

Project:

Address:

LEWIS RESIDENCE

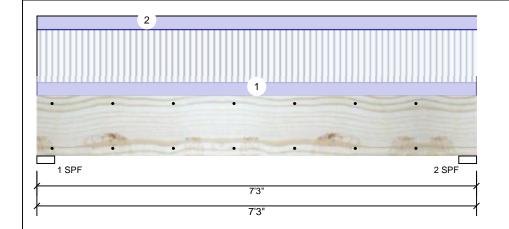
Date: 12/4/2018

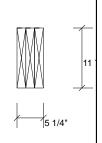
Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

#### 1.750" X 11.875" 3-Ply - PASSED **Kerto-S LVL**

Level: Level

Reactions UNPATTERNED Ib (Uplift)





Page 1 of 2

Type:	Girder
Plies:	3
Moisture Condition:	Dry
Deflection LL:	480
Deflection TL:	240
Importance:	Normal
Temperature:	Temp <= 100°F

Member Information

Application: Floor ASD Design Method: **Building Code: IBC/IRC 2015** Load Sharing: Yes Deck: Not Checked

Brg Dead Snow Wind Const 1 1715 917 0 0 0 0 0 1715 917 0 2

#### Bearings Cap. React D/L lb Ld. Comb. Bearing Length Total Ld. Case 1 - SPF 3.500" 34% 917 / 1715 2631 L D+L 917 / 1715 D+L 2 - SPF 3.500" 34% 2631 L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	4185 ft-lb	3'7 1/2"	31060 ft-lb	0.135 (13%)	D+L	L
Unbraced	4185 ft-lb	3'7 1/2"	18621 ft-lb	0.225 (22%)	D+L	L
Shear	1747 lb	1'2 5/8"	13300 lb	0.131 (13%)	D+L	L
LL Defl inch	0.020 (L/3977)	3'7 9/16"	0.170 (L/480)	0.120 (12%)	L	L
TL Defl inch	0.031 (L/2592)	3'7 9/16"	0.340 (L/240)	0.090 (9%)	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
- 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.

Ī	ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
	1	Uniform			Тор	119 PLF	473 PLF	0 PLF	0 PLF	0 PLF	
	2	Uniform			Тор	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF	
		Self Weight				14 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive
- Handling & Installation
- LVI 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

For flat roofs provide proper drainage to prevent ponding

This design is valid until 10/18/2021

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

Manufacturer Info





Client: SEGC

Address:

Project:

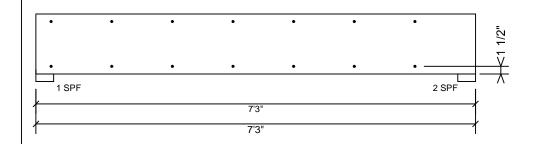
LEWIS RESIDENCE

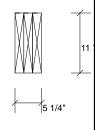
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

1.750" X 11.875" 3-Ply - PASSED **Kerto-S LVL** 

Level: Level





Page 2 of 2

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 163.7 PLF Yield Limit per Foot 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.

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

# Handling & Installation

LVL beams must not be cut or drilled
 Refer to manufacturer's product information regarding installation requirements, multi-ply fastering 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

For flat roofs provide proper drainage to prevent ponding

This design is valid until 10/18/2021

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Manufacturer Info





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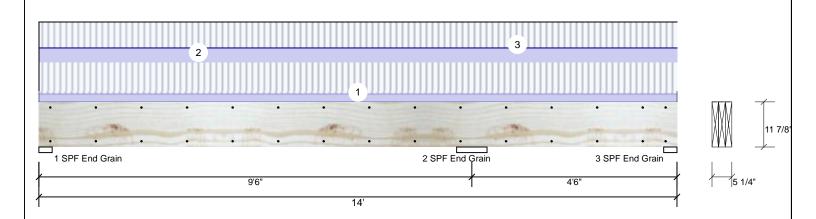
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 2

#### 1.750" X 11.875" **Kerto-S LVL** 3-Ply - PASSED

Level: Level



Member Inforn	Member Information					Reactions UNPATTERNED lb (Uplift)					
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const		
Plies:	3	Design Method:	ASD	1	3588	1450	0	0	0		
Moisture Conditio	n: Dry	Building Code:	IBC/IRC 2015	2	8112	3279	0	0	0		
Deflection LL:	480	Load Sharing:	Yes	3	592	239	0	0	0		
Deflection TL:	240	Deck:	Not Checked								
Importance:	Normal										
Temperature:	Temp <= 100°F										
				Bearing	gs						
				Bearin	g Length	Cap. Rea	ct D/L lb	Total Ld. Cas	se Ld. Comb.		

End Grain

Analysis Resul	ts
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Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-9954 ft-lb	9'6"	31060 ft-lb	0.320 (32%)	D+L	LL
Unbraced	-9954 ft-lb	9'6"	26993 ft-lb	0.369 (37%)	D+L	LL
Pos Moment	8994 ft-lb	4' 9/16"	31060 ft-lb	0.290 (29%)	D+L	L_
Unbraced	8994 ft-lb	4' 9/16"	17108 ft-lb	0.526 (53%)	D+L	L_
Shear	5569 lb	8'6 1/8"	13300 lb	0.419 (42%)	D+L	LL
LL Defl inch	0.081 (L/1376)	4'7 1/16"	0.232 (L/480)	0.350 (35%)	L	L_
TL Defl inch	0.112 (L/993)	4'6 15/16"	0.464 (L/240)	0.240 (24%)	D+L	L_

#### 1 - SPF 3.500" 31% 1417 / 3575 4992 L\_ D+L End Grain 2 - SPF 8.000" 32% 3383 / 8369 11752 II D+I End Grain 3 - SPF 3.500" 13% 168 / 1928 2096 \_L D+L (-1143)

## **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 Tie-down connection required at bearing 3 for uplift 1143 lb (Combination D+L, Load Case L\_).
- 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			Тор	122 PLF	485 PLF	0 PLF	0 PLF	0 PLF		
2	Uniform			Тор	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF		
3	Uniform			Тор	99 PLF	393 PLF	0 PLF	0 PLF	0 PLF		
	Self Weight				14 PLF						

#### Notes

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- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive
- 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

Handling & Installation

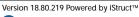
- Design assumes top edge is laterally restrained
  Provide lateral support at bearing points to avoid
  lateral displacement and rotation
- 6. For flat roofs provide proper drainage to prevent ponding

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Manufacturer Info

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





Client: SEGC

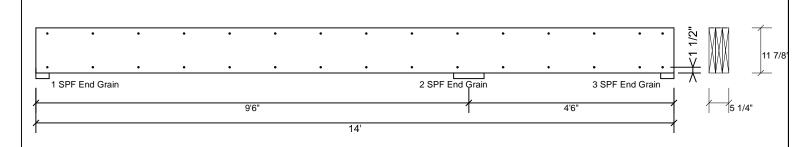
Project: LEWIS RESIDENCE Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 2 of 2

1.750" X 11.875" 3-Ply - PASSED **Kerto-S LVL** 

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	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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

## Handling & Installation

Handling & Installation

1. UVI beams must not be out 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 10/18/2021

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Project:

LEWIS RESIDENCE

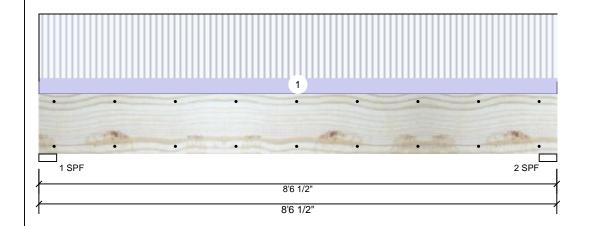
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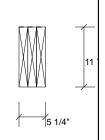
Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

#### 1.750" X 11.875" 3-Ply - PASSED **Kerto-S LVL**

Level: Level

Reactions UNPATTERNED Ib (Uplift)





Page 1 of 2

Member Information						
Type:	Girder					
Plies:	3					
Moisture Condition:	Dry					
Deflection LL:	480					
Deflection TL:	240					
Importance:	Normal					
Temperature:	Temp <= 100°F					

Application: Floor ASD Design Method: **Building Code: IBC/IRC 2015** Load Sharing: Yes Deck: Not Checked

Brg Dead Snow Wind Const 1 2084 580 0 0 0 0 0 2084 580 0 2

#### Bearings Cap. React D/L lb Ld. Comb. Bearing Length Total Ld. Case 1 - SPF 3.500" 34% 580 / 2084 2664 L D+L 580 / 2084 D+L 2 - SPF 3.500" 34% 2664 L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	5095 ft-lb	4'3 1/4"	31060 ft-lb	0.164 (16%)	D+L	L
Unbraced	5095 ft-lb	4'3 1/4"	16424 ft-lb	0.310 (31%)	D+L	L
Shear	1904 lb	1'2 5/8"	13300 lb	0.143 (14%)	D+L	L
LL Defl inch	0.039 (L/2465)	4'3 5/16"	0.202 (L/480)	0.190 (19%)	L	L
TL Defl inch	0.050 (L/1928)	4'3 5/16"	0.404 (L/240)	0.120 (12%)	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	122 PLF	488 PLF	0 PLF	0 PLF	0 PLF	

Self Weight 14 PLF

#### Notes

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- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive
- LVI 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

Handling & Installation

- 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
  - This design is valid until 10/18/2021

Manufacturer Info For flat roofs provide proper drainage to prevent ponding

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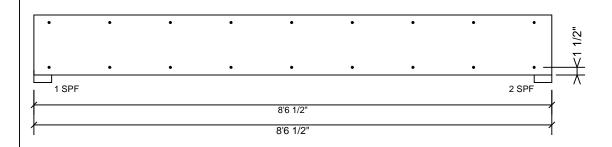
Client: SEGC

