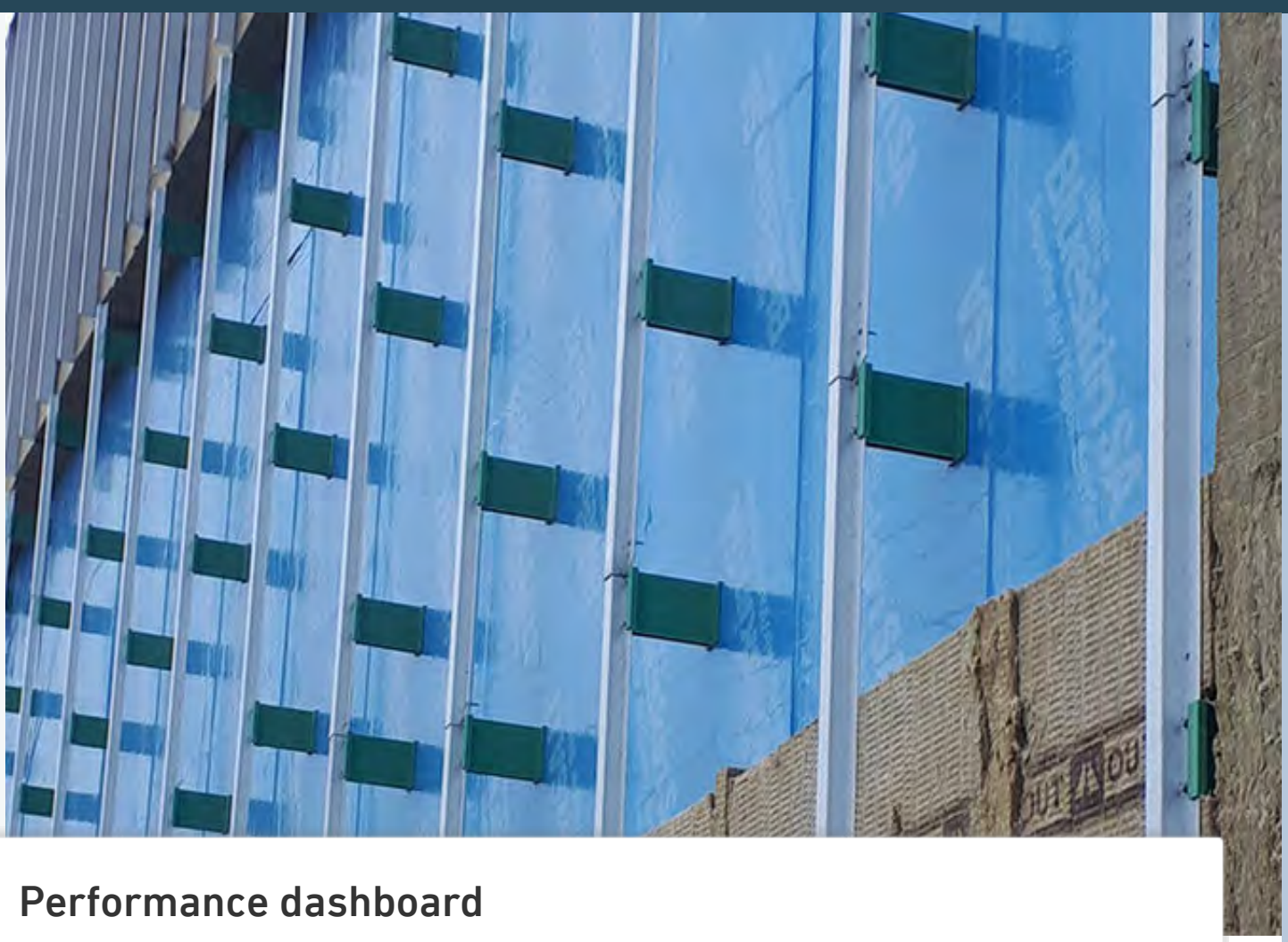
CASCADIA WINDOWS & DOORS

Cascadia Clip®

The Cascadia Clip® allows architects and specifiers to design thinner, lighter and more cost-effective exterior cladding assemblies, while at the same time measurably improving a building's overall energy performance. Acting as a thermal break between the structure and the exterior cladding, the Cascadia Clip® fiberglass spacer can be used in steel frame, concrete and wood construction buildings, and is compatible with semi-rigid mineral wool, rigid foam—polystyrene, polyiso and others— and spray foam insulations.



