Part B: Product group definition | Cladding Support Components and Systems v1.1

Initiated by	**Rainscreen Association in North America (RAiNA)** jxec@rainscreenassociation.org https://rainscreenassociation.org/
Other company(s) and organization(s) involved	**Members of RAiNA:** Cascadia Windows & Doors Knight Wall Systems CLADIATOR Hohmann & Barnard Northern Facades Limited

Product group

Name	**Cladding Support Components and Systems**	**CSI MasterFormat® #(s)** Examples provided not exhaustive	07 05 43 Cladding Support System 07 48 00 Rainscreens
Description Define the types of products included under this Part B	Components or systems that provide support of exterior cladding and may also limit thermal transfer through the building envelope. *Note: This PCR does not cover masonry ties.*		
New Part B request? Yes / No	Yes	**Is this an update to an existing Part B?** Yes / No	No
Validity period	10/31/2022 – 10/30/2027		
Existing PCRs, EPDs, TRs, or LCAs This information will be used to identify additional rules for comparability and to substantiate the rationale for creating a Part B.	There is no existing PCR for cladding support components or systems. An EPD exists for GREENGirt, manufactured by Advanced Architectural Products (AAP), using a Construction Products and Construction Services PCR v2.3 (2012). The International EPD System is the program operator. Advanced Architectural Products. Environmental Product Declaration: GREENGirt. Registration number: S-P-01552. November 11, 2019.		
Relevant literature and published material	Refer to the technical bulletin available from the Rainscreen Association in North America: https://rainscreenassociation.org/wp-content/uploads/2021/08/D-188-001-rev-0-RAiNA-Technical-Bulletin-Defining-Rainscreen-Wall-Performance-1.pdf Refer to the following bulletin available from RDH Building Science: https://www.rdh.com/wp-content/uploads/2017/07/2018-27-03-RDH-Cladding-Attachment-Solutions-Brochure-V4-Web.pdf *Note for products developed since this 2018 publication – refer to individually published performance data by manufacturer.		

System boundary

System boundary	The type of EPD shall be specified as cradle to gate or cradle to installation. The modules considered in the LCA shall be described in brief as per “System boundaries” outlined in ISO 21930:2017 section 5.2 (and optionally EN 15804:2012 + A1:2013 section 6.2). For reference, the life cycle stages are shown in Figure 1 as depicted in ISO 21930:2017. It should be apparent as to what processes are considered in what modules per the module descriptions in ISO 21930:2017 section 7.1.7. 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. Capital goods and infrastructure flows for this product do not significantly affect the results and conclusions of the LCA and shall be excluded from unit processes used to model the LCIA.

