

Part B: Product group definition | Roof cover board | Part B #26-006

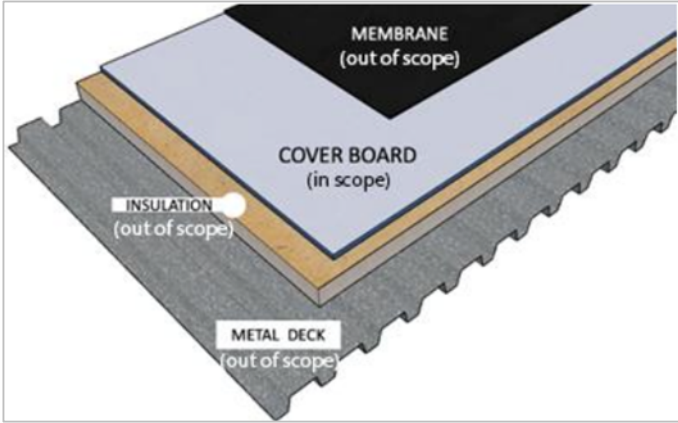
This Part B conforms to the ACLCA PCR Open Standard version 1.0 (May 2022) at the following level:

☒ 1 Transparency ☐ 2 Procurement ☐ 3 Data source

Initiated by	Polyisocyanurate Insulation Manufacturers Association (PIMA) - https://www.polyiso.org		
Working group members	Kim Hammer, Sustainable Minds (PCR committee chair) Jim Mellentine, Thrive ESG (PCR committee co-chair) Justin Koscher, Polyisocyanurate Insulation Manufacturers Association (PIMA) Marcin Pazera, Polyisocyanurate Insulation Manufacturers Association (PIMA) Jean-François Côté, SOPREMA Mason Althouse, SOPREMA Greg Sagorski, Atlas Roofing Corporation Stefan Long, Sika Corporation Laurie Hill, Sika Corporation Carlotta China, Polyglass Ed Krusec, on behalf of Polyglass Alyson Perez, GAF Rachel Ziskin, Johns Manville		
Public notices of development/outreach	- Public notice on the Sustainable Minds website announcing the update to the PCR on February 20, 2026: http://www.sustainableminds.com/transparency-report-program/part-b - Email blast on February 20, 2026 to mailing lists of LCA professionals, building and construction industry and trade associations, and manufacturers of roof cover boards, requesting participation on the PCR committee. - Email blast on July 6, 2026 to the same mailing lists requesting public comment.		
Non-participating parties	All interested parties who requested participation were invited to join the working group.		
New Part B?	No	Part B version number	2.0
Publication date	August 31, 2026		
Validity period	08/31/2026 – 08/30/2031		
Expected renewal schedule	Sustainable Minds intends to notify the working group and post update/renewal information on its website approximately four months prior to expiration to determine update, extension, or expiration options for this Part B.		

1. Product group

Name	Roof cover board	CSI MasterFormat® # Examples provided; not exhaustive	07 22 17: Low Slope Roofing Cover Board
Description	Roof cover boards are part of a roof system as shown in the example in Figure 1. A roof system is comprised of various components, including but not limited to the membrane, roof cover board, insulation, and roof deck. Roof cover boards are installed in roof systems between the insulation (below) and roof membrane (above) and may be mechanically attached or adhered. They add strength, protection, and impact resistance to the roofing system. They can enhance the roof's performance in a variety of ways, including limiting external fire spread, reducing wind uplift, and contributing to the thermal and vapor barrier. Roof cover boards can be comprised of a variety of materials including plywood, gypsum glass-mat, cement, polyiso, urethane foams (high density), composite materials, wood fiber, or other suitable materials. Figure 1 represents the various layers included in a typical installation of roof cover boards. The scope of this PCR is limited to the cover board product and includes all residential and commercially available cover board products according to the standards or technical approvals listed in the functional performance section.		

