



Product Category Rule (PCR) Guidance for Building-Related Products and Services

Part B: Structural and Architectural Wood Products EPD Requirements

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Product Category Rules for Part B: Structural and Architectural Wood Products EPD Requirements, UL 10010–09

First Edition, Dated October 21, 2019

Summary of Topics

The First Edition of the Part B: Mechanical, Specialty, Thermal, and Acoustic Insulation Product EPD Requirements, UL 10010–03 has been issued.

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Tracking of versions

Version	Comments	History
1.0	UL Environment with input from a committee	10/21/2019

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I. Background Information and Acknowledgements

These sub-category Product Category Rules (PCR) were developed to address the rules for the creation of Environmental Product Declarations (EPD) for Structural and Architectural Wood Products. When used to self-reference this document, “PCR” refers to “sub-category PCR.” This PCR is intended for creation of business-to-business (B2B) EPDs.

This PCR is consistent with and conforms with the mandatory requirements contained within the following normative references:

- ISO 21930:2017 - Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services
- EN 15804:2012+A1:2013 - Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products
- Part A: Life Cycle Assessment Calculation Rules and Report Requirements UL Environment (December 2018, version 3.2)
- 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.

In addition to the above normative references, the following are noted guidance references used in the development of this PCR:

- Product Category Rules (PCR) for preparing an Environmental Product Declaration (EPD) for North American Structural and Architectural Wood Products. FP Innovations. Version 2, June 2015.
- Product Category Rules (PCR) for preparing an Environmental Product Declaration (EPD) for Product Group: North American Pressure-treated Wood Products, UN CPC 313. ASTM and ICC Evaluation Service. June 2016.
- EN 16485:2014, Round and sawn timber – Environmental Product Declarations – Product category rules for wood and wood-based products for use in construction

Period of Validity

This PCR is valid for a period of five (5) years, set to expire in October, 2024.

Interested Parties

This Part B has been prepared with input from the following stakeholders:

- American Wood Council, Kenneth Bland and Kuma Sumathipala
- Arup, Frances Yang
- Building Materials Reuse Association, Joe Connell
- Canadian Forest Service
- Canadian Wood Council, Rodney McPhee and Adam Robertson
- Coldstream Consulting, James Salazar
- CORRIM, Maureen Puettmann and Elaine Oneil

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- Georgia-Pacific Company, Alison Brady
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- SCS Global Services, Jeremie Hakian
- University of Calgary, Getachew Assefa
- University of Georgia, Puneet Dwivedi
- University of Tennessee Knoxville, Adam Taylor
- University of Washington, Kathrina Simonen
- US Forest Service, Rick Bergman
- Weyerhaeuser, Ara Erickson

Governance

There are a number of trade associations and representatives of wood product manufacturers participating in the update of this Product Category Rule (“PCR”) for structural and architectural wood products. These parties represent a majority of the companies within the structural and architectural wood industry. Moreover, the parties with a manufacturing interest participating in the PCR update represent the vast majority of the structural and architectural wood sold in North America. The very purpose and function of a trade association is to inform its members of important industry developments and to represent their interests in projects such as the update of a PCR affecting their products. This is important because it effectively demonstrates that a large percentage of the structural and architectural wood industry is represented in the effort to renew the PCR for structural and architectural wood products.

The role of participants is to establish requirements and procedures to be applied in the development of EPDs for structural and architectural wood products. This is an update to an existing PCR, and therefore, this effort begins with the vetting of suggested changes in scope and structure. Where potential conflicts exist, ISO 14025:2006 and ISO 21930:2017 shall apply.

Involvement of Interested Parties

UL Environment is responsible for producing the PCR document by establishing an open consultation process that includes the involvement of interested parties and “reasonable efforts to achieve a consensus throughout the process” have been made (ISO 14027, Section 5.2).

UL Environment posted an open call for participation in this PCR May 2018 via its standards website, social media outlets, and outreach to original committee stakeholders.

Update Process

The PCR shall be revised five (5) years from the publication date. The PCR shall be revised before the five year date if the following occurs in the industry: major regulatory change that alters the requirements for structural and architectural wood products; major shift in the markets such that a new material or system predominates that can no longer be characterized adequately by the definitions in this PCR.

Review

The review process of this Part B PCR included a review through public consultation from December 2018 - January 2019 and a panel review.

This Part B was reviewed by the following panel:

Dr. Thomas Gloria (chair)
Industrial Ecology Consultants

Dr. Indro Ganguly
University of Washington

Dr. Sahoo
University of Georgia

Public Consultation

Public consultation was utilized during the PCR review process. The public consultation of the completed draft PCR included a minimum 30-calendar-day period for comments to be submitted to UL Environment. After public comments were submitted, the PCR committee reviewed and developed responses for all comments. All comments from the review panel and public consultation were addressed and satisfactorily resolved by the PCR committee prior to the publication of this PCR.

II. Terms and Definitions

For the purposes of this document, the definitions given in ISO 6707-1, ISO 14025, ISO 14044, ISO 14050, ISO 15686-1, ISO 21930 and the following apply.

ALLOCATION

Partitioning the environmental flows (input and output flows) of a process or a product system between the product system under study and one or more other product systems (adapted from ISO 14044).

ANCILLARY MATERIAL

Material input that is used by the unit process producing the product or during the construction or use stage, but does not constitute part of the product (adapted from ISO 14044).

BUILDING PRODUCT

Item used during the life cycle of a building or any other type of construction works (adapted from ISO 6707-1 and ISO 14021).

CHARACTERIZATION FACTOR

Factor derived from a characterization model which is applied to convert an assigned life-cycle inventory analysis (LCI) to the common unit of the impact category indicator (adapted from ISO 21930).

CUT-OFF CRITERIA

Specification of the amount of material or energy flow or the level of environmental significance associated with unit processes of a product system to be excluded from a LCA study (adapted from ISO 14044).

DECLARED UNIT

Quantity of a wood building product for use as a reference unit, e.g. mass (kilogram), volume (cubic metre), for the expression of environmental information needed in information modules. Note: The declared unit is used in instances where the function and the reference scenario for the whole life cycle of a wood building product cannot be stated (adapted from ISO 21930).

ENVIRONMENTAL DECLARATION/LABEL

A claim that indicates the environmental aspects of a wood product (adapted from ISO 14020:2000).

FEEDSTOCK ENERGY

Heat of combustion of a material input that is not used as an energy source to a product system, expressed in terms of lower heater value (net calorific value) (adapted from ISO 14044).

FUNCTION

Purpose for which a building product is designed, used or required to be used (adapted from ISO 15686-10).

FUNCTIONAL UNIT (FU)

Quantified performance of a product system for a wood building product for use as a reference unit (adapted from ISO 14044).

IMPACT CATEGORY

A class representing environmental issues of concern to which life cycle inventory analysis results may be assigned (ISO 14044).

IMPACT CATEGORY INDICATOR

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A quantifiable representation of an impact category (ISO 14044).

INFORMATION MODULE

Compilation of data to be used as a basis for an EPD covering a unit process or a combination of unit processes that are part of the life cycle of a product (ISO 21930).

INTERESTED PARTY

An individual or group concerned with or affected by the environmental performance of a product system, or by the results of the life cycle assessment (ISO 14044).

