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ICC-ES VAR Environmental Report™

VAR-1008

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Reissued 08/2017
This report is subject to renewal 08/2019.

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES

SECTION: 06 17 13—LAMINATED VENEER LUMBER

SECTION: 06 17 23—PARALLEL STRAND LUMBER

SECTION: 06 17 25—LAMINATED STRAND LUMBER

REPORT HOLDER:

WEYERHAEUSER

**POST OFFICE BOX 6049
FEDERAL WAY, WASHINGTON 98063**

EVALUATION SUBJECT:

STRUCTURAL WOOD PRODUCTS:

Trus Joist® TJI® Joist, Trus Joist® TimberStrand® LSL, Trus Joist® TimberStrand® LSL with Flak Jacket™ FRT Protection, Trus Joist® Parallam® PSL, Trus Joist® Parallam® Plus PSL, Trus Joist® Microllam® LVL, Trus Joist® StrandGuard® TimberStrand® LSL, Weyerhaeuser Framer Series® Lumber, Weyerhaeuser Pro Series™ Lumber, Weyerhaeuser Lumber, Weyerhaeuser Green Stud, Weyerhaeuser Edge™ Floor Panels, Weyerhaeuser Edge Gold™ Floor Panels, Weyerhaeuser Diamond™ Floor Panels, Weyerhaeuser Hardwood Edge™ Floor Panels, Weyerhaeuser Radiant Barrier Sheathing, Weyerhaeuser Sheathing, Weyerhaeuser Plywood

BUILDING OPTIMIZATION SOFTWARE:

Javelin® Design Software, NextPhase® Site Solutions



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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES

Section: 06 17 13—Laminated Veneer Lumber

Section: 06 17 23—Parallel Strand Lumber

Section: 06 17 25—Laminated Strand Lumber

REPORT HOLDER:

WEYERHAEUSER
POST OFFICE BOX 6049
FEDERAL WAY, WASHINGTON 98063
(253) 924-4231
www.weyerhaeuser.com

ADDITIONAL LISTEES:

REDBUILT™ LLC
200 EAST MALLARD DRIVE
BOISE, IDAHO 83706

PACIFIC WOODTECH CORPORATION
1850 PARK LANE
POST OFFICE BOX 465
BURLINGTON, WASHINGTON 98233

ANTHONY-DOMTAR INC.
1195 PEOPLES ROAD
SAULT STE MARIE
ONTARIO P6C 3W7
CANADA

EVALUATION SUBJECT:

STRUCTURAL WOOD PRODUCTS:

Trus Joist® TJI® Joist
Trus Joist® TimberStrand® LSL
Trus Joist® TimberStrand® LSL with Flak Jacket™ FRT Protection
Trus Joist® Parallam® PSL
Trus Joist® Parallam® Plus PSL
Trus Joist® Microllam® LVL
Trus Joist® StrandGuard® TimberStrand® LSL
Weyerhaeuser Framer Series® Lumber
Weyerhaeuser Pro Series™ Lumber
Weyerhaeuser Lumber
Weyerhaeuser Green Stud
Weyerhaeuser Edge™ Floor Panels
Weyerhaeuser Edge Gold™ Floor Panels
Weyerhaeuser Diamond™ Floor Panels
Weyerhaeuser Hardwood Edge™ Floor Panels
Weyerhaeuser Radiant Barrier Sheathing
Weyerhaeuser Sheathing
Weyerhaeuser Plywood

BUILDING OPTIMIZATION SOFTWARE:

Javelin® Design Software
NextPhase® Site Solutions

1.0 EVALUATION SCOPE

Compliance with the following evaluation guidelines:

- ICC-ES Environmental Criteria for Determination of Bio-based Material Content (EC102), dated March 2012
- ICC-ES Environmental Criteria for Determination of Source of Recovery, Extraction, Harvest and Manufacture for Materials or Products (EC114), dated March 2012
- ICC-ES Environmental Criteria for Determination of Formaldehyde Emissions of Composite Wood Products (EC108), dated March 2012
- ICC-ES Environmental Criteria for Determination of Certified Wood and Certified Wood Content in Products (EC109), dated March 2012

Compliance eligibility with the applicable sections of the following codes, standards and green building rating systems:

- 2015 International Green Construction Code (IgCC) (see Table 2 for details)
- 2016 California Green Building Standards Code (CALGreen), Title 24, Part 11 (see Table 3 for details)
- National Green Building Standard (ICC 700-2015) (see Table 4 for details)
- LEED v4 for Homes Design and Construction (see Table 5 for details)
- LEED v4 for Building Design and Construction (BD+C) (See Table 6 for details)
- ANSI/GBI 01-2010 – Green Building Assessment Protocol for Commercial Buildings Construction (see Table 7 for details)
- ANSI/ASHRAE/USGBC/IES Standard 189.1-2014 – Standard for the Design of High-Performance Green Buildings, Except Low-Rise Residential Buildings (see Table 8 for details)

2.0 USES

Weyerhaeuser and Trus Joist® structural wood products are used for a variety of interior and exterior framing and sheathing applications.

Javelin® software and NextPhase® Site Solutions are building optimization solutions consisting of a coordinated package of services, software, and fabrication equipment

used for customized design and detailing of structural building products for individual projects, including complete framing plans and precut framing package options.

3.0 DESCRIPTION

Weyerhaeuser and Trus Joist® structural wood products are manufactured from various wood species bonded with structural adhesives (where applicable) complying with applicable ICC-ES reports as indicated in Table 1.

