ft-lb	11'11 1/4"	34565 ft-lb	0.364 (36%)	D+L	LL
Unbraced	-12576 ft-lb	11'11 1/4"	12581 ft-lb	1.000 (100%)	D+L	LL
Pos Moment	9705 ft-lb	5'4 9/16"	34565 ft-lb	0.281 (28%)	D+L	L_
Unbraced	9705 ft-lb	5'4 9/16"	9705 ft-lb	1.000 (100%)	D+L	L_
Shear	5685 lb	10'4 1/2"	11947 lb	0.476 (48%)	D+L	LL
LL Defl inch	0.058 (L/2443)	5'10 9/16"	0.295 (L/480)	0.197 (20%)	L	L_
TL Defl inch	0.131 (L/1084)	5'10 3/16"	0.393 (L/360)	0.332 (33%)	D+L	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.
- Fill all hanger nailing holes.
- Girders are designed to be supported on the bottom edge only.
- Top loads must be supported equally by all plies.
- Tie-down connection required at bearing 3 for uplift 2170 lb (Combination D+L, Load Case L_).**
- Top must be laterally braced at a maximum of 13'1 15/16" o.c.
- Bottom must be laterally braced at a maximum of 9'5 7/8" o.c.
- 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

- 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 3/30/2024

Manufacturer Info

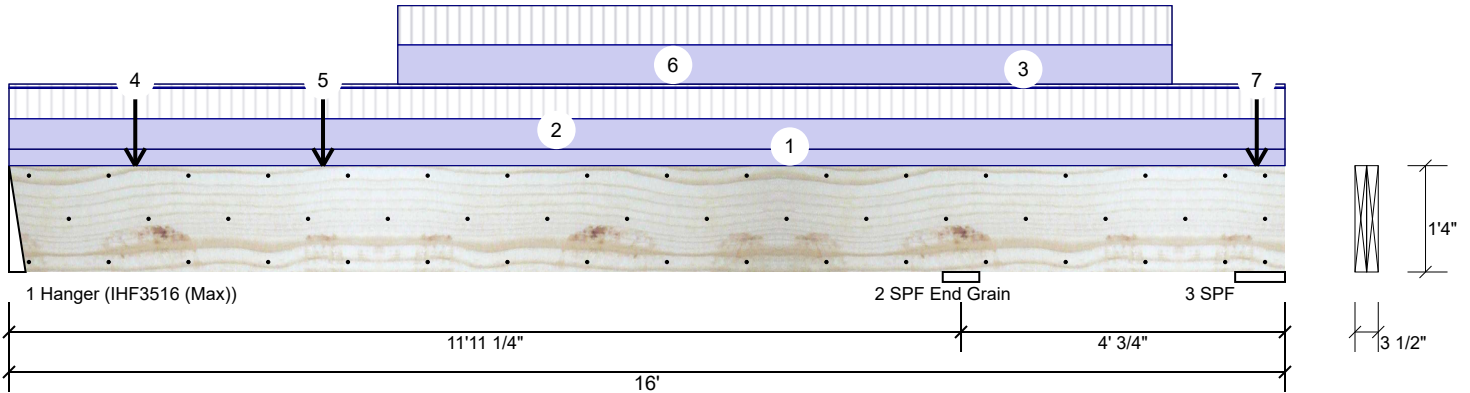
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BM1 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



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	105 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall
2	Uniform			Far Face	193 PLF	193 PLF	0 PLF	0 PLF	0 PLF	D2
3	Tie-In	0-0-0 to 16-0-0	0-6-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	0 PSF	Floor
4	Point	1-7-0		Top	96 lb	96 lb	0 lb	0 lb	0 lb	B3A
	Bearing Length	0-3-8								
5	Point	3-11-4		Top	115 lb	115 lb	0 lb	0 lb	0 lb	B3
	Bearing Length	0-3-8								
6	Part. Uniform	4-10-8 to 14-7-0		Top	249 PLF	249 PLF	0 PLF	0 PLF	0 PLF	"B" Trusses
7	Point	15-7-12		Top	135 lb	135 lb	0 lb	0 lb	0 lb	B1A
	Bearing Length	0-3-8								
	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

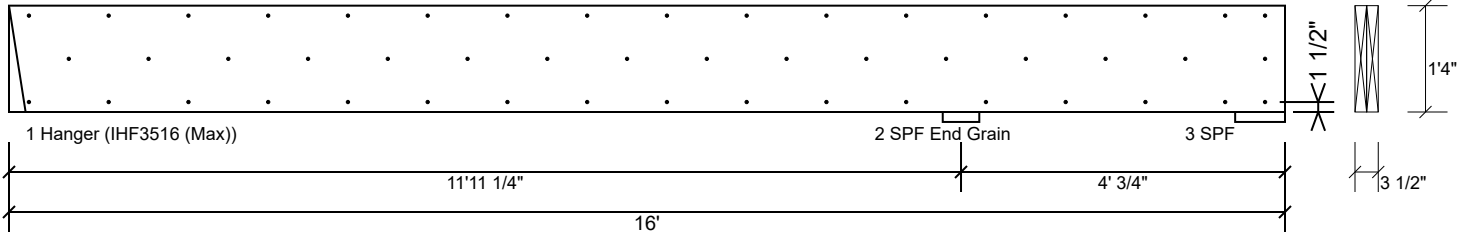
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BM1 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

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	78.6 %
Load	193.0 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	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 3/30/2024

