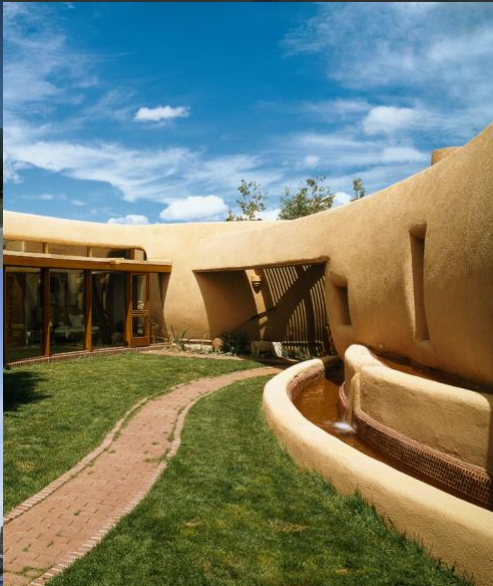




Building with conscience.

EPD for StoVentec Fiber Cement System

StoVentec® Fiber Cement Panel System is a drained and back-ventilated rainscreen wall system from a single source that combines superior air and weather tightness with excellent thermal performance and fire protection. It incorporates noncombustible continuous exterior insulation and an air and water-resistive barrier with StoVentro™ Sub-construction and high-density StoVentec Fiber Cement panels to produce an advanced wall assembly.



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/	 ASTM INTERNATIONAL
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 1091	
Declared Product & Declared Unit	StoVentec Fiber Cement Panel System One square meter (m ²) of manufactured product	
PCR Identification	UL Part A: Life cycle Assessment Calculation Rules and Reporting Requirements v4.0 UL Part B: Cladding Product Systems EPD Requirements, UL 10010-25, v2.0	
Product's intended application and use	For protection of facades and interior walls/ceilings	
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 (A1-A3)	
Year of reported primary data	See Data Quality	
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	
The sub-category PCR review was conducted by	Jim Mellentine Christopher White, Ph.D Philip S. Moser, P.E. (MA) Timothy S Brooke ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428 tbrooke@astm.org	
This declaration was independently verified in accordance with ISO 21930:2017, ISO 14025: 2006 and reference PCRs:		
<input type="checkbox"/> Internal <input checked="" type="checkbox"/> External		
This life cycle assessment was independently verified in accordance with ISO 21930:2017, ISO 14044 and reference PCRs 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 Cladding Product Systems 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. Full conformance with the PCR for Cladding Product allows EPD comparability only when all stages of a life cycle have been considered, when they comply with all referenced standards, use the same sub-category Part B PCR, and use equivalent scenarios with respect to construction works. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to different results for upstream or downstream of the life cycle stages declared.

» 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 of the product are produced in the United States and Europe and assembled on-site:

- Sto AirSeal: Atlanta, GA; Glendale, AZ; Rutland, VT
- StoVentro Subconstruction: produced by external suppliers in the United States, packaged and shipped from Atlanta, GA
- StoVentec Fiber Cement Panel: Asia, Europe
- Sto RapidGuard: Waconia, MN

» Performance Features

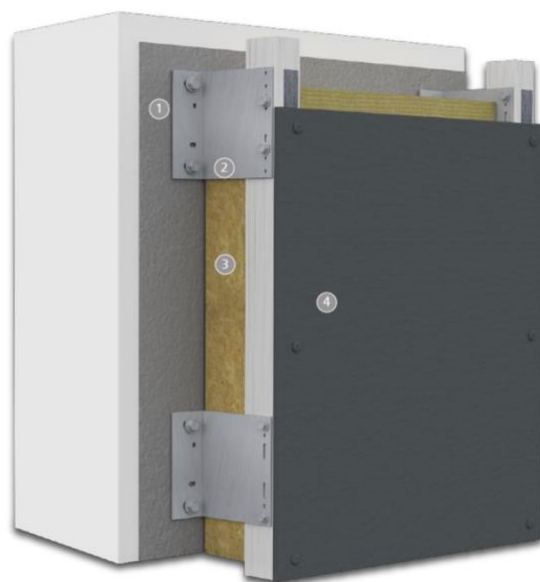
» Product Identification

StoVentec Fiber Cement Panel System is offered in many custom configurations. This EPD represents a combination of Sto AirSeal (air and water-resistive barrier, #1 in figure below), StoVentro Subconstruction (carrier rails and brackets, #2), StoVentec Fiber Cement Panel (cladding panel, #4), and Sto RapidGuard (air and water-resistive barrier, not pictured). The following component was excluded from the system because of a lack of primary data from external suppliers: mineral wool insulation (#3).