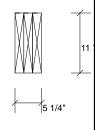
Project: LEWIS RESIDENCE Date: 12/4/2018 Designer: Bob Lewis

Job Name: j1118-5039 BEAMS Project #: J0118-5309

1.750" X 11.875" 3-Ply - PASSED **Kerto-S LVL** 

Level: Level





Page 2 of 2

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	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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

Handling & Installation

1. UVI beams must not be out 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

For flat roofs provide proper drainage to prevent ponding

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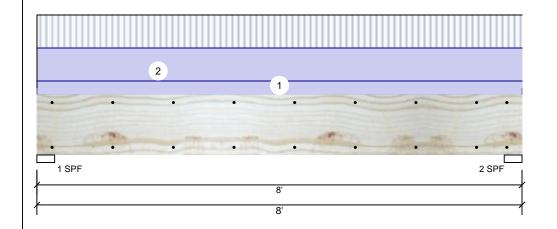
LEWIS RESIDENCE

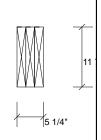
Date: 12/4/2018 Designer:

Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

1.750" X 11.875" 3-Ply - PASSED **Kerto-S LVL** 

Level: Level





Const

0

0

Page 1 of 2

Member Inform	ation			Reactio	ns UNPATT	ERNED Ib (l	Jplift)
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snov
Plies:	3	Design Method:	ASD	1	1100	1635	
Moisture Condition	: Dry	Building Code:	IBC/IRC 2015	2	1100	1635	
Deflection LL:	480	Load Sharing:	Yes	-			
Deflection TL:	240	Deck:	Not Checked				
Importance:	Normal						
Temperature:	Temp <= 100°F						
				Bearing	<b>j</b> s		

l							
	Bearings						
I	Bearing	Length	Сар.	React D/L lb	Total	Ld. Case	Ld. Comb.
ı	1 - SPF	3.500"	35%	1635 / 1100	2735	L	D+L
4	2 - SPF	3.500"	35%	1635 / 1100	2735	L	D+L

Snow

0

0

Wind

0

0

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	4862 ft-lb	4'	31060 ft-lb	0.157 (16%)	D+L	L
Unbraced	4862 ft-lb	4'	17268 ft-lb	0.282 (28%)	D+L	L
Shear	1902 lb	1'2 5/8"	13300 lb	0.143 (14%)	D+L	L
LL Defl inch	0.017 (L/5239)	4' 1/16"	0.189 (L/480)	0.090 (9%)	L	L
TL Defl inch	0.043 (L/2107)	4' 1/16"	0.377 (L/240)	0.110 (11%)	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
- 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			Тор	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF	
2	Uniform			Тор	275 PLF	275 PLF	0 PLF	0 PLF	0 PLF	
	Self Weight				14 PLF					

#### Notes

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- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive
- 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

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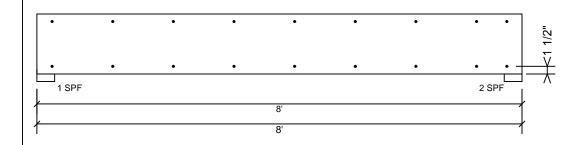
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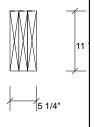
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1.750" X 11.875" 3-Ply - PASSED **Kerto-S LVL** 

Level: Level





Page 2 of 2

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

## Handling & Installation

Handling & Installation

1. UVI beams must not be out 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

For flat roofs provide proper drainage to prevent ponding

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Project:

LEWIS RESIDENCE

Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 2

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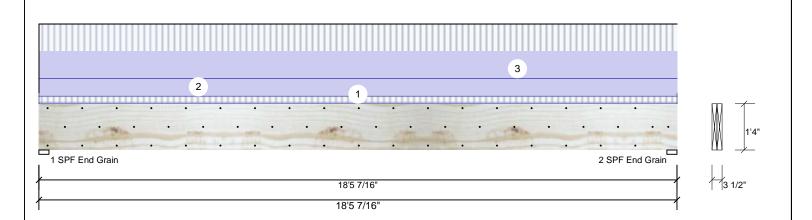
Ld. Comb. D+L

D+I

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

Address:

Level: Level



Member Inform	ation			Reaction	s UNPATT	ERNED Ib (l	Jplift)		
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	
Plies:	2	Design Method:	ASD	1	2048	2994	0	0	
Moisture Condition	: Dry	Building Code:	IBC/IRC 2015	2	2048	2994	0	0	
Deflection LL:	480	Load Sharing:	No						
Deflection TL:	240	Deck:	Not Checked						
Importance:	Normal								
Temperature:	Temp <= 100°F								
				Bearings					
				Bearing	Length	Cap. Rea	ct D/L lb	Total Ld. Ca	ıse
				1 - SPF	3.500"	47% 299	94 / 2048	5042 L	

Analysis Results

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Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	22169 ft-lb	9'2 3/4"	34565 ft-lb	0.641 (64%)	D+L	L
Unbraced	22169 ft-lb	9'2 3/4"	22257 ft-lb	0.996 (100%)	D+L	L
Shear	4194 lb	1'6 5/8"	11947 lb	0.351 (35%)	D+L	L
LL Defl inch	0.239 (L/906)	9'2 3/4"	0.450 (L/480)	0.530 (53%)	L	L
TL Defl inch	0.588 (L/368)	9'2 3/4"	0.901 (L/240)	0.650 (65%)	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 laterally braced at a maximum of 5' 3/8" o.c.
- 6 Bottom braced at bearings.

7 Lateral s	lenderness 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		1-0-0	Тор	10 PSF	40 PSF	0 PSF	0 PSF	0 PSF	
2	Uniform			Тор	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
3	Uniform			Тор	182 PLF	182 PLF	0 PLF	0 PLF	0 PLF	ROOF
	Self Weight				12 PLF					

End

End Grain

Grain 2 - SPF 3.500"

#### 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive
- 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

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

Manufacturer Info

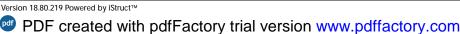
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2994 / 2048

5042 I

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







Client: SEGC

Address:

Project:

LEWIS RESIDENCE

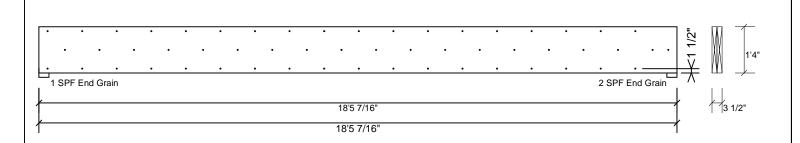
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 2 of 2

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

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 245.6 PLF Yield Limit per Foot 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

LVL beams must not be cut or drilled
 Refer to manufacturer's product information regarding installation requirements, multi-ply fastering 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

For flat roofs provide proper drainage to prevent ponding

This design is valid until 10/18/2021

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

Manufacturer Info







Address:

Project:

LEWIS RESIDENCE

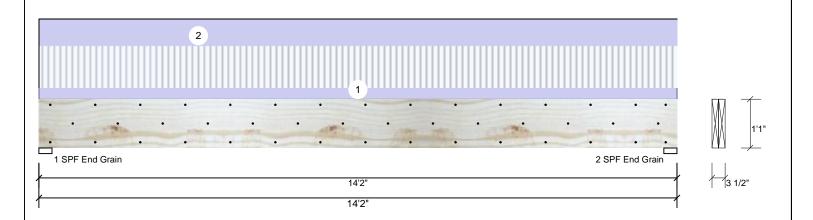
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 2

#### 1.750" X 13.000" 2-Ply - PASSED **Kerto-S LVL**

Level: Level



2

Floor Type: Girder Application: ASD Plies: 2 Design Method: Moisture Condition: Dry **Building Code: IBC/IRC 2015** Deflection LL: 480 Load Sharing: No Deflection TL: 240 Deck: Not Checked Importance: Normal Temperature: Temp <= 100°F Analysis Results

Reactio	ons Unipat II	EKINED ID (I	Jpiirt)		
Brg	Live	Dead	Snow	Wind	Const
1	2805	2473	0	0	0
2	2805	2473	0	0	0

#### Bearings Ld. Comb. Bearing Length Cap. React D/L lb Total Ld. Case 1 - SPF 3.500" 50% 2473 / 2805 5278 L D+L End Grain 2 - SPF 3.500" 50% 2473 / 2805 5278 I D+I End Grain

Member Information

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	17503 ft-lb	7'1"	23540 ft-lb	0.744 (74%)	D+L	L
Unbraced	17503 ft-lb	7'1"	17534 ft-lb	0.998 (100%)	D+L	L
Shear	4300 lb	1'3 3/4"	9707 lb	0.443 (44%)	D+L	L
LL Defl inch	0.269 (L/611)	7'1 1/16"	0.343 (L/480)	0.790 (79%)	L	L
TL Defl inch	0.506 (L/325)	7'1 1/16"	0.685 (L/240)	0.740 (74%)	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 laterally braced at a maximum of 4'11 1/4" o.c.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on single ply width.