Javelin® software specifies optimized combinations of residential engineered wood products and dimension lumber in layouts for floor, wall, and roof systems with detailed framing plan and material list outputs. NextPhase® Site Solutions combine products, integrated design and fabrication software, fabrication equipment, support and training to enable precut or panelized framing packages to be delivered directly to a jobsite.

4.0 CONDITIONS

4.1 Code Compliance:

The Weyerhaeuser and Trus Joist® structural products that have been evaluated for compliance with or otherwise deemed to comply with, the requirements of the International Building Code® (IBC) and/or International Residential Code® (IRC) are listed in Table 1 of this report.

The evaluation of the Javelin® software and NextPhase® Site Solutions building optimization solutions for compliance with the requirements of the IBC and/or IRC is outside the scope of this evaluation report. Compliance with all applicable code requirements must be demonstrated to the Authority Having Jurisdiction (AHJ).

4.2 Green Codes, Standards and Rating Systems Eligibility:

The information presented in Tables 2 through 8 of this report provides a matrix of areas of evaluation and corresponding limitations and/or additional project-specific requirements, and offer benefit to individuals who are assessing eligibility for credits or points.

The information on Life Cycle Assessment (LCA) is limited to the boundary conditions, the Life Cycle Inventory (LCI) inputs that consist of aggregated data and the methodology contained in the documentation noted in Sections 5.10 and 5.11 of this report. The acceptance of this LCA information rests with the end-user. See Appendix A of this report for additional discussion on LCA.

The final interpretation of the specific requirements of the respective green building rating system and/or standard rests with the developer of that specific rating system or standard or the AHJ, as applicable.

Decisions on compliance for those items noted as “Eligible for Points” in Tables 2 through 8 rests with the user of this report, and those items are subject to the conditions noted. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. Rating systems or standards often provide supplemental information as guidance. Compliance for items noted as “Verified Attribute” is also subject to any conditions noted in the tables.

5.0 BASIS OF EVALUATION

The information in this report, including the “Verified Attribute,” is based upon the following supporting documentation:

- 5.1 ICC-ES EC102. [Evaluation applies to IgCC Section 505.2.4; CALGreen Section A4.405.4 and A5.405.2; ICC 700 Sections 606.1, 11.606.1, 12.1(A).606.1; ANSI/GBI 01 Section 10.2.1.1; ASHRAE 189.1 Section 9.4.1.3.]
- 5.2 ICC-ES EC114. [Evaluation applies to IgCC Section 505.2.5; CALGreen Section A5.405.1; ICC 700 Sections 609.1, 11.609.1, 12.1(A).609.1; LEED v4 Homes MRc3; LEED v4 BD+C MRc3; ANSI/GBI 01 Section 10.1.4.1; ASHRAE 189.1 Section 9.4.1.2.]
- 5.3 ICC-ES EC108. [Evaluation applies to IgCC Section 806.1; ICC 700 Sections 901.4(6), 11.901.4(6); LEED v4 Homes EQc2; LEED v4 BD+C EQc2; ASHRAE 189.1 Section 8.4.2.4.]
- 5.4 ICC-ES EC109. [Evaluation applies to ICC 700-2015 Sections 606.2(2), 11.606.2(2); 12.1(A).606.2; ANSI/GBI 01 Section 10.3.2.1; ASHRAE 189.1 Section 9.4.1.3.1.]
- 5.5 Documentation demonstrating conformance with HUD PATH and DOE recommendations for advanced framing techniques, as summarized in Table 9 of this report. [Evaluation applies to ICC 700 Sections 601.2(1), 11.601.2.1(1); 12.601.2.1(1); LEED v4 Homes MRc2; CALGreen Section A5.404.1.]
- 5.6 Software output of the Javelin® software with detailed framing or structural plans, material quantity lists and on-site cut lists for framing, structural materials, and sheathing materials, to assist with waste minimization. [Evaluation applies to ICC 700 Sections 601.4, 11.601.4; CALGreen Section A4.404.1.]
- 5.7 Software output of the NextPhase® Site Solutions software with detailed framing or structural plans, material quantity lists and precut framing packages to assist in waste minimization. [Evaluation applies to ICC 700 Sections 601.5(1), 11.601.5.1(1); CALGreen A4.404.1.]
- 5.8 Evidence of compliance with AWPA Standard T1-09, Table 3. [Evaluation applies to ICC 700 Sections 602.1.6, 11.602.1.6.]
- 5.9 Documentation establishing and documenting all major sources of primary manufacturing energy. [Evaluation applies to ICC 700 Sections 606.3, 11.606.3.]
- 5.10 Consortium for Research on Renewable Industrial Materials (CORRIM) Phase 1 report, containing an LCA analysis performed in accordance with ISO 14044. [Evaluation applies to ICC 700 Sections 610.1, 11.610.1, 12.1(A).610.1; CALGreen Section A5.409.3; ASHRAE 189.1 Section 9.5.1.]
- 5.11 Environmental Product Declarations for North American Softwood, Plywood, Wood I-Joists and Laminated Veneer Lumber (LVL) prepared in accordance with the FP Innovations: 2011 Product Category Rules (PCR) for preparing an Environmental Product Declaration for North American Structural and Architectural Wood Products, Version 1, (UN CPC 31, NAICS 321), November 8, 2011, containing an LCA analysis performed in accordance with ISO 14044. [Evaluation applies to ICC 700 Section 610.1, 11.610.1, 12.1(A).610.1; LEED BD+C MRc2; CALGreen Section A5.409.3; ASHRAE 189.1 Section 9.5.1.]
- 5.12 Documentation establishing that the environmental management system conforms to the requirements of

ISO 14001 or equivalent. [Evaluation applies to ICC 700 Sections 611.1, 11.611.1, 12.1(A).611.1.]