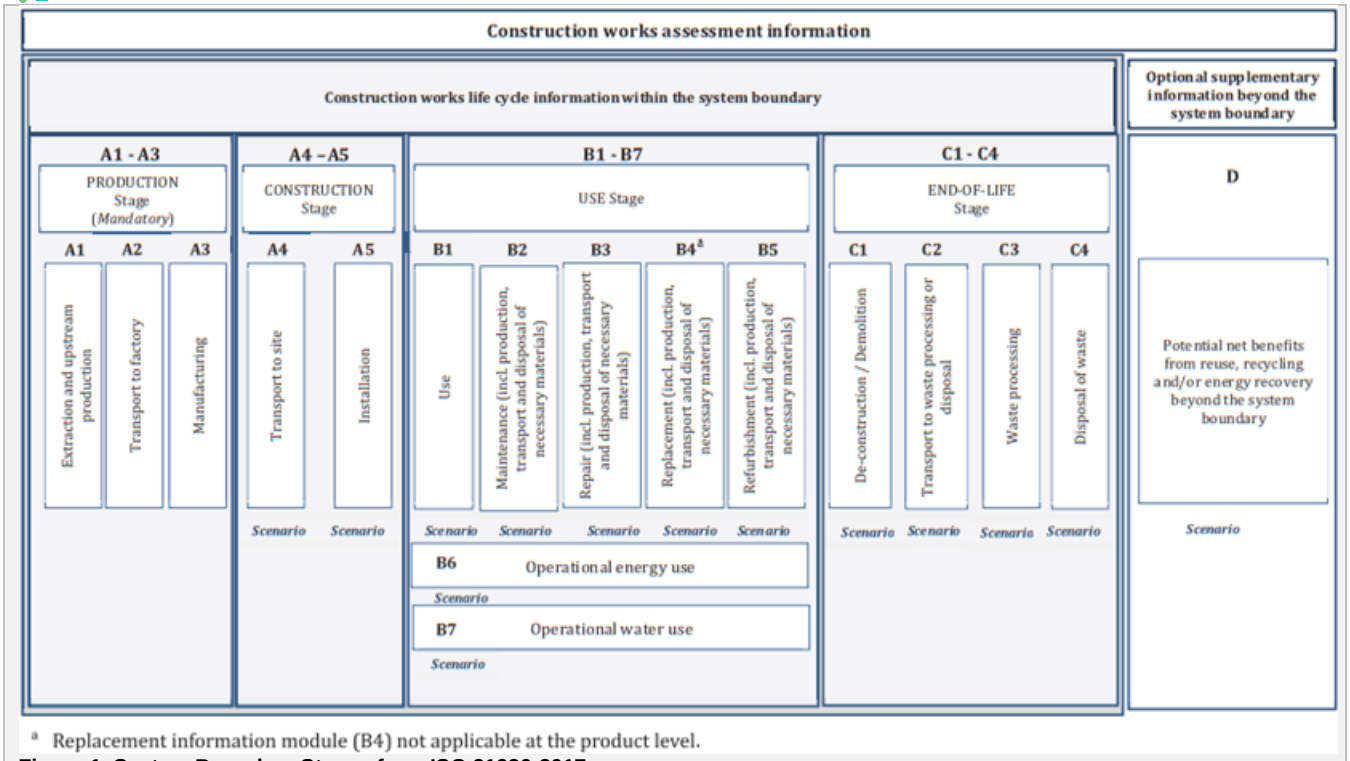

Figure 1. System Boundary Stages from ISO 21930:2017

Technical data

Product properties

The following properties of the product declared in the EPD shall be reported. If any are not applicable to the reported product then state “Not applicable”.

Table 1. Product properties[1]

Name	Value	Unit
Cladding support type	(Specify all components that apply: Clip; Rail/track; Hat channel; Continuous girt)	
Exterior cavity depth (from sheathing/membrane to face of the girt)		mm (inch)
Mass per functional unit		kg
Number of clips per functional unit		pieces
Length of rails, hat channels, and/or girts per functional unit; reported separately by component		m (inches)

[1]The declared unit includes both the rail and the clip, even when a manufacturer may produce the rail but not the clip, or vice versa.

While thermal performance is an important function of cladding support components and systems, the industry does not have a uniform method of measuring thermal performance. As harmonized methods develop, manufacturers are encouraged to disclose thermal performance according to standards such as ASTM C1363, ASTM E1530, or third-party modeling. Preliminary industry discussions include a possible uniform test with performance classes that may be available in the future. This Part B may be revised if/when such a standard is developed.

Declared unit

Unit

To facilitate consistent reporting of results across the product category, the declared unit shall be 0.6096 m (24 linear inches) of cladding support system, consisting of continuous components (rails and/or accessories) and if clips, brackets, spacers, or discrete accessories are present, spaced at one per 24 inches. The exterior cavity depth must be sufficient to accommodate 101.6 mm (4 inches) of insulation (commonly 4 inches of insulation plus depth of support components outboard of the insulation layer to which the cladding is attached). The declared unit shall exclude fasteners. See Figure 2 for cladding support diagram with noted inclusions and exclusions.