Manufacturer Info

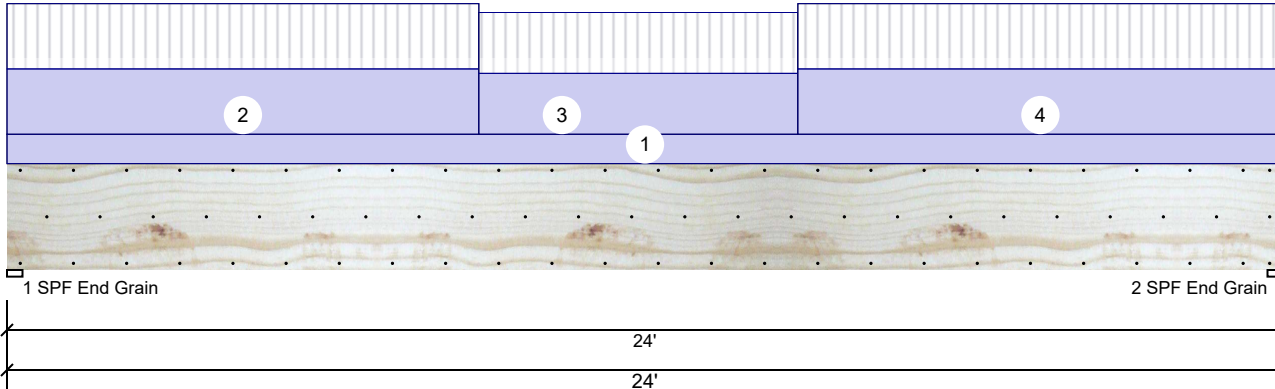
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BM3 Kerto-S LVL 1.750" X 24.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	3137	4801	0	0	0
2	Vertical	3139	4803	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	74%	4801 / 3137	7939	L	D+L
2 - SPF End Grain	3.500"	Vert	75%	4803 / 3139	7941	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	45433 ft-lb	12' 1/16"	73185 ft-lb	0.621 (62%)	D+L	L
Unbraced	45433 ft-lb	12' 1/16"	45612 ft-lb	0.996 (100%)	D+L	L
Shear	6442 lb	21'8 1/2"	17920 lb	0.359 (36%)	D+L	L
LL Defl inch	0.247 (L/1144)	12' 1/16"	0.589 (L/480)	0.420 (42%)	L	L
TL Defl inch	0.627 (L/451)	12' 1/16"	0.785 (L/360)	0.798 (80%)	D+L	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 3'9 5/16" 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	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall
2	Part. Uniform	0-0-0 to 8-10-8		Top	266 PLF	266 PLF	0 PLF	0 PLF	0 PLF	B1
3	Part. Uniform	8-10-8 to 14-10-8		Top	248 PLF	248 PLF	0 PLF	0 PLF	0 PLF	B1A
4	Part. Uniform	14-10-8 to 24-0-0		Top	266 PLF	266 PLF	0 PLF	0 PLF	0 PLF	B1
	Self Weight				19 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

- 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 3/30/2024

Manufacturer Info

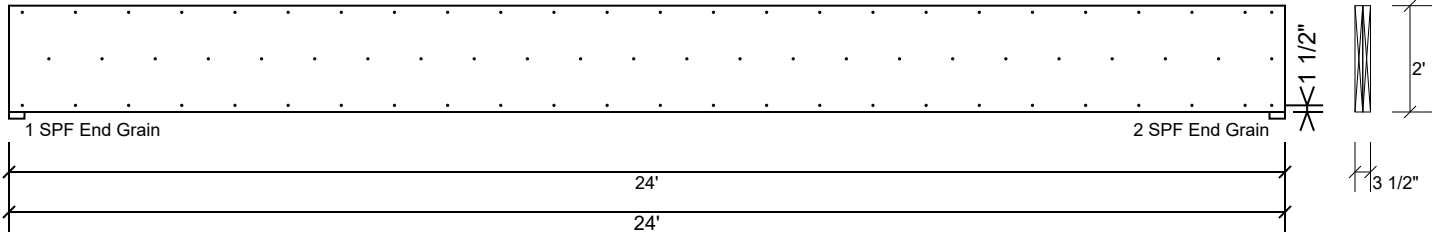
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BM3 Kerto-S LVL 1.750" X 24.000" 2-Ply - PASSED

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

This design is valid until 3/30/2024

Manufacturer Info

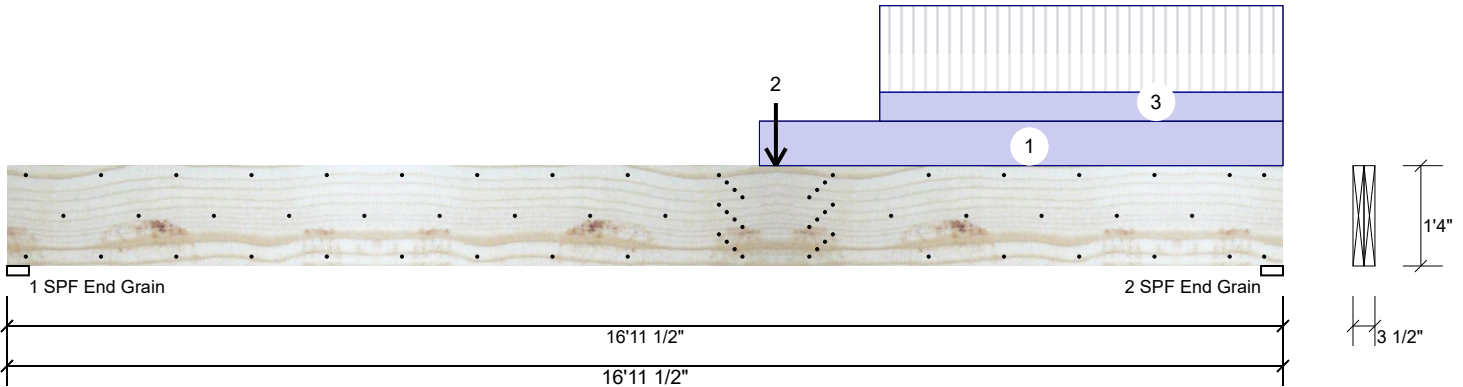
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BM2 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	1350	1497	0	0	0
2	Vertical	2847	2916	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	27%	1497 / 1350	2847	L	D+L
2 - SPF End Grain	3.500"	Vert	54%	2916 / 2847	5764	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	27818 ft-lb	10'2 5/8"	34565 ft-lb	0.805 (80%)	D+L	L
Unbraced	27818 ft-lb	10'2 5/8"	27884 ft-lb	0.998 (100%)	D+L	L
Shear	5060 lb	15'4"	11947 lb	0.424 (42%)	D+L	L
LL Defl inch	0.250 (L/793)	9'4 1/2"	0.413 (L/480)	0.605 (61%)	L	L
TL Defl inch	0.516 (L/384)	9'4 1/4"	0.551 (L/360)	0.938 (94%)	D+L	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.
- Concentrated load fastener specification is in addition to hanger fasteners if a hanger is present.
- 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 3'8 15/16" 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	Part. Uniform	10-0-0 to 16-11-8		Top	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall
2	Point	10-2-10		Far Face	2949 lb	2949 lb	0 lb	0 lb	0 lb	BM1
3	Part. Uniform	11-7-3 to 16-11-8		Far Face	78 PLF	233 PLF	0 PLF	0 PLF	0 PLF	F01
	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

