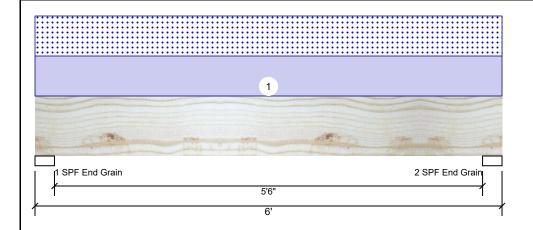
Client: Watermark Homes

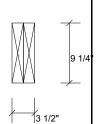
Project: Address: Date: 7/28/2020

Input by: Anthony Williams Job Name: Shasta Fir III Project #: J0720-3457

1.750" X 9.250" 2-Ply - PASSED **Kerto-S LVL** HDR1

Level: Level





Page 1 of 13

Member Information

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

Design Method: **Building Code:** Load Sharing: Deck:

Application:

ASD IBC 2012 No

Floor

Not Checked

Reactions UNPATTERNED Ib (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	1642	1620	0	0
2	0	1642	1620	0	0

Bearings

Grain

l	Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
ļ	1 - SPF End Grain	3.000"	36%	1642 / 1620	3262	L	D+S
	2 - SPF End	3.000"	36%	1642 / 1620	3262	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	4300 ft-lb	3'	14423 ft-lb	0.298 (30%)	D+S	L
Unbraced	4300 ft-lb	3'	10944 ft-lb	0.393 (39%)	D+S	L
Shear	2220 lb	5' 1/2"	7943 lb	0.279 (28%)	D+S	L
LL Defl inch	0.034 (L/1988)	3'	0.141 (L/480)	0.240 (24%)	S	L
TL Defl inch	0.068 (L/988)	3'	0.188 (L/360)	0.360 (36%)	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.

Self Weight

• =====================================										
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	540 PLF	0 PLF	540 PLF	0 PLF	0 PLF	A1

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 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



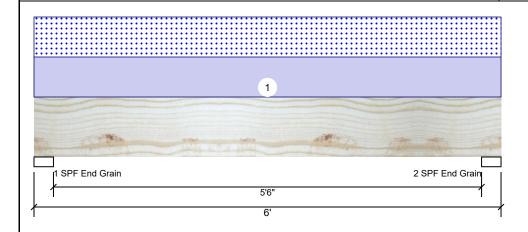
Client: Watermark Homes

Project: Address: Date: 7/28/2020

Input by: Anthony Williams Job Name: Shasta Fir III Project #: J0720-3457

1.750" X 9.250" 2-Ply - PASSED **Kerto-S LVL** HDR2

Level: Level



Application:

Design Method:

Building Code:

Load Sharing:

Deck:

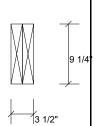
Floor

ASD

No

IBC 2012

Not Checked



Page 2 of 13

Member Information

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

Temperature: Temp <= 100°F

Reactions UNPATTERNED Ib (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	1300	1278	0	0
2	0	1300	1278	0	0

Bearings

Grain

Bearing Leng	gth Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF 3.00 End Grain	0" 28%	1300 / 1278	2578	L	D+S
2 - SPF 3.00	0" 28%	1300 / 1278	2578	L	D+S

Analysis Results

•						
Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	3398 ft-lb	3'	14423 ft-lb	0.236 (24%)	D+S	L
Unbraced	3398 ft-lb	3'	10944 ft-lb	0.310 (31%)	D+S	L
Shear	1754 lb	5' 1/2"	7943 lb	0.221 (22%)	D+S	L
LL Defl inch	0.027 (L/2521)	3'	0.141 (L/480)	0.190 (19%)	S	L
TL Defl inch	0.054 (L/1250)	3'	0.188 (L/360)	0.290 (29%)	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	426 PLF	0 PLF	426 PLF	0 PLF	0 PLF	A1

