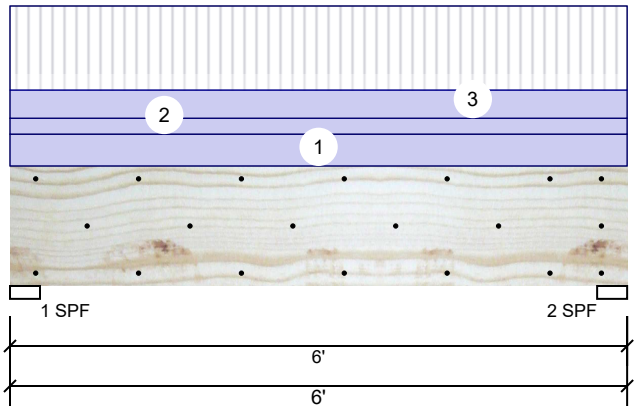
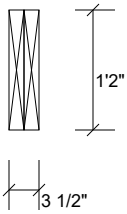
Client:	Benjamin Stout Real Estate	Date:	9/18/2020
Project:		Input by:	David Landry
Address:		Job Name:	Lot 55 Sierra Villas
		Project #:	J0920-4175

BM1 Kerto-S LVL 1.750" X 14.000" 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	951	891	0	0	0
2	951	891	0	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	35%	891 / 951	1842	L	D+L
2 - SPF	3.500"	35%	891 / 951	1842	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2357 ft-lb	3'	26999 ft-lb	0.087 (9%)	D+L	L
Unbraced	2357 ft-lb	3'	26999 ft-lb	0.087 (9%)	D+L	L
Shear	1478 lb	4'7 1/4"	10453 lb	0.141 (14%)	D+L	L
LL Defl inch	0.007 (L/9415)	3'	0.139 (L/480)	0.050 (5%)	L	L
TL Defl inch	0.014 (L/4862)	3'	0.185 (L/360)	0.070 (7%)	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 loads must be supported equally by all plies.
5 Top must be continuously braced.
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	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall Above
2	Uniform			Top	60 PLF	0 PLF	0 PLF	0 PLF	0 PLF	C1GE
3	Uniform			Far Face	106 PLF	317 PLF	0 PLF	0 PLF	0 PLF	F2
	Self Weight				11 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 2/26/2023

Manufacturer Info

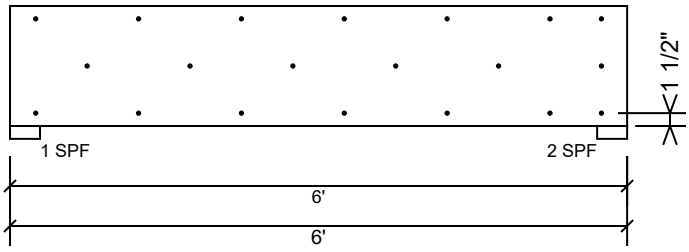
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us
ICC-ES: ESR-3633

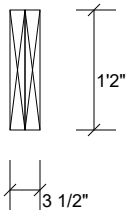
Comtech, Inc.
1001 S. Reilly Road, Suite #639
Fayetteville, NC
USA
28314
910-864-TRUS

Client:	Benjamin Stout Real Estate	Date:	9/18/2020
Project:		Input by:	David Landry
Address:		Job Name:	Lot 55 Sierra Villas
		Project #:	J0920-4175

BM1 Kerto-S LVL 1.750" X 14.000" 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	86.1 %
Load	211.5 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	D+L
Duration Factor	1.00