- 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 3/30/2024

Manufacturer Info

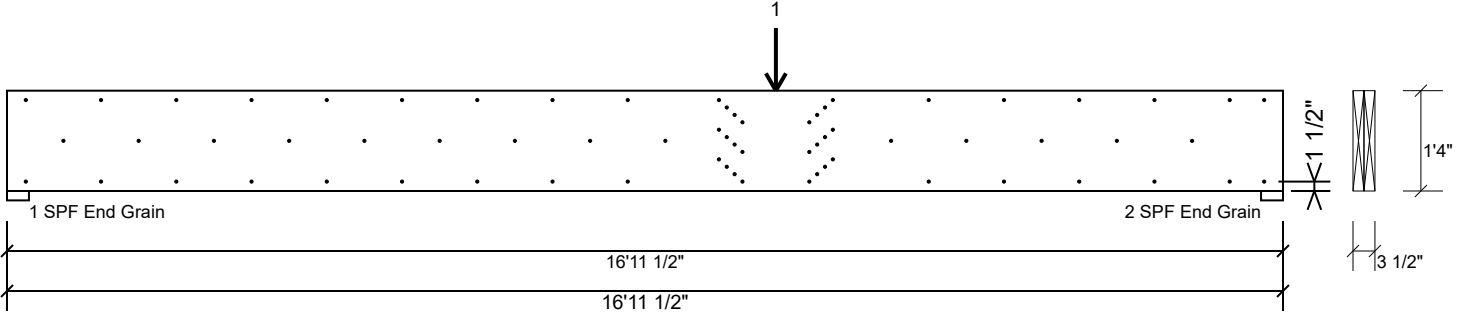
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BM2 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

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

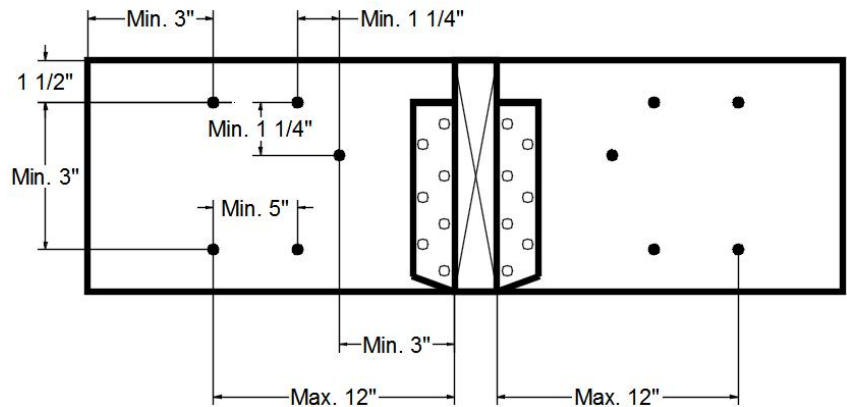
Capacity	63.3 %
Load	155.5 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	D+L
Duration Factor	1.00

Concentrated Load

Fasten at concentrated side load at 10-2-10 with a minimum of (24) – 16d Common nails (.162x3.5") in the pattern shown.

Capacity	96.5 %
Load	2949.0lb.
Total Yield Limit	3056.0 lb.
Cg	0.9997
Yield Limit per Fastener	127.4 lb.
Yield Mode	IV
Load Combination	D+L
Duration Factor	1.00

Min/Max fastener distances for Concentrated Side Loads



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 3/30/2024

Manufacturer Info

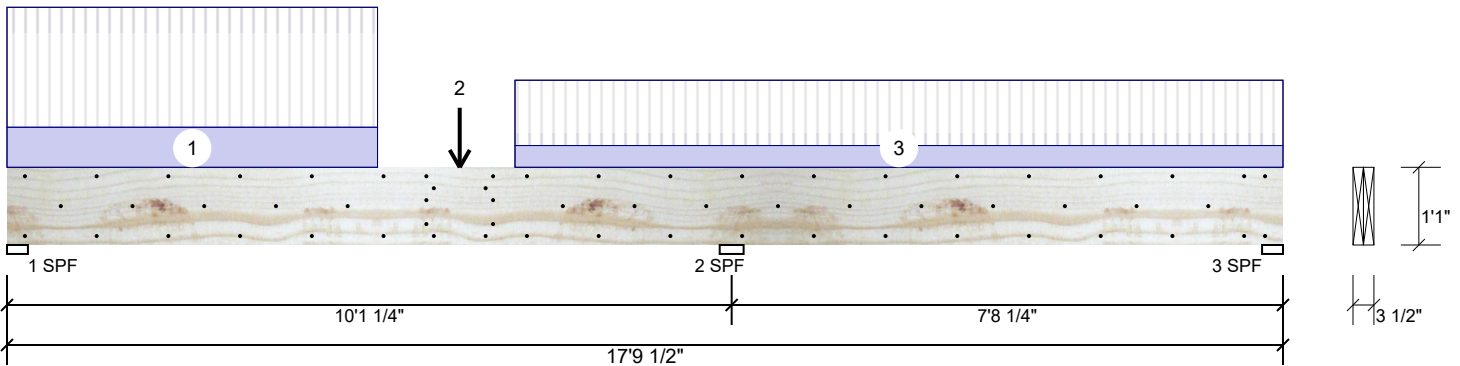
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BM4 Kerto-S LVL 1.750" X 13.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	2365	832	0	0	0
2	Vertical	4148	1493	0	0	0
3	Vertical	735	272	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	62%	821 / 2431	3252	L_	D+L
2 - SPF	4.000"	Vert	96%	1518 / 4219	5737	LL	D+L
3 - SPF	3.500"	Vert	27%	258 / 1131	1389	_L	D+L(D+L)

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-5709 ft-lb	10'1 1/4"	23540 ft-lb	0.243 (24%)	D+L	LL
Unbraced	-5709 ft-lb	10'1 1/4"	6295 ft-lb	0.907 (91%)	D+L	LL
Pos Moment	5976 ft-lb	4'1 7/16"	23540 ft-lb	0.254 (25%)	D+L	L_
Unbraced	5976 ft-lb	4'1 7/16"	6295 ft-lb	0.949 (95%)	D+L	L_
Shear	2821 lb	8'10 1/4"	9707 lb	0.291 (29%)	D+L	LL
LL Defl inch	0.071 (L/1666)	4'9 5/16"	0.247 (L/480)	0.288 (29%)	L	L_
TL Defl inch	0.094 (L/1264)	4'9"	0.329 (L/360)	0.285 (28%)	D+L	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 3 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 Concentrated load fastener specification is in addition to hanger fasteners if a hanger is present.
- 5 Girders are designed to be supported on the bottom edge only.
- 6 Top loads must be supported equally by all plies.
- 7 Tie-down connection required at bearing 3 for uplift 105 lb (Combination D+L, Load Case L_).
- 8 Top must be laterally braced at end bearings.
- 9 Bottom must be laterally braced at end bearings.
- 10 Lateral slenderness ratio based on single ply width.

