



PCR Committee Process & Resources: Part B

Introduction & Background

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1. Executive Summary

The Part A and B approach provides the core consistency in methodology and reporting across all Product Category Rules (Part A) while including sector specific flexibility in reporting across the building products industry (Part B).

The initiative to create a core Product Category Rule (PCR) Part A and B framework in the public domain was developed with input from a Technical Advisory Panel (TAP) comprised of LCA experts, product manufacturers, USGBC staff and UL Environment. The program is intended to build on existing standards and best practices for the establishment of PCRs to:

- ▶ Provide a more consistent and tailored PCR framework for manufacturers of building products
- ▶ Establish PCRs used to produce Environmental Product Declarations (EPDs) that are more aligned with USGBC's market transformation goals. Specifically around reporting pertinent methodology information, benchmarking, and better enabling the design community to leverage EPDs towards decision making around sustainability goals.

International standards governing PCR creation for the building products sector leave considerable room for interpretation. Developing EPDs that are of high value to the design community begins with consistent and reliable methodologies and reporting. This document is part of a suite of documents intended to build on existing standards to create a framework from PCR creation through EPD publication. The structure consists of two documents, Part A and B. "Part A: Life Cycle Assessment Calculation Rules and Report Requirements" (hereafter referred to as "core Part A") is available in the public domain for free download [here](#).

The Part B template below is intended to be used in tandem with the publically available core Part A. The Part A outlines the core methodology which must be used when conducting and reporting the LCA and certain core information in an EPD. The Part B template outlines the process for the PCR committee and key questions/topics that must be addressed throughout the product-specific PCR creation process. The Part A and B approach provides the core consistency in methodology across all PCR's (Part A) while including sector-specific reporting flexibility across the building products industry (Part B).

This document includes an optional EPD template which was developed for convenience to include all required reporting in one place. This does not preclude other programs from using their own EPD formats, aesthetics, or providing additional information beyond what is required in Parts A and B.

Additional guidance is provided around benchmarking and ensuring that for PCRs which choose to address industry wide EPDs. Key questions are answered which enable clearer pathways for participation, representativeness, and are more in line with the market transformation goals in LEED. EPDs conforming to the benchmarking guidance found in this document and in the Part B template may produce EPDs which are eligible for conformance with both options 1 and 2 of the LEED credit, "Building product disclosure and optimization - environmental product declarations".

EPDs conforming to both Parts A and B will conform to international standards, be based on more consistent methodology, provide a mechanism to document product optimization, and be more easily used by project teams designing, building and operating buildings. This document adds guidance and interpretations as process document to the existing core PCR, and international standards, focusing on

the committee process of PCR creation. The core Part A is based primarily on EN 15804:2012 with regional specificity to North America, the most recent update also considered updates to ISO 21930.

Product-specific and industry wide EPDs developed outside of the Part A and B framework outlined in these documents continue contributing towards LEED certification provided the EPDs meet the requirements in the LEED credits.

This program is intended to address the following industry needs:

- ▶ Incorporate industry wide benchmarking guidance into PCRs
- ▶ Improve data and methodology transparency in EPDs to enable project teams to more effectively works towards a comparison of environmental impacts between products, assemblies and industry baselines in the context of a whole building life cycle assessment.
- ▶ Increase the volume of product-specific EPDs for building products
- ▶ Catalyze the development of tools for designers and manufacturers based on information contained in EPDs
- ▶ Improve data and methodology consistency in LCA used to inform EPDs.

2. Abbreviations

ACLCA – American Center for Life Cycle Assessment

EOL – End of Life

EPD – Environmental Product Declaration

ESL – Estimated Service Life

EU – European Union

LCA – Life Cycle Assessment

LCI – Life Cycle Inventory

LCIA – Life Cycle Impact Assessment

LEED – Leadership in Energy and Environmental Design

LEED v4 - LEED Version Four

NGO – Non Governmental Organization

PCR – Product Category Rule

RSL – Reference Service Life

TAP – Technical Advisory Panel

USGBC – U.S. Green Building Council

UL – Underwriters Laboratories

Introduction and Background

For decades building industry professionals have been working to transform our industry by minimizing the negative impacts associated with the design, construction, operations and maintenance of the built environment. USGBC's LEED program has played an important catalyzing and organizing role in this ongoing transformation. Concepts, strategies and requirements set forth in LEED have become key factors with respect to building performance expectations across a broad range of environmental, economic and social issues. The building product industry's ongoing adaptation to requirements established in LEED's Material and Resources credit category is a clear example of market transformation.

Recent updates to LEED introduce a necessary and timely evolution to the materials and resources credits based on an integrative process and a multi-attribute, life cycle based framework. This evolution is intended to minimize the environmental and health impacts associated with the sourcing, production, use, and disposal of materials and building products. The resulting LEED credits support and incentivize the industry to enable practitioners to make more informed decisions related to the environmental and health attributes of materials and products used to design, construct, and operate buildings.

Intended Audience

The PCR committee process guidance in this Part B will be most useful to groups seeking to develop product(s)-specific PCRs, specifically Program Operators. Interested parties may also include standards developers, corporations, manufacturers, and industry associations. Other groups such as governmental agencies, NGO's, and LCA practitioners will also find the Part B template useful when seeking to better understand key topics to be addressed by PCR committees

Objective

This process document adds guidance, requirements and interpretations to existing PCR development processes to produce PCRs that result in EPDs that are more specifically useful for the buildings industry stakeholders. This document is *not* a core PCR but is written and developed to be used in tandem with a core Part A. The core Part A is based on EN 15804 and has been identified by the USGBC Technical Advisory Panel as the most robust and progressive standard at the time of writing. USGBC prefers to reference international standards when they exist and thus has also been mindful of aligning with ISO 21930 as it has recently undergone a revision process.

It is the intention that none of the PCR development criteria included in the Part B will conflict with EN 15804/ISO 21930 or render PCRs that follow the EN 15804/ISO 21930 standard as not contributing to LEED credit requirements. It is the intention of the authors to use the core Part A as a starting point on which to add clarifying requirements that will have the desired outcome of producing PCRs and EPDs that are more tailored for the design community, transparent to building professionals and supportive of USGBC's market transformation goals. Additionally, the Part B expands previous efforts initiated by the PCR Guidance Development Initiative through the American Center for Life Cycle Assessment (ACLCA).