LIFE CYCLE

Consecutive and interlinked stages related to a product, from raw material acquisition or generation from natural resources to end-of-life (adapted from ISO 14044).

LIFE CYCLE ASSESSMENT (LCA)

Assessment aimed at compiling and evaluating the inputs, outputs and the potential environmental impacts of a product system throughout the life cycle of a product (adapted from ISO 14044).

LIFE CYCLE INVENTORY ANALYSIS (LCI)

Phase of LCA involving the compilation and quantification of input and output flows for a product throughout its life cycle (ISO 14044).

NOTE In the case of 'input flows', products and materials include raw materials, intermediate products and co-products, while in the case of 'output flows' it also includes releases (emissions to air and discharges to water and soil).

LIFE CYCLE IMPACT ASSESSMENT (LCIA)

Phase of LCA aimed at understanding and evaluating the magnitude and significance of the potential environmental impacts for a product system throughout the life cycle of a product (ISO 14044).

PRODUCT CATEGORY

Group of wood building products that can fulfill equivalent functions (adapted from ISO 14025).

PRODUCT CATEGORY RULES (PCR)

Set of specific rules, requirements and guidelines for developing of type III environmental declarations for one or more product categories (ISO 14025).

PCR REVIEW

Verification of the PCR by a third party panel (adapted from ISO 21930).

PRODUCT SYSTEM

Collection of unit processes with elementary and product flows (i.e., smallest element considered in the life cycle inventory analysis), performing one or more defined functions, and which models the life cycle of a product (adapted from ISO 14044).

TYPE III ENVIRONMENTAL DECLARATION/ENVIRONMENTAL PRODUCT DECLARATION (EPD)

Environmental declaration that provides quantified environmental data of a product, using predetermined parameters and, where relevant, additional environmental information (adapted from ISO 14025).

III. Scope

This document contains the Product Category Rule (PCR) requirements for Structural and Architectural Wood Products Environmental Product Declaration (EPD) published in accordance with the ISO 21930 and EN 15804 standards. The requirements for the background Life Cycle Assessment (LCA) project report used to inform the EPD are contained in UL Environment's Part A: Life Cycle Assessment Calculation Rules and Report Requirements. This Part B document, coupled with the Part A, conforms to the ISO 21930, EN 15804, and ISO 14025 European and international standards for EPD reporting.

General Guidance

The scope of this PCR applies to the product group "structural and architectural wood products" and includes the primary wood building products manufactured from wood harvested in North American forests and produced in North American facilities. The applicable products are shown in Table 1; other applicable products are those similar to the products in Table 1 as well as secondary building products made from those products.

This PCR covers all commercially available structural and architectural wood products according to the standards or technical approvals shown under Section 9.

Applicable Products

Table 1 describes the building products covered within the scope of this Part B, along with their relevant Construction Specification Institute (CSI) MasterFormat codes. This list is non-exhaustive, and the CSI codes provided reflect common applications, which can include multiple uses; other applications may exist. This PCR may also be applicable to the wood component of pre-fabricated building assemblies. Applicable UNSPSC codes include:

- 30103601 Wood beams
- 30103602 Wood composite beams
- 30103604 Wood sheathing or sheets
- 30103605 Wood planks
- 30103606 Wood trusses
- 30103607 Wood joists
- 30151515 Wooden roof tile
- 30152002 Wood fencing

TABLE 1. WOOD PRODUCT CATEGORIES, CSI CODES AND DESCRIPTIONS

Building product	CSI code(s) ¹	CSI descriptions
Battens ^{1a}	06 40 00	Architectural Woodwork
Cellulosic fiber insulating board ^{1b}	06 16 13	Insulating Sheathing
Cellulosic fiberboard ^{1c}	06 16 00 06 40 23	Sheathing Interior Architectural Woodwork
Cross-laminated timber ^{1d}	06 13 00 06 15 00 06 17 19	Heavy Timber Construction Wood Decking Cross-Laminated Timber
End-jointed lumber/Finger-jointed lumber ^{1e}	06 11 00 06 11 13 06 22 00 06 46 00	Wood Framing Engineered Wood Products Millwork Wood Trim
Glued-laminated timber ^{1a} (glulam)	06 13 00 06 15 00 06 18 00	Heavy Timber Construction Wood Decking Glued-Laminated Construction

¹ Bold headings correspond with major CSI categories; non-bold are sub-categories.

		06 18 13 06 18 16	Glued-Laminated Beams Glued-Laminated Columns
Hardboard ^{1c}		06 16 36 06 20 00 06 22 00 06 25 13 06 42 00 07 46 26 08 14 23.19	Wood Panel Product Sheathing Finish Carpentry Millwork Prefinished Hardboard Paneling Wood Paneling Hardboard Siding Molded-Hardboard-Faced Wood Doors
Laminated strand lumber(LSL) ^{1a}		06 11 00 06 11 13 06 13 23	Wood Framing Engineered Wood Products Heavy Timber Framing
Laminated veneer lumber (LVL) ^{1a}		06 11 00 06 11 13 06 13 23 06 17 13	Wood Framing Engineered Wood Products Heavy Timber Framing Laminated Veneer Lumber
Mass Plywood Panels (MPP)		06 13 00 06 15 00	Heavy Timber Construction Wood Decking
Medium-density fiberboard (MDF) ^{1c}		06 16 00 06 22 00 06 40 23 06 46 00	Sheathing Millwork Interior Architectural Woodwork Wood Trim
Moulding ^{1a}		06 22 00 06 46 00 06 48 00 06 49 00	Millwork Wood Trim Wood Frames Wood Screens and Shutters
Nail Laminated Timber		06 13 00 06 15 00	Heavy Timber Construction Wood Decking
Oriented strand board (OSB) ^{1f}		06 10 00 06 16 00 06 16 23 06 16 36	Rough Carpentry Sheathing Subflooring Wood Panel Product Sheathing
Oriented strand lumber (OSL) ^{1a}		06 11 00 06 11 13 06 13 23 06 17 00	Wood Framing Engineered Wood Products Heavy Timber Framing Shop-Fabricated Structural Wood
Parallel strand lumber (PSL) ^{1g}		06 11 00 06 11 13 06 13 23 06 17 23	Wood Framing Engineered Wood Products Heavy Timber Framing Parallel Strand Lumber
Particleboard ^{1c}		06 16 26 06 40 23 06 41 00	Underlayment Interior Architectural Woodwork Architectural Wood Casework
Plywood ^{1h}	Softwood	06 10 00 06 16 00 06 16 23 06 16 26 06 16 36 06 20 00	Rough Carpentry Sheathing Subflooring Underlayment Wood Panel Product Sheathing Finish Carpentry