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

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 3/30/2024

Manufacturer Info

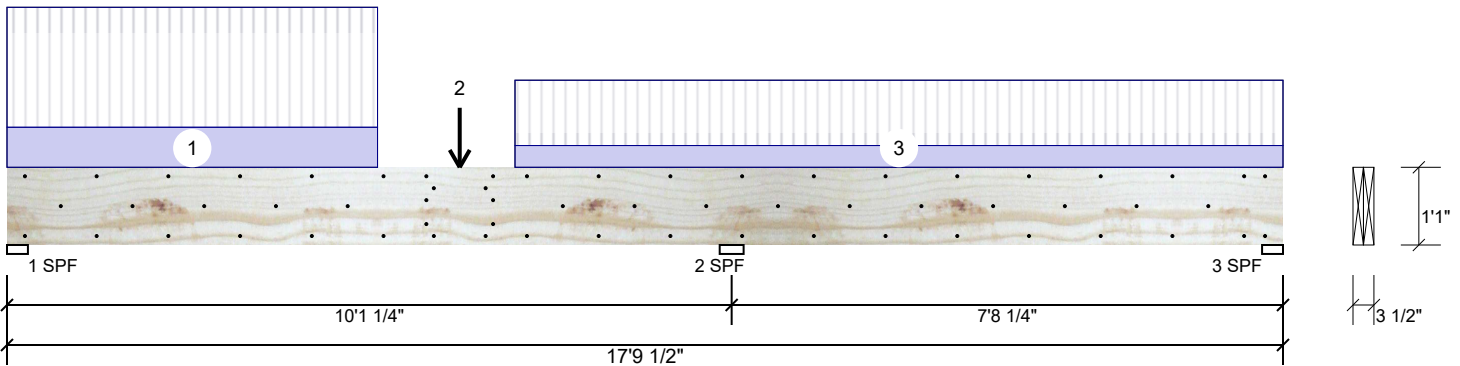
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BM4 Kerto-S LVL 1.750" X 13.000" 2-Ply - PASSED

Level: Level



ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Part. Uniform	0-0-0 to 5-2-0		Top	195 PLF	584 PLF	0 PLF	0 PLF	0 PLF	F01
2	Point	6-3-12		Near Face	275 lb	825 lb	0 lb	0 lb	0 lb	F07G
3	Part. Uniform	7-1-0 to 17-9-8		Far Face	106 PLF	318 PLF	0 PLF	0 PLF	0 PLF	F04
	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 3/30/2024

Manufacturer Info

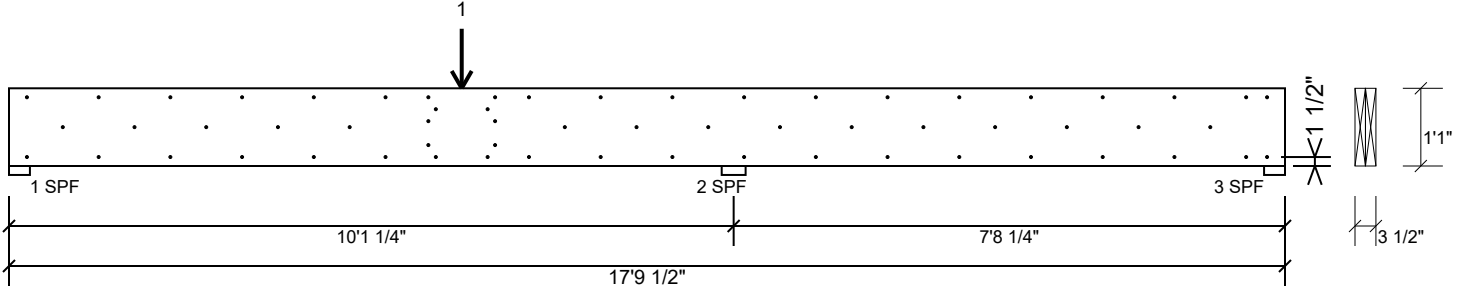
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BM4 Kerto-S LVL 1.750" X 13.000" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

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

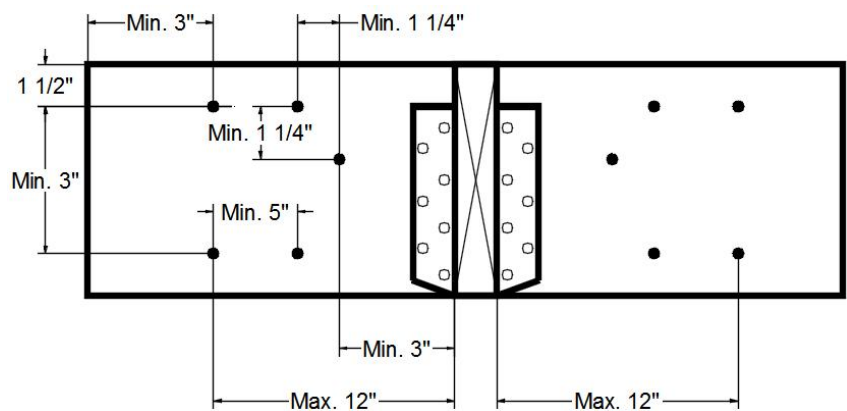
Capacity	86.3 %
Load	212.0 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	D+L
Duration Factor	1.00

Concentrated Load

Fasten at concentrated side load at 6-3-12 with a minimum of (10) – 10d Box nails (.128x3") in the pattern shown.

Capacity	67.2 %
Load	550.0lb.
Total Yield Limit	818.4 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

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 3/30/2024

Manufacturer Info

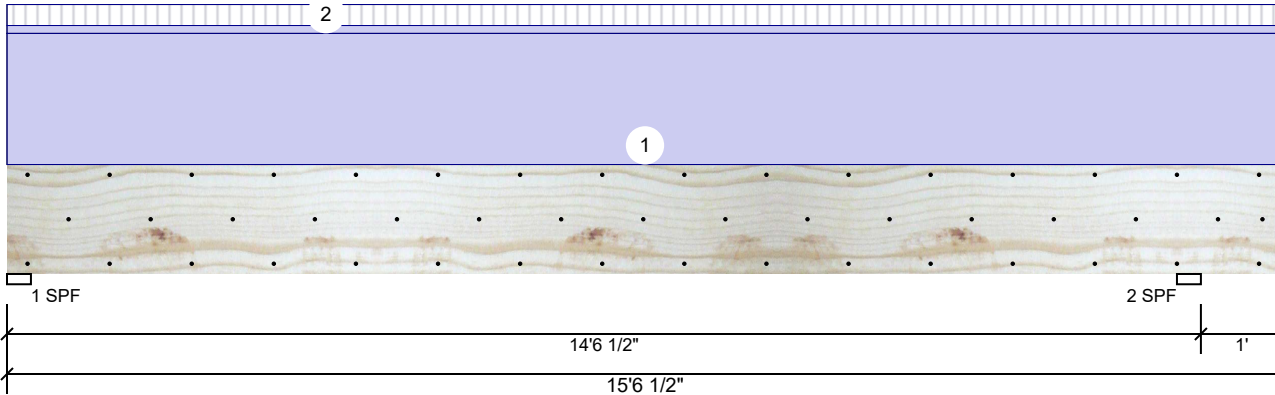
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BM5 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	291	2018	0	0	0
2	Vertical	331	2294	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	44%	2018 / 292	2310	L_	D+L
2 - SPF	3.500"	Vert	50%	2294 / 331	2625	LL	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-159 ft-lb	14'6 1/2"	34565 ft-lb	0.005 (0%)	D+L	LL
Unbraced	-159 ft-lb	14'6 1/2"	9124 ft-lb	0.017 (2%)	D+L	LL
Pos Moment	7906 ft-lb	7'3 5/16"	34565 ft-lb	0.229 (23%)	D+L	L_
Unbraced	7906 ft-lb	7'3 5/16"	9124 ft-lb	0.866 (87%)	D+L	L_
Shear	1811 lb	1'7 1/2"	11947 lb	0.152 (15%)	D+L	L_
LL Defl inch	0.017 (L/9843)	7'3 3/4"	0.354 (L/480)	0.049 (5%)	L	L_
TL Defl inch	0.136 (L/1252)	7'3 9/16"	0.473 (L/360)	0.288 (29%)	D+L	L_
LL Cant	-0.003 (2L/6988)	Rt Cant	0.200 (2L/480)	0.017 (2%)	L	L_
TL Cant	-0.026 (2L/907)	Rt Cant	0.300 (2L/360)	0.088 (9%)	D+L	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 3 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.