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

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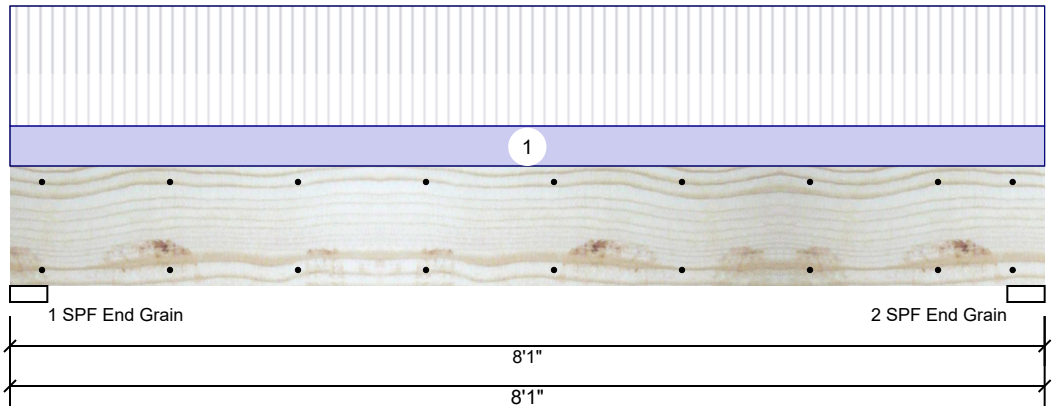
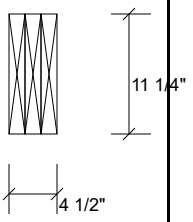
Client:	Benjamin Stout Real Estate	Date:	9/18/2020
Project:		Input by:	David Landry
Address:		Job Name:	Lot 55 Sierra Villas
		Project #:	J0920-4175

BM2 S-P-F #2 2.000" X 12.000" 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:	360	Load Sharing:	Yes
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	2837	946	0	0	0
2	2837	946	0	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	57%	946 / 2837	3783	L	D+L
2 - SPF End Grain	3.500"	57%	946 / 2837	3783	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6802 ft-lb	4' 1/2"	7960 ft-lb	0.855 (85%)	D+L	L
Unbraced	6802 ft-lb	4' 1/2"	7960 ft-lb	0.855 (85%)	D+L	L
Shear	2691 lb	1'2"	4556 lb	0.591 (59%)	D+L	L
LL Defl inch	0.071 (L/1281)	4' 9/16"	0.254 (L/360)	0.280 (28%)	L	L
TL Defl inch	0.095 (L/961)	4' 9/16"	0.381 (L/240)	0.250 (25%)	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 must be continuously braced.
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	234 PLF	702 PLF	0 PLF	0 PLF	0 PLF	F1

This design is valid until 2/26/2023

Manufacturer Info

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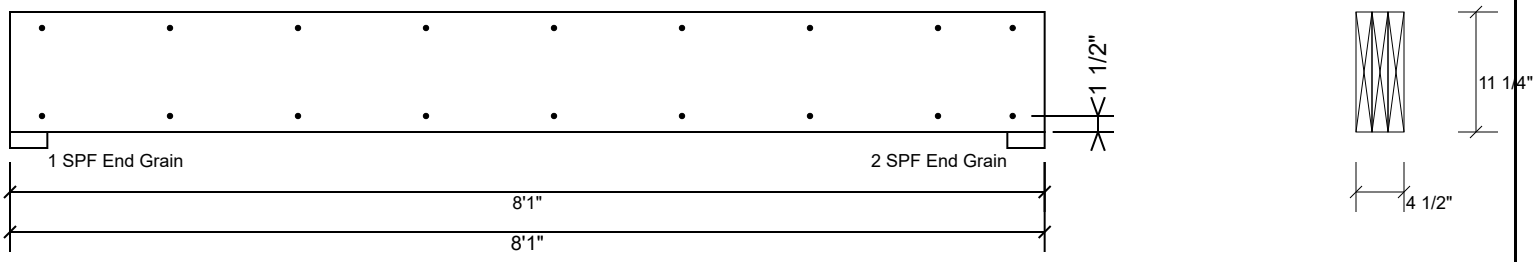
28314
910-864-TRUS

BM2 S-P-F #2 2.000" X 12.000" 3-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 2 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	157.4 PLF
Yield Limit per Fastener	78.7 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

