



# Green Verification Report

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## **Rosboro Structural Glued Laminated Timber GR-L251** **Rosboro** Issued January 16, 2019

Products: Rosboro Structural Glued Laminated Timber  
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[www.rosboro.com](http://www.rosboro.com)

1. Basis of the green verification report:
  - 2015, 2012 and 2008 National Green Building Standard, ICC 700
  - LEED v4 for New Construction and Major Renovations
  - 2009 LEED for New Construction and Major Renovations
  - ANSI A190.1-2017, ANSI A190.1-2012, and ANSI/AITC A190.1-2007, recognized by the 2018 International Building Code (IBC) and International Residential Code (IRC), 2015 IBC and IRC, and 2012 IBC and IRC, respectively
  - APA T415, Green Verification Checklist – ICC 700-2015
  - APA Q415, Green Verification Checklist – ICC 700-2012
  - APA L410, Green Verification Checklist – ICC 700-2008
  - APA R415, Green Verification Checklist – LEED v4
  - APA L415, Green Verification Checklist – LEED-2009
  - APA Product Report PR-L251
  - Documentation supporting green product verification
2. Product description:

Rosboro 24F-V4/DF, 24F-V8/DF, 24F-V8M4/DF, 30F-E2M3/SP, and 30F-E/DF2 glulam beams are used as beams, headers, rafters, or purlins, and are manufactured with the conventional EWS 24F-V4/DF unbalanced, and 24F-V8/DF, 24F-V8M4/DF, 30F-E2M3/SP, and 30F-E/DF2 balanced layup combinations with the exception that the tension and compression laminations of 24F-V8M4/DF, 30F-E2M3/SP, and 30F-E/DF2 are substituted by laminated veneer lumber (LVL) in accordance with ANSI A190.1. The LVL laminations are supplied by manufacturers recognized by APA and identified in Rosboro'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 ASTM D2559 and ANSI 405. The adhesives used to manufacture the glulam products are exterior-type adhesives meeting the requirements of ASTM D2559 and containing no added urea-formaldehyde.
3. Green product verification:

Rosboro glulam products listed in this report are qualified for green construction with points specified in Tables 1 through 5, as independently verified by APA as meeting pertinent criteria of the referenced standards shown in Section 1.
4. Limitations:
  - a) Rosboro 24F-V4/DF, 24F-V8/DF, 24F-V8M4/DF, 30F-E2M3/SP, and 30F-E/DF2 glulam beams shall be designed in accordance with the code using the design properties specified in this report.
  - b) Rosboro 24F-V8M4/DF glulam beams shall have a minimum depth of 9-1/2 inches, 30F-E2M3/SP glulam beams shall have a minimum depth of 7-1/4 inches and a maximum depth of 48 inches, and 30F-E/DF2 glulam beams shall have a minimum depth of 7-1/4 inches and a maximum depth of 26 inches.

- c) Rosboro 24F-V4/DF, 24F-V8/DF, 24F-V8M4/DF, 30F-E2M3/SP, and 30F-E/DF2 glulam beams are produced at Rosboro, Springfield, OR and Veneta, OR facilities under a quality assurance program audited by APA.
- d) This report is subject to re-examination in one year.

5. Identification:

Rosboro 24F-V4/DF, 24F-V8/DF, 24F-V8M4/DF, 30F-E2M3/SP, and 30F-E/DF2 glulam beams described in this report are identified by a label bearing the manufacturer's name (Rosboro) and/or trademark, the APA assigned plant number (1001 for Springfield or 1078 for Veneta), the product standard (ANSI A190.1), the APA logo, the combination symbol, the report number GR-L251, and a means of identifying the date of manufacture.

**Table 1. 2015 National Green Building Standard ICC 700-2015**

Points that have been verified as eligible by APA

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<b>606.3 Manufacturing energy:</b> Materials manufactured using a minimum of 33% of the primary manufacturing process energy derived from (1) renewable sources, (2) combustible waste sources, or (3) renewal energy credits (RECs) are used for major components of the building	2 for each material	6
✓	<b>608.1 Resource-efficient materials:</b> Products containing fewer materials are used to achieve the same end-use requirements as conventional products	3 for each material	9
✓	<b>901.4(5) Wood materials:</b> A minimum of 85% of material within a product group is manufactured from composite wood products that contain no added urea-formaldehyde or are in accordance with the CARB	4 for each product group	10

Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<b>601.2 Material usage:</b> Structural systems are designed or construction techniques are implemented that reduce and optimize material usage. (1) Minimum structural member or element sizes in accordance with advanced framing techniques or structural design standards are selected, (2) Higher-grade or higher-strength of the same materials than commonly specified for structural elements and components in the building are used and sizes are reduced accordingly, (3) Performance-based structural design is used to optimize lateral force-resisting systems	3 for each system or framing technique	9
✓	<b>601.7(1) Prefinished materials:</b> 90% or more of the installed materials that have no additional site-applied material for finishing (trims or wall coverings)	5	12
✓	<b>601.7(2) Prefinished materials:</b> 50% to less than 90% of the installed materials that have no additional site-applied material for finishing (trims or wall coverings)	2	
✓	<b>601.7(3) Prefinished materials:</b> 35% to less than 50% of the installed materials that have no additional site-applied material for finishing (trims or wall coverings)	1	
✓	<b>606.1(1) Biobased products:</b> Two types of biobased materials are used, each for more than 0.5% of the project's projected building material cost	3	8
✓	<b>606.1(2) Biobased products:</b> Two types of biobased materials are used, each for more than 1% of the project's projected building material cost	6	
✓	<b>606.1(3) Biobased products:</b> For each additional biobased material used for more than 0.5% of the project's projected building material cost	1 each with 2 max	

**Table 1. 2015 National Green Building Standard ICC 700-2015 (Continued)**

Eligible points that are conditional on construction application<sup>(a)</sup>

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<b>609.1 Regional materials:</b> Regional materials are used for major and/or minor components of the building with a minimum of 75% of all products in that component category being sourced regionally	2	10
✓	<b>610.1 Life cycle assessment:</b> A life cycle analysis (LCA) tool is used to select environmentally preferable products or assemblies, or LCA is conducted on the entire building <b>610.1.1 Whole-building life cycle assessment:</b> A whole-building LCA is performed in conformance with ASTM E2921 using ISO 14044 compliant life cycle assessment <b>610.1.2 Life cycle assessment for a product or assembly:</b> An environmentally preferable product or assembly is selected for an application based upon the use of an LCA tool that incorporates data methods compliant with ISO 14044 or other recognized standards that compare the environmental impact of products or assemblies	2 to 3 for each product LCA, 3 to 10 for each assembly LCA	15 for whole-building LCA and product or assembly LCA (15 for whole-building or 10 for product or assembly)

<sup>(a)</sup> Rosboro Glulam products treated with preservatives meeting AWPAs standards or manufactured with naturally decay resistive species may be eligible for points in accordance with Section 602.1.6 of ICC 700.

**Table 2. National Green Building Standard ICC 700-2012**

Points that have been verified by APA

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<b>606.3 Manufacturing energy:</b> Materials manufactured using a minimum of 33% of the primary manufacturing process energy derived from (1) renewable sources, (2) combustible waste sources, or (3) renewal energy credits (REC's) are used for components of the building	2 for each material	6
✓	<b>608.1 Resource-efficient materials:</b> Products containing fewer materials are used to achieve the same end-use requirements as conventional products	3 for each material	9
✓	<b>901.4(5) Wood materials:</b> A minimum of 85% of material within a product group is manufactured from composite wood products that contain no added urea-formaldehyde or are in accordance with the CARB	4 for each product group	10

Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<b>601.2 Material usage:</b> Structural systems are designed or construction techniques are implemented that reduce and optimize material usage. (1) Minimum structural member or element sizes in accordance with advanced framing techniques or structural design standards are selected, (2) Higher-grade or higher-strength of the same materials than commonly specified for structural elements and components in the building are used and sizes are reduced accordingly, (3) Performance-based structural design is used to optimize lateral force-resisting systems	3 for each system or framing technique	9
✓	<b>601.7(1) Site-applied finishing materials:</b> 90% or more of the installed materials that do not require additional site-applied material for finishing (trims or wall coverings)	5	12
✓	<b>601.7(2) Site-applied finishing materials:</b> 50% to less than 90% of the installed materials that do not require additional site-applied material for finishing (trims or wall coverings)	2	
✓	<b>601.7(3) Site-applied finishing materials:</b> 35% to less than 50% of the installed materials that do not require additional site-applied material for finishing (trims or wall coverings)	1	
✓	<b>606.1(1) Biobased products:</b> Two types of biobased materials are used, each for more than 0.5% of the project's projected building material cost	3	8
✓	<b>606.1(2) Biobased products:</b> Two types of biobased materials are used, each for more than 1% of the project's projected building material cost	6	
✓	<b>606.1(3) Biobased products:</b> For each additional biobased material used for more than 0.5% of the project's projected building material cost	1 each with 2 max	

