Green Verification Report

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Pacific Woodtech Preservative-Treated Laminated Veneer Lumber
Pacific Woodtech Corporation

GR-L329

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Products: Preservative-Treated Laminated Veneer Lumber
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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
   - 2009 LEED Canada for New Construction and Major Renovations
   - ASTM D5456-14b, D5456-13, D5456-09 and D5456-05a recognized by the 2018 International Building Code (IBC) and International Residential Code (IRC), 2015 IBC and IRC, and 2012 IBC, and 2009 IBC, 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 L415, Green Verification Checklist – LEED
   - APA R415, Green Verification Checklist – LEED v4
   - APA Product Report PR-L329
   - Documentation supporting green product verification

2. Product description:
   Pacific Woodtech preservative-treated laminated veneer lumber (LVL), designated as PWT TREATED LVL, is an LVL product pressed into billets that are approximately 48 inches in width, 3/4 to 3-1/2 inches in thickness, and up to approximately 66 feet in length. LVL billets are ripped into products that are 1-3/4 to 48 inches in depth. Products up to 7 inches in thickness may be fabricated by means of a secondary face-bonding process.

   PWT TREATED LVL is treated with Propiconazole Tebuconazole Imidacloprid (PTI) as part of the in-glueline treatment during the LVL manufacturing process for fungal decay and resistance to wood destroying insects, including Formosan termites, to a retention level equivalent to that specified in ICC-ES Evaluation Report ESR-3834 for the Use Categories UC1 through UC4A. PWT TREATED LVL shall be limited to the above ground applications including, but not limited to, structural members that are critical or hard to replace. The efficacy of the preservative treatment of the PWT TREATED LVL is outside the scope of this report and the APA certification program.

3. Green product verification:
   PWT TREATED LVL products listed in this report are qualified for green construction with points specified in Tables 1, 2, 3, 4 and 5, as independently verified by APA as meeting pertinent criteria of the referenced standards shown in Section 1.

4. Limitations:
   a) PWT TREATED LVL shall be designed in accordance with the code using the design properties specified in APA Product Report PR-L329 or provided by the manufacturer.
   b) The efficacy of the preservative treatment of the PWT TREATED LVL is outside the scope of this report and the APA certification program.

c) PWT TREATED LVL is produced at the Pacific Woodtech Corporation facility in Burlington, Washington, under a quality assurance program audited by APA.
d) This report is subject to re-examination in one year.

5. Identification:
PWT TREATED LVL is sold under the Pacific Woodtech brand. All products are identified by a label bearing the manufacturer's name (Pacific Woodtech) and/or trademark, the APA assigned plant number (1047), the LVL grade, the APA logo, the report number GR-L329, 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
✓	**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
✓	**602.1.6 Termite-resistant materials:** In areas of termite infestation probability as defined by Figure 6(3), termite-resistant materials are used as follows: **602.1.6(1):** In areas of slight to moderate termite infestation probability: for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings within the first 2 feet (610 mm) above the top of the foundation.	2	6
✓	**602.1.6(2):** In areas of moderate to heavy termite infestation probability: for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings within the first 3 feet (914 mm) above the top of the foundation.	4	
✓	**602.1.6(3):** In areas of very heavy termite infestation probability: for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings.	6	
✓	**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. 2015 National Green Building Standard ICC 700-2015 (continued)
Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**606.2(2) Wood-based products**: A minimum of 2 certified wood-based products are used in major components of the building, such as walls, floors or roof	4	4
✓	**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 for each major component and 1 for each minor component	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)

Table 2. National Green Building Standard ICC 700-2012

(a) Points that have been verified by APA

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**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

(b) 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
	602.1.6 Termite-resistant materials: In areas of termite infestation probability as defined by Figure 6(3), termite-resistant materials are used as follows:		6
✓	**602.1.6(1):** In areas of slight to moderate termite infestation probability: for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings within the first 2 feet (610 mm) above the top of the foundation.	2	
✓	**602.1.6(2):** In areas of moderate to heavy termite infestation probability: for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings within the first 3 feet (914 mm) above the top of the foundation.	4	
✓	**602.1.6(3):** In areas of very heavy termite infestation probability: for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings.	6	
✓	**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. National Green Building Standard ICC 700-2012 (continued)
(b) Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**606.2(2) Certified wood**: A minimum of 2 certified wood-based products are used in major elements of the building such as walls, floors or roof	4	4
✓	**609.1 Regional materials**: Regional materials are used for major elements or components of the building	2 for each material	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

Table 3. National Green Building Standard ICC 700-2008

(a) Points that have been verified as eligible by APA

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**607.1 Resource-efficient materials**: Products containing fewer materials are used to achieve the same end-use requirements as conventional products	3 for each material	9
✓	**609.1 Life cycle analysis**: 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
✓	**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