This design is valid until 2/26/2023

Manufacturer Info

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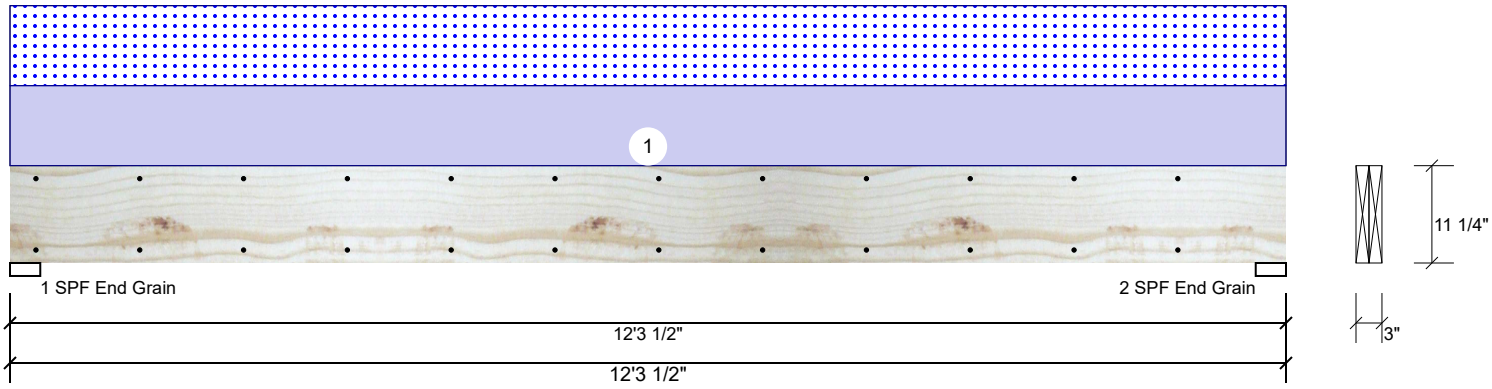
USA
28314
910-864-TRUS

Client:	Benjamin Stout Real Estate	Date:	9/18/2020
Project:		Input by:	David Landry
Address:		Job Name:	Lot 55 Sierra Villas
		Project #:	J0920-4175

BM3 S-P-F #2 2.000" X 12.000" 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:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	799	799	0	0
2	0	799	799	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	36%	799 / 799	1598	L	D+S
2 - SPF End Grain	3.500"	36%	799 / 799	1598	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	4551 ft-lb	6'1 3/4"	5306 ft-lb	0.858 (86%)	D+S	L
Unbraced	4551 ft-lb	6'1 3/4"	5306 ft-lb	0.858 (86%)	D+S	L
Shear	1295 lb	1'2"	3493 lb	0.371 (37%)	D+S	L
LL Defl inch	0.115 (L/1234)	6'1 3/4"	0.394 (L/360)	0.290 (29%)	S	L
TL Defl inch	0.230 (L/617)	6'1 3/4"	0.592 (L/240)	0.390 (39%)	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 continuously braced.
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	130 PLF	0 PLF	130 PLF	0 PLF	0 PLF	D1

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Manufacturer Info

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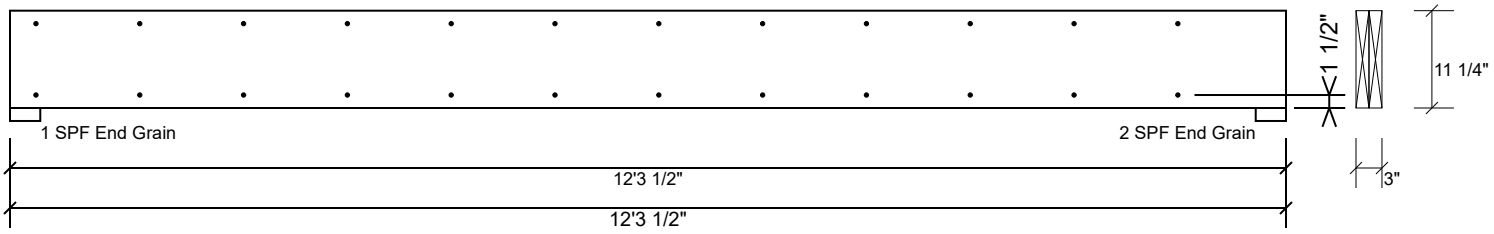
28314
910-864-TRUS

BM3 S-P-F #2 2.000" X 12.000" 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	157.4 PLF
Yield Limit per Fastener	78.7 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

