isDesign™

Client:	
Project:	
Address:	

Date:	6/19/2018
Designer:	
Job Name:	
Project #:	RAFTER HDR - GARAGE DORMER

1 of 1

B7 2.0E CP-LAM 1.750" X 7.250" 3-Ply - PASSED

Level: Level

1 SPF   2 SPF

10'

10'7"

7 1/4"

5 1/4"

Member Information

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

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

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	243	768	0	0
2	0	433	1532	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	13%	243 / 768	1011	L	D+S
2 - SPF	3.500"	25%	433 / 1532	1964	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6689 ft-lb	7'	15717 ft-lb	0.426 (43%)	D+S	L
Unbraced	6689 ft-lb	7'	8386 ft-lb	0.798 (80%)	D+S	L
Shear	1957 lb	9'10"	8317 lb	0.235 (24%)	D+S	L
LL Defl inch	0.233 (L/530)	5'9"	0.257 (L/480)	0.910 (91%)	S	L
TL Defl inch	0.298 (L/414)	5'8 13/16"	0.515 (L/240)	0.580 (58%)	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	Point	7-0-0		Top	571 lb	0 lb	2300 lb	0 lb	0 lb	
	Self Weight				10 PLF					

Client:	**Date:**	6/19/2018
Project:	**Designer:**	
Address:	**Job Name:**	
	Project #:	2ND FLOOR BEAM FOR ROOF

B2   2.0E CP-LAM   1.750" X 9.500"   3-Ply - **PASSED**

Level: Level

1 SPF   2 SPF

14'
14'

9 1/2"
5 1/4"

Member Information

Type:	Girder		Application:	Floor
Plies:	3		Design Method:	ASD
Moisture Condition:	Dry		Building Code:	IBC/IRC 2015
Deflection LL:	480		Load Sharing:	Yes
Deflection TL:	240		Deck:	Not Checked
Importance:	Normal			
Temperature:	Temp <= 100°F			

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	1001	2254	0	0
2	0	1001	2254	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	42%	1001 / 2254	3255	L	D+S
2 - SPF	3.500"	42%	1001 / 2254	3255	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	10922 ft-lb	7'	25566 ft-lb	0.427 (43%)	D+S	L
Unbraced	10922 ft-lb	7'	10938 ft-lb	0.999 (100%)	D+S	L
Shear	2819 lb	13' 3/4"	10898 lb	0.259 (26%)	D+S	L
LL Defl inch	0.341 (L/482)	7' 1/16"	0.343 (L/480)	1.000 (100%)	S	L
TL Defl inch	0.492 (L/334)	7' 1/16"	0.685 (L/240)	0.720 (72%)	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 Compression edge bracing required at 10'5" o.c. or less.
5 Lateral slenderness ratio based on single ply width.

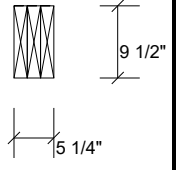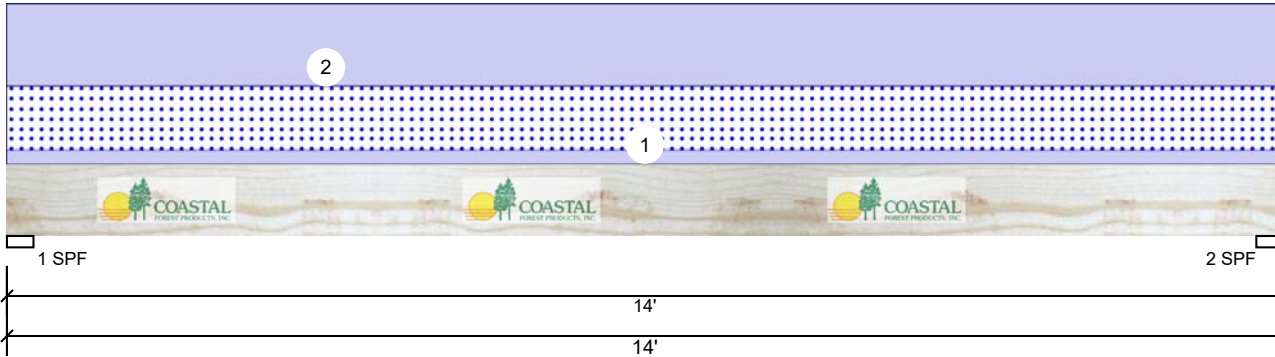| ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform		7-0-0	Top	10 PSF	0 PSF	46 PSF	0 PSF	0 PSF	
2	Uniform			Top	60 PLF	0 PLF	0 PLF	0 PLF	0 PLF	
	Self Weight				13 PLF					