7 PLF Self Weight

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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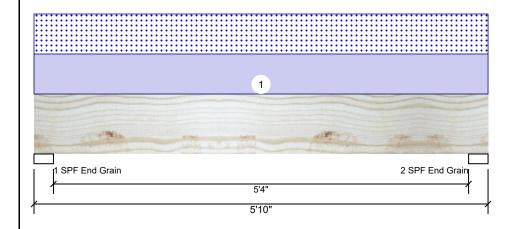
Client: Watermark Homes

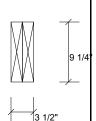
Project: Address: Date: 7/28/2020

Input by: Anthony Williams Job Name: Shasta Fir III Project #: J0720-3457

1.750" X 9.250" 2-Ply - PASSED **Kerto-S LVL** HDR3

Level: Level





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Member Information

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 2012 Load Sharing: No

Deck: Not Checked

Reactions UNPATTERNED Ib (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	1234	1213	0	0
2	0	1234	1213	0	0

Bearings

End Grain

Bearing Length Cap. React D/L lb Total Ld. Case Ld. Comb. 1-SPF 3.000" 1234 / 1213 2448 L End Grain 2 - SPF 3.000" 1234 / 1213 2448 L D+S

Analysis Results

•						
Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	3125 ft-lb	2'11"	14423 ft-lb	0.217 (22%)	D+S	L
Unbraced	3125 ft-lb	2'11"	11110 ft-lb	0.281 (28%)	D+S	L
Shear	1643 lb	11 1/2"	7943 lb	0.207 (21%)	D+S	L
LL Defl inch	0.024 (L/2786)	2'11"	0.136 (L/480)	0.170 (17%)	S	L
TL Defl inch	0.047 (L/1381)	2'11"	0.182 (L/360)	0.260 (26%)	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

		3 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	416 PLF	0 PLF	416 PLF	0 PLF	0 PLF	A3

7 PLF Self Weight

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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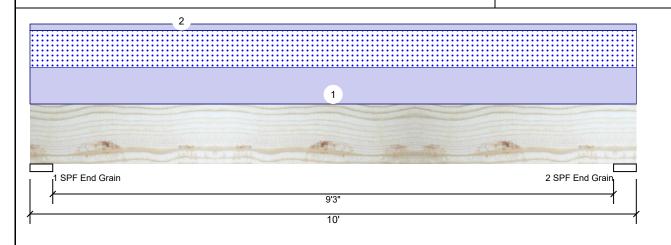
Client: Watermark Homes

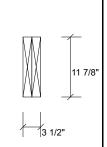
Project: Address: Date: 7/28/2020

Input by: Anthony Williams Shasta Fir III Project #: J0720-3457

1.750" X 11.875" 2-Ply - PASSED GDH-9 **Kerto-S LVL**

evel: Level





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Member Information

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 2012 Load Sharing: No Deck: Not Checked Reactions UNPATTERNED Ib (Uplift) Brg Live Dead Wind Const Snow 0 1711 1415 0 0 1 2 0 1711 1415 0 0

Analysis Res	Analysis Results									
Analysis	Actual	Location	Allowed	Capacity	Comb.	Case				
Moment	6869 ft-lb	5'	22897 ft-lb	0.300 (30%)	D+S	L				
Unbraced	6869 ft-lb	5'	9857 ft-lb	0.697 (70%)	D+S	L				
Shear	2312 lb	1'3 5/8"	10197 lb	0.227 (23%)	D+S	Ĺ				
LL Defl inch	0.059 (L/1908)	5'	0.234 (L/480)	0.250 (25%)	S	L				
TI Deflinch	0.130 (L/863)	5'	0.312 (L/360)	0.420 (42%)	D+S	L				

Bearings

Bearing Length Cap. React D/L lb Total Ld. Case Ld. Comb. 1-SPF 4.500" 1711 / 1415 3126 L D+S End Grain 2 - SPF 4.500" 1711 / 1415 3126 L D+S End Grain

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.

