Part B: Product group definition | Industrial stairways and platforms | Part B #24-003

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	American Composites Manufacturers Association (ACMA) - https://acmanet.org/		
Working group members	Jim Mellentine, Thrive ESG (PCR committee chair) John Schweitzer, American Composites Manufacturers Association (ACMA) John Busel, American Composites Manufacturers Association (ACMA) Hannah Henry, American Composites Manufacturers Association (ACMA) Bhyrav Mutnuri, Strongwell John Sloan, Legacy Platform Zlatan Siveski, Bechtel Bill Budgell, Fibergrate Composite Structures, Inc. Greg Bond, Strongwell Lucian Speriatu, Fibergrate Composite Structures, Inc. Trent Crouse, Creative Composites Group Kelsy Valko, Creative Composites Group Richard Rydin, Building Composites Dylan Broussard, AMICO Andrew Loff, Span the Gap Panagiotis Mikroudis, Covestro LLC Darren Thom, Covestro LLC Matt Chelberg, Frost Engineering & Consulting Jennifer Pinto, AMICO Scott Reeve, Creative Composites Group		
Public notices of development/ outreach	• Public notice on the Sustainable Minds website announcing the creation of a Part B on June 13, 2024: http://www.sustainableminds.com/transparency-report-program/part-b • Email blast on June 11, 2024 to mailing lists of LCA professionals, building and construction industry and trade associations, and manufacturers of industrial stairways and platforms, requesting participation on the PCR committee. • Email blast on January 22, 2025 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?	Yes	**Part B version number**	1.0
Publication date	March 3, 2025		
Validity period	03/03/2025 – 03/02/2030		
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.		

Product group

Name	Industrial stairways and platforms	**CSI MasterFormat® #**	41 67 19 Industrial Safety Equipment 05 50 00 Metal fabrications 06 71 00 Structural Composite Shapes and Plates 06 74 13 Fiberglass reinforced gratings 06 81 13 Glass fiber-reinforced plastic Railings
Description	System(s) of industrial stairways and platforms used to provide safe personnel access to elevated areas for a term as long as the reference service life.		

	Systems primarily made of fiberglass reinforced polymer (FRP) must conform with ANSI/ACMA/FGMC FG01-17-2019[1] for grating and ASCE/SEI 74-23[2] and the ACMA Guidelines for Fabrication & Installation of Pultruded FRP Structures[3]. Systems made primarily of aluminum must also follow the cradle-to-semifabrication requirements included in the latest version of the PCR for Aluminum Construction Products, UL 10010-38 (as of publication the latest version was published in February 2022 by UL). The UL Aluminum Products PCR does not cover fully fabricated products, which stairways and platforms systems are, but for harmonization purposes across the supply chain, the same requirements for upstream activities must be followed. Systems made primarily of steel must also follow the cradle-to-gate requirements included in the latest version of the PCR for Designated Steel Construction products[4]. One exception is that instead of using the declared unit of 1 metric ton in the steel PCR, the mass associated with fulfilling the functional unit of this PCR must be used. Individual components of the system of industrial stairways and platforms shall not be reported separately (i.e., this PCR cannot be used to evaluate only a stairway, platform, or any other individual element).
Exclusions	This product group does not include: • Portable ladders • Portable staging • Systems with powered mechanized conveyance components (e.g., escalators, people-movers) • Systems intended for temporary use such as scaffolding • Products primarily made of wood, which are covered by the PCR for Structural and Architectural Wood Products (UL, 2020) • Products primarily made of concrete, which are covered by the PCR for Concrete (NSF, 2019)
Geographic representativeness	North America