Manufacturer Info
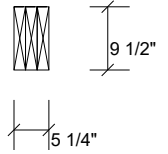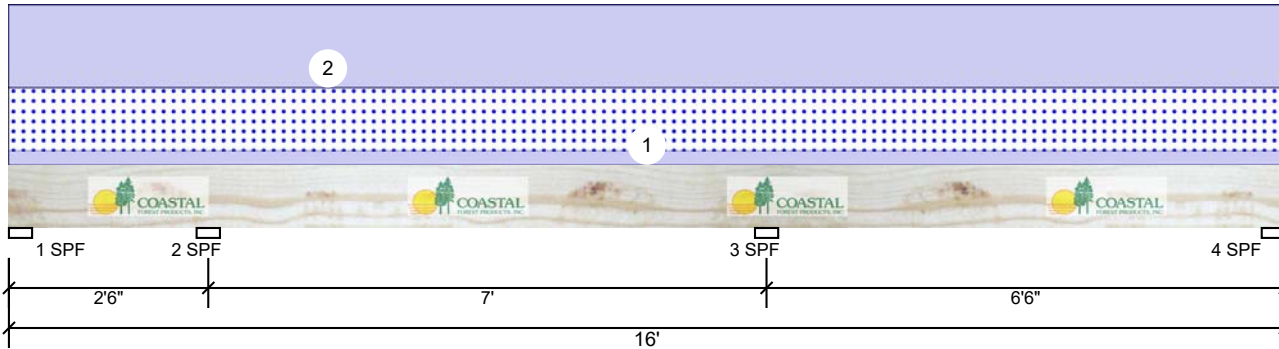Pacific Woodtech Corp
1850 Park Lane
Burlington, WA 98233
(888) 707-2285
www.pacificwoodtech.com
APA: PR-L233, ICC-ES: ESR-2909

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Client:		Date:	6/19/2018		1 of 1
Project:		Designer:			
Address:		Job Name:			
		Project #:	2ND FLOOR BEAM FOR ROOF		

B3   2.0E CP-LAM   1.750" X 9.500"   3-Ply - PASSED

Level: Level

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions

07/19/2018

1 SPF   2 SPF   3 SPF   4 SPF

2'6"   7'   6'6"

16'

9 1/2"

5 1/4"

Member Information

Type:	Girder	Application:	Floor	
Plies:	3	Design Method:	ASD	
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015	
Deflection LL:	480	Load Sharing:	Yes	
Deflection TL:	240	Deck:	Not Checked	
Importance:	Normal			
Temperature:	Temp <= 100°F			

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	10	23	0	0
2	0	809	1822	0	0
3	0	1102	2482	0	0
4	0	366	825	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	4%	10 / 279	290 (-211)	L_L	D+S
2 - SPF	3.500"	36%	809 / 1974	2783	LL_	D+S
3 - SPF	3.500"	46%	1102 / 2489	3591	_LL	D+S
4 - SPF	3.500"	16%	366 / 881	1247	L_L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-2258 ft-lb	9'6"	25566 ft-lb	0.088 (9%)	D+S	_LL
Unbraced	-2258 ft-lb	9'6"	14915 ft-lb	0.151 (15%)	D+S	_LL
Pos Moment	1496 ft-lb	13'3 13/16"	25566 ft-lb	0.059 (6%)	D+S	L_L
Unbraced	1496 ft-lb	13'3 13/16"	15954 ft-lb	0.094 (9%)	D+S	L_L
Shear	1465 lb	10'3 1/2"	10898 lb	0.134 (13%)	D+S	_LL
LL Defl inch	0.009 (L/8585)	12'11 13/16"	0.159 (L/480)	0.060 (6%)	S	L_L
TL Defl inch	0.012 (L/6386)	13' 5/16"	0.318 (L/240)	0.040 (4%)	D+S	L_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. Tie-down connection required at bearing 1 for uplift 211 lb (Combination D+S, Load Case _L_).
5. Top braced at bearings.
6. Bottom braced at bearings.
7. Lateral slenderness ratio based on single ply width.