Performance dashboard

Features & functionality

Available in 8 different sizes

Carrying a comprehensive IAPMO-UES code evaluation

Fully adjustable and compatible with vertical and horizontal cladding supports

Free online spacing calculator available to optimize spacing and performance

Pre-punched Galvalume™ AZM 150 (AZ-50) - 18 gauge z-girts and hat channel available

Dual-layer coated (NZF 3000) and stainless steel fasteners available

Visit Cascadia Windows for more product information:
Cascadia Clip®,
Cascadia Clip® Spacing Calculator

MasterFormat® 07 05 43
Cascadia Clip® Guide Spec
Cascadia Clip® Technical Data Sheet

For spec help, contact us or call 604-857-4600

Environment & materials

Improved by:

Living Building Challenge Declare Red List Approved

Made from non-organic, chemically inert pultruded fiberglass, the clip is not susceptible to corrosion, rot, decay, mildew, insect damage

Used in successful NFPA 285 testing

Designed & manufactured in North America

Modelled service life of 200 years

Certifications, rating systems & disclosures:

IAPMO - UES

Red List Approved

Intertek Report (NFPA 285 acceptance)

RDH Structural Report

RDH Thermal Modelling

See LCA, interpretation & rating systems

SM Transparency Report (EPD)™

EPD	LCA
3rd-party reviewed	✓
	Transparency Report (EPD)
3rd-party verified	✓

Validity: 01/23/24 – 01/22/29
CAS – 01232024 – 001

MATERIAL HEALTH	Material evaluation
Self-declared	✓

This environmental product declaration (EPD) was externally verified by Ecoform, LLC, according to ISO 14044; ISO 21930:2017; SM Part A: LCA calculation rules and report requirements, 2023; SM Part B: Cladding Support Components and Systems; and ISO 14025:2006.

In accordance with ISO 14044 and the referenced PCR, the life cycle assessment was conducted by Sustainable Minds and critically reviewed by Ecoform, LLC.

Ecoform, LLC
11903 Black Road
Knoxville, TN 37932
(865) 850-1883
www.ecoform.com

SUMMARY

Reference PCR
SM Part B: Cladding Support Components and Systems, 2022

Regions; system boundaries
North America; Cradle-to-gate

Declared unit
0.6096m (24 linear in) of cladding support system: one single clip unit & metal rails with clip spaced at one per 24in, w/ exterior cavity depth sufficient to accommodate 101.6mm (4in) of insulation plus depth of support components outboard of insulation layer to which the cladding is attached.

LCIA methodology; LCA software; LCI databases
TRACI 2.1; SimaPro Analyst 9.5; ecoinvent v3.9, Industry data 2.0, and US-EI 2.2

Public LCA
Cascadia Clip® Fiberglass Thermal Spacer

Cascadia Windows & Doors
#101 5350B 275 Street
Langley, BC, Canada V4W 0C1
cascadiawindows.com
(604) 857-4600

Contact us

LCA results & interpretation

Cascadia Clip®

LCA results & interpretation | EPD additional content

Scope and summary

☑ Cradle to gate ○ Cradle to gate with options ○ Cradle to grave

Application
The Cascadia Clip® fiberglass thermal spacer is a thermally-improved cladding support product created by combining glass fibers and catalyzed polyester resin in the pultrusion process. The product creates a thermal break separating the building structure from the exterior cladding support framing and is available in eight different sizes to accommodate insulation thicknesses.

Declared unit
The declared unit is 0.6096 m (24 linear inches) of the Cascadia Clip® fiberglass thermal spacer support system, consisting of a single clip unit and metal rails with the clip spaced at one per 24 inches. The exterior cavity depth is sufficient to accommodate 101.6 mm (4 inches) of insulation plus depth of support components outboard of the insulation layer to which the cladding is attached. Fasteners are excluded.