/ Lateral Sterius	erriess ratio based ori sirigle	piy widiii.									
ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments	
1	Uniform			Тор	99 PLF	396 PLF	0 PLF	0 PLF	0 PLF	16F01	
2	Uniform			Тор	240 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL & GE	
	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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

## 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

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

For flat roofs provide proper drainage to prevent ponding

This design is valid until 10/18/2021

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Manufacturer Info







Client: SEGC

Project:

LEWIS RESIDENCE

Date: 12/4/2018

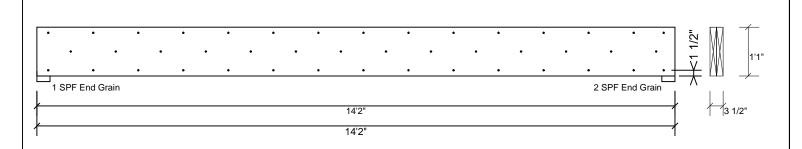
Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 2 of 2

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

Address:

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 245.6 PLF Yield Limit per Foot 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

## Handling & Installation

LVL beams must not be cut or drilled
 Refer to manufacturer's product information regarding installation requirements, multi-ply fastering 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

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Manufacturer Info

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Project: Address:

LEWIS RESIDENCE

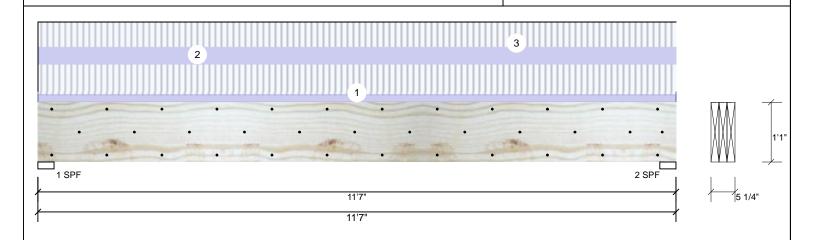
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 2

#### 1.750" X 13.000" 3-Ply - PASSED **Kerto-S LVL**

Level: Level



Member Inform	ation			Reactions	S UNPATT	ERNED Ib	(Uplift)		
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const
Plies:	3	Design Method:	ASD	1	3284	1605	0	0	0
Moisture Condition	: Dry	Building Code:	IBC/IRC 2015	2	3284	1605	0	0	0
Deflection LL:	480	Load Sharing:	Yes						
Deflection TL:	240	Deck:	Not Checked						
Importance:	Normal								
Temperature:	Temp <= 100°F								
				Bearings					
				Bearing	Length	Cap. Re	act D/L lb	Total Ld. Ca	se Ld. Comb.
				1 - SPF	3.500"	63% 1	605 / 3284	4889 L	D+L
				2 - SPF	3.500"	63% 1	605 / 3284	4889 L	D+L

## Analysis Results

Analys	is	Actual	Location	Allowed	Capacity	Comb.	Case
Mome	nt	13060 ft-lb	5'9 1/2"	36723 ft-lb	0.356 (36%)	D+L	L
Unbra	ced	13060 ft-lb	5'9 1/2"	13912 ft-lb	0.939 (94%)	D+L	L
Shear		3781 lb	1'3 3/4"	14560 lb	0.260 (26%)	D+L	L
LL Def	l inch	0.116 (L/1146)	5'9 1/2"	0.278 (L/480)	0.420 (42%)	L	L
TL Def	l inch	0.173 (L/770)	5'9 1/2"	0.556 (L/240)	0.310 (31%)	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
- 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.

/ Lateral Sterio	Lateral sienderness 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			Тор	79 PLF	315 PLF	0 PLF	0 PLF	0 PLF	FLOOR
2	Uniform			Тор	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
3	Uniform			Тор	63 PLF	252 PLF	0 PLF	0 PLF	0 PLF	2FLOOR
	Self Weight				15 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

## 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

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Manufacturer Info





Client: SEGC

Project: LEWIS RESIDENCE Date: 12/4/2018 Designer: Bob Lewis

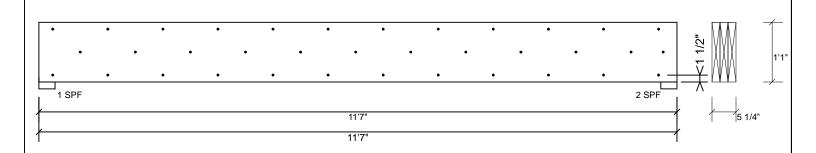
Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 2 of 2

1.750" X 13.000" **Kerto-S LVL** 3-Ply - PASSED

Address:

Level: Level



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 245.6 PLF Yield Limit per Foot 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# 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

For flat roofs provide proper drainage to prevent ponding

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Manufacturer Info

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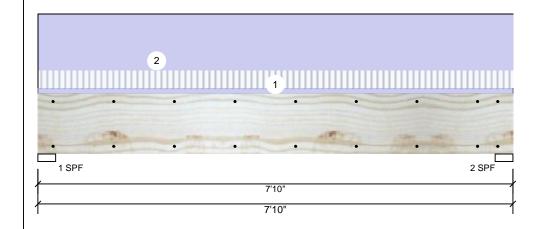


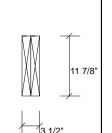
Project: LEWIS RESIDENCE Date: 12/4/2018 Designer: Bob Lewis

Job Name: j1118-5039 BEAMS Project #: J0118-5309

#### 1.750" X 11.875" 2-Ply - PASSED **Kerto-S LVL**

Level: Level





Page 1 of 2

Member Information Reactions UNPATTERNED Ib (Uplift)										
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	,	Wind	Const
Plies:	2	Design Method:	ASD	1	157	545	0		0	0
Moisture Condition	n: Dry	Building Code:	IBC/IRC 2015	2	157	545	0		0	0
Deflection LL:	480	Load Sharing:	No							
Deflection TL:	240	Deck:	Not Checked							
Importance:	Normal									
Temperature:	Temp <= 100°F									
				Bearings						
				Bearing	Length	Cap. Rea	ct D/L lb	Total	Ld. Case	Ld. Comb.
				1 - SPF	3.500"	13%	545 / 157	702	L	D+L

2 - SPF 3.500"

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	1219 ft-lb	3'11"	19911 ft-lb	0.061 (6%)	D+L	L
Unbraced	1219 ft-lb	3'11"	11636 ft-lb	0.105 (10%)	D+L	L
Shear	484 lb	6'7 3/8"	8867 lb	0.055 (5%)	D+L	L
LL Defl inch	0.003 (L/25435)	3'11 1/16"	0.184 (L/480)	0.020 (2%)	L	L
TL Defl inch	0.016 (L/5676)	3'11 1/16"	0.369 (L/240)	0.040 (4%)	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

1 Lateral Siena	sinces ratio basea on single	pry wiatri.									
ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments	
1	Uniform		1-0-0	Тор	10 PSF	40 PSF	0 PSF	0 PSF	0 PSF		
2	Uniform			Тор	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF		
	Calf Mainh				0.01.5						

#### 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

## 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

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Manufacturer Info

545 / 157

13%

702 L

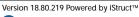
D+L

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This design is valid until 10/18/2021

6. For flat roofs provide proper drainage to prevent ponding





Client: SEGC

Address:

Project:

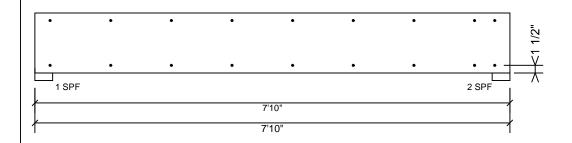
LEWIS RESIDENCE

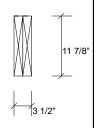
Date: 12/4/2018 Designer: Bob Lewis

Job Name: j1118-5039 BEAMS Project #: J0118-5309

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

Level: Level





Page 2 of 2

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 163.7 PLF Yield Limit per Foot 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

## Handling & Installation

Handling & Installation

1. UVI beams must not be out 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

For flat roofs provide proper drainage to prevent ponding

This design is valid until 10/18/2021

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Manufacturer Info





Project:

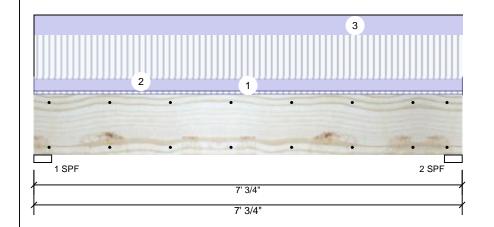
LEWIS RESIDENCE

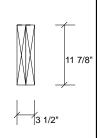
Date: 12/4/2018 Designer:

Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

#### 1.750" X 11.875" 2-Ply - PASSED **Kerto-S LVL**

Level: Level





Page 1 of 2

Member Inform	nation			Reaction	Reactions UNPATTERNED Ib (Uplift)						
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const		
Plies:	2	Design Method:	ASD	1	2204	1512	0	0	0		
Moisture Conditio	n: Dry	Building Code:	IBC/IRC 2015	2	2204	1512	0	0	0		
Deflection LL:	480	Load Sharing:	No								
Deflection TL:	240	Deck:	Not Checked								
Importance:	Normal										
Temperature:	Temp <= 100°F										
				Bearings							
				Bearing	Length	Cap. Read	t D/L lb	Total Ld. Case	Ld. Comb.		
				1 - SPF	3.500"	71% 151	2 / 2204	3716 L	D+L		
				2 - SPF	3.500"	71% 151	2 / 2204	3716 L	D+L		

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	5737 ft-lb	3'6 3/8"	19911 ft-lb	0.288 (29%)	D+L	L
Unbraced	5737 ft-lb	3'6 3/8"	12628 ft-lb	0.454 (45%)	D+L	L
Shear	2433 lb	5'10 1/8"	8867 lb	0.274 (27%)	D+L	L
LL Defl inch	0.037 (L/2155)	3'6 3/8"	0.165 (L/480)	0.220 (22%)	L	L
TL Defl inch	0.062 (L/1278)	3'6 3/8"	0.330 (L/240)	0.190 (19%)	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
- 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.

