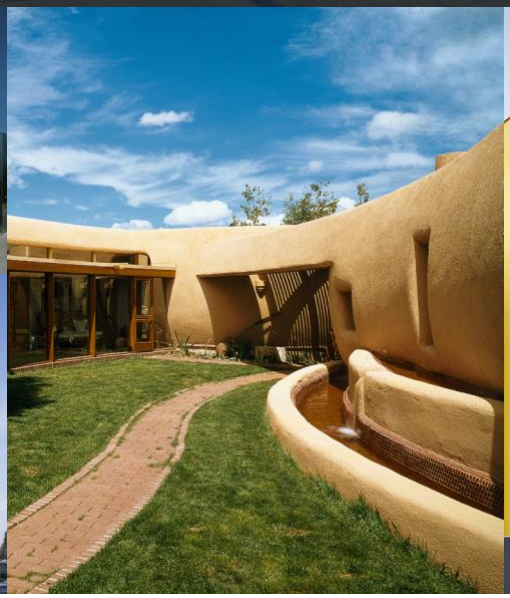
Building with conscience.

EPD for StoVentro™ Subconstruction

StoVentro™ Subconstructioin is an adjustable, thermally efficient structural system of brackets, rails, fasteners, and accessories for StoVentec Systems and other rainscreen wall cladding assemblies.



ASTM INTERNATIONAL

EPD program operator	ASTM International 100 Barr Harbor Drive P.O. Box C700 West Conshohocken, PA 19428-2959, USA https://www.astm.org/
Manufacturer name	Sto Corp. 3800 Camp Creek Parkway SW, Building 1400, Suite 120 Atlanta, GA 30331 www.stocorp.com | (800) 221-2397
Site(s) in which the results of the LCA are representative	See Manufacturing Site Covered in this EPD
Declaration Number	EPD 1093
Declared Product & Declared Unit	StoVentro™ Subconstruction One square meter (m^2) of manufactured product
PCR Identification	ISO 21930:2017
Product's intended application and use	Support of wall assembly components & cladding
Markets of applicability	North America
Date of certification	December 9, 2025
Period of validity	5 years from date of certification
EPD type	Product-specific
EPD scope	Cradle to gate with options (A1-A3, C1-C4)
Year of reported primary data	Calendar year 2023
LCA software and version Number	LCA for Experts (formerly GaBi) 10.9
LCI database and version Number	MLC (formerly GaBi) Database Version 2024.2
LCIA methodology and version number	IPCC AR5, TRACI 2.1 and CML-2016
This declaration was independently verified in accordance with ISO 21930:2017 and ISO 14025: 2006: ☐ Internal ☒ External	Timothy S Brooke ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428 tbrooke@astm.org
This life cycle assessment was independently verified in accordance with ISO 21930:2017 and ISO 14044 by:	Thomas P. Gloria, Ph. D. Industrial Ecology Consultants 35 Bracebridge Rd. Newton, MA 02459-1728 t.gloria@industrial-ecology.com

Limitations

Environmental product declarations from different EPD programs (ISO 14025) may not be comparable.
Comparison of the environmental performance of construction products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase.

Building with conscience.

Company

We believe in '**Building with conscience**'.

That means ensuring that all building products are not only safe, effective and easy to install, but also environmentally responsible and sustainable. We know you're always looking for the smartest and newest technology to create energy efficient buildings with superior aesthetics.

That's exactly what our products help you achieve. Products like our wall systems, coatings and finishes are consistent favorites among design professionals, contractors and property owners alike. Whatever your needs or vision may be, we offer products for every type of building project; whether it's new construction, restoration or panelization, commercial or residential work.

An architect or specifier focuses on aesthetics and feasibility, a contractor needs products that are easy to work with, and a building owner requires high value and low costs on properties. Sto understands these unique needs, and delivers the smart, innovative materials and solutions that make this all possible. That's why Sto remains the innovative leader in integrated exterior wall systems.

When you combine that commitment to product support and innovation with value-added offerings like consultative design and color services through Sto Studio or training in proper application techniques through the Sto Institute, you get an integrated exterior wall system solution unmatched in the industry.

Manufacturing Site Covered in this EPD

Components manufactured by external suppliers in United States

Finished product packaged and shipped to customers from Atlanta, Georgia

Product Identification

StoVentro Subconstruction system includes brackets, thermal blocking elements, T-profiles, L-profiles, extension brackets and screws. The products are offered in three material options – galvanized steel, aluminum, and stainless steel. The study considers an average square meter from a typical 92 m^2 (1,000 ft^2) wall section composed of galvanized steel brackets and aluminum rails. One average square meter includes 0.86 T-profiles, 0.86 large brackets, and 2.58 small brackets. The product declared in this EPD is product number 07025-09619.