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 3/30/2024

Manufacturer Info

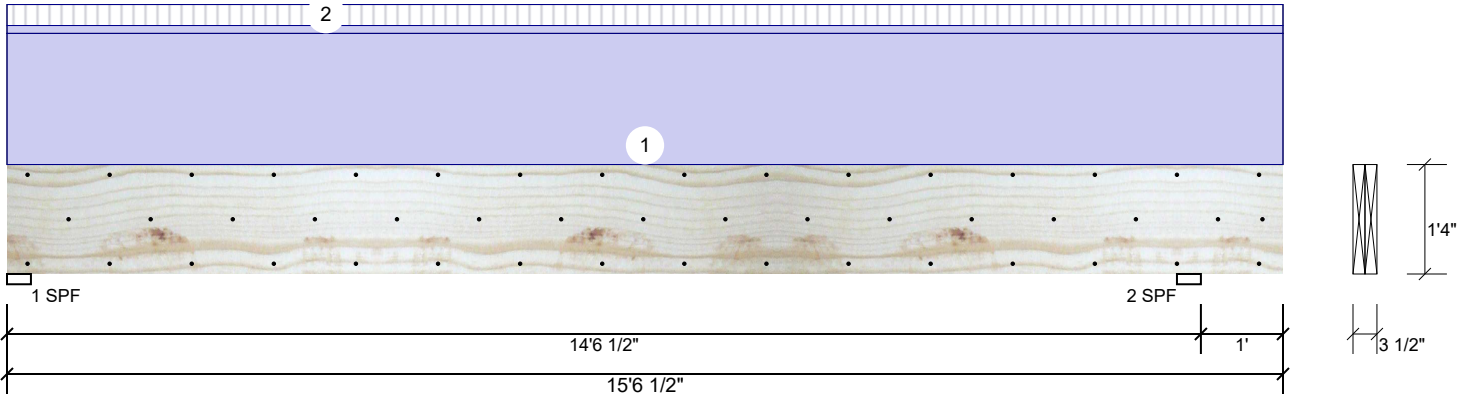
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BM5 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



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	Wall
2	Uniform			Top	15 PLF	40 PLF	0 PLF	0 PLF	0 PLF	Floor
	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 3/30/2024

Manufacturer Info

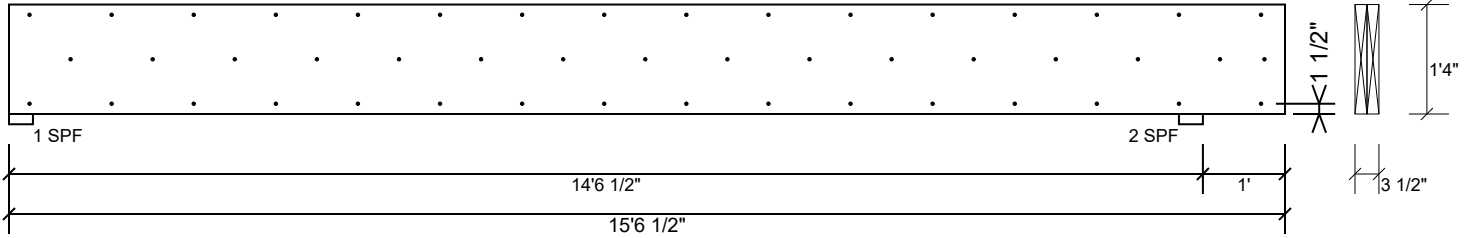
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BM5 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

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	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

This design is valid until 3/30/2024

Manufacturer Info

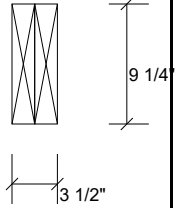
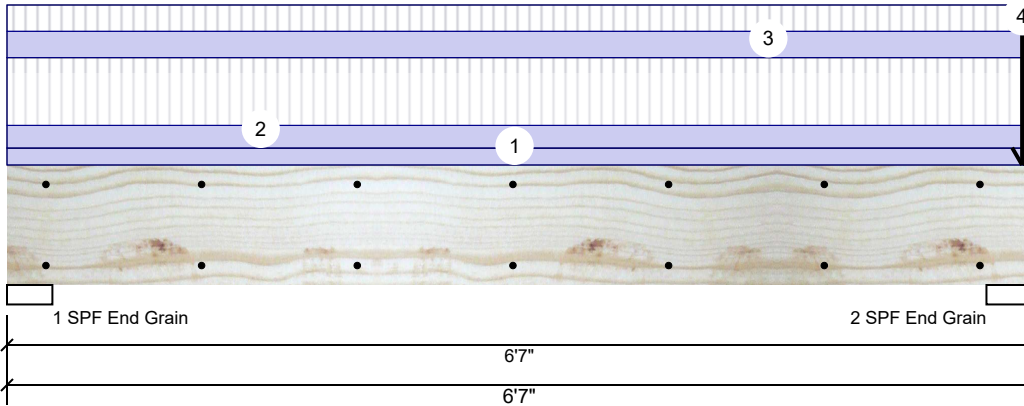
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BM6 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



Member Information

Type:	Header	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	360	Header Supports:	No
Importance:	Normal - II	Glass:	
Temperature:	Temp <= 100°F	Deck:	Not Checked

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	2189	1558	0	0	0
2	Vertical	5142	4511	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	35%	1558 / 2189	3747	L	D+L
2 - SPF End Grain	3.500"	Vert	91%	4511 / 5142	9653	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	5338 ft-lb	3' 3/2"	12542 ft-lb	0.426 (43%)	D+L	L
Unbraced	5338 ft-lb	3' 3/2"	9934 ft-lb	0.537 (54%)	D+L	L
Shear	2543 lb	1' 3/4"	6907 lb	0.368 (37%)	D+L	L
LL Defl inch	0.057 (L/1296)	3' 3/2"	0.153 (L/480)	0.370 (37%)	L	L
TL Defl inch	0.097 (L/757)	3' 3/2"	0.204 (L/360)	0.475 (48%)	D+L	L