An effort was undertaken by the Program Operator UL Environment to modify the EN 15804 conformant core Part A PCR authored by the German EPD Program Operator Institut Bauen und Umwelt e.V. (IBU)¹ to regionalize and harmonize EN 15804 with a North American context. The North American EN 15804 modification (core Part A) is publically available for use by all Program Operators.

¹ <http://www.shopulstandards.com/ProductDetail.aspx?UniqueKey=32997> – “Part A: Life Cycle Assessment Calculation Rules and Report Requirements” (Available for free download)

Geography

LEED is a global tool and used in over 150 countries and territories and growing. The core Part A and B framework has been developed for use by a global audience. The approach in this document can be applied to EN 15804 and the North American EN 15804 modification referenced above and is valid globally.

Recognized Barriers

The authors recognize existing barriers in the growing LCA industry including LCI data harmonization, varying methodology by LCA practitioners, misuse or misinterpretation of EPDs, and existing conflicting PCRs. While the scope of the problems span industries and market sectors, it is the belief of the authors that some of market confusion can be addressed through adherence to this guidance. A multi-pronged approach is being undertaken by USGBC and others to adequately address market deficiencies around EPD and LCA education and data harmonization. .

Program Operators

USGBC has maintained and continues to develop partnerships with program operators in an effort to accelerate the development and market availability of EPDs for building products.

USGBC and program operators continue to strategically align to develop criteria designed to increase the usefulness, consistency, quality and coherence of EPDs for the buildings industry including overlapping technical development and advisory roles.

The framework laid out in this document does not invalidate or supersede product-specific and industry wide EPDs produced using PCRs generated outside of this structure from contributing towards LEED certification, provided the EPDs comply with the requirements in LEED.

This document was developed with input from industry experts, the Technical Advisory Panel, in an endeavor to define leadership standards by overlaying clarifying criteria around the consistency, transparency, and technical rigor of EPDs for the building industry.

To address challenges the building design industry faces utilizing EPDs as a decision-making tool, this framework endeavors to make information more relevant and understandable to the design community

Consistency

In order to address the overall goal of consistency through an EPD program, this document is meant to provide a common PCR development framework for Program Operators that addresses the inherent variability in PCR development approaches to date. In addition to utilizing EN 15804 and the anticipated revision of ISO 21930:2007 as the basis of a common reporting framework, the Technical Advisory Panel identified and examined existing issues that limit consistency for buildings products and issued format updates on how to address, eliminate, or transparently communicate differences in approach which ultimately affect consistency across EPD results and affect decision-making. Issues examined as part of the EPD Partnership program that affect consistency across PCRs, LCAs, and EPDs include, but are not limited to:

- ▶ Consistency of reported EPD content
 - Database used
 - Database version
 - Representativeness of impacts
 - Age of any generic data used
- ▶ Consistency of reported EPD parameters
 - Metrics
 - Life-cycle stages
- ▶ Consistency around data quality and data requirements
 - Age of data
 - Cut-off rules
 - Data sources
- ▶ Consistency around methodological considerations
 - Boundaries
 - Functional unit
 - Declared unit
 - Reference service life
 - Impact assessment methods
- ▶ Consistency in dealing with uncertainty around differences in datasets and other forms of bias

Transparency

To address challenges the building design industry faces utilizing EPDs as a decision-making tool, this framework endeavors to make information more relevant and understandable to the design community. In order to achieve this goal, the program and the criteria provided in this document coordinate with other efforts to increase coherence, usability, and clarity of EPDs for building designers. Issues addressed pertaining to transparency include, but are not limited to:

- ▶ Transparency around reported elements related to dataset and software version, method, and tool
- ▶ Transparency around PCR committee development, industry participation, and industry-wide EPD creation.
- ▶ Additional\general information relevant to decision makers, including clarification of what is outside the ability of LCA (e.g. aspects of sustainable forest management)
- ▶ Benchmarking guidelines for industry wide and company specific EPDs.
- ▶ Disclaimers of EPD limitations

Technical Rigor

The core Part A and Part B have been developed in a series of sections relevant to different parts of Product Category Rule (PCR) development for EPDs: PCR review procedures; LCA and EPD verification; LCA data and methodological consistency. As a whole the framework is intended to define the next tier of high quality EPDs supporting the LEED v4 Materials and Resources credit Building Product Disclosure and Optimization – Environmental Product Declarations, Option 1 & 2.

Part B Development Template

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Part B Development Template – Instructions for use

This Part B Development Template may be used by any Program Operator-led PCR committee to create a product-specific PCR. PCRs created using this template shall be used in conjunction with the UL Environment core Part A.

Within the Part B Template is a suggested EPD Template; this is provided simply as an example and does not invalidate or supersede product-specific and industry wide EPDs produced using other templates; provided the EPDs comply with the requirements in LEED.

Highlighted text indicates areas to be completed by the PCR committee.

Publisher:

[PROGRAM OPERATOR]

Version Tracking

VERSION	COMMENTS	STATUS
1.0	Program Operator with input from a committee	DRAFT

Editor's Note:

This PCR is based on revisions made to the Institute of Construction and Environment (Institut Bauen und Umwelt e.V., or IBU) standard Part B PCR structure.

The revisions are not modifications to the overall methodology or structure of the IBU PCR, but are intended to reflect practices, methods and requirements that are specific to North America.

This PCR is valid for a period of five (5) years, set to expire in [Month, Year.]

1. Background Information and Acknowledgements

[The motivation for the development of this PCR shall be described here and any attempt(s) to harmonize PCR or align with existing PCRs.]

Other PCRs and studies considered in the development of this PCR include:

- ▶ [PCR 1]
- ▶ [PCR 2]
- ▶ [LCA 1]
- ▶ [LCA 2]

Interested Parties

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

- ▶ [Stakeholder A]
- ▶ [Stakeholder B]
- ▶ [Stakeholder C]

Governance

[Explain role of Trade Association or other industry group in development of the PCR.]

Involvement of Interested Parties

[Explain process by which stakeholders were engaged and consultation was pursued.]

<Note: Notification of a call for participation shall be published by either a third party or a trade association in at least one industry trade publication or trade association press release informing industry of PCR development intent. At a minimum, 50% of the industry as represented by North American market volume shall be represented, with a minimum of at least three (3) different companies represented. The call for participation shall also be made public and communicated by the program operator.>

Update Process

[Apart from the published PCR expiration date defined herein, describe events which should trigger a PCR update and describe the update process.]