Manufacturing data
Reporting period: May 2022 – April 2023
Location: British Columbia, Canada

Material composition greater than 1% by weight

MATERIAL	%WT
Galvanized steel	60-65%
Glass fiber	15-20%
Resin	10-15%
Packaging, pallet	2-3%
Packaging, cardboard box	<1%
Packaging, stretch wrap	<1%

Total impacts by life cycle stage [mPts/decl unit]

LIFE CYCLE STAGE	MPTS/DECL. UNIT
Raw material acquisition	1.92E-01
Transportation	1.40E-02
Manufacturing	3.70E-03

What's causing the greatest impacts

All life cycle stages
Activities during the supply of raw materials (A1) are responsible for much of the impacts in each impact category. The next highest impact contributor is transportation (A2) in most of the impact categories. Manufacturing (A3) accounts for a notable impact only in the ozone depletion and global warming impact categories.

Raw materials acquisition
This stage (A1) dominated the results for all impact categories. This module includes the raw materials acquired and preprocessed by the suppliers, including upstream packaging. The glass fibers and catalyzed polyester resin are combined in the pultrusion process. This stage has the highest contribution across the total ten impact categories compared to the transportation and manufacturing stages.

Transportation
Transportation (A2) of raw materials is the second highest contributor to all product life cycle impacts. This module includes the raw material transportation from suppliers to the Cascadia manufacturing facility. Most of the ingredients sourced in North America are transported by semi-truck, whereas materials sourced from overseas use a mix of road transportation by semi-truck and sea transportation by ship.

Manufacturing
Manufacturing (A3) is the smallest contributor to all product life cycle impacts. This module includes clip fabrication and manufacturing waste treatment processes. The clip fabrication process includes cutting the fiberglass, drilling, packaging, and cleaning. The metal rail steel is produced and coated with Galvalume™ corrosion-resistant coating. Fiberglass production waste, incoming raw material packaging waste, and non-hazardous wastes are transported to a landfill, and recyclable packaging wastes are transported to a recycling facility or reused within the plant.

Sensitivity analysis
Sensitivity analyses were performed to check the robustness of the results where the highest potential environmental impacts are occurring. As the bulk of impacts are attributed to raw materials acquisition and transportation, a sensitivity analysis was conducted to explore the possibility of changing one of the raw materials suppliers to a more adjacent supplier.

Global warming potential was evaluated for sensitivity since Cascadia is interested in the potential CO_2-equivalent emissions of its products. The change in supplier location to one who was local to Canada resulted in a +/-3% change in total life cycle impacts.

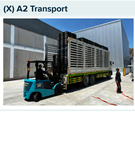
How we're making it greener

The Cascadia Clip® was created to help measurably improve a building's overall energy performance, by reducing thermal bridging through the exterior cladding assembly without sacrificing structural or fire performance.

- Made from non-organic, chemically inert pultruded fiberglass, the clip is not susceptible to corrosion, rot, decay, mildew, insect damage
- Used in successful NFPA 285 testing
- Carries a comprehensive IAPMO-UES code evaluation
- Designed & manufactured in North America
- Modelled service life of 200 years

See how we make it greener

LCA results

LIFE CYCLE STAGE	A1 RAW MATERIAL SUPPLY	A2 UPSTREAM TRANSPORT	A3 MANUFACTURING
Information modules: Included (X) | Excluded (MND)* *Modules A4, A5, B, C, and D are excluded.	**(X) A1 Raw material supply** 	**(X) A2 Transport** 	**(X) A3 Manufacturing** 

SM Single Score

Impacts per declared unit	1.92E-01 mPts	1.40E-02 mPts	3.70E-03 mPts
Materials or processes contributing >20% to total impacts in each life cycle stage	Energy and materials consumed during metal and glass fibers processing.	Truck transportation to Cascadia facility.	Energy consumed during clip fabrication (electricity and fuels).

TRACI v2.1 results per declared unit

LIFE CYCLE STAGE	A1 RAW MATERIAL SUPPLY	A2 TRANSPORT	A3 MANUFACTURING
Ecological damage			
Impact category / **Unit**			
Acidification — **kg SO_2 eq**	1.09E-02	2.62E-03	6.18E-05
Eutrophication — **kg N eq**	2.38E-03	1.13E-04	1.94E-05
Global warming — **kg CO_2 eq**	3.61E+00	2.15E-01	1.14E-01
Ozone depletion — **kg CFC-11 eq**	5.09E-08	3.40E-09	1.07E-09
Human health damage			
Impact category / **Unit**			
Carcinogenics — **CTU$_h$**	2.95E-08	1.67E-10	1.91E-11
Non-carcinogenics — **CTU$_h$**	1.57E-07	1.86E-08	8.71E-10
Respiratory effects — **kg $PM_{2.5}$ eq**	1.35E-03	1.79E-04	4.79E-06
Smog — **kg O_3 eq**	1.57E-01	4.84E-02	1.69E-03
Additional environmental information			
Impact category / **Unit**			
Fossil fuel depletion — **MJ surplus**	4.65E+01	2.80E+00	1.52E+00
Ecotoxicity — **CTU$_e$**	2.54E+00	3.53E-01	1.50E-03