6.0 IDENTIFICATION

Weyerhaeuser and Trus Joist® structural wood products are identified with a stamp noting the name or logo of the manufacturer (Weyerhaeuser), the plant number, the

product trade name and the ICC-ES evaluation report number (if applicable), and the name or logo of the inspection or grading agency. The report subjects are also identified on the product and/or packaging with the VAR Environmental Report number (VAR-1008) and the ICC-ES SAVE Mark, as applicable.

TABLE 1—REFERENCE STANDARD OR EVALUATION REPORT NUMBER FOR WEYERHAEUSER AND TRUS JOIST® STRUCTURAL WOOD PRODUCTS

PRODUCT	REPORT NUMBER/ REFERENCE STANDARD
TJI® Joist	ESR-1153
TimberStrand® LSL	ESR-1387
TimberStrand® LSL with Flak Jacket™ Protection	ESR-1387
Parallam® PSL ¹	ESR-1387
Microllam® LVL	ESR-1387
StrandGuard® TimberStrand® LSL	ESR-1387
Framer Series® Lumber	USDOC PS20
Pro Series™ Lumber	USDOC PS20
Weyerhaeuser Lumber	USDOC PS20
Weyerhaeuser Green Stud	USDOC PS20
Weyerhaeuser Edge™ panels	USDOC PS2
Weyerhaeuser Edge Gold™	USDOC PS2
Weyerhaeuser Diamond™	ESR-4133
Weyerhaeuser Hardwood Edge™	USDOC PS2
Weyerhaeuser RBS	USDOC PS2
Weyerhaeuser Sheathing	USDOC PS2
Weyerhaeuser Plywood	USDOC PS1

¹ Parallam Plus PSL is treated in accordance with AWPA standards.

SECTION #	SECTION INTENT	POSSIBLE POINTS	CONDITIONS OF USE TO QUALIFY FOR POINTS	Edge	Hardwood Edge	Edge Gold	Diamond	Radiant Barrier	Sheathing	Sheathing Plywood	Lumber	Framer Series Lumber	Green Stud	Pro Series Lumber	T/J Joist	Timber Strand LSL	Timber Strand LSL with Flak Jacket	Parallam PSL	Microllam LVL	Strand Guard	Timber Strand LSL	Parallam Plus PSL	Javelin Software	NextPhase Site Solutions
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TABLE 2—SUMMARY OF AREAS OF ELIGIBILITY WITH THE 2015 INTERNATIONAL GREEN CONSTRUCTION CODE (IGCC)

505.2.4	Bio-based materials	N/A	Wood & wood products, other than salvaged or reused wood products, shall be labeled in accordance with the SFI Standard, FSC STD-40-004 V2-1 EN, PEFC Council Technical Document or equivalent fiber procurement system (ASTM D7612 Responsible or Certified Sources).	● ^g							● ^g				● ^g											
505.2.5	Indigenous materials	N/A	Products shall be recovered, harvested, extracted & manufactured within a 500 mile (800 km) radius of the building site. Where only a portion of a material or product is recovered, harvested, extracted and manufactured within 500 miles (800 km), only that portion shall be included. Where resources are transported by water or rail, the distance to the building site shall be determined by multiplying the distance that the resources are transported by water or rail by 0.25, & adding that number to the distance transported by means other than water or rail. ²	○							○				○											
806.1	Formaldehyde emissions	N/A	Weyerhaeuser structural plywood & structural panel products comply with US DOC PS-1 & PS-2, respectively (see Table 1 of this report) & are exempt from formaldehyde emissions testing.	●																						
		N/A	Weyerhaeuser I-joists comply with ASTM D5055 (see Table 1 of this report) & are exempt from formaldehyde emissions testing.											●												
		N/A	Weyerhaeuser LSL, PSL & LVL products comply with ASTM D5456 (see Table 1 of this report) & are exempt from formaldehyde emissions testing.														●					●				

TABLE 3—SUMMARY OF AREAS OF ELIGIBILITY WITH THE 2016 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN)

4.504.5 5.504.4.5	Composite wood product emissions	Mandatory	EWP & lumber products do not apply to the composite wood product definition. ⁶																						
4.505	Moisture content of building materials	Mandatory	Moisture content of lumber may be measured with an appropriate handheld moisture meter. ⁷									○													
A4.404.1	Proper beam, header and trimmer design	Elective	Beams, headers & trimmers are the minimum size to adequately support the load.									○	○	○	○	○	○	○	○	○	○	○	○	○	○
A4.404.3	Products containing fewer materials are used to achieve the same end-use requirements as conventional products.	Elective	Use premanufactured building systems as a substitute for solid lumber.												●	●	●	●	●	●	●	●	●	●	●

- = Eligible for points
- = Verified attribute
- = This provision does not apply to this product/service

Note: Footnotes are located after Table 8.

