

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025 AND ISO 21930:2017

SmartEPD-2024-047-0218-01

LightFrame



Date of Issue:
Dec 04, 2024

Expiration:
Dec 04, 2029

Last updated:
Dec 04, 2024

General Information	4
Organization Information	4
Limitations, Liability, and Ownership	5
Reference Standards	5
Verification Information	5
Product Description	6
Product Specifications	6
Material Composition	6
EPD Representativeness	7
EPD Data Specificity	7
System Boundary	8
Plants	8
Product Flow Diagram	9
Software, Data Sources and Data Quality	9
Software and Database	9
Data Quality	10
Life Cycle Module Descriptions	10
LCA Discussion	11
Allocation Procedure	11
Cut-Off Procedure	11
Renewable Electricity	11
Scenarios	12
Transport to the building/construction site (A4)	12
Installation in to the building/construction site (A5)	12
End of Life (C1 - C4)	12
Results	14

Environmental Impact Assessment	14
Resource Use Indicators	15
Waste and output Flow Indicators	15
Carbon Emissions and Removals	16
Impact Scaling Factors	16
Interpretation	17
References	17

General Information

CertainTeed

20 Moores Rd, Malvern, PA 19355

888-233-8990

sustainability@saint-gobain.com certainteed.com



Product Name:	LightFrame
Functional Unit:	0.093 m2
Declaration Number:	SmartEPD-2024-047-0218-01
Date of Issue:	December 04, 2024
Expiration:	December 04, 2029
Last updated:	December 04, 2024
EPD Scope:	Cradle to gate with other options A1 - A3, A4, A5, C1 - C4
Market(s) of Applicability:	North America

Organization Information

CertainTeed Corporation, a subsidiary of Saint-Gobain, is a leading North American manufacturer of interior building materials including gypsum, ceilings, and insulation as well as exterior building materials which include roofing and vinyl siding.

CertainTeed respects the environment through the responsible development of sustainable building products and systems. Architects, contractors, and manufacturers continue to look for ways to reduce our industry’s impact on the environment while meeting customer demand for products that deliver beauty, comfort, and performance. CertainTeed’s respect for the environment is reflected in our ongoing emphasis on sustainable building products and systems. Open sharing of the data we gather on these effects – as embodied in Environmental Product Declarations – is central to the process and sets CertainTeed apart.

Further information can be found at: <http://www.certainteed.com>

Limitations, Liability, and Ownership

Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of 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 whole building life cycle. EPD comparability is only possible when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared. The EPD owner has sole ownership, liability, and responsibility for the EPD.

Reference Standards

Standard(s):	ISO 14025 and ISO 21930:2017
Core PCR:	UL Part A PCR for Building-Related Products and Services v.4 Date of issue: March 01, 2022
Sub-category PCR:	UL Part B: Non-Metal Ceiling and Interior Wall Panels v.2 Date of issue: April 13, 2021 Valid until: April 13, 2026
Sub-category PCR review panel:	 Contact Smart EPD for more information.
General Program Instructions:	 Smart EPD General Program Instructions v.1.0, November 2022

Verification Information

LCA Author/Creator:	 Saint-Gobain North American ESG Sustainability Group  sustainability@saint-gobain.com
EPD Program Operator:	 Smart EPD  info@smartepd.com  www.smartepd.com  585 Grove St., Ste. 145 PMB 966, Herndon, VA 20170, USA
Verification:	Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071 : External  Brandie Sebastian  John Beath Environmental LLC  brandie.sebastian@beath.us Independent external verification of EPD, according to ISO 14025 and reference PCR(s) : External  Brandie Sebastian  John Beath Environmental LLC  brandie.sebastian@beath.us

Product Information

Functional Unit:	0.093 m2
Mass:	0.63 kg
Reference Service Life:	30 Years
Product Specificity:	✗ Product Average ✓ Product Specific

Product Description

The LightFrame is an accessible translucent acoustical fabric ceiling system that optimizes artificial or natural light transfusion using a precise monofilament fabric. Additional features include: assembled and pre-stressed lightweight aluminum profile, wrinkle-free, pre-stressed, smooth membrane fabric facing, low VOC's and dirt resistant. Please note that the values in the material composition section are presented as ranges to protect confidential business information.

Product Specifications

Product Classification Codes: EC3 - Finishes -> CeilingPanel -> AcousticalCeilings

Material Composition

Material/Component Category	Origin	% Mass
Aluminum Extrusion	Confidential	50-60
Hardware	Confidential	6-12
Rubber Spline	Confidential	1-2
Aluminum Perimeter Frame	Confidential	24-34
Polyester Fabric	Confidential	1-10

Packaging Material	Origin	kg Mass
Pallet	Canada	7.77E-02
Cardboard	United States	3.54E-02

Biogenic Carbon Content	kg C per m2
Biogenic carbon content in product	None
Biogenic carbon content in accompanying packaging	0.0048

Hazardous Materials
No substances required to be reported as hazardous are associated with the production of this product

EPD Data Specificity

- Primary Data Year:2023
- Manufacturing Specificity:

✗

 Industry Average

✗

 Manufacturer Average

✓

 Facility Specific

Averaging:
Averaging was not conducted for this EPD.

System Boundary

Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓
Construction	A4	Transport to site	✓
	A5	Assembly / Install	✓
Use	B1	Use	ND
	B2	Maintenance	ND
	B3	Repair	ND
	B4	Replacement	ND
	B5	Refurbishment	ND
	B6	Operational Energy Use	ND
	B7	Operational Water Use	ND
End of Life	C1	Deconstruction	✓
	C2	Transport	✓
	C3	Waste Processing	✓
	C4	Disposal	✓
Benefits & Loads Beyond System Boundary	D	Recycling, Reuse Recovery Potential	ND