	 Figure 1. Typical roof cover board installation
Exclusions	The scope excludes: • Products primarily specified for use as insulation, including 07 22 16 roof board insulation, covered by UL Solutions PCR Part B for Building Envelope Thermal Insulation, 2025 • Products specified for use as the structural roof deck or as a substrate installed directly to the structural roof deck • Exterior cladding, covered by UL Solutions PCR Part B for Cladding Product Systems, 2021 • Metal ceiling and interior wall systems, covered by UL Solutions PCR Part B for Metal Ceilings and Interior Wall Panel Systems, 2020 • Metal and insulated metal roof panels, covered by UL Solutions PCR Part B for Insulated Metal Panels, Metal Composite Panels, and Metal Cladding, 2018 • Gypsum panels not intended for roof applications, covered by the Smart EPD PCR for Gypsum Panels v2.0, 2025 • Fasteners and adhesives or other attachment methods
Geographic representativeness	Products manufactured for use in North America

2. Program operator responsibilities

Existing PCRs, EPDs, or LCAs	• This Part B shall be used in conjunction with the latest version of Sustainable Minds PCR Part A: LCA calculation rules and report requirements (version 4.0 at the time of publication of this Part B) • Relevant PCR: UL Solutions: Part B for Roof Cover Protection Board v1.0 • Relevant PCR: Smart EPD: PCR for Gypsum Panels v2.0 • Underlying LCA: PIMA industry-average LCA for Polyiso Roof Insulation Boards, 2026. Results from the LCA were used to identify gaps in prescribed requirements including end-of-life and installation energy assumptions. The study was limited to the polyiso industry for high density cover boards with specific facer types. • Existing EPDs used to inform some aspects of this Part B: - o PIMA industry-average EPD for High-Density Roof Cover Boards https://info.nsf.org/Certified/Sustain/ProdCert/EPD11187.pdf - o Georgia-Pacific EPD for 1/2" DensDeck® Roof Board https://info.nsf.org/Certified/Sustain/ProdCert/EPD11133.pdf
Justification for new Part B if relevant non-expired PCR exists	Several members of the original PCR Committee for the previous version of the UL Solutions PCR for roof cover protection board expressed interest in updating the PCR according to the newest standards and practices. See harmonization activities below.
Harmonization activities pursued	Sustainable Minds announced the creation of this product group definition to the original PCR Committee members, other program operators, LCA analysts, and manufacturers via email, and posted an update on its website. The previous version of this PCR was valid through November 2026. Sustainable Minds reached out to the original program operator to discuss the publication timing to harmonize activities between both programs. UL Solutions agreed that Sustainable Minds could publish v2.0 of this PCR prior to November 2026, as it would allow manufacturers working on EPDs to v1.0 to publish without having to redo their LCA work to a newer version, and allow manufacturers wanting to use the newer version to do so without delay. Projects already in process as of the publication of v2.0 may use v1.0 of this PCR, and projects initiated after the publication of v2.0 shall use v2.0 of this PCR.

3. Functional performance

Standard/certification (most recent edition, conformance not required for PCR conformance)	URL
ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board	https://store.astm.org/c1289-22.html
ASTM C473 - Standard Test Methods for Physical Testing of Gypsum Panel Products	https://store.astm.org/c0473-19.html
ASTM C1177 - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing	https://store.astm.org/c1177_c1177m-17.html
ASTM C1278 - Standard Specification for Fiber-Reinforced Gypsum Panel	https://store.astm.org/c1278_c1278m-06.html
ASTM C1325 - Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units	https://store.astm.org/c1325-22.html
ASTM C728 - Standard Specification for Perlite Thermal Insulation Board	https://store.astm.org/standards/c728
ASTM C208 - Standard Specification for Cellulosic Fiber Insulating Board	https://store.astm.org/c0208-22.html
ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics	http://store.astm.org/d1621-16.html
ASTM D1037 - Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials	https://store.astm.org/d1037-12r20.html
ASTM E661 - Standard Test Method for Performance of Wood and Wood-Based Floor and Roof Sheathing Under Concentrated Static and Impact Loads	https://store.astm.org/e0661-03r15e01.html
ASTM D2126 - Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging	https://store.astm.org/d2126-20.html
ASTM C209 - Standard Test Methods for Cellulosic Fiber Insulating Board	https://store.astm.org/c0209-20.html
ULC 704.1 - Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced	https://www.shopulstandards.com/ProductDetail.aspx?UniqueKey=45307
CSA A123.25 - Asphalt core boards used in roofing	https://www.csagroup.org/store/product/A123.25-18/
ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials	https://store.astm.org/standards/e96
ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber	https://store.astm.org/d3273-16.html
ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus	https://store.astm.org/c0518-21.html
ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials	https://store.astm.org/e0084-23d.html
UL 790 - Standard for Standard Test Methods for Fire Tests of Roof Coverings	https://www.shopulstandards.com/ProductDetail.aspx?UniqueKey=42333

