

LP[®] LVL Concrete Forming Beams
Louisiana-Pacific Corporation

PR-L291

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Product: LP[®] LVL Concrete Forming Beams

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1. Basis of the product report:
 - ASTM D5456-19
 - PFS Corporation Test Reports (Louisiana-Pacific Canada Ltd., Golden, British Columbia): 1750F_b - 1.3E Douglas-fir LVL, 2250F_b - 1.5E Douglas-fir LVL, 2250F_b - 1.5E Lodgepole pine LVL, 2650F_b - 1.9E Douglas-fir LVL
 - APA Reports T2005P-13, T2005P-76A, T2006P-06, T2008P-10, T2008P-31, T2008P-43, T2010P-33, T2012P-08, T2014P-16, and T2014P-28, and other qualification data
2. Product description:

LP LVL concrete forming beams are made with wood veneers laminated with grain parallel to the length of the member in accordance with the in-plant manufacturing standards approved by APA except that 1550F_b-1.3E concrete form beams contain veneers oriented 90 degrees (cross-ply) to the length of the member. LP LVL concrete forming beams are available in a range of thicknesses (1-1/2 inches to 3-1/2 inches), depths (3-1/2 inches to 11-1/4 inches) and lengths. Refer to the manufacturer's technical guide and a local LP Engineered Wood Products distributor for product availability.
3. Design properties:

Table 1 lists the design properties for LP LVL concrete forming beams. The allowable spans for LP LVL concrete forming beams shall be determined based on the design properties provided in this report and the recommendations provided by Louisiana-Pacific Corporation as published in the *LP SolidStart LVL Concrete Forming Beam Technical Guide* (Lit. Item LPEW0248) available at www.lpcorp.com/resources/literature/.
4. Product installation:

LP LVL concrete forming beams shall be installed in accordance with the recommendations provided by Louisiana-Pacific Corporation (see link above) and the engineering drawing(s) approved by the engineer of record. Permissible details shall be in accordance with the engineering drawing(s).
5. Storage, handling, inspection and evaluation:

The storage and handling of LP LVL concrete forming beams shall be in accordance with the recommendations provided by Louisiana-Pacific Corporation (see link above). LP LVL forming beams shall be thoroughly visually inspected by a qualified person to ensure they are new or like-new prior to use. A guide for the evaluation of visual defects and subsequent required action are provided by Louisiana-Pacific Corporation.
6. Limitations:
 - a) LP LVL concrete forming beams shall be designed using the design properties provided in this report.
 - b) LP LVL concrete forming beams are limited to dry service conditions where the average equilibrium moisture content of sawn lumber is less than 16 percent.

- c) LP LVL concrete forming beams shall not be used in wood framed construction as structural members, such as beams or headers.
- d) LP LVL concrete forming beams are produced at the Louisiana-Pacific Canada Ltd. facilities in Golden, British Columbia and the Murphy Engineered Wood Division facilities in Sutherlin, Oregon under a quality assurance program audited by APA.
- e) This report is subject to re-examination in one year.

7. Identification:

LP LVL concrete forming beams described in this report are identified by a label bearing the manufacturer's name (Louisiana-Pacific Corporation or Murphy Engineered Wood Division) and/or trademark, the APA assigned plant number (1066 for the Golden plant and 1089 for the Sutherlin plant), the LVL grade, the APA logo, the report number PR-L291, and a means of identifying the date of manufacture.

Table 1. Design Properties (Allowable Stress Design) for LP LVL Forming Beams^(a)

| Property | | 1550F _b -1.3E | 2250F _b -1.5E | 2900F _b -2.0E |
|---|----------------------|--------------------------|--------------------------|--------------------------|
| Bending (F _b), psi | Joist ^(d) | 1,550 ^(b) | 2,250 ^(c) | 2,900 ^(c) |
| Modulus of Elasticity (MOE), 10 ⁶ psi ^(e) | Joist ^(d) | 1.30 | 1.50 | 2.00 |
| Compression parallel (F _c), psi | | 1,700 | 2,350 | 3,200 |
| Compression perpendicular (F _{c⊥}), psi | Joist ^(d) | 680 | 750 | 750 |
| Longitudinal shear (F _v), psi | Joist ^(d) | 250 | 285 | 285 |

For SI: 1 inch = 25.4 mm, 1 lbf = 4.448 N, 1 psi = 6.9 kPa.

- (a) The tabulated values are design values for normal duration of load. All values, except for E and F_{c⊥}, are permitted to be adjusted for other load durations in accordance with the code. The design stresses are limited to conditions in which the equivalent moisture content of sawn lumber is less than 16 percent.
- (b) The tabulated value is based on a reference depth of 12 inches. For depths less than 12 inches, multiply F_b by (12/d)^{0.261}. For depths less than 3-1/2 inches, use the adjustment factor for 3-1/2 inches.
- (c) The tabulated values are based on a reference depth of 12 inches. For depths less than 12 inches, multiply F_b by (12/d)^{0.111}. For depths less than 3-1/2 inches, use the adjustment factor for 3-1/2 inches.
- (d) Allowable stresses for "Joist" refer to loads applied to the edge of the member (parallel to the wide face of veneers).
- (e) The tabulated modulus of elasticity is the shear-free MOE. For uniformly loaded simple-span beams deflection is calculated as follows:

$$\delta = \frac{270 w L^4}{E b h^3} + \frac{28.8 w L^2}{E b h} \quad [\text{Eq. 1}]$$

Where: δ = estimated deflection, inches, w = uniform load, lbf/ft
 L = span, feet, E = tabulated modulus of elasticity, psi
 b = beam width, inches, and h = beam depth, inches

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