

Project:

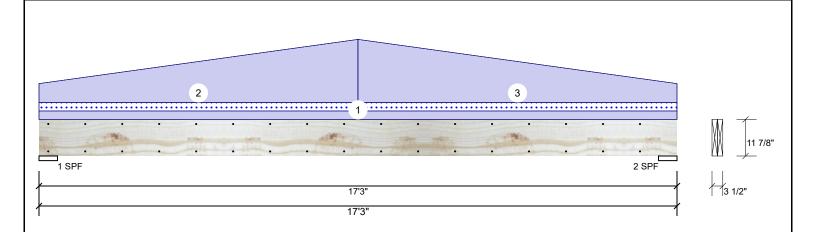
Address: **Harnett County**  Date: 7/9/2020

Input by: Hampton Horrocks Job Name: Lot 41 Oak Haven Project #: J0720-3079

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**Kerto-S LVL** 1.750" X 11.875" 2-Ply - PASSED GDH<sub>1</sub>

Level: Level



Member Infor	mation		Reactio	Reactions UNPATTERNED lb (Uplift)						
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	d	Const
Plies:	2	Design Method:	ASD	1	0	1093	173		0	0
Moisture Condition	n: Dry	Building Code:	IBC/IRC 2015	2	0	1093	173		0	0
Deflection LL:	480	Load Sharing:	No							
Deflection TL:	360	Deck:	Not Checked							
Importance:	Normal									
Temperature:	Temp <= 100°F									
				Bearing	js –					
				Bearing	Length	Cap. Rea	ct D/L lb	Total Ld.	Case	Ld. Comb.
				1 - SPF	6.000"	14% 1	093 / 173	1266 L		D+S
				2 905	6 000"	1/1% 1	003 / 173	1266 I		D+S

### **Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	4894 ft-lb	8'7 1/2"	17919 ft-lb	0.273 (27%)	D	Uniform
Unbraced	5564 ft-lb	8'7 1/2"	6086 ft-lb	0.914 (91%)	D+S	L
Shear	975 lb	15'9 7/8"	7980 lb	0.122 (12%)	D	Uniform
LL Defl inch	0.035 (L/5617)	8'7 9/16"	0.409 (L/480)	0.090 (9%)	S	L
TL Defl inch	0.286 (L/687)	8'7 9/16"	0.546 (L/360)	0.520 (52%)	D+S	L

## **Design Notes**

- 1 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top 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	20 PLF	0 PLF	20 PLF	0 PLF	0 PLF	roof
2	Tapered Start	0-0-0		Тор	45 PLF	0 PLF	0 PLF	0 PLF	0 PLF	wall
	End	8-7-8			150 PLF	0 PLF	0 PLF	0 PLF	0 PLF	
3	Tapered Start	8-7-8		Тор	150 PLF	0 PLF	0 PLF	0 PLF	0 PLF	wall
	End	17-3-0			45 PLF	0 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
- IARIGUING & INSTALLATION

  LVL beams must not be cut or drilled

  Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beams trength 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

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



This design is valid until 11/13/2022 CSD DESIGN isDesign

Client:

Project: Address: Watermark Homes

**Harnett County** 

Date: 7/9/2020

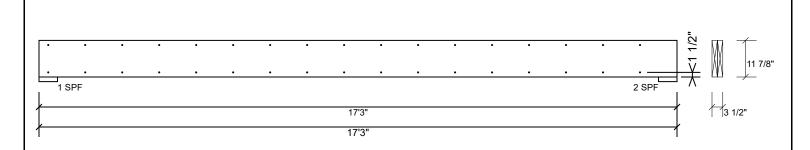
Input by: Hampton Horrocks Job Name: Lot 41 Oak Haven

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Project #: J0720-3079

**Kerto-S LVL** 2-Ply - PASSED GDH<sub>1</sub> 1.750" X 11.875"

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

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 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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Client:

Project: Address:

Watermark Homes

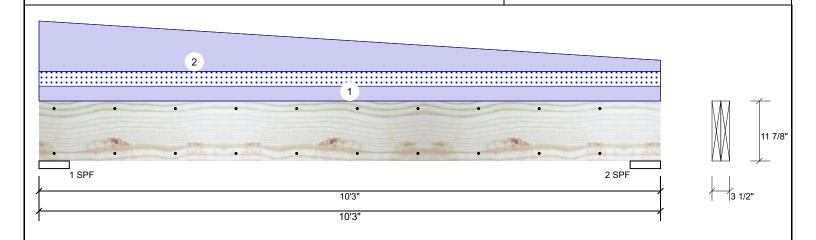
**Harnett County** 

Date: 7/9/2020

Input by: Hampton Horrocks Job Name: Lot 41 Oak Haven Project #: J0720-3079

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

Level: Level



Member Infor	mation			Reactio	Reactions UNPATTERNED lb (Uplift)					
Туре:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const	
Plies:	2	Design Method:	ASD	1	0	411	103	0	0	
Moisture Conditio	n: Dry	Building Code:	IBC/IRC 2015	2	0	314	103	0	0	
Deflection LL:	480	Load Sharing:	No							
Deflection TL:	360	Deck:	Not Checked							
Importance:	Normal									
Temperature:	Temp <= 100°F									
				Bearing	js					
				Bearing	Length	Cap. Rea	ct D/L lb	Total Ld. Cas	e Ld. Comb.	
				1 - SPF	6.000"	6%	411 / 103	514 L	D+S	
				2 - SPF	6.000"	5%	314 / 103	416 L	D+S	

## **Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	999 ft-lb	4'11"	22897 ft-lb	0.044 (4%)	D+S	L
Unbraced	999 ft-lb	4'11"	9857 ft-lb	0.101 (10%)	D+S	L
Shear	278 lb	1'5 1/8"	7980 lb	0.035 (3%)	D	Uniform
LL Defl inch	0.004 (L/26994)	5'1 1/2"	0.234 (L/480)	0.020 (2%)	S	L
TL Defl inch	0.019 (L/5948)	5' 11/16"	0.312 (L/360)	0.060 (6%)	D+S	L

## **Design Notes**

- 1 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top 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	20 PLF	0 PLF	20 PLF	0 PLF	0 PLF	roof
2	Tapered Start	0-0-0		Тор	68 PLF	0 PLF	0 PLF	0 PLF	0 PLF	wall
	End	10-3-0			15 PLF	0 PLF	0 PLF	0 PLF	0 PLF	
	Self Weight				9 PLF					

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

  I. VIL 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

  Design assumes top edge is laterally restrained is 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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isDesign

GDH<sub>2</sub>

**Kerto-S LVL** 

Client:

Project: Address:

Watermark Homes

**Harnett County** 

Date: 7/9/2020

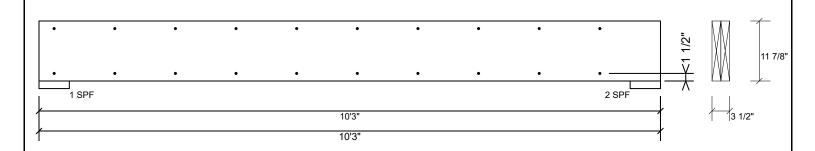
Input by: Hampton Horrocks Job Name: Lot 41 Oak Haven

J0720-3079

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Project #: 2-Ply - PASSED 1.750" X 11.875"

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

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 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

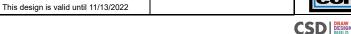
For flat roofs provide proper drainage to prevent ponding

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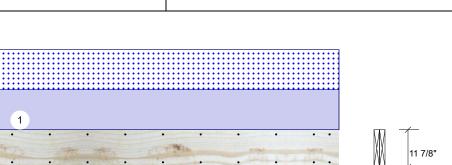
Project:

Address: Harnett County Date: 7/9/2020

Input by: Hampton Horrocks Job Name: Lot 41 Oak Haven Project #: J0720-3079

evel: Level

Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED BM<sub>1</sub>



16'11 16'11'

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## **Member Information**

1 SPF

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

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

Reactions UNPATTERNED Ib (Uplift) Brg Live Wind Dead Snow Const 0 1000 922 0 0 1 2 0 1000 922 0 0

2 SPF

# **Bearings**

Bearing Length Cap. React D/L lb Total Ld. Case Ld. Comb. 1-SPF 6.000" D+S 1000 / 922 1922 L 2 - SPF 6.000" 22% 1000 / 922 1922 L D+S

