



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

Part B: Insulated Metal Panels, Metal Composite Panels, and Metal Cladding: Roof and Wall Panels

UL 10010-5

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Product Category Rules for Part B: Insulated Metal Panels, Metal Composite Panels, and Metal Cladding: Roof and Wall Panels, UL 10010-5

Second Edition, Dated October 23, 2018

Summary of Topics

The Second Version of the Part B: Insulated Metal Panels, Metal Composite Panels, and Metal Cladding: Roof and Wall Panels, UL 10010-5 has been issued.

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Publisher:

UL Environment

Tracking of versions

Version	Comments	History
1.0	Version by UL Environment with input from a coalition was approved by the panel	October 9, 2012
2.0	Regular periodic update with inclusion of latest ISO 21930 standard, USGBC guidance, and UL Part A rules	October 23, 2018

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Editor's Note:

These Product Category Rules (PCR) are valid for a period of five (5) years, set to expire in October, 2023.

I. Background Information and Acknowledgements

This sub-category PCR was developed to address the product specific rules for the creation of Environmental Product Declarations (EPD) for Insulated Metal Panels, Metal Composite Panels, and Metal Cladding: Roof and Wall Panels. When used to self-reference this document, "PCR" refers to "sub-category Part B PCR."

Other PCRs considered in the original development of this PCR include:

- PCR Guidance-Texts for Building-Related Products and Services, From the range of Environmental Product Declarations of Institute of Construction and Environment e.V. (IBU), *Part B: Requirements for the EPD for Structural Steels*, v1.0, July 2012.

The scope of this PCR differs from the previously published UL Environment Part B for Insulated Metal Panels, Metal Composite Panels, and Metal Cladding: Roof and Wall Panels PCR in that it assumes a 75 year building service life to be consistent with ASTM E2921 (2013, Section 6.1.1), and ASHRAE 189.1 (2014, Section 9.5.1). It also differs from the previous PCR by aligning with ISO 21930:2017 as well as USGBC's 2017 PCR Guidance.

Interested Parties

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

Trade associations

- Metal Construction Association
- Steel Recycling Institute



Manufacturers/Consultants

- Arconic Building Products
- ATAS International
- Centria
- Fabral
- Kingspan
- McElroy Metals
- Metal Sales
- Mitsubishi Alpolc
- Petersen Aluminum

Governance

Members of the metal panels and cladding industry sponsored the update of this PCR. A large percentage of the metal panels and cladding industry is represented in the effort to renew the PCR.

Involvement of Interested Parties

UL informed industry stakeholders of this PCR update through e-mail messages and public notice. Participation by the Steel Recycling Institute (SRI) and Metal Construction Association (MCA) in the update of a PCR for metal panels and cladding products is an indication that industry stakeholders recognize the importance of this process.

Per the USGBC 2017 PCR Guidance, at least 50% of the industry as represented by regional market volume was included in the update to this PCR with a minimum of three companies.

UL Environment posted an open call for participation in this PCR update in July 2017 via its standards website, social media outlets, and outreach to original committee stakeholders and Life Cycle Assessment (LCA) practitioners. UL Environment also pursued direct outreach with manufacturers in the markets represented in this PCR.

The PCR committee members drafted an update of the PCR through collaborative virtual meetings. The PCR was posted for public comment for 30 days from January 22nd to February 21st, 2018.

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 EPD intent. At a minimum, 50% of the industry as represented by regional market volume shall be included, 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

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:

- The industry desires an update



- Core governing standards ISO 14040, 14044, 14025, or 21930 are updated with substantial material changes

Note: When the PCR is updated, the Program Operator shall communicate with the original PCR development committee, EPD holders, and initiate a new public call for interested parties.

Review

This Part B was reviewed by the following:

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II. Scope

This document contains the PCR requirements for Insulated Metal Panels, Metal Composite Panels, and Metal Cladding: Roof and Wall Panels Environmental Product Declarations (EPDs) published in coordination with the EN 15804 and ISO 21930 standards. The requirements for the background LCA project report used to inform the EPD are contained in UL Environment's Part A: Life Cycle Assessment Calculation Rules and Report Requirements (thereafter "Part A"). This Part B document, coupled with the Part A, conforms to the ISO 21930, EN 15804, ISO 14025, and the US Green Building Council PCR Guidance sustainability standards for EPD reporting.

General Guidance

The scope of this PCR applies to the product group "Insulated Metal Panels, Metal Composite Panels, and Metal Cladding: Roof and Wall Panels" and includes all residential and commercially available metal roof and wall panel products according to the standards or technical approvals shown under Section 9.