Product Description

StoVentro Subconstruction is an adjustable, thermally efficient structural system of brackets, rails, fasteners, and accessories for StoVentec Systems and other rainscreen wall cladding assemblies. Safe and long-lasting, the sub-construction absorbs both the wind loads and dead loads present on the facade. Alongside structural suitability, the design of the sub-construction incorporates corrosion resistance and a reduction in thermal bridging, while also being quick and easy to install.

This product falls under CSI division 07 05 43 and UNSPSC code 30151800.

Performance Features

Adjustable	Easy to Install
Thermally Efficient	Corrosion Resistant

Technical Details

Table 1: Technical Data for Product

Performance	Test Method	Result	Unit
Tensile Strength (Brackets)	ASTM A1046	648	MPa
Tensile Strength (Profiles)	ASTM B221	262	MPa

Because this product can serve several functions and is an individual component intended for use in Sto's wall systems, the technical properties and product performance criteria depend on the combination of products in the wall system. As such, the following table declares the product performance when used in Sto wall systems.

Table 2: Technical Data for Product as a Component of Sto Wall Systems

Meets Requirements of	Evaluation Criteria:	Evaluation Report Reference
2021, 2024 IBC, IRC	ASTM C297, C482, E330, E331, E84, E2485, D2247, B117, E2486, E2568, NFPA 285, 268	CCRR-0454
2021, 2024 IBC, IRC	ASTM C1186, E330, E331, D1037, E136, E2652, TAS 202, 203	CCRR-0600

Material Composition

The material compositions of the product are listed below:

Table 3: Material composition for Product

Ingredient*	Mass %
Aluminum (T-Profile)	77.9%
Cold Rolled Steel (Brackets)	22.1%
Galvanized Zinc (Brackets)	<1%

* The product does not contain hazardous substances per the EPA's Resource Conservation and Recovery Act.

Properties of Declared Product as Delivered

Table 4: Properties of declared product

Parameter	Value
Thickness	T-Profile 2.7 mm (1/8 in) Large Bracket: 2.0 mm (1/8 in) Small Bracket: 2.0 mm (1/8 in)
Height	Large Bracket: 130 mm (5-1/8 in) Small Bracket: 75 mm (2-15/16 in)
Depth	Bracket: 80 mm; Options include 40 mm – 360 mm depth in 20 mm increments (1-9/16 in – 14-3/16 in in 13/16 in)
Bearing Surface	T-Profile: 90 mm (3-9/16 in) or 120 mm (4-3/4 in)
Length	T-Profile: 3 m (9 ft- 10 in); custom available
Adjustability	Large Bracket: 30 mm (1-3/16 in) Small Bracket: 30 mm (1-3/16 in)

Product Bulletin and Product Test Results can be found at Sto's website

Components related to Life Cycle Assessment

The declared unit for the LCA study was 1 square meter (m^2) of manufactured product. The reference flow required for one declared unit is provided in Table 5.

Table 5: Declared Unit Details

Parameter	Value	Unit
Declared unit	1 m^2 of manufactured cladding products	
Mass	2.56	kg

Scope and Boundaries of the Life Cycle Assessment

The LCA was performed in accordance with ISO 14040 standards. The study is a cradle-to-gate with options LCA and includes the stages A1-A3, C1-C4.