Design Notes

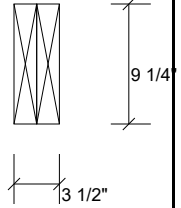
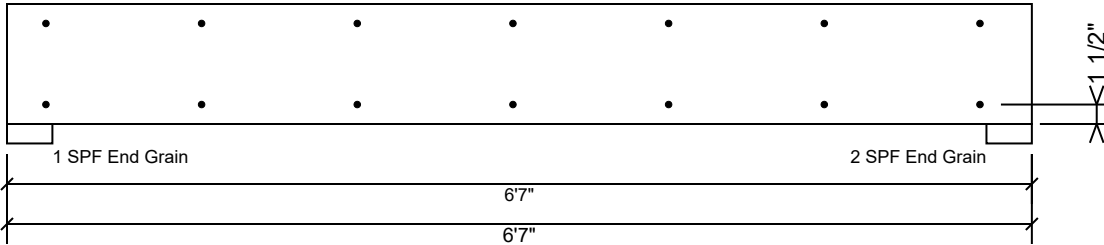
- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 3 Refer to last page 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	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall
2	Uniform			Top	160 PLF	479 PLF	0 PLF	0 PLF	0 PLF	F03
3	Uniform			Top	186 PLF	186 PLF	0 PLF	0 PLF	0 PLF	B4
4	Point	6-6-4		Top	2953 lb	2953 lb	0 lb	0 lb	0 lb	B3A
	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 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 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
			This design is valid until 3/30/2024	

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	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 3/30/2024

Manufacturer Info

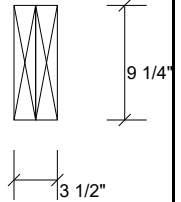
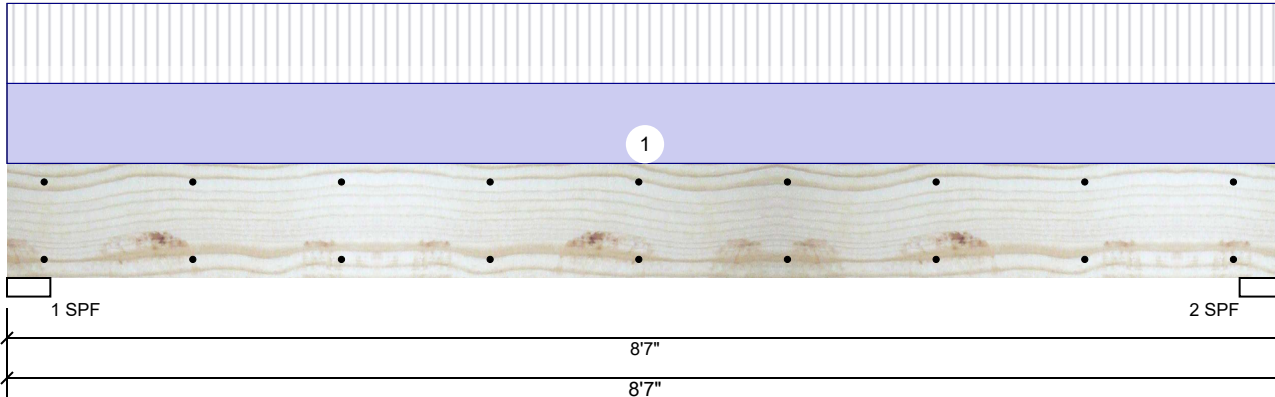
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BM7 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



Member Information

Type: Header	Application: Floor
Plies: 2	Design Method: ASD
Moisture Condition: Dry	Building Code: IBC 2012
Deflection LL: 480	Load Sharing: No
Deflection TL: 360	Header Supports: No
Importance: Normal - II	Glass:
Temperature: Temp <= 100°F	Deck: Not Checked

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	1781	1812	0	0	0
2	Vertical	1781	1812	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	69%	1812 / 1781	3593	L	D+L
2 - SPF	3.500"	Vert	69%	1812 / 1781	3593	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6908 ft-lb	4'3 1/2"	12542 ft-lb	0.551 (55%)	D+L	L
Unbraced	6908 ft-lb	4'3 1/2"	8468 ft-lb	0.816 (82%)	D+L	L
Shear	2709 lb	7'6 1/4"	6907 lb	0.392 (39%)	D+L	L
LL Defl inch	0.100 (L/972)	4'3 9/16"	0.203 (L/480)	0.494 (49%)	L	L
TL Defl inch	0.202 (L/482)	4'3 9/16"	0.271 (L/360)	0.747 (75%)	D+L	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	415 PLF	415 PLF	0 PLF	0 PLF	0 PLF	A1
	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

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 3/30/2024

Manufacturer Info

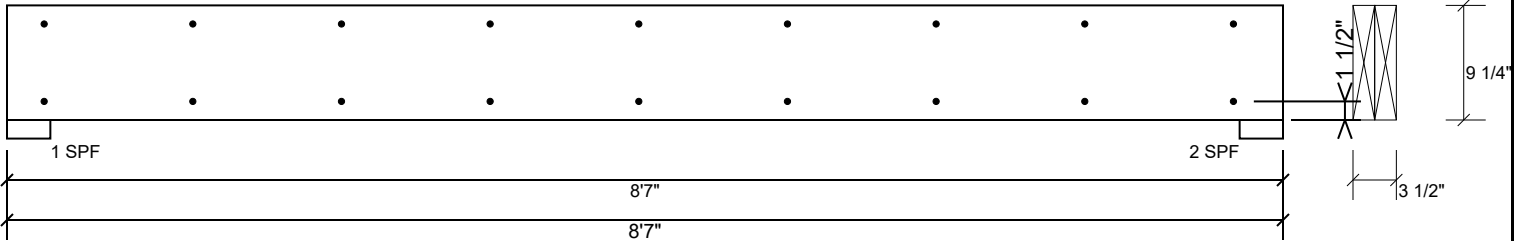
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BM7 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