**Table 2. National Green Building Standard ICC 700-2012 (Continued)**

Eligible points that are conditional on construction application<sup>(a)</sup>

✓	<b>609.1 Regional materials:</b> Regional materials are used for major elements or components of the building	2	10
✓	<p><b>610.1 Life cycle analysis:</b> A life cycle analysis (LCA) tool is used to select environmentally preferable products or assemblies, or LCA is conducted on the entire building</p> <p><b>610.1.1 Whole-building life cycle analysis:</b> A whole-building LCA is performed using a life cycle assessment and data compliant with ISO 14044 or other recognized standards</p> <p><b>610.1.2 Life cycle analysis for a product or assembly:</b> An environmentally preferable product or assembly is selected for an application based upon the use of an LCA tool that incorporates data methods compliant with ISO 14044 or other recognized standards that compare the environmental impact of products or assemblies</p>	2 to 3 for each material, 3 to 10 for each assembly, or 15 for whole-building LCA	10 for each product or assembly, or 15 for whole-building

<sup>(a)</sup> Rosboro Glulam products treated with preservatives meeting AWPAs standards or manufactured with naturally decay resistant species may be eligible for points in accordance with Section 602.1.6 of ICC 700.

**Table 3. National Green Building Standard ICC 700-2008**

Points that have been verified as eligible by APA

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<b>606.3 Manufacturing energy:</b> Materials are used for major components of the building that are manufactured using a minimum of 33% of the primary manufacturing process energy derived from renewable sources, combustible waste sources, or renewal energy credits (REC's)	2 for each material	6
✓	<b>607.1 Resource-efficient materials:</b> Products containing fewer materials are used to achieve the same end-use requirements as conventional products	3 for each material	9
✓	<b>609.1 Life cycle analysis:</b> A more environmentally preferable product or assembly is selected for an application based upon the use of a Life Cycle Assessment (LCA) tool compliant with ISO 14044 or other recognized standards that compare the environmental impact of building materials, assemblies, or the whole building	3 per product system comparison or 15 for whole building LCA	15
✓	<b>901.4(5) Wood materials:</b> A minimum of 85% of material within a product group is manufactured from composite wood products that contain no added urea-formaldehyde or are in accordance with the CARB	4 for each product group	10

Eligible points that are conditional on construction application<sup>(a)</sup>

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<b>601.2 Material usage:</b> Building-code-compliant structural systems or advanced framing techniques are implemented that optimize material usage	3 for each system or framing technique	9
✓	<b>601.7(1) Site-applied finishing materials:</b> 90% or more of the installed materials that do not require additional site-applied material for finishing (trims or wall coverings)	5	12
✓	<b>601.7(2) Site-applied finishing materials:</b> 50 to less than 90% of the installed materials that do not require additional site-applied material for finishing (trims or wall coverings)	2	
✓	<b>606.1(1) Biobased products:</b> Two types of biobased materials are used, each for more than 0.5% of the project's projected building material cost	3	8
✓	<b>606.1(2) Biobased products:</b> Two types of biobased materials are used, each for more than 1% of the project's projected building material cost	6	
✓	<b>606.1(3) Biobased products:</b> For each additional biobased material used for more than 0.5% of the project's projected building material cost	1 each with 2 max	
✓	<b>608.1 Indigenous materials:</b> Indigenous materials are used for major elements of the building	2	10

<sup>(a)</sup> Rosboro Glulam products treated with preservatives meeting AWPA standards or manufactured with naturally decay resistive species may be eligible for points in accordance with Section 602.1.6 of ICC 700.

**Table 4. LEED v4 for New Construction and Major Renovations**

Points that have been verified as eligible by APA

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<p><b>Low Emitting Materials. Composite wood evaluation</b>                      Composite wood as defined by the California Air Resources Board, Airborne Toxic Measure to Reduce Formaldehyde Emissions from Composite Wood Products Regulation, must be documented to have low formaldehyde emissions that meet the California Air Resources Board ATCM for formaldehyde requirements for ultra-low-emitting formaldehyde (ULEF) resins or no added formaldehyde resins.</p>	See LEED v4 for calculation methods	3

Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<p><b>Building life-cycle impact reduction. Option 4: Whole-building lifecycle assessment</b>                      For new construction (buildings or portions of buildings), conduct a lifecycle assessment of the project's structure and enclosure that demonstrates a minimum of 10% reduction, compared with a baseline building, in at least three of the six impact categories listed below, one of which must be global warming potential. No impact category assessed as part of the lifecycle assessment may increase by more than 5% compared with the baseline building.                      The baseline and proposed buildings must be of comparable size, function, orientation, and operating energy performance as defined in EA Prerequisite Minimum Energy Performance. The service life of the baseline and proposed buildings must be the same and at least 60 years to fully account for maintenance and replacement. Use the same lifecycle assessment software tools and data sets to evaluate both the baseline building and the proposed building, and report all listed impact categories. Data sets must be compliant with ISO 14044.                      Select at least three of the following impact categories for reduction:</p> <ul style="list-style-type: none"> <li>• global warming potential (greenhouse gases), in CO<sub>2</sub>e;</li> <li>• depletion of the stratospheric ozone layer, in kg CFC11;</li> <li>• acidification of land and water sources, in moles H<sup>+</sup> or kg SO<sub>2</sub>;</li> <li>• eutrophication, in kg nitrogen or kg phosphate;</li> <li>• formation of tropospheric ozone, in kg NO<sub>x</sub>, kg O<sub>3</sub> eq, or kg ethene; and</li> <li>• depletion of nonrenewable energy resources, in MJ</li> </ul>	3	3



