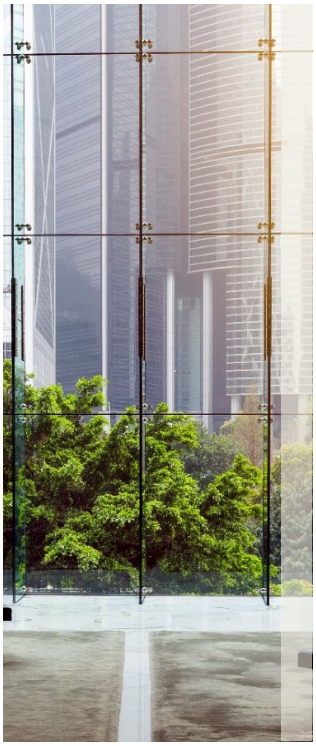
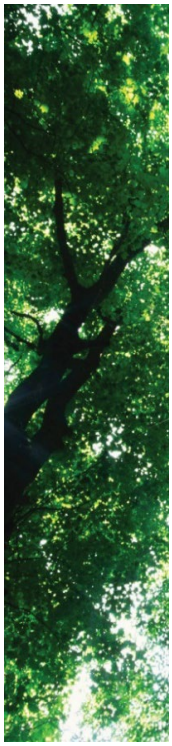
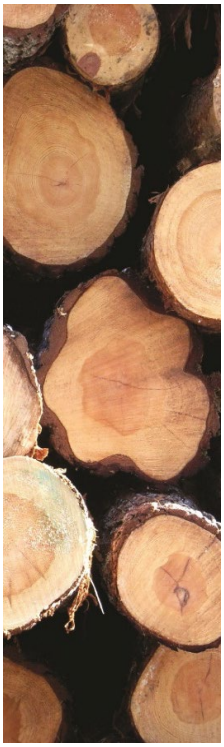
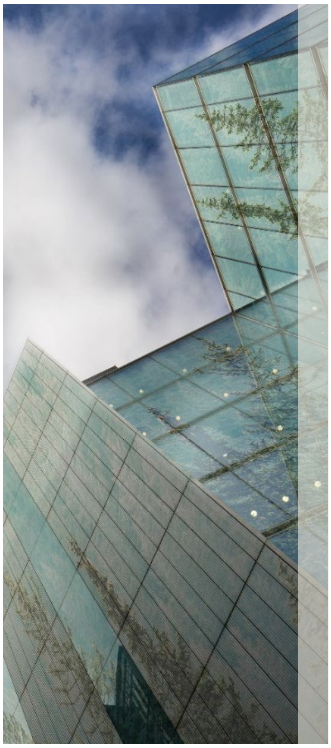
NSF/ASTM 1104-23

Product Category Rule for Environmental Product Declarations

PCR for North American Pressure-Treated Wood Products (UN CPC 313)

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NSF International
National Center for Sustainability Standards
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PCR REVISION HISTORY

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Program Operator

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Recommended for adoption by

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CONTENTS

PCR DEVELOPMENT AND STAKEHOLDER CONSULTATION

Reference PCR

PCR North American Structural and Architectural Wood Products (2015 v2), FPInnovations

Development supported by

The Treated Wood Council (www.treated-wood.org) and its members

These product category rules (PCR) have been reviewed and renewed in compliance with the general program instructions for ASTM International (ASTM), Environmental Product Declaration (EPD) Program, and are intended for use by organizations preparing EPDs for North American pressure-treated wood products and by other interested parties. These PCR cover technical aspects specified for North American pressure-treated wood products and should be used in conjunction with the PCR for North American Structural and Architectural Wood Products (2015 v2).

These PCR comply with the mandatory requirements contained in the following standards:

- ISO 21930: 2007, *Building construction – Sustainability in building construction – Environmental declaration of building products*
- ISO 14025: 2006, *Environmental labeling and declarations – Type III environmental declarations – Principles and procedures*
- ISO 14044: 2006, *Environmental management – Life cycle assessment – Requirements and guidelines*
- ISO 14040: 2006, *Environmental management – Life cycle assessment – Principles and framework*

The original PCR were developed under the ICC-Evaluation Service LLC (ICC-ES) EPD Program in 2013. Under agreement, the 2016 renewal of the PCR were performed by both ASTM and ICC-ES as Program Operators, using ASTM's general program instructions. These revised PCR were developed and renewed with assistance from AquAeTer, Inc. and Members of the Treated Wood Council.

In developing the original PCR, material from the Swedish Environmental Research Institute PCR U2053, *Building Product – Quality Controlled Treated Timber* (February 2007, revised April 2009) was carefully examined. However,

that PCR document has been withdrawn and has not been replaced with a product-specific PCR that would be appropriate for direct adaptation to the North American situation and its use as a reference PCR. Consequently, the PCR for North American Structural and Architectural Wood Products are the reference PCR.

The Environmental Protection Agency's (EPA) Tools for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI) system shall be used, as appropriate, for impact measure characterization factors.

A note on EPD ownership, liability and responsibility, and included by reference in Section 5.4 of this document: Per ISO 21930 Section 5.4, a manufacturer or a group of manufacturers are the sole owners and have liability and responsibility for an EPD, including but not limited to insuring industry wide and manufacturer specific EPD updates are made based on the most recent LCA modelling software version and impact assessment version available. Only the manufacturer or group of manufacturers is authorized to declare the environmental performance of the construction product using an EPD.

1 SCOPE

Per ISO 21930:2017 Clause 1, with the following additions.