SECTION #	SECTION INTENT	POSSIBLE POINTS	CONDITIONS OF USE TO QUALIFY FOR POINTS	Edge	Hardwood Edge	Edge Gold	Diamond	Radiant Barrier	Sheathing	Sheathing	Plywood	Lumber	Framer Series Lumber	Green Stud	Pro Series Lumber	T JI Joist	TimberStrand LSL	TimberStrand LSL with	Flak Jacket	Parallam PSL	Microllam LVL	StrandGuard	TimberStrand LSL	Parallam Plus PSL	Javelin Software	NextPhase Site Solutions		
TABLE 3—SUMMARY OF AREAS OF ELIGIBILITY WITH THE 2016 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN) (Continued)																												
A4.404.4	Detailed cut list and material order	Elective	Material lists are included in the plans which specify material quantity and provide direction for on-site cuts.																									
A4.405.4(3) A4.405.4(5)	Renewable sources	Elective	Materials from renewable sources (such as engineered wood and solid wood products).		●								●															
A5.404.1	Advanced wood framing techniques	Elective	Advanced framing methods shall not conflict with structural framing methods or fire-rated assemblies required by the California Building Code (See Table 9 of this report).		○								○															
A5.405.1	Regional materials	Elective	Verify local products are extracted, processed or manufactured within California or 500 miles (805 km) of the job site. ²		○								○															
A5.405.2	Bio-based materials	Elective	All Weyerhaeuser & Trus Joist wood products qualify as bio-based.		●								●															
A5.405.2.1	Certified wood	Elective	Under review by California Building Standards Commission. ⁵		N/A								N/A															
A5.409.1	Life cycle assessment - Material & system assemblies	Elective	Select materials or assemblies based on an LCA done in accordance with ISO 14044.		○								○															
TABLE 4—SUMMARY OF AREAS OF ELIGIBILITY WITH THE NATIONAL GREEN BUILDING STANDARD (ICC 700—2015)																												
601.2(1)	Minimum structural member or element sizes necessary for strength & stiffness in accordance with advanced framing techniques that optimize material usage.	3	To earn 3 points, the framing methods listed in Table 9 must be used for floor, wall or roof framing. To earn 9 points they must be used for all floor, wall & roof framing.		○								○															
601.4	Detailed framing or structural plans, material quantity lists & on-site cut lists for framing, structural materials & sheathing materials are provided.	4	To earn 4 points, the software generated plans/lists must be on site.																									
601.5(1)	Precut or preassembled components or panelized or precast assemblies are used for a minimum of 90% of the floor system.	4	To earn 4 points, the precut package must be used for 90% or more of the floor system.																									
602.1.6	Termite-resistant materials are used.	6	To earn 6 points, all structural elements must be termite-resistant in areas of heavy termite infestation. 2 or 4 points are available for areas with lower infestation probability.																									
602.1.7.1(3)	The moisture content of lumber is sampled to ensure it does not exceed 19% prior to the surface and/or wall cavity exposure.	4	To earn 4 points, the moisture content of lumber must be determined to not exceed 19%, such as measuring with a moisture meter, prior to enclosure. ⁷										○															

- = Eligible for points
- = Verified attribute
- = This provision does not apply to this product/service

Note: Footnotes are located after Table 8.

SECTION #	SECTION INTENT	POSSIBLE POINTS	CONDITIONS OF USE TO QUALIFY FOR POINTS	Edge	Hardwood Edge	Edge Gold	Diamond	Radiant Barrier	Sheathing	Sheathing Plywood	Lumber	Framer Series Lumber	Green Stud	Pro Series Lumber	T/J Joist	TimberStrand LSL	TimberStrand LSL with Flak Jacket	Parallam PSL	Microllam LVL	StrandGuard	TimberStrand LSL	Parallam Plus PSL	Javelin Software	NextPhase Site Solutions
TABLE 4—SUMMARY OF AREAS OF ELIGIBILITY WITH THE NATIONAL GREEN BUILDING STANDARD (ICC 700—2015) (Continued)																								
606.1(2)	Two types of biobased materials are used, each for more than 1% of the project's projected building material cost.	6	To earn 6 points, products must be at least 1% of the construction material cost & another bio-based product at 1% of material cost must be used. 1 or 3 points are available for greater than 0.5%.		•						•				•					•				
606.2(2)	Two certified wood-based products are used for major elements of the building, such as all walls, floors or roof.	4	To earn 4 points, a second certified wood product must also be used as a major element. ¹		• ⁹						• ⁹				• ⁹					• ⁹				
606.3	Materials used for major components of the building are manufactured using a minimum of 33% of primary manufacturing process energy derived from renewable sources, combustible waste sources, or renewable energy credits.	2 each 6 max	To earn 6 points, the products must be used for at least 3 major components of the building. 2 points may be earned when used for each major component.		•						• ⁸									•				
608.1	Products containing fewer materials are used to achieve the same end-use requirements as conventional products.	3 each 9 max	To earn 3 points at least 80% of framing products used in the building are Weyerhaeuser or Trus Joist products.		•										•					•				
609.1	Regional materials	2 each 10 max	For a component to comply with this practice, a minimum of 75% of all products in that component category must be sourced regionally. ²		○						○				○					○				
611.1	Product manufacturer's operations & business practices include environmental management system concepts & the production facility is ISO 14001 certified or equivalent.	1 per % 10 max	1 point may be earned for each building products used that equals 1 percent or more of the estimated total building materials cost. Material cost breakdown to be verified & points adjusted to reflect actual percentage of all products from ISO 14001 facilities.		•						•				• ⁹					• ⁹				
901.4(1)	Structural plywood for floor, wall, and/or roof sheathing complies with DOC PS 1 and/or DOC PS 2. OSB for floor, wall, and/or roof sheathing complies with DOC PS 2. The panels are made with moisture-resistant adhesives & the trademark indicates the adhesives are Exposure 1 or Exterior (plywood) & Exposure 1 (OSB)	Mandatory	To meet this, a minimum of 85% of OSB or plywood, in the building, must consist of Weyerhaeuser or Trus Joist products.		•																			
610.1	A Life Cycle Assessment (LCA) tool complying with ISO 14044 or other recognized standards is used to select environmentally preferable products or assemblies based on comparison of the environmental impact of building materials, assemblies or the whole building.	3 each 15 max	To gain 15 points, an ISO 14044-complaint LCA must be done on a whole building basis. 3 points may be earned where comparative LCA is done for individual products or systems using 5 impact measures and show improvement on the environmental impact measures by an average of 15%.		•						•				•					•				
○	= Eligible for points																							
•	= Verified attribute																							
	= This provision does not apply to this product/service																							