1 Lateral Sieriu	erriess ratio based on single									
ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform		1-0-0	Тор	10 PSF	40 PSF	0 PSF	0 PSF	0 PSF	
2	Uniform			Тор	146 PLF	584 PLF	0 PLF	0 PLF	0 PLF	18F02
3	Uniform			Тор	263 PLF	0 PLF	0 PLF	0 PLF	0 PLF	18F08
	Self Weight				9 PLF					

#### Notes

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

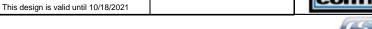
- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive
- Handling & Installation
- LVL beams must not be cut or drilled
  Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, 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

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Manufacturer Info

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Client: SEGC

Project:

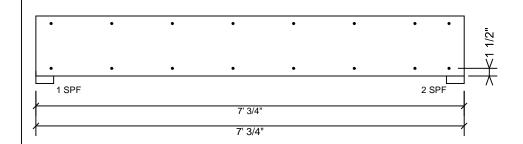
LEWIS RESIDENCE

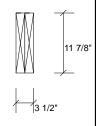
Date: 12/4/2018 Designer:

Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

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

Level: Level





Page 2 of 2

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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

- Handling & Installation

  1. UVI beams must not be out 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

This design is valid until 10/18/2021

For flat roofs provide proper drainage to prevent ponding

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

Manufacturer Info







Project: LEWIS RESIDENCE

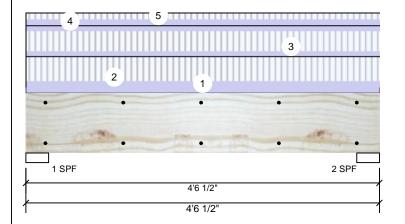
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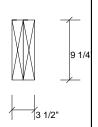
Date: 12/4/2018 Designer: Bob Lewis

Job Name: j1118-5039 BEAMS Project #: J0118-5309

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

Level: Level





Page 1 of 2

Member Inform	mation			Reaction	Reactions UNPATTERNED lb (Uplift)							
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const			
Plies:	2	Design Method:	ASD	1	2228	1304	0	0	0			
Moisture Condition	on: Dry	Building Code:	IBC/IRC 2015	2	2228	1304	0	0	0			
Deflection LL:	480	Load Sharing:	No									
Deflection TL:	240	Deck:	Not Checked									
Importance:	Normal											
Temperature:	Temp <= 100°F											
				Bearing	S							
				Bearing	g Length	Cap. React D	/L lb ¯	Total Ld. Case	Ld. Comb.			
				1 - SPF	3.500"	68% 1304 / 3	2228	3532 L	D+L			
				2_SPE	3.500"	68% 1304 /	2228	3532 I	D+I			

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	3241 ft-lb	2'3 1/4"	12542 ft-lb	0.258 (26%)	D+L	L
Unbraced	3241 ft-lb	2'3 1/4"	11428 ft-lb	0.284 (28%)	D+L	L
Shear	1976 lb	1'	6907 lb	0.286 (29%)	D+L	L
LL Defl inch	0.021 (L/2383)	2'3 5/16"	0.102 (L/480)	0.200 (20%)	L	L
TL Defl inch	0.033 (L/1503)	2'3 5/16"	0.204 (L/240)	0.160 (16%)	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
- 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.

1 Lateral dione										
ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Тор	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
2	Uniform			Тор	119 PLF	475 PLF	0 PLF	0 PLF	0 PLF	1FLOOR
3	Uniform			Тор	102 PLF	388 PLF	0 PLF	0 PLF	0 PLF	2FLOOR
4	Uniform			Тор	108 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
5	Uniform			Тор	118 PLF	118 PLF	0 PLF	0 PLF	0 PLF	ROOF
	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.

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

## 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 10/18/2021

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

Manufacturer Info





Client: SEGC

Project:

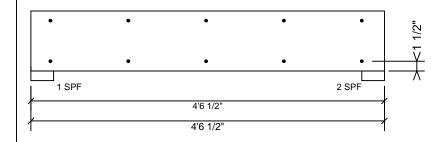
LEWIS RESIDENCE

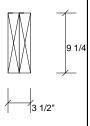
Date: 12/4/2018 Designer: Bob Lewis

Job Name: j1118-5039 BEAMS Project #: J0118-5309

**Kerto-S LVL** 1.750" X 9.250"

2-Ply - PASSED Level: Level





Page 2 of 2

## 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

- Handling & Installation

  1. UVI beams must not be out 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

For flat roofs provide proper drainage to prevent ponding

This design is valid until 10/18/2021

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

Manufacturer Info





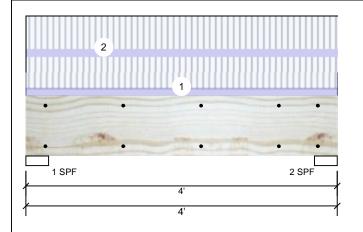


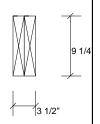
Project: LEWIS RESIDENCE Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

#### 1.750" X 9.250" 2-Ply - PASSED **Kerto-S LVL**

Level: Level





Page 1 of 2

Member Inforn	mation			Reactio	ns UNPATT	ERNED Ib (L	Jplift)			
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const	
Plies:	2	Design Method:	ASD	1	2048	492	0	0	0	
Moisture Condition	on: Dry	Building Code:	IBC/IRC 2015	2	2048	492	0	0	0	
Deflection LL:	480	Load Sharing:	No							
Deflection TL:	240	Deck:	Not Checked							
Importance:	Normal									
Temperature:	Temp <= 100°F									
				Bearing	IS					
				Bearing	g Length	Cap. Read	t D/L lb	Total Ld.	Case Ld. Comb	0.
				1 - SPF	3.500"	49% 49	2 / 2048	2540 L	D+L	
				2_SPF	3 500"	49% 49	2 / 2048	2540 I	D+I	

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	1992 ft-lb	2'	12542 ft-lb	0.159 (16%)	D+L	L
Unbraced	1992 ft-lb	2'	11708 ft-lb	0.170 (17%)	D+L	L
Shear	1270 lb	1'	6907 lb	0.184 (18%)	D+L	L
LL Defl inch	0.014 (L/3133)	2' 1/16"	0.089 (L/480)	0.150 (15%)	L	L
TL Defl inch	0.017 (L/2526)	2' 1/16"	0.177 (L/240)	0.100 (10%)	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
- 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			Тор	118 PLF	499 PLF	0 PLF	0 PLF	0 PLF	18F08	
2	Uniform			Тор	121 PLF	525 PLF	0 PLF	0 PLF	0 PLF	18F12	
	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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive
- 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

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

Manufacturer Info

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



Client: SEGC

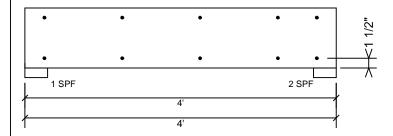
Project: LEWIS RESIDENCE Address:

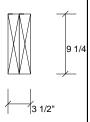
Date: 12/4/2018 Designer: Bob Lewis

Job Name: j1118-5039 BEAMS Project #: J0118-5309

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

Level: Level





Page 2 of 2

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 163.7 PLF Yield Limit per Foot 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

- Handling & Installation

  1. UVI beams must not be out 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

For flat roofs provide proper drainage to prevent ponding

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

Manufacturer Info

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



Client: SEGC

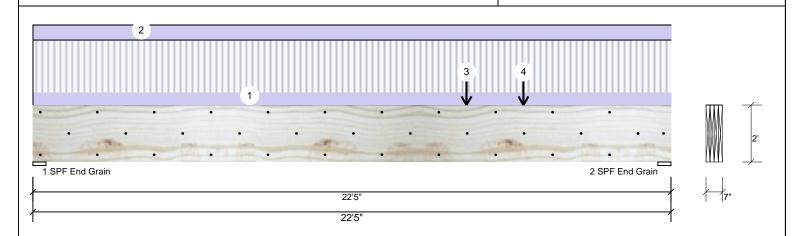
Project: LEWIS RESIDENCE Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 2

**Kerto-S LVL** 1.750" X 24.000" 4-Ply - PASSED **2MDB-1** 

Level: Level



Member Inforr	nation						Reaction	s UNPATT	ERNED	lb (Uplift)			
Type:	Girder		Application	on:	Floor		Brg	Live	Dea	d Snow		Wind	Const
Plies:	4		Design N	/lethod:	ASD		1	8393	676	0 0		0	0
Moisture Condition	n: Dry		Building	Code:	IBC/IRC 2015		2	14605	1297	2 0		0	0
Deflection LL:	480		Load Sha	aring:	Yes								
Deflection TL:	240		Deck:		Not Checked								
Importance:	Normal												
Temperature:	Temp <= 1	100°F											
							Bearings						
							Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
							1 - SPF End	5.500"	45%	6760 / 8393	15153	L	D+L
Analysis Result	:S						Grain						
Analysis A	ctual	Location	Allowed	Capacity	Comb.	Case	2 - SPF	5.500"	82%	12972 / 14605	27577	L	D+L
Moment 1	51674 ft-lb	15'2 13/16"	152226 ft-lb	0.996 (100%)	D+L	L	End Grain						
Unbraced 1	51674 ft-lb	15'2 13/16"	151701 ft-lb	1.000	D+L	L							

# TL Defl inch Design Notes

Shear

1 Fasten all plies using 3 rows of 1/2" Hex Bolts at 24" o.c. Maximum end distance not to exceed 12"

20' 3/8" 35840 lb

12'3 5/8" 0.541 (L/480) 0.760 (76%) L

12'4 9/16" 1.082 (L/240) 0.720 (72%) D+L

(100%)

0.727 (73%) D+L

- 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.