» Product Description

StoVentec® Fiber Cement Panel System is a drained and back-ventilated rainscreen wall system from a single source that combines superior air and weather tightness with excellent thermal performance and fire protection. It incorporates noncombustible continuous exterior insulation and an air and water-resistive barrier with StoVentro™ Sub-construction and high-density StoVentec Fiber Cement panels to produce an advanced wall assembly.

This product falls under various CSI divisions from the combination of components (see component EPDs in References) and UNSPSC code 30151800.



Drained and back-ventilated rainscreen wall design	Fully integrated seamless air and water-resistive barrier	High-density fiber cement
Virtually unlimited finish color selection in multiple textures		Fire tested in accordance with NFPA 285

>> **Technical Details**

Table 1: Technical Data for Product

Performance	Test Method	Result	Unit
Tensile Strength	n/a	Not tested	MPa
Modulus of Elasticity	n/a	Not tested	MPa
Water Vapor Permeance	n/a	Not tested	metric perms
Liquid Water Absorption	n/a	Not tested	% of dry weight
Airborne Sound Reduction	n/a	Not tested	dB
Sound Absorption Coefficient	n/a	Not tested	%

Because this product can serve several functions and is an individual component intended for use in Sto’s wall systems, not all technical properties specified by the PCR for individual components apply. 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 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 %
Sto AirSeal	3.4%
StoVentro Subconstruction	12.7%
StoVentec Fiber Cement Panel	77.9%
Sto RapidGuard	6.0%

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

>> **Properties of Declared Product as Delivered**

As a structural wall assembly of various components assembled on-site, the properties of the assembled product depend on the

specific components used. Contact Sto or refer to Sto's [website](#) for more information.

Components related to Life Cycle Assessment

The declared unit for the LCA study was 1 square meter (m²) of manufactured product. The reference flow required for one declared unit is provided in Table 4.

Table 4: Declared Unit Details

Parameter	Value	Unit
Declared unit	1 m ² of manufactured cladding products	
Mass	Sto AirSeal	0.68
	StoVentro Subconstruction	2.56
	StoVentec Fiber Cement Panel	15.70
	Sto RapidGuard	1.22
	Total	20.15
Thickness to achieve declared unit	N/A	mm
Density	N/A	kg/m ³
Length	2.44	m
Width	1.22	m

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 LCA and includes the stages A1-A3, as prescribed in the referenced PCRs.

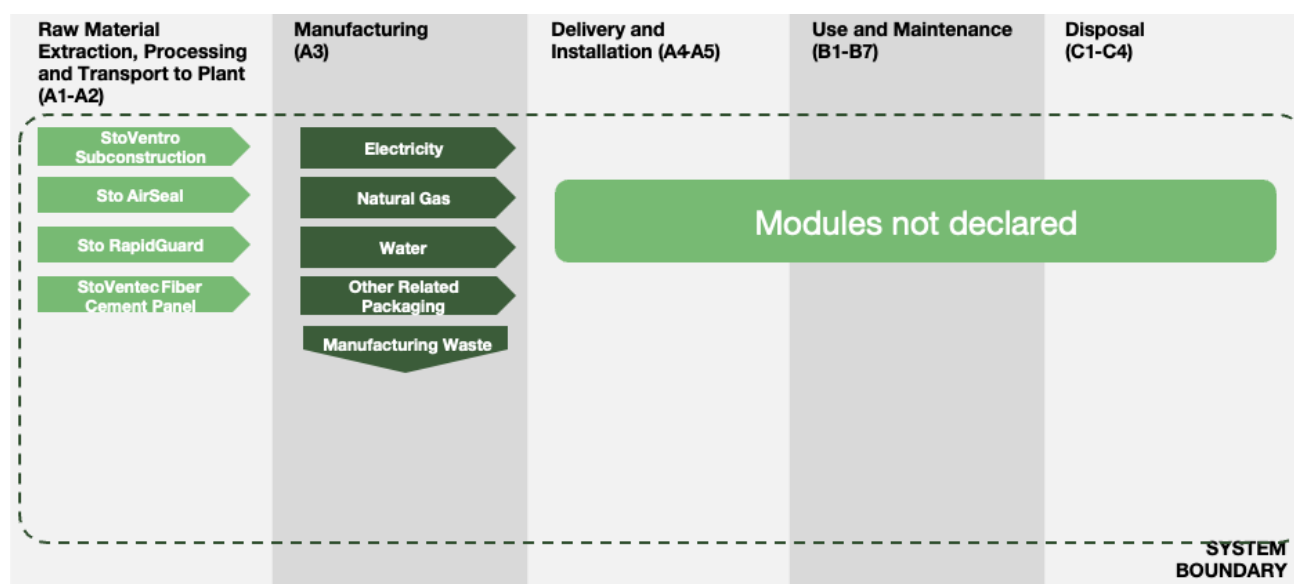


Figure 1: System boundary diagram of the Product

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. Excluded inputs include mineral wool insulation. No other known flows are deliberately excluded from this EPD.

Data Quality

The overall data quality level was determined to be good. Primary data was collected from the following Sto facilities and external supplier locations for given reference years:

- Sto AirSeal: Atlanta, GA; Glendale, AZ; Rutland, VT in 2021
- StoVentro Subconstruction: produced by external suppliers in the United States, packaged and shipped from Atlanta, GA in 2023
- StoVentec Fiber Cement Panel: external suppliers in Asia in 2024 and Europe in 2021
- Sto RapidGuard: Waconia, MN in 2021

When primary data did not exist, secondary data were obtained from the MLC Database Service. Overall, both primary and secondary data are considered fair quality in terms of geographic, temporal and technological coverage and meet PCR requirements.

Estimates and Assumption

Assumptions were made to represent the cradle-to-grave environmental performance of Sto's products. These assumptions were made in accordance with the referenced PCRs and 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 at the facilities in the Data Quality section. This stage includes an aggregation of raw material extraction, supplier processing, delivery, manufacturing and packaging by Sto and external suppliers. Components are packaged individually (see component EPDs in References) before shipping to be assembled on-site.

Life Cycle Assessment Results

As prescribed by the referenced PCRs, TRACI 2.1 impact characterization methodology and IPCC 5th assessment report are adopted to calculate the environment impacts. Table 5 provides the acronym key of the impact indicators declared in this EPD. For some component EPDs used in this product, results were only reported for GWPincl. As such, GWP excluding biogenic carbon is incomplete for these products and not reported.

Table 5: LCIA Impact Category and LCI Indicator Key

Abbreviation	Parameter	Unit
IPCC AR5		
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
EE	Exported energy	MJ

StoVentec Fiber Cement Panel System

The LCIA results presented below are per declared unit: 1 m² of manufactured product.

Impact Category	A1-A3
IPCC AR5	
GWP _{incl} [kg CO ₂ eq]	4.95E+01
TRACI LCIA Impacts (North America)	
AP [kg SO ₂ eq]	1.49E-01
EP [kg N eq]	8.37E-03
ODP [kg CFC 11 eq]	3.15E-08
SFP [kg O ₃ eq]	1.73E+00
CML 2001-Jan 2016	
ADP _F [MJ]	7.03E+02
Carbon Emissions and Uptake	
BCRP [kg CO ₂]	6.10E-02
BCEP [kg CO ₂]	2.66E-02
BCRK [kg CO ₂]	3.09E-01
BCEK [kg CO ₂]	0.00E+00
BCEW [kg CO ₂]	0.00E+00
CCE [kg CO ₂]	0.00E+00
CCR [kg CO ₂]	0.00E+00
CWNR [kg CO ₂]	4.78E-02

The LCI results presented below are per declared unit: 1 m² of manufactured product.

Impact Category	A1-A3
Resource Use Indicators	
RPR _E [MJ]	1.74E+02
RPR _M [MJ]	4.30E+00
NRPR _E [MJ]	6.34E+02
NRPR _M [MJ]	5.80E+01
SM [kg]	4.44E+00
RSF [MJ]	0.00E+00
NRSF [MJ]	0.00E+00
RE [MJ]	0.00E+00
FW [m ³]	7.15E-01
Output Flows and Waste Categories	
HWD [kg]	2.29E-02
NHWD [kg]	1.58E+01
HLRW [kg]	1.96E-05
ILLRW [kg]	1.69E-02
CRU [kg]	0.00E+00
MR [kg]	4.10E-01
MER [kg]	0.00E+00
EE [MJ]	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 StoVentro Subconstruction, StoVentec Fiber Cement Panel, and Sto RapidGuard.

Reference

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