SECTION #	SECTION INTENT	POSSIBLE POINTS	CONDITIONS OF USE TO QUALIFY FOR POINTS	Edge Hardwood Edge Edge Gold Diamond Radiant Barrier Sheathing Sheathing Plywood	Lumber Framer Series Lumber Green Stud Pro Series Lumber	T/J Joist	TimberStrand LSL TimberStrand LSL with Flak Jacket Parallam PSL Microllam LVL	StrandGuard TimberStrand LSL Parallam Plus PSL	Javelin Software	NextPhase Site Solutions
TABLE 4—SUMMARY OF AREAS OF ELIGIBILITY WITH THE NATIONAL GREEN BUILDING STANDARD (ICC 700—2015) (Continued)										
901.4(6)	Non-emitting products, which can include structural wood framing.	4	A minimum of 85% of product in the building are the identified Weyerhaeuser or Trus Joist products.	●		●	●	●		
11.601.2.1(1)	Minimum structural member or element sizes necessary for strength & stiffness in accordance with advanced framing techniques that optimize material usage.	3	To earn 3 points, the framing methods listed in Table 9 must be used for floor, wall or roof framing. To earn 9 points they must be used for all floor, wall and roof framing.	○	○	○	○	○		
11.601.4	Detailed framing or structural plans, material quantity lists & on-site cut lists for framing, structural materials, & sheathing materials are provided.	4	To earn 4 points, the software generated plans/lists must be on site.						○	○
11.601.5.1(1)	Precut or preassembled components or panelized or precast assemblies are used for a minimum of 90% of the floor system.	4	To earn 4 points, the precut package must be used for 90% or more of the floor system.							○
11.602.1.6	Termite-resistant materials are used.	6	To earn 6 points, all structural elements must be termite resistant in areas of heavy termite infestation. 2 or 4 points are available for areas with lower infestation probability.					●		
11.602.1.7.1(3)	The moisture content of lumber is sampled to ensure it does not exceed 19% prior to the surface and/or wall cavity exposure.	4	To earn 4 points, the moisture content of lumber must be determined to not exceed 19%, such as measuring with a moisture meter, prior to enclosure. ⁷		○					
11.606.1(b)	Two types of biobased materials are used, each for more than 1% of the project's projected building material cost.	6	To earn 6 points, products must be at least 1% of the construction material cost AND another bio-based product at 1% of material cost must be used. 1 or 3 points are available for more than 0.5%.	●	●	●	●	●		
11.606.2(2)	Two certified wood-based products are used for major elements of the building, such as all walls, floors or roof	4	To earn 4 points, a second certified wood product must also be used as a major element. ¹	● ⁹	● ⁹	● ⁹	● ⁹	● ⁹		
11.606.3	Materials used for major components of the building are manufactured using a minimum of 33% of primary manufacturing process energy derived from renewable sources, combustible waste sources, or renewable energy credits.	2 each 6 max	To earn 6 points, the products must be used for at least 3 major components of the building. 2 points may be earned when used for each major component.	●	● ⁸		●	●		
11.608.1	Products containing fewer materials are used to achieve the same end-use requirements as conventional products	3 each 9 max	To earn 3 points, at least 80% of framing products used in the building are Weyerhaeuser or Trus Joist products.	●		●	●	●		
○	= Eligible for points									
●	= Verified attribute									
	= This provision does not apply to this product/service									

Note: Footnotes are located after Table 8.

SECTION #	SECTION INTENT	POSSIBLE POINTS	CONDITIONS OF USE TO QUALIFY FOR POINTS	Edge Hardwood Edge Edge Gold Diamond Radiant Barrier Sheathing Sheathing Plywood	Lumber Framer Series Lumber Green Stud Pro Series Lumber	T JI Joist	TimberStrand LSL TimberStrand LSL with Flak Jacket Parallam PSL Microllam LVL	StrandGuard TimberStrand LSL Parallam Plus PSL	Javelin Software	NextPhase Site Solutions
TABLE 4—SUMMARY OF AREAS OF ELIGIBILITY WITH THE NATIONAL GREEN BUILDING STANDARD (ICC 700—2015) (Continued)										
11.609.1	Regional materials	2 each 10 max	For a component to comply with this practice, a minimum of 75% of all products in that component category must be sourced regionally. ²	○	○	○	○	○		
11.610.1	A Life Cycle Assessment (LCA) tool complying with ISO 14044 or other recognized standards is used to select environmentally preferable products or assemblies based on comparison of the environmental impact of building materials, assemblies or the whole building.	3 each 15 max	To gain 15 points, an ISO 14044-complaint LCA must be done on a whole building basis. 3 points may be earned where comparative LCA is done for individual products or systems using 5 impact measures and show improvement on the environmental impact measures by an average of 15%.	●	●	●	●	●		
11.611.1	Product manufacturer's operations & business practices include environmental management system concepts & the production facility is ISO 14001 certified or equivalent.	1 per % 10 max	1 point may be earned for each building products used that equals 1 percent or more of the estimated total building materials cost. Material cost breakdown to be verified & points adjusted to reflect actual percentage of all products from ISO 14001 facilities.	●	●	● ⁹	● ⁹	●		
11.901.4(1)	Structural plywood used for floor, wall, and/or roof sheathing complies with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing complies with DOC PS 2. The panels are made with moisture-resistant adhesives & the trademark indicates the adhesives are Exposure 1 or Exterior (plywood) and Exposure 1 (OSB).	Mandatory	To meet this, a minimum of 85% of OSB or plywood in the building must consist of Weyerhaeuser or Trus Joist products.	●						
11.901.4(6)	Non-emitting products, which can include structural wood framing.	4	A minimum of 85% of product in the building are the identified Weyerhaeuser or Trus Joist products.	●		●	●	●		
12.601.2.1(1)	Minimum structural member or element sizes necessary for strength & stiffness in accordance with advanced framing techniques that optimize material usage.	Mandatory	To earn 3 points the framing methods listed in Table 9 must be used for floor, wall or roof framing. To earn 9 points they must be used for all floor, wall and roof framing.	○	○	○	○	○		
12.1(A).606.1	Two types of biobased materials are used, each for more than 1% of the project's projected building material cost.		To earn 6 points products must be at least 1% of the construction material cost & another bio-based product at 1% of material cost must be used. 1 or 3 points are available for more than 0.5%.	●	●	●	●	●		
12.1(A).606.2	Two certified wood-based products are used for major elements of the building, such as all walls, floors or roof.		To earn 4 points a second certified wood product must also be used as a major element. ¹	● ⁹	● ⁹	● ⁹	● ⁹	● ⁹	● ⁹	
○	= Eligible for points									
●	= Verified attribute									
	= This provision does not apply to this product/service									