References

LCA Background Report
Cascadia Cascadia Clip® Fiberglass Thermal Spacer LCA Background Report, Cascadia 2023; SimaPro Analyst 9.5; ecoinvent v3, Industry data 2.0, and US-EI 2.2 databases; TRACI 2.1.

ISO 14025, "Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services"

ISO 21930:2017, "Sustainability in Building Construction — Environmental Declaration of Building Products" serves as the core PCR along with Sustainable Minds Part A.

SM Part A: LCA calculation rules and report requirements, version 2023
August, 2023. Part A review conducted by the Sustainable Minds TAB, tab@sustainableminds.com.

SM Part B: Cladding Support Components and Systems, 2022
Oct 31, 2022. Part B review conducted by the Sustainable Minds TAB, tab@sustainableminds.com.

Download PDF SM Transparency Report/ EPD

SM Transparency Reports (TR) are ISO 14025 Type III environmental declarations (EPD) that **enable purchasers and users to compare the potential environmental performance of products on a life cycle basis.** They are designed to present information transparently to make the limitations of comparability more understandable. Environmental declarations of products that conform to the same PCR and include the same life cycle stages, but are made by different manufacturers, may not sufficiently align to support direct comparisons. They therefore cannot be used as comparative assertions unless the conditions as defined in ISO 14025 Section 6.7.2 'Requirements for Comparability' are satisfied. In order to support comparative assertions, this EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. Any EPD comparison must be carried out at the building level per ISO 21930 guidelines, use the same sub-category PCR where applicable, include all relevant information modules, be limited to EPDs applying a functional unit, and be based on equivalent scenarios with respect to the context of construction works. Some LCA impact categories and inventory items are still under development and can have high levels of uncertainty. To promote uniform guidance on the data collection, calculation, and reporting of results, the ACLCA methodology (ACLCA 2019) was used.

Rating systems

The intent is to reward project teams for selecting products from manufacturers who have verified improved life-cycle environmental performance.

LEED BD+C: New Construction | v4 - LEED v4
Building product disclosure and optimization

Environmental product declarations

○ Industry-wide (generic) EPD	½ product
☑ Product-specific Type III EPD	1 product

LEED BD+C: New Construction | v4.1 - LEED v4.1
Building product disclosure and optimization

Environmental product declarations

○ Industry-wide (generic) EPD	1 product
☑ Product-specific Type III EPD	1.5 products

Collaborative for High Performance Schools National Criteria
MW C5.1 – Environmental Product Declarations

☑ Third-party certified type III EPD	2 points

Green Globes for New Construction and Sustainable Interiors
Materials and resources

☑ NC 3.5.1.2 Path B: Prescriptive Path for Building Core and Shell	
☑ NC 3.5.2.2 and SI 4.1.2 Path B: Prescriptive Path for Interior Fit-outs	

BREEAM New Construction 2018
Mat 02 - Environmental impacts from construction products

Environmental Product Declarations (EPD)

○ Industry-average EPD	.5 points
○ Multi-product specific EPD	.75 points
☑ Product-specific EPD	1 point

SM Transparency Report (EPD)™

EPD	LCA
3rd-party reviewed	☑
Transparency Report (EPD)	
3rd-party verified	☑

Validity: 01/23/24 – 01/22/29
CAS – 01232024 – 001

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Self-declared	☑

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Contact us

EPD additional content

Cascadia Clip®

LCA results & interpretation | EPD additional content

Data

Background

This product-specific plant-specific declaration was created by collecting production data from the British Columbia, Canada location. Secondary data sources include those available in ecoinvent v3, Industry data 2.0, and US-EI 2.2 databases.