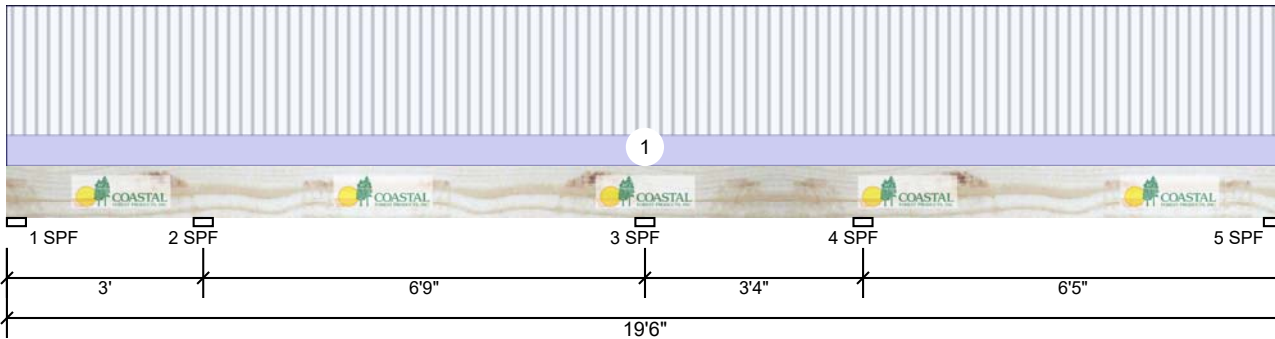| ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform		7-0-0	Top	10 PSF	0 PSF	46 PSF	0 PSF	0 PSF	
2	Uniform			Top	60 PLF	0 PLF	0 PLF	0 PLF	0 PLF	
	Self Weight				13 PLF					

Manufacturer Info
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isDesign™

Client:	Date: 6/19/2018
Project:	Designer:
Address:	Job Name:
	Project #: 2ND FLOOR BEAM

B1   2.0E CP-LAM   1.750" X 9.500"   3-Ply - PASSED

Level: Level

1 SPF   2 SPF   3 SPF   4 SPF   5 SPF

3'   6'9"   3'4"   6'5"

19'6"

9 1/2"

5 1/4"

Member Information

Type:	Girder		Application:	Floor
Plies:	3		Design Method:	ASD
Moisture Condition:	Dry		Building Code:	IBC/IRC 2015
Deflection LL:	480		Load Sharing:	Yes
Deflection TL:	240		Deck:	Not Checked
Importance:	Normal			
Temperature:	Temp <= 100°F			

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	15	9	0	0	0
2	244	140	0	0	0
3	189	109	0	0	0
4	220	126	0	0	0
5	111	63	0	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	1%	9 / 60	69 (-30)	L_L_	D+L
2 - SPF	3.500"	5%	140 / 250	390	LL_L	D+L
3 - SPF	3.500"	5%	109 / 246	355	_LL_	D+L
4 - SPF	3.500"	5%	126 / 264	391	L_LL	D+L
5 - SPF	3.500"	2%	63 / 113	177	_L_L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-224 ft-lb	13'1"	22231 ft-lb	0.010 (1%)	D+L	L_LL
Unbraced	-220 ft-lb	3'	14922 ft-lb	0.015 (1%)	D+L	LL_L
Pos Moment	223 ft-lb	16'8 5/16"	22231 ft-lb	0.010 (1%)	D+L	_L_L
Unbraced	223 ft-lb	16'8 5/16"	15620 ft-lb	0.014 (1%)	D+L	_L_L
Shear	183 lb	13'10 1/2"	9476 lb	0.019 (2%)	D+L	L_LL
LL Defl inch	0.001 (L/76840)	6'5 9/16"	0.169 (L/480)	0.010 (1%)	L	_L_L
TL Defl inch	0.002 (L/40158)	16'5 5/16"	0.314 (L/240)	0.010 (1%)	D+L	_L_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 Tie-down connection required at bearing 1 for uplift 30 lb (Combination D+L, Load Case _L_L).
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		1-0-0	Top	10 PSF	40 PSF	0 PSF	0 PSF	0 PSF	
	Self Weight				13 PLF					