### **Analysis Results**

, j						
Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	7309 ft-lb	8'5 1/2"	22897 ft-lb	0.319 (32%)	D+S	L
Unbraced	7309 ft-lb	8'5 1/2"	7319 ft-lb	0.999 (100%)	D+S	L
Shear	1598 lb	1'5 1/8"	10197 lb	0.157 (16%)	D+S	L
LL Defl inch	0.176 (L/1094)	8'5 9/16"	0.401 (L/480)	0.440 (44%)	S	L
TL Defl inch	0.367 (L/525)	8'5 9/16"	0.535 (L/360)	0.690 (69%)	D+S	L

## **Design Notes**

- 1 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 2 Refer to last page of calculations for fasteners required for specified loads.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at a maximum of 13'5 5/8" 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			Тор	109 PLF	0 PLF	109 PLF	0 PLF	0 PLF	A3-6
	Self Weight				9 PLF					

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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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Project: Address:

**Harnett County** 

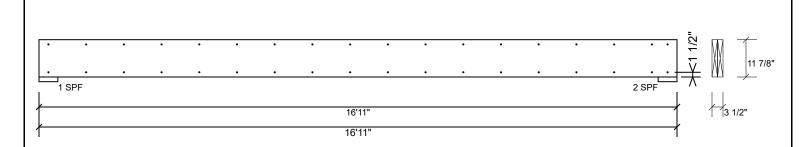
Date: 7/9/2020

Input by: Hampton Horrocks Job Name: Lot 41 Oak Haven Project #: J0720-3079

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1.750" X 11.875" **Kerto-S LVL** 2-Ply - PASSED BM1

evel: 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"

1 3		•	,
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

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 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

This design is valid until 11/13/2022

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CSD DESIGN



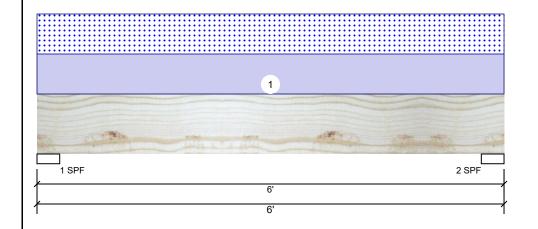
Project:

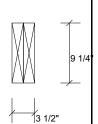
Address: Harnett County Date: 7/9/2020

Input by: Hampton Horrocks Job Name: Lot 41 Oak Haven Project #: J0720-3079

1.750" X 9.250" **Kerto-S LVL** 2-Ply - PASSED BM<sub>2</sub>

Level: Level





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### Member Information

Plies: 2 Moisture Condition: Dry Deflection LL: 480 Deflection TL: 240 Importance: Normal Temperature: Temp <= 100°F	Type:	Girder
Deflection LL: 480 Deflection TL: 240 Importance: Normal	Plies:	2
Deflection TL: 240 Importance: Normal	Moisture Condition:	Dry
Importance: Normal	Deflection LL:	480
mportanos. Itomai	Deflection TL:	240
Temperature: Temp <= 100°F	Importance:	Normal
	Temperature:	Temp <= 100°F

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

Reactions UNPATTERNED Ib (Uplift) Brg Live Dead Wind Const Snow 0 1405 1383 0 0 1 2 0 1405 1383 0 0

# **Bearings**

Bearing	Length	Cap. F	React D/L lb	Total	Ld. Case	Ld. Comb.	
1 - SPF	3.500"	54%	1405 / 1383	2788	L	D+S	
0 005	2 500"	E 40/	440E / 4202	2700	i	D.C	

### **Analysis Results**

•						
Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	3567 ft-lb	3'	14423 ft-lb	0.247 (25%)	D+S	L
Unbraced	3567 ft-lb	3'	11027 ft-lb	0.323 (32%)	D+S	L
Shear	1858 lb	5'	7943 lb	0.234 (23%)	D+S	L
LL Defl inch	0.027 (L/2419)	3'	0.139 (L/480)	0.200 (20%)	S	L
TL Defl inch	0.055 (L/1200)	3'	0.277 (L/240)	0.200 (20%)	D+S	L

## **Design Notes**

- 1 Girders are designed to be supported on the bottom edge only.
- 2 Multiple plies must be fastened together as per manufacturer's details.
- 3 Top loads must be supported equally by all plies.
- 4 Top braced at bearings.
- 5 Bottom braced at bearings.
- 6 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Тор	461 PLF	0 PLF	461 PLF	0 PLF	0 PLF	A10-A11
	Self Weight				7 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
- For flat roofs provide proper drainage to prevent ponding

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