Allocation

The PCR prescribes where and how allocation occurs. Since only facility-level data were available, allocation among the facility's other products was necessary to determine the input and output flows associated with the product. The allocation of electricity, water, and fuel consumption was based on the percentage of production by mass for the fabricated clip systems. The mass allocation considered the ratio between each clip production and the total annual site production output. Additionally, no co-products were produced during the fabrication processes.

Cut-off criteria

Cut-off criteria for the inclusion of mass and energy flows are 1% of renewable primary resource (energy) usage, 1% nonrenewable primary resource (energy) usage, 1% of the total mass input of that unit process, and 1% of environmental impacts. The total of neglected input flows per module does not exceed 5% of energy usage, mass, and environmental impacts. The only exceptions to these criteria are substances with hazardous and toxic properties, which must be listed even when the given process unit is under the cut-off criterion of 1% of the total mass. No known flows are deliberately excluded from this declaration; therefore, these criteria have been met. Biogenic carbon is included in reported results.

Quality

Inventory data quality is judged by its precision (measured, calculated, or estimated), completeness (e.g., unreported emissions), consistency (degree of uniformity of the methodology applied on a study serving as a data source), and representativeness (geographical, temporal, and technological).

To cover these requirements and to ensure reliable results, first-hand industry data in combination with consistent background LCA information from SimaPro Analyst 9.5, and the ecoinvent v3.9, Industry data 2.0, and US-EI 2.2 databases were used.

Sustainable Minds worked with Cascadia to obtain a comprehensive set of primary data associated with the manufacturing processes. The product system was checked for mass balance and completeness of the inventory. The data set was considered complete based on our understanding of the manufacturing site and a review with key stakeholders on the Cascadia team, and cut-off criteria were observed consistent with those prescribed in the PCR. Capital equipment was excluded as required by the PCR. Otherwise, no data was knowingly omitted. Where country-specific data were unavailable, global or rest-of-world averages were used as proxies to represent transportation in those locations. Additionally, no proxy data were used to represent materials and therefore did not have a significant impact of the results.

Primary data were collected with a similar level of detail, while background data were sourced primarily from the ecoinvent database, and other databases were used if data were not available in ecoinvent or the data set was judged to be more representative. Other methodological choices were made consistently throughout the model.

Technical information

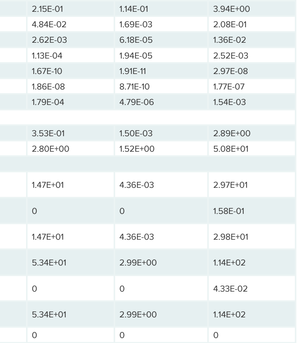
Major assumptions and limitations:

- Primary data were modeled based on the information provided by Cascadia and supplemented by data contained in the technical and safety data sheets provided.
- Since energy inputs were not available on a per-product basis, electricity and natural gas consumption were allocated proportionately based on the percentage of production for individual clip products versus total site annual outputs.
- Generic data sets used for material inputs, transport, and waste processing are considered good quality, but actual impacts from material suppliers, transport carriers, and local waste processing may vary.
- The impact assessment methodology categories do not represent all possible environmental impact categories.
- Characterization factors used within the impact assessment methodology may contain varying levels of uncertainty.
- LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.

Major system boundary exclusions:

- Construction of major capital equipment
- Maintenance and operation of support equipment
- Human labor and employee transport
- Manufacture and transport of packaging materials not associated with the final product
- Disposal of packaging materials not associated with the final product
- Building operational energy and water use

Flow diagram



Cascadia Clip® fiberglass thermal spacer: LCIA results, resource use, output and waste flows, and carbon emissions & removals per declared unit