Client:		Date:	6/19/2018
Project:		Designer:	
Address:		Job Name:	
		Project #:	DORMER BEAM - GARAGE DORMER

B6   2.0E CP-LAM   1.750" X 9.500"   3-Ply - PASSED

Level: Level

1 SPF   2 SPF

12'
12'

9 1/2"
5 1/4"

Member Information

Type:	Girder		Application:	Floor
Plies:	3		Design Method:	ASD
Moisture Condition:	Dry		Building Code:	IBC/IRC 2015
Deflection LL:	480		Load Sharing:	Yes
Deflection TL:	240		Deck:	Not Checked
Importance:	Normal			
Temperature:	Temp <= 100°F			

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	531	1815	0	0
2	0	308	867	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	30%	531 / 1815	2346	L	D+S
2 - SPF	3.500"	15%	308 / 867	1174	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	7730 ft-lb	5'	25566 ft-lb	0.302 (30%)	D+S	L
Unbraced	7730 ft-lb	5'	9899 ft-lb	0.781 (78%)	D+S	L
Shear	2072 lb	11 1/4"	10898 lb	0.190 (19%)	D+S	L
LL Defl inch	0.161 (L/871)	5'7 7/16"	0.293 (L/480)	0.550 (55%)	S	L
TL Defl inch	0.211 (L/666)	5'7 9/16"	0.585 (L/240)	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.

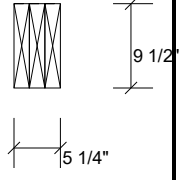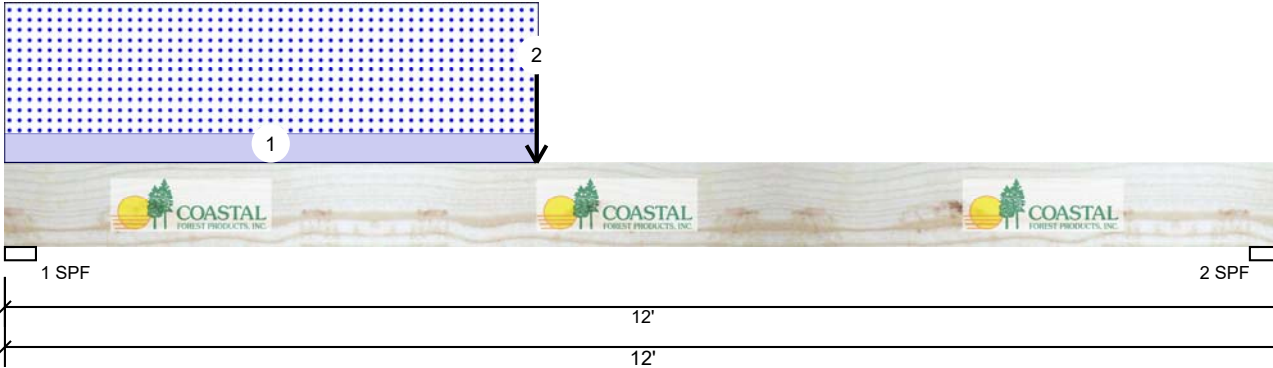| ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Part. Uniform	0-0-0 to 5-0-0	5-0-0	Top	10 PSF	0 PSF	46 PSF	0 PSF	0 PSF	
2	Point	5-0-0		Top	433 lb	0 lb	1532 lb	0 lb	0 lb	
	Self Weight				13 PLF					