Metal roof and wall panels refer to a broad category of panels composed of metal which functions as structural elements and/or a barrier between the building and the environment. The panels may or may not also include thermal insulation. Specifically included in the scope are:

- Construction of unpainted or painted galvanized or zinc-aluminum alloy coated steel, including coil and sheets. Other metals such as copper, aluminum, etc. are also covered by this PCR.
- Factory-made metal roof and wall cladding capable of functioning as structural elements to resist transverse and in-plane loads and act as a water and air barrier, made from the above described coils and sheets.
- Factory-made insulated metal sandwich panels (IMP) capable of functioning as structural elements to resist transverse and in-plane loads, provide thermal insulation and act as a water and air barrier, with a rigid metal skin on both sides, made of the above described coil and sheets combined with a core of foam plastic insulation.
- Factory-made Metal Composite Materials (MCM) capable of resisting transverse loading sufficient to act as a building cladding as part of either a sealed wall or rain screen system, made of rigid metal skins with a solid thermoplastic core to provide flatness but not thermal insulation. Aluminum Composite Material (ACM) is also covered by this PCR.



Applicable Products

The following United Nations Standard Products and Services Codes (UNSPSC) cover the scope of this Part B:

- Section: 4 - Metal products, machinery and equipment
- Division: 42 - Fabricated metal products, except machinery and equipment
- Group: 429 - Other fabricated metal products
- Class: 4299 - Other metal goods

The following Construction Specifications Institute (CSI) codes cover the scope of this Part B:

- 074113.13 Formed Metal Roof Panels
- 074113.16 Standing-seam Metal Roof Panels
- 074113.19 Batten-seam Metal Roof Panels
- 074213.13 Formed Metal Wall Panels
- 074213.16 Metal Plate Wall Panels
- 074213.19 Insulated Metal Wall
- 074213.23 Metal Composite Material Wall Panels
- 074213.53 Metal Soffit Panels

Not all products that are considered under the aforementioned UNSPSC code are applicable to this PCR.

Non-Applicable Products

Products, components, or systems are not included in the scope of this PCR if they do not perform the function described in this PCR, but they may be reported separately under additional reported information in Section 4.

Geography

This PCR applies to products sold and used in the following markets: Europe, North America

System Boundary

This PCR follows the approach established by ISO 21930 and EN15804 for categorizing the various life cycle stages. These standards are designed to harmonize EPDs for products and services in the building and construction sector. The metal panel life cycle is broken into the various “information modules” shown in Figure 1. Cradle-to-gate, cradle-to-gate with options¹, and cradle-to-grave boundaries may be used in EPDs based on this PCR. Only the declaration of the Production modules, A1-A3, is required for conformance with ISO 21930 or EN 15804. The declaration of other life cycle modules is optional, unless specifically addressed in a sub-category Part B, with the exception of Module C (see Part A, Section 2.8.4.5).

¹ Cradle to gate with options includes the following options: 1) A1 to A4; 2) A1 to A5; 3) A1 to A3 and B2; 4) A1 to A3 and C1 to C4;



FIGURE 1 – METAL PANEL LIFE CYCLE SYSTEM BOUNDARIES^{2,3}

EPD Type	PRODUCTION			CONSTRUCTION		USE							END OF LIFE				BENEFITS & LOADS BEYOND SYSTEM BOUNDARY	Reference Service Life
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
	Raw material supply	Transport	Manufacturing	Transport to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential	
Cradle to gate	Required			Excluded													Optional	Optional
Cradle to gate with options	Required			Optional		Ex.	Op.	Excluded					Optional				Optional	Optional
Cradle to grave	Required																Optional	Required

The EPD requirements include:

- Requirements of the ISO 21930 standard for the purpose of consistency across geographies and EPD programs.
- 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 Part A available at <http://www.shopulstandards.com>

III. Industry-Average EPD Requirements

Involvement of Interested Parties

Manufacturers may work together to develop an industry-average EPD using this PCR. Under these conditions, an “industry” can represent a group of manufacturers that are members of one or more trade associations, or that produce or sell the declared product in a defined region or market. Thus, an industry-average EPD is intended to represent production by the defined group of manufacturers. A call for participation in an industry-average EPD shall be posted to the website of the trade association, published in a relevant trade publication (e.g. newsletter), and sent via email to members of all relevant industry associations. At least 50% of the industry as represented by annual production volume shall be included in an industry-average EPD, with primary data collected from a minimum of at least three (3)

² Modules B2 – B5 include production, transport and disposal of necessary materials

³ Module B4 is not applicable at the product level



different manufacturing locations from no less than three (3) companies represented. If less than 50% of the industry by production volume is represented, then the method of determining representativeness shall be justified and described and the percentage of annual production volume covered shall be reported.