<Note: When the PCR is updated, the Program Operator shall communicate with the original committee, any new industry participants, and initiate a new public call for interested parties.>

Review

This Part B PCR was reviewed against the requirements of ISO 14025, EN 15804, and ISO 21930 as applicable by the following independent experts::

< Note: Provide reviewers contact information below, including name, title, address, and email, and/or phone/fax number>

[Reviewer 1
Contact information]

[Reviewer 2
Contact information]

[Reviewer 3
Contact information]

2. Scope

This document contains the Product Category Rule (PCR) requirements for [insert product category] Environmental Product Declaration (EPD) published in coordination with the EN 15804 standard. 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 EN 15804, ISO 21930, and ISO 14025 sustainability standards for EPD reporting.

This PCR addresses requirements for creating an Industry Wide EPD to enable a pathway towards comparative benchmarking against company specific EPDs.

General Guidance

The scope of this PCR applies to [product categories] used in [relevant market(s)].

<Note: Provide guidance on what is included in the PCR scope to be as broad and inclusive as possible by function of product; consideration should be given to product systems and their components. If available, the relevant product standards (e.g. ASTM, ANSI, ISO) shall be referenced in this section to define product category, address scope and application of products, and specify product classification system. A full definition of the product category scope shall be included, addressing the function of the product, relevant standards used as the basis for categorization, a description of the classification of the category, and any product categories specifically excluded in scope under this rule. >

Applicable Products

This document applies to:

- ▶ [A List of Products]

The following code covers the scope of this Part B: Construction Specification Institute (CSI) Masterformat [Code (Title)], Uniformat Code, and excludes [Code (Title)].

Example uses of [product category] include: <Note: Use as many or few applications as appropriate to this Part B>

- ▶ [Application 1]
- ▶ [Application 2]
- ▶ [Application 3]
- ▶ [Application 4]
- ▶ [Application 5]

Non-Applicable Products

[Product types, or components, or systems] are not included in the scope of this PCR.

<Note: Some related product types, components, or systems that are not included in the scope of this PCR may be reported separately under additional reported information in Section 4. For example, a ceiling panel EPD may separately list joiners and fasteners needed for system installation.>

[Product Categories] not included in the scope of this document are included in the Environmental Product Declarations of [list other PCR here, such as Institute of Construction and Environment e.V. (IBU), *Part B: Requirements for the EPD for [Product Category, Version and Date]*].

Market

[Define the geographic market(s) of PCR applicability.]

System Boundaries

[State the scope of EPDs created using the Part B: cradle-to-gate, cradle-to-gate with options (specify options), or cradle-to-grave.]

The EPD requirements include:

- Requirements of the EN 15804 standard as a European core EPD for the purpose of 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.²

3. Industry Wide EPD Requirements

Involvement of Interested Parties

[Describe engagement of interested parties.]

<Note: At a minimum, 50% of the industry as represented by annual production volume shall be included, with a minimum of at least three (3) different manufacturing locations from no less than three (3) companies represented. If less than 50% of the industry is represented by product volume, then the method for determining representativeness shall be justified and described and the percentage of annual production volume covered shall be reported.>

[Describe notification of a call for participation.]

<Note: This shall be published in at least one industry trade publication>

² Free PDF Available at: <http://www.shopulstandards.com/ProductDetail.aspx?UniqueKey=32997> - "Part A: Life Cycle Assessment Calculation Rules and Report Requirements"

Industry Wide EPD Participation

Manufacturers seeking to benchmark their individual type III EPDs against an industry average EPD shall have participated in the industry wide EPD process as an interested party or retroactively via the options determined by the PCR committee.

[Describe retroactive participation process]

<Note: The PCR committee shall determine a pathway for retroactive participation in an industry wide EPD by a manufacturer. The pathway shall include a quantitative assessment of life cycle inventory data provided by the manufacturer. Retroactive participation requirements determined by the committee shall be published within the PCR.>

Governance

[Describe the governance process for creating and updating the industry wide EPD]

<Note: A description shall be provided for the governance of the Industry wide EPD creation and update process. Describe how proprietary/confidential information is protected.>

Data Responsibility/Ownership

[Describe data responsibility/ownership (collection procedures, ownership, and maintenance)]

<Note: A “data owner” such as a trade association or a third party may be designated when establishing an industry wide EPD. As part of a consortium building effort, this entity should be identified and would be responsible for collecting and maintaining the privacy of any confidential business information used in the creation of an industry wide EPD.>

Industry Wide EPD Updates

[Describe the process by which an industry wide EPD gets updated that includes consideration of the underlying life cycle inventory data and LCA calculations and assumptions]

<Note: Define how often an industry wide EPD shall be updated, what may serve as a trigger for initiating an update prior to expiration, and new industry participants or exits.>

4. EPD Content, Format, and Use Requirements

The chapters of the EPDs shall be described in a concise form and be factually and technically correct. Judgmental, comparative, or promotional text is not permitted unless specifically requested in the PCR or if necessary in the context of the EPD. Each document is carefully checked before publication.

Content of EPD. An EPD created using this PCR shall contain the required content specified in UL Environment’s “Part A: Life Cycle Assessment Calculation Rules and Report Requirements” in addition to the required content identified in this Part B document, which serves as a reporting template.

EPD Representation. An EPD may contain multiple data sets representative of a collection of products, as long as each product is uniquely identified either explicitly in the EPD, by product category or by reference to a document that lists included models. For example, the base model of a product available in a variety of colors may be listed by: each individual model number, a model classification that

includes all colors, a range of model numbers, or a reference to a catalog of model numbers that include all color variations.

Verification. An EPD created using this PCR shall be independently verified by a Program Operator or a third-party contracted by the Program Operator acting in conformance with ISO 14025. The project report shall also be available for independent verification by a Program Operator as required in “Part A: Life Cycle Assessment Calculation Rules and Report Requirements,” Section 3.

Validity. An EPD created using this PCR is valid for a five (5) year period from the date of publication.

Comparability. EPDs shall not contain statements about the overall environmental superiority of one product over a competitor’s product that performs the same function(s), or of one manufacturer against another. EPDs shall not directly or indirectly contain such comparative assertions.