Manufacturer Info

Pacific Woodtech Corp
1850 Park Lane
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APA: PR-L233, ICC-ES: ESR-2909

isDesign™

Client:	Date: 6/19/2018
Project:	Designer:
Address:	Job Name:
	Project #: GARAGE DOOR HDR

B8   2.0E CP-LAM   1.750" X 9.500"   3-Ply - PASSED

Level: Level

1 SPF   2 SPF

9'

9'7"

9 1/2"

5 1/4"

Member Information

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

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

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	1150	958	769	0	0
2	1150	1039	1046	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	31%	958 / 1439	2397	L	D+0.75(L+S)
2 - SPF	3.500"	34%	1039 / 1647	2686	L	D+0.75(L+S)

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	7803 ft-lb	5'6"	25566 ft-lb	0.305 (31%)	D+0.75(L+S)	L
Unbraced	7803 ft-lb	5'6"	12023 ft-lb	0.649 (65%)	D+0.75(L+S)	L
Shear	2374 lb	8'7 3/4"	10898 lb	0.218 (22%)	D+0.75(L+S)	L
LL Defl inch	0.091 (L/1225)	4'11"	0.232 (L/480)	0.390 (39%)	0.75(L+S)	L
TL Defl inch	0.145 (L/769)	4'10 13/16"	0.465 (L/240)	0.310 (31%)	D+0.75(L+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		6-0-0	Top	10 PSF	40 PSF	0 PSF	0 PSF	0 PSF	
2	Uniform			Top	80 PLF	0 PLF	0 PLF	0 PLF	0 PLF	
3	Point	5-6-0		Top	531 lb	0 lb	1815 lb	0 lb	0 lb	
	Self Weight				13 PLF					

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

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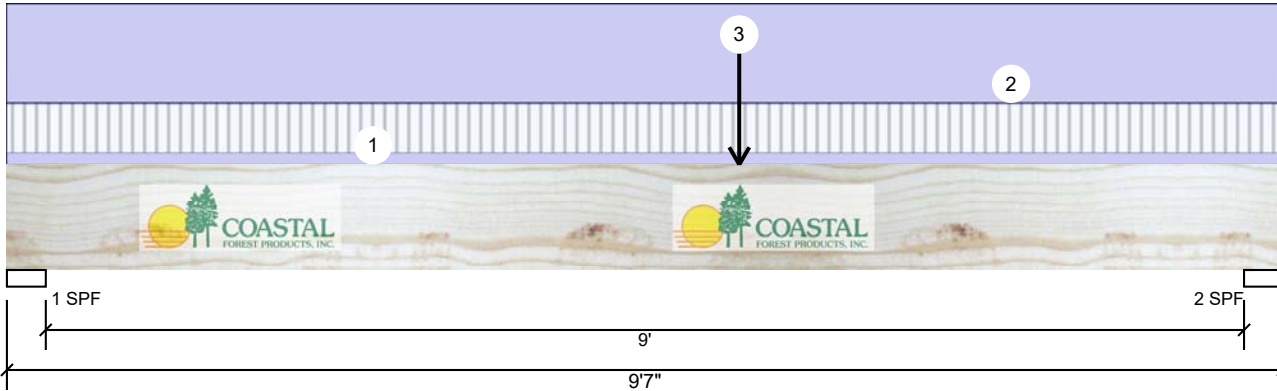
Manufacturer Info

Pacific Woodtech Corp
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Burlington, WA 98233
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APA: PR-L233, ICC-ES: ESR-2909

GARAGE FLOOR BEAM

Date: 6/19/18

Selection	**W 16x 36 36 ksi Wide Flange Steel**	Lateral Support: Lc = 7.4 ft max. 07/19/2018

Conditions   Actual Size is 7 x 15-7/8 in.