4. System boundary

System boundary	The type of EPD shall be specified as cradle-to-grave. The modules considered in the LCA shall be described in brief as per “System boundaries” outlined in ISO 21930:2017 section 5.2, and the system boundary shall follow both the modularity and polluter pays principle, discussed in greater detail in section 7.1.1 and Table 1. Any relevant aspects or impacts not included in an information module shall be supported with relevant additional environmental information and the omissions shall be justified. Module D may be optionally declared. This PCR considers capital goods and infrastructure to be any equipment, building, or supporting system which exists in the background of the production of roof cover boards and has a lifetime of at least two years or could be reasonably allocated across at least 1,000m² (a statement from the manufacturer to confirm this is sufficient and shall be documented in the
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	LCA report). To reduce possible artificial variation in EPD results across the product group, capital goods and system infrastructure flows shall be excluded from the system boundary by default, with justification required for alternative assumptions.
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5. Functional unit

Unit	1 m² of roof cover board installed over the estimated service life of the building (75 years), excluding other roof system layers, ancillary materials, fasteners, and adhesives required to achieve the expected roof system performance. The default reference service life of the roof cover board is 40 years.
Rationale	Roof cover boards are commonly specified as a function of roof area, and they are expected to be used over the life of the building.

6. Additional rules for comparability

1. EPD types	Manufacturing Specificity			
		Multiple manufacturers	Single manufacturer, multiple facilities	Single manufacturer, single facility
	Product Specificity	Multiple products	industry-average product-average	manufacturer-average product-average
	Single product (or group of equivalent products)	industry-average product-specific	manufacturer-average product-specific	facility-specific product-specific
Any of the six types of EPDs defined by the ACLCA PCR Open Standard¹ may be developed using this PCR. The EPD shall include the appropriate EPD label(s) using the following text. If the EPD reports multiple sets of results, each set of results shall be labeled separately: "Per the ACLCA Guidance for Determining EPD Types and Calculating and Communicating Data Specificity Through the Supply Chain v1, this [choose one of: EPD, EPD result, set of EPD results] is [choose one of: manufacturer-average, facility-specific] and [choose one of: product-average, product-specific]. Supply-chain-specificity [choose one of: =, ≥] X% [supply chain-specificity statement is not reported in the case of manufacturer-average or industry-average EPDs]."				
2. Additional rules to PCR Part A	• EPDs that use secondary data for any unit process that contributes 10% or more to any disclosed environmental impact category shall disclose the data source (database name and version, LCA modeling software type and version implemented, dataset name, dataset geography, and dataset allocation method). This criterion applies to the LCI being used, and not the actual unit process data being reported by the manufacturer. Materials considered confidential may be reported as "proprietary ingredient" along with the database name and version. It is encouraged to list all secondary data sets used, regardless of their level of contribution. • Mass shall be used as the primary basis for co-product allocation unless other allocation methods are deemed more appropriate, in which case the alternative method shall be justified. The use of allocation, including reference to the module(s) in which allocations were performed, shall be indicated when applied to energy, ancillary materials, operating materials, or recycled and/or secondary raw materials. • Any hazardous substances contained in the product shall be disclosed. For EPDs including products sold in the United States and Canada, the following regulations shall be considered when identifying hazardous substances. EPDs covering other countries should consider relevant standards or regulations in that market. - o Environment Canada, National Pollutant Release Inventory (NPRI) http://www.ec.gc.ca/inrp-npri/ - o EPCRA 313 Toxic Release Inventory Reporting (US) http://www2.epa.gov/toxics-release-inventory-tri-program			