The following ISO statements indicate the EPD comparability limitations and intend to avoid any market distortions or misinterpretation of EPDs based on this PCR. ISO 14025:2007, section 7.2.1 requires this statement be included: “Environmental declarations from different programmes may not be comparable”.

A statement shall be included under, “General Information” that indicates, “comparison of the environmental performance of [Product category] using EPD information shall be based on the product’s entire life cycle, including use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR”.

This statement shall be included under, “General Information”: “Full conformance with the PCR for [Product category] allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible”. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

Program operators may use the above language under “General Information” verbatim, or may develop their own statements of limitations which capture the intent of the above language.

The EPD owner shall transparently indicate any comparability limitations.

EPD Template

This section includes technical information that must be addressed by a PCR committee and a suggested EPD Template; while this template may be used for developing EPDs it is only an example and does not invalidate or supersede product-specific and industry wide EPDs produced using other program templates.

Highlighted text indicates areas to be completed by the PCR committee.

1. General Information

PROGRAM OPERATOR	Program Operator Provided
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	
DECLARATION HOLDER AND ADDRESS	
DECLARATION NUMBER	Program Operator Provided
DECLARED PRODUCT & DECLARED OR FUNCTIONAL UNIT	
PRODUCT DEFINITION	
REFERENCE PCR AND VERSION NUMBER	
MARKETS OF APPLICABILITY	
DATE OF ISSUE	Program Operator Provided
PERIOD OF VALIDITY	Program Operator Provided
EPD TYPE	[Industry wide or product-specific]
RANGE OF DATASET VARIABILITY	[Industry wide 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	
APPLICABLE GREEN BUILDING CERTIFICATION SCHEMA	
	Program Operator Provided
The PCR review was conducted by:	Program Operator Provided
	Program Operator Provided
This declaration was independently verified in accordance with ISO 14025. The UL Environment "Part A: Life Cycle Assessment Calculation Rules and Report Requirements," based on CEN Norm EN 15804, serves as the core PCR, with additional considerations from the USGBC/UL Environment Part A Enhancement	
<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 of [Product category] using EPD information shall be based on the product's entire life cycle, including use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR.

Full conformance with the PCR for [Product category] allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible". Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

2. EPD Content

2.1. Product description

<The declared products shall be described. If averages are declared across various products, the average breakdown shall be explained. The product description shall include an identification of the product's composition according to [relevant standard(s)] where applicable.

A simple flow chart of the processes included in the LCA shall be included to illustrate the product system.>

2.1.1. Industry Wide EPD

<The method for creating an industry wide EPD shall be described.

Note: Include how a sufficient statistical representation is achieved, how geographic location is assessed, and how the average is weighted to insure sufficient representation so as to avoid bias. A quantitative assessment of primary dataset variability (LCIA results), including mean, median, standard deviation, and best fitting probability distribution function shall be included.

The method of dataset averaging shall be described (i.e., horizontal or vertical averaging) and justified. The justification shall consider if data is more appropriately represented by standalone gate-to-gate processes (horizontal averaging) versus capturing the flow of goods within a facility(ies) (vertical averaging).

A qualitative assessment shall be provided within the EPD that describes percent representation of industry and percent geographical region representation, and other contributing sources of variation (e.g. operational capacity, grid mix.)>

2.1.2. 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.

Note: When similar products are grouped and reported as an average product in the same EPD, the average weighted coefficient of variation across all impact categories for all products shall be less than or equal to 20%. If the average weighted coefficient of variation across all impact categories is greater than 20%, each product shall be reported in a separate EPD.>

2.2. Application

The designated application for the referenced products shall be specified.

2.3. Technical Data

<The following technical data shall be provided for the declared product with reference to the test standard.

Note: This section lists the product performance and technical data associated with environmental performance, durability of product, and data that affect how the product is used. For example, (but not limited to), thermal resistance, air permeability, water vapor transmission, surface-burning characteristics. The list of referenced standards for the technical data with a preference for international standards shall also be specified in this section.>

[The PCR committee shall outline the product attributes and performance metrics to be declared along with the relevant testing/reporting methods (e.g. density, hardness, shear strength)]

Technical data: [Product Category]

NAME	VALUE	UNIT
Parameter A Test Method 123		
Parameter B Test Method 123		
Parameter C Test Method 123		
Parameter D Test Method 123		
Parameter E Test Method 123		

2.4. Placing on the market / Application rules

The respective standard and/or general technical approval or comparable national regulation shall be indicated. Standards shall be quoted as shown in Section 8.

The product(s) declared in this document complies with the following codes or regulations.

- ▶ [Example: 2015 International Building Code]
- ▶ [Example: 2015 International Residential Building Code]
- ▶ [Example: 2015 International Energy Conservation Code]

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

2.5. 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.

2.6. Base and Ancillary materials

The primary product components and/or materials shall be indicated as a percentage mass of total weight to enable the user of the EPD to understand the composition of the product as delivered. This information should also support safety and efficiency during installation, usage and disposal of the product.

Declaration of material product content shall list at least those substances contained in the product which are included in the Resource Conservation and Recovery Act (RCRA), Subtitle C.

Statements of material non-inclusion, such as "... is free of ..." may not be used. Ancillary materials and additives remaining on the product shall also be declared. If additives such as flame retardants, softeners or biocides are used, their functional chemical group shall be indicated.

2.7. Manufacturing

<The manufacturing process shall be described and may be illustrated using a simple graphic. If the EPD applies to more than one location, the production processes for all locations shall be described. Quality management systems may also be referenced.>

2.8. Environment and health during manufacturing

<Measures relating to environmental and health protection during the manufacturing process extending beyond national guidelines (of the production country) should be described, e.g. description of Environmental Management Systems or similar programs addressing air emissions, waste water, noise.>

2.9. Product Installation

<A description of the type of processing, machinery, tools, dust extraction equipment, auxiliary 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.>

2.10. Packaging

<Information on product-specific packaging: type, composition and possible reuse of packaging materials (paper, pallets, foils etc.) shall be included in this section.>

[The PCR committee shall describe specific packaging scenario assumptions, e.g., number of reuse cycle, assumed disposal pathways based on packaging type.]