Min Bearing Length R1= 1.1 in. R2= 1.1 in.   (1.0) DL Defl= 0.11 in   Recom Camber= 0.16 in

Data

Beam Span	24.0 ft	Reaction 1 LL	6627 #	Reaction 2 LL	6627 #
Beam Wt per ft	36.0 #	Reaction 1 TL	8807 #	Reaction 2 TL	8807 #
Bm Wt Included	864 #	Maximum V	8807 #		
Max Moment	54017 '#	Max V (Reduced)	N/A		
TL Max Defl	L / 240	TL Actual Defl	L / 657		
LL Max Defl	L / 480	LL Actual Defl	L / 873		

Attributes

	Section (in³)	Shear (in²)	TL Defl (in)	LL Defl
Actual	56.50	4.68	0.44	0.33
Critical	27.28	0.61	1.20	0.60
Status	OK	OK	OK	OK
Ratio	48%	13%	37%	55%

Values

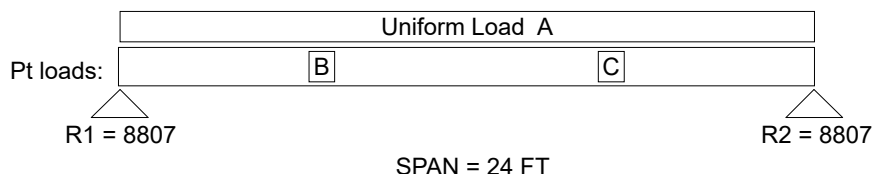|	Fb (psi)	Fv (psi)	E (psi x mil)
Ref. Value Fy	36000	36000	29.0
Adjusted Values	23760	14400	29.0

Adjustments   YP Factor, Lc   0.66   0.40

At Point Loads: Provide these minimum bearing lengths in inches or provide web stiffeners.
   B = 1.1   C = 1.1

Loads

Uniform LL: 480   Uniform TL: 600 = A

Point LL	Point TL	Distance
867	B = 1175	7.0
867	C = 1175	17.0

SPAN = 24 FT

Uniform and partial uniform loads are lbs per lineal ft.

Client:		Date:	6/19/2018
Project:		Designer:	
Address:		Job Name:	
		Project #:	LIVING RM CEILING BEAM

B4   2.0E CP-LAM   1.750" X 9.500"   4-Ply - PASSED

Level: Level

1 SPF   2 SPF

14'

14'

9 1/2"

7"
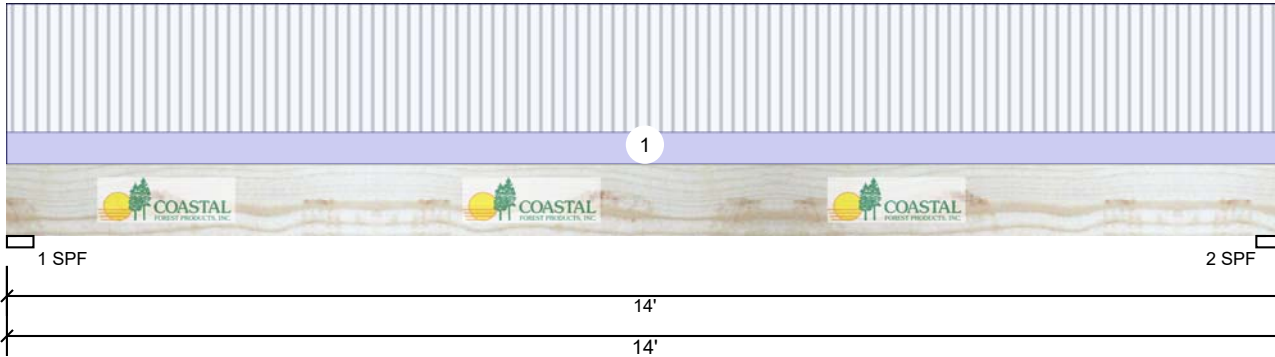
Member Information

Type:	Girder	Application:	Floor	
Plies:	4	Design Method:	ASD	
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015	
Deflection LL:	360	Load Sharing:	Yes	
Deflection TL:	240	Deck:	Not Checked	
Importance:	Normal			
Temperature:	Temp <= 100°F			