This rule covers those wood products that have had chemicals added through a pressure treatment process to enhance or extend the product's service life, particularly to improve resistance to decay, insect attack, or to improve fire resistance. The material contents of the finished, treated wood product, including the chemicals added through the treatment process and any packaging materials, shall be declared as main components of the evaluated products. Substances used in the treatment process that are officially classified with restricted use according to national or international regulations shall be identified. All non-optional components that are used in the production of pressure treated wood products shall be included in EPDs created using this PCR and shall not be excluded under cut-off criteria. Confidential business information, including product specific information and confidential LCI data need not be declared, however must still be made available for the independent verification process.

The product group addressed by this PCR document includes only the treated wood product types listed below, and are manufactured in North America, as listed in Table 1.

Table 1
Products covered by this PCR

Treated wood product	AWPA / ICC-ES reference documents for definition	CSA reference standards for definition
sawn products	AWPA U1, Commodity Specification A; ICC-ES ESRs including 1081, 1477, 1690, 1721, 1851, 2067, 2240, 2500, 2644, 2667, and 3038	CSA 080.1-21, Section 8.2, intended to be used with CSA 080.2:21
posts	AWPA U1, Commodity Specification B	CSA 080.1-21, Section 8.3, intended to be used with CSA 080.2:21
crossties and switchties	AWPA U1, Commodity Specification C	CSA 080.1-21, Section 8.4, intended to be used with CSA 080.2:21
poles (utility or other)	AWPA U1, Commodity Specification D	CSA 080.1-21, Section 8.5, intended to be used with CSA 080.2:21
round timber piling	AWPA U1, Commodity Specification E	CSA 080.1-21, Section 8.6, intended to be used with CSA 080.2:21
wood composites	AWPA U1, Commodity Specification F	CSA 080, section 8.7, intended to be used with CSA 080.2:21
marine (salt water) applications	AWPA U1, Commodity Specification G	CSA 080.1-21, section 8.8, intended to be used with CSA 080.2:21
fire retardant treated products	AWPA U1 Commodity Specification H; ICC-ES ESRs including 1159, 1626, 1791, and 2645	CSA 080.1-21, section 8.9, intended to be used with CSA 080.2:21
NOTE — Current version for references; see Section 2: *Normative References*.		

The LCA results reported in the EPD shall reflect, at a minimum, a cradle-to-gate perspective including modules A1-A3, as is mandatory, but may also include a cradle-to-gate perspective with options, including mandatory modules A1-A3 and optional modules C1-C4 to give additional insight into end-of-life, or a cradle-to-grave perspective that includes all modules A1-C4 if sufficient data are available. As per ISO 21930:2017, reporting Module D is optional, where applicable, it shall be reported separately in the EPD, as it addresses loads and benefits beyond the system boundary.

Due to the closely related nature of structural wood products and pressure treated wood products in certain aspects of their respective life cycles, efforts were made to align closely with PCRs for Part B: *Structural and Architectural Wood Products EPD Requirements* (UL 10010-9) when possible.

2 NORMATIVE REFERENCES

The following documents are referred to in the text. For undated reference, the latest edition of the referenced document (including any amendments) applies.

AWPA, Book of Standards[1]

CSA 080 Series, *Wood Preservation*[2]

ICC-ES ESRs 1081, 1477, 1690,1721, 1851, 2067, 2240, 2500, 2644, 2667, and 3038[3]

ISO 14025:2006, *Environmental labeling and declarations – Type III environmental declarations – Principles and procedures*[4]

ISO 14040, *Environmental management – Life cycle assessment – Principles and framework*[4]

ISO 21930:2017, *Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services*[4]

Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI 2.1)[5]

[1] American Wood Protection Association, P.O. Box 361784, Birmingham, AL 35236. <https://awpa.com/info/publications/standards>

[2] CSA Group. 178 Rexdale Boulevard, Toronto, ON M9W 1R3, Canada. <www.csagroup.org>

[3] ICC Evaluation Service.Central Regional Office, 4051 West Flossmoor Road, Country Club Hills, IL 60478. <https://icc-es.org>

[4] International Organization for Standardization. Chemin de Blandonnet 8, Case Postale 401, 1214 Vernier, Geneva, Switzerland. <www.iso.org>

[5] U.S. Environmental Protection Agency. 1200 Pennsylvania Avenue NW, Washington, DC 20004. <www.epa.gov>

UL 10010, *Product Category Rules for Building-Related Products and Services - Part A: Life Cycle Assessment Calculation Rules and Report Requirements*. Version 4.0. March 28, 2022[6]

UL 10010-9, *Product Category Rule Guidance for Building-Related Products and Services, Part B: Structural and Architectural Wood Products, EPD Requirements*. Version 1.1. May 29, 2020[6]

3 TERMS AND DEFINITIONS

Per ISO 21930:2017 Clause 3 , with the following additions.

Definitions presented in ISO 6707-1, ISO 14025, ISO 14044, ISO 14050, and ISO 15686-1 apply.

NOTE — Where discrepancies or conflicts arise, the definitions in ISO 21930:2107 take precedence.

fire-retardant: A chemical or combination of chemicals whose proper application substantially reduces flame spread, fuel contribution, and smoke development.

preservative: A chemical or combination of chemicals for protecting wood against deterioration from decay, insects, marine borers, fire, weathering, absorption of water, and/or chemical action.

pressure treatment: The process of impregnating wood with a preservative or fire retardant through pressure application.

4 ACRONYMS AND ABBREVIATED TERMS

Per ISO 21930:2017 Clause 4.