2.11. Use Conditions

<Any relevant information should be provided in this section regarding specific product use conditions and/or limitations relevant to each product application and/or use.>

2.12. Environment and health during use

<Information should be provided in this section on the relationship between the product, the environment and health, including any possible harmful substances or emissions. Any recommendations concerning cleaning, maintenance, etc. of the declared product should be listed in the corresponding section 4 “Scenarios and additional technical information”.>

2.13. Reference and Estimated Service Life

<The indication of the Reference Service Life (RSL) is imperative for EPDs covering the complete use stage (modules B1-B7), or if a use stage scenario is described, which refers to the lifetime of the product. If no use stage modules are declared, and no use stage scenario which refers to the lifetime of the product is described, the indication of the RSL is voluntary.

A default RSL of [75 years] shall be assumed for the product category system (if considered; reported under additional environmental info) unless otherwise stated and substantiated. When reporting the number of replacements necessary to fulfill the required performance and functionality over the building Estimated Service Life (ESL), fractional values shall be rounded up to the nearest tenth.>

[The PCR committee shall describe a method for determining RSL if applicable for the product and different than the default value of 75 years.]

<The RSL shall refer to the declared technical and functional durability of the product. A standard life expectancy based on the prescribed method or default of 75 years shall be used, with the option of any deviation allowed only if justified in writing, publicly available for review, and posted for publication. When reported, the RSL shall be established in line with all of the specific rules in North American (NA) product standards and shall also consider, but not necessarily adhere to the ISO 15686-1, -2, -7 and -8 standards. Where information is available for deriving the RSL from NA product standards, such data

has priority. This PCR acknowledges product manufacturers cannot be held responsible for the actual design of the building, use and application of the product, environment, or workmanship.

The assumptions upon which the designated RSL is based and for which the RSL exclusively applies shall be provided in the section “LCA: Scenarios and additional technical information”. Influences on ageing, when applied, shall be in accordance with the state of the art.

An assumed ESL of 75 years shall be used for building life.>

2.14. Extraordinary effects

Fire

<If relevant, information should be included on the product’s fire performance e.g. International Code Council (ICC), National Fire Protection Association (NFPA).>

Water

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

Mechanical destruction

<If relevant, information on the product’s performance and possible impacts on the environment following unforeseeable mechanical destruction, should be included.>

2.15. Re-use phase

<The possibilities of re-use, recycling and energy recovery shall be described. If an Extended Producer Responsibility initiative such as a product take-back program exists, this may be included.>

2.16. Disposal

<The possible disposal channels shall be indicated in accordance with North American waste classification and disposal routes.>

[If applicable, the PCR committee shall describe specific disposal scenario assumptions.]

2.17. Further Information

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

3. LCA Calculation Rules

3.1. Declared or Functional Unit

<Describe the product declared or functional unit.

Note: Defined as the quantity of product for use as a reference unit for reporting and performing calculation in an EPD. A declared unit is used when a reference scenario for the whole life cycle, on the building level, cannot be stated and is limited to cradle-to-gate or cradle-to-gate with options scope.>

The declared or functional unit, the mass reference flow, and the conversion factor to 1 kg shall be indicated in the appropriate table as declared.>

[The PCR committee shall determine required reported parameters below]

NAME	VALUE	UNIT
Declared/Functional unit		Required: <Optional:>
[Conversion factor A, e.g. Declared thickness]		Required: <Optional:>
[Conversion factor B, e.g. Surface weight per declared unit]		Required: <Optional:>

[The PCR committee should determine the percentage of installation waste, if applicable] A functional unit shall be based on the installed product and the reference flow shall take into consideration [xx%] installation waste by default unless supporting documentation is provided.

3.2. System boundary

<Declare the type of the EPD as allowed under the PCR under “General Information”. Choose as appropriate: cradle to gate, cradle to gate - with options, cradle to grave. The modules considered in the Life Cycle Assessment as per “System boundary” outlined in Section 5.5 of the PCR, Part A: “Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report” shall be described in brief. It should be apparent as to what processes are considered in what modules.>

3.3. Product specific calculations for use phase (Modules B1 – B7)

[If applicable, the PCR committee shall determine the use phase methodology and calculation rules or reporting.]

<If the EPD includes the use phase, calculation rules for modules B1 – B7 shall be described by the information provided here and detailed information may be referenced in an appendix (reference tables, equations, test methods, etc.)

Referenced performance requirements for use and maintenance reporting are listed below.>

3.4. Units

<SI units are required for all declared units and LCA results. For declared units, Imperial units may optionally be included in addition to the required SI units.>

3.5. Estimates and assumptions

<Key assumptions and estimates for interpretation of the Life Cycle Assessment should be referred to here, provided that they are not addressed in other parts of section 3 “LCA: Calculation rules”.>

3.6. Cut-off criteria

<All known mass and energy flows shall be reported; no known flows shall be deliberately excluded. For unknown mass and energy flows, worst-case estimates shall be used.>

3.7. Data sources

[The PCR committee should determine where data collection efforts should focus within the life cycle i.e. where primary data are required.]

[The PCR committee should determine which secondary life cycle data should have priority, if applicable.]

[The PCR committee should specify life cycle data that shall be used in EPDs]

<Examples: Assumed modes of transport, assumed distances, assumed production for precursor materials, assumed end of life, etc.

The sources for background data used shall be provided and selection of data shall follow PCR, Part A: "Life Cycle Assessment Calculation Rules and Report Requirements", Section 7.3. Collection of data shall follow PCR, Part A: "Life Cycle Assessment Calculation Rules and Report Requirements", Section 7.1.>

3.8. Data quality

<An evaluation shall be provided regarding data quality, including temporal, geographical, and technological representativeness, and completeness and shall follow the requirements outlined in PCR, Part A: "Life Cycle Assessment Calculation Rules and Report Requirements", Section 7.4.

If the data quality assessment gives sufficient reason to believe that any of the employed generic material or process LCI data is not representative of the product(s) under study and may introduce substantial error to the reported impact category results, then a reasonable effort shall be made by the declaring organization to improve the data quality either by 1) collecting primary data on the material or process in question from suppliers or process operators, 2) developing LCI data based on other data sources like scientific literature, equipment specs, or trade publications, or 3) assessing whether more representative LCI data is available from any of the sources listed in PCR, Part A: "Life Cycle Assessment Calculation Rules and Report Requirements", Section 7.4. If none of these options is viable within given constraints, the source and nature of the expected error shall be documented in the project report and a disclaimer should be added to the EPD that the reported values are likely an over- or underestimate of potential environmental burdens.

