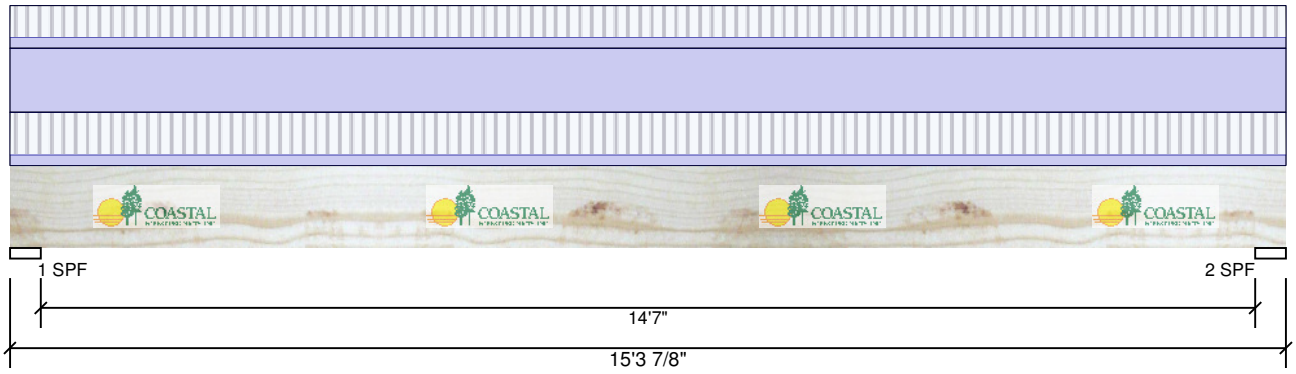
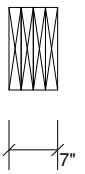
COASTAL FOREST PRODUCTS, INC.	Client Hillside		Shipping Portland, ME
Project Name: Caleb Project	Job#:	Quantity 1 (4pcs.)	Description:

1st floor support beam 2.0E CP-LAM 1.750" X 11.875" 4-Ply - PASSED

6/21/2016 10:03 AM
Page 1 of 1
Designer: ML





Type:	Girder	Application:	Floor
Plies:	4	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2012
Deflection LL:	360	Load Sharing:	Yes
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
Temperature:	Temp <= 100°F		
General Load			
Floor Live:	40 PSF		
Dead:	10 PSF		
Snow:	35 PSF		

Reactions

Brg	Live	Dead	Snow	Wind	Const
1	6436	2459	0	0	0
2	6436	2459	0	0	0

Bearings

Bearing	Input Length	In Analysis	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	4.438"	3.000"	100%	2459 / 6436	8894	L	D+L
2 - SPF	4.438"	3.000"	100%	2459 / 6436	8894	L	D+L

Analysis	Actual	Location	Allowed	Capacity	Load Comb.	Ld. Case
Moment	31948 ft-lb	7'7 15/16"	44293 ft-lb	0.721 (72%)	D+L	L
Unbraced	31948 ft-lb	7'7 15/16"	43761 ft-lb	0.730 (73%)	D+L	L
Shear	7466 lb	1'2 13/16"	15794 lb	0.473 (47%)	D+L	L
LL Defl inch	0.468 (L/380)	7'8"	0.494 (L/360)	0.950 (95%)	L	L
TL Defl inch	0.648 (L/275)	7'8"	0.742 (L/240)	0.870 (87%)	D+L	L

Design OK.

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.

Required Bearing Length (3) 2x6 Jack Studs per side

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform		12-0-0	Top	10 PSF	40 PSF	0 PSF	0 PSF	0 PSF	1st Floor
2	Uniform			Top	60 PLF	0 PLF	0 PLF	0 PLF	0 PLF	bearing wall
3	Uniform		12-0-0	Top	10 PSF	30 PSF	0 PSF	0 PSF	0 PSF	2nd Floor
	Self Weight				22 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

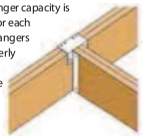
Coastal Forest Products
451 South River Rd, NH
USA
03110

COASTAL FOREST PRODUCTS, INC. www.coastalforestproducts.com ...as independent as the dealers we support

CP-LAM

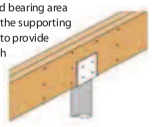
BEARING DETAILS

3a BEAM-TO-BEAM CONNECTION
Make sure hanger capacity is appropriate for each application.Hangers must be properly installed to accommodate full capacity



3b BEARING ON WOOD COLUMN
Verify the required bearing area and the ability of the supporting column member to provide adequate strength