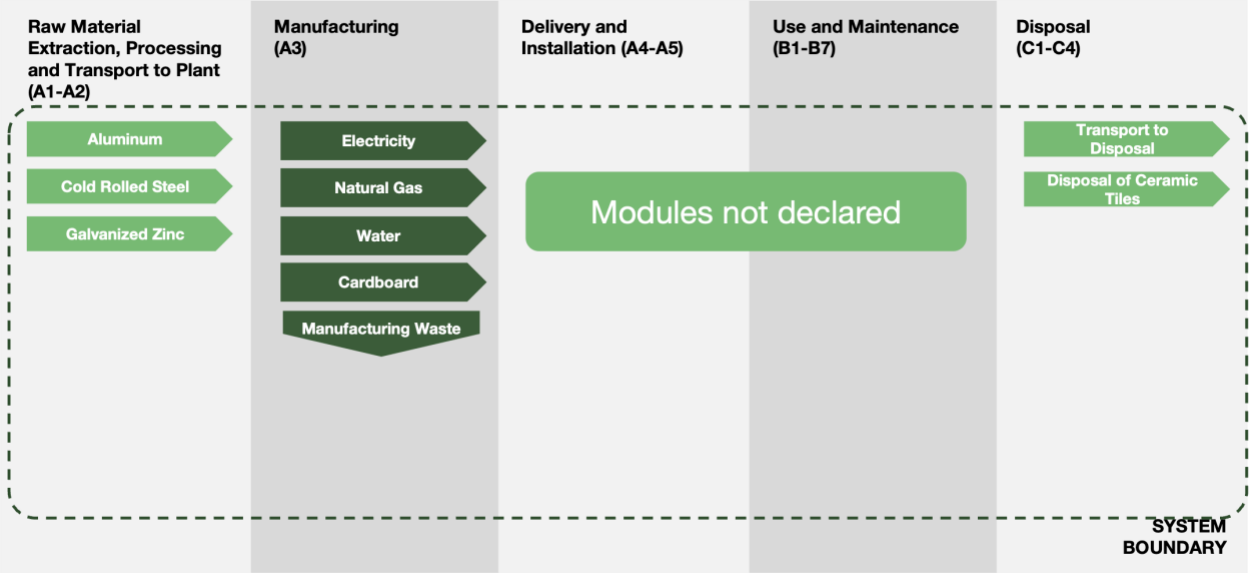


Figure 1: System boundary diagram of the Product

Cut-off Criteria

Material inputs greater than 1% (based on total mass of the final product) were included within the scope of analysis. Material inputs less than 1% were included if sufficient data was available to warrant inclusion and/or the material input was thought to have significant environmental impact. Cumulative excluded material inputs and environmental impacts are less than 5% based on total weight of the functional unit. No known flows are deliberately excluded from this EPD.

Data Quality

The overall data quality level was determined to be good. Primary data were collected from external suppliers in the United States for the 2023 reference year. When primary data did not exist, secondary data were obtained from the MLC Database Service. Overall, both primary and secondary data are considered good quality in terms of geographic, and temporal coverage. Technological coverage of the data is considered fair.

Estimates and Assumption

Assumptions were made to represent the cradle-to-grave environmental performance of Sto's products. These assumptions include the transportation distances, the disposal of packaging material and the product at its end of life and use phase assumptions.

Allocation

General principles of allocation were based on ISO 14040/44. Where possible, allocation was avoided. When allocation was necessary it was done on a physical mass basis.

Product Stage (A1-A3)

The product is produced by external suppliers in the United States, then packaged and shipped from Sto's Atlanta, GA facility. This stage includes an aggregation of raw material extraction, supplier processing, delivery, manufacturing and packaging by Sto. The T-profile is supplied in cartons containing 1 piece per box, and the brackets are supplied in cartons containing 20-60 piece per box depending on the depth of the brackets.

End-of-Life Stage (C1-C4)

In this stage, the disposal of product waste at its end of life is included. Excavators, cranes, and other heavy machinery may be used for demolishing large sections of cladding or walls. In the study, it is assumed to the products are manually demolished. The disposal pathway the waste stream is modeled as 95% of the aluminum part recycled with 5% landfilled, and 97% of the steel parts recycled with 3% landfilled per the UL PCR Part A v4.0.

Table 6: End-of-life Scenario Details

Parameter	Value
Collected as mixed construction waste [kg]	2.56
Waste to Landfill [kg]	0.117
Distance to Landfill [km]	32
Waste to Recycling [kg]	2.44
Distance to Recycling [km]	32

Life Cycle Assessment Results

TRACI 2.1 impact characterization methodology and IPCC 5th assessment report are adopted to calculate the environment impacts. Table 7 provides the acronym key of the impact indicators declared in this EPD.