Note: Footnotes are located after Table 8.

SECTION #	SECTION INTENT	POSSIBLE POINTS	CONDITIONS OF USE TO QUALIFY FOR POINTS	Edge	Hardwood Edge	Edge Gold	Diamond	Radiant Barrier	Sheathing	Sheathing	Plywood	Lumber	Framer Series Lumber	Green Stud	Pro Series Lumber	T JI Joist	TimberStrand LSL	TimberStrand LSL with Flak Jacket	Parallam PSL	Microllam LVL	StrandGuard	TimberStrand LSL	Parallam Plus PSL	Javelin Software	NextPhase Site Solutions	
TABLE 4—SUMMARY OF AREAS OF ELIGIBILITY WITH THE NATIONAL GREEN BUILDING STANDARD (ICC 700—2015) (Continued)																										
12.1(A).608.1	Products containing fewer materials are used to achieve the same end-use requirements as conventional products.	Mandatory	To earn 3 points, at least 80% of framing products used in the building are Weyerhaeuser or Trus Joist products.	●												●	●				●					
12.1(A).609.1	Regional materials		For a component to comply with this practice, a minimum of 75% of all products in that component category must be sourced regionally. ²	○													○	○				○				
12.1(A).610.1	A Life Cycle Assessment (LCA) tool complying with ISO 14044 or other recognized standards is used to select environmentally preferable products or assemblies based on comparison of the environmental impact of building materials, assemblies or the whole building.		To gain 15 points an ISO 14044-complaint LCA must be done on a whole building basis. 3 points may be earned where comparative LCA is done for individual products or systems using 5 impact measures and show improvement on the environmental impact measures by an average of 15%.	●													●	●				●				
12.1(A).611.1	Product manufacturer's operations & business practices include environmental management system concepts & the production facility is ISO 14001 certified or equivalent.		1 point may be earned for each building products used that equals 1 percent or more of the estimated total building materials cost. Material cost breakdown to be verified & points adjusted to reflect actual percentage of all products from ISO 14001 facilities.	●													● ⁸	● ⁸				●				
12.1.901.4(1)	Structural plywood for floor, wall, and/or roof sheathing complies with DOC PS 1 and/or DOC PS 2. OSB for floor, wall, and/or roof sheathing complies with DOC PS 2. The panels are made with moisture-resistant adhesives & the trademark indicates the adhesives are Exposure 1 or Exterior (plywood) and Exposure 1 (OSB).		To meet this, a minimum of 85% of OSB or plywood in the building must consist of Weyerhaeuser or Trus Joist products.	●																						

TABLE 5—SUMMARY OF AREAS OF ELIGIBILITY WITH USGBC'S LEED v4 FOR HOMES DESIGN AND CONSTRUCTION

MR	FSC certified tropical wood	Prerequisite	All wood must be nontropical or certified by FSC or USGBC-approved equivalent. ⁴	4									4			4	4				4				
MRc2	Material-efficient framing	0.5 min 2 max	To earn points verify that advanced framing measures in Table 9 are used for floors, walls and/or roof framing for at least 90% of each component. To earn points, off-site panelized or modular, prefabricated construction must comply with the requirements of this credit. ³	○												○	○				○				○

- = Eligible for points
- = Verified attribute
-
- = This provision does not apply to this product/service

Note: Footnotes are located after Table 8.