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		06 25 16 06 40 00 07 46 29	Prefinished Plywood Paneling Architectural Woodwork Plywood Siding
	Hardwood	06 20 00 06 22 00 06 25 16 06 40 23	Finish Carpentry Millwork Prefinished Plywood Paneling Interior Architectural Woodwork
Sawn timber (Lumber) ^{1a}		06 10 00 06 11 00 06 15 00 06 16 23 06 16 33 06 17 43 06 20 00 06 22 00 06 26 00 06 42 13 06 43 00 06 48 00 09 64 29	Rough Carpentry Wood Framing Wood Decking Subflooring Wood Board Sheathing Rim Boards Finish Carpentry Millwork Board Paneling Wood Board Paneling Wood Stairs and Railings Wood Frames Wood Strip and Plank Flooring
Shakes ¹ⁱ		07 31 29.16 07 46 24.16	Wood Shakes Wood Shake Siding
Shingles ^{1a}		07 31 29.13 07 46 24.13	Wood Shingles Wood Shingle Siding
Structural composite lumber ^{1a}		06 11 00 06 11 13 06 13 23 06 17 00	Wood Framing Engineered Wood Products Heavy Timber Framing Shop-Fabricated Structural Wood
Veneer ^{1h}		06 41 13 06 48 26 09 74 16 12 32 13	Wood-Veneer-Faced Architectural Cabinets Wood-Veneer Frames Flexible Wood Veneers Manufactured Wood-Veneer-Faced Casework
Wood I-joist/Pre-fabricated wood I-joist ^{1a}		06 11 13 06 17 33	Engineered Wood Products Wood I-Joists

For standard definitions/descriptions of the different types of wood products, refer to the following:

- 1a ASTM D9-12: Standard Terminology Relating to Wood and Wood-Based Products
- 1b ASTM C208-12(2017)e1: Standard Specification for Cellulosic Fiber Insulating Board
- 1c ASTM D1554-10(2016): Standard Terminology Relating to Wood-Base Fiber and Particle Panel Materials
- 1d ANSI/APA PRG 320-2018: Standard for Performance-Rated Cross-Laminated Timber
- 1e ASTM D7470 - 08(2015): Standard Practice for Evaluating Elevated Temperature Performance of End-Jointed Lumber Studs
- 1f ASTM D7033-14: Standard Practice for Establishing Design Capacities for Oriented Strand Board (OSB) Wood-Based Structural-Use Panels
- 1g ASTM D5456-18: Standard Specification for Evaluation of Structural Composite Lumber Products
- 1h ASTM D1038-11: Standard Terminology Relating to Veneer and Plywood
- 1i CSA O118.1-08 (R2013): Western Red Cedar Shakes and Shingles

Non-Applicable Products

Products excluded from the scope of this PCR include:

- Treated Wood
 - Covered under Product Category Rules for North American Pressure-treated Wood Products by ASTM and ICC Evaluation Service (ASTM/ICC-ES PCR 2016v01).
- Furniture

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- Covered under Product Category Rule for Environmental Product Declarations: BIFMA PCR for Office Workspace Products UNCPC 3814. NSF, August 2020.
- Casegoods
 - Covered under Product Category Rule for Environmental Product Declarations: BIFMA PCR for Storage UNCPC 3812. NSF, June 2019.
- Wood pallets
 - Covered under Product Category Rules (PCR) Guidance for Wood Pallets. Standard 10003, Edition. 1. UL Environment, June 2019.
- Floor coverings
 - Covered under Product Category Rules (PCR) Guidance for Building-Related Products and Services Part B: Flooring EPD Requirements. Standard 10010-7, Edition 1. UL Environment, September 2018.

NOTE: This PCR may be used for wood feedstock used in these products.

System Boundary

The system boundary for EPDs created using this PCR is either cradle to gate (modules A1-A3), cradle to gate with options (modules A1-A3, optional modules A4, A5, B2, and/or C1-C4), or cradle to grave (modules A1-C4). See Part A, Section 2.8 for further discussion of the required and optional information modules included in each EPD type. Module D is not a life cycle stage like the information modules A1 to C4 and is outside the system boundary of the studied product system and construction works system. Supplementary environmental information may be provided in Module D that addresses potential loads and benefits beyond the product system boundary.

At this time, there is no industry consensus for assumptions behind the reported scenarios for information modules A4, A5, B2, or C1 – C4 across each of the subcategories of wood products included in this PCR.

The EPD requirements include:

- Requirements of the ISO 21930:2017 standard
- Requirements of the EN 15804 standard for consistency between declarations in Europe and the United States.
- The calculation rules for the Life Cycle Assessment and Requirements on the Project Report are specified in a separate document as Part A of the Product Category Rules, available at <https://ul.com/offers/product-category-rules-pcrs>. At the time of writing this document, version 3.2 is the most current.

IV. Industry-Average EPD and Report Requirements

Industry-Average EPD Scope

The scope of products represented within a single industry-average EPD created using this PCR is limited to the material(s) defined in the standards in Section 9 that characterize the product in commerce.

Involvement of Interested Parties

A call for involvement of interested parties in the creation of an industry-average EPD shall be published in at least one industry trade publication. At a minimum, three (3) different manufacturing locations from no less than three (3) companies should be involved and represented in an industry-average EPD, unless fewer locations or companies exist in the current market. A production-weighted average shall be calculated. The method for determining representativeness shall be justified and described in the LCA and EPD per the requirements listed in Section 2.3.1. The industry EPD shall report the percentage of market participation.

Industry-Average EPD Participation

A manufacturer qualifies for participation in an industry-average EPD created using this PCR if they provide primary manufacturing data used in calculating the initial EPD average or demonstrate willingness in writing to provide primary manufacturing data during the LCA data collection process.

Retroactive participation

A manufacturer desiring retroactive inclusion in the industry average EPD shall provide the manufacturing and product data information consistent with information submitted in the original industry average EPD. The LCA practitioner will then recommend to the Program Operator a determination for inclusion in the industry average on the basis of results falling within a reasonable range for any impact category. The maximum and minimum should be reported in the LCA background report for each impact category based on the highest and lowest impact product or facility within the original industry-wide LCA.

When determining a manufacturer's participation eligibility, the EPD Program Operator shall follow the recommendations of the primary sponsor(s) of the industry average EPD and participating manufacturers unless the Program Operator has information to the contrary, in which case the Program Operator, LCA practitioner, primary sponsor of the industry average EPD, and manufacturer shall confer in an effort to reach consensus.

Governance

The primary sponsor(s), such as a trade association, shall inform all eligible industry participants through association meetings, newsletters, e-mail messages, and similar types of outreach, including public notices in the trade press publications. Confidential business information shall be collected by a third party. Data from the third party shall be aggregated with no trace to the original source of data.

The development of an industry-average EPD and/or update of such an EPD should involve a series of meetings and exchanges in which all participants are invited and kept apprised of the developments. Advance notices as well as the minutes of these meetings shall be shared with all eligible participants regardless of whether they actively participate. These notices and meeting minutes should be preserved as documentation of the process and due diligence observed in the creation or renewal of the EPD.

Data Responsibility/Ownership

Primary sponsor(s) that lead the development of industry-average EPDs may need to collect confidential business information. This data can include proprietary chemical formulations and processes or other confidential information. In this case, a designated third-party entity such as an LCA practitioner may be commissioned as the "industry agent". The industry agent shall be responsible for activities including collection, secure storage and analysis of such data needed for the EPD development and will preserve the privacy of individual company information while executing these duties.

Refer to ISO 21930 Section 5.4 for ownership and development responsibilities of the EPD.

The group of manufacturers responsible for developing an industry-average EPD shall be responsible for, including but not limited to, ensuring industry-average EPD updates are made based on the most recent LCA modeling software version and impact assessment version available.

