Green Verification Report

www.apawood.org

Rosboro Structural Glued Laminated Timber GR-L251
Rosboro

Revised January 16, 2024

Products: Rosboro Structural Glued Laminated Timber
Rosboro, P.O. Box 20, 2509 Main Street, Springfield, OR 97477
(514) 746-8411
www.rosboro.com

1. Basis of the green verification report:
   - 2020, 2015, 2012, and 2008 National Green Building Standard, ICC 700
   - LEED v4.1 Building Design and Construction
   - LEED v4 New Construction and Major Renovations
   - ANSI A190.1-2017, ANSI A190.1-2012, and ANSI/AITC A190.1-2007, recognized in the 2021 and 2018 International Building Code (IBC) and International Residential Code (IRC), 2015 IBC and IRC, and 2012 IBC and IRC, respectively
   - APA W210, Green Verification Checklist – ICC 700-2020
   - APA T415, Green Verification Checklist – ICC 700-2015
   - APA Q415, Green Verification Checklist – ICC 700-2012
   - APA Z415, Green Verification Checklist – LEED v4.1
   - APA R415, Green Verification Checklist – LEED v4
   - APA Product Report PR-L251
   - Documentation supporting green product verification

2. Product description:
   Rosboro glulam products are used as beams, headers, rafters, purlins, columns, and decking, and are manufactured with the conventional 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 full-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.

3. Green product verification:
   Rosboro glulam products listed in APA PR-L251 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. Rosboro glulam products are also eligible to be marked under the USDA BioPreferred Program, as indicated in Section 6.

4. Limitations:
   a) Rosboro glulam products listed in APA PR-L251 and recognized in this report shall be designed in accordance with the code using the design properties specified in PR-L251.
   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 glulam products listed in APA PR-L251 and recognized in this report 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 glulam beams and columns listed in APA PR-L251 and recognized 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.

6. Voluntary Identification

Rosboro glulam products can be voluntarily labeled with the USDA Certified Biobased Product Label (Figure 1) demonstrating certification with the USDA criteria for renewable biological ingredients (biobased content).

Figure 1. USDA BioPreferred label for glulam beams.

Table 1. 2020 National Green Building Standard ICC 700-2020
Points that have been verified as eligible by APA

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**606.3 Manufacturing energy**: 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
✓	**608.1 Resource-efficient materials**: Products containing fewer materials are used to achieve the same end-use requirements as conventional products	3 for each material	9
✓	**901.4(5) Wood materials**: 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
✓	**601.2 Material usage**: 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
✓	**601.7(1) (a) Prefinished materials**: 35% to less than 50% of the installed materials that have no additional site-applied material for finishing (trims or wall coverings)	1	12
✓	**601.7(1) (b) Prefinished materials**: 50% to less than 90% of the installed materials that have no additional site-applied material for finishing (trims or wall coverings)	2	
✓	**601.7(1) (c) Prefinished materials**: 90% or more of the installed materials that have no additional site-applied material for finishing (trims or wall coverings)	5	
✓	**606.1(1) Biobased products**: Two types of biobased materials are used, each for more than 0.5% of the project's projected building material cost	3	8
✓	**606.1(2) Biobased products**: Two types of biobased materials are used, each for more than 1% of the project's projected building material cost	6	
✓	**606.1(3) Biobased products**: 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. 2020 National Green Building Standard ICC 700-2020 (Continued)
Eligible points that are conditional on construction application[(a)]

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**609.1 Regional materials:** 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
✓	**610.1 Life cycle assessment**: A life cycle assessment (LCA) tool is used to select environmentally preferable products or assemblies **610.1.1 Whole-building life cycle assessment**: A whole-building LCA is performed in conformance with ASTM E2921 using ISO 14044 compliant life cycle assessment **610.1.2 Life cycle assessment for a product or assembly**: 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)

[(a)] 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 1. 2020 National Green Building Standard ICC 700-2020 (Continued)
Eligible points that are conditional on construction application[(a)]