¹ American Center for Life Cycle Assessment. PCR Open Standard. Version 1.0. May 2022. <https://www.aclca.org/initiatives#PCR-Open-Standard>

	- o 40 CFR 50 Protection of Environment - Part 50: National Primary and Secondary Ambient Air Quality Standards (U.S.) https://www.ecfr.gov/cgi-bin/text-id.x?tpl=/ecfrbrowse/Title40/40cfr50_main_02.tpl • Biogenic removals and emissions shall be calculated according to ISO 21930:2017 and Sustainable Minds PCR Part A sections 8.7 and 9.1. The latest version of the EPA WARM model shall be utilized and cited for determining decomposition rates and landfill gas capture rates of primary bio-based product materials. • Results for products with different thicknesses shall be reported separately, either within the same EPD or in multiple EPDs (NOTE: roof cover boards typically come in four standard thicknesses: 1/4", 3/8", 1/2", and 5/8"; the decision to report in the same or separate EPDs will be made by the EPD program operator with manufacturer input) • EPDs shall disclose the following information for each product: - o Mass to achieve the functional unit – kg (lbm) - o Thickness – mm (inches) - o Available installation methods - o The test standards and specifications to which the product conforms (e.g., ASTM C473, ASTM C1289, CAN/ULC704.1, CSA A123.25, etc.) - o A weighted average mass value shall be stated when the EPD deals with a generic or representative group of products with different aspects (e.g., formulation variations), apart from thickness (NOTE: the products included in an average EPD shall not differ in their environmental impact indicators by more than ±10%) • Apart from the requirements outlined in Sustainable Minds PCR Part A for all LCAs and in section 8 of this document for calculating uncertainty in industry-average EPDs, and upon review of the assumptions and limitations associated with the underlying LCA, the PCR Committee did not identify any additional types of uncertainty analysis to be performed in LCAs for this product category.
3. Default life cycle stage scenario(s)	<u>Extraction and upstream production (A1)</u> This stage includes all upstream activities consistent with ISO 21930:2017. When materials used in the product are represented by secondary data, the electricity grid profile of the data set shall be adapted to the source country or region, if known and possible with the selected data set. If the material source location is unknown or adapting the electricity grid is not possible, average data sets with “Global” or “Rest of World” average electricity profiles may be used, and justification for their use shall be provided in the background LCA report. In cases when the EPD owner purchases manufactured components, the manufacturing process activity at the upstream supplier shall be counted in the extraction and upstream production stage, separate and in addition to the upstream raw material extraction. For example, if a manufacturer purchases titanium dioxide pigment, the pigment cannot be simply represented by titanium rich ore alone. Additional manufacturing must be added to represent the manufacturing of ore into pigment. The upstream supplier location, manufacturing technology, and potential scrap rate during the manufacturing process activity shall also be considered. <u>Transport to factory (A2)</u> All transportation including inter-facility transport prior to the material being shipped to the production site shall be included. In cases where the EPD owner maintains multiple suppliers for the same material or part, the life cycle inventory and impact assessment results shall reflect a weighted average transportation distance from the multiple suppliers for each mode of transport used. To simplify the calculation for those with many suppliers for the same material or part, suppliers which provide less than 5%, by mass or by volume, of a particular material or part may be excluded from the calculation of weighted average transport distance, subject to existing cut-off requirements in Sustainable Minds PCR Part A. <u>Manufacturing (A3)</u> The location(s) where the product is manufactured shall be disclosed, and the manufacturing process shall be described and illustrated using a process flow diagram. If the EPD applies to several locations, the production processes for all locations shall be described and reference to quality management systems may be included. Manufacturing waste shall include scrap material sent to waste treatment. Scrap used as dunnage, in other packaging applications, or otherwise reused in the manufacturing process is not considered waste. Information on product-specific packaging: type, composition and possible reuse of packaging materials (paper, strapping, pallets, wrap, foils, etc.) shall be included.

