



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

**Part B: Building Envelope Thermal Insulation
EPD Requirements**
UL 10010-1



Product Category Rules (PCR) Guidance for Building-Related Products and Services Part B: Building Envelope Thermal Insulation EPD Requirements, UL 10010–1

Edition 4.0, dated November 3, 2025

Summary of Topics

Edition 4.0 of the Product Category Rules (PCR) Guidance for Building-Related Products and Services Part B: Building Envelope Thermal Insulation EPD Requirements, UL 10010–1 has been issued.

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Publisher:

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Tracking of versions:

Version	Comments	History
1.0	UL Solutions with input from a committee	9/12/2011
1.1	Version amended by UL Solutions to allow for industry-average EPDs	8/7/2013
1.2	Version amended by UL Solutions to modify temporal requirements	10/29/13
1.3	Version amended by UL Solutions to include mechanical insulation in Appendix II	7/7/14
2.0	Updated and republished under UL Part A and UL Part B format to conform with EN 15804 and ISO 21930:2017; separate PCR created for mechanical insulation	4/10/2018
3.0	PCR Extended for a year while the committee works on updating for republication	4/01/2023
4.0	PCR updated via committee and public input	11/3/2025

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Background Information and Acknowledgements

These sub-category Product Category Rules (PCR) were developed to address the manufacturer-specific rules for the creation of Environmental Product Declarations (EPD) for building envelope thermal insulation. When used to self-reference this document, “PCR” refers to “sub-category PCR.”

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

- PCR for Insulated Metal Panels, Metal Composite Panels, and Metal Cladding. UL Solutions, *June, 2022*.
- NPCR 012:2022 Part B for thermal insulation products (references to EN 15804 +A2). EPD Norge. March 2022.
- PCR 2019:14-c-PCR-005 c-PCR-005 Thermal Insulation products (EN 16783). Environdec (International EPD. March 2024.
- 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 Calcium silicate insulating materials, v8, August 2024*.
- 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 Insulating materials made of foam plastics, v10, August 2024*.
- 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 Mineral insulating materials, v8, August 2024*.
- 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: Blow-in*

insulation materials made from cellulose and wood fibres v8. August 2024.

- Product Category Rules for Building Related Products and Services, UL Part A: Life Cycle Assessment Calculation Rules and Report Requirements. UL Solutions, v4, March 2022
- ISO 21930:2017 Sustainability in Building and Civil Engineering Works - Core Rules for Environmental Product Declarations of Construction Products and Services
- - Life Cycle Assessment reference studies informing the development of this PCR include:
 - Spray Polyurethane Foam Insulation Products: EPD Background Report, v1.0. sphaera on behalf of Spray Polyurethane Foam Alliance. 2024.
 - Expanded Polystyrene Foam Insulation Products, Life Cycle Assessment background report for: Expanded Polystyrene Insulation, v.2.3, Intertek, on behalf of EPS Industry Alliance. 2023.
 - Rigid Polyisocyanurate Foam Board Insulation: Life Cycle Assessment of Rigid Polyisocyanurate Foam Board Insulation. Long Trail Sustainability on behalf of Polyisocyanurate Insulation Manufacturers Association (PIMA), August 2020.
 - Life Cycle Assessment (LCA) of CIMA Loosefill Cellulose Insulation Products, Sustainable Minds on behalf of Cellulose Insulation Manufacturers Association. November 2019.
 - Life Cycle Assessment of Mineral Wool Insulation Products Background Report in Support of Environmental Product Declarations. TrueNorth Collective, LLC, on behalf of the North American Insulation Manufacturers Association. November, 2023
 - Life Cycle Assessment of Fiberglass Insulation Products EPD Background, v1.0. sphaera, on behalf of the North American Insulation Manufacturers Association. March 2023.

Interested Parties

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

- American Chemistry Council (ACC)
- Carbon Leadership Forum (CLF)
- Center for the Polyurethanes Industry (CPI) Spray Foam Coalition
- CertainTeed/Saint-Gobain North America
- Cellulose Insulation Manufacturers Association (CIMA)
- Covestro LLC
- EPS Industry Alliance (EPS-IA)
- Extruded Polystyrene Foam Association (XPSA)
- Knauf Insulation
- North American Insulation Manufacturers Association (NAIMA)
- Nu-Wool
- Nicholson Consulting
- Owens Corning
- Polyisocyanurate Insulation Manufacturers Association (PIMA)
- Spray Polyurethane Foam Alliance (SPFA)
- US Environmental Protection Agency (EPA)
- GAF Materials, LLC

Governance

There are a number of trade associations and representatives of insulation manufacturers participating in the update of this Product Category Rule ("PCR") for thermal insulation. These parties represent all or a majority of the companies in their particular sector of the insulation industry. Moreover, the parties participating in the PCR update represent the vast majority of insulation types produced 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 thermal insulation industry is represented in the effort to renew the PCR for insulation products.