[6] UL Solutions. 33 Pfingsten Road, Northbrook, IL 60062.<www.ul.com/services/product-category-rules-pcrs>

5 GENERAL ASPECTS

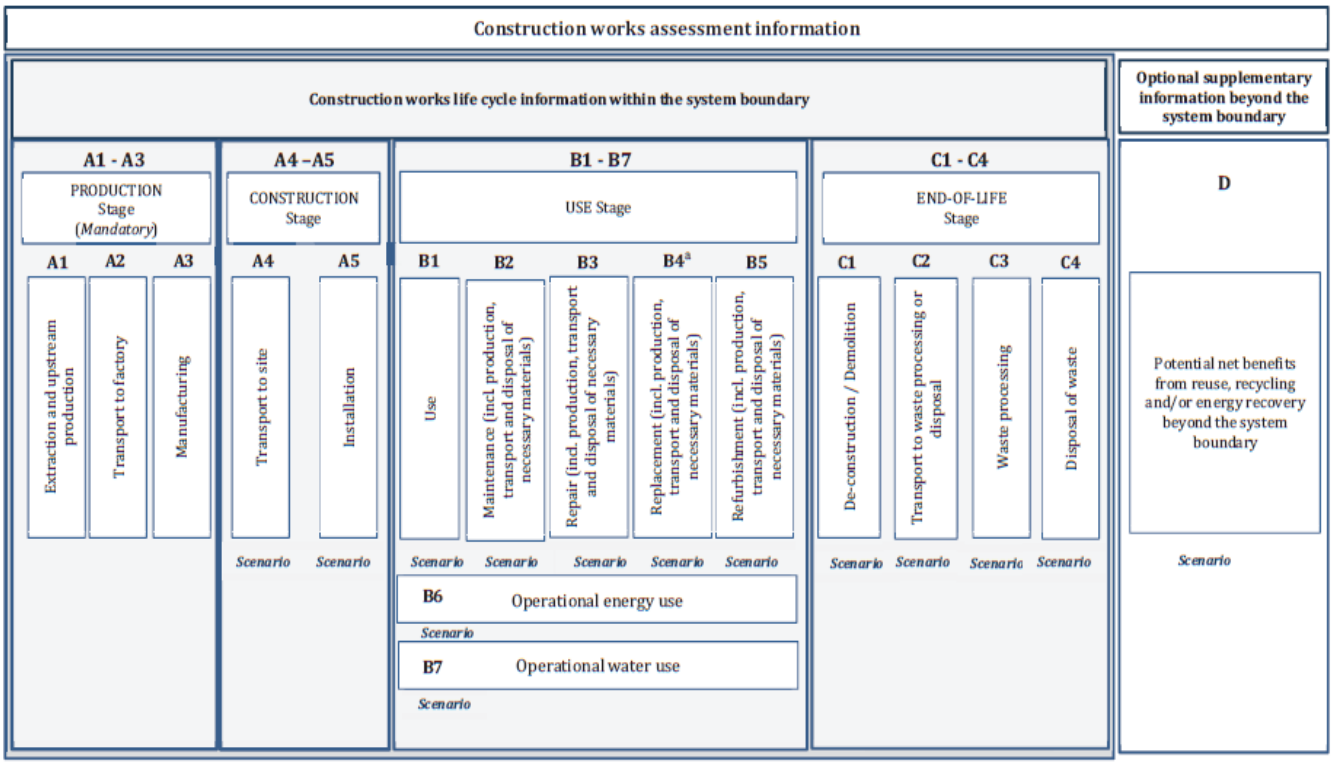
5.1 Objectives of this PCR

This PCR has been developed to update existing requirements established under ISO 21930:2007 for creation of EPDs for pressure treated wood products to conform with ISO 21930:2017, with overall goals identical to those stated in ISO 21930:2017 Clause 5.1.

5.2 Life cycle stages

Per ISO 21930:2017 Clause 5.2, with the following clarifications and addendums.

This PCR and subsequent EPDs shall at a minimum use the mandatory modules and the life cycle stages described in ISO 21930:2017 Clause 5.2 and reproduced in Figure 1 below (A1-A3), with the optional inclusion of additional modules A4-A5, B1-B3, C1-C4, and D.

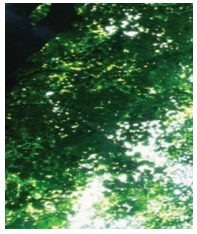


[a] Replacement information module (B4) not applicable at the product level.

Figure 1

Description of the system boundary modules

A full “cradle-to-grave” evaluation is preferred, and modules A1-A5, B1-B3, and C1-C4 shall be included when sufficient supporting data are available. Required modules for each variety of EPD covered by this PCR are illustrated in Table 2, Table 3, and Table 4.

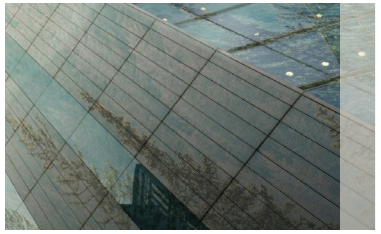
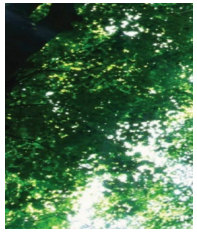



Table 2
Cradle-to-gate required and optional modules

Product stage			Construction process stage		Use stage							End-of-life stage				Beyond the system boundary
Extraction and upstream production	Transport to factory	Manufacturing	Transport to site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport	Waste processing	Disposal of waste	Potential net benefits of reuse, recycling, and/or energy recovery beyond the system boundary
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	O

NOTE — X = required O = optional

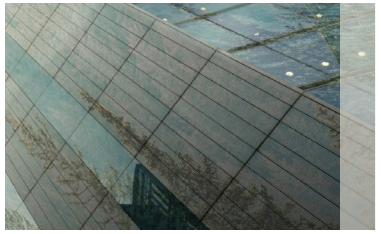
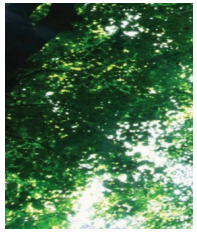