Self Weight

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	283 PLF	0 PLF	283 PLF	0 PLF	0 PLF	D1
2	Uniform			Тор	50 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL

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

9 PLF

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Manufacturer Info

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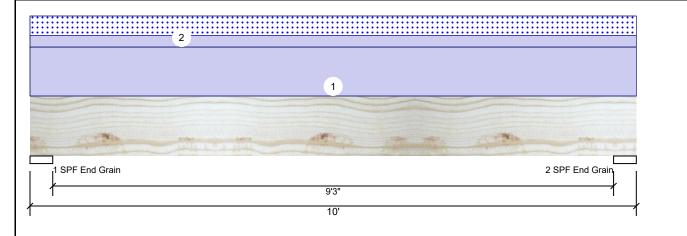
Client: Watermark Homes

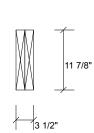
Project: Address: Date: 7/28/2020

Input by: Anthony Williams Shasta Fir III Project #: J0720-3457

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

Level: Level





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Member Informatio	intormation	ember	ľ
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Girder Type: Plies: 2 Moisture Condition: Dry Deflection LL: 480 Deflection TL: 360 Importance: Normal Temp <= 100°F Temperature:

Application: Floor Design Method: ASD **Building Code:** IBC 2012 Load Sharing: No Deck: Not Checked

Reactions UNPATTERNED Ib (Uplift)											
Brg	Live	Dead	Snow	Wind	Const						
1	0	971	300	0	0						
2	0	971	300	0	0						

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2793 ft-lb	5'	22897 ft-lb	0.122 (12%)	D+S	L
Unbraced	2793 ft-lb	5'	9857 ft-lb	0.283 (28%)	D+S	L
Shear	940 lb	1'3 5/8"	10197 lb	0.092 (9%)	D+S	L
LL Defl inch	0.013 (L/8998)	5'	0.234 (L/480)	0.050 (5%)	S	L
TL Defl inch	0.053 (L/2124)	5'	0.312 (L/360)	0.170 (17%)	D+S	L

Bearings

Bearing Length Cap. React D/L lb Total Ld. Case Ld. Comb. 1-SPF 4.500" 971 / 300 1271 L End Grain 2 - SPF 4.500" 971 / 300 1271 L D+S End Grain

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

U Lateral Sierius	erriess ratio based oir sirigie										
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	150 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL	
2	Uniform			Тор	35 PLF	0 PLF	60 PLF	0 PLF	0 PLF	ROOF+FLOOR	
	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

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Manufacturer Info

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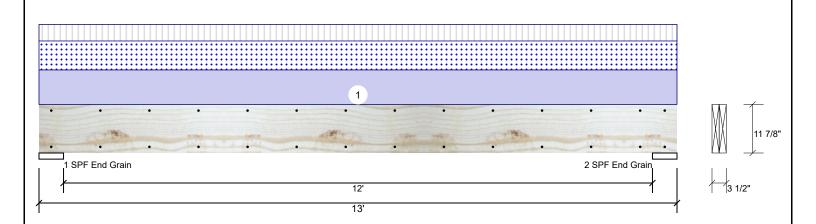
Client: Watermark Homes

Project: Address: Date: 7/28/2020

Input by: Anthony Williams Shasta Fir III Project #: J0720-3457

evel: Level

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



Grain

End Grain

2-SPF 6.000"

Member Information Reactions UNPATTERNED Ib (Uplift) Application: Brg Type: Floor Live Dead Snow Plies: 2 Design Method: ASD 1073 2296 1879 1 Moisture Condition: Dry **Building Code:** IBC 2012 2 1073 2296 1879 Deflection LL: 480 Load Sharing: No Deflection TL: 360 Deck: Not Checked Importance: Normal Temperature: Temp <= 100°F **Bearings** Bearing Length Cap. React D/L lb 1-SPF 6.000" 2296 / 2213 End