Industry-Average EPD Participation

Manufacturers seeking to benchmark their individual type III EPDs against an industry-average EPD shall have participated in the industry-average EPD process as an interested party or retroactively via the following method.

A manufacturer may apply for retroactive participation by providing relevant qualitative and quantitative manufacturing and product information to the Program Operator, as detailed below. The Program Operator will assess representativeness and will inform and provide the original industry-average EPD committee, often the commissioner of the industry-average EPD, with this application and the two parties will confer to reach consensus. Retroactive EPD participation shall be a transparent and collaborative process between the Program Operator and industry association and participation decisions shall be published as updates in the industry-average EPD.

A retroactive participant shall provide manufacturing information to the program operator for the reference year declared by the industry-average EPD in terms of 1) main process energy fuel source(s); 2) applicable emission thresholds and permits; 3) main raw materials; 4) facility output and utilization rate(s); and 5) involved manufacturing process(es); and 6) reported R value⁴. All reported input/output data shall be calculated in relation to the declared unit or functional unit. If any of the reported data is greater than the maximum value in the range of normalized product inventory data in the background report, the manufacturer shall not claim representation by the existing industry average. The Program Operator shall refer to the background report for the industry average to assess whether the provided information meet this criterion.

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.

All manufacturers who submit an application for retroactive participation should participate in the update process when the existing industry-average EPD expires.

Governance

The program operator which publishes the industry-average EPD shall be responsible for holding a list of industry participants and admitting retroactive participants. The original industry participants and the Program Operator shall transparently collaborate to determine whether to admit retroactive participants in the industry-average EPD, but the ultimate decision remains with the Program Operator. To prevent

⁴ R-value is the capacity of an insulating material to resist heat flow. The higher the R-value, the greater the insulating power. R-value is measured in square-metre kelvin per watt (m²·K/W or, equally, m²·°C/W).



disclosure of proprietary or confidential information, the program operator, its independent contractor, a trade association, or an independent contractor to the industry-average EPD participants shall be responsible for collecting inventory data from individual companies and aggregating data such that individual company data is not exposed to external parties. Non-disclosure agreements may be executed between parties if desired.

For inventory data collected from a retroactive participant, the program operator or trade association shall hold the data until such time the industry-average EPD is updated. The program operator or trade association will then provide the data to the party responsible for collecting and re-aggregating the industry-average data for the updated EPD.

Data Responsibility/Ownership

The collection of companies which commissions an industry-average EPD shall designate an external party to collect and aggregate inventory data – also called the “data owner”. While each company retains ownership of their own data, participation in the industry-average EPD grants the data owner to collect and aggregate data from all participants without exposing information from an individual company to another party.

Once the industry-average EPD is published by the program operator, the program operator becomes the de facto data owner unless the industry participants otherwise specify an external party to continue in that role.

Industry-Average EPD Updates

An industry-average EPD has a period of validity of five years from initial publication, at which time the life cycle inventory (LCI), aggregation, and impact assessment shall be refreshed to update the EPD. Industry participants may collectively commission an update to the EPD earlier if desired. A retroactive participant may unilaterally commission an early update to include their data. A retroactive participant who represents 30% or more of the industry production represented in the original industry-average EPD shall commission an early update to the industry-average EPD if they wish to be included in the EPD and the remaining period of validity of the EPD is greater than 12 months.

A participant in an industry-average EPD commits to having their data be a part of the EPD for five years. Participants may choose to remove their data from an updated EPD that extends beyond the original five year period of validity.

IV. Product-group-specific LCA calculation rules from PCR Part A

No product-group-specific LCA calculation rules exist.



1. General Information

PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	Program Operator Provided	
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER		
LOCATION OF EXPLANATORY MATERIAL		
DECLARATION HOLDER AND ADDRESS		
DECLARATION NUMBER	Program Operator Provided	
DECLARED PRODUCT & 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-average or product-specific]	
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		
The 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 (September 2018), based on ISO 21930:2017 and EN 15804 + A1:2013, serves as the core PCR, with additional considerations from the USGBC/UL Environment Part A Enhancement (2017) ☐ INTERNAL ☐ EXTERNAL		
	Program Operator Provided	
This life cycle assessment was conducted in accordance with ISO 14044:2006 and the reference PCR by:		
	Program Operator Provided	
This life cycle assessment was independently verified in accordance with ISO 14044:2006 and the reference PCR by:		
	Program Operator Provided	