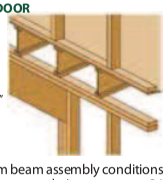
3c BEARING ON STEEL COLUMN
Verify the required bearing area and the ability of the supporting column member to provide adequate strength



3d BEARING ON EXTERIOR WALL
Prevent direct contact of CP-LAM with concrete. Consult local building code for requirements

3e BEARING FOR DOOR OR WINDOW HEADER – 1-STORY TYPICAL
See "Bearing Length Requirements" below

3f WINDOW/DOOR HEADER – 2-STORY TYPICAL
See "Bearing Length Requirements" below



For multi-ply CP Lam beam assembly conditions and fastening recommendations, see page 24

BEARING LENGTH REQUIREMENTS

CP-LAM BEARING LENGTH REQUIREMENTS

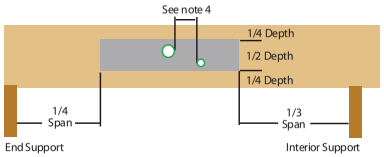
Support Material		S-P-F (South) Hem-Fir (North)[5]		Hem-Fir S-P-F[5]		Southern Pine Douglas Fir-Larch[5]		1.8E or 2.0E CP-LAM[6]	
$F_{c\perp}$ (psi)		335		405		565		850	
CP-LAM Beam Width (in)		1-3/4"	3-1/2"	1-3/4"	3-1/2"	1-3/4"	3-1/2"	1-3/4"	3-1/2"
Reaction (x 1000 lbs)	1	3"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
	2	3-1/2"	3"	3"	1-1/2"	3"	1-1/2"	1-1/2"	1-1/2"
	3	5-1/2"	3"	4-1/2"	3"	3-1/2"	3"	3"	1-1/2"
	4	7-1/2"	3-1/2"	6"	3"	4-1/2"	3"	3"	1-1/2"
	5	9-1/4"	4-1/2"	7-1/4"	4-1/2"	5-1/2"	3"	3-1/2"	3"
	6		5-1/2"	9-1/4"	4-1/2"	7-1/4"	3-1/2"	4-1/2"	3"
	7		6"		5-1/2"	7-1/4"	4-1/2"	5-1/2"	3"
	8		7-1/4"		6"	9-1/4"	4-1/2"	5-1/2"	3-1/2"
	9		9-1/4"		7-1/4"	9-1/4"	5-1/2"	7-1/2"	3-1/2"
	10		9-1/4"		7-1/4"		5-1/2"	7-1/2"	3-1/2"
	11				9-1/4"		6"	7-1/2"	4-1/2"
	12				9-1/4"		7-1/4"	9"	4-1/2"

Support Material		S-P-F (South)		Hem-Fir S-P-F[5]		Southern Pine Douglas Fir-Larch[5]		1.8E or 2.0E CP-LAM[6]	
$F_{c\perp}$ (psi)		335		405		565		850	
CP-LAM Beam Width (in)		1-3/4"	3-1/2"	1-3/4"	3-1/2"	1-3/4"	3-1/2"	1-3/4"	3-1/2"
Reaction (x 1000 lbs)	13				9-1/4"		7-1/4"		4-1/2"
	14						7-1/4"	9"	5-1/2"
	15						9-1/4"		5-1/2"
	16						9-1/4"		5-1/2"
	17						9-1/4"		6"
	18						9-1/4"		7-1/2"
	19								7-1/2"
	20								7-1/2"
	21								7-1/2"
	22								7-1/2"
	23								9"

Notes:
1. The minimum required bearing length is 1-1/2"
2. Duration of load factors may not be applied to bearing length requirements.
3. All CP-Lam beams require support across their full width.
4. All CP-LAM beams require lateral support at bearing points.
5. Use these values when the CP-LAM beam is supported by a wall plate, sill plate, timber or built up girder.
6. Use these values when the CP-LAM beam is supported by the end of a column or connection hardware.
7. The support member must be sized to carry the load from the CP-LAM beam.

HOLE DETAILS

HOLES IN CP-LAM BEAMS



NOTES:
1. This technical note applies only to uniformly loaded, simple and multiple span CP-LAM beams. Beams that carry concentrated loads, or cantilevered beams, are outside the scope of this technical note.
2. Square and rectangle holes are not permitted.
3. Round holes may be drilled or cut with a hole saw anywhere within the shaded area of the CP-LAM beam.
4. The horizontal distance between adjacent holes must be at least two times the size of the larger hole. This restriction also applies to the location of access holes relative to bolt holes in multi-ply CP-LAM beams.
5. Do not drill more than three access holes in any four foot long section of CP-LAM beam.
6. The maximum round hole diameter permitted is:

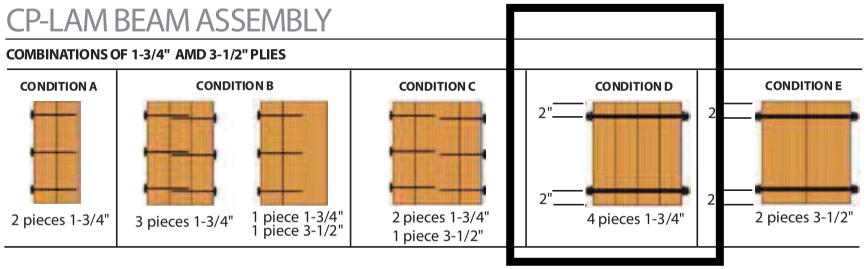
CP-LAM Beam Depth	5-1/2"	7-1/2"	9-1/2" to 24"
Maximum Hole Diameter	3/4"	1"	1-1/2"

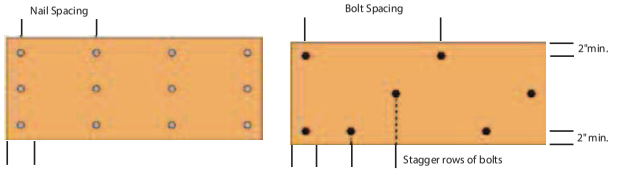
7. These limitations apply to holes drilled for plumbing or wiring access only. The size and location of holes drilled for fasteners are governed by the provisions of National Design Specifications® for wood construction.
8. CP-LAM beams deflect under load. Size holes to provide clearance where required.

MULTI-PLY

CP-LAM BEAM ASSEMBLY

COMBINATIONS OF 1-3/4" AMD 3-1/2" PLIES





MAXIMUM UNIFORM SIDE LOAD (PLF) 2.0 E CP-LAM

PIECES IN MEMBER	3-1/2" X 0.131: Nails		16d Common Nails		1/2" Bolts		
	2 Rows at 12" O.C.	3 Rows at 12" O.C.	2 Rows at 12" O.C.	3 Rows at 12" O.C.	2 Rows at 24" O.C.	2 Rows at 12" O.C.	3 Rows at 12" O.C.
Condition A (2-1-3/4")	390	585	505	760	510	1015	1520
Condition B (3-1-3/4")	290	435	380	570	380	760	1140
Condition C (2-1-3/4" + 1 -3-1/2")	260	390	340	505	465	930	1395
Condition D (4 - 1-3/4)		use bolts for this condition			340	680	1015
Condition E (2 - 3-1/2")		use bolts for this condition			860	1720	2580

Notes:
1. Minimum fastener schedule for smaller side loads and top-locked CP-LAM beams:
   Conditions A,B,& C, beams 12" deep or less:
   2 rows 3-1/2" x 0.131" at 12" O.C.
   Conditions A, B & C, beams deeper than 12":
   3 rows 3-1/2" x 0.131" at 12" O.C.
   Conditions D & E, all beam depths:
   2 rows 1/2" bolts at 24" O.C.
2. The table values for nails may be doubled for 6" O.C. and tripled for 4" O.C. nail spacings.
3. The nail schedules shown apply to both sides of a three-ply CP-LAM beams.
4. The table values apply to common bolts that conform to ANSI/ASME Standard B18.2.2-10981. A washer not less than a standard cut washer shall be between the wood and the bolt head and between the wood and the nut. The distance from the edge of the CP-LAM beam to the bolt holes must be at least 2" for 1/2" bolts. Bolt holes shall be the same diameter as the bolt.
5. 7" wide CP-LAM beams must be loaded from both sides and/or top loaded.
6. CP-LAM beams wider than 7" must be designed by the engineer of record.
7. Load duration factors may be applied to the table values.

HOW TO USE THE MAXIMUM UNIFORM SIDE LOAD TABLE

EXAMPLE:
2.0E CP-LAM beam loaded tables from both sides and above
THREE 1-3/4" Plies (CONDITION B)
1. Use allowable load tables or sizing software to size the CP-LAM beam to carry a total load of (300 + 610 + 550) = 1460 plf.
2. Refer to the 2.0E CP-LAM table for beam assembly requirements. Refer to the condition B row in the table. Scan across the Condition B row from left to right for a table value greater than 550 plf, which is the greatest side load carried by the beam. The fourth value in the row indicates that 3 rows of 16d common nails at 12" O.C. will accommodate a side load of 570 plf which is greater than the 550 plf required. Use3 rows of 16d common nails at 12" O.C., from both sides, to assemble the beam.