26069 lb

0.774 (L/335)

LL Defl inch 0.412 (L/630)

- 5 Top must be laterally braced at a maximum of 1 7/8" o.c.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on single ply width

, Latora di di	siriodo ratio badoa dir dirigio	pry wiatri.								
ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Тор	98 PLF	389 PLF	0 PLF	0 PLF	0 PLF	floor
2	Uniform			Тор	108 PLF	0 PLF	0 PLF	0 PLF	0 PLF	wall
3	Point	15-2-13		Тор	9404 lb	9404 lb	0 lb	0 lb	0 lb	agr02
4	Point	17-2-13		Тор	4874 lb	4874 lb	0 lb	0 lb	0 lb	agr01
	Self Weight				37 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.

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

# 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 10/18/2021

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

Manufacturer Info





Client: SEGC

Project:

LEWIS RESIDENCE

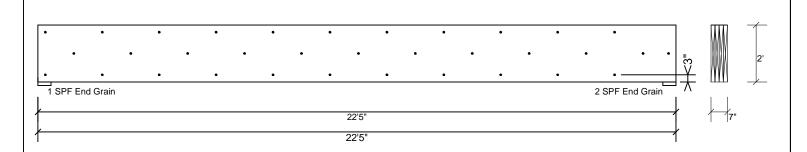
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 2 of 2

4-Ply - PASSED **2MDB-1 Kerto-S LVL** 1.750" X 24.000"

Level: Level



## Multi-Ply Analysis

Fasten all plies using 3 rows of 1/2" Hex Bolts at 24" o.c.. Maximum end distance not to exceed 12"

Capacity	0.0 %	
Load	0.0 PLF	
Yield Limit per Foot	326.2 PLF	
Yield Limit per Fastener	217.5 lb.	
Yield Mode	II	
Edge Distance	3"	
Min. End Distance	3 1/8"	
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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

- Handling & Installation

  1. UVI beams must not be out 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

For flat roofs provide proper drainage to prevent ponding

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

Manufacturer Info





Project: LEWIS

Address:

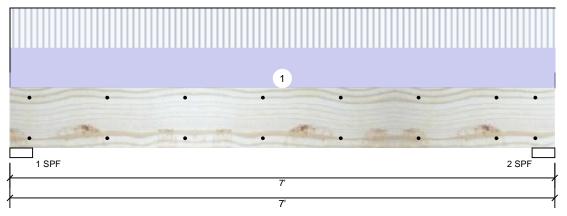
LEWIS RESIDENCE

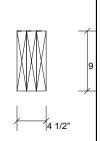
Date: 12/4/2018
Designer: Bob Lewis

Designer: Bob Lewis
Job Name: j1118-5039 BEAMS
Project #: J0118-5309

3) 2X10 SP #2 2.000" X 10.000" 3-Ply - PASSED

Level: Level





Page 1 of 2

Member Inforn	nation			Reactions UNPATTERNED Ib (Uplift)							
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const		
Plies:	3	Design Method:	ASD	1	1075	1075	0	0	0		
Moisture Condition	n: Dry	Building Code:	IBC/IRC 2015	2	1075	1075	0	0	0		
Deflection LL:	480	Load Sharing:	Yes								
Deflection TL:	240	Deck:	Not Checked								
Importance:	Normal										
Temperature:	Temp <= 100°F										
				Bearing	S						
				Bearing	Length	Cap. Read	ct D/L lb	Total Ld. Case	Ld. Comb.		
				1 - SPF	3.500"	32% 107	75 / 1075	2149 L	D+L		
				2 - SPF	3.500"	32% 107	75 / 1075	2149 L	D+L		

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	3284 ft-lb	3'6"	4920 ft-lb	0.668 (67%)	D+L	L
Unbraced	3284 ft-lb	3'6"	4527 ft-lb	0.726 (73%)	D+L	L
Shear	1535 lb	1'	4856 lb	0.316 (32%)	D+L	L
LL Defl inch	0.030 (L/2579)	3'6"	0.164 (L/480)	0.190 (19%)	L	L
TL Defl inch	0.061 (L/1289)	3'6"	0.327 (L/240)	0.190 (19%)	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".
- ${\bf 2} \ \ {\bf Refer} \ to \ last \ page \ of \ calculations \ for \ fasteners \ required \ for \ specified \ loads.$
- $\ensuremath{\mathtt{3}}$  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

/ Latera	i siendemess ratio based on sir	igie piy wiatri.								
ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments

	<b>71</b>							
1	Uniform	Тор	307 PLF	307 PLF	0 PLF	0 PLF	0 PLF	WORSE CASE SCENERIO

Manufacturer Info

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



Client: SEGC Date: 12/4/2018 Page 2 of 2 isDesign™ Project: LEWIS RESIDENCE Designer: Bob Lewis Address: Job Name: j1118-5039 BEAMS Project #: J0118-5309 (3) 2X10 2.000" X 10.000" 3-Ply - PASSED Level: Level SP #2 1 SPF 2 SPF 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" 0.0 % Capacity Load 0.0 PLF Yield Limit per Foot 202.6 PLF Yield Limit per Fastener 101.3 lb. Yield Mode IV Edge Distance 1 1/2" Min. End Distance 3" Load Combination 1.00 Duration Factor Comtech, Inc. 1001 S. Reilly Road, Suite #639 Fayetteville, NC USA 28314 910-864-TRUS Manufacturer Info This design is valid until 10/18/2021

Client: SEGC

Address:

Project:

LEWIS RESIDENCE

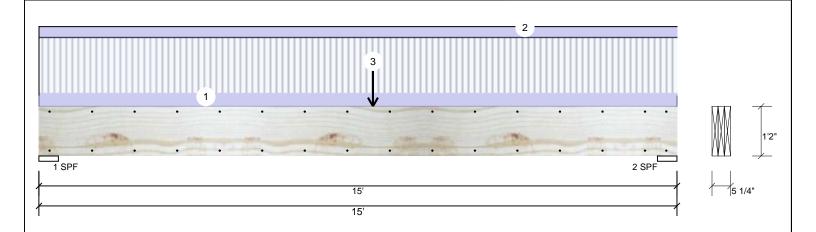
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 2

1.750" X 14.000" 3-Ply - PASSED **Kerto-S LVL** 

Level: Level



Member Informa	ation			Reactions UNPATTERNED lb (Uplift)							
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const		
Plies:	3	Design Method:	ASD	1	4110	2299	0	0	0		
Moisture Condition	: Dry	Building Code:	IBC/IRC 2015	2	4110	2335	0	0	0		
Deflection LL:	480	Load Sharing:	Yes								
Deflection TL:	240	Deck:	Not Checked								
Importance:	Normal										
Temperature:	Temp <= 100°F										
				Bearings							
				Bearing	Length	Cap. Rea	ct D/L lb	Total Ld. Case	Ld. Comb.		
				1 - SPF	5.500"	52% 22	99 / 4110	6409 L	D+L		
				2 - SPF	5.500"	53% 23	35 / 4110	6445 L	D+L		

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	22902 ft-lb	7'10 1/4"	42119 ft-lb	0.544 (54%)	D+L	L
Unbraced	22902 ft-lb	7'10 1/4"	22934 ft-lb	0.999 (100%)	D+L	L
Shear	5180 lb	13'5 1/4"	15680 lb	0.330 (33%)	D+L	L
LL Defl inch	0.231 (L/738)	7'6 1/16"	0.355 (L/480)	0.650 (65%)	L	L
TL Defl inch	0.375 (L/454)	7'6 1/2"	0.710 (L/240)	0.530 (53%)	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 laterally braced at a maximum of 6'7 1/8" o.c.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on single ply width.

		- 9 - 1 7									
ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments	
1	Uniform			Тор	137 PLF	548 PLF	0 PLF	0 PLF	0 PLF	2FLOOR	
2	Uniform			Тор	108 PLF	0 PLF	0 PLF	0 PLF	0 PLF	2WALL	
3	Point	7-10-4		Тор	714 lb	0 lb	0 lb	0 lb	0 lb	2F16	
	Self Weight				16 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

- L. UVL 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

This design is valid until 10/18/2021

6. For flat roofs provide proper drainage to prevent ponding

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Manufacturer Info





Client: SEGC

Project: LEWIS RESIDENCE Address:

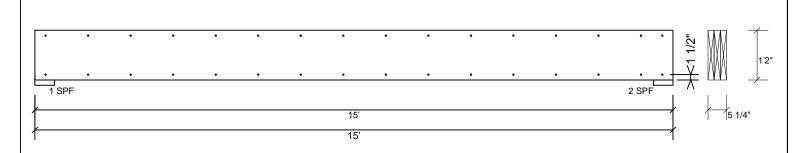
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 2 of 2

1.750" X 14.000" **Kerto-S LVL** 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 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

- I. 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 10/18/2021

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Manufacturer Info

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



Version 18.80.219 Powered by iStruct™

Client: SEGC

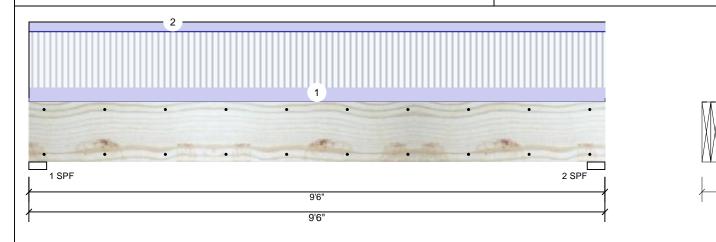
Project: LEWIS RESIDENCE Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 2

#### 1.750" X 11.875" 3-Ply - PASSED **Kerto-S LVL**

Level: Level



Member Inforr	nation			Reactio	ns UNPATT	ERNED Ib (	Uplift)		
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const
Plies:	3	Design Method:	ASD	1	3050	1339	0	0	0
Moisture Condition	on: Dry	Building Code:	IBC/IRC 2015	2	3050	1339	0	0	0
Deflection LL:	480	Load Sharing:	Yes						
Deflection TL:	240	Deck:	Not Checked						
Importance:	Normal								
Temperature:	Temp <= 100°F								
				Bearing	gs				
1				Bearin	g Length	Cap. Rea	ct D/L lb	Total Ld. Cas	e Ld. Comb.