Industry-Average EPD Updates

An update to the existing EPD, or new EPD, may need to be developed at the discretion of the primary sponsor(s) prior to the five validity period years if there are: 1) significant changes in the manufacturing process; 2) new industry participants; 3) significant changes or alterations in, or sourcing origins of, raw materials; 4) major regulatory changes that mandate or trigger changes to operational procedures; or 5) major technological changes would also justify creation of an updated EPD.

Additional companies may be added to an existing industry-average EPD at the scheduled review by submitting data and having the industry average impacts recalculated.

1. Content of the EPD

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	Program Operator Provided
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	Program Operator Provided
MANUFACTURER NAME AND ADDRESS	
DECLARATION NUMBER	Program Operator Provided
DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT	
REFERENCE PCR AND VERSION NUMBER	
DESCRIPTION OF PRODUCT'S INTENDED APPLICATION AND USE	
PRODUCT RSL DESCRIPTION (IF APPL.)	
MARKETS OF APPLICABILITY	
DATE OF ISSUE	Program Operator Provided
PERIOD OF VALIDITY	Program Operator Provided
EPD TYPE	[Industry-average or product-specific]
DATASET VARIABILITY	[Industry-average only; mean, median, standard deviation]
EPD SCOPE	[Cradle to gate, cradle to gate with options (specify options), or cradle to grave]
YEAR(S) OF REPORTED MANUFACTURER PRIMARY DATA	
LCA SOFTWARE & VERSION NUMBER	
LCI DATABASE(S) & VERSION NUMBER	
LCIA METHODOLOGY & VERSION NUMBER	
The sub-category PCR review was conducted by:	Program Operator Provided
	Program Operator Provided
	Program Operator Provided
This declaration was independently verified in accordance with ISO 14025:2006. The UL Environment "Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report," v3.2 (December 2018), in conformance with ISO 21930:2017, serves as the core PCR, with additional considerations from the USGBC/UL Environment Part A Enhancement (2017) <input type="checkbox"/> INTERNAL <input type="checkbox"/> EXTERNAL	Program Operator Provided
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	Program Operator Provided
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Program Operator Provided
LIMITATIONS	
Environmental declarations from different programs (ISO 14025) may not be comparable.	
Comparison of the environmental performance using EPD information shall consider all relevant information modules over the full life cycle of the products within the building.	
This PCR allows EPD comparability only when the same functional requirements between products are ensured and the requirements of ISO 21930:2017 §5.5 are met. It should be noted that different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.	

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2. General Information

The comprehensive requirements for EPD content are specified in Part A, Section 7 and ISO 21930:2017, Section 9 (Clause 9).

2.1. DESCRIPTION OF ORGANIZATION

2.1.1. Industry Average EPD

The name of the sponsoring organization as well as participating manufacturers shall be provided.

2.1.2. Product Specific EPD

The name of the manufacturing entity(ies) as well as the place(s) of production shall be provided. General information about the manufacturing entity(ies) may be provided, such as the existence of quality systems or environmental management systems, according to ISO 14001 or any other environmental management system in place.

2.2. PRODUCT DESCRIPTION

A narrative description of the product shall be provided that enables clear identification of the product. This description will include:

2.2.1 Product Identification

The declared products shall be identified by brand name(s), by material type(s), by production code(s) (if applicable), and by simple visual representation, which may be by photograph or graphic illustration. The following statement may be included, if available:

This EPD represents wood from [insert general description e.g. U.S. softwood lumber production, [insert certification label] certified wood in Washington State, etc].”

2.2.2 Product Specification

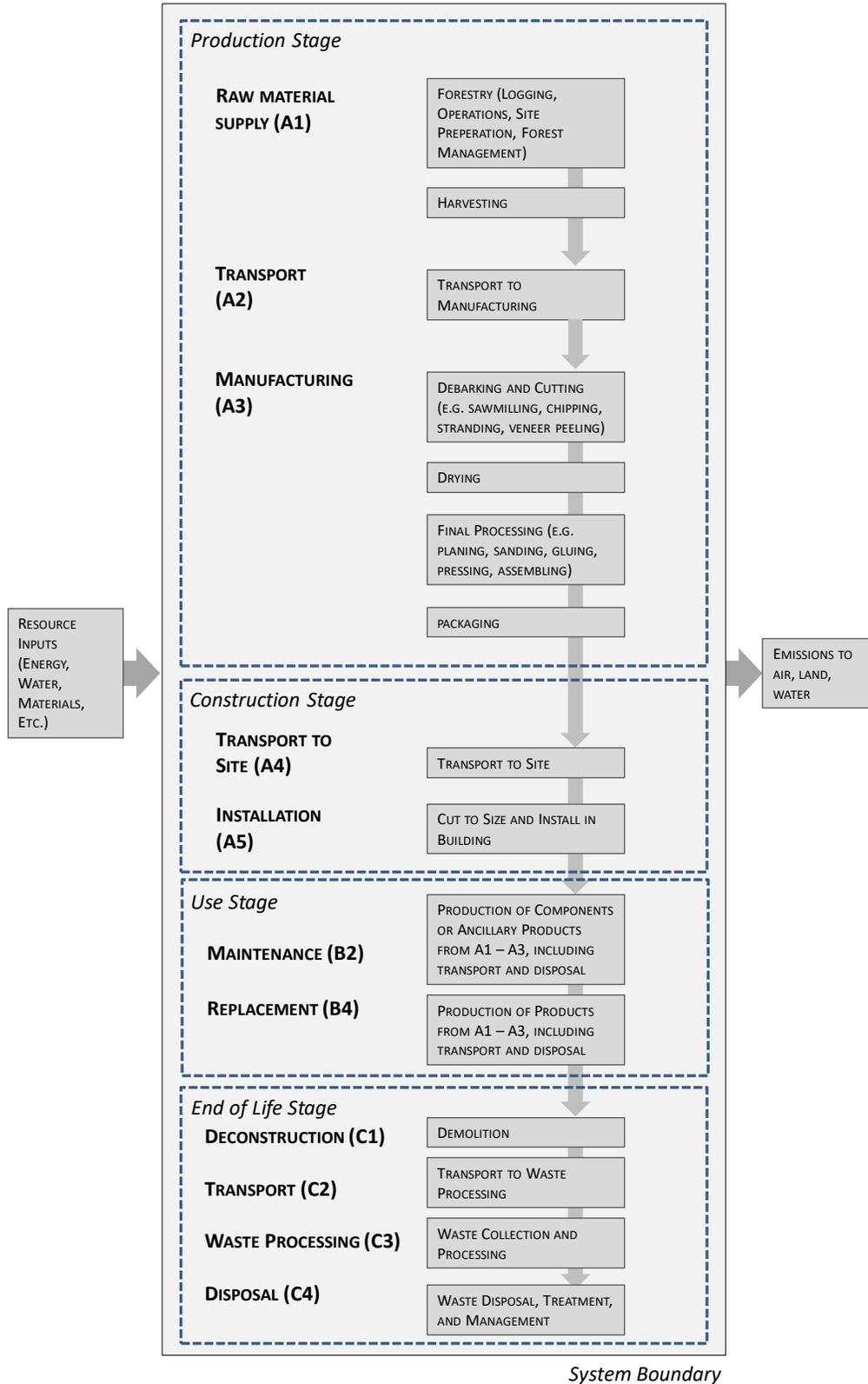
Related products grouped and reported as an average product in the same EPD satisfying the variation criteria of Part A, Section 5 shall constitute an individual declared product. For each declared product, list the physical characteristics required in Section 3. Other relevant product specification values may be provided here.

