

Blue Ash

Watermark Homes

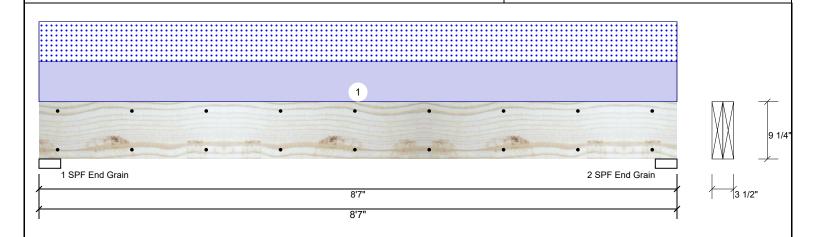
3/27/2023 Date:

David Landry Input by: Job Name: Lot 83 South Creek Project #: J0323-1298

Page 1 of 10

2-Ply - PASSED Kerto-S LVL 1.750" X 9.250" BM1

Level: Level



Member Information							
Туре:	Girder						
Plies:	2						
Moisture Condition:	Dry						
Deflection LL:	480						
Deflection TL:	360						
Importance:	Normal - II						
Temperature:	Temp <= 100°F						

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

Reactions UNPATTERNED Ib (Uplift)									
Brg	Direction	Live	Dead	Snow	Wind	Const			
1	Vertical	0	1340	1309	0	0			
2	Vertical	0	1340	1309	0	0			
	Brg 1	Brg Direction 1 Vertical	Brg Direction Live 1 Vertical 0	Brg Direction Live Dead 1 Vertical 0 1340	Brg Direction Live Dead Snow 1 Vertical 0 1340 1309	Brg Direction Live Dead Snow Wind 1 Vertical 0 1340 1309 0			

### Analysis Results Analysis Actual Location Allowed Comb. Case Capacity Moment 5093 ft-lb 4'3 1/2" 14423 ft-lb 0.353 (35%) D+S L Unbraced 5093 ft-lb 4'3 1/2" 8689 ft-lb 0.586 (59%) D+S L 1999 lb 7'6 1/4" 7943 lb 0.252 (25%) D+S Shear L LL Defl inch 0.074 (L/1322) 4'3 9/16" 0.203 (L/480) 0.363 (36%) S 4'3 9/16" 0.271 (L/360) 0.551 (55%) D+S TL Defl inch 0.149 (L/653) L

### Bearings Bearing Length Dir. Cap. React D/L lb Total Ld. Case Ld. Comb. 1-SPF 3.500" Vert 1340 / 1309 2649 L D+S End Grain 1340 / 1309 D+S 2 - SPF 3.500" Vert 26% 2649 L End Grain

### **Design Notes**

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 3 Refer to last page of calculations for fasteners required for specified loads.
- 4 Girders are designed to be supported on the bottom edge only.
- 5 Top loads must be supported equally by all plies.
- 6 Top must be laterally braced at end bearings.
- 7 Bottom must be laterally braced at end bearings.
- 8 Lateral slenderness ratio based on single ply width.

ID Trib Width Load Type Location Side Dead 0.9 Live 1 Snow 1.15 Wind 1.6 Const. 1.25 Comments Uniform 305 PLF 0 PI F 305 PLF 0 PLF 0 PLF A08 1 Top Self Weight 7 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
- 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 11/3/2024

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

**Manufacturer Info** 

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





isDesign

BM1

Client: Project: Address: Watermark Homes

Blue Ash

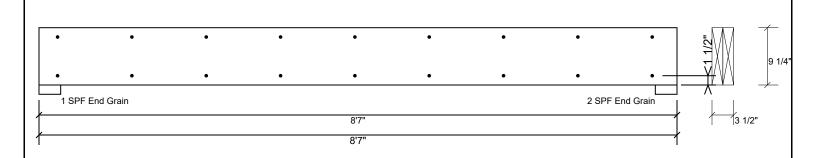
Date: 3/27/2023

Input by: David Landry Job Name: Lot 83 South Creek Project #: J0323-1298

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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

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 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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This design is valid until 11/3/2024 CSD DESIGN



Watermark Homes

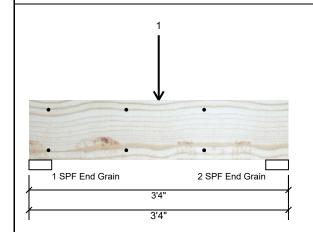
Blue Ash

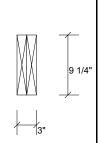
Date: 3/27/2023

Input by: David Landry Job Name: Lot 83 South Creek Project #: J0323-1298

2.000" X 10.000" 2-Ply - PASSED S-P-F #2

Level: Level





Ld. Comb.

