Client:		Date:	10/16/2017
Project:		Designer:	PD
Address:		Job Name:	Jones, Rich and Barnes
		Project #:	

Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 11/02/17

A 2.0E CP-LAM 1.750" X 16.000" 4-Ply - PASSED

Level: Level

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 lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	6135	2748	0	0	0
2	6015	2694	0	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	5.500"	27%	2748 / 6135	8883	L	D+L
2 - SPF End Grain	2.750"	53%	2694 / 6015	8709	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	42121 ft-lb	10'1 3/16"	75755 ft-lb	0.556 (56%)	D+L	L
Unbraced	42121 ft-lb	10'1 3/16"	42220 ft-lb	0.998 (100%)	D+L	L
Shear	7435 lb	1'7 3/4"	21280 lb	0.349 (35%)	D+L	L
LL Defl inch	0.420 (L/559)	10'1 1/4"	0.652 (L/360)	0.640 (64%)	L	L
TL Defl inch	0.608 (L/386)	10'1 1/4"	0.979 (L/240)	0.620 (62%)	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 5'4" 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		13-6-0	Top	18 PSF	45 PSF	0 PSF	0 PSF	0 PSF	
	Self Weight				29 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.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive 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
1850 Park Lane
Burlington, WA 98233
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APA: PR-L233, ICC-ES: ESR-2909

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Client:		Date:	10/16/2017
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B 2.0E CP-LAM 1.750" X 16.000" 2-Ply - PASSED

Level: Level

Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	720	2984	0	0
2	0	756	3136	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	2.750"	45%	720 / 2984	3704	L	D+S
2 - SPF End Grain	5.500"	24%	756 / 3136	3892	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6807 ft-lb	3'10 13/16"	41884 ft-lb	0.163 (16%)	D+S	L
Unbraced	6807 ft-lb	3'10 13/16"	15387 ft-lb	0.442 (44%)	D+S	L
Shear	2329 lb	6'4 1/4"	12236 lb	0.190 (19%)	D+S	L
LL Defl inch	0.024 (L/3836)	3'10 7/8"	0.252 (L/360)	0.090 (9%)	S	L
TL Defl inch	0.029 (L/3090)	3'10 7/8"	0.379 (L/240)	0.080 (8%)	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		17-0-0	Top	10 PSF	0 PSF	45 PSF	0 PSF	0 PSF	
	Self Weight				15 PLF					

Notes

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Lumber

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

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Project:		Designer:	PD
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Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 11/02/17

C 2.0E CP-LAM 1.750" X 16.000" 2-Ply - PASSED

Level: Level

Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	969	4089	0	0
2	0	1015	4285	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	2.750"	62%	969 / 4089	5058	L	D+S
2 - SPF End Grain	5.500"	32%	1015 / 4285	5300	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	9873 ft-lb	4'1 9/16"	41884 ft-lb	0.236 (24%)	D+S	L
Unbraced	9873 ft-lb	4'1 9/16"	14543 ft-lb	0.679 (68%)	D+S	L
Shear	3285 lb	1'5 3/8"	12236 lb	0.268 (27%)	D+S	L
LL Defl inch	0.039 (L/2485)	4'1 5/8"	0.268 (L/360)	0.140 (14%)	S	L
TL Defl inch	0.048 (L/2009)	4'1 5/8"	0.402 (L/240)	0.120 (12%)	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		22-0-0	Top	10 PSF	0 PSF	45 PSF	0 PSF	0 PSF	
	Self Weight				15 PLF					

Notes

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Lumber

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

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Client:		Date:	10/16/2017
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Reviewed for Code Compliance
Inspections Division
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D 2.0E CP-LAM 1.750" X 16.000" 4-Ply - PASSED

Level: Level

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 lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	1625	6015	0	0
2	0	1657	6135	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	2.750"	47%	1625 / 6015	7640	L	D+S
2 - SPF End Grain	5.500"	24%	1657 / 6135	7792	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	36949 ft-lb	9'10 13/16"	87119 ft-lb	0.424 (42%)	D+S	L
Unbraced	36949 ft-lb	9'10 13/16"	37004 ft-lb	0.999 (100%)	D+S	L
Shear	6522 lb	1'5 3/8"	24472 lb	0.267 (27%)	D+S	L
LL Defl inch	0.420 (L/559)	9'10 7/8"	0.652 (L/360)	0.640 (64%)	S	L
TL Defl inch	0.533 (L/441)	9'10 7/8"	0.979 (L/240)	0.540 (54%)	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 6'3" 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		13-6-0	Top	10 PSF	0 PSF	45 PSF	0 PSF	0 PSF	
	Self Weight				29 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.

Lumber

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

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Client:		Date:	10/16/2017
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E 2.0E CP-LAM 1.750" X 16.000" 2-Ply - PASSED

Level: Level

Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	736	2430	0	0
2	0	736	2430	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	5.500"	19%	736 / 2430	3166	L	D+S
2 - SPF End Grain	5.500"	19%	736 / 2430	3166	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	20395 ft-lb	13'6"	41884 ft-lb	0.487 (49%)	D+S	L
Unbraced	20395 ft-lb	13'6"	20459 ft-lb	0.997 (100%)	D+S	L
Shear	2780 lb	25'4 1/4"	12236 lb	0.227 (23%)	D+S	L
LL Defl inch	0.820 (L/386)	13'6 1/16"	0.879 (L/360)	0.930 (93%)	S	L
TL Defl inch	1.069 (L/296)	13'6 1/16"	1.319 (L/240)	0.810 (81%)	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 5'7" 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		4-0-0	Top	10 PSF	0 PSF	45 PSF	0 PSF	0 PSF	
	Self Weight				15 PLF					

Notes

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Lumber

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

Handling & Installation

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G 2.0E CP-LAM 1.750" X 16.000" 2-Ply - PASSED

Level: Level

Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal		
Temperature:	Temp <= 100°F		

Reactions lb (Uplift)

Brg	Live	Dead	Snow	Wind	Const
1	0	386	1274	0	0
2	0	954	3147	0	0
3	0	133	439	0	0

Bearings

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	5.500"	10%	386 / 1297	1683	L_	D+S
2 - SPF End Grain	3.500"	39%	954 / 3147	4101	LL	D+S
3 - SPF End Grain	5.500"	5%	133 / 643	776	_L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-6176 ft-lb	17'	41884 ft-lb	0.147 (15%)	D+S	LL
Unbraced	-6176 ft-lb	17'	7827 ft-lb	0.789 (79%)	D+S	LL
Pos Moment	5527 ft-lb	7'2 1/8"	41884 ft-lb	0.132 (13%)	D+S	L_
Unbraced	5527 ft-lb	7'2 1/8"	7827 ft-lb	0.706 (71%)	D+S	L_
Shear	2014 lb	15'8"	12236 lb	0.165 (16%)	D+S	LL
LL Defl inch	0.077 (L/2585)	7'11 1/8"	0.556 (L/360)	0.140 (14%)	S	L_
TL Defl inch	0.100 (L/2012)	7'10 15/16"	0.834 (L/240)	0.120 (12%)	D+S	L_

Design Notes

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4 Top braced at bearings.
5 Bottom braced at bearings.
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ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform		4-0-0	Top	10 PSF	0 PSF	45 PSF	0 PSF	0 PSF	
	Self Weight				15 PLF					

Notes

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