The appropriate CSA, ASTM or ANSI product specification shall be provided, including additional pertinent physical properties and technical information.

2.2.3 Flow Diagram

A graphical depiction of a flow diagram illustrating main production processes according to the scope of the declaration shall be included such as the examples in Figure 1.

FIGURE 1. EXAMPLE PRODUCT FLOW DIAGRAM – WOOD BUILDING PRODUCTS²



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² This example flow diagram is a generic wood product and specific product types covered in this PCR may differ.

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2.3. PRODUCT AVERAGE

2.3.1 Industry Average EPD (if relevant)

The method for creating an industry-average EPD shall be described per Part A, Section 2.5.1.

2.3.2 Product Specific EPD

The method for creating a company specific individual product/product group EPD shall be described, including the method for determining a weighted average across products based on production volume as described in Part A, Section 2.5.2.

2.4. APPLICATION

The designated applications for the referenced product(s) shall be specified. The applications of the-declared product(s) shall be described.

2.5. MATERIAL COMPOSITION

The material composition of wood products shall be disclosed and will include components as percentages or ranges of percentages of total mass as required by product Safety Data Sheet (SDS) rules, if relevant.

Statements of material non-inclusion, such as "... is free of ..." shall not be used.

Regulated Hazardous substances and dangerous substances shall be reported per Part A, Section 4.11.

Note: This disclosure is intended to enable the user of the EPD to understand the composition of the product in delivery condition and support a safe and effective installation, use and disposal of the product. With appropriate justification, this requirement does not apply to confidential or proprietary information relating to materials and substances that apply due to a competitive business environment or covered by intellectual property rights or similar legal restrictions. It also might not be appropriate for information concerning intangible products.

2.6. TECHNICAL REQUIREMENTS

A listing of all standards required for the specification of the declared product shall be provided as shown in Section 9.

2.7. PROPERTIES OF DECLARED PRODUCT AS DELIVERED

The dimensions/quantities of the declared product(s) as delivered to the site of installation/application shall be indicated.

The final product evaluation report/certification/registration is available at: [Insert link]

3. Methodological Framework

3.1. FUNCTIONAL UNIT

For EPDs covering the complete life cycle, a functional unit shall be defined based on the functional use or performance characteristics of the product integrated into a building or other type of construction in the use phase. The functional unit shall be one of the following as appropriate and defined in Table 2: cubic meters of installed building product, square meters of installed building product (with a stated product thickness), square meters of constructed area using the building product, or other unit as appropriate. Explanation of the selected functional unit shall be stated clearly, including the reference service life. The reference flow as an input to enable wood building products to meet the functional unit requirements shall include related accessories and other materials (e.g., fasteners), unless the reason for the omission of these is explained.

3.2. DECLARED UNIT

For EPDs not covering the complete life cycle, e.g. leaving out the use stage, a declared unit is defined. A declared unit shall be applied if the precise function of the product is not stated or not known. Conversion factors (e.g. density, thickness, moisture content, etc.) shall be provided in order to allow the users to conduct further calculations (e.g. transport impacts, energy simulations).

Table 2 summarizes declared units and functional units that are applicable for wood products.

TABLE 2. WOOD PRODUCTS DECLARED AND FUNCTIONAL UNITS

Product	Declared unit	Functional unit
Battens	One cubic meter (m ³)	One cubic meter (m ³) of installed product
Cross Laminated Timber (CLT)		
End-Jointed and Finger-Jointed Lumber		
Glued-Laminated Timber (Glulam)		
Mass Plywood Panels (MPP)		
Nail Laminated Timber		
Panel Products ^{1,2}		
Sawn Timber (Lumber)		
Shakes, Shingles		
Structural Composite Lumber (SCL) ³		
Veneer		
Wood I-Joist & Pre-Fabricated Wood I-Joist ^{1a}	One linear meter (m)	One linear meter (m) of installed product
Wood Moulding		

¹ Examples of Panel Products: Plywood, Oriented Strandboard, Hardboard, Engineered Wood Siding and Trim (EWST), Particleboard, Medium Density Fiberboard, Cellulosic Fiberboard, Cellulosic Fiber Insulating Board

² The conversion to cubic meter from a meter square (m²) and thickness basis shall be stated

³ Examples of Structural Composite Lumber (SCL): Laminated-Veneer Lumber (LVL), Laminated Strand Lumber (LSL), Oriented Strand Lumber (OSL) Parallel Strand Lumber (PSL)

The functional or declared unit, mass, and thickness to achieve the functional or declared unit shall be indicated in Table 3 as declared.

TABLE 3. FUNCTIONAL OR DECLARED UNIT PROPERTIES

Name	Value	Unit
Functional or Declared unit		
Mass		kg
Thickness to achieve Functional or Declared Unit		m
Density		kg/m ³
Moisture Content		%

3.3. SYSTEM BOUNDARY

The type of EPD shall be specified as cradle to gate, cradle to gate with options (end of life), or cradle to grave. The modules considered in the LCA shall be described in brief as per "System boundaries" outlined in Part A, Section 2.8. It should be apparent as to what processes are considered in what modules per the module descriptions in Part A, Section 2.8. Any relevant aspects or impacts not included in an information module shall be supported with relevant additional environmental information and the omissions shall be justified. Module D shall be reported separately if included in the EPD.

The inclusion of capital goods and infrastructure flows shall conform with Part A, Section 2.9. If included, the LCA report should specify lifetimes of capital goods and infrastructure. The impact burden from capital goods and

infrastructure shall be allocated to the product(s) in the LCA by either a) proportional to the specified lifetime of the asset, or b) proportional to the production output of the asset. Any deviation shall be explicitly specified and justified.

3.4. REFERENCE SERVICE LIFE AND ESTIMATED BUILDING SERVICE LIFE

The product reference service life (RSL) and building estimated service life (ESL) shall be indicated according to Part A, Section 2.8.2. RSL is only required when reporting EPD system boundaries beyond cradle-to-gate.

For all structural wood products, a default value of 75 years shall be assumed for RSL unless otherwise justified.³

For other products, the assumptions upon which the designated RSL is based and for which the RSL exclusively applies shall be provided.

If included, details on RSL shall be provided in Section **Error! Reference source not found.**, Table 6. Influences on ageing, when applied, shall be in accordance with the state of the art.

3.5. ALLOCATION

Part A, Section 3.3 shall be used as the basis for allocation decisions, and mass should be used as the primary basis for co-product allocation in this Part B. Allocation methods deemed more appropriate than on the basis of mass may be used but only when justified. The allocations of relevance for calculation (appropriation of impacts across various products) shall be indicated, at least:

- Allocation in the use of recycled and/or secondary raw materials
- Allocation of energy, ancillary and operating materials used for individual products in a factory

whereby reference shall be made to the modules in which the allocations are performed.

3.6. CUT-OFF RULES

Cut-off rules as specified per the Part A, Section 2.9 shall be used and documented. All known mass and energy flows shall be reported. No known flows should be deliberately excluded.

3.7. DATA SOURCES

Data sources shall be documented per Part A, Section 3.1.