Parameter	Unit	A1 Raw materials	A2 Transport	A3 Manufacturing	Total
LCIA results					
Ozone depletion	kg CFC-11 eq	5.09E-08	3.40E-09	1.07E-09	5.54E-08
Global warming	kg CO_2 eq	3.61E+00	2.15E-01	1.14E-01	3.94E+00
Smog	kg O_3 eq	1.57E-01	4.84E-02	1.69E-03	2.08E-01
Acidification	kg SO_2 eq	1.09E-02	2.62E-03	6.18E-05	1.36E-02
Eutrophication	kg N eq	2.38E-03	1.13E-04	1.94E-05	2.52E-03
Carcinogenics	CTUh	2.95E-08	1.67E-10	1.91E-11	2.97E-08
Non-carcinogenics	CTUh	1.57E-07	1.86E-08	8.71E-10	1.77E-07
Respiratory effects	kg PM2.5 eq	1.35E-03	1.79E-04	4.79E-06	1.54E-03
Additional environmental information					
Ecotoxicity	CTUe	2.54E+00	3.53E-01	1.50E-03	2.89E+00
Fossil fuel depletion	MJ surplus	4.65E+01	2.80E+00	1.52E+00	5.08E+01
Resource use indicators					
Renewable primary energy used as energy carrier (fuel)	MJ, NCV	1.49E+01	1.47E+01	4.36E-03	2.97E+01
Renewable primary resources with energy content used as material	MJ, NCV	1.58E-01	0	0	1.58E-01
Total use of renewable primary resources with energy content	MJ, NCV	1.51E+01	1.47E+01	4.36E-03	2.98E+01
Non-renewable primary resources used as an energy carrier (fuel)	MJ, NCV	5.81E+01	5.34E+01	2.99E+00	1.14E+02
Non-renewable primary resources with energy content used as material	MJ, NCV	4.33E-02	0	0	4.33E-02
Total use of non-renewable primary resources with energy content	MJ, NCV	5.81E+01	5.34E+01	2.99E+00	1.14E+02
Secondary materials	kg	0	0	0	0
Renewable secondary fuels	MJ, NCV	0	0	0	0
Non-renewable secondary fuels	MJ, NCV	0	0	0	0
Recovered energy	MJ, NCV	0	0	0	0
Use of net fresh water resources	m^3	3.27E+00	2.00E-02	2.98E-02	3.32E+00
Output flows and waste category indicators					
Hazardous waste disposed	kg	0	0	0	0
Non-hazardous waste disposed	kg	0	0	1.92E-02	1.92E-02
High-level radioactive waste, conditioned, to final repository	kg	3.66E+02	2.90E+00	8.23E+00	3.77E+02
Intermediate- and low-level radioactive waste, conditioned, to final repository	kg	2.63E-01	1.51E-03	9.24E-04	2.66E-01
Components for re-use	kg	0	0	2.00E-02	2.00E-02
Materials for recycling	kg	0	0	9.95E-05	9.95E-05
Materials for energy recovery	kg	0	0	0	0
Exported energy	MJ	0	0	0	0
Carbon emissions and removals					
Biogenic carbon removal from product	kg CO_2	0	0	0	0
Biogenic carbon emission from product	kg CO_2	0	0	0	0
Biogenic carbon removal from packaging	kg CO_2	1.99E-02	0	1.12E-02	3.11E-02
Biogenic carbon emission from packaging	kg CO_2	0	0	0	0
Biogenic carbon emission from combustion of waste from renewable sources used in production processes	kg CO_2	0	0	0	0
Calcination carbon emissions	kg CO_2	0	0	0	0
Carbonation carbon removals	kg CO_2	0	0	0	0
Carbon emissions from combustion of waste from renewable and non- renewable sources used in production processes	kg CO_2	0	0	0	0

LCIA results for a single clip component

Impact category	Unit	A1 Raw materials	A2 Transport	A3 Manufacturing	Total
Ozone depletion	kg CFC-11 eq	4.82E-08	1.81E-09	1.06E-09	**5.11E-08**
Global warming	kg CO_2 eq	1.97E+00	1.16E-01	1.14E-01	**2.20E+00**
Smog	kg O_3 eq	9.41E-02	2.48E-03	1.69E-03	**9.82E-02**
Acidification	kg SO_2 eq	6.95E-03	1.57E-04	6.18E-05	**7.17E-03**
Eutrophication	kg N eq	2.14E-03	1.91E-05	1.94E-05	**2.18E-03**
Carcinogenics	CTUh	1.73E-08	1.02E-10	1.91E-11	**1.74E-08**
Non-carcinogenics	CTUh	5.54E-08	1.54E-08	8.70E-10	**7.17E-08**
Respiratory effects	kg PM2.5 eq	9.21E-04	3.63E-05	4.78E-06	**9.62E-04**
Additional environmental information					
Ecotoxicity	CTUe	2.07E+00	3.12E-01	1.48E-03	**2.39E+00**
Fossil fuel depletion	MJ surplus	2.84E+01	1.56E+00	1.54E+00	**3.14E+01**