D+S

D+S

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Туре:	Girder
Plies:	2
Moisture Condition:	Dry
Deflection LL:	480
Deflection TL:	360

Member Information

Importance: Normal - II Temp <= 100°F Temperature:

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

Reactions UNPATTERNED Ib (Uplift)								
Brg	Direction	Live	Dead	Snow	Wind	Const		
1	Vertical	0	522	522	0	0		
2	Vertical	0	522	522	0	0		

Cap. React D/L lb

23%

522 / 522

522 / 522

Total Ld. Case

1044 L

1044 L

### Analysis Results Case Analysis Actual Comb. Location Allowed Capacity Moment 1501 ft-lb 1'8" 3946 ft-lb 0.380 (38%) D+S L Unbraced 1501 ft-lb 1'8" 3834 ft-lb 0.391 (39%) D+S L 1044 lb 2'3 1/4" 2872 lb 0.363 (36%) D+S Shear L LL Defl inch 0.003 1'8" 0.072 (L/480) 0.045 (4%) S (L/10700) TL Defl inch 0.006 (L/5350) 1'8" 0.096 (L/360) 0.067 (7%) D+S

# Design Notes

ID

1

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support
- 2 F
- 4 Girders are designed to be supported on the bottom edge only.
- 5 Top loads must be supported equally by all plies. 6 Top must be laterally braced at end bearings.

Load Type

Point

- 7 Bottom must be laterally braced at end bearings.
- 8 Lateral slenderness ratio based on single ply width.

may also be required at the interior bearings by the building code.
Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance no
to exceed 6".
Refer to last page of calculations for fasteners required for specified loads

Location

1-8-0

Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
	Top	1044 lb	0 lb	1044 lb	0 lb	0 lb	A01-GR

Bearings Bearing Length

End Grain

End

Grain

1-SPF 3.500"

2 - SPF 3.500"

Dir.

Vert

Vert

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



This design is valid until 11/3/2024



Watermark Homes Blue Ash Date: 3/27/2023

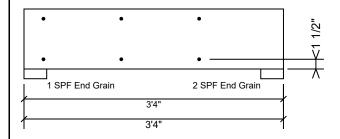
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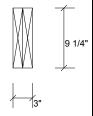
Job Name: Lot 83 South Creek

Project #: J0323-1298

BM2 S-P-F #2 2.000" X 10.000" 2-Ply - PASSED

Level: Level





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# Multi-Ply Analysis

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

1 3	,
Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	157.4 PLF
Yield Limit per Fastener	78.7 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Manufacturer Info

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





Watermark Homes

Blue Ash

Date: 3/27/2023

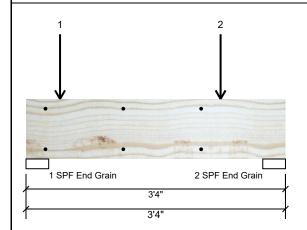
Input by: David Landry

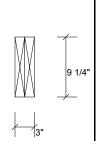
Job Name: Lot 83 South Creek

Project #: J0323-1298

BM3 S-P-F #2 2.000" X 10.000" 2-Ply - PASSED

Level: Level





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### **Member Information**

Type: Girder
Plies: 2
Moisture Condition: Dry
Deflection LL: 480
Deflection TL: 360
Importance: Normal - II

Application: Floor
Design Method: ASD
Building Code: IBC/IRC 2015

Load Sharing: No

Deck: Not Checked

# Reactions UNPATTERNED Ib (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	0	343	343	0	0
2	Vertical	0	1097	1097	0	0

### **Analysis Results**

Temperature:

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	1326 ft-lb	2'6"	3946 ft-lb	0.336 (34%)	D+S	L
Unbraced	1326 ft-lb	2'6"	3834 ft-lb	0.346 (35%)	D+S	L
Shear	1372 lb	2'3 1/4"	2872 lb	0.478 (48%)	D+S	L
LL Defl inch	0.003 (L/13169)	1'10 3/16"	0.072 (L/480)	0.036 (4%)	S	L
TL Defl inch	0.005 (L/6585)	1'10 3/16"	0.096 (L/360)	0.055 (5%)	D+S	L

# Bearings Length Dir

Bearing L	ength	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF 3 End Grain	3.500"	Vert	15%	343 / 343	686	L	D+S
2 - SPF 3 End Grain	3.500"	Vert	49%	1097 / 1097	2194	L	D+S

### **Design Notes**

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 3 Refer to last page of calculations for fasteners required for specified loads.
- 4 Girders are designed to be supported on the bottom edge only.
- 5 Top loads must be supported equally by all plies.