A third party verified ISO 14040/44 conforming report shall be made available for all secondary data sets (either unit processes or in aggregate) with the exception of USLCI, ILCD, GABI, and Ecoinvent that contribute to more than 67% of total impact to any of the required impact categories identified by the applicable PCR.>

3.9. Period under review

<The period under review and ensuing averages shall be documented.>

3.10. Allocation

[The default method for determining co-product allocation shall be on the basis of mass, unless an alternative metric is deemed more appropriate by the PCR committee.]

<The Part A PCR: "Life Cycle Assessment Calculation Rules and Report Requirements", Section 7.5 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 may be used but only when justified.

The allocations of relevance for calculation shall be indicated, at least:

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

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

3.11. Comparability and Benchmarking

<A comparison or evaluation of EPD data is only possible if all data sets to be compared are 1) created according to EN 15804 and 2) are considered in a whole building context or utilize identical defined use stage scenarios. Comparisons are only allowable when EPDs report cradle-to-grave information using a functional unit. Refer to section 5.3 of EN 15804 for further information.

One method of benchmarking EPD data is outlined in USGBC's EPD Benchmarking Guidance: Best Practices.>

3.11.1. Industry Wide Benchmarking

<Refer to the benchmarking method outlined in USGBC's EPD Benchmarking Guidance: Best Practices.>

[The PCR committee shall define acceptable sources of variation specific to the product category.]

[The PCR committee shall define when an industry EPD should be re-baselined and what would trigger the process.]

3.11.2. Product Specific Benchmarking

<Refer to the benchmarking method outlined in USGBC's EPD Benchmarking Guidance: Best Practices.>

[The PCR committee shall define acceptable sources of variation specific to the product category.]

4. LCA: Scenarios and additional technical information

<The following information is required for declared modules and optional for non-declared modules. Modules for which no information is declared may be deleted; additional information may also be listed if relevant. Irrelevant or non-applicable module rows may be excluded in the EPD.

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).>

Table 1. Transport to the building site (A4)

NAME	VALUE	UNIT
Vehicle and fuel type		
Liters of fuel		l/100km
Transport distance		km
Vehicle load capacity		kg or m ³
Capacity utilization (including empty runs)		%
Bulk density of products transported		kg/m ³
Volume capacity utilization factor (=1, <1, or ≥1 for compressed or nested packaged products)		n/a

Table 2. Installation into the building (A5)

NAME	VALUE	UNIT
Ancillary materials for installation (specified by material)		kg
Net blue water consumption		m ³
Other resources		kg
Electricity consumption		kWh
Other energy carriers (description and consumption)		MJ
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
Direct emissions to ambient air, soil and water		kg
		kg

Table 3. Use or application of the installed product (B1) (See section 2.12 "Environment and Health During Use")

NAME	VALUE	UNIT
RSL		years
[Relevant parameters from product use and Section 3.3. e.g. VOC emissions, VOC content]		

[PCR committee to identify Standard Reference]

For example, "For products which have indoor applications, the VOC content 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 1.1".CA Specification 01350 "Standard Method for the Testing and Evaluation of Volatile Organic 306 Chemical Emissions from Indoor Sources Using Environmental Chambers" - Version 1.1 307 - California Specification 01350.

Reporting VOC content is optional for products which are exclusively intended for outdoor applications."

Table 4. Maintenance (B2)

NAME	VALUE	UNIT
Information on maintenance		Description or reference to description
Maintenance cycle		Number/ RSL
Maintenance cycle		Number/ ESL
Net blue water consumption		m3
Ancillary materials for maintenance		kg
Other resources		kg
Electricity consumption		kWh
Other energy carriers		MJ
Material waste		kg

Table 5. Repair (B3)

NAME	VALUE	UNIT
Information on the repair process		Description or reference to description
Information on the inspection process		Description or reference to description
Repair cycle		Number/ RSL
Repair cycle		Number/ ESL
Net blue water consumption		m ³
Auxiliary		kg
Other resources		kg
Electricity consumption		kWh
Other energy carriers		MJ
Material loss		kg

The number of replacements of product expected during the building ESL of 75 years or greater shall be declared. Required or expected maintenance is to be modeled 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 fulfill the required performance and functionality over the building ESL shall be identified.

Replacements should be rounded-up and reported to the nearest tenth over the course of the ESL of the building; e.g., 2.56 rounded to 2.6.

Table 6. Replacement (B4)

NAME	VALUE	UNIT
Replacement cycle		Number/ RSL
Replacement cycle		Number/ ESL
Electricity consumption		kWh
Net blue water consumption		m ³
Other energy carriers (specify)		MJ
Replacement of worn parts during product life cycle (specify materials)		kg

Table 7. Refurbishment (B5)

NAME	VALUE	UNIT
Information on refurbishment processes		Description or reference to description
Refurbishment cycle		Number/ RSL
Refurbishment cycle		Number/ ESL
Electricity consumption		kWh
Net blue water consumption		m ³
Other energy carriers (specify)		MJ
Material input(s) for refurbishment, including ancillary processing materials (specify materials)		kg
Waste materials from refurbishment (specify materials)		kg
Further assumptions (e.g. frequency and time period of use, number of occupants)		Units as appropriate

Table 8. Reference Service Life

NAME	VALUE	UNIT
Reference Service Life		Years
Declared product properties (at gate)		Units as appropriate
Design application parameters (if instructed by the manufacturer), including references to appropriate practices and application codes)*		Units as appropriate
Assumed quality of work when installed in accordance with manufacturer's instructions*		Units as appropriate
Outdoor environment (for outdoor applications) e.g. weathering pollutants, UV and wind exposure, building orientation, shading, temperature*		Units as appropriate
Indoor environment (for indoor applications) e.g. temperature, moisture, chemical exposure*		Units as appropriate
Usage conditions, e.g. frequency of use, mechanical exposure*		Units as appropriate
Maintenance e.g. required frequency, type and quality, and replacement of components*		Units as appropriate

*If applicable

Table 9. Operational energy use (B6) and Operational water use (B7)

NAME	VALUE	UNIT
Ancillary material(s) (specify material(s))		kg
Electricity consumption		kWh
Net blue water consumption		m3
Other energy carriers (specify)		MJ
Equipment power output		kW
Characteristic performance, e.g. energy efficiency, emissions, variation of performance with capacity utilization		Units as appropriate

Table 10. End of life (C1-C4)

NAME	VALUE	UNIT
Collected separately		kg
Collected as mixed construction waste		kg
Reuse		kg
Recycling		kg
Energy recovery		kg
Landfilling		kg

5. LCA: Results

In Table 11, "Description of system boundary modules," all declared modules shall be indicated with an "X"; all modules that are not declared shall be indicated with "MND." Indicator values in Table 4 for each module shall be declared with three valid digits using scientific notation (e.g., $1.23E-5 = 0.0000123$). Modules not declared may be deleted from the table, indicator abbreviations may be replaced with complete names, ensuring the preservation of readability and clear arrangement; the legends may then be deleted.