Table 3
Cradle-to-gate (with options) required and optional modules

Product stage			Construction process stage		Use stage							End-of-life stage				Beyond the system boundary
Extraction and upstream production	Transport to factory	Manufacturing	Transport to site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport	Waste processing	Disposal of waste	Potential net benefits of reuse, recycling, and/or energy recovery beyond the system boundary
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	O	O	O	O	O	NA	NA	NA	NA	O	O	O	O	O

NOTE — X = required O = optional NA = not applicable

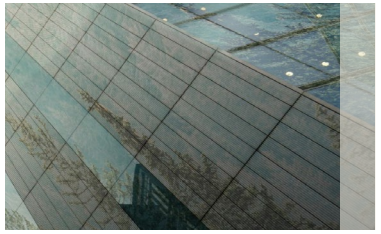



Table 4
Cradle-to-gate required and optional modules

Product stage			Construction process stage		Use stage							End-of-life stage				Beyond the system boundary
Extraction and upstream production	Transport to factory	Manufacturing	Transport to site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction/ demolition	Transport	Waste processing	Disposal of waste	Potential net benefits of reuse, recycling, and/or energy recovery beyond the system boundary
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	NA	NA	NA	NA	X	X	X	X	O

NOTE — X = required O = optional NA = not applicable

Relevant inputs shall be included in LCA models excepting: Secondary packaging (such as pallets), personnel impacts, business travel, and research and development activities.

These exclusions are made because these areas represent negligible impact in overall life cycle performance for pressure treated wood manufacture, and studies of these areas are company-specific, contain confidential data, and are not publicly available.

5.3 Average EPDs for groups of similar products

Per ISO 21930:2017 Clause 5.3, with the following clarifications and additions.

The specifications for and variability within individual pressure treated wood products may necessitate the creation of average EPDs, which shall follow the guidance given in ISO 21930:2017 Clause 5.3. In those instances that products of a specific manufacturer are produced at multiple different facilities or travel to different distributors or retail centers, a weighted average by production volume at each facility shall be used for calculation purposes.

In the case that neither directly measured data nor default values from this PCR are available, justification for the values used shall be documented and disclosed within the average EPD.

If an industry average EPD reflective of materials produced by multiple manufacturers is desired, the guidance provided in UL 10010-9 Section IV: *Industry-Average EPD and Report Requirements*, should also be followed.

5.4 Use of EPDs for construction products

Per ISO 21930:2017 Clause 5.4, the EPDs created using this sub-category PCR shall primarily be used in a B2B capacity; if used in a B2C capacity the rules outlined in ISO 14025:2006 Clause 9 shall be followed. For B2C EPDs, a cradle-to-grave EPD is mandatory.

5.5 Comparability of EPDs for construction products

Per ISO 21930:2017 Clause 5.5, with the following clarifications.

Superiority claims against a competing product and similar comparative assertions about a specific product shall not be made in the EPD, and any comparisons that are made shall consider the limitations of LCA (potential impacts are reported, but damage is not assessed).

Additionally, the following statement shall be included in all EPDs using this sub-category PCR:

> *"In order to support comparisons, this EPD meets comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers or programs, as the EPD results may not be entirely comparable. EPD comparison must be carried out at the construction works level per ISO 21930:2017 guidelines and shall consider whether the product is designed for commercial projects, residential projects, or both. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-to-case basis."*

5.6 Documentation

Per ISO 21930:2017 Clause 5.6.

6 PCR DEVELOPMENT AND USE

Per ISO 21930:2017 Clause 6, with the following additions.

This PCR document is effective for five (5) years from the latest date of publication. If, after five years, relevant changes in the product category or other relevant factors have occurred (for example, evolution of LCA methodology in ISO 21930:2017), the document will be revised. See Section 5.5 for comparability.

7 PCR FOR LCA

7.1 Methodological framework

7.1.1 LCA modeling and calculation

Per ISO 21930:2017 Clauses 7.1.1, and 7.2.3 – 7.2.6.

7.1.2 Functional unit

Per ISO 21930:2017 Clause 7.1.2, with the following clarifications and additions.

A functional unit will be defined for any LCA or EPD developed using this PCR when appropriate in accordance with Clause 7.1.2. See Table 5 for unit appropriate to product type. Full explanation of the functional unit selected shall be given in the LCA or EPD including the reference service life (RSL) for the product (see Section 7.1.4). Reference flow as an input allowing the product to meet functional unit requirements must include any additional materials or accessories used in its installation. Additional properties must be stated as detailed in Table 6.

Table 5
Declared and functional unit by product

Product	Declared unit	Functional unit [a]
decking surface	m^3	m^2 and associated product thickness
decking structure	m^3	m^3
framing	m^3	m^3
poles	m^3	per pole (e.g., utility pole Class 4 at 13.7 m)
railroad ties	m^3	per tie (e.g., use for Class 1 railroad freight)
piling	m^3	per pile (e.g., marine application, 12.1-m long and 0.3-m average diameter)
guard rail posts	m^3	per post (e.g., highway use, 1.82-m long, 0.15-m wide, 0.20-m deep)
fire-retardant treated lumber	m^3	m^3
fire-retardant treated plywood	m^3	m^2 and associated product thickness

NOTE — Not all treated wood products are specified.

[a] Refer to Section 7.1.4 for related RSL. For dimensional lumber components, functional unit must be calculated based on actual dimensions rather than nominal dimensions.

7.1.3 Declared unit

Per ISO 21930:2017 Clause 7.1.3, with the following clarifications:

A declared unit will be defined for any LCA or EPD developed using this PCR when appropriate in accordance with Clause 7.1.3. The declared unit used shall be one cubic meter of pressure treated wood material as noted in Table 5, or other unit appropriate to the product. Additional properties must be stated as detailed in Table 6.