1 - SPF 3.500"

2 - SPF 3.500"

56%

56%

1339 / 3050

1339 / 3050

4388 L

4388 L

D+L

D+L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	9441 ft-lb	4'9"	31060 ft-lb	0.304 (30%)	D+L	L
Unbraced	9441 ft-lb	4'9"	15100 ft-lb	0.625 (63%)	D+L	L
Shear	3262 lb	1'2 5/8"	13300 lb	0.245 (25%)	D+L	L
LL Defl inch	0.078 (L/1391)	4'9"	0.226 (L/480)	0.350 (35%)	L	L
TL Defl inch	0.112 (L/967)	4'9"	0.452 (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
- 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			Тор	160 PLF	642 PLF	0 PLF	0 PLF	0 PLF	2F
2	Uniform			Тор	108 PLF	0 PLF	0 PLF	0 PLF	0 PLF	2WALL
	Self Weight				14 PLF					

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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

- 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

Handling & Installation

- 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

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This design is valid until 10/18/2021

Manufacturer Info



Client: SEGC

Project: LEWIS RESIDENCE Address:

Date: 12/4/2018

Project #:

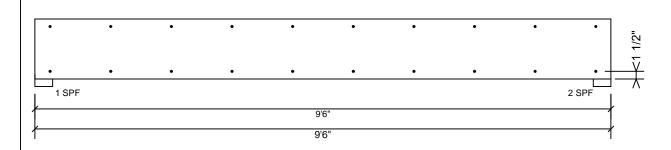
Designer: Bob Lewis Job Name: j1118-5039 BEAMS J0118-5309

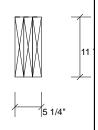
**Kerto-S LVL** 

1.750" X 11.875"

3-Ply - PASSED

Level: Level





Page 2 of 2

## 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	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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

- Handling & Installation

  1. UVI beams must not be out 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

For flat roofs provide proper drainage to prevent ponding

This design is valid until 10/18/2021

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Address:

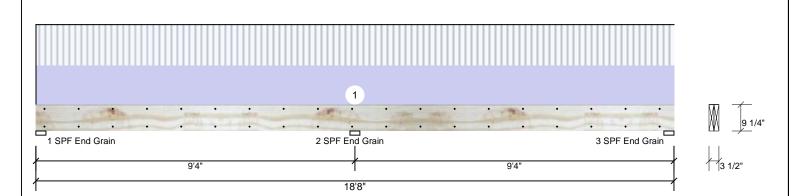
Project: LEWIS RESIDENCE Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 2

#### 2-Ply - PASSED **Kerto-S LVL** 1.750" X 9.250"

Level: Level



Member Inform	nation			Reaction	ns UNPATT	ERNED Ib (l	Jplift)		
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const
Plies:	2	Design Method:	ASD	1	1373	1400	0	0	0
Moisture Condition	n: Dry	Building Code:	IBC/IRC 2015	2	4217	4298	0	0	0
Deflection LL:	480	Load Sharing:	No	3	1373	1400	0	0	0
Deflection TL:	240	Deck:	Not Checked						
Importance:	Normal								
Temperature:	Temp <= 100°F								
				Bearings	5				
				Bearing	Length	Cap. Rea	ct D/L lb	Total Ld. Case	Ld. Comb.
				1 - SPF End	3.500"	28% 138	35 / 1571	2956 L_	D+L

4	Analysis Resu	ılts					
Ī	Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
	Neg Moment	-7804 ft-lb	9'4"	12542 ft-lb	0.622 (62%)	D+L	LL
	Unbraced	-7804 ft-lb	9'4"	12150 ft-lb	0.642 (64%)	D+L	LL
	Pos Moment	5144 ft-lb	3'11 1/8"	12542 ft-lb	0.410 (41%)	D+L	L_
	Unbraced	5144 ft-lb	3'11 1/8"	8989 ft-lb	0.572 (57%)	D+L	L_
	Shear	3705 lb	8'6 3/4"	6907 lb	0.536 (54%)	D+L	LL
	LL Defl inch	0.103 (L/1064)	4'6 13/16"	0.228 (L/480)	0.450 (45%)	L	L_
	TL Defl inch	0.171 (L/637)	4'4 15/16"	0.455 (L/240)	0.380 (38%)	D+L	L_

#### Grain 2 - SPF 3.500" 80% 4327 / 4245 8572 LL D+I End Grain 3 - SPF 3.500" 28% 1385 / 1571 2956 \_L D+L End Grain

## **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			Тор	373 PLF	373 PLF	0 PLF	0 PLF	0 PLF	roof	
	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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive
- 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

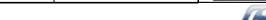
6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 10/18/2021

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Manufacturer Info





Client: SEGC

Project:

LEWIS RESIDENCE Address:

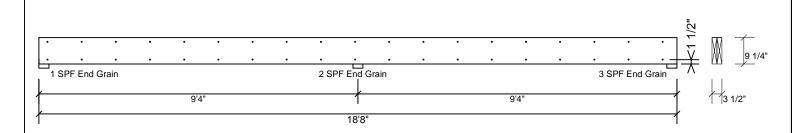
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 2 of 2

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

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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

- Handling & Installation

  1. UVI beams must not be out 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
- This design is valid until 10/18/2021

Manufacturer Info 6. For flat roofs provide proper drainage to prevent ponding

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Address:

Project:

LEWIS RESIDENCE

Date: 12/4/2018

Grain

End

Grain

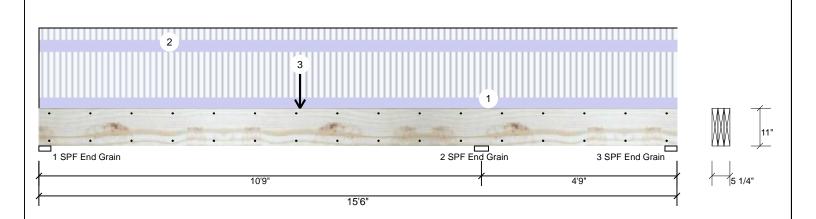
3 - SPF 3.500"

Bob Lewis Designer: Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 3

**Kerto-S LVL** 1.750" X 11.000" 3-Ply - PASSED

Level: Level



Member Infor	mation					Reaction	s UNPATT	TERNED Ib (I	Jplift)
Type:	Girder		Application:	Floor		Brg	Live	Dead	Sno
Plies:	3		Design Method:	ASD		1	4799	2372	
Moisture Condit	ion: Dry		Building Code:	IBC/IRC 2015		2	11084	5875	
Deflection LL:	480		Load Sharing:	Yes		3	377	(-209)	
Deflection TL:	240		Deck:	Not Checked		"		( === )	
Importance:	Normal								
Temperature:	Temp <=	100°F							
						Bearings	5		
						Bearing	Length	Cap. Rea	ct D/L lb
						1 - SPF End	3.500"	45% 232	24 / 4794
Analysis Resul	lts					Grain			
Analysis	Actual	Location	Allowed Capa	city Comb.	Case	2 - SPF End	4.125"	92% 603	2 / 11355
NI NA 4	47044 H	4.01011	000E0 # Ib 0 040	(C40/) D.I	1.1	LIIU			

1	4799	2372	2 0		0	0
2	11084	5875	5 0		0	0
3	377	(-209	) 0		0	0
Bearings						
Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	45%	2324 / 4794	7118	L_	D+L

-319 / 2433

13%

Snow

Wind

17387 II

2115 \_L

(-2324)

Const

D+I

D+L

Neg Moment -17314 ft-lb 10'9" 26959 ft-lb 0.642 (64%) D+L LL -17314 ft-lb 10'9" 22382 ft-lb 0.774 (77%) D+L LL Unbraced Pos Moment 15458 ft-lb 4'9 1/2" 26959 ft-lb 0.573 (57%) D+L 0.998 Unbraced 15458 ft-lb 4'9 1/2" 15489 ft-lb D+L L (100%)8836 lb 9'10" 12320 lb 0.717 (72%) D+L Shear LL Defl inch 0.182 (L/693) 5'1 9/16" 0.263 (L/480) 0.690 (69%) L TL Defl inch 0.287 (L/440) 5'2 3/8" 0.526 (L/240) 0.550 (55%) D+L

Desian	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 Tie-down connection required at bearing 3 for uplift 2324 lb (Combination D+L, Load Case L\_).
- 6 Top must be laterally braced at a maximum of 7'11 1/4" o.c.
- 7 Bottom braced at bearings.
- 8 Lateral slenderness ratio based on single ply width.

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.