SECTION #	SECTION INTENT	POSSIBLE POINTS	CONDITIONS OF USE TO QUALIFY FOR POINTS	Edge Hardwood Edge Edge Gold Diamond Radiant Barrier Sheathing Sheathing Plywood	Lumber Framer Series Lumber Green Stud Pro Series Lumber	T/J Joist	TimberStrand LSL TimberStrand LSL with Flak Jacket Parallam PSL Microllam LVL	StrandGuard TimberStrand LSL Parallam Plus PSL	Javelin Software	NextPhase Site Solutions
TABLE 5—SUMMARY OF AREAS OF ELIGIBILITY WITH USGBC'S LEED v4 FOR HOMES DESIGN AND CONSTRUCTION (Continued)										
MRc3	Environmentally preferable products for roof, wall & floors; interior & exterior framing & sheathing.	0.5 each 4 max	Option 1: To earn points use framing that is extracted, processed and manufactured within 100 miles (160 km) of the site for a minimum of 50% (by weight or volume) of the component. ²	○	○	○	○	○		
			Option 2: Use wood products certified by FSC or USGBC-approved equivalent. ⁴	●	●	●	●	●		
EQc2	Low emitting materials	1	To earn 1 point use wood composite wood products containing no-added urea-formaldehyde resins.	●		●	●	●		
TABLE 6—SUMMARY OF AREAS OF ELIGIBILITY WITH USGBC'S LEED V4 FOR BUILDING DESIGN AND CONSTRUCTION (BC+C)										
MRc2	Environmental product declarations	1	Option 1: Get 1 point for using at least 20 permanently installed products, sourced from 5 or more manufacturers, that meet one of the four disclosure requirements cited.	○	○	○	○	○		
MRc3	Sourcing of raw materials	1/2	Option 1: Use at least 20 different permanently installed products from at least 5 different manufacturers. Weyerhaeuser has self-declared reports for their products and are eligible for 1/2 of a product credit.	○	○	○	○	○		
	Sourcing of raw materials - certification of new wood products	1	Option 2: Use wood products certified by FSC or USGBC-approved equivalent. ⁴	●	●	●	●	●		
MRc3	Sourcing of raw materials - source location	N/A	Products meeting the requirements of Option 2 may be eligible for additional credit based on source location (extraction, manufacture and purchase point) based on location relative to project site. ^{2,4}	○	○	○	○	○		
EQc2	Low emitting interiors	N/A	EWP and lumber products do not apply to the composite wood product definition. ⁶							
TABLE 7—SUMMARY OF AREAS OF ELIGIBILITY WITH ANSI/GBI 01-2010—GREEN BUILDING ASSESSMENT PROTOCOL FOR COMMERCIAL BUILDINGS										
10.1.2.2	Biobased Products – building assemblies	7 max	All Weyerhaeuser and Trus Joist wood products are qualified as biobased.	●	●	●	●	●		
10.1.4.1	Regional Materials – building assemblies	5 max	To earn credits use products that are extracted, processed and manufactured within 500 miles (805 km) of the site for a minimum of 90% (by weight or volume of the component). ²	○	○	○	○	○		
10.3.2.1	Certified wood	6	Between 10% and 60% or more of wood-based products used in the building are third party certified.	● ⁹	● ⁹	● ⁹	● ⁹	● ⁹		
10.1.1.1	Life cycle impact - building assemblies	33 max	Use Green Globes LCA Credit Calculator	○	○	○	○	○		
○	= Eligible for points									
●	= Verified attribute									
	= This provision does not apply to this product/service									

Note: Footnotes are located after Table 8.

SECTION #	SECTION INTENT	POSSIBLE POINTS	CONDITIONS OF USE TO QUALIFY FOR POINTS	Edge Hardwood Edge Edge Gold Diamond Radiant Barrier Sheathing Sheathing Plywood	Lumber Framer Series Lumber Green Stud Pro Series Lumber	TJI Joist	TimberStrand LSL TimberStrand LSL with Flak Jacket Parallam PSL Microllam LVL	StrandGuard TimberStrand LSL Parallam Plus PSL	Javelin Software	NextPhase Site Solutions
TABLE 8—SUMMARY OF AREAS OF ELIGIBILITY WITH ASHRAE STANDARD 189.1—2014										
8.4.2.4	Composite wood product emissions	Prescriptive option	EWP and lumber products exempt from the composite wood product emissions requirements. ⁶							
9.3.2	Extracting, harvesting and manufacturing	Mandatory	Wood products containing wood from endangered species shall conform to trade requirement of CITES.	●	●	●	●	●		
9.4.1.2	Regional materials	Prescriptive option	A minimum of 15% of building materials or products used are extracted/harvested/recovered or manufactured within 500 miles (805 km) of the site. ²	○	○	○	○	○		
9.4.1.3	Biobased products	Prescriptive option	All Trus Joist wood products are qualified as biobased.	●	●	●	●	●		
9.4.1.3.1	Wood Building Components	Prescriptive option	Chain of custody compliance is through one of three available options: 1) an on-product chain of custody label, 2) chain of custody paperwork, or 3) vendors may supply to the AHJ a statement that the annual average amount of certified content of the total annual wood products purchased by the vendor is 60% or greater, for which they have chain of custody verification not older than two years.	○ ⁹	○ ⁹	○ ⁹	○ ⁹	○ ⁹		
9.5.1	Life cycle assessment	Performance option	Select materials or assemblies based on an LCA done in accordance with ISO 14044.	○	○	○	○	○		
○	= Eligible for points									
●	= Verified attribute									
	= This provision does not apply to this product/service									

Footnotes:

¹Certification is required of the manufacturer only. Vendor Chain of Custody is not required to qualify for this point.

²Contact local Weyerhaeuser representative to verify regional sourcing.

³Applicable only when a third-party prefabricates the framing package prior to arrival on the site. NextPhase Solutions allows for either prefabrication off-site or assembly on-site using materials labeled and cut to precision-end-trim dimensions off-site.

⁴Forest certification credit for LEED v4 resources either FSC ASTM D7612 Responsible or Certified Sources, or USGBC-approved equivalent. Contact USGBC for a list of approved equivalent programs.

⁵CGBSC recognizes importance of use of certified forest products, however, the specific requirements are currently under development.

⁶This area is not to be confused with the provisions of EQ 4.4 in LEED (Tables 4, 5, 6, 7, and 8) because the California Air Resources Board (CARB) does not regulate engineered wood product emissions and are exempt in ASHRAE 189.1.