**Table 4. LEED v4 for New Construction and Major Renovations (Continued)**

Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<p><b>Building product disclosure and optimization – environmental product declarations. Option 1: Environmental Product Declaration</b></p> <p>Use at least 20 different permanently installed products sourced from at least five different manufacturers that meet one of the disclosure criteria below.</p> <ul style="list-style-type: none"> <li>• Product-specific declaration: Products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle to gate scope are valued as one quarter (1/4) of a product for the purposes of credit achievement calculation</li> <li>• Environmental Product Declarations which conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 and have at least a cradle to gate scope:                             <ul style="list-style-type: none"> <li>▪ Industry-wide (generic) EPD -- Products with third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator are valued as one half (1/2) of a product for purposes of credit achievement calculation.</li> <li>▪ Product-specific Type III EPD -- Products with third-party certification (Type III), including external verification in which the manufacturer is explicitly recognized as the participant by the program operator are valued as one whole product for purposes of credit achievement calculation.</li> </ul> </li> <li>• USGBC approved program – Products that comply with other USGBC approved environmental product declaration frameworks.</li> </ul> <p>For credit achievement calculation, products sourced (extracted, manufactured, purchased) within 100 miles (160 km) of the project site are valued at 200% of their base contributing cost. Structure and enclosure materials may not constitute more than 30% of the value of compliant building products.</p>	1/4 - 1	1

**Table 4. LEED v4 for New Construction and Major Renovations (Continued)**

Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<p><b>Building product disclosure and optimization – sourcing of raw materials. Option 1: Raw material source and extraction reporting</b></p> <p>Use at least 20 different permanently installed products from at least five different manufacturers that have publicly released a report from their raw material suppliers which include raw material supplier extraction locations, a commitment to long-term ecologically responsible land use, a commitment to reducing environmental harms from extraction and /or manufacturing processes, and a commitment to meeting applicable standards or programs voluntarily that address responsible sourcing criteria.</p> <ul style="list-style-type: none"> <li>• Products sourced from manufacturers with self-declared reports are valued as one half (1/2) of a product for credit achievement.</li> <li>• Third-party verified corporate sustainability reports (CSR) which include environmental impacts of extraction operations and activities associated with the manufacturer’s product and the product’s supply chain, are valued as one whole product for credit achievement calculation.</li> </ul> <p>For credit achievement calculation, products sourced (extracted, manufactured, and purchased) within 100 miles (160 km) of the project site are valued at 200% of their base contributing cost. For credit achievement calculation, the base contributing cost of individual products compliant with multiple responsible extraction criteria is not permitted to exceed 100% its total actual cost (before regional multipliers) and double counting of single product components compliant with multiple responsible extraction criteria is not permitted and in no case is a product permitted to contribute more than 200% of its total actual cost.</p> <p>Structure and enclosure materials may not constitute more than 30% of the value of compliant building products.</p>	1	1

**Table 5. 2009 LEED for New Construction and Major Renovations and 2009 LEED Canada for New Construction and Major Renovations**

Points that have been verified as eligible by APA

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<b>IEQ 4.4: Low Emitting Materials:</b> Composite wood products used on the interior of the building (i.e., inside the weatherproofing system) must contain no added urea-formaldehyde resins	1	1

Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	<b>MR 5: Regional Materials:</b> Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 20% or 30%, based on cost, of the total material value <sup>(a)</sup>	1 point for 20% and 2 points for 30%	1 point for 20% and 2 points for 30%
✓	<b>Building product disclosure and optimization—material ingredients. Option 1: material ingredient reporting</b> Use at least 20 different permanently installed products from at least five different manufacturers that use any of the following programs to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm): <ul style="list-style-type: none"> <li>• Manufacturer Inventory</li> <li>• Health Product Declaration</li> <li>• Cradle to Cradle</li> <li>• USGBC approved program</li> </ul> For credit achievement calculation, products sourced (extracted, manufactured, purchased) within 100 miles (160 km) of the project site are valued at 200% of their base contributing cost. Structure and enclosure materials may not constitute more than 30% of the value of compliant building products.	1	1

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