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**613.2 Resilient Construction – Minimum structural requirements (base design)**: The building is designed and constructed in compliance with structural requirements in the IBC or IRC as applicable	2	Declaration from the engineer of record
✓	**613.3 Resilient Construction – Enhanced resilience (10% above base design)**: Design and construction practices are implemented to enhance the resilience and durability of the structure by designing and building to forces generated by flooding, snow, wind, or seismic (as applicable) that are 10% higher than the base design	3	
✓	**613.4 Resilient Construction – Enhanced resilience (20% above base design)**: Design and construction practices are implemented to enhance the resilience and durability of the structure by designing and building to forces generated by flooding, snow, wind, or seismic (as applicable) that are 20% higher than the base design	5	
✓	**613.5 Resilient Construction – Enhanced resilience (30% above base design)**: Design and construction practices are implemented to enhance the resilience and durability of the structure by designing and building to forces generated by flooding, snow, wind, or seismic (as applicable) that are 30% higher than the base design	10	
✓	**613.6 Resilient Construction – Enhanced resilience (40% above base design)**: Design and construction practices are implemented to enhance the resilience and durability of the structure by designing and building to forces generated by flooding, snow, wind, or seismic (as applicable) that are 40% higher than the base design	12	
✓	**613.7 Resilient Construction – Enhanced resilience (50% above base design)**: Design and construction practices are implemented to enhance the resilience and durability of the structure by designing and building to forces generated by flooding, snow, wind, or seismic (as applicable) that are 50% higher than the base design	15	

Table 2. 2015 National Green Building Standard ICC 700-2015
Points that have been verified as eligible by APA

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**606.3 Manufacturing energy**: 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
✓	**608.1 Resource-efficient materials**: Products containing fewer materials are used to achieve the same end-use requirements as conventional products	3 for each material	9
✓	**901.4(5) Wood materials**: 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
✓	**601.2 Material usage**: 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
✓	**601.7(1) Prefinished materials**: 90% or more of the installed materials that have no additional site-applied material for finishing (trims or wall coverings)	5	12
✓	**601.7(2) Prefinished materials**: 50% to less than 90% of the installed materials that have no additional site-applied material for finishing (trims or wall coverings)	2	
✓	**601.7(3) Prefinished materials**: 35% to less than 50% of the installed materials that have no additional site-applied material for finishing (trims or wall coverings)	1	
✓	**606.1(1) Biobased products**: Two types of biobased materials are used, each for more than 0.5% of the project's projected building material cost	3	8
✓	**606.1(2) Biobased products**: Two types of biobased materials are used, each for more than 1% of the project's projected building material cost	6	
✓	**606.1(3) Biobased products**: 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. 2015 National Green Building Standard ICC 700-2015 (Continued)
Eligible points that are conditional on construction application[(a)]

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**609.1 Regional materials:** 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
✓	**610.1 Life cycle assessment**: A life cycle analysis (LCA) tool is used to select environmentally preferable products or assemblies, or LCA is conducted on the entire building **610.1.1 Whole-building life cycle assessment**: A whole-building LCA is performed in conformance with ASTM E2921 using ISO 14044 compliant life cycle assessment **610.1.2 Life cycle assessment for a product or assembly**: 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)

[(a)] 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 3. National Green Building Standard ICC 700-2012
Points that have been verified by APA