Program operator responsibilities

Existing PCRs, EPDs, TRs, or LCAs	• This Part B shall be used in conjunction with the latest version of Sustainable Minds Part A: LCA calculation rules and report requirements (version 2023 at the time of publication of this Part B; newest version shall be used when available) • Relevant PCR: SmartEPD: Part B PCR for Steel Construction Products (latest version). https://smartepd.com/pcr-library • Relevant PCR: UL: Product Category Rule (PCR) Guidance for Building-Related Products and Services Part B: Aluminum Construction Products https://www.shopulstandards.com/ProductDetail.aspx?productId=ULE10010-38_1_S_20220216 • Existing EPDs used to inform some aspects of this Part B: o The International EPD® System, Cosmos Construction, Cradle-to-gate with options EPD for 1 kg of galvanized staircase, 2023. https://api.environdec.com/api/v1/EPDLibrary/Files/c5c76a0b-496c-4b8b-18df-08dc8a1e81c8/Data o The International EPD® System, Weland, Cradle-to-gate with options EPD for 1 tonne of JOS Spiral Staircase, 2024. https://www.weland.com/wp-content/uploads/2024/04/epd-JOS-spiral-staircase.pdf o The International EPD® System, Eurostair, Cradle-to-gate with options EPD for one spiral staircase of 3.3m height, 2024. https://api.environdec.com/api/v1/EPDLibrary/Files/92173d0f-08bf-4bfb-c410-08dc95fad0b1/Data

[1] American Composites Manufacturers Association. FRP Composites Grating Manual for Pultruded and Molded Grating and Stair Treads. ANSI/ACMA/FGMC FG01-17-2019. Available at https://webstore.ansi.org/standards/ansi/ansiacmafgmcfg01172019
[2] American Society of Civil Engineers. Load and Resistance Factor Design (LRFD) for Pultruded Fiber Reinforced Polymer (FRP) Structures. ASCE/SEI 74-23. https://ascelibrary.org/doi/10.1061/9780784415771
[3] American Composites Manufacturers Association. Guidelines for Fabrication & Installation of Pultruded FRP Structures. https://my.acmanet.org/productdetails?id=a1B5w00001QNIqCEAX
[4] SmartEPD. Part B PCR for Steel Construction Products. (latest version). https://smartepd.com/pcr-library

	• Underlying LCA: Jena T, Kaewunruen S. Life Cycle Sustainability Assessments of an Innovative FRP Composite Footbridge. *Sustainability*. 2021; 13(23):13000. https://doi.org/10.3390/su132313000 o This PCR committee was not involved with the development of the underlying LCA. Notable assumptions and limitations associated with the underlying LCA include: o 100% of reinforcement fibers in FRP are glass. o The environmental footprint of the FRP material is from the Granta Edupack database, whereas the data for steel is primarily from the ICE database. o Construction activity quantities were not available, so construction/installation impacts were estimated based on planned construction costs. o Transport of FRP and steel systems is based on an average heavy goods vehicle with average loads. o Use and end of life activity information was not available, so the results for these stages are more uncertain. o The subject systems were in an outdoor environment which is not aligned with the indoor environment specified in this PCR, so some assumptions in the underlying LCA are not relevant. o The material data is based on a system design, not an actual built system.
Justification for new Part B if relevant non-expired PCR exists	Not applicable. At the time of publication of this Part B, an active PCR for industrial stairways and platforms was not identified.
Harmonization activities pursued	Sustainable Minds announced the creation of this product group definition to other program operators, LCA analysts, and manufacturers via email, and posted an update on its website. The UL PCR for structural and architectural wood products was found to include wood stairs and railings in its scope, so those products were excluded from the scope of this Part B to harmonize with the scope of that PCR.

Functional performance

Standard/certification (most recent edition, conformance not required for PCR conformance)	**URL**
Functional performance – **ANSI/ACMA/FGMC FG01-17-2019**	https://webstore.ansi.org/standards/ansi/ansiacmafgmcfg01172019
Functional performance – **OSHA 1910.25**	https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.25
Functional performance – **OSHA 1910.28**	https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.28

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. Module D may be optionally declared. It should be apparent as to what processes are considered in each module per the module descriptions in ISO 21930:2017 section 7.1.7. While it is unclear whether capital goods and infrastructure are significant to the overall impacts of the products, it is known that they are quantified inconsistently, varying based on the secondary data sets used and the database. 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. When reporting Global Warming Potential (GWP 100 years) per ISO 21930:2017, effects of biogenic greenhouse gas removal and emission flows shall be included in the main GWP results as required by ISO 21930 Section 7.2.7 and in additional inventory indicators describing emissions and removals of carbon as required by ISO 21930 Section 7.2.12.

Functional unit

Unit	A system of stairs, railing, and platform, installed indoors at a general climate-controlled warehouse, which provides the following function and performance: - A platform with dimensions 147.32 cm (58 inches) by 105.41 cm (41.5 in) elevated to a height of 302.26 cm (119 inches) from a reference floor. - A set of stairs 91.44 cm (36 inches) wide running from the reference floor to the platform over a horizontal distance of 447.04 cm (176 inches). o Stairs have a maximum rise of 17.78 cm (7 inches), a minimum run of 27.94 cm (11 inches), with a 2.54 cm (1 inch) overlap. o Stair risers are not included. o The stairway landing is attached to the existing structure and is stringer supported by footing at grade (i.e., not free-standing). o Stair includes sway bracing as needed to provide rigidity. - A system of guardrails and handrails on both sides of the stairs and two sides of the platform, with two guardrail heights of 53.34 cm (21 inches) and 106.68 cm (42 inches), plus a handrail height of 91.44 (36 inches) above the stairs and platform. The system shall be designated as an elevated platform with loading consistent with Table 4-1 from ASCE 7-22. The system will support a minimum live load of 2.87 kPa (60 pounds per square foot) or nonconcurrent load of 136.1 kg (300 pounds), with no environmental loading. The rails shall be designed to withstand a lateral load of 90.7 kg (200 pounds) applied to the top rail. The system shall be designed to operate up to a temperature of 48.9 C (120 F). The maximum grating open area is 60%. The allowable grading deflection is L/200 or 0.635 cm (0.25 inch). The allowable deflection of stringers and beams is L/180. The system shall be designed to be fire resistant (i.e., any fire retardants required to provide this performance must be included). The system shall be designed to have minimum safety factors according to industry standards. The material-specific industry standard and the minimum factors of safety for compression, shear, flexure, and connections, shall be disclosed in the EPD. All structural components, fasteners, clips, brackets, and adhesives required to provide the above function shall be included in the system. Note: No walls are available to provide support at the side of the stairs. An example system and bill of materials that meets the requirements is shown in Appendix 1. Environmental impacts and other indicators disclosed in the EPD shall be reported per the whole system defined above.
Rationale	Systems of stairways and platforms are usually customized to the size, shape, and conditions of the specific installation site. The configuration designed to serve as the functional unit in this PCR was determined by the committee to be a simple configuration that could be easily understood by a user/engineer/designer and quantified by the manufacturers. A manufacturer may develop other pre-engineered systems or custom configuration, if requested by a customer, and added as an additional set of LCA results in an EPD, as long as the configuration is transparently defined and quantified in the EPD.

Additional rules for comparability

1. TR/EPD types	Product-specific TR/EPDs are allowed to be developed with this PCR.
2. Additional rules to Part A	• EPDs shall disclose the LCA software and version used for modeling, and the database name(s) and version(s) used. • EPDs that use secondary data for any unit process that contributes 20% 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, dataset age, 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. • EPDs shall disclose the following information for each covered product: o Mass per functional unit – kg (lb) o The surface treatment (e.g., coating, finish) of the stairs, rails, and platform must be disclosed.
3. Default life cycle stage scenario(s)	**Extraction and upstream production (A1)** 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. Average data sets with “Global” or “Rest of World” average electricity profiles may only be used if the material source location is unknown or adapting the electricity grid is not possible.

In cases when the EPD owner purchases manufactured components, the manufacturing process activity at the upstream supplier shall be counted in this stage, in addition to the upstream raw material extraction. For example, if a manufacturer purchases steel screws used to fasten railings to a platform, the steel screw cannot be simply represented by raw steel alone. Additional manufacturing must be added to represent the manufacturing of raw steel into the steel screw. The upstream supplier location and potential scrap rate during the manufacturing process activity shall be considered.

Transport to factory (A2)

For the transport of materials that comprise greater than or equal to 5% of the product mass, transport distances shall be from primary data or estimates from common mapping software based on known supplier locations. If the mode of transport is unknown, the EPD shall assume truck transport for land transportation and sea container transport for ocean transportation.

For the transport of materials that comprise less than 5% of the product mass, transport distances should be based on known supplier locations. If the supplier location is unknown, a default distance of 1,243 miles (2,000 km) by Class 8 diesel-fueled truck shall be assumed[5] unless otherwise justified.

In cases when 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 SM Part A. The method used for this calculation must be disclosed within the EPD.

Manufacturing (A3)

The electricity data set(s) used for manufacturing shall be disclosed in the EPD.

Unless otherwise justified, the product components shall be assumed to be shipped unassembled (“knocked down”) to the installation location and assembly is done at the installation site.

Transport to site (A4)

Transport from the manufacturing site to the installation site shall be assumed to be 800 miles (1,290 km), assuming transportation by Class 8 diesel-powered truck with an empty return trip of the same distance[6]. No other warehouse or distribution center impacts should be included.

Installation (A5)

The installation stage shall include, as applicable, any ancillary materials, energy and/or water consumption, and disposal of waste materials directly related to installation of the product.

Unless otherwise justified, the following default installation assumptions shall be used[7].

- A propane-powered forklift is used to move materials to the installation location and help stand components of the product in place during assembly, with a run time of 120 minutes and a propane consumption rate of 2.72 kg (6 lbs) per hour, for a total propane consumption of 5.44 kg.
- A battery-powered scissor lift is used to install the product, with a run time of 30 minutes and a power rating of 5 kW, consuming 2.5 kWh of electricity. Assuming 85% battery charging efficiency, a total of 2.94 kWh is consumed. The US average electricity grid mix shall be used to model this electricity.

[5] This assumption was determined by the committee to be conservative based on the understanding that most manufacturers source materials domestically or at least within the same continent.
[6] This assumption was determined by the committee to be conservative based on the understanding that most manufacturers of these systems have regional customer bases.
[7] Installation assumptions for types of equipment and equipment run times are based on the expertise of system installation companies that participated in the PCR committee. Energy consumption rates for commonly used equipment were obtained from equipment manufacturer/distributor websites to calculate energy consumption for the specified scenario. Acknowledging that every installation is different, these quantities are thought to represent a reasonable average or typical installation, though specific data were not available to substantiate these assumptions.

- An electricity-powered hammer drill is used to drill anchor holes, with a run time of 30 minutes and a power rating of 1.1 kW, consuming a total 0.55 kWh of electricity. The US average electricity grid mix shall be used to model this electricity.
- A battery-powered drill and impact gun is used to assemble the product, with a run time of 60 minutes and a power rating of 0.5 kW, consuming 0.5 kWh of electricity. Assuming 85% battery charging efficiency, a total of 0.59 kWh is consumed. The US average electricity grid mix shall be used to model this electricity.
- An electricity-powered vacuum is used to clean up, with a run time of 15 minutes and a power rating of 1.2 kW, consuming a total 0.3 kWh of electricity. The US average electricity grid mix shall be used to model this electricity.
- Since pre-fabricated components are intended to require no cutting and no waste, the only waste generated at this stage is from packaging.

Estimated service life and product reference service life

This Part B uses an estimated service life (ESL) of 75 years. All use stage activity and impacts shall be counted for the full ESL period.

Stairways and platforms can be installed in a variety of environments, such as indoor, outdoor, on offshore platforms, etc. These environments can vary greatly in temperature, humidity, ultraviolet light exposure, or exposure to corrosive substances. All of these can affect the maintenance requirements and ultimate service life of the product. For the purpose of enabling uniform disclosure and better comparability among EPDs, this PCR requires disclosure using an RSL of 75 years, which reflects an expected service life when installed indoors in a general climate-controlled warehouse. This RSL is based on a consensus of industry participants in the PCR committee.

It is recognized that customers that purchase these products for more extreme environments may also want results to be disclosed for other situations. Therefore, the EPD owner may also provide optional sets of results using alternative use stage assumptions for specific scenarios such as outdoor installations subject to salt, deicing chemicals, moisture, freeze/thaw, seismic events, and/or ultraviolet light, installation at wastewater treatment plants, extreme industrial environments where corrosivity is a concern, or other conditions. An alternative RSL may also be appropriate for these optional results. If these optional results are disclosed, the EPD shall also disclose the scenario-specific assumptions and inventory for each use stage module as well as the RSL and justification for its selection.

Use or application of the installed product (B1)

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.

Maintenance (B2)

Industrial stairways and platforms may require periodic reapplication of surface treatments to maintain the specified characteristics over its service life. The manufacturer shall disclose the assumed frequency of these maintenance activities over the product service life as well as the basis for the assumed frequency.

For systems primarily made from FRP, sufficient surface friction is often achieved with the use of abrasive grit adhered to the surface. The grit wears down over time with foot traffic, and the actual wear time varies significantly based on the amount of foot traffic or equipment used on the system. For the purposes of this PCR, grit, if used in the original system, shall be assumed to be replaced every 15 years[8].

For systems primarily made from metal, expanded metal surfaces or serrations are often used to achieve sufficient surface friction. These surfaces also wear over time, depending on foot traffic and equipment exposure. For the purposes of this PCR, expanded metal or serrated surfaces shall be assumed to be replaced every 37.5 years (i.e., one replacement during the 75-year default RSL)[9].

Other planned maintenance activities recommended by the manufacturer, if applicable, shall be included. If included, the EPD shall disclose any assumptions made for quantifying the activity,

[8] This assumption was determined by the committee to be a typical lifetime of grit based on anecdotal experiences of the participating committee members, though no data were available to substantiate this assumption.
[9] This assumption was determined by the committee to be a typical lifetime of expanded metal surfaces or serrations based on anecdotal experiences of the participating committee members, though no data were available to substantiate this assumption.

	including the frequency, the materials and/or energy consumed per event, and quantity used per event and per ESL. **Repair (B3)** Repair of industrial stairways and platforms is uncommon and expected to be insignificant[10]. Zero activity may be assumed for this stage unless otherwise justified or if they are appropriate for optional use stage scenario results. **Replacement (B4)** For the baseline RSL of 75 years, no replacements are required since it is the same length as the building ESL. If an alternative RSL is selected for optional scenario results, replacements for the duration of the ESL must be counted proportionally to the nearest hundredth of a product. For example, if an RSL of 30 years is used, then 1.50 replacement systems must be included for the 75-year ESL results (45 remaining years in the ESL divided by 30-year RSL). Replacements must include the sum of impacts from stages A1-A5 and C1-C4 multiplied by the number of replacements. **Refurbishment (B5)** Refurbishment is not expected to occur in the normal operation of the product[10]. Zero activity may be assumed for this stage unless otherwise justified or if they are appropriate for optional use stage scenario results. **Operational energy use (B6) and operational water use (B7)** Electricity and water are not expected to be used to fulfill the design criteria during the lifetime of the product[10]. Zero activity may be assumed for this stage unless otherwise justified or if they are appropriate for optional use stage scenario results. **Deconstruction/demolition (C1)** The deconstruction/demolition stage shall include, as applicable, any ancillary materials, energy and/or water consumption. Unless otherwise justified, the product shall be assumed to be disassembled and removed from the building at the end of the product's service life using the following default disassembly assumptions[11]. • A propane-powered forklift is used to move materials to a dumpster and help stand components of the product in place during disassembly, with a run time of 120 minutes and a propane consumption rate of 2.72 kg (6 lbs) per hour, for a total propane consumption of 5.44 kg. • A battery-powered scissor lift is used to disassemble the product, with a run time of 30 minutes and a power rating of 5 kW, consuming 2.5 kWh of electricity. Assuming 85% battery charging efficiency, a total of 2.94 kWh is consumed. The US average electricity grid mix shall be used to model this electricity. • An electricity-powered saw/grinder is used for cutting components, with a run time of 30 minutes and a power rating of 1.1 kW, consuming a total 0.55 kWh of electricity. The US average electricity grid mix shall be used to model this electricity. • A battery-powered drill and impact gun is used to disassemble the product, with a run time of 60 minutes and a power rating of 0.5 kW, consuming 0.5 kWh of electricity. Assuming 85% battery charging efficiency, a total of 0.59 kWh is consumed. The US average electricity grid mix shall be used to model this electricity. • An electricity-powered vacuum is used to clean up, with a run time of 15 minutes and a power rating of 1.2 kW, consuming a total 0.3 kWh of electricity. The US average electricity grid mix shall be used to model this electricity.

[10] This assumption was determined by the committee to be appropriate based on the expertise of the participating committee members, though no data were available to substantiate this assumption.
[11] Disassembly assumptions are based on the expertise of companies that participated in the PCR committee. Disassembly is anticipated to require a similar effort as the installation, hence the similarity in assumptions. Acknowledging that every disassembly is different, these quantities are thought to represent a reasonable average or typical disassembly, though specific data were not available to substantiate these assumptions.

	Transport to waste processing or disposal (C2) 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 this writing). Outside of North America, other appropriate regional or national assumptions may be used. **Waste processing (C3)** Manufacturers shall include any processing required to further disassemble or prepare the industrial stairways and platforms for waste prior to final disposal. As a default assumption, no activity is anticipated in this stage and may be assumed to be zero unless otherwise justified[10]. **Waste disposal (C4)** Non-metal industrial stairways and platforms manufacturers shall assume the product is sent to a landfill in North America, unless otherwise justified. Landfill processes shall be modeled based on the mass of distinct materials in the industrial stairways and platforms and availability of secondary data to model those materials. Metal industrial stairway and platform manufacturers shall assume the system is recycled at a rate of 97%[12], unless otherwise justified, with the remaining 3% sent to landfill. This aligns with the AISI recycling rate for structural steel. Stairway and platforms systems are very similar in that they can easily be removed from the building and separated into parts without commingling with other materials, and the mass of the systems makes it economically valuable to recover in recycling instead of thrown in a landfill. Prices for recycled aluminum can be higher than steel, so this assumption also applies to aluminum stair systems. Landfill processes shall be modeled based on the mass of distinct materials in the industrial stairways and platforms and availability of secondary data to model those materials. **Benefits and loads beyond the system boundary (D), Optional** Since some industrial stairways and platforms may be recycled or otherwise recovered at end of life, manufacturers may optionally declare such benefits and burdens, separately from the life cycle system. Refer to section 6.6 of the PCR Part A for specific requirements.
4. Additional data quality requirements	Foreground system processes under the operational control of the EPD owner shall be inventoried using primary data – i.e., data this is obtained by direct measurement or a calculation based on a direct measurement from the source of the activity. Foreground system processes outside the operational control of the EPD owner should be inventoried using primary data if available, but otherwise it may be inventoried using estimates or assumptions which reflect contemporary system conditions and subject to requirements in the Part A PCR. Background system processes should be modeled with site-specific data (inventory data or LCA results) from value chain collaborators, if available. Otherwise, secondary data sets may be used. For FRP products, secondary data sets shall be selected according to the following hierarchy, from most to least preferable: 1. ACMA's LCA/EPD Generator Tool. As of the publication date of this PCR, this tool is still in development but will be an independently-verified database for all major types of raw material used to manufacture FRP products. This will be the preferred data source once it is available. Contact ACMA to confirm availability and access instructions. The tool will be publicly available and non-member companies will need to pay a fee for use of the tool. 2. If the above tool generator is not available, ACMA's life cycle inventory database for common raw materials for manufacture of composite products should be used. There are currently two data libraries published in the Federal LCA Commons. The first, published in 2023[13], includes vinyl ester resin and an average pultruded product. The second, published in 2012[14], includes unsaturated polyester, e-glass, and rigid parts made from various processing methods. It is acknowledged that the 2012 study represents data more than 10 years old, but it is considered by ACMA to be the best

[12] American Iron and Steel Institute and Steel Manufacturers Association. Determination of Steel Recycling Rates in the United States. July 27, 2021. Assumes metal utility pole recycling is the same as structural steel. https://www.steel.org/wp-content/uploads/2021/08/AISI-and-SMA-Steel-Recycling-Rates-Report-Final-07-27-2021.pdf
[13] American Composites Manufacturers Association. Life Cycle Assessment of Vinyl Ester Resin, Polyurethane Precursors, and Pultrusion. 2023. Data sets available at https://www.lcacommons.gov/lca-collaboration/National_Renewable_Energy_Laboratory/USLCI_Database_Public/dataset/SOURCE/8779cd2c-6aa4-41c4-ae41-7590ff3eba02
[14] American Composites Manufacturers Association. Life Cycle Inventory of Polymer Composites. 2012. Data sets available at https://www.lcacommons.gov/lca-collaboration/National_Renewable_Energy_Laboratory/USLCI_Database_Public/dataset/SOURCE/b2a418f7-ab6a-3faa-a041-861697035edd

	available data until the above generator tool is complete. 3. An alternative data source for which the EPD shall provide justification. For a deviation where the input contributes at least 20% to the total A1-A3 result for any impact category, the justification shall include a description of the data source's representativeness and a data quality assessment following ACLCA's "Assessing Data Quality of Background Life Cycle Inventory Datasets." Acceptance of such deviation is at the discretion of the LCA and EPD verifier and Program Operator. During the development of this PCR, publishers of some commonly used databases were making updates to oil and natural gas refining and other upstream material processing assumptions that might significantly increase or decrease impacts compared to previous versions of those data sets. To improve comparability between EPDs that use the older versus newer versions of data sets, the following additional disclosure is required. For secondary data sets that contribute 20% or more to impacts as identified in the Additional Rules to Part A (above), the LCA background report must demonstrate that each data set used in the LCA has been compared to the previous version of the data set in the impact categories of global warming, acidification, eutrophication, and photochemical oxidation (smog). If the data set used has greater than +/- 10% variance in the compared impacts, that information shall be disclosed in the EPD.

Additional LCA calculation rules

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

Industry-wide TR/EPD additional rules

Requirements	Industry-average EPDs shall not be developed using this PCR.

Part B development information

Part B review panel	This Part B was reviewed for conformance to ISO 14025, ISO 21930:2017, and the ACLCA PCR Open Standard v1.0 by the following parties: Hugues Imbeault-Tétreault, ing., M.Sc.A., Chair Groupe AGÉCO hugues.i-tetreault@groupeageco.ca Terrie Boguski, Harmony Environmental tboguski@harmonyenviro.com Jack Geibig Ecoform Jgeibig@ecoform.com
Open consultation	Sustainable Minds solicited public comments on this Part B from January 22, 2025 – February 21, 2025. This consultation period and list of parties to submit comments were made available to the review panel.
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.

Appendix 1 – Standard stair system

ITEM NO.	SYSTEM COMPONENTS
1	STAIR TREAD
2	GRATING PANEL
3	TREAD SUPPORT
4	STRINGER
5	BEAM
6	COLUMN
7	CONNECTION CLIP
8	BRACING
9	GUARDRAIL
10	KICK PLATE
11	HANDRAIL
12	INTERNAL FITTINGS, SPACERS AND EPOXY
13	316SS HARDWARE AND FASTENERS
14	CONCRETE ANCHORS