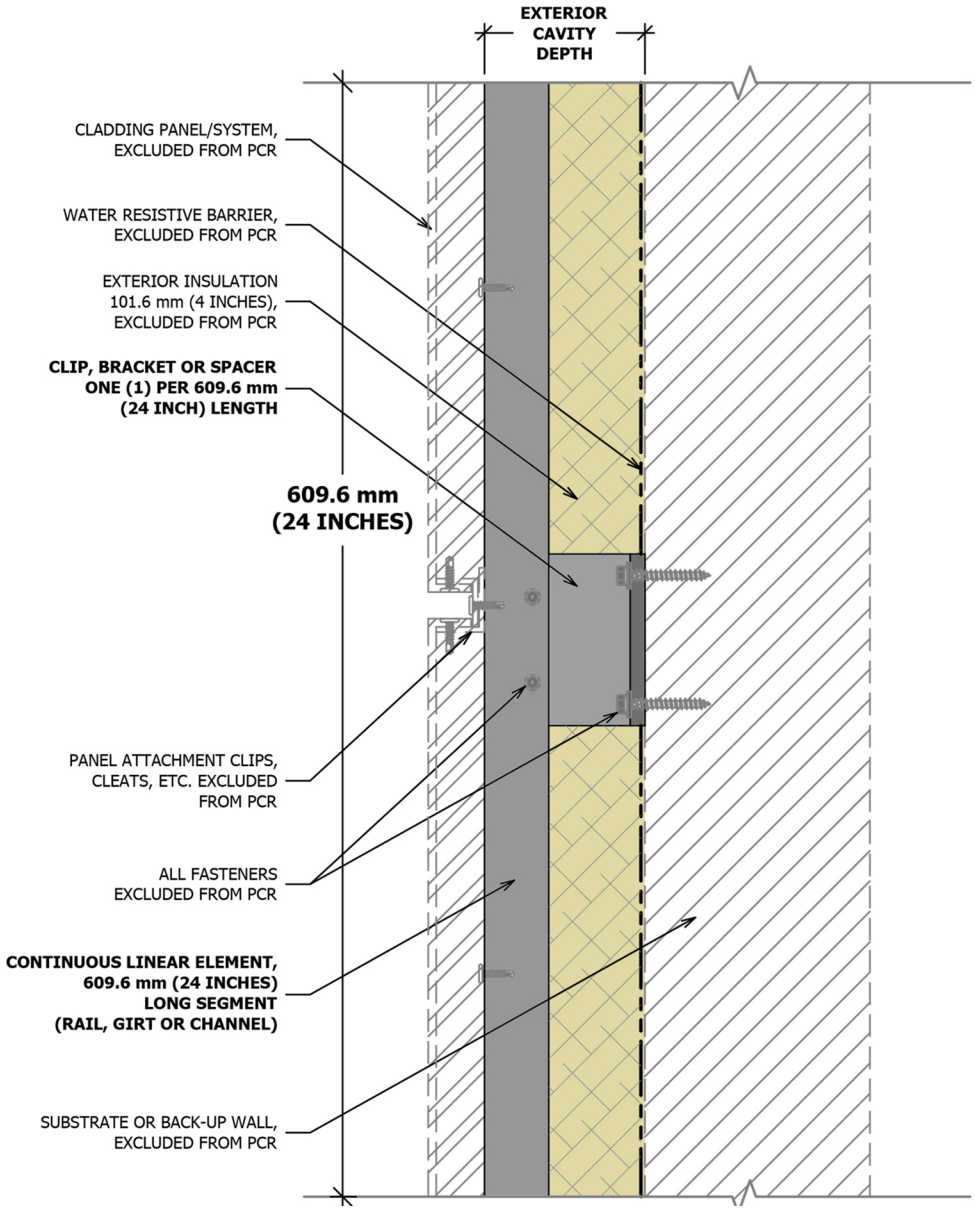

Figure 2. Cladding support system drawing. Elements labeled in bold text are included in the scope of the system.

The quantity and nature of support components and systems to fulfill this scenario must be commercially available.

Since cladding support components and systems are often composed of pieces that are quantified and purchased by number of units (for clips) or by linear length (for rails, hat channels, or continuous girts), manufacturers shall also report impacts as follows (in addition to the required declared unit above):

	Clip Components Report impacts for a single clip component, including any inserts for thermal isolation or structural support, used in a cladding support system, excluding any fasteners or rails (z-girts or hat channels). **Rails/Hat Channels/Continuous Girts** Report impacts for a 0.3048 meter (12 inches) length of continuous girt, including any inserts for thermal isolation or structural support (including components from the substrate to the cladding), used in a cladding support system, excluding any fasteners.
Rationale	Cladding support components and systems provide mechanical support to exterior cladding materials. The number of components used per area of cladding varies widely depending on mechanical and design requirements. The declared unit will enable greater comparability among a diverse set of products while also enabling users of the EPD to appropriately scale results according to the quantity of components in their building.

Additional rules for comparability

1. Clarification More product group specificity as needed	Manufacturers in this product category often maintain multiple supplier relationships for the same material or part. In these cases, 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, of a particular material or part may be excluded from the calculation of weighted average transport distance, subject to existing cut-off requirements in ISO 21930.
2. Additional rules to Part A	The EPD should include additional content outlined in the Sustainable Minds Part A compatibility appendices to be compliant with ISO 21930. http://www.sustainableminds.com/files/transparency/SM_Part_A_Compatibility_appendices_v2018.pdf
3. Default life cycle stage scenario(s)	If modules A4 and A5 are optionally declared, the following scenario information shall be provided. Transportation to the building site (A4) The following information shall be provided to specify transport after the manufacturing gate to the building site. Multiple transport modes shall be disclosed separately.

Table 2. Transport scenario parameters

Name	Value	Unit
Fuel type		
Vehicle fuel efficiency		l/100 km
Vehicle type		
Transport distance		km
Capacity utilization (including empty runs, specify whether mass or volume based)		%
Weight of products transported		kg
Volume of products transported		m^3
Capacity utilization volume factor (factor: =1 or <1 or ≥1 for compressed or nested packaging products)		

In the absence of primary data or other justification, the EPD shall assume product is transported via diesel-powered truck/trailer from the manufacturing site to the building site for a distance of 1000 km.

Product Installation (A5)

A description of the type of processing, machinery, tools, ancillary materials, etc. to be used during installation shall be included. Information on industrial and environmental protection may be included in this section.

Any waste treatment included within the system boundary of installation waste should be specified.

