

Calvert GL 3000 Glulam
Calvert Company, Inc.

PR-L269
Revised April 11, 2011

Products: Calvert GL 3000 Glulam
Calvert Company, Inc., 218 V Street, Vancouver, WA 98661
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1. Basis of the product report:
 - 2009 and 2006 International Building Code (IBC): Section 104.11 Alternative Materials and Section 2303.1.3 Structural glued laminated timber
 - 2009 and 2006 International Residential Code (IRC): Section 104.11 Alternative Materials, and Sections R502.1.5, R602.1.2, and R802.1.4 Structural glued laminated timber
 - ASTM D 3737-07 and D 3737-03 recognized by the 2009 IBC and IRC, and 2006 IBC and IRC, respectively
 - ANSI/AITC A190.1-07 and A190.1-02 recognized by the 2009 IBC and IRC, and 2006 IBC and IRC, respectively
 - APA Y117, Glulam Design Specification
 - APA Y117-Sup, Glulam Layup Combinations
 - APA Report T2006P-65A and other qualification data
2. Product description:

Calvert GL 3000 glulam beams are used as beams, headers, rafters, or purlins, and are manufactured with the EWS 30F-E2M3/SP balanced layup combination using laminated veneer lumber (LVL), as permitted by ANSI/AITC A190.1, as the tension and compression laminations, and Southern pine laminations in the remainder of the beam. The LVL laminations are supplied by manufacturers recognized by APA and identified in Calvert's in-plant manufacturing standard approved by APA. The LVL complies with the control values listed in the manufacturing standard and is manufactured in full length and width laminations, and in thicknesses up to 2 inches from wood veneers. All veneer grain is parallel to the length of the billets. The veneers are bonded with exterior-type adhesives, which comply with the requirements of Service Class B (Exterior) of ASTM D 2559.
3. Design properties:

Table 1 lists the design properties for Calvert GL 3000 glulam beams. The allowable loads for Calvert GL 3000 shall be in accordance with the recommendations provided by the manufacturer (www.calvertglulam.com) and with EWS Data File: *Glued Laminated Beam Design Tables*, Form S475 (www.apawood.org/publications), as applicable.
4. Product installation:

Calvert GL 3000 glulam beams shall be installed in accordance with the recommendations provided by the manufacturer and EWS Technical Note: *Glulam Connection Details*, Form T300 (www.apawood.org/publications). Permissible field notching and drilling shall be in accordance with the recommendations provided by the manufacturer and with EWS Technical Note: *Field Notching and Drilling of Glued Laminated Timber Beams*, Form S560 (www.apawood.org/publications).
5. Fire-rated assemblies:

Fire-rated assemblies shall be constructed in accordance with the recommendations provided by the manufacturer and with APA Design/Construction Guide: *Fire-Rated Systems*, Form W305 (www.apawood.org/publications). For one- or two-hour rated glulam

beams, the Calvert GL 3000 glulam beams shall be constructed in accordance with ANSI/AITC A190.1 and designed in accordance with the recommendations provided by the manufacturer, and with EWS Technical Note: *Calculating Fire Resistance of Glulam Beams and Columns*, Form Y245 (www.apawood.org/publications).

6. Limitations:

- a) Calvert GL 3000 glulam beams shall be designed in accordance with the code using the design properties specified in this report or APA Y117 (based on the properties published for the 30F-E2M3 layup combination).
- b) Calvert GL 3000 glulam beams shall have a minimum depth of 7-1/4 inches.
- c) Calvert GL 3000 glulam beams are produced at Calvert Company's facilities in Vancouver and Washougal, Washington, under a quality assurance program audited by APA.
- d) This report is subject to re-examination in one year.

7. Identification:

Calvert GL 3000 glulam beams described in this report are identified by a label bearing the manufacturer's name (Calvert) and/or trademark, the APA assigned plant number (1010 for the Vancouver, Washington plant or 1035 for the Washougal, Washington plant), the product standard (ANSI/AITC A190.1), the APA logo, the report number PR-L269, and a means of identifying the date of manufacture.

Table 1. Design Values for Calvert GL 3000 Glulam Beams for Normal Duration of Load ⁽¹⁾

Symbol	Species ⁽²⁾ Outer/ Core	Bending About X-X Axis (Loaded Perpendicular to Wide Faces of Laminations)						Bending About Y-Y Axis (Loaded Parallel to Wide Faces of Laminations)					Axially Loaded		Fasteners		
		Extreme Fiber in Bending ⁽³⁾		Compression Perpendicular to Grain		Shear Parallel to Grain ⁽⁴⁾	Modulus of Elasticity ⁽⁵⁾	Extreme Fiber in Bending ⁽⁶⁾	Compr. Perpendicular to Grain	Shear Parallel to Grain ⁽⁴⁾	Modulus of Elasticity ⁽⁵⁾	Tension Parallel to Grain	Compr. Parallel to Grain	Specific Gravity for Dowel-Type Fastener Design			
		Bottom of Beam Stressed in Tension (Positive Bending)	Top of Beam Stressed in Tension (Negative Bending)	Tension Face	Compr. Face									Top or Bottom Face	Side Face		
		F _{bx} ⁺ (psi)	F _{bx} ⁻ (psi)	F _{cx} (psi)	F _{vx} (psi)	E _x (10 ⁶ psi)	E _{x,min} (10 ⁶ psi)	F _{by} (psi)	F _{cy} (psi)	F _{vy} (psi)	E _y (10 ⁶ psi)	E _{y,min} (10 ⁶ psi)	F _t (psi)	F _c (psi)	SG		
Calvert GL 3000	LVL/SP	3000	3000	650 ⁽⁷⁾	650 ⁽⁷⁾	300	2.1	1.11	1750	650	265	1.7	0.90	1350	1750	0.50	0.50
Wet-use factor		0.8		0.53		0.875	0.833		0.8	0.53	0.875	0.833		0.8	0.73	see NDS	

- ⁽¹⁾ The tabulated design values are for normal duration of loading. For other durations of loading, see the applicable building code. The tabulated design values are for dry conditions of use. For wet conditions of use, multiply the tabulated values by the wet-use factors shown at the bottom of the table.
- ⁽²⁾ SP = Southern pine; LVL = laminated veneer lumber per the manufacturing standard.
- ⁽³⁾ The values of F_{bx} are based on members 5-1/8 inches in width by 12 inches in depth by 21 feet in length. For members with a larger volume, F_{bx} shall be multiplied by a volume factor, C_v, determined in accordance with applicable building code using 1/10 as the exponent. The beam depths are limited to 7-1/4 to 48 inches.
- ⁽⁴⁾ For non-prismatic members, members subject to impact or cyclic loading, or shear design of bending members at connections (NDS 3.4.3.3), the F_{vx} and F_{vy} values shall be multiplied by a factor of 0.72.
- ⁽⁵⁾ The tabulated E values already include a 5% shear deflection (also known as "apparent E"). The axial modulus of elasticity, E_{axial} and E_{axial,min}, shall be calculated by multiplying E_y and E_{y,min} by 1.05.
- ⁽⁶⁾ The values of F_{by} are based on members 12 inches in depth. For depths less than 12 inches, F_{by} shall be permitted to be increased by multiplying by the size factor, (12/d)^{1/8}, where d is the beam depth in inches. When d is less than 3 inches, use the size adjustment factor for 3 inches.
- ⁽⁷⁾ The values of F_{cx} shall be permitted to be increased to the published allowable compressive stress perpendicular to grain of the outermost laminated veneer lumber in the plank (flatwise) orientation..

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