LCIA results for 12 inches of metal rail

Impact category	Unit	A1 Raw materials	A2 Transport	A3 Manufacturing	Total
Ozone depletion	kg CFC-11 eq	1.35E-09	7.96E-10	1.71E-12	**2.15E-09**
Global warming	kg CO_2 eq	8.17E-01	4.99E-02	6.74E-05	**8.67E-01**
Smog	kg O_3 eq	3.17E-02	2.30E-02	1.89E-06	**5.47E-02**
Acidification	kg SO_2 eq	1.96E-03	1.23E-03	4.04E-08	**3.19E-03**
Eutrophication	kg N eq	1.20E-04	4.69E-05	5.76E-09	**1.67E-04**
Carcinogenics	CTUh	6.09E-09	3.24E-11	1.81E-14	**6.12E-09**
Non-carcinogenics	CTUh	5.10E-08	1.58E-09	1.89E-13	**5.26E-08**
Respiratory effects	kg PM2.5 eq	2.16E-04	7.15E-05	5.00E-09	**2.88E-04**
Additional environmental information					
Ecotoxicity	CTUe	2.32E-01	2.08E-02	6.15E-06	**2.52E-01**
Fossil fuel depletion	MJ surplus	9.08E+00	6.23E-01	5.18E-05	**9.71E+00**

SM Transparency Report (EPD)™

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Transparency Report (EPD)	
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Contact us

How we make it greener

Cascadia Clip®

Collapse all

RAW MATERIALS ACQUISITION

The Cascadia Clip® is manufactured in North America, using resins and fiberglass rovings from domestic and foreign suppliers. These chemically inert materials are combined through pultrusion, creating a thermoset fiberglass that won't creep, sag, or decay over its 200-year modelled service life.

TRANSPORTATION

The Cascadia Clip® is nested in its packaging, maximizing the volume of the standard shipping boxes and minimizing wasted space when shipping. Standard wooden pallets received from various vendors are reused for outbound orders, reducing the amount of new materials needed for product shipping.

ADDITIONAL ENVIRONMENTAL INFORMATION

Installation and maintenance
The clip system is mounted to a building's exterior using handheld power tools, which are expected to produce negligible impacts. Once installed, the Cascadia Clip® produces no additional impacts over the use phase, since it is expected to last the life of the building, requiring no replacements or maintenance.

Disposal
The Cascadia Clip® reaches the end of its useful life when a building's exterior is replaced or demolished. While the clip system can be reused, or its rail components recycled, it is most likely to be sent with demolition waste to a landfill. However, transportation to a landfill (100 miles) and the landfilling of fiberglass and steel only generates 0.59% more impacts on top of the cradle-to-gate global warming potential.

SM Transparency Report (EPD)™

EPD	LCA
3rd-party reviewed	✓
	Transparency Report (EPD)
3rd-party verified	✓

Validity: 01/23/24 – 01/22/29
CAS – 01232024 – 001

MATERIAL HEALTH	Material evaluation
Self-declared	✓

This environmental product declaration (EPD) was externally verified by Ecoform, LLC, according to ISO 14044; ISO 21930:2017; SM Part A: LCA calculation rules and report requirements, 2023; SM Part B: Cladding Support Components and Systems; and ISO 14025:2006.

In accordance with ISO 14044 and the referenced PCR, the life cycle assessment was conducted by Sustainable Minds and critically reviewed by Ecoform, LLC.

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SUMMARY

Reference PCR
SM Part B: Cladding Support Components and Systems, 2022

Regions; system boundaries
North America; Cradle-to-gate

Declared unit
0.6096m (24 linear in) of cladding support system: one single clip unit & metal rails with clip spaced at one per 24in, w/ exterior cavity depth sufficient to accommodate 101.6mm (4in) of insulation plus depth of support components outboard of insulation layer to which the cladding is attached.

LCIA methodology; LCA software; LCI databases
TRACI 2.1; SimaPro Analyst 9.5; ecoinvent v3.9, Industry data 2.0, and US-EI 2.2

Public LCA
Cascadia Clip® Fiberglass Thermal Spacer

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