Analysis Results

, ,						
Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	12749 ft-lb	6'6"	22897 ft-lb	0.557 (56%)	D+0.75(L+S)	L
Unbraced	12749 ft-lb	6'6"	12750 ft-lb	1.000 (100%)	D+0.75(L+S)	L
Shear	3519 lb	1'5 1/8"	10197 lb	0.345 (35%)	D+0.75(L+S)	L
LL Defl inch	0.187 (L/779)	6'6"	0.303 (L/480)	0.620 (62%)	0.75(L+S)	L
TL Defl inch	0.381 (L/382)	6'6"	0.404 (L/360)	0.940 (94%)	D+0.75(L+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 6'8 1/4" 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	344 PLF	165 PLF	289 PLF	0 PLF	0 PLF	ROOF
	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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Manufacturer Info

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Page 6 of 13

This design is valid until 2/26/2023

Wind

Total Ld. Case

4509 L

4509 L

2296 / 2213

0

0

Const

0

0

Ld. Comb.

D+0.75(L+S)

D+0.75(L+S)

Client: Watermark Homes

Project: Address: 7/28/2020

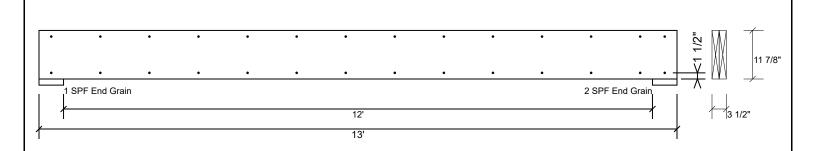
Input by: Anthony Williams Job Name: Shasta Fir III Project #: J0720-3457

Kerto-S LVL BM1

1.750" X 11.875"

2-Ply - PASSED

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

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Page 7 of 13

This design is valid until 2/26/2023

Manufacturer Info



Client: Watermark Homes

Project: Address: Date: 7/28/2020

Input by: Anthony Williams

Job Name: Shasta Fir III

Project #: J0720-3457

Page 8 of 13

PBM1 S-P-F #2 2.000" X 10.000" 2-Ply - PASSED

Application:

Design Method:

Building Code:

Load Sharing:

Deck:

Floor

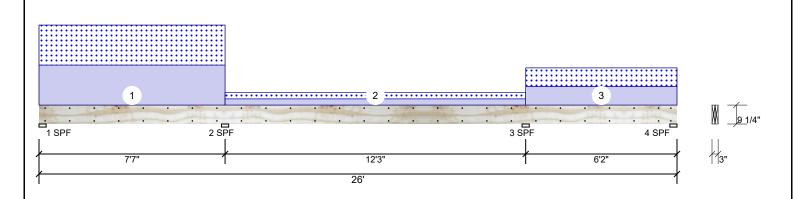
ASD

No

IBC 2012

Not Checked

Level: Level



Member Information									
Type:	Girder								
Plies:	2								
Moisture Condition:	Dry								
Deflection LL:	480								
Deflection TL:	360								
Importance:	Normal								

Temp <= 100°F

Reactions	UNPATTERNED	lb	(Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	435	435	0	0
2	0	694	694	0	0
3	0	301	301	0	0
4	0	164	164	0	0

Bearings

Γ	Bearing	Length	Cap. Re	act D/L lb	Total	Ld. Case	Ld. Comb.
	1 - SPF	3.500"	20%	435 / 446	881	L_L	D+S
l	2 - SPF	3.500"	31%	694 / 701	1395	LL_	D+S
	3 - SPF	3.500"	14%	301 / 331	632	_LL	D+S
l	4 - SPF	3.500"	8%	164 / 180	344	L_L	D+S

Analysis Results

Temperature:

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-1034 ft-lb	7'7"	3946 ft-lb	0.262 (26%)	D+S	LL_
Unbraced	-1034 ft-lb	7'7"	2516 ft-lb	0.411 (41%)	D+S	LL_
Pos Moment	1309 ft-lb	3'5"	3946 ft-lb	0.332 (33%)	D+S	L_L
Unbraced	1309 ft-lb	3'5"	3357 ft-lb	0.390 (39%)	D+S	L_L
Shear	890 lb	6'9 3/4"	2872 lb	0.310 (31%)	D+S	LL_
LL Defl inch	0.022 (L/4044)	3'8 9/16"	0.184 (L/480)	0.120 (12%)	S	L_L
TL Defl inch	0.042 (L/2109)	3'8 1/4"	0.245 (L/360)	0.170 (17%)	D+S	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.