Table 6
Default reference service life

Property	Value	Unit
applicable treatment reference / standard		not applicable
wood species		not applicable
retention or flame spread index		kg/m^3 or flame spread
mass		kg
density		kg/m^3
thickness		m
moisture content [a]		%
NOTE — Properties must be reported for both functional and declared units. [a] Amount of moisture contained in wood, expressed as a percentage of its oven-dry mass.		

7.1.4 Reference service life

Per ISO 21930:2017 Clause 7.1.4, with the following clarifications.

An RSL must be stated within the LCA or EPD when Module B, the use phase scenario, is included. The service life performance claims must be supported by the manufacturer of the product. In the absence of manufacturer specific data, the default values in Table 7 shall be used. No pressure treated wood product installed within a structure can exceed the RSL of the structure in which it is installed.

The RSLs provided in Table 7 are representative of typical installations in the U.S. Actual service lives are dependent on preservative treated product (preservative, species and intended use) and the climate associated with the location of installation. When using these values, relative conditions should be included.

In addition, follow reporting guidance in Table 6 of Clause 4.4 of UL 10010-9 when reporting the RSL.

Table 7
Default reference service life

Product	Use category [a] (AWPA/CSA)	Default RSL (years)	Comments
decking surface	UC-3B / UC 3.2	10	Assumes removal for aesthetic reasons prior to structural failure.
decking structure	UC-4A / UC 3.2, UC 4.1	20	Assumes an average service life of two decking surface cycles.
framing	UC-2 / UC 2	60	Assumes the treated wood product lasts for the life of the structure.
poles – utility	UC-4A, B, or C / UC 4.1, UC 4.2	60	Assumes an average service life, recognizing that environmental hazards, damage in use, and roadway improvements contribute to RSL.
railroad ties	UC-4B / UC 4.1, UC 4.2	35	Assumes an average service life, recognizing that environmental hazards, rail alignment, and loading contribute to RSL.
piling	UC-5A, B, or C / UC 4.2, 5A	40	Assumes an average service life, recognizing that environmental hazards, damage in use, and port reconfiguration contribute to RSL.
guard rail posts	UC-4A or B / UC 4.1, UC 4.2	40	Assumes an average service life, recognizing that environmental hazards, damage in use, and roadway improvements contribute to RSL.
fire-retardant treated lumber and plywood (interior use)	UC-FA / UCF.1	60	Assumes the treated wood product lasts for the life of structure.
fire-retardant treated lumber and plywood (exterior use)	UC-FB / UC-FB	60	Assumes the treated wood product lasts for the life of structure; however, some exterior products might require replacement and will therefore have a different RSL.

NOTE — Not all treated wood products are specified.For other products, RSL should be supported by manufacturer data.

[a] See Table 1 for commodity specification details per category

7.1.5 Boundary with nature

Per ISO 21930:2017 Clause 7.1.5.

7.1.6 System boundary between products systems

Per ISO 21930:2017 Clause 7.1.6, with the following clarification.

As stipulated by ISO 21930:2017, the LCA approach shall be attributional and system boundary shall follow both the modularity and polluter pays principles.

7.1.7 System boundaries and technical information for scenarios

Per ISO 21930:2017 Clause 7.1.7.