If removable backing is used on the product, it should be considered as part of the packaging. In the case of reusable packaging designed to last for multiple reuse cycles, one reuse shall be assumed in the absence of primary manufacturer data. At the end of its reuse cycle, reusable packaging shall be assumed to go to landfill. In the case where roof cover board cut-offs are used in product packaging, a one-time use shall be assumed.

Market-based accounting may be used for electricity consumed at the roof cover board manufacturing facility. In addition to requirements in the Sustainable Minds PCR Part A, the following additional requirements shall be met when using market-based electricity factors.

Bundled renewable electricity purchases (including renewable electricity certificates (RECs) generated from off-site renewable electricity) may be considered only when sourced from the utility or grid authorities that service the region(s) within which the manufacturing site(s) is located. For facilities in the United States, the electricity must be generated within the same eGRID subregion or balancing authority region. Market-based electricity purchases shall be allocated to all products made at the facility (i.e., not disproportionately applied to a subset of products). When including RECs, any remaining electricity consumption not covered by market-based purchases shall be modeled using a residual grid mix. If a residual grid mix is not available for the region, it shall be approximated by considering only the non-renewable portion of the appropriate location-based or consumption-based grid mix (i.e., removing all renewable electricity generation and scaling up the non-renewable portion of the mix).

At the time of EPD publication, update, or renewal, the EPD owner shall provide the verifier documentation demonstrating market-based electricity purchases, including ownership and retirement of RECs, for the reporting period (including registry retirement records or equivalent utility attestations), and a signed attestation that the attributes have not been and will not be sold, transferred, or claimed elsewhere. Internal controls for REC tracking, allocation, and retirement shall be documented and verified. While RECs shall be verified for the electricity quantities and reporting period represented in the EPD at the time of publication, they are not required to be pre-secured or verified for the full EPD validity period. The EPD owner shall include a statement in the LCA and EPD about their intention of purchasing RECs for the full EPD validity period. Where a manufacturer discontinues the purchase of RECs within the EPD validity period, the manufacturer shall determine whether the change would impact the validity of the EPD in accordance with Section 5.3 of SM PCR Part A.

Market-based renewable electricity purchases sourced outside the utility or grid authorities that service the manufacturing site(s) shall not be included in the calculated EPD results, but qualitative information may be included in the Additional Environmental Information section of the EPD.

On-site renewable electricity may be included in the inventory if renewable electricity certificates (RECs) generated by the installation are kept/owned by the manufacturing facility. In such cases, the electricity shall be allocated to all products manufactured at the facility (i.e., not disproportionately applied to a subset of products), unless the renewable installation is specifically connected to a portion of the plant and supported with submetering data.

In the absence of primary data, the transport distance from the production site to waste processing or disposal shall follow the latest version of the US EPA WARM model (20 miles (32.2 km) as of the publication date of this PCR). Outside of North America, other appropriate regional or national assumptions may be used.

Transport to site (A4)

Transport from the manufacturing site to the installation site shall be included. Several legs of distribution and storage may occur (e.g., storage at a distribution center, installer warehouse, and a retail location). In the absence of primary data, for products sold and used in North America, assume that the land transport distance from point of manufacturing to building site is 800 km by diesel-powered truck/trailer truck with an empty return trip of the same distance. Any deviations from these assumptions (e.g. different geographies) shall be justified and explained.