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

Per the Part A PCR, TRACI 2.1 Life Cycle Impact Assessment (LCIA) results in Table 12 shall be reported to ensure a North American context. Although not required for NA registered EPDs, LCIA results in Table 13 may optionally be reported to achieve conformance with EN 15804 and certain EPD mutual recognition programs.

Results derived from the product Life Cycle Inventory (LCI) shall be reported in Table 14 and Table 15.

If no reference service life is declared (see chapter 2.13 "Reference and Estimated Service Life"), the LCA results of the modules B1-B2 and B6-B7 shall refer to a period of one year. This shall be indicated as an explanatory text in Section 5, "LCA: Results". Also in this case, the calculation formula for the total life cycle results is to be specified.

Table 11. Description of system boundary modules

Life Cycle Impact Assessment Results: [Indicate declared unit and product]

	PRODUCT STAGE			CONSTRUCT- ION 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	
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																Excluded
	Required			Excluded												
Cradle to gate with options																Required if B modules reported
	Required			Optional if RSL and scenarios are included							Optional if scenario is given				Optional	
Cradle to grave																Required
	All modules required														Optional	

Table 12. North American LCIA Results³

TRACI 2.1 IMPACT ASSESSMENT METHOD, OCTOBER 2013 (WITH THE EXCEPTION OF GWP)			
ABBREVIATION	PARAMETER	UNIT	DECLARED MODULE VALUES
GWP	Global warming potential based on IPCC (2013 AR5), 100 years, excluding biogenic CO ₂	[kg CO ₂ -Eq.]	
ODP	Stratospheric ozone layer depletion potential	[kg CFC-11 Eq.]	
AP	Acidification potential	[kg SO ₂ -Eq.]	
EP	Eutrophication potentials	[kg N-Eq.]	
SFP	Smog Formation Potential	[kg O ₃ -Eq.]	
ADP	Abiotic resource depletion potential – fossil fuels	Surplus energy per extracted MJ, kg or m ³ fossil fuel, as a result of lower quality resources	

Table 13. European Union and Rest of World LCIA Results

CML 4.1 IMPACT ASSESSMENT METHOD (PER EN 15804:2012 + A1:2013)			
ABBREVIATION	PARAMETER	UNIT	DECLARED MODULE VALUES
GWP	Global warming potential	[kg CO ₂ -Eq.]	
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC-11 Eq.]	
AP (air)	Acidification potentials for air emissions	[kg SO ₂ -Eq.]	
EP	Eutrophication potentials	[kg (PO ₄) ³⁻ -Eq.]	
POCP	Photochemical oxidant creation potential	[kg C ₂ H ₄ -Eq.]	
ADP (elements)	Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	
ADP (fossil fuels)	Abiotic depletion potential for fossil resources	[MJ, LHV]	

³ Mandatory EN 15804 impact categories are adapted for the NA geographic context.

Table 14. Life Cycle Inventory Results: Resource Use

LCI RESULTS – RESOURCE USE [INDICATE DECLARED UNIT AND PRODUCT]			
ABBREVIATION	PARAMETER	UNIT	DECLARED MODULE VALUES
PERE	Renewable primary energy as energy carrier	[MJ, LHV]	
PERM	Renewable primary energy resources as material utilization	[MJ, LHV]	
PERT	Total use of renewable primary energy resources	[MJ, LHV]	
PENRE	Non-renewable primary energy as energy carrier	[MJ, LHV]	
PENRM	Non-renewable primary energy as material utilization	[MJ, LHV]	
PENRT	Total use of non-renewable primary energy resources	[MJ, LHV]	
SM	Use of secondary material	[MJ, LHV]	
RSF	Use of renewable secondary fuels	[MJ, LHV]	
NRSF	Use of non-renewable secondary fuels	[MJ, LHV]	
NBW	Net blue water consumption	[m ³]	

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; NBW = Net blue water consumption

Table 15. Life Cycle Inventory Results: Output Flows and Waste Categories

LCI RESULTS: OUTPUT FLOWS & WASTE CATEGORIES [INDICATE DECLARED UNIT AND PRODUCT]			
ABBREVIATION	PARAMETER	UNIT	DECLARED MODULE VALUES
HWD	Hazardous waste disposed	[kg]	
NHWD	Non-hazardous waste disposed	[kg]	
RWD	Radioactive waste disposed	[kg]	
CRU	Components for re-use	[kg]	
MFR	Materials for recycling	[kg]	
MER	Materials for energy recovery	[kg]	

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EE = Exported energy

6. LCA: Interpretation

To facilitate comprehension of the Life Cycle Assessment, both the Life Cycle Inventory (LCI) and the Life Cycle Impact Assessment (LCIA) results outlined in Section 5 “LCA results” shall be interpreted in a hot spot analysis.

This interpretation shall also include a description of the time frame, variance of the LCIA results if the EPD is valid for several products and a discussion of uncertainty in data sources as it contributes to impact results. An illustration of the results with figures is recommended, e.g. for the hot spot 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.

7. Supporting Documentation

The project report elements required to support verification of the EPD content declared using this document are specified in the PCR “Part A: Calculations for the Life Cycle Assessment and Requirements on the Project Report.” These project report elements include:

- ▶ Part A: Section 4 – General information and Study goal
- ▶ Part A: Section 5 - Study scope
- ▶ Part A: Section 6 - Life cycle inventory analysis and impact assessment
- ▶ Part A: Sections 7, 8, and 9 - Interpretation

Additionally, the project report shall include any additional required supporting documentation specified in this Part B and according to Part A: Section 10 (e.g. Laboratory results/measurements for the content declaration and or product functional/technical performance).