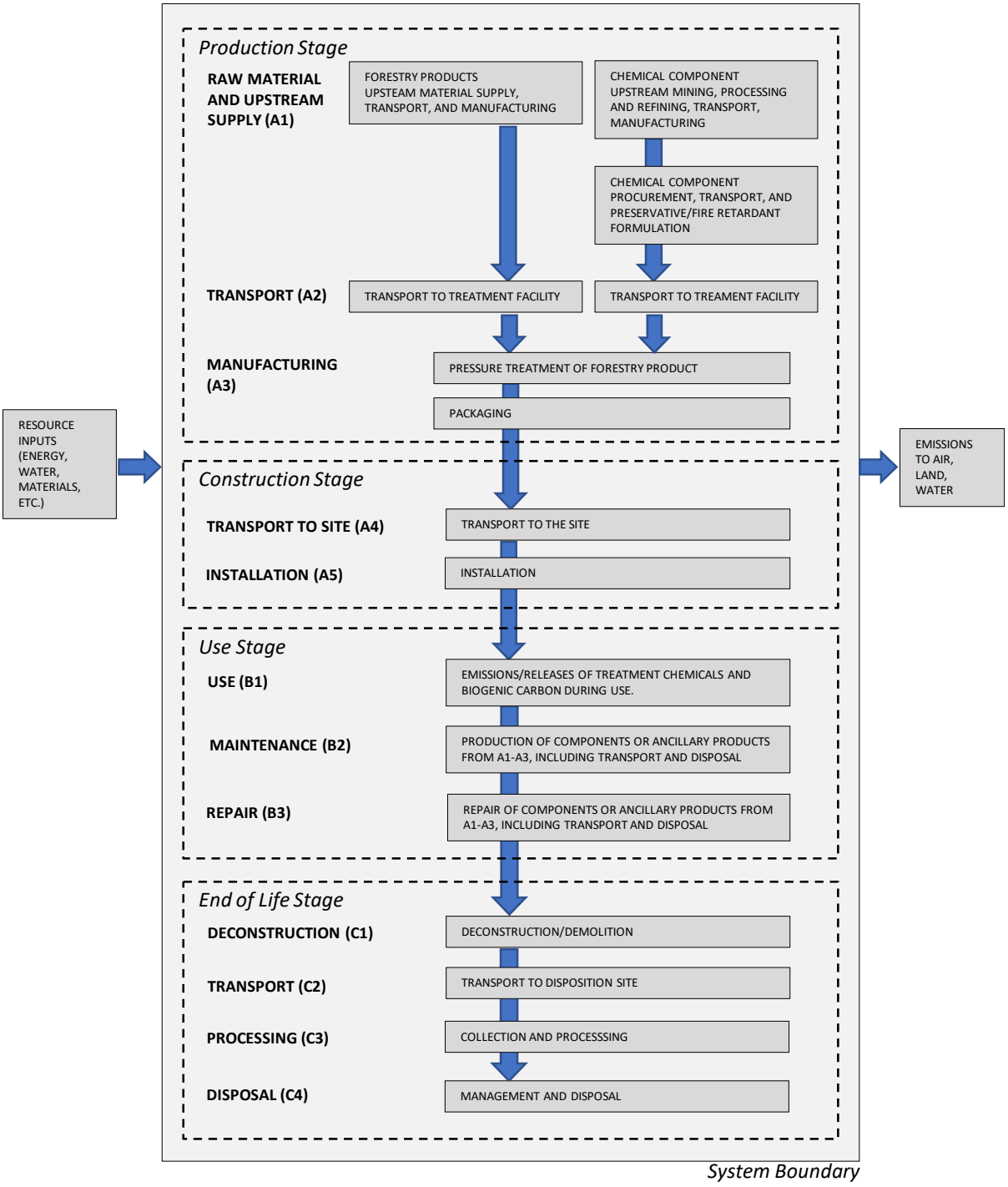


Figure 2
Example product flow diagram – Treated wood products

7.1.7.1 General

Per ISO 21930:2017 Clause 7.1.7.1, with following addition.

A graphical depiction of a product flow, illustrating the main life cycle stages and their information modules, shall be included. An example is included as Figure 2.

7.1.7.2 A1 to A3, Production stage

Per ISO 21930:2017 Clause 7.1.7.2.

The production stage (module A1-A3) starts when raw materials are extracted from nature (e.g., mined, processed and refined resources, tree harvesting), includes the intermediate manufacturing processing of materials (preservative chemical formulation, lumber, etc.), and ends with the treatment of the wood product and its preparation for shipment from the treating plant.

Transport of materials, both to the manufacturing facility and to the treating plant, will be accounted for at this stage, including, but not limited to, forestry products from nature to the mill, milled forestry products to the treatment plant, extracted minerals to the refining mill, chemical transport to the treatment chemical formulation plant, and treatment chemicals to the treatment plant. If multiple primary data points are available for transportation distances of a given raw material an average distance may be calculated based on weighted mass; the method used for this calculation must be disclosed within the EPD.

Manufacturing steps for forestry products will include processes at the mill and separate process at the treating plant. Manufacturing steps for treatment chemicals will include treatment chemical preparation at the formulation plant and separate application processes at the treating plant.

Industrial pressure treatment is performed under controlled conditions. The uptake or retention of chemicals is specified for specific use categories, commodities, wood species, and preservatives by AWPA or CSA standards or applicable ICC-ES criteria. The specified gauge or assay retentions shall be adjusted to reflect untreated heartwood as appropriate to obtain the overall “average retention” for the product volume (i.e., total chemical use divided by total product wood volume). Average retention, in addition to the applicable standard, shall be declared when appropriate. See Table 1 for reference standards applicable to the product being evaluated.

Per 21930:2017 Clause 7.2.7., biogenic carbon flows into the system may be characterized with a -1 kg CO_2e/kg CO_2 biogenic carbon flow only when the wood originates from sustainably managed forests.

> NOTE — The concept of sustainably managed forests is linked but not limited to respective certification schemes. Other evidences such as national reporting under the United Nations Framework Convention on Climate Change (UNFCCC) can be used to identify forests with stable or increasing forest carbon stocks." [ISO 21930:2017, Clause 7.2.11, Note 2]

All co-products and wastes formed during the production process must be accounted for within this stage, including estimated VOC emissions from preservative blends if preservative blends using VOCs are used. Emissions from transport of waste or byproducts to a point of disposal must also be accounted for at this stage. Primary data for transport distances should be used when available; if this or another representative data set is not readily obtainable, an average end-of-life distance of 32 km may be used for facilities in the North America based on the value provided by the 2012 EPA Waste Reduction model.

7.1.7.3 A4 to A5, Construction stage

Per ISO 21930:2017 Clause 7.1.7.3, with the following additions.

A4 and A5 are optional; if provided then descriptions of reference scenarios shall be included in the EPD.

The requirements for reporting specified in Table 4 found in Section 4.3 of UL 10010-9 shall be followed for module A4.

The requirements for reporting specified in Table 5 found in Section 4.4 of UL 10010-9 shall be followed for module A5.

7.1.7.4 Use stage

Per ISO 21930:2017 Clause 7.1.7.4, with the following additions.

Module B1 to B3 are optional; if provided then descriptions of reference scenarios shall be included within the EPD. The requirements for reporting specified in Table 7 found in Section 4.5 of UL 10010-9 shall be followed for module B2.

The requirements for reporting specified in Table 8 found in Section 4.5 of UL 10010-9 shall be followed for module B3.

Where quantifiable, module B1 shall be included to address treatment chemical releases and emissions and biogenic CO_2 release during use.

It is expected that there will be a significant degree of variability in maintenance and repair of the evaluated products during the use stage; this will lead to a similar degree of variability in LCA results for this stage. Therefore, when the use stage is included in an EPD sufficient scenarios shall be reported to demonstrate the range of use phase scenarios.

7.1.7.5 End-of-Life stage

Per ISO 21930:2017 Clause 7.1.7.5, with the following additions.

C1 to C4 are optional. If provided, a description of the reference scenarios shall be part of the EPD.