Warehouse/distribution center and retail

Roof cover boards may be distributed through warehouses or distribution centers en route to the final customer. In the absence of primary data (e.g., manufacturer data showing that warehouses and distributions centers are not used in distribution), the following default warehouse/distribution center energy consumption values shall be assumed:

- Electricity – 0.47 kWh/FU
- Natural gas – 0.040 standard cubic meter/FU

	NOTE: These factors are based on US Energy Information Administration Commercial Building Energy Consumption Survey factors² for electricity and natural gas as well as the following assumptions: • 84 boards per floor space (e.g., 42 boards per bundle with two bundles stacked or racked) • Board size 4ft x 8ft • Warehouse floor utilization rate of 40%³ • Warehouse storage time of 3 months <u>Installation (A5)</u> The installation stage shall include, as applicable, any ancillary materials, energy and/or water consumption, and disposal of waste materials. The method of installation (e.g., fastened, adhered), including machinery, tools, and ancillary materials used, shall be disclosed in the EPD. Information on industrial and environmental protection may be included in this section. Installation typically involves the use of a boom truck to hoist the roof cover boards onto the roof, plus hand tools and drills (for mechanical applications) or adhesive applied with applicators (for adhered applications). A default assumption of 0.012 kWh/m² of electricity plus 2.29 MJ/m² of diesel burned in a building machine shall be used to represent energy used during installation⁴. Installation involves making cuts to accommodate roof penetrations and edges, where cut pieces greater than 12 inches wide are typically reused elsewhere on the roof. Installation shall take into consideration 1% installation waste by default unless supporting documentation is provided. To account for extra material delivered to the site, include in this stage the sum of impacts from stages A1-A4 multiplied by 1%. Installation waste is assumed to be landfilled. In the absence of primary data, the transport distance to waste processing or disposal shall follow the latest version of the US EPA WARM model (20 miles (32.2 km) as of the publication date of this PCR). Outside of North America, other appropriate regional or national assumptions may be used. <u>Estimated service life and product reference service life</u> This Part B uses a building estimated service life (ESL) of 75 years. All use stage activity and impacts shall be counted for the full ESL period. The default reference service life (RSL) for the product(s) fulfilling the functional unit shall be 40 years. Justification for longer RSLs shall include a guarantee by the signature of the most senior officer of the product manufacturer. A 40-year RSL shall be assumed for assemblies/installations that use EPDs created from this PCR. <u>Use or application of the installed product (B1)</u> Any activity related to product use and not included in stages B2-B7 shall be included in this stage. Zero activity may be assumed for this stage unless otherwise justified. <u>Maintenance (B2)</u> Maintenance is not part of the expected service life. Zero activity may be assumed for this stage unless otherwise justified. <u>Repair (B3)</u> Repair is not part of the expected service life. Zero activity may be assumed for this stage unless otherwise justified.
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² US Energy Information Administration. 2018 Commercial Building Energy Consumption Survey. Table C22 Electricity consumption and conditional energy intensities by building activity subcategories, Distribution or shipping center factor (5.9 kWh/ft²) and Table C32 Natural gas consumption totals and gross energy intensities by building activity subcategories, Distribution or shipping center factor (17.7 scf/ft²). Available at <https://www.eia.gov/consumption/commercial/data/2018/>.

³ Modern Commercial. How Much Industrial Warehouse Space Do You Need? 40% factor for difficult-to-stack goods. Available at <https://www.modern-cre.com/insights/how-much-industrial-warehouse-space-do-you-need>

⁴ Estimates based on an assumption that electricity consumption is similar to that of insulation boards and blankets as specified in the UL Solutions PCR for Building Envelope Thermal Insulation, plus an assumption that a boom truck consuming 11.2 L/h is used for 30 minutes to lift 91.4 m² of boards to the roof, based on consultation with a limited number of installers.