This design is valid until 2/26/2023

Manufacturer Info

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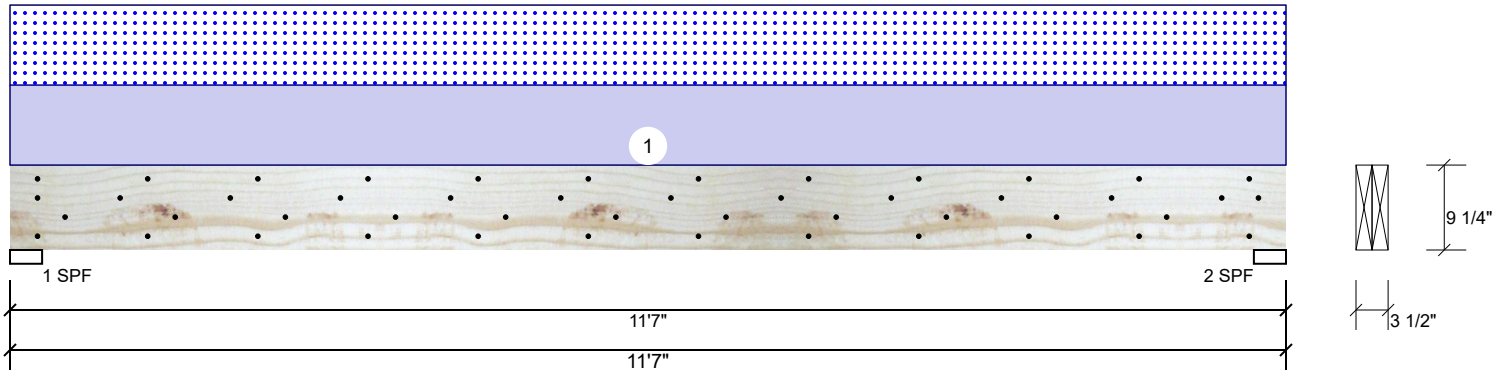
Client:	Benjamin Stout Real Estate	Date:	9/18/2020
Project:		Input by:	David Landry
Address:		Job Name:	Lot 55 Sierra Villas
		Project #:	J0920-4175

BM4 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



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	1721	1680	0	0
2	0	1721	1680	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	65%	1721 / 1680	3401	L	D+S
2 - SPF	3.500"	65%	1721 / 1680	3401	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	9084 ft-lb	5'9 1/2"	14423 ft-lb	0.630 (63%)	D+S	L
Unbraced	9084 ft-lb	5'9 1/2"	14423 ft-lb	0.630 (63%)	D+S	L
Shear	3261 lb	10'7"	7943 lb	0.411 (41%)	D+S	L
LL Defl inch	0.232 (L/574)	5'9 1/2"	0.371 (L/360)	0.630 (63%)	S	L
TL Defl inch	0.471 (L/284)	5'9 1/2"	0.556 (L/240)	0.850 (85%)	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 continuously braced.
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	290 PLF	0 PLF	290 PLF	0 PLF	0 PLF	A2
	Self Weight				7 PLF					

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

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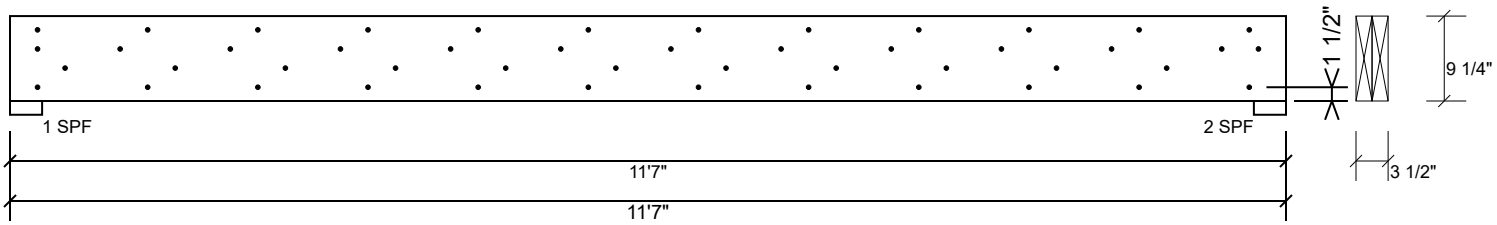
Client:	Benjamin Stout Real Estate	Date:	9/18/2020
Project:		Input by:	David Landry
Address:		Job Name:	Lot 55 Sierra Villas
		Project #:	J0920-4175

BM4 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

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

Capacity	77.0 %
Load	290.0 PLF
Yield Limit per Foot	376.5 PLF
Yield Limit per Fastener	94.1 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	D+S
Duration Factor	1.15