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.

8. 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. Part B of the PCR document on which they are based shall be referenced.

UL Environment

PCR Part A: UL Environment and Institute of Construction and Environment e.V., Königswinter (pub.): Product Category Rules for Building Related Products and Services in North America Construction Products from the range of Environmental Product Declarations of, Part A: Life Cycle Assessment Calculation Rules and Report Requirements.” June 2017, version 2.0

Sustainability Reporting Standards

EN 15804: 2012-04 - Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction product.

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: 2007 - Sustainability in building construction -- Environmental declaration of building products

Testing and Classification References

[Standard Test Methods, e.g. ASTM]

Relevant Federal Standards and SOPs

Environment Canada, National Pollutant Release Inventory (<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

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

Relevant PCR and LCAs

PCR Part A: UL Environment and Institute of Construction and Environment e.V., Königswinter (pub.): Product Category Rules for Building Related Products and Services in North America Construction Products from the range of Environmental Product Declarations of, Part A: Life Cycle Assessment Calculation Rules and Report Requirements." June 2017, version 2.0

[Other relevant PCR and LCAs]



USGBC Benchmarking Guidance - Best Practices

Option 2: Building product disclosure and optimization - environmental product declarations

Published - 2017

Benchmarking Guidance - Building product disclosure and optimization

The following guidance is supplemental to the part A and B framework and may be adopted by program operators and manufacturers attempting to comply with option 2 of the LEED credit, "Building product disclosure and optimization - environmental product declarations". The following benchmarking guidelines were developed in tandem with critical PCR committee decisions outlined in the part B template and should ideally be implemented together. Alternative methods of credit compliance may exist or be developed, the guidelines below are best practices as determined by the Technical Advisory Panel (TAP).

1. Industry Wide Benchmarking

When a product-specific EPD is benchmarked against an industry wide EPD, the following requirements shall be met:

- ▶ A manufacturer shall have participated, either originally or retroactively, in the industry wide EPD per the requirements outlined in Section III, "Industry Wide EPD Requirements" of the PCR Part B.
- ▶ LCA modeling software and version shall be consistent. If LCA software updates occur between the publication of the benchmark EPD and updated EPD, the benchmark EPD results should be recalculated using the most recent software version and used for benchmarking with the updated EPD.
- ▶ Life Cycle Impact Assessment method and version shall be consistent between the product-specific EPD and the industry wide benchmark EPD.
- ▶ The life cycle stages considered shall be consistent between the product-specific EPD and the industry wide benchmark EPD. If the scope of the PCR allows for optional reporting of modules not included in the industry wide EPD, they may not be included for benchmarking purposes.
- ▶ Product-specific use phase calculations in the Project Report shall be consistently applied between the product-specific EPD and the industry wide benchmark EPD as outlined in an existing PCR or Part B
- ▶ End of life assumptions in module C shall be consistently applied as specified in the existing PCR or Part B between the product-specific EPD and the industry wide benchmark EPD.
- ▶ Cut-off criteria for inclusion of mass and energy flows shall be consistently applied as specified in existing PCR or Part B between the product-specific EPD and the industry wide benchmark EPD.
- ▶ Data sources as specified in an existing PCR or Section 3.7 "Data Sources" of the PCR Part B shall be consistent between the product-specific EPD and the industry wide benchmark EPD as it pertains to:
 - Priority of primary and secondary data sources.
 - Background life cycle inventory data sets and reference year
 - Specific primary, non-life cycle inventory data (e.g.e transportation distances and modes)

EPDs that are not cradle to grave in scope and are not considered in a whole building life cycle assessment are not tools to compare construction products and construction

2. Product-Specific EPD

When a product-specific EPD is benchmarked against an existing product-specific EPD from the same manufacturer, the following requirements shall be met:

- ▶ The life cycle stages considered for benchmarking in each EPD shall be consistent.
- ▶ Data sources as specified in an existing PCR or Section 3.7 “Data Sources” of the PCR Part B shall be consistent as it pertains to:
 - Priority of primary and secondary data sources
 - Application of background LCI data sets and version. If LCI dataset method updates occur between the publication of the benchmark EPD and updated EPD, the benchmark EPD results shall be recalculated using the most recent LCI datasets and used for benchmarking with the updated EPD.
 - Application of specific secondary, non-LCI data
- ▶ Cut-off criteria for inclusion of mass and energy flows shall be consistently applied.
- ▶ Product specific use phase calculations in the Project Report shall be consistently applied as outlined in the existing PCR or Part B Section 3.3, “Product Specific Calculations for Use Phase (Modules B1-B7).”
- ▶ End of life assumptions in Module C shall be consistently applied as specified in the existing PCR or Part B.
- ▶ LCA modeling software and version used shall be consistent. If LCA software updates occur between the publication of the benchmark EPD and updated EPD, the benchmark EPD results should be recalculated using the most recent software version and used for benchmarking with the updated EPD.
- ▶ Providing they do not conflict with existing confidentiality agreements, sources of deviation from the benchmark EPD shall be documented and quantified, including but not limited to:
 - Number of manufacturing locations considered
 - Sourcing changes
 - Product design changes implemented
 - Process changes implemented
 - Processing waste treatment changes
 - End of life pathway changes

3. Acknowledgements

Technical Advisory Panel

TAP members reviewed and provided feedback on content written by UL Environment and USGBC. Past and present members of the Technical Advisory Panel include the following individuals:

Current Members

Paul Firth, UL Environment

Jack Geibig, Ecoform

Tom Gloria, Industrial Ecology Consultants

David Green, BASF

Christoph Koffler, thinkstep

Keith Lindemulder, Nucor

Lise Laurin, Earthshift Global

David Marcus, USGBC

Anna Nicholson Lasso, UL Environment

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Past Members

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3M

Adhesive and Sealant Council

American Coatings Association

ANSI

Arcelor Mittal

Athena Sustainable Materials Institute

Climate Earth

Gypsum Association

Herman Miller

JEMAI

Kohler

NAIMA

Oregon Department of Environmental Quality

PPFA

Sherwin Williams

Steel Recycling Institute

Sustainable Solutions Corp

The Program Operator Consortium

University of Washington

More Information

www.usgbc.org

[Building product disclosure and optimization – environmental product declarations](#)

[Part A: Life Cycle Assessment Calculation Rules and Report Requirements](#)