IE	Load Type	Location Trib Width	Side	Dead 0.9	Live 1 Sn	ow 1.15 W	ind 1.6 Cons	t. 1.25	Comments
1	Part. Uniform 0-0	0-0 to 7-7-0	Тор	129 PLF	0 PLF	129 PLF	0 PLF	0 PLF	A3
2	Part. Uniform 7-7-0) to 19-10-0	Тор	20 PLF	0 PLF	20 PLF	0 PLF	0 PLF	A1
3	Part. Uniform 19-10-0	-0 to 26-0-0	Тор	60 PLF	0 PLF	60 PLF	0 PLF	0 PLF	B2

Manufacturer Info

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





Client: Watermark Homes

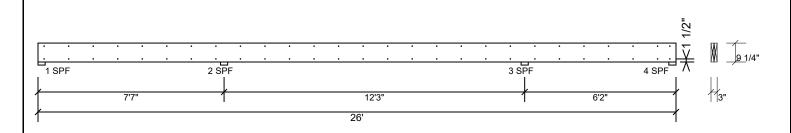
Project: Address: Date: 7/28/2020

Input by: Anthony Williams
Job Name: Shasta Fir III
Project #: J0720-3457

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PBM1 S-P-F #2 2.000" X 10.000" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

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

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

Manufacturer Info

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Client: Watermark Homes
Project:
Address:

PBM2 S-P-F #2 2.000" X 10.000"

mark Homes Date: 7/28/2020 Input by: Anthony Wi

2-Ply - PASSED

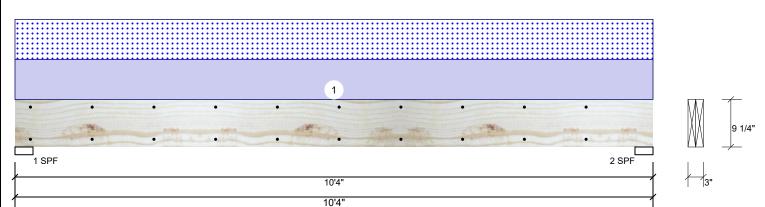
Input by: Anthony Williams

Job Name: Shasta Fir III

Project #: J0720-3457

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Level: Level



Reactions UNPATTERNED Ib (Uplift) Member Information Type: Application: Floor Brg Live Dead Snow Wind Const Plies: 2 Design Method: ASD 0 145 145 0 0 1 Moisture Condition: Dry **Building Code:** IBC 2012 2 0 145 145 0 0 Deflection LL: 480 Load Sharing: No Deflection TL: 360 Deck: Not Checked Importance: Normal Temp <= 100°F Temperature: **Bearings** Bearing Length Cap. React D/L lb Total Ld. Case Ld. Comb. 1-SPF 3.500" 145 / 145 289 L D+S 2 - SPF 3.500" 6% 145 / 145 289 L D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	683 ft-lb	5'2"	3946 ft-lb	0.173 (17%)	D+S	L
Unbraced	683 ft-lb	5'2"	2930 ft-lb	0.233 (23%)	D+S	L
Shear	233 lb	1'	2872 lb	0.081 (8%)	D+S	L
LL Defl inch	0.022 (L/5479)	5'2"	0.247 (L/480)	0.090 (9%)	S	L
TL Defl inch	0.043 (L/2740)	5'2"	0.329 (L/360)	0.130 (13%)	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			Top	28 PLF	0 PLF	28 PLF	0 PLF	0 PLF	JB-3