Table 7: LCIA Impact Category and LCI Indicator Key

Abbreviation	Parameter	Unit
	IPCC AR5	
GWPexcl	Global warming potential (100 years, excludes biogenic CO_2)	kg CO_2 eq
GWPincl	Global warming potential (100 years, includes biogenic CO_2)	kg CO_2 eq
	TRACI 2.1	
AP	Acidification potential of soil and water	kg SO_2 eq
EP	Eutrophication potential	kg N eq
ODP	Depletion of stratospheric ozone layer	kg CFC 11 eq
SFP	Smog formation potential	kg O_3 eq
	CML 2001-Jan 2016	
ADP_F	Abiotic depletion potential for fossil resources	MJ, net calorific value
	Carbon Emissions and Uptake	
BCRP	Biogenic Carbon Removal from Product	kg CO_2
BCEP	Biogenic Carbon Emission from Product	kg CO_2
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2
BCEK	Biogenic Carbon Emission from Packaging	kg CO_2
BCEW	Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes	kg CO_2
CCE	Calcination Carbon Emissions	kg CO_2
CCR	Carbonation Carbon Removals	kg CO_2
CWNR	Carbon Emissions from Combustion of Waste from Non- Renewable Sources used in Production Processes	kg CO_2
	Resource Use Parameters	
RPR_E	Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ, net calorific value (LHV)
RPR_M	Use of renewable primary energy resources used as raw materials	MJ, net calorific value
$NRPR_E$	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ, net calorific value
$NRPR_M$	Use of non-renewable primary energy resources used as raw materials	MJ, net calorific value
SM	Use of secondary materials	kg
RSF	Use of renewable secondary fuels	MJ, net calorific value
NRSF	Use of non-renewable secondary fuels	MJ, net calorific value
RE	Recovered energy	MJ, net calorific value
FW	Net use of fresh water	m^3
	Waste Parameters	
HWD	Disposed-of-hazardous waste	kg
NHWD	Disposed-of non-hazardous waste	kg
HLRW	High-level radioactive waste, conditioned, to final repository	kg
ILLRW	Intermediate- and low-level radioactive waste, conditioned, to final repository	kg
CRU	Components for reuse	kg
MR	Materials for recycling	kg
MER	Materials for energy recovery	kg
EEE	Exported electrical energy	MJ
EET	Exported thermal energy	MJ

StoVentro Subconstruction

The LCIA results presented below are per declared unit: 1 m^2 of manufactured product.

Impact Category	A1-A3	C1	C2	C3	C4
IPCC AR5					
GWPexcl [kg CO_2 eq]	2.70E+01	0.00E+00	2.10E-04	0.00E+00	2.58E-03
GWPincl [kg CO_2 eq]	2.65E+01	0.00E+00	2.09E-04	0.00E+00	2.57E-03
TRACI LCIA Impacts (North America)					
AP [kg SO_2 eq]	9.54E-02	0.00E+00	5.87E-07	0.00E+00	1.63E-05
EP [kg N eq]	3.12E-03	0.00E+00	6.15E-08	0.00E+00	1.92E-06
ODP [kg CFC 11 eq]	8.07E-11	0.00E+00	6.10E-19	0.00E+00	1.21E-16
SFP [kg O_3 eq]	9.63E-01	0.00E+00	1.33E-05	0.00E+00	2.33E-04
CML 2001-Jan 2016					
ADP_F [MJ]	2.94E+02	0.00E+00	2.71E-03	0.00E+00	3.70E-02
Carbon Emissions and Uptake					
BCRP [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEP [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCRK [kg CO_2]	2.80E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEK [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEW [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCE [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCR [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CWNR [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

The LCI results presented below are per declared unit: 1 m^2 of manufactured product.

Impact Category	A1-A3	C1	C2	C3	C4
Resource Use Indicators					
RPR_E [MJ]	1.16E+02	0.00E+00	1.21E-04	0.00E+00	4.73E-03
RPR_M [MJ]	2.93E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$NRPR_E$ [MJ]	3.08E+02	0.00E+00	2.73E-03	0.00E+00	3.82E-02
$NRPR_M$ [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SM [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW [m^3]	5.74E-01	0.00E+00	4.02E-07	0.00E+00	4.93E-06
Output Flows and Waste Categories					
HWD [kg]	2.93E-06	0.00E+00	3.69E-13	0.00E+00	9.42E-12
NHWD [kg]	9.01E+00	0.00E+00	2.73E-07	0.00E+00	1.17E-01
HLRW [kg]	6.20E-06	0.00E+00	9.77E-12	0.00E+00	4.54E-10
ILLRW [kg]	5.14E-03	0.00E+00	8.23E-09	0.00E+00	4.05E-07
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR [kg]	0.00E+00	0.00E+00	0.00E+00	2.44E+00	0.00E+00
MER [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Interpretation

For the product in study, the majority of the environmental impacts come from the Product Stage (A1-A3) which includes the impacts derived from the raw materials, raw material transportation, and manufacturing of the product. For GWP, the main drivers are aluminum and steel.

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