	<u>Replacement (B4)</u> At the end of the RSL, the original roof cover boards are manually removed along with other roof system components down to the roof deck, and a new roof system including replacement roof cover boards is installed. Replacements for the duration of the ESL for the roof cover boards must be counted proportionally to the nearest tenth of a product. For example, if the default RSL of 40 years is used, then 0.9 replacement products (35 remaining years in the ESL divided by 40-year RSL) must be included. Replacements must include the sum of impacts from stages A1-A5 and C1-C4 multiplied by the number of replacements. <u>Refurbishment (B5)</u> Refurbishment is not part of the expected service life. Zero activity may be assumed for this stage unless otherwise justified. <u>Operational energy use (B6) and operational water use (B7)</u> Once installed, roof cover boards are not expected to require any electricity or water for use during the lifetime of the system. Zero activity may be assumed for this stage unless otherwise justified. <u>Deconstruction/demolition (C1)</u> The EPD owner may assume that the product reaches its end of life along with the building and is removed during the demolition process. As such, energy or material inputs may be assumed to be negligible for this stage unless otherwise justified. <u>Transport to waste processing or disposal (C2)</u> In the absence of primary data, the transport distance to waste processing or disposal shall follow the latest version of the US EPA WARM model (20 miles (32.2 km) as of the publication date of this PCR). Outside of North America, other appropriate regional or national assumptions may be used. <u>Waste processing (C3)</u> In the absence of primary data, the default assumption is that 100% of products are disposed in a landfill at end of life. In that case no waste processing activity is applicable in this stage. Justifications for other end-of-life pathways, such as recycling, refurbishment, or other pathway in a product take-back program require evidence such as documentation of the program and documented number or share of units sold that participate in the program. <u>Waste disposal (C4)</u> Manufacturers shall assume the product is sent to a construction or inert waste landfill in North America, unless otherwise justified. Justification for recovery and recycling of material components shall include primary data from a take-back or similar program to justify the percentages used to model the recovery/recycling. Landfill processes shall be modeled based on the mass of distinct materials in the product and availability of secondary data to model those materials. <u>Benefits and loads beyond the system boundary (D), Optional</u> Since the default end-of-life assumption is 100% landfill, there are no anticipated burdens or benefits beyond the system boundary. However, if alternative end-of-life pathways are justified, such benefits and burdens may be reasonably quantified or qualitatively described in this stage.
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7. Additional LCA calculation rules

N/A	Optional	Required	Indicate whether conformance is the manufacturer's choice or required for EPDs.
		X	ISO 21930:2017: conformance is required by construction product manufacturers

8. Industry-average EPD additional rules

Industry-average EPD scope	The products represented within a single industry-average EPD created using this PCR are limited to the primary materials defined in the product specification standards in Section 3 that characterize the specific product in commerce.
Minimum participation	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 or widely distributed newsletter. At a

	minimum, at least three different manufacturing locations from no less than three companies shall be involved and represented in an industry-average EPD. Each participating manufacturer shall provide primary manufacturing data. The industry-average EPD shall reflect the production weighted-average of participating manufacturers and shall disclose the approximate percentage of market size represented by participating manufacturers for that product type. Percentage of market size represented should be based on best available estimates from industry participants.
Retroactive pathway requirements	When determining a manufacturer's participation eligibility, the Program Operator shall follow the rules and 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. Unless otherwise agreed by the original participants, the update process shall be paid for by the new participant(s). Pending all criteria set forth by the primary sponsor of the industry-average EPD are met, a manufacturer desiring retroactive inclusion in the industry-average EPD shall provide manufacturing and product data information of the same representativeness submitted in the original industry-average EPD to the LCA practitioner. The LCA practitioner will then recommend to the Program Operator a determination for inclusion in the industry average on the basis of results falling within a reasonable range for any impact category. To assist the LCA practitioner in making a determination, the total aggregated production volume from all facilities included in the sample shall be reported in the industry-average LCA background report, in addition to the minimum and maximum values for the following: • Results for each impact category • Mass to achieve the functional unit • Thickness
Governance	The primary sponsor of the industry-average EPD shall inform possible industry participants through association meetings, newsletters, e-mail messages, or 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 provided to the primary sponsor as aggregated data with no trace to the original source of data. Trade associations that lead the development of industry-average EPDs may need to collect confidential business information from individual members. 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 shall be identified 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. Per ISO 21930 Section 5.4, the manufacturer, or group of manufacturers, of the construction product is the sole owner of the EPD and is responsible for developing the EPD of the construction product according to the PCR. Only the manufacturer or group of manufacturers is authorized to declare the environmental performance of the construction product using an EPD. The development of an industry-average EPD and or update of an EPD should involve a series of meetings and exchanges in which all participants are invited and kept apprised of the developments. Notices of these meetings should be given to all possible participants regardless of their commitment to active involvement. Minutes of meetings, along with meeting notices, should be preserved as documentation of the process and due diligence observed in the creation or renewal of the EPD.
Required or preferred background LCI data sets	The group of manufacturers responsible for developing an industry-average EPD shall be responsible for, including but not limited to, ensuring industry-average EPD updates are made based on the most recent LCA modelling software version and impact assessment version available.
Comparisons	<u>LCIA method & version # used for comparison:</u> All comparisons to the industry-average results must use the same method and version number as the industry-average study. When comparing EPDs that include module D, the calculation method(s) used to determine impacts and benefits must be identical. The participants of the industry-average EPD will determine the method used to determine quantitative uncertainty (e.g., Monte Carlo method). To demonstrate improvement,