Notes

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

## Handling & Installation

- LVL beams must not be cut or drilled

  Refer to manufacturer's product information regarding installation requirements, multi-ply regarding installation requirements, multi-ply fastening details, beam strength values, and code
- 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
- 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

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Client: SEGC

Project: LEWIS RESIDENCE

Address:

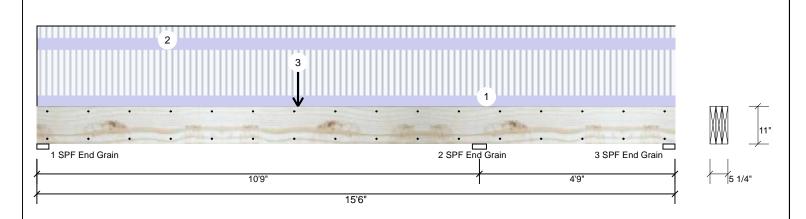
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 2 of 3

1.750" X 11.000" 3-Ply - PASSED **Kerto-S LVL** 

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			Тор	209 PLF	834 PLF	0 PLF	0 PLF	0 PLF	2FLOOR
2	Uniform			Тор	215 PLF	215 PLF	0 PLF	0 PLF	0 PLF	ROOF
3	Point	6-4-2		Тор	1267 lb	0 lb	0 lb	0 lb	0 lb	2F16
	Self Weight				13 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

- Handling & Installation

  1. IVI 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

For flat roofs provide proper drainage to prevent ponding

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Manufacturer Info

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Client: SEGC

Address:

Project:

LEWIS RESIDENCE

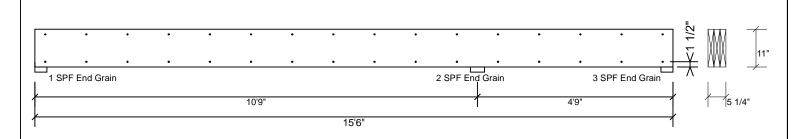
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 3 of 3

1.750" X 11.000" 3-Ply - PASSED **Kerto-S LVL** 

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	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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

- Handling & Installation

  1. UVI beams must not be out 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 10/18/2021

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Manufacturer Info





Project:

LEWIS RESIDENCE Address:

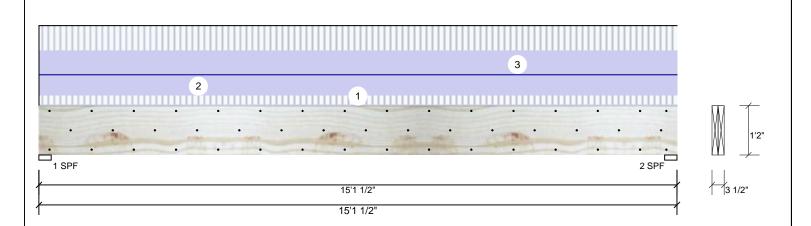
Date: 12/4/2018

Bob Lewis Designer: Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 2

#### 2-Ply - PASSED **Kerto-S LVL** 1.750" X 14.000"

Level: Level



Member Inforn	nation			Reaction	ns UNPATT	ERNED Ib (L	Jplift)		
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const
Plies:	2	Design Method:	ASD	1	1218	1890	0	0	0
Moisture Conditio	n: Dry	Building Code:	IBC/IRC 2015	2	1218	1890	0	0	0
Deflection LL:	480	Load Sharing:	No						
Deflection TL:	240	Deck:	Not Checked						
Importance:	Normal								
Temperature:	Temp <= 100°F								
				Bearing	S				
				Bearing	g Length	Cap. Read	ct D/L lb	Total Ld. Case	Ld. Comb.
				1 - SPF	3.500"	60% 189	0 / 1218	3107 L	D+L
				2 - SPF	3.500"	60% 189	0 / 1218	3107 L	D+L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	11048 ft-lb	7'6 3/4"	26999 ft-lb	0.409 (41%)	D+L	L
Unbraced	11048 ft-lb	7'6 3/4"	11056 ft-lb	0.999 (100%)	D+L	L
Shear	2534 lb	1'4 3/4"	10453 lb	0.242 (24%)	D+L	L
LL Defl inch	0.115 (L/1532)	7'6 13/16"	0.367 (L/480)	0.310 (31%)	Ĺ	L
TL Defl inch	0.293 (L/600)	7'6 13/16"	0.733 (L/240)	0.400 (40%)	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 laterally braced at a maximum of 9'7 7/8" 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		1-0-0	Тор	10 PSF	40 PSF	0 PSF	0 PSF	0 PSF	
2	Uniform			Тор	108 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
3	Uniform			Тор	121 PLF	121 PLF	0 PLF	0 PLF	0 PLF	ROOF
	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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive
- 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 10/18/2021

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

Manufacturer Info





Client: SEGC

Project: LEWIS RESIDENCE Address:

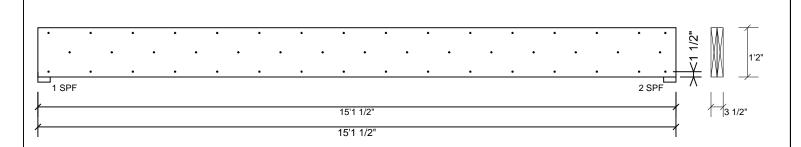
Date: 12/4/2018 Designer: Bob Lewis

Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 2 of 2

2-Ply - PASSED **Kerto-S LVL** 1.750" X 14.000"

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 245.6 PLF Yield Limit per Foot 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

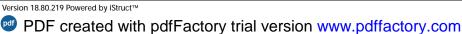
- LVL beams must not be cut or drilled
   Refer to manufacturer's product information regarding installation requirements, multi-ply fastering details, beam strength values, and code approvals
- approvals
  Damaged Beams must not be used
  Design assumes top edge is laterally restrained
  Provide lateral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

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

Manufacturer Info

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









Project: Address:

LEWIS RESIDENCE

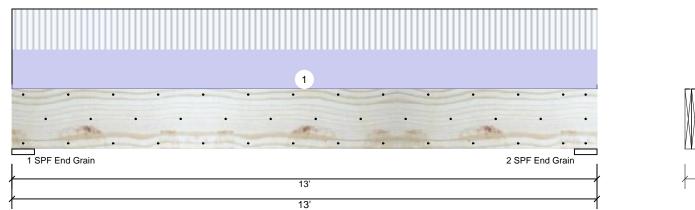
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 2

#### 1.750" X 16.000" 3-Ply - PASSED **Kerto-S LVL**

Level: Level



'			13				l			
Member In	formation			Reactio	ns UNPATT	ERNED Ib (I	Jplift)			
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const	
Plies:	3	Design Method:	ASD	1	2587	2708	0	0	0	
Moisture Co	ndition: Dry	Building Code:	IBC/IRC 2015	2	2587	2708	0	0	0	
Deflection LI	.: 360	Load Sharing:	Yes							
Deflection TI	.: 240	Deck:	Not Checked							

# Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	15023 ft-lb	6'6"	53922 ft-lb	0.279 (28%)	D+L	L
Unbraced	15023 ft-lb	6'6"	15540 ft-lb	0.967 (97%)	D+L	L
Shear	3861 lb	1'9 1/8"	17920 lb	0.215 (22%)	D+L	L
LL Defl inch	0.064 (L/2262)	6'6"	0.405 (L/360)	0.160 (16%)	L	L
TL Defl inch	0.132 (L/1105)	6'6"	0.607 (L/240)	0.220 (22%)	D+L	L

## **Design Notes**

Importance:

Temperature:

- 1 Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not
- 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.

Normal Temp <= 100°F

- 5 Top braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on single ply width.

Bearings						
Bearing	Length	Сар.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	6.000"	19%	2708 / 2587	5295	L	D+L
2 - SPF End Grain	6.000"	19%	2708 / 2587	5295	L	D+L

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Тор	398 PLF	398 PLF	0 PLF	0 PLF	0 PLF	ROOF
	Self Weight				19 PLF					

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.

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

# 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

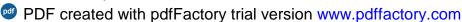
This design is valid until 10/18/2021

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Manufacturer Info









Client: SEGC

Project:

LEWIS RESIDENCE

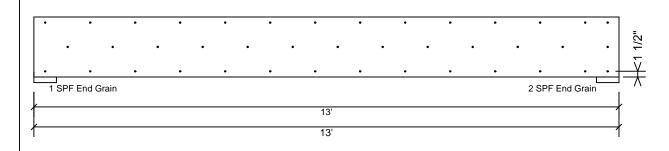
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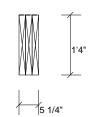
Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

1.750" X 16.000" 3-Ply - PASSED **Kerto-S LVL** 

Address:

Level: Level





Page 2 of 2

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 245.6 PLF Yield Limit per Foot 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# 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
- For flat roofs provide proper drainage to prevent ponding

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



This design is valid until 10/18/2021

Manufacturer Info





Project:

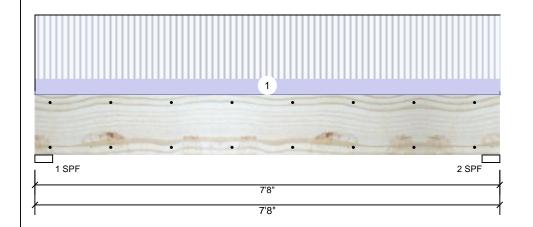
LEWIS RESIDENCE

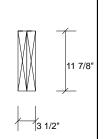
Date: 12/4/2018 Designer: Bob Lewis

Job Name: j1118-5039 BEAMS Project #: J0118-5309

#### 1.750" X 11.875" 2-Ply - PASSED **Kerto-S LVL**

Level: Level





Page 1 of 2

Member Inforr	mation			Reaction	ns UNPATT	ERNED Ib (l	Jplift)		
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const
Plies:	2	Design Method:	ASD	1	1602	438	0	0	0
Moisture Condition	on: Dry	Building Code:	IBC/IRC 2015	2	1602	438	0	0	0
Deflection LL:	480	Load Sharing:	No						
Deflection TL:	240	Deck:	Not Checked						
Importance:	Normal								
Temperature:	Temp <= 100°F								
				Bearing	S				
				Bearing	g Length	Cap. Rea	ct D/L lb	Total Ld. Case	Ld. Comb.
				1 - SPF	3.500"	39% 43	38 / 1602	2040 L	D+L
				2 - SPF	3.500"	39% 43	38 / 1602	2040 L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	3457 ft-lb	3'10"	19911 ft-lb	0.174 (17%)	D+L	L
Unbraced	3457 ft-lb	3'10"	11820 ft-lb	0.292 (29%)	D+L	L
Shear	1392 lb	1'2 5/8"	8867 lb	0.157 (16%)	D+L	L
LL Defl inch	0.034 (L/2581)	3'10 1/16"	0.180 (L/480)	0.190 (19%)	L	L
TL Defl inch	0.043 (L/2027)	3'10 1/16"	0.360 (L/240)	0.120 (12%)	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
- 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			Тор	105 PLF	418 PLF	0 PLF	0 PLF	0 PLF	
	Self Weight				9 PLF					

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.