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**606.3 Manufacturing energy**: 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
✓	**608.1 Resource-efficient materials**: Products containing fewer materials are used to achieve the same end-use requirements as conventional products	3 for each material	9
✓	**901.4(5) Wood materials**: 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
✓	**601.2 Material usage**: 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
✓	**601.7(1) Site-applied finishing materials**: 90% or more of the installed materials that do not require additional site-applied material for finishing (trims or wall coverings)	5	12
✓	**601.7(2) Site-applied finishing materials**: 50% to less than 90% of the installed materials that do not require additional site-applied material for finishing (trims or wall coverings)	2	
✓	**601.7(3) Site-applied finishing materials**: 35% to less than 50% of the installed materials that do not require additional site-applied material for finishing (trims or wall coverings)	1	
✓	**606.1(1) Biobased products**: Two types of biobased materials are used, each for more than 0.5% of the project's projected building material cost	3	8
✓	**606.1(2) Biobased products**: Two types of biobased materials are used, each for more than 1% of the project's projected building material cost	6	
✓	**606.1(3) Biobased products**: 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 3. National Green Building Standard ICC 700-2012 (Continued)
Eligible points that are conditional on construction application[(a)]

✓	**609.1 Regional materials**: Regional materials are used for major elements or components of the building	2	10
✓	**610.1 Life cycle analysis**: A life cycle analysis (LCA) tool is used to select environmentally preferable products or assemblies, or LCA is conducted on the entire building **610.1.1 Whole-building life cycle analysis**: A whole-building LCA is performed using a life cycle assessment and data compliant with ISO 14044 or other recognized standards **610.1.2 Life cycle analysis for a product or assembly**: 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 material, 3 to 10 for each assembly, or 15 for whole-building LCA	10 for each product or assembly, or 15 for whole-building

[(a)] 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 v4.1 Building Design and Construction
Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**EQ Credit: Low Emitting Materials** *Formaldehyde emissions evaluation:* Product meets one of the following: ▪ Certified as ultra-low-emitting formaldehyde (ULEF) product under EPA Toxic Substances Control Act, Formaldehyde Emission Standards for Composite Wood Products (TSCA, Title VI) (EPA TSCA Title VI) or California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM) ▪ Certified as no added formaldehyde resins (NAF) product under EPA TSCA Title VI or CARB ATCM ▪ Wood structural panel manufactured according to PS 1-09 or PS 2-10 (or one of the standards considered by CARB to be equivalent to PS 1 or PS 2) and labeled bond classification Exposure 1 or Exterior ▪ Structural wood product manufactured according to ANSI A190.1 (for structural glued laminated timber), ANSI/APA PRG 320 (for cross-laminated timber), ASTM D5055 (for I-joists), ASTM D5456 (for structural composite lumber), or PS 20-15 (for finger-jointed lumber).	1-3	3

Table 4. LEED v4.1 Building Design and Construction (continued)
Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**MR Credit: Building Life-Cycle Impact Reduction** **Option 2. Whole-Building Life-Cycle Assessment** For new construction ((buildings or portions of buildings), conduct a cradle-to grave life-cycle assessment of the project's structure and enclosure and select one or more of the following paths below to earn up to 4 points: Path 1: Conduct a life cycle assessment of the project's structure and enclosure (1 point). Path 2: Conduct a life-cycle assessment of the project's structure and enclosure that demonstrates a minimum of 5% 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 (2 points). Path 3: Conduct a life cycle 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 (3 points). Path 4: Meet requirements of Path 3 and incorporate reuse and/or salvage materials into the project's structure and enclosure for the proposed design. Demonstrate reductions compared with a baseline building of at least 20% reduction for global warming potential and demonstrate at least 10% reduction in two additional impact categories listed below (4 points). Select at least three of the following impact categories for reduction: ▪ global warming potential (greenhouse gases), in CO_2e; ▪ depletion of the stratospheric ozone layer, in kg CFC-11e; ▪ acidification of land and water sources, in moles H+ or kg SO_2e; ▪ eutrophication, in kg nitrogen eq or kg phosphate eq; ▪ formation of tropospheric ozone, in kg NOx, kg O3 eq, or kg ethene; and • depletion of nonrenewable energy resources, in MJ using CML / depletion of fossil fuels in TRACI.	1-4	4