(b) Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**601.2 Material usage**: Building-code-compliant structural systems or advanced framing techniques are implemented that optimize material usage	3 for each system or framing technique	9
	602.8 Termite-resistant materials. Termite-resistant materials are used as follows:		6
✓	**602.8(1) Termite-resistant materials**: In areas of slight to moderate termite infestation probability [as defined by Figure 6(3)] for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings within the first 2 feet (610 mm) above the top of the foundation.	2	
✓	**602.8(2) Termite-resistant materials**: In areas of moderate to heavy termite infestation probability [as defined by Figure 6(3)] for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings with the first 3 feet (914 mm) above the top of the foundation.	4	
✓	**602.8(3) Termite-resistant materials**: In areas of very heavy termite infestation probability [as defined by Figure 6(3)] for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings.	6	

Table 3. National Green Building Standard ICC 700-2008 (continued)
(b) Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**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	
✓	**606.2(2) Certified wood**: A minimum of 2 certified wood-based products are used for major elements of the building such as walls, floors or roof	4	4

Table 4. LEED v4 for New Construction and Major Renovations

(a) Points Verified by APA

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**Low Emitting Materials. Composite wood evaluation** 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.	See LEED v4 for calculation methods	3

(b) Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**Building life-cycle impact reduction. Option 4: Whole-building lifecycle 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 4. LEED v4 for New Construction and Major Renovations (continued)
(b) Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**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

Table 4. LEED v4 for New Construction and Major Renovations (continued)
(b) Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**Building product disclosure and optimization – sourcing of raw materials. Option 2: Leadership extraction practice** Use products that meet the responsible extraction criteria below for at least 25%, by cost, of the total value of permanently installed building products in the project. • Biobased materials. Biobased products must meet the Sustainable Agriculture Network's Sustainable Agriculture Standard. Biobased raw materials must be tested using ASTM Test Method D6866 and be legally harvested, as defined by the exporting and receiving country. Exclude hide products, such as leather and other animal skin material. Products meeting biobased materials criteria are valued at 100% of their cost for the purposes of credit achievement calculation. • Wood products. Wood products must be certified by the Forest Stewardship Council or USGBC-approved equivalent. Products meeting wood products criteria are valued at 100% of their cost for the purposes of credit achievement calculation. • Pilot Alternative Compliance Path – Legal Wood. Wood products from Certified Sources as defined by ASTM D7612-10 are valued at 100% of their cost for purposes of credit achievement calculation if the following two conditions are also met: ▪ 100% of all wood is verified to be from Legal (non-controversial) Sources as defined by ASTM D7612-10. These components include at a minimum, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes. and ▪ 70% (based on cost) of all wood used on the project is from Responsible Sources as defined by ASTM D7612-10. These components include at a minimum, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes. 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. Structure and enclosure materials may not constitute more than 30% of the value of compliant building products.	1	1

Table 4. LEED v4 for New Construction and Major Renovations (continued)
(b) Eligible points that are conditional on construction application

	Section/Criteria	Eligible Points	Possible Maximum Points
✓	**Building product disclosure and optimization – material ingredients. Option 1: Material ingredient reporting** 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) • Manufacturer Inventory • Health Product Declaration • Cradle to Cradle • USGBC approved program Structure and enclosure materials may not constitute more than 30% of the value of compliant building products.	1	1
✓	**Building product disclosure and optimization – material ingredients. Option 2: Material ingredient optimization** Use products that document their material ingredient optimization using the paths below for at least 25%, by cost, of the total value of permanently installed products in the project. • GreenScreen v1.2 Benchmark • Cradle to Cradle Certified • International Alternative Compliance Path – REACH Optimization • USGBC approved program 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

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
✓	**IEQ 4.4: Low Emitting Materials:** 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
✓	**MR 5: Regional Materials**: 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 10% or 20%, based on cost, of the total material value	1 point for 10% and 2 points for 20%	2
✓	**MR 7: Certified Wood**: Use a minimum of 50% (based on cost) of wood-based materials and products that are certified in accordance with the FSC principles and criteria, for wood building components • Pilot Alternative Compliance Path – Legal Wood. Wood products from Certified Sources as defined by ASTM D7612-10 are valued at 100% of their cost for purposes of credit achievement calculation if the following two conditions are also met: ▪ 100% of all wood is verified to be from Legal (non-controversial) Sources as defined by ASTM D7612-10. These components include at a minimum, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes. and ▪ 70% (based on cost) of all wood used on the project is from Responsible Sources as defined by ASTM D7612-10. These components include at a minimum, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes.	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, and Validation Entity by the State of Florida, and an approved testing laboratory by City of Los Angeles.

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