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 3/30/2024

Manufacturer Info

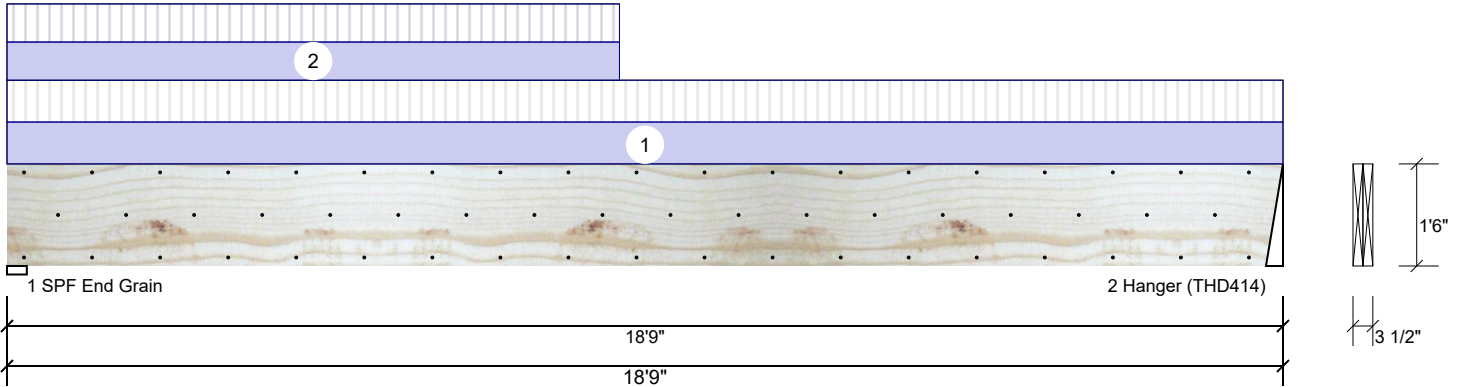
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BM1 (Roof) Kerto-S LVL 1.750" X 18.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	2806	2938	0	0	0
2	Vertical	2017	2148	0	0	0

Bearings

Bearing	Length	Dir.	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	54%	2938 / 2806	5744	L	D+L
2 - Hanger	3.000"	Vert	46%	2148 / 2017	4165	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	22398 ft-lb	8'2 3/4"	42981 ft-lb	0.521 (52%)	D+L	L
Unbraced	22398 ft-lb	8'2 3/4"	22427 ft-lb	0.999 (100%)	D+L	L
Shear	4515 lb	1'9 1/2"	13440 lb	0.336 (34%)	D+L	L
LL Defl inch	0.211 (L/1043)	9' 3/4"	0.459 (L/480)	0.460 (46%)	L	L
TL Defl inch	0.434 (L/508)	9' 13/16"	0.612 (L/360)	0.709 (71%)	D+L	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.
- Fill all hanger nailing holes.
- 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 5'10 1/8" 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	179 PLF	179 PLF	0 PLF	0 PLF	0 PLF	H2
2	Part. Uniform	0-0-0 to 9-0-0		Top	163 PLF	163 PLF	0 PLF	0 PLF	0 PLF	H3
	Self Weight				14 PLF					

Notes

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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 3/30/2024

Manufacturer Info

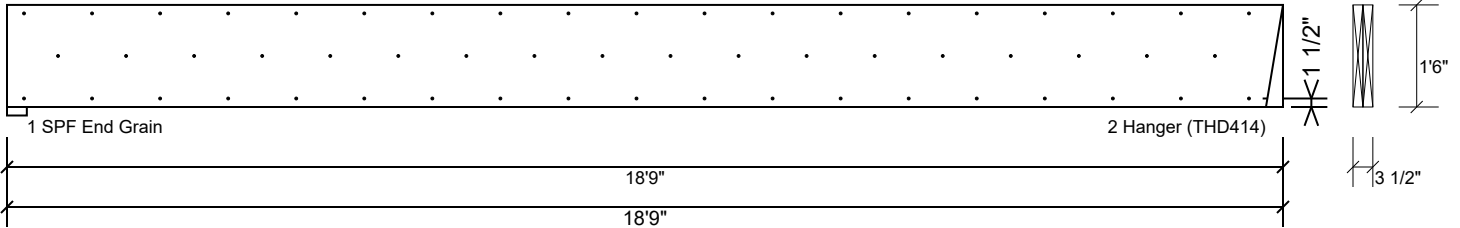
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BM1 (Roof) Kerto-S LVL 1.750" X 18.000" 2-Ply - PASSED

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

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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 3/30/2024

Manufacturer Info

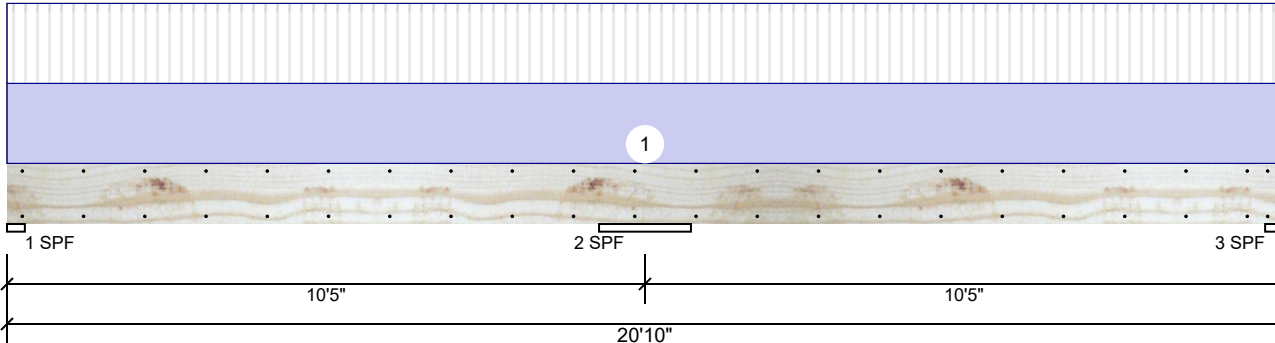
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GDH1 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	1498	1536	0	0	0
2	Vertical	4608	4724	0	0	0
3	Vertical	1498	1536	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	62%	1515 / 1710	3226	L_	D+L
2 - SPF	18.000"	Vert	35%	4766 / 4648	9414	LL	D+L
3 - SPF	3.500"	Vert	62%	1515 / 1710	3226	_L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-9590 ft-lb	10'5"	19911 ft-lb	0.482 (48%)	D+L	LL
Unbraced	-9590 ft-lb	10'5"	9594 ft-lb	1.000 (100%)	D+L	LL
Pos Moment	6319 ft-lb	16'5 5/8"	19911 ft-lb	0.317 (32%)	D+L	_L
Unbraced	6319 ft-lb	16'5 5/8"	6324 ft-lb	0.999 (100%)	D+L	_L
Shear	3430 lb	8'8 1/8"	8867 lb	0.387 (39%)	D+L	LL
LL Defl inch	0.078 (L/1570)	5'1 1/8"	0.255 (L/480)	0.306 (31%)	L	L_
TL Defl inch	0.132 (L/928)	15'10 7/8"	0.340 (L/360)	0.388 (39%)	D+L	_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 a maximum of 15'8 1/8" o.c.
- 7 Bottom must be laterally braced at a maximum of 9'7" o.c.
- 8 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
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 3/30/2024