The role of participants is to establish requirements and procedures to be applied in the development of EPDs for thermal insulation. This is an update to an existing PCR, and therefore, this effort begins with the vetting of required changes in scope and structure. A fundamental aspect of the utility of the LCA tool is demonstration of reduction of a product's environmental impact, so maintaining applicability of EPDs certified under the existing PCR is a critical consideration for participants. In the development of this document, UL Part B, participants are responsible for ensuring alignment with UL Part A and conformance with the scoped standards: EN 15804, ISO 21930, and ISO 14025.

Involvement of Interested Parties

“The Program Operator [UL Solutions] shall be responsible for producing the PCR document by establishing an open consultation process that includes the involvement of interested parties (ISO 21930 Section 5.2 and 6.2.1). “Reasonable efforts should be made to achieve a consensus throughout the process” (ISO 14020:2000, 4.9.1, Principle 8 and cited in both ISO 14025 and ISO 21930). The Program Operator shall establish procedures for determination of consensus. Consensus is demonstrated by a vote of participating interested parties.

Insulation trade associations informed their memberships of the insulation PCR update through their regularly scheduled association and association committee meetings, newsletters, e-mail messages, and similar types of outreach. Trade associations operate at the behest of its members, and the fact that trade associations are participating in the update of a PCR for insulation products is an indication that their memberships are aware of this project and have authorized their association to represent them in this important endeavor.

UL Solutions invited interested parties to comment on version 3 of the PCR from January 17 – April 10, 2023 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 R-value definition so significantly the definition of R-value, thickness, or RSL in this PCR is no longer accurate; major shift in the markets such that a new material or system predominates that can no longer be characterized adequately by the definition of R-value, thickness, or RSL in this PCR.

As part of the 2023 update initiation, UL Solutions communicated with all original committee members listed in the publication of v2.

Review

The review process of this UL Part B PCR included a review through two public consultations in January 17 – April 10, 2023 and January 17- February 17, 2025, in addition to an independent panel review.

This UL Part B was reviewed by the following panel who assessed the PCR for conformance with the UL Part A and ISO 21930:

Thomas Gloria, PhD (chair) Industrial
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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 Solutions. 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.

Scope

This document contains the Product Category Rule (PCR) requirements for a Building Envelope Thermal Insulation Environmental Product Declaration (EPD) published in accordance with the EN 15804+A2 and ISO 21930 standards. The requirements for the background Life Cycle Assessment (LCA) project report used to inform the EPD are contained in UL Solutions' UL Part A. This UL Part B document, coupled with the UL Part A, conforms to the EN 15804, ISO 21930, and ISO 14025 European and international standards for EPD reporting.

General Guidance

The scope of this PCR applies to the product group “building envelope thermal insulation” and includes all commercially available building envelope thermal insulation products according to the standards or technical approvals shown under Section 9, regardless of material type, including but not limited to: mineral fiber insulation (rock, slag or glass), cellulose-based insulation, polymer-based insulation, cellular glass, and textile-based insulation.

Thermal insulation is an important technology to reduce energy consumption in buildings by preventing heat gain/loss through the building envelope. Thermal insulation is a construction material with low thermal conductivity and the purpose of these materials is to save energy, protect and provide comfort to occupants. Of the many forms, shapes and applications of thermal insulation, this PCR applies to insulation installed in building envelopes— i.e., foundations (basements/below grade walls, slab on grade, elevated cantilevered slabs, and footings), fenestration framing, walls (above grade walls, rim and band joists, and knee walls), floors, ceilings and attics, roofs (parapets, roof curbs, and above and below roof deck).

Note: There is a separate sub-category PCR for mechanical insulation that shall be used when creating EPDs for piping, HVAC and other mechanical and technical insulation products.

Applicable Products

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

- 07 21 00 - Thermal Insulation
 - 07 21 13 Board Insulation
 - 07 21 13.13 Foam Board Insulation
 - 07 21 13.16 Fibrous Board Insulation
 - 07 21 13.19 Mineral Board Insulation
 - 07 21 16 Batt and Blanket Insulation
 - 07 21 19 Foamed-In-Place Insulation
 - 07 21 19.13 Aminoplast Foam Insulation
 - 07 21 19.16 Polyurethane Foam Insulation
 - 07 21 23 Loose-Fill Insulation
 - 07 21 26 Blown Insulation
 - 07 21 29 Sprayed Insulation
- 07 22 00 - Roof and Deck Insulation
 - 07 22 16 Roof Board Insulation

It should be noted that this PCR may also apply to the thermal insulation components of the assemblies and categories listed below. PCRs developed for the assemblies and categories listed below should cross-reference and harmonize with this PCR.