This EPD estimates the impacts of forest management by [describe method used in plain language e.g. a weighted average based on regional surveys of truck and equipment use].

3.8. DATA QUALITY

An evaluation shall be provided regarding data quality, including temporal, geographical, technological representativeness, and completeness and shall follow the requirements outlined in Part A, Section 3.1.1.

3.9. PERIOD UNDER REVIEW

The period under review and ensuing averages shall be documented.

3.10. TREATMENT OF BIOGENIC CARBON

Accounting for the uptake and release of biogenic carbon throughout the product life cycle shall follow Section 7.2.7 of ISO 21930:2017.

3.11. COMPARABILITY AND BENCHMARKING

Comparison of EPD results between non-competitive products may be included in this section per the requirements in Part A, Section 9.

³ Based on ASTM D2921.

3.12. ESTIMATES AND ASSUMPTIONS

Key assumptions and estimates in this section should be included in the Life Cycle Assessment, provided that they are not dealt with in Section 4.

3.13. UNITS

SI units are required for all LCA results. Other units commonly used in a regional market may be optionally included in addition to the required SI units.

4. Technical Information and Scenarios

The following information shall be reported for declared modules. Irrelevant or non-applicable module rows may be excluded in the EPD; additional information may also be listed if necessary.

The following technical information is a basis for the declared modules or may be used for developing specific scenarios in the context of a building assessment if modules are not declared (MND).

Results reported in Table 7 through Table 10 shall be reported over the entire building ESL.

4.1. MANUFACTURING

The manufacturing process and locations shall be described and illustrated using a simple flow-chart. If the EPD applies to several locations, the production processes for all locations shall be described and reference to quality management systems may be included.

4.2. PACKAGING

Information on product-specific packaging: type, composition and possible reuse of packaging materials (paper, strapping, pallets, foils, drums, etc.) shall be included in this Section. The EPD shall describe specific packaging scenario assumptions, including disposition pathways for each packaging material by reuse, recycling, or landfill disposal based on packaging type.

In the absence of specific primary data, the data assumptions from Part A, Section 2.8.5, Table 2 shall be used.

In the case of reusable packaging designed to last for multiple reuse cycles, one reuse shall be assumed in the absence of primary manufacturer data. At the end of its reuse cycle, reusable packaging shall be assumed to go to landfill.

4.3. TRANSPORTATION

The following information should be provided to specify any transport after the manufacturing gate: type of transport, type of vehicle, distance, type and amount of energy carrier.

TABLE 4. TRANSPORT TO THE BUILDING SITE (A4)

Name	Value	Unit
Fuel type		
Liters of fuel		l/100km
Vehicle type		
Transport distance		km
Capacity utilization (including empty runs, specify whether mass or volume based)		%
Gross density of products transported		kg/m ³
Weight of products transported (if gross density not reported)		kg
Volume of products transported (if gross density not reported)		m ³
Capacity utilization volume factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaging products)		-

4.4. PRODUCT INSTALLATION

A description of the type of processing, machinery, tools, dust extraction equipment, ancillary materials, etc. to be used during installation and measures for reducing noise shall be included. Information on industrial and environmental protection may be included in this section.

Any waste treatment included within the system boundary of installation waste should be specified.

TABLE 5. INSTALLATION INTO THE BUILDING (A5)

Name	Value	Unit
Ancillary materials		kg
Net freshwater consumption specified by water source and fate (e.g., X m3 river water evaporated, X m3 city water disposed to sewer)		m ³
Other resources		kg
Electricity consumption		kWh
Other energy carriers		MJ
Product loss per functional unit		kg
Waste materials at the construction site before waste processing, generated by product installation		kg
Output materials resulting from on-site waste processing (specified by route; e.g. for recycling, energy recovery and/or disposal)		kg
Mass of packaging waste specified by type		kg
Biogenic carbon contained in packaging		kg CO ₂
Direct emissions to ambient air, soil and water		kg
VOC emissions		µg/m ³

Industry average scrap rates are currently not available, and industry has committed to develop values representative of practice in the field.

The VOC emissions shall be determined in accordance to "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers- version 1.2" CA Specification 01350.

TABLE 6. REFERENCE SERVICE LIFE

A product's RSL depends on the product properties and reference in-use conditions. These conditions shall be declared with a RSL and it shall be stated that the RSL only applies to these reference in-use conditions. The reference in-use conditions for achieving the declared technical and functional performance of the product and the declared RSL shall include the following, where relevant:

Name	Value	Unit
RSL		Years
Declared product properties (at the gate) and finishes, etc.		Units as appropriate
Design application parameters (if instructed by the manufacturer), including references to the appropriate practices and application codes)		Units as appropriate
An assumed quality of work, when installed in accordance with the manufacturer's instructions		Units as appropriate
Outdoor environment, (if relevant for outdoor applications), e.g. weathering, pollutants, UV and wind exposure, building orientation, shading, temperature		Units as appropriate
Indoor environment, (if relevant for indoor applications), e.g. temperature, moisture, chemical exposure)		Units as appropriate
Use conditions, e.g. frequency of use, mechanical exposure.		Units as appropriate
Maintenance, e.g. required frequency, type and quality of replacement components		Units as appropriate

4.5. USE

Any relevant information may be provided in this section regarding specific product use conditions and/or limitations relevant to product use, including a description of any maintenance, repair, replacement or refurbishment processes and/or a reference to where a description can be found. Refer to Section **Error! Reference source not found.** for optional reporting of energy savings during use.

Information on maintenance shall be provided based on the manufacturer's recommendations. In the absence of primary data, assumptions (i.e. cleaning) shall be documented and reported in the EPD.

TABLE 7. MAINTENANCE (B2)

Name	Value	Unit
Maintenance process information (cite source in report)		-
Maintenance cycle		Cycles/ RSL
Maintenance cycle		Cycles/ ESL
Net freshwater consumption specified by water source and fate (e.g., X m3 river water evaporated, X m3 city water disposed to sewer)		m ³
Ancillary materials specified by type (e.g. cleaning agent)		kg
Other resources		kg
Energy input, specified by activity, type and amount		kWh
Other energy carriers specified by type		kWh
Power output of equipment		kW
Waste materials from maintenance (specify materials)		kg
Direct emissions to ambient air, soil and water		kg
Further assumptions for scenario development (e.g. frequency and time period of use, number of occupants)		

TABLE 8. REPAIR (B3)

Name	Value	Unit
Repair process information (cite source in report)		-
Inspection process information (cite source in report)		-
Repair cycle		Cycles/ RSL
Repair cycle		Cycles/ ESL
Net freshwater consumption specified by water source and fate (e.g., X m3 river water evaporated, X m3 city water disposed to sewer)		m ³
Ancillary materials specified by type (e.g. cleaning agent)		kg
Energy input, specified by activity, type and amount		kWh
Waste materials from repair (specify materials)		kg
Direct emissions to ambient air, soil and water		kg
Further assumptions for scenario development (e.g. frequency and time period of use, number of occupants);		

REPLACEMENT (B4) / REFURBISHMENT (B5)

The number of replacements of product expected during the building ESL of 75 years shall be declared. Required or expected maintenance are to be modelled according to manufacturer's guidelines. Assumptions and key parameters shall be clearly stated and the manufacturer is to submit supporting documentation to justify the assumptions made.