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

## 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 10/18/2021

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Manufacturer Info





Client: SEGC

Project:

LEWIS RESIDENCE Address:

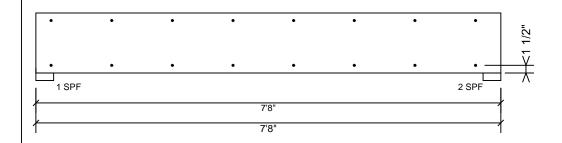
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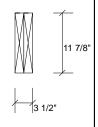
Project #:

Designer: Bob Lewis Job Name: j1118-5039 BEAMS J0118-5309

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

Level: Level





Page 2 of 2

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 163.7 PLF Yield Limit per Foot 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

- Handling & Installation

  1. UVI beams must not be out 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

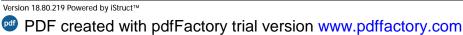
For flat roofs provide proper drainage to prevent ponding

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

Manufacturer Info

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









Project:

Address:

LEWIS RESIDENCE

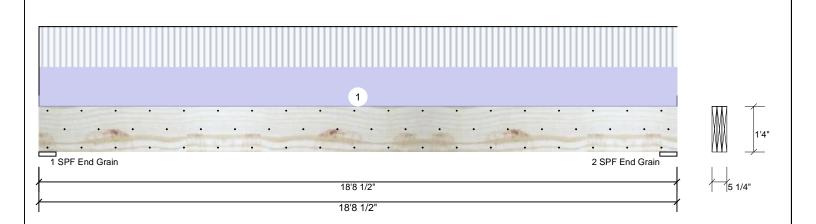
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 2

3-Ply - PASSED **Kerto-S LVL** 1.750" X 16.000"

Level: Level



Member Info	ormation						Reaction	s UNPATT	ERNED	lb (Uplift)			
Type:	Girder		Applicat	ion: F	loor		Brg	Live	Dead	l Snow		Wind	i
Plies:	3		Design I	Method: A	ASD		1	3985	4159	0		0	
Moisture Cond	lition: Dry		Building	Code: I	BC/IRC 20	15	2	3985	4159	0		0	
Deflection LL:	480		Load Sh	aring:	⁄es								
Deflection TL:	240		Deck:	1	Not Checke	ed							
Importance:	Normal												
Temperature:	Temp <= 1	100°F											
							Bearings						
							Bearing	Length	Cap.	React D/L lb	Total	Ld. Cas	<u></u>
							1 - SPF End	6.000"	30%	4159 / 3985	8144	L	
Analysis Resu	ults						Grain						
Analysis	Actual	Location	Allowed	Capacity	Comb.	Case		6.000"	30%	4159 / 3985	8144	L	
Moment	34693 ft-lb	9'4 1/4"	53922 ft-lb	0.643 (64%	6) D+L	L	End Grain						
Unbraced	34693 ft-lb	9'4 1/4"	34868 ft-lb	0.995 (99%	6) D+L	L	- Crain						

0.369 (37%) D+L

## Design Notes

Shear

1 Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not

9'4 5/16" 0.446 (L/480) 0.660 (66%) L

9'4 5/16" 0.893 (L/240) 0.680 (68%) D+L

1'9 1/8" 17920 lb

- $\,2\,$  Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at a maximum of 4'9 3/4" o.c.
- 6 Bottom braced at bearings.

6612 lb

LL Defl inch 0.295 (L/726)

TL Defl inch 0.603 (L/355)

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			Тор	426 PLF	426 PLF	0 PLF	0 PLF	0 PLF	A01-A03
	Self Weight				19 PLF					

L

L

#### 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive
- 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

For flat roofs provide proper drainage to prevent ponding

This design is valid until 10/18/2021

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Manufacturer Info

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Const

0 0

Ld. Comb.

D+L

D+I





Client: SEGC

Address:

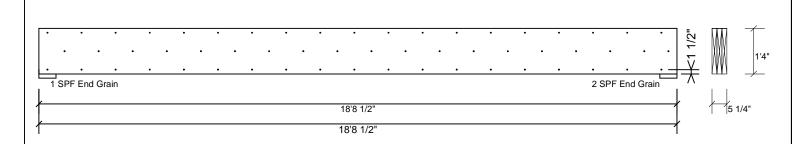
Project: LEWIS RESIDENCE Date: 12/4/2018 Designer: Bob Lewis

Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 2 of 2

3-Ply - PASSED **Kerto-S LVL** 1.750" X 16.000"

Level: Level



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

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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

- LVL beams must not be cut or drilled
   Refer to manufacturer's product information regarding installation requirements, multi-ply fastering 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

For flat roofs provide proper drainage to prevent ponding

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Manufacturer Info

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Client: SEGC

Address:

Project:

LEWIS RESIDENCE

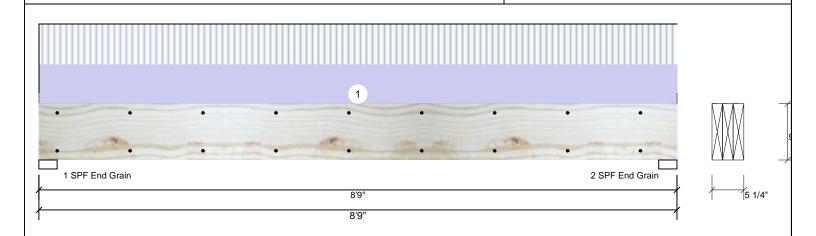
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 1 of 2

#### 3-Ply - PASSED **Kerto-S LVL** 1.750" X 9.250"

Level: Level



Member Inforr	mation			Reactio	ns UNPATT	ERNED Ib (	Uplift)			
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const	
Plies:	3	Design Method:	ASD	1	1387	1434	0	0	0	
Moisture Condition	on: Dry	Building Code:	IBC/IRC 2015	2	1387	1434	0	0	0	
Deflection LL:	480	Load Sharing:	Yes							
Deflection TL:	240	Deck:	Not Checked							
Importance:	Normal									
Temperature:	Temp <= 100°F									
				Bearing	gs					

Analysis Results
------------------

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	5653 ft-lb	4'4 1/2"	19565 ft-lb	0.289 (29%)	D+L	L
Unbraced	5653 ft-lb	4'4 1/2"	12544 ft-lb	0.451 (45%)	D+L	L
Shear	2203 lb	7'9 1/2"	10360 lb	0.213 (21%)	D+L	L
LL Defl inch	0.057 (L/1755)	4'4 9/16"	0.209 (L/480)	0.270 (27%)	L	L
TL Defl inch	0.116 (L/863)	4'4 9/16"	0.419 (L/240)	0.280 (28%)	D+L	L

2 - SPF 3.000"

End Grain

Cap. React D/L lb Total Ld. Case Ld. Comb. Bearing Length 1 - SPF 3.000" 21% 1434 / 1387 2821 L D+L End Grain

2821 L

D+I

1434 / 1387

21%

# **Design Notes**

- 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.

1 Fasten all plies using 2 rows of 10d Box halls (.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.	

ID Location Trib Width Side Dead 0.9 Live 1 Snow 1.15 Wind 1.6 Const. 1.25 Load Type

#### Comments Uniform Тор 317 PLF 317 PLF 0 PLF 0 PLF 0 PLF ROOF 1 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.

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

## 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 10/18/2021

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

Manufacturer Info





Client: SEGC

Address:

Project:

LEWIS RESIDENCE

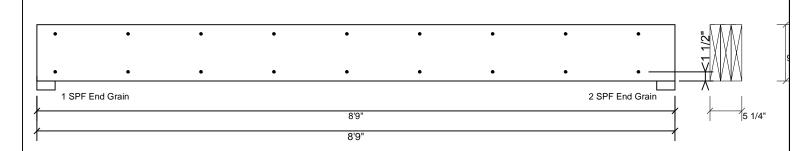
Date: 12/4/2018

Designer: Bob Lewis Job Name: j1118-5039 BEAMS Project #: J0118-5309

Page 2 of 2

3-Ply - PASSED **Kerto-S LVL** 1.750" X 9.250"

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 163.7 PLF Yield Limit per Foot 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.

- Dry service conditions, unless noted otherwise
   LVL not to be treated with fire retardant or corrosive

# Handling & Installation

LVL beams must not be cut or drilled
 Refer to manufacturer's product information regarding installation requirements, multi-ply fastering 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

For flat roofs provide proper drainage to prevent ponding

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Manufacturer Info

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