Temp <= 100°F

- 6 Top must be laterally braced at end bearings.
- $\, 7 \,$  Bottom must be laterally braced at end bearings.
- 8 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments	
1	Point	0-5-4		Тор	56 lb	0 lb	56 lb	0 lb	0 lb	YB1	
2	Point	2-6-0		Тор	1384 lb	0 lb	1384 lb	0 lb	0 lb	B1-GR	

Manufacturer Info

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



Watermark Homes Blue Ash

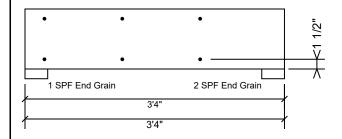
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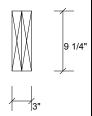
David Landry Job Name: Lot 83 South Creek

J0323-1298

2.000" X 10.000" 2-Ply - PASSED BM<sub>3</sub> S-P-F #2

Project #: Level: Level





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# Multi-Ply Analysis

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

	,
Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	157.4 PLF
Yield Limit per Fastener	78.7 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

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Watermark Homes

Blue Ash

Date: 3/27/2023

Input by: David Landry Job Name: Lot 83 South Creek Project #: J0323-1298

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Wind

0

0

Const

Ld. Comb. D+S

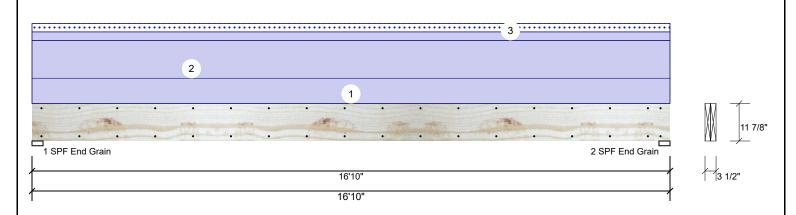
D+S

0

0

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

Level: Level



### Member Information Reactions UNPATTERNED Ib (Uplift) Application: Type: Floor Brg Direction Live Dead Snow Plies: 2 Design Method: ASD 0 1509 Vertical 168 1 Moisture Condition: Dry **Building Code: IBC/IRC 2015** 2 Vertical 0 1509 168 Deflection LL: 480 Load Sharing: No Deflection TL: 360 Deck: Not Checked Importance: Normal - II Temp <= 100°F Temperature: **Bearings** Bearing Length Dir. Cap. React D/L lb Total Ld. Case 1 - SPF 3.500" Vert 16% 1509 / 168 1677 I End

Analysis	Results
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•						
Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6008 ft-lb	8'5"	17919 ft-lb	0.335 (34%)	D	Uniform
Unbraced	6678 ft-lb	8'5"	6684 ft-lb	0.999 (100%)	D+S	L
Shear	1288 lb	1'3 3/8"	7980 lb	0.161 (16%)	D	Uniform
LL Defl inch	0.035 (L/5617)	8'5 1/16"	0.409 (L/480)	0.085 (9%)	S	L
TL Defl inch	0.348 (L/564)	8'5 1/16"	0.546 (L/360)	0.638 (64%)	D+S	L

### **Design Notes**

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 3 Refer to last page of calculations for fasteners required for specified loads.
- 4 Girders are designed to be supported on the bottom edge only.
- 5 Top loads must be supported equally by all plies.
- 6 Top must be laterally braced at a maximum of 14'10 7/16" o.c.
- 7 Bottom must be laterally braced at end bearings.
- 8 Lateral slenderness ratio based on single ply width

o Lateral significant and based on single pry 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	60 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall Above	
2	Uniform			Тор	90 PLF	0 PLF	0 PLF	0 PLF	0 PLF	C1GE	
3	Tie-In	0-0-0 to 16-10-0	1-0-0	Тор	20 PSF	0 PSF	20 PSF	0 PSF	0 PSF	Roof Load	
	Self Weight				9 PLF						ļ

Grain

End Grain

2 - SPF 3.500"

Vert

16%

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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
- 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 11/3/2024

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

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

1509 / 168

1677 L







Watermark Homes

Blue Ash

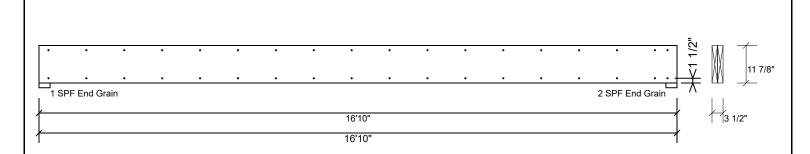
3/27/2023

Input by: David Landry Job Name: Lot 83 South Creek Project #: J0323-1298

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

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".