Table 4. LEED v4.1 Building Design and Construction (continued)
Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**MR Credit: Environmental Product Declarations** **Option 1. Environmental Product Declaration (EPD)** Use at least 20 different permanently installed products sourced from at least five different manufacturers that meet one of the disclosure criteria below. ▪ Life-cycle assessment and environmental product declarations. ▪ 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 on whole product for the purposes of credit achievement calculation. ▪ Product-specific Type III EPD – Internally Reviewed. Products with an internally critically reviewed LCA in accordance with ISO 14071. Products with product-specific internal EPDs which conform to ISO 14025 and EN 15804 or ISO 21930 and have at least a cradle to gate scope are valued as one whole product for the purposes of credit achievement calculation. ▪ Industry-wide Type III 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. Products with industry-wide EPDs, which conform to ISO 14025, and EN 15804 or ISO 21930 and have at least a cradle to gate scope are valued as one whole product for the purposes of credit achievement calculation. ▪ Environmental Product Declarations which conform to ISO 14025 and EN 15804 or ISO 21930 and have at least a cradle to gate scope. ▪ Product-specific Type III EPD – Products with third-party certification (Type III), including external verification and external critical review are valued as 1.5 products for the purposes of credit achievement calculation. For credit achievement calculation, products sourced (extracted, manufactured, purchased) within 100 miles (160 km) of the project site are valued at twice their base contributing number of products, up to a maximum of 2 products.	1	1

Table 5. LEED v4 New Construction and Major Renovations
Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**EQ Credit: Low Emitting Materials** **Composite wood evaluation** Glued laminated beams are considered compliant if they are made with moisture resistant adhesives meeting ASTM D2559, have no surface treatments with added urea-formaldehyde resins or coatings, and if they are certified according to Structural Glued Laminated Timber (ANSI A190.1), referenced in ID# LI 10466 LEM Composite Wood (www.usgbc.org/leedaddenda/10466). No further VOC emissions testing is required to meet the Low Emitting Materials credit criteria.	See LEED v4 for calculation methods	3
✓	**MR Credit: Building life-cycle impact reduction** **Option 4: Whole-building life cycle assessment** 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: • global warming potential (greenhouse gases), in CO2e; • depletion of the stratospheric ozone layer, in kg CFC11; • acidification of land and water sources, in moles H+ or kg SO2; • eutrophication, in kg nitrogen or kg phosphate; • formation of tropospheric ozone, in kg NOx, kg O3 eq, or kg ethene; and • depletion of nonrenewable energy resources, in MJ	3	3

Table 5. LEED v4 for New Construction and Major Renovations (Continued)
Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**MR Credit: Building product disclosure and optimization – environmental product declarations** **Option 1: Environmental Product Declaration** Use at least 20 different permanently installed products sourced from at least five different manufacturers that meet one of the disclosure criteria below. • 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 • 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: ▪ 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. ▪ 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. • USGBC approved program – Products that comply with other USGBC approved environmental product declaration frameworks. 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.	1/4 - 1	1

APA – The Engineered Wood Association is an approved national standards developer accredited by American National Standards Institute (ANSI). APA publishes ANSI standards and Voluntary Product Standards for wood structural panels and engineered wood products. APA is an accredited certification body under ISO/IEC 17065 by Standards Council of Canada (SCC), an accredited inspection agency under ISO/IEC 17020 by International Code Council (ICC) International Accreditation Service (IAS), and an accredited testing organization under ISO/IEC 17025 by IAS. APA is also an approved Product Certification Agency, Testing Laboratory, Quality Assurance Entity, Validation Entity, and Product Evaluation Entity by the State of Florida, and an approved testing laboratory by City of Los Angeles.

APA – THE ENGINEERED WOOD ASSOCIATION
HEADQUARTERS
7011 So. 19th St. ▪ Tacoma, Washington 98466
Phone: (253) 565-6600 ▪ Fax: (253) 565-7265 ▪ Internet Address: www.apawood.org

PRODUCT SUPPORT HELP DESK
(253) 620-7400 ▪ *E-mail Address*: help@apawood.org

DISCLAIMER