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	3080	891	0	0	0
2	3080	891	0	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	38%	891 / 3080	3971	L	D+L
2 - SPF	3.500"	38%	891 / 3080	3971	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	13325 ft-lb	7'	29641 ft-lb	0.450 (45%)	D+L	L
Unbraced	13325 ft-lb	7'	13353 ft-lb	0.998 (100%)	D+L	L
Shear	3439 lb	11 1/4"	12635 lb	0.272 (27%)	D+L	L
LL Defl inch	0.350 (L/471)	7' 1/16"	0.457 (L/360)	0.760 (76%)	L	L
TL Defl inch	0.451 (L/365)	7' 1/16"	0.685 (L/240)	0.660 (66%)	D+L	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 Compression edge bracing required at 11'6" o.c. or less.
5 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		11-0-0	Top	10 PSF	40 PSF	0 PSF	0 PSF	0 PSF	
	Self Weight				17 PLF					

Manufacturer Info

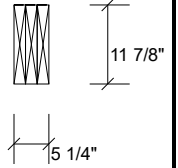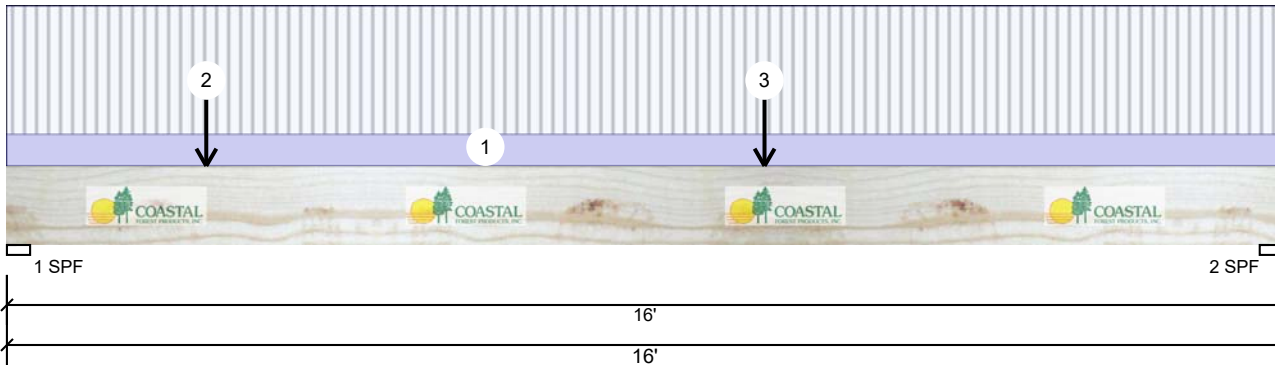Pacific Woodtech Corp
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APA: PR-L233, ICC-ES: ESR-2909

Client:	
Project:	Date: 6/19/2018
Address:	Designer:
	Job Name:
	Project #: LIVING RM FLOOR BEAM FRONT - PASSED

B5   2.0E CP-LAM   1.750" X 11.875"   3-Ply - PASSED

Level: Level

1 SPF   2 SPF
16'
16'
11 7/8"
5 1/4"

Member Information

Type:	Girder	Application:	Floor
Plies:	3	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	480	Load Sharing:	Yes
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	400	1363	2553	0	0
2	400	1007	1751	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	50%	1363 / 2553	3916	L	D+S
2 - SPF	3.500"	35%	1007 / 1751	2758	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	16919 ft-lb	9'6"	38203 ft-lb	0.443 (44%)	D+S	L
Unbraced	16919 ft-lb	9'6"	16950 ft-lb	0.998 (100%)	D+S	L
Shear	3883 lb	1'1 5/8"	13622 lb	0.285 (29%)	D+S	L
LL Defl inch	0.300 (L/628)	8'1 3/16"	0.393 (L/480)	0.760 (76%)	S	L
TL Defl inch	0.460 (L/410)	8'1 1/8"	0.785 (L/240)	0.590 (59%)	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 Compression edge bracing required at 7'9" o.c. or less.
5 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		1-3-0	Top	10 PSF	40 PSF	0 PSF	0 PSF	0 PSF	
2	Point	2-6-0		Top	809 lb	0 lb	1822 lb	0 lb	0 lb	
3	Point	9-6-0		Top	1102 lb	0 lb	2482 lb	0 lb	0 lb	
	Self Weight				16 PLF					

Manufacturer Info

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