	manufacturer-specific EPD results must be statistically significantly lower than the industry-average EPD results, with a confidence interval of 95%. Any improvement or reduction that is not statistically significantly lower or higher than the benchmark, with a confidence interval of 95%, is considered equivalent to the benchmark. The method used to determine quantitative uncertainty in the industry-average EPD shall be used as the basis for comparison of manufacturer-specific EPDs to the average. A minimum threshold of performance improvement for each impact category shall be met in order to make comparisons in a manufacturer-specific EPD for these impact categories: 10%+ reduction in global warming potential 5%+ reduction in at least two additional impact categories
EPD updates	An update to the existing EPD, or a new EPD, may need to be developed prior to the validity period of 5 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 that would also justify the 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.

9. Part B development information

Part B review panel	This Part B was reviewed for conformance to ISO 14025:2006, ISO 21930:2017, and ACLCA PCR Open Standard v1.0 by the following parties: <table><tr><td>Beth Cassese, Chair Horizon LCA bcassese@horizonlca.com</td><td>Brandon Kuczenski, PhD, Scope 3 Consulting brandon@scope3consulting.com</td><td>Rifat A. Karim Independent Consultant rifat.chimique@gmail.com</td></tr></table>	Beth Cassese, Chair Horizon LCA bcassese@horizonlca.com	Brandon Kuczenski, PhD, Scope 3 Consulting brandon@scope3consulting.com	Rifat A. Karim Independent Consultant rifat.chimique@gmail.com
Beth Cassese, Chair Horizon LCA bcassese@horizonlca.com	Brandon Kuczenski, PhD, Scope 3 Consulting brandon@scope3consulting.com	Rifat A. Karim Independent Consultant rifat.chimique@gmail.com		
Open consultation	Sustainable Minds solicited public comments on this Part B from July 6 – August 5, 2026. This consultation period and list of parties to submit comments were made available to the panel.			
Update justification	This Part B was updated upon consideration of ISO/TS 14027:2017 and of manufacturers looking to create new EPDs beyond the validity period of the previous version of the PCR.			
Conflict statement	Funding sources used to develop this Part B were disclosed to the working group during the development process. The policies identified in Sustainable Minds' Program Governance were followed to identify and resolve any potential conflicts of interest.			
Sustainable Minds information	This Part B was developed by Sustainable Minds and participating interested parties according to the Sustainable Minds Program Governance available at http://www.sustainableminds.com/transparency-report-program/how-it-works. For questions about this or another Part B, to submit comments on this Part B, or to obtain a template for developing a transparency report, contact us using the information on the following page: http://www.sustainableminds.com/contact-us.			

10. Part B revision history

Version	Change log
1.0	November 2, 2021: Original, published by UL Solutions
2.0	August 31, 2026: Updated upon anticipation of expiration of v1.0. Made updates as suggested by the PCR committee along with other best practice assumptions, including: - Conformance to ACLCA PCR Open Standard v1.0 - Exclusion of products primarily specified for use as insulation - Change of system boundary to cradle-to-grave scope - Supply-chain-specificity score calculation accompanying EPD type label - Consideration of market-based renewable electricity purchases - Addition of warehouse/distribution center and retail scenarios to A4 - Installation updates including change in installation waste scrap rate and addition of installation energy - Additions to industry-average EPD creation requirements