Manufacturer Info

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Client: Watermark Homes Date: 7/28/2020 Page 11 of 13 Project: Input by: Anthony Williams isDesign Address: Job Name: Shasta Fir III Project #: J0720-3457 Level: Level 2.000" X 10.000" 2-Ply - PASSED S-P-F #2 PBM2 1 SPF 2 SPF 10'4" 10'4' 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 Comtech, Inc. 1001 S. Reilly Road, Suite #639 Fayetteville, NC USA 28314 910-864-TRUS Manufacturer Info

This design is valid until 2/26/2023

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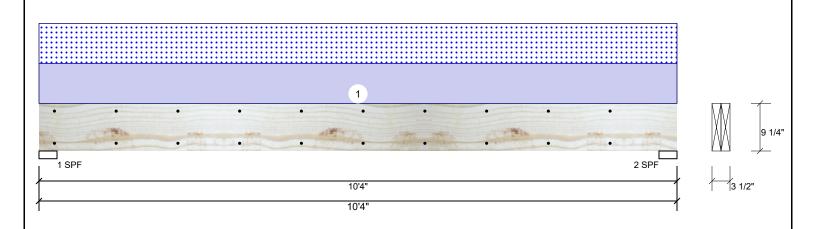
Client: Watermark Homes

Project: Address: Date: 7/28/2020

Input by: Anthony Williams Job Name: Shasta Fir III Project #: J0720-3457

1.750" X 9.250" 2-Ply - PASSED **Kerto-S LVL** PBM3

Level: Level



Member Info	rmation			Reaction	ns UNPAT	TERNED II	ວ (Uplift)		
Type:	Girder	Application:	Floor	Brg	Live	Dead	Snow	Wind	Const
Plies:	2	Design Method:	ASD	1	0	1045	1008	0	0
Moisture Condition	on: Dry	Building Code:	IBC 2012	2	0	1045	1008	0	0
Deflection LL:	480	Load Sharing:	No						
Deflection TL:	360	Deck:	Not Checked						
Importance:	Normal								
Temperature:	Temp <= 100°F								
				Bearing	gs				
				Bearing	g Length	Cap. Rea	ct D/L lb	Total Ld. Ca	se Ld. Comb.
				1 - SPF	3.500"	39% 10	45 / 1008	2052 L	D+S
				2 - SPF	3.500"	39% 10	45 / 1008	2052 L	D+S

Analysis Results

ĺ	Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
	Moment	4842 ft-lb	5'2"	14423 ft-lb	0.336 (34%)	D+S	L
	Unbraced	4842 ft-lb	5'2"	7494 ft-lb	0.646 (65%)	D+S	L
	Shear	1655 lb	9'4"	7943 lb	0.208 (21%)	D+S	L
	LL Defl inch	0.099 (L/1199)	5'2"	0.247 (L/480)	0.400 (40%)	S	L
	TL Defl inch	0.201 (L/589)	5'2"	0.329 (L/360)	0.610 (61%)	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	195 PLF	0 PLF	195 PLF	0 PLF	0 PLF	E1	
	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
- 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

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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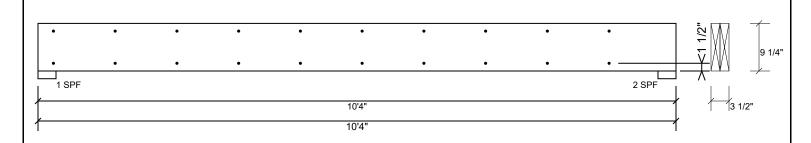
Client: Watermark Homes

Project: Address: Date: 7/28/2020

Input by: Anthony Williams Job Name: Shasta Fir III Project #: J0720-3457

1.750" X 9.250" 2-Ply - PASSED **Kerto-S LVL** PBM3

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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