If the RSL is less than the building's ESL of 75 years, the number of replacements that will be necessary to fulfil the required performance and functionality over the building ESL shall be identified.

Replacements should be rounded-up to the nearest tenths of the ESL of the building; e.g., 1.47 rounded to 1.5.

TABLE 9. REPLACEMENT (B4)

Name	Value	Unit
RSL		Years
Replacement cycle		(ESL/RSL) - 1
Energy input, specified by activity, type and amount		kWh
Net freshwater consumption specified by water source and fate (e.g., X m3 river water evaporated, X m3 city water disposed to sewer)		m ³
Ancillary materials specified by type and amount (e.g. cleaning agent)		kg
Replacement of worn parts, specify parts/materials		kg
Direct emissions to ambient air, soil and water		kg
Further assumptions for scenario development, e.g. frequency and time period of use		As appropriate

TABLE 10. REFURBISHMENT (B5)

Name	Value	Unit
Refurbishment process description (cite source in report)		
Replacement cycle		Cycles/ RSL
Replacement cycle		Cycles/ ESL
Energy input, specified by activity, type and amount		kWh
Net freshwater consumption specified by water source and fate (e.g., X m3 river water evaporated, X m3 city water disposed to sewer)		m ³
Material input for refurbishment, including ancillary materials specified by type (e.g. cleaning agent)		kg
Waste material(s), specified by material		kg
Direct emissions to ambient air, soil and water		kg
Further assumptions for scenario development (e.g. frequency and time period of use, number of occupants);		

TABLE 11. OPERATIONAL ENERGY USE (B6) AND OPERATIONAL WATER USE (B7)

Name	Value	Unit
Net freshwater consumption specified by water source and fate (e.g., X m3 river water evaporated, X m3 city water disposed to sewer)		m ³
Ancillary materials		kg
Energy input, specified by activity, type and amount		kWh
Equipment power output		kW
Characteristic performance (e.g. energy efficiency, variation of performance with capacity utilization)		Units as appropriate
Direct emissions to ambient air, soil and water		kg
Further assumptions for scenario development (e.g. frequency and time period of use, number of occupants);		As appropriate

4.6. DISPOSAL

The possible disposal channels shall be indicated in accordance with disposal routes and waste classification referenced in Part A, Section 2.8.5 and 2.8.6.

TABLE 12. END OF LIFE (C1-C4)

Name		Value	Unit
Assumptions for scenario development (description of deconstruction, collection, recovery, disposal method and transportation)			
Collection process (specified by type)	Collected separately		kg
	Collected with mixed construction waste		kg
Recovery (specified by type)	Reuse		kg
	Recycling		kg
	Landfill		kg
	Incineration		kg
	Incineration with energy recovery		kg
	Energy conversion (specify efficiency rate)		
Disposal (specified by type)	Product or material for final deposition		kg
Removals of biogenic carbon (excluding packaging) ⁴			kg CO ₂

4.7. RE-USE PHASE

The possibilities of re-use, recycling and energy recovery shall be described.

TABLE 13. REUSE, RECOVERY AND/OR RECYCLING POTENTIALS (D), RELEVANT SCENARIO INFORMATION

Name	Value	Unit
Net energy benefit from energy recovery from waste treatment declared as exported energy in C3 (R>0.6)		MJ
Net energy benefit from thermal energy due to treatment of waste declared as exported energy in C4 (R<0.6)		MJ
Net energy benefit from material flow declared in C3 for energy recovery		MJ
Process and conversion efficiencies		
Further assumptions for scenario development (e.g. further processing technologies, assumptions on correction factors);		

5. Environmental Indicators Derived from LCA

5.1. LCA RESULTS FROM LCIA

In Table 14 **Error! Reference source not found.**, "Description of the system boundary," all declared modules shall be indicated with an "X".

Modules A1, A2, and A3 may be declared as one aggregated module A1-A3.

Per Part A, life cycle impact assessment (LCIA) results shall be declared using scientific notation with three significant digits (e.g. 1.23E-5 = 0.0000123) for each module. Uniform formatting shall be used for all indicator values.

- ▶ North America (Part A, Section 4.7, Table 9, TRACI indicators)
- ▶ EU (Part A, Section 4.8, Table 10, CML indicators)
- ▶ Rest of World (Part A, Section 4.9, Table 11, indicators as provided)

⁴ See ISO 21930 Section 7.2.7

TABLE 14. DESCRIPTION OF THE SYSTEM BOUNDARY MODULES⁵

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE					END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY			
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	D			
Raw material supply	Transport	Manufacturing	Transport from gate to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential	Reference Service Life		
					B6 Operational Energy Use of Building Integrated System During Product Use												
					B7 Operational Water Use of Building Integrated System During Product Use												
Cradle to gate	Required													Optional	Optional		
Cradle to gate with options	Required		Optional (Based on scenarios)							Optional		Optional	Required				
Cradle to grave	Required		Required							Required		Optional	Required				

5.2. LCA RESULTS FROM LCI

Results derived from the product LCI shall be reported as follows:

- ▶ Resource use indicators (Part A, Section 4.1, Table 6)
- ▶ Output flows and waste category indicators (Part A, Section 4.1.2, Table 7)
- ▶ Carbon emissions and removals (Part A, Section 4.6, Table 8)

Optional guidance on the calculation of LCI indicators is available in ACLCA ISO 21930 guidance.

6. Interpretation

Interpretation requirements for the Project Report are provided in Part A, Section 5.

An interpretation shall be provided in the EPD which discusses the assumptions and limitations associated with the interpretation of results as declared in the EPD, both methodology and data related.

⁵ Adapted from ISO 2017:2017

This interpretation shall also include a description of the time frame and/or variance of the LCIA results if the EPD is valid for several products. An illustration of the results with figures is recommended in the EPD, e.g. for the dominance analysis, the distribution of impacts across the modules, the CO₂-balance, etc. as appropriate for a reader's understanding of the environmental profile of the declared product.

The EPD shall include the following statements:

- While this EPD does not address landscape level forest management impacts, potential impacts may be addressed through requirements put forth in regional regulatory frameworks, ASTM 7612-15 guidance, and ISO 21930 Section 7.2.11 including notes therein. These documents, combined with this EPD, may provide a more complete picture of environmental and social performance of wood products.
- While this EPD does not address all forest management activities that influence forest carbon, wildlife habitat, endangered species, and soil and water quality, these potential impacts may be addressed through other mechanisms such as regulatory frameworks and/or forest certification systems which, combined with this EPD, will give a more complete picture of environmental and social performance of wood products.
- EPDs can complement but cannot replace tools and certifications that are designed to address environmental impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, etc.
- National or regional life cycle averaged data for raw material extraction does not distinguish between extraction practices at specific sites and can greatly affect the resulting impacts.
- Accuracy of Results: EPDs regularly rely on estimations of impacts; the level of accuracy in estimation of effect differs for any particular product line and reported impact when averaging data. Variability was estimated in this EPD by [describe method used]

7. Additional Environmental Information

7.1. ENVIRONMENT AND HEALTH DURING MANUFACTURING

Measures relating to environmental and health protection during the product manufacturing process extending beyond national guidelines (of the production country) may be described, e.g. reference to a product safety data sheet (SDS), description of Environmental Management Systems or similar programs addressing air emissions, wastewater, noise, etc.