⁷Note that PS-20 lumber products with a moisture content >19% are shipped wet with fungicide protection. Engineered wood products and sheathing are shipped dry with MC < 10%.

⁸Additional listees have not been evaluated for renewable energy or ISO 14001 EMS systems.

⁹Weyerhaeuser and Pacific WoodTech locations are certified to either SFI certified sourcing or SFI chain of custody. RedBuilt and Anthony-Domtar locations are certified to FSC chain of custody. TJI joists or Microllam LVL from RedBuilt and Anthony-Domtar are not labeled as SFI certified, but these locations source materials following FSC procurement policies.

N/A = Not applicable

TABLE 9—ADVANCED FRAMING TECHNIQUES

	RATING SYSTEM/CODES ¹		
	ICC-700	LEED HOMES V4)	CALGREEN
PRESCRIPTIVE-BASED COMPLIANCE CRITERIA			
19.2- or 24-inch OC floor framing	✓	✓	✓
19.2- or 24-inch OC bearing walls	✓	✓	✓
24-inch OC roof framing	✓	✓	✓
24-inch OC interior partitions	✓	✓	✓
Single top plate walls	✓	See footnote 3	✓
Right sized or insulated headers (where required)	✓	✓	✓
Eliminate headers in non-bearing walls	✓	✓	✓
Doubling rim joist in lieu of header (2x6 or deeper wall)	✓	See footnote 3	See footnote 4
Ladder blocking at interior wall-to-exterior wall intersections	✓	✓	See footnote 4
Two stud corner framing	✓	✓	✓
Doubling rim joist in lieu of header (2x6 or deeper wall)	✓	See footnote 3	See footnote 4
Other measures that reduce material usage	See footnote 2	See footnote 3	See footnote 4
PERFORMANCE-BASED COMPLIANCE CRITERIA			
Optimized design per Wood Frame Construction Manual	✓	See footnote 3	See footnote 4
Optimized design per National Design Specification for Wood Construction	✓	See footnote 3	See footnote 4
Precut framing packages	N/A	✓	See footnote 4

For **SI**: 1 inch = 25.4 mm.

¹✓ represents that the criteria is deemed to comply when conditions are met.

²In ICC 700 Section 601.2, 3 points may be gained for each advanced framing technique that exceeds 80% usage in the building up to 9 points maximum. See references in 601.2, commentary for additional details on prescriptive-based compliance criteria.

³In LEED v4 Homes MRc2, alternative measures are eligible for points if they save comparable amounts of framing material.

⁴Other framing techniques as permitted by the U.S. Department of Energy's Office of Building Technology, State and Community Programs, subject to approval by the AHJ.

Appendix A

Discussion Related to Life-Cycle Assessment

A1.0 GENERAL

The following information is intended to provide some general background on LCA provisions in existing rating systems and standards. Users are advised that the science of LCA is still evolving and there are no standardized procedures for such an analysis. It must be noted that Section 610.1 of ICC 700-2012, Section A5.409.3 of the California Green Building Standards Code (CALGreen), Section 9.5.1 of ASHRAE 189.1, Section 10.1.1 of Green Globes, and LEED v4 BD+C MRc2 encourage the use of comparative LCA as means of selecting preferable materials, systems or building assemblies. However, LCA results should not be interpreted beyond the scope of the boundary limits used in performing the LCA.

This VAR indicates that Trus Joist and Weyerhaeuser products may be eligible for points related to LCA by use of the information contained in the documentation noted in Section 5.10 and 5.11 of this report. This appendix discusses additional information required by the user of this report related to achieving points or demonstrating compliance based on LCA output.

A2.0 DISCUSSION RELATED TO ICC 700

As indicated in the ICC 700 Commentary, points can be obtained based on the results of an analysis based on an LCA. For the purpose of compliance with the intent of ICC 700, the following steps (as a minimum) are recommended:

- Fully define the benchmark material, product, assembly, or structure
- Fully define the product or assembly proposed as more environmentally friendly
- Fully define the endpoints or boundaries of the analysis (so-called cradle-to-gate, cradle-to-grave, cradle-to-cradle, gate-to-gate, etc.). For analyses that go beyond cradle-to-gate, a separate report is recommended for each application or use category. Such reports are also recommended to include a discussion of the sensitivity of the analysis to major assumptions for major parameters.
- Employ an LCA method complying with ISO 14044.
- Report all applicable attributes of the benchmark analysis and the proposed product/assembly analysis that are relevant to the LCA.
- The involvement of an individual with experience in the field of LCA and who is knowledgeable in the latest research and standards related to LCA, from the earliest planning stages through completion of the final assessment, is recommended.
- An independent peer review of the entire LCA methodology and its conclusions by an individual knowledgeable in LCA is recommended.

Examples of an LCA that meets these requirements can be found in the series of CORRIM reports (www.corrim.org) that address a broad range of wood-based building materials.

A3.0 DISCUSSION RELATED TO CALGREEN AND ASHRAE 189.1

Similar to the requirements of ICC 700, Section A5.409.3 of the CALGreen and Section 9.5.1 of ASHRAE 189.1 allows the use of selected materials or assemblies based on LCA done in accordance with ISO 14044.

A4.0 DISCUSSION RELATED TO ANSI/GBI 01

Although life-cycle assessment in its broad sense is too complex for standardization at this time, the use of a specific tool (e.g., Green Globes LCA Credit Calculator) in strict accordance with the rating system intent of comparative analysis of specific components of the building is reasonable. However, users are advised to consult with persons familiar with LCA tools when conducting this analysis. Additional guidance regarding the Green Globes LCA Credit Calculator is provided in Appendix N of the Green Globes document.