Product EPDs that include this stage shall be based on a scenario reflecting best estimated current end-of-life management when primary data are unavailable.

When accounting for transport of deconstructed or demolished material, primary data for transport distances should be used when available; if this or another representative data set is not readily obtainable, an average end-of-life distance of 32 km may be used for facilities in North America based on the value provided by the 2012 EPA Waste Reduction model.

The requirements for reporting specified in Table 12 found in Section 4.6 of UL 10010-9 shall also be followed for module C1-C4.

Guidance on landfill modelling for biogenic carbon may found in Appendix A of UL 10010-9. Note that this guidance was provided based on data available for untreated wood products, and should be used only when end-of-life study data specific to the treated wood product evaluated in the EPD is not available.

7.1.7.6 Benefits and loads beyond the system boundary

Per ISO 21930:2017 Clause 7.1.7.6, with the following clarifications:

Module D is optional, where reported it shall be in conformance with ISO 21930:2017, Clause 5.5, and 7.1.7.1.

Reuse and energy recovery are viable disposition options for treated wood products following their primary service life. Where applicable, the requirements for reporting specified in Table 13 found in Section 4.7 of UL 10010-9 shall be followed for Module D.

7.1.8 Criteria for the inclusion and exclusion of inputs and outputs

Per ISO 21930:2017 Clause 7.1.8, with the following additions.

All inputs to pressure treated wood products shall include substances that are listed in national and international hazardous substances regulations and substances that have restricted uses and cut-off criteria shall not apply.

Where no hazardous substances exist, a statement shall be included in the EPD confirming that no such substances are present.

7.1.9 Selection of data and data quality requirements

Per ISO 21930:2017 Clause 7.1.9, with the following additions.

All data sources used to create the EPD shall be documented and disclosed within the EPD.

Electrical energy data shall use NERC regions, or similar data to represent electrical energy production for the US. Preference shall be given to datasets that include transmission and distribution losses. For regions other than the United States and Canada, country or region-specific processes shall be used for the manufacturing stage provided they are representative. The sources for electricity and the calculation procedure shall be documented.

The EPD shall assess and disclose any significant data gaps that occur.

7.1.10 Units

Per ISO 21930:2017 Clause 7.1.10, with the following additions.

Results shall be declared using scientific notation with three significant digits.

7.2 Inventory analysis

Per ISO 21930:2017 Clauses 7.2, with the following addition.

All data collection and calculation procedures outlined in ISO 14044 and ISO 21930:2017 shall apply to EPDs created using this sub-category PCR, as further defined in UL 10010-9.

7.3 Impact assessment indicators describing main environmental impacts derived from LCA

Per ISO 21930:2017 Clause 7.3, with the following clarification.

Note that when reporting Global Warming Potential (GWP 100 years) per ISO 21930:2017, biomass carbon uptake and re-release of CO_2 and CH_4 shall be reported separately based on the biogenic carbon content of the product to be declared (see ISO 21930:2017 Clause 7.2.7).

8 ADDITIONAL ENVIRONMENTAL INFORMATION

Per ISO 21930:2017 Clause 8, with the following clarifications and additions.

EPDs developed using this sub-category PCR shall include, where relevant, additional information related to environmental issues, other than the environmental information derived from LCA, LCI, or information modules. Identification of the significant environmental aspects should conform to ISO 21930:2017 Clause 8.4 and ISO 14025:2006. Please see UL 10010-9, Section 7 for recommended additional enivornmental information.

9 CONTENT OF AN EPD

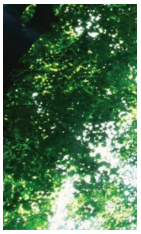
9.1 General

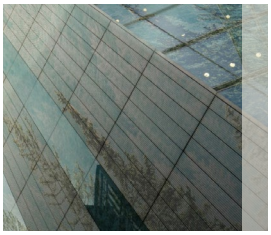
Per ISO 21930:2017 Clause 9.1.

9.2 Declaration of general information

Per ISO 21930:2017 Clause 9.2, with the following additions.

EPDs should include a description of product's intended use and relevant product codes, where applicable.

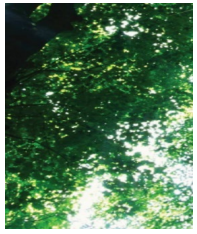



Product Name	
Manufacturer Name and Address	
Program Operator	
General Program instructions and Version Number	
Declaration Number	
Reference PCR and Version Number	
EPD Type and Scope (facility/product/average)	
Defined functional or declared unit	
Product's intended Application and Use	
Product RSL	
Markets of Applicability	
Date of Issue	
Period of Validity	
Year of reported manufacturer primary data	
LCA Software and Version Number	
LCI Database and Version Number	
LCIA Methodology and Version Number	
Overall Data Quality Assessment Score	
The sub-category PCR review was conducted by:	Industrial Ecology Consultants, Thomas P. Gloria, Ph.D, t.gloria@industrial-ecology.com
This declaration was independently verified in accordance with ISO 14025: 2006. ISO 21930:2017 serves as the core PCR. Sub-category PCR: NSF/ASTM 1104: North American Pressure-Treated Wood Products Product Category Rule ☐ Internal ☐ External	
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	
Explanatory material may be obtained from the following:	

9.3 Declaration of the methodological framework

Per ISO 21930:2017 Clause 9.3, with the following additions and clarifications.

A figure or table summarizing the life cycle stages shall be included in the EPD and shall clearly indicate the included modules. An example of a such a figure for a “cradle-to-gate” EPD is provided as Table 8.