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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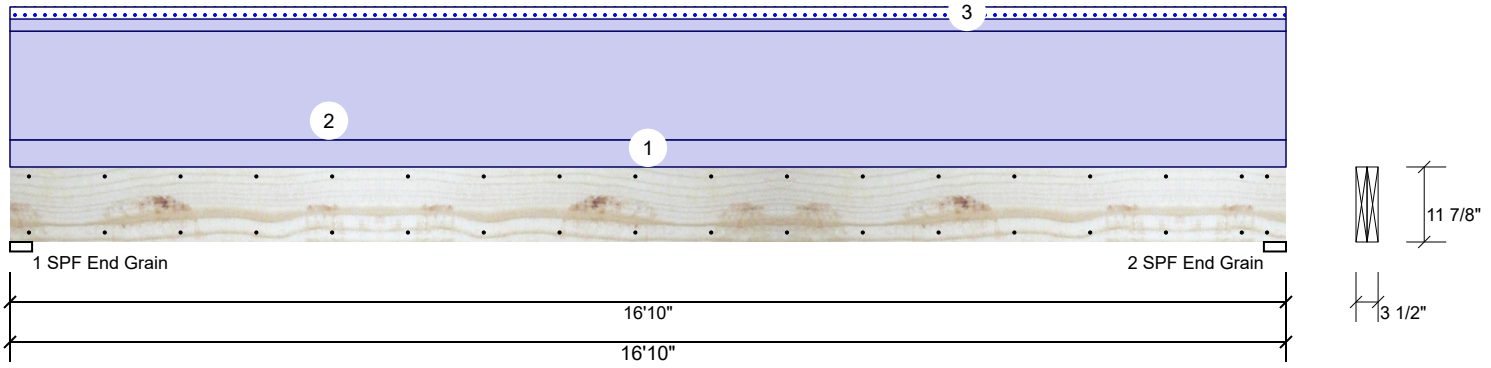
Client:	Benjamin Stout Real Estate	Date:	9/18/2020
Project:		Input by:	David Landry
Address:		Job Name:	Lot 55 Sierra Villas
		Project #:	J0920-4175

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:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	2140	168	0	0
2	0	2140	168	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	22%	2140 / 168	2308	L	D+S
2 - SPF End Grain	3.500"	22%	2140 / 168	2308	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	8521 ft-lb	8'5"	17919 ft-lb	0.476 (48%)	D	Uniform
Unbraced	8521 ft-lb	8'5"	17919 ft-lb	0.476 (48%)	D	Uniform
Shear	1830 lb	15'7 3/8"	7980 lb	0.229 (23%)	D	Uniform
LL Defl inch	0.035 (L/5617)	8'5 1/16"	0.546 (L/360)	0.060 (6%)	S	L
TL Defl inch	0.480 (L/410)	8'5 1/16"	0.819 (L/240)	0.590 (59%)	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 continuously braced.
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	45 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall Above
2	Uniform			Top	180 PLF	0 PLF	0 PLF	0 PLF	0 PLF	B1GE
3	Tie-In	0-0-0 to 16-10-0	1-0-0	Top	20 PSF	0 PSF	20 PSF	0 PSF	0 PSF	Roof Load
	Self Weight				9 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
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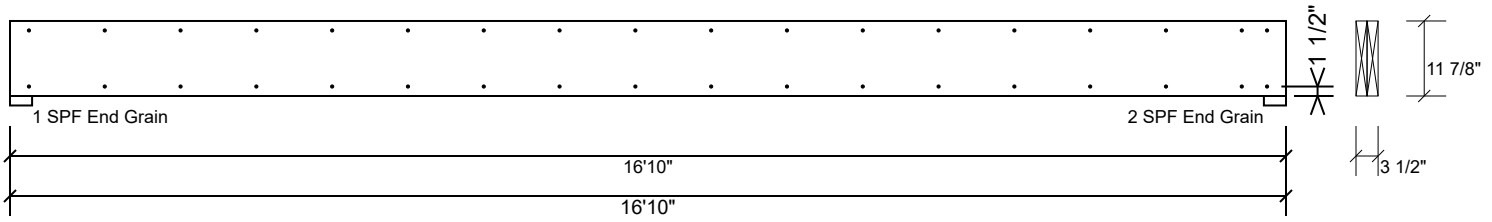
Project:		Input by:	David Landry
Address:		Job Name:	Lot 55 Sierra Villas
		Project #:	J0920-4175

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

Level: Level



Multi-Ply Analysis

Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6"

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	163.7 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 2/26/2023

Manufacturer Info

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