- Insulated Sectional Chimneys (CSI 23 51 33)
- Insulated Concrete Masonry Units (CSI 04 22 23)
- Structural Insulated Panels (SIPs) (CSI 06 12 00)
- Exterior Insulation and Finish Systems (EIFS) (CSI 07 24 00)
- Insulated Concrete Forms (ICFs) (CSI 03 11 19)
- Insulated Doors, including Garage Doors (CSI 08 34 50, 08 13 00, 08 14 00, 08 15 00, 08 16 00, *non-exhaustive*)
- Other Composite Insulation Board Products (CSI 06 16 00)

Non-Applicable Products

- Mechanical insulation (Covered under the Product Category Rules for Part B: Mechanical, Specialty, Thermal, and Acoustic Insulation Product EPD Requirements. UL Solutions 10010-3, v1. Sept 2019.)
- Insulated metal [wall] panels (IMPs) (CSI 07 42 13 19). (Covered under the Product Category Rules for Part B: Insulated Metal Panels, Metal Composite Panels, and Metal Cladding: Roof and Wall Panels. UL Solutions 10010-5, v2. October 2018.)
- Reflective Insulation and radiant barrier materials or coatings that rely on air space and/or emissivity for their thermal claims (CSI 07 21 53)
- Roof Cover Protection Board PCR Part B (Covered under Product Category Rules Part B: Roof Cover Protection Board EPD Requirements. UL Solutions 10010-36, v.1, November 2021).

Geography

This PCR applies to products sold and used in North American markets but may be manufactured within other geographies.

System Boundary

The system boundary for EPDs created using this PCR is cradle-to-grave. The EPD requirements include:

- Requirements of the UL General Program Instructions (available upon request)
- The calculation rules for the Life Cycle Assessment and Requirements on the Project Report are specified in a separate document as UL Part A of the Product Category Rules, available at <https://www.ul.com/resources/product-category-rules-pcrs>. When creating an EPD using this UL Part B PCR, the most current version of the UL Part A shall be referenced.

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 primary material defined in the standards in Section 2.4 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, at least three (3) different manufacturing locations from no less than two (2) companies should be involved and represented in an industry-average EPD. The method for determining representativeness shall be justified and described per the requirements listed in UL Part A Section 2.5.1.

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 demonstrates willingness to provide primary manufacturing data during the LCA data collection process.

Retroactive Participation

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 with this application. The participation decision ultimately resides with the Program Operator. A manufacturer desiring retroactive inclusion in the industry-average EPD should provide the following representative manufacturing and product data information to the Program Operator for the reference year declared: 1) main process energy fuel source(s), if generated on-site; 2) applicable emission thresholds and permits; 3) main raw materials, including bill of materials with corresponding masses; 4) facility output and utilization rate(s); 5) involved manufacturing process(es); and 6) reported R value. All reported data shall be normalized by 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.

In case of industry-average EPDs, the background report shall contain the following information as the basis for evaluating retroactive participation¹:

- Minimum and Maximum facility production volumes included in the sample,
- Minimum and Maximum production energy intensity per functional unit in the sample,
- Minimum and Maximum utilization rate included in the sample,
- Minimum and Maximum R value included in the sample

When determining a manufacturer's participation eligibility, the EPD Program Operator shall follow the recommendations of the manufacturer and/or its consultants unless the Program Operator has data or information to the contrary, in which case the Program Operator 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.

Industry Average EPD Use

A manufacturer shall not make claims based on an industry average EPD which leads the market to believe the industry average is representative of manufacturer-specific results.

Manufacturers seeking to publicly benchmark manufacturer-specific type III EPDs against the industry-average EPD shall have participated in the industry-average EPD process or retroactively via the options outlined above. Manufacturers shall not benchmark using industry average EPDs unless they participated in or qualify for retroactive participation in the industry average EPD.

¹ Note there are additional requirements for reporting of statistical information for industry average EPDs in Section 2.6.

Governance

An industry organization, 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

Trade associations that lead the development of industry-average EPDs may need to collect confidential business information from individual member companies. 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, insuring 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 EPD owner 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 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. General Information

The following general information shall be declared.

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	Program Operator Provided
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	Program Operator Provided
EPD OWNER 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 (AS IDENTIFIED WHEN DETERMINING PRODUCT RSL)	
PRODUCT RSL DESCRIPTION (IF APPL.)	
MARKETS OF APPLICABILITY	
DATE OF ISSUE	Program Operator Provided
PERIOD OF VALIDITY	5 years
EPD TYPE	[Industry-average, manufacturer-specific, with additional optional designation as facility-specific]
RANGE OF DATASET VARIABILITY	[Industry-average only; mean, median, standard deviation]
EPD SCOPE	[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 Solutions "Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report," (February 2018), based on CEN Norm EN 15804 (2012) and ISO 21930:2017, serves as the core PCR, with additional considerations from the USGBC/UL Solutions Part A Enhancement (2017) ☐ INTERNAL ☐ 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 Building Envelope Thermal Insulation using EPD information shall be based on the product's 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. Caution must be used when comparing EPDs, as variations and deviations are possible from e.g. Different LCA software and background LCI datasets that may lead to differences in calculated and reported results.	