Manufacturer Info

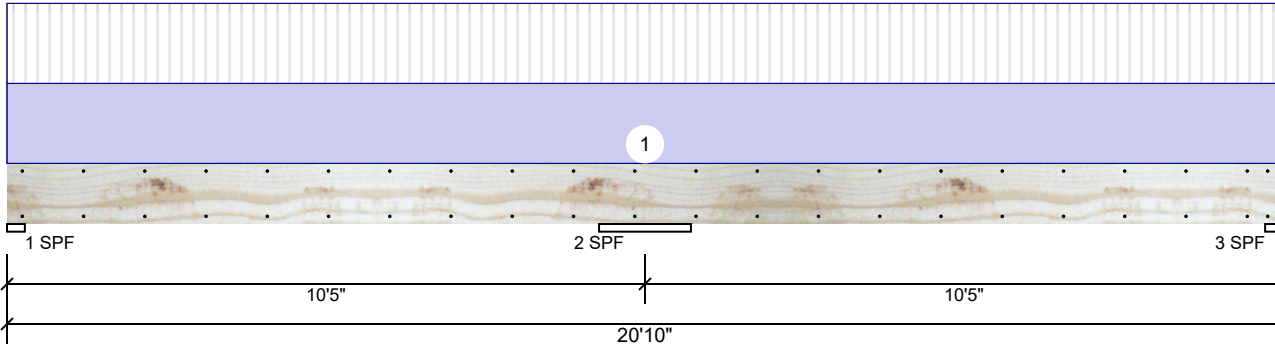
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GDH1 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform Self Weight			Top	365 PLF 9 PLF	365 PLF	0 PLF	0 PLF	0 PLF	A1GE

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 3/30/2024

Manufacturer Info

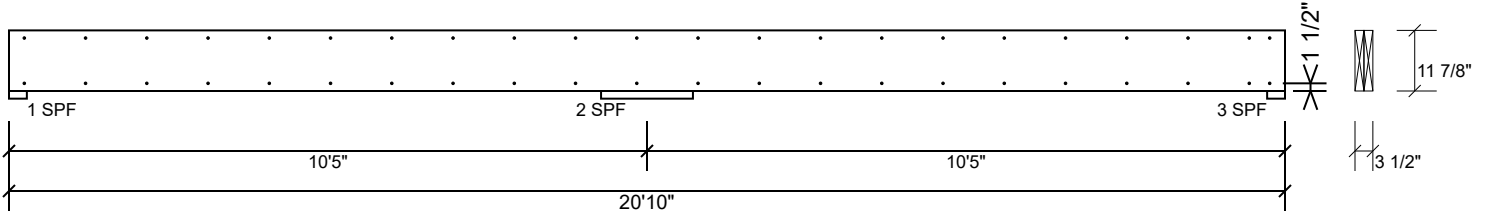
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GDH1 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

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 3/30/2024

Manufacturer Info

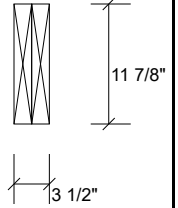
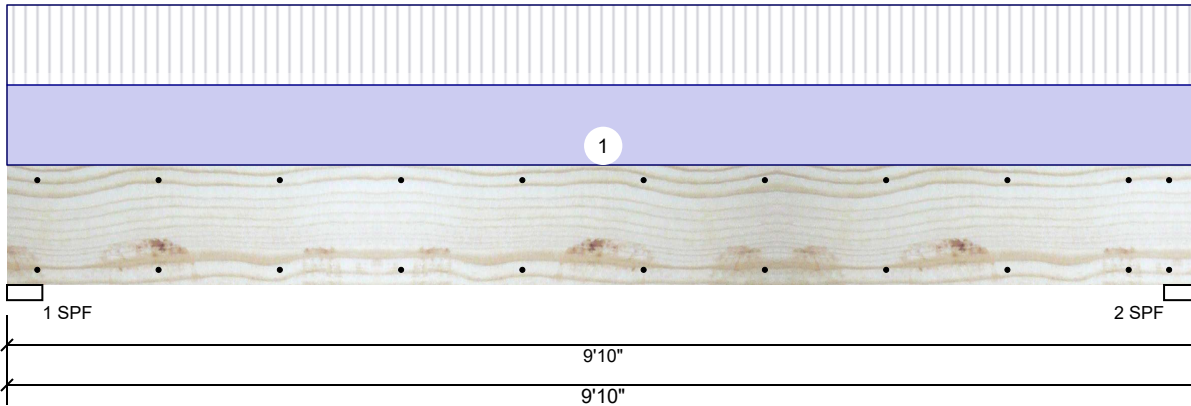
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GDH2 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	1170	1216	0	0	0
2	Vertical	1170	1216	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	46%	1216 / 1170	2386	L	D+L
2 - SPF	3.500"	Vert	46%	1216 / 1170	2386	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	5331 ft-lb	4'11"	19911 ft-lb	0.268 (27%)	D+L	L
Unbraced	5331 ft-lb	4'11"	9760 ft-lb	0.546 (55%)	D+L	L
Shear	1773 lb	1'3 3/8"	8867 lb	0.200 (20%)	D+L	L
LL Defl inch	0.050 (L/2268)	4'11"	0.234 (L/480)	0.212 (21%)	L	L
TL Defl inch	0.101 (L/1113)	4'11"	0.312 (L/360)	0.324 (32%)	D+L	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	238 PLF	238 PLF	0 PLF	0 PLF	0 PLF	G1
	Self Weight				9 PLF					

Notes

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chemicals

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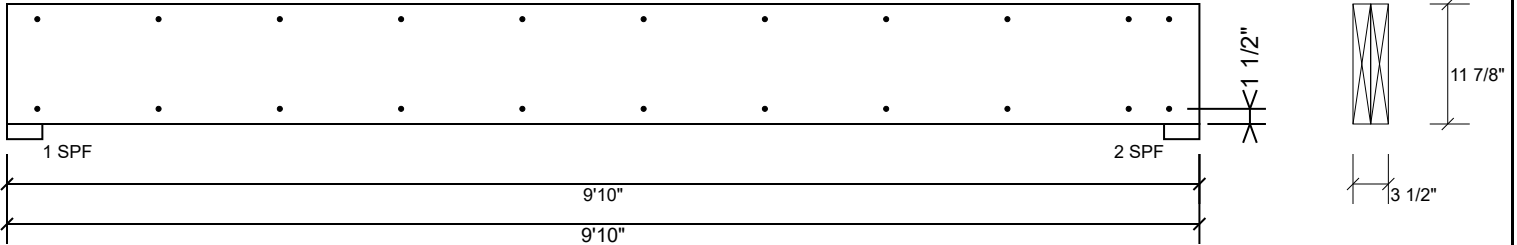
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GDH2 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

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

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