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 11/3/2024

301 Merritt 7 Building, 2nd Floor Norwalk, CT 06851

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Manufacturer Info Metsä Wood

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Watermark Homes

Blue Ash

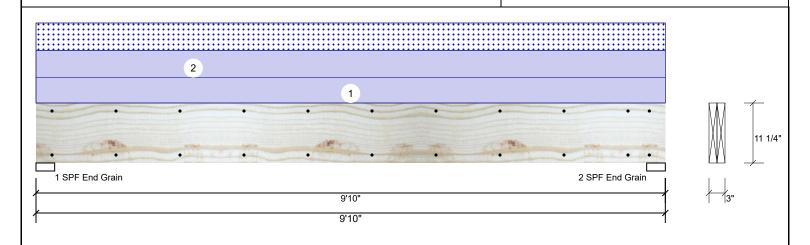
Date: 3/27/2023

Input by: David Landry Job Name: Lot 83 South Creek Project #: J0323-1298

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2.000" X 12.000" 2-Ply - PASSED GDH2 S-P-F #1

Level: Level



Member Info	Member Information			Rea	Reactions UNPATTERNED lb (Uplift)						
Туре:	Girder	Application:	Floor	Brg	Direction	Live	Dead	Snow	Wind	Const	
Plies:	2	Design Method:	ASD	1	Vertical	0	615	320	0	0	
Moisture Condi	tion: Dry	Building Code:	IBC/IRC 2015	2	Vertical	0	615	320	0	0	
Deflection LL:	480	Load Sharing:	No								
Deflection TL:	360	Deck:	Not Checked								
Importance:	Normal - II										
Temperature:	Temp <= 100°F										

**Bearings** Bearing Length

End Grain

End Grain

1-SPF 3.500"

2 - SPF 3.500"

Dir.

Vert

Vert

Cap. React D/L lb

615 / 320

615 / 320

21%

21%

Total Ld. Case

934 L

934 L

Ld. Comb.

D+S

D+S

# **Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2087 ft-lb	4'11"	5306 ft-lb	0.393 (39%)	D+S	L
Unbraced	2087 ft-lb	4'11"	3714 ft-lb	0.562 (56%)	D+S	L
Shear	701 lb	8'7 1/4"	3493 lb	0.201 (20%)	D+S	L
LL Defl inch	0.023 (L/4962)	4'11"	0.234 (L/480)	0.097 (10%)	S	L
TL Defl inch	0.066 (L/1698)	4'11"	0.312 (L/360)	0.212 (21%)	D+S	L

# **Design Notes**

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 3 Refer to last page of calculations for fasteners required for specified loads.
- 4 Girders are designed to be supported on the bottom edge only.
- 5 Top loads must be supported equally by all plies.
- 6 Top must be laterally braced at end bearings.
- 7 Bottom must be laterally braced at end bearings.
- 8 Lateral slenderness ratio based on single ply width.

o Lateral signatures 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	60 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall Above	
2	Uniform			Тор	65 PLF	0 PLF	65 PLF	0 PLF	0 PLF	XB2	

This design is valid until 11/3/2024

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

Client: Watermark Homes Date: 3/27/2023 Page 10 of 10 Project: Blue Ash Input by: David Landry isDesign Address: Job Name: Lot 83 South Creek Project #: J0323-1298 Level: Level 2.000" X 12.000" 2-Ply - PASSED GDH<sub>2</sub> S-P-F #1 2 SPF End Grain 1 SPF End Grain 9'10" 9'10' 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 PLF Load 157.4 PLF Yield Limit per Foot Yield Limit per Fastener 78.7 lb. Yield Mode IV Edge Distance 1 1/2" Min. End Distance 3" Load Combination Duration Factor 1.00

Manufacturer Info

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

CSD DESIGN