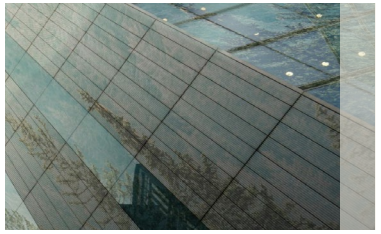



Table 8
Example life cycle declaration

Product stage			Construction process stage		Use stage			End-of-life stage				Beyond the system boundary
Extraction and upstream production	Transport to factory	Manufacturing	Transport to site	Installation	Use	Maintenance	Repair	Deconstruction / demolition	Transport	Waste processing	Disposal of waste	Potential net benefits of reuse, recycling, and/or energy recovery beyond the system boundary
A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

NOTES — X = required MND = module not declared

9.4 Declaration of technical information and scenarios

Per ISO 21930:2017 Clause 9.4 for “cradle-to-grave” EPDs. Does not apply for cradle-to-gate EPDs.

9.5 Declaration of environmental indicators derived from LCA

Per ISO 21930:2017 Clause 9.5, and as further defined in UL 10010 Part B Section 5.

9.6 Declaration of additional environmental information

Per ISO 21930:2017 Clause 9.6, and as noted in Section 8 of this document.

10 PROJECT REPORT

Per ISO 21930:2017 Clause 10, with the following clarifications.

A project report shall be created and externally verified per the requirements of ISO 21930:2017 Clauses 10 and 11. The guidance offered in UL 10010-9 Section 8 regarding content of the project report shall also be followed.

This report shall be approved through external review before the EPD is published. The project report is not publicly disclosed and may contain confidential information.

11 VERIFICATION AND VALIDITY OF AN EPD

Per ISO 21930:2017 Clause 11, with the following clarifications.

All verification of EPD, LCA, LCI and additional environmental information shall conform to the following ISO 14025:2006 Clause 8 provisions:

- PCR review including a review of the LCA, LCI, information modules, and additional environmental information on which the PCR are based; see ISO 14025:2006 Clause 8.1.2;
- independent verification of data from LCA, LCI and information modules, and of additional environmental information; see ISO 14025:2006 Clause 8.1.3;

- independent verification of the EPD the independent verifier shall generate a verification report stipulating the conclusion of the verification, see ISO 14025:2006 Clause 8.1.4;

- process, while adhering to the obligations of ISO 14025:2006 Clause 8.3, covering rules for data confidentiality; and

- competence of third-party PCR review panel, according to provisions given in ISO 14025:2006 Clause 8.2.3, and independent verifier of the EPD, according to provisions given in ISO 14025:2006 Clause 8.2.2.

12 REFERENCES

ISO Standards[4]

ISO 6707-1: 2014, *Buildings and Civil Engineering Works – Vocabulary – Part 1: General Terms*

ISO 14021:1999, *Environmental Labels and Declarations – Self-declared Environmental Claims (Type II Environmental Labeling)*

ISO 14067:2018, *Greenhouse Gases – Carbon Footprint of Products – Requirements and Guidelines for Quantification*

ISO 14050:2009, *Environmental Management – Vocabulary*

ISO 15686-7: 2017, *Buildings and constructed assets – Service life planning*, Parts -1, -2, -7 and -8

UL Standards[6]

UL 10010, *Product Category Rules for Building-Related Products and Services - Part A: Life Cycle Assessment Calculation Rules and Report Requirements.* Version 4.0. March 28, 2022

UL 10010-9, *Product Category Rule Guidance for Building-Related Products and Services, Part B: Structural and Architectural Wood Products, EPD Requirements.* Version 1.1. May 29, 2020.

Other

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Lebow, S., Woodward, B., Kirker, G., & Lebow, P. (2013). Long-Term Durability of Pressure-Treated Wood in a Severe Test Site. *Advances in Civil Engineering Materials*, 2(1). <https://doi.org/10.1520/ACEM20120054>

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Morrell, J.J. (2021, December). *Estimated Service Life of Wood Poles*. Technical Bulletin 16-U-101. Oregon: North American Wood Pole Council. <https://woodpoles.org/portals/2/documents/TB_ServiceLife.pdf>

Morrell, J.J, Love, C.S., Clauson, M. & Sinha, A. (2012, November). *Condition of Chromated Copper Arsenated Treated Hem-Fir Guardrail Posts after 20 Years in Service in Western Washington State.* Western Wood Preservers Institute. <https://preservedwood.org/portals/0/documents/CCA_guardrail_posts.pdf>

Smith, S.T. *Railroads Specify Creosote for Good Reasons.* Creosote Council. <https://creosotecouncil.org/railroads/>

Western Wood Preservers Institute. (2012). *Treated Wood in Aquatic Environments: A Specification and Environmental Guide to Selecting, Installing and Managing Wood Preservation Systems in Aquatic and Wetland Environments.* <https://preservedwood.org/portals/0/documents/TW_Aquatic_Guide.pdf>

APPENDIX A: TECHNICAL REVIEW COMMITTEE

The following individuals participated in the review committee from January 2022 through July 2023.

Industry

Chris Bolin, AquAeTer, Inc.

Kevin Brown, Viance

Rodger Ferguson, California Cascades Building Materials

Jun Zhang, Koppers Performance Chemicals

Trade Associations

Rodney McPhee, Canadian Wood Council

Ryan Pessah, Western Wood Preservers Institute

Natalie Tarini, Wood Preservation Canada

Users

Kimberly Merritt, Southern Pine Inspection Bureau

Stephen Smith, Stephen Smith Consulting

Kelley Spence, KSpence Consulting

LCA Expertise

Seth Jackson, Sherwin-Williams Company

James Salazar, Athena Sustainable Materials Institute

NSF International

Andrea Burr

THE HOPE OF MANKIND rests in the ability of man to define and seek out the environment which will permit him to live with fellow creatures of the earth, in health, in peace, and in mutual respect.