7.2. ENVIRONMENT AND HEALTH DURING INSTALLATION

Information should be provided in this section on the relationship between the product, the environment and health, including any possible harmful substances or emissions e.g. reference to a product safety data sheet (SDS). Any recommendations concerning cleaning, maintenance, etc. of the declared product should be listed in Section 4 "Technical information on scenarios".

7.3. EXTRAORDINARY EFFECTS

FIRE

Information should be included on the product's fire test response characteristics and possible impacts on the environment e.g. reaction-to-fire, other relevant fire tests as applicable, and emissions to air.

WATER

Information should be included on the product's performance and possible impacts on the environment following unforeseeable influence of water, e.g. flooding.

MECHANICAL DESTRUCTION

Information should be included on the product's performance and possible impacts on the environment following unforeseeable mechanical destruction, such as an earthquake.

7.4. DELAYED EMISSIONS

Information related to delayed emissions (resulting from stored biogenic carbon or other processes) may be presented as a separate GWP indicator, including the reference methodology (e.g., approaches based on discounting or approaches based on time-dependent characterization factors within a pre-defined reference study period). See Part A, Section 4.4 for more information.

7.5. ENVIRONMENTAL ACTIVITIES AND CERTIFICATIONS

Categorization of sources of wood fiber according to their forest management or certification systems may be provided in accordance with ASTM D7612-10.

Other environmental activities, such as participation in recycling or recovery programs along with the details of these programs and contact information, may be provided.

For certifications applied to the product and listed in the EPD, a statement shall be included on where an interested party can find details of the certification program.

7.7. FURTHER INFORMATION

A reference source for additional information may be provided here, e.g. homepage, reference source for safety data sheet.

Additional environmental information may be provided here according to Part A, Section 4.10.

8. Project Report and Supporting Documentation

The Project Report Content, Structure, and Accessibility requirements to support an EPD created using this document are provided in Part A, Section 2. Project Report elements include general information (Part A, Section 2.1), study goal (Part A, Section 2.2), study scope (Part A, Section 2.8), and the life cycle inventory analysis, impact assessment, and interpretation (Part A, Section 3, 4, and 5). Additionally, the Project Report shall include additional required supporting documentation specified in this sub-category Part B and according to Part A: Section 6.

If relevant to the scope of the declared product, or due to the product material composition, it is recommended to provide sufficient supporting documentation in the EPD and Project Report. When providing documentation, testing protocols and other relevant information shall be indicated. If supporting documentation is not provided, the reasons shall be indicated in the EPD and Project Report.

As a general rule, all statements shall be documented with measured data (presented by the corresponding test certificates). In the case of non-verifiable substances, the limit of detection shall be included in the declaration. Interpreting statements such as "... free of ..." or "... are entirely harmless ..." are not permissible.

9. References

The literature referred to in the Environmental Product Declaration shall be quoted in full from the following sources. Standards and standards relating to evidence and/or technical features already fully quoted in the EPD do not need to be listed here.

SUSTAINABILITY REPORTING STANDARDS

ACLCA- ISO 21930 Guidance – Draft v.2.2- https://aclca.org/wp-content/uploads/ACLCA-ISO-21930-guidance-DRAFT-v2_2.pdf

ISO 14025: 2006 - Environmental labels and declarations — Type III environmental declarations — Principles and procedures

ISO 14040: 2006 - Environmental management – Life cycle assessment – Principles and framework

ISO 14044:2006 - Environmental management – Life cycle assessment – Requirements and guidelines

ISO 14046:2013 - Environmental management- Water footprint- Principles, requirements and guidelines

ISO 15392:2008 - Sustainability in building construction- General principles

ISO 15686-1:2011 - Buildings and constructed assets - Service life planning- Part 1: General principles

ISO 15686-2:2008 - Buildings and constructed assets - Service life planning Part 2: Service life prediction procedures

ISO 15686-7:2008 - Buildings and constructed assets - Service life planning Part 7: Performance evaluation for feedback of service life data from practice

ISO 15686-8:2008 - Buildings and constructed assets - Service life planning Part 8: Reference service life and service life estimation

ISO 21930: 2017 - Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services

TESTING AND CLASSIFICATION REFERENCES

American Conference of Governmental Industrial Hygienists (ACGIH®) Threshold Limit Values and Biological Exposure Indices

Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers- version 1.2, January 2017.

ASHRAE:

ASHRAE Standard 62.1 Ventilation for Acceptable Indoor Air Quality

ASHRAE Standard 90.1 Energy Standard for Buildings Except Low-Rise Residential Buildings

ASHRAE 90.2 Energy-Efficient Design of Low-Rise Residential Buildings

ASHRAE 189.1 Standard for the Design of High-Performance Green Buildings

ASTM:

ASTM E2921-13, Standard Practice for Minimum Criteria for Comparing Whole Building Life Cycle Assessments for Use with Building Codes and Rating Systems.

RELEVANT FEDERAL STANDARDS AND SOPs

Environment Canada, National Pollutant Release Inventory (NPRI) (<http://www.ec.gc.ca/inrp-npri/>)

EPCRA 313 Toxic Release Inventory Reporting (U.S.) (<http://www2.epa.gov/toxics-release-inventory-tri-program>)

US EPA, ORD/NRMRL/Sustainable Technology Division, Systems Analysis Branch, SOP No. S-10637-OP-1-0- Tool for the Reduction and Assessment of Chemical and other Environmental Impacts (TRACI), Software Name and Version Number: TRACI version 2.1, USER'S MANUAL, 24 July, 2012

UP EPA. Advancing Sustainable Materials Management: 2014 Tables and Figures Assessing Trends in Material Generation, Recycling, Composting, Combustion with Energy Recovery and Landfilling in the US. December 2016. https://www.epa.gov/sites/production/files/2016-11/documents/2014_smm_tablesfigures_508.pdf

US: Resource Conservation and Recovery Act (RCRA), Clause C (<http://www.epa.gov/region6/rcra/>)

40 CFR 50 Protection of Environment - Part 50: National Primary and Secondary Ambient Air Quality Standards (U.S.) (<http://www.epa.gov/air/criteria.html>)

Clean Air Act (CAA) Section 112(r): Accidental Release Prevention/Public Management Rule (http://www.epa.gov/oem/docs/chem/caa112_rmp_factsheet.pdf)

CERCLA Hazardous Substances (U.S.) (<http://www.epa.gov/oem/content/hazsubs/cercsubs.htm>)

U.S. Department of Labor, Occupational Safety & Health Administration (OSHA 1910.1200 Hazard Communication Standard—Toxic and Hazardous Substances (U.S.) (http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10099)

RELEVANT PCRs AND PCR GUIDANCE

ISO 14027:2017 - Environmental labels and declarations -- Development of product category rules

EN 15804:2012+A1:2013 - Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products

Product Category Rules (PCR) for preparing an Environmental Product Declaration (EPD) for North American Structural and Architectural Wood Products. FP Innovations. Version 2, June 2015

ISO 21930: 2017 - Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services

Part A: Life Cycle Assessment Calculation Rules and Report Requirements UL Environment (December 2018, version 3.2)

USGBC and UL Environment. PCR Committee Process and Resources: Part B. July 2017.