Table 3. Installation scenario parameters

Name	Value	Unit
Ancillary materials		kg
Net freshwater consumption specified by water source and fate (e.g., X m3 river water evaporated, X m3 city water disposed to sewer)		m^3
Other resources		kg
Electricity consumption		kWh
Other energy carriers		MJ
Product loss per declared unit		kg
Waste materials at the construction site before waste processing, generated by product installation		kg
Mass of packaging waste specified by type		kg
Output materials resulting from on-site waste processing (specified by route; e.g. for recycling, energy recovery and/or disposal)		kg
Biogenic carbon contained in packaging		kg CO_2
Direct emissions to ambient air, soil and water		kg
VOC emissions		$\mu g/m^3$

VOC emissions are not typically relevant for this product category and shall be reported as zero unless otherwise justified. If reported, the VOC emissions shall be determined in accordance to "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers- version 1.2" CA Specification 01350.

In the absence of primary data, the EPD shall assume waste is transported via diesel-powered truck/trailer from the building site to the waste processing site for a distance of 100 km.

Should the Product Properties be revised at a later date to include a uniform method of measuring thermal performance, then climate zones will be added to this section accordingly at that time.

4. Additional data quality requirements

Pertaining to the product group

Data Selection and Data Quality Requirements

The requirements ISO 21930:2017 Section 7.1.9 shall be used in developing the EPD.

The data selection and collection procedures shall be documented in the project report.

Primary data shall be collected for every process in the product system under the control of the organization developing the LCA. Primary data shall be collected using either direct measurement or facility personnel's best engineering estimates based on actual production if measurements are not available. The method of collection shall be specified for each process in the LCA report.

The specified secondary sources should have temporal, geographic, and technological coverage appropriate to the scope of the product category. The system boundaries of the secondary sources should be equivalent to the product system specified in the PCR and reference flows should be adaptable to the product system specified in the PCR. Allocation procedures used in the specified secondary sources should be appropriate for the product category.

All data sources shall be specified, including database and year of publication.

Secondary data sources from regions other than the primary market may be used only if primary market data are unavailable in any commercial database. The substitute source shall be documented.

Specific data derived from specific production processes shall be the first choice as a basis for calculating an EPD.

Manufacturer-specific data sets shall be based on 12 consecutive months of averaged data; deviations shall be justified in the project report. If future production conditions are to be incorporated at the time of generating the EPD, primary data must be available for a minimum of 3 months which provides a representative set of data for the new process.

An evaluation of data quality, including temporal, geographical, technological representativeness, and completeness, shall be included in the project report.

If the data quality assessment gives sufficient reason to believe that any of the employed generic material or process LCI data is not representative of the product(s) under study and may introduce error to the reported impact category results. If the non-representative data represents more than 1%

	of the mass or energy of the system, a sensitivity analysis shall be conducted, in which the quantity of material/process shall be analyzed for a range of half to twice the reference flow of the unit process. In addition, a reasonable effort shall be made by the declaring organization to improve the data quality either by 1) collecting primary data on the material or process in question from suppliers or process operators, 2) developing LCI data based on other data sources like scientific literature, equipment specs, or trade publications, or 3) assessing whether more representative LCI data is available. If none of these options is viable within given constraints, the source and nature of the expected error shall be documented in the project report and a disclaimer should be added to the EPD that the reported values are likely an over- or underestimate of potential environmental burdens.

Additional LCA calculation rules

N/A	Optional	Required	*Indicate whether conformance is the manufacturer's choice or required for TRs/EPDs. Refer to Part A: Compatibility appendices for content requirements.*
		X	ISO 21930:2017

Industry average EPD requirements

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

Glossary

Part B-specific definitions	Clip and rail – Cladding support system that consists of vertical and/or horizontal girts (rails) attached to or through intermittent clips that are attached back to the structure through the exterior insulation. *Adapted from: RDH Building Science Inc. Cladding Attachment Systems Brochure. Version 4. April 2018. Page 11.* Girt – A continuous member (typically "Z"- or "hat"-shaped profiles profiles) attached vertically or horizontally to the back-up wall and wherein cladding is attached directly to the outer flange of the girts. Girts will be oriented to meet cladding manufacturer and design requirements. *Adapted from: RDH Building Science Inc. Cladding Attachment Systems Brochure. Version 4. April 2018. Page 6.* Exterior Cavity – Space in an enclosure wall assembly between the cladding and the water resistive barrier. Rainscreen Cavity – Space in an enclosure wall assembly between the cladding and the water resistive barrier that provides a passive means of directing liquid water to the exterior and sufficient airflow to remove water vapor. *RAiNA Technical Bulletin: Defining Rainscreen Wall Performance. August 2021. Page 1.*

Part B revision history

Version	Change log
1.0	October 31, 2022: Original
1.1	September 25, 2026: Added footnote to Table 1 clarifying that the declared unit includes both the rail and the clip, even when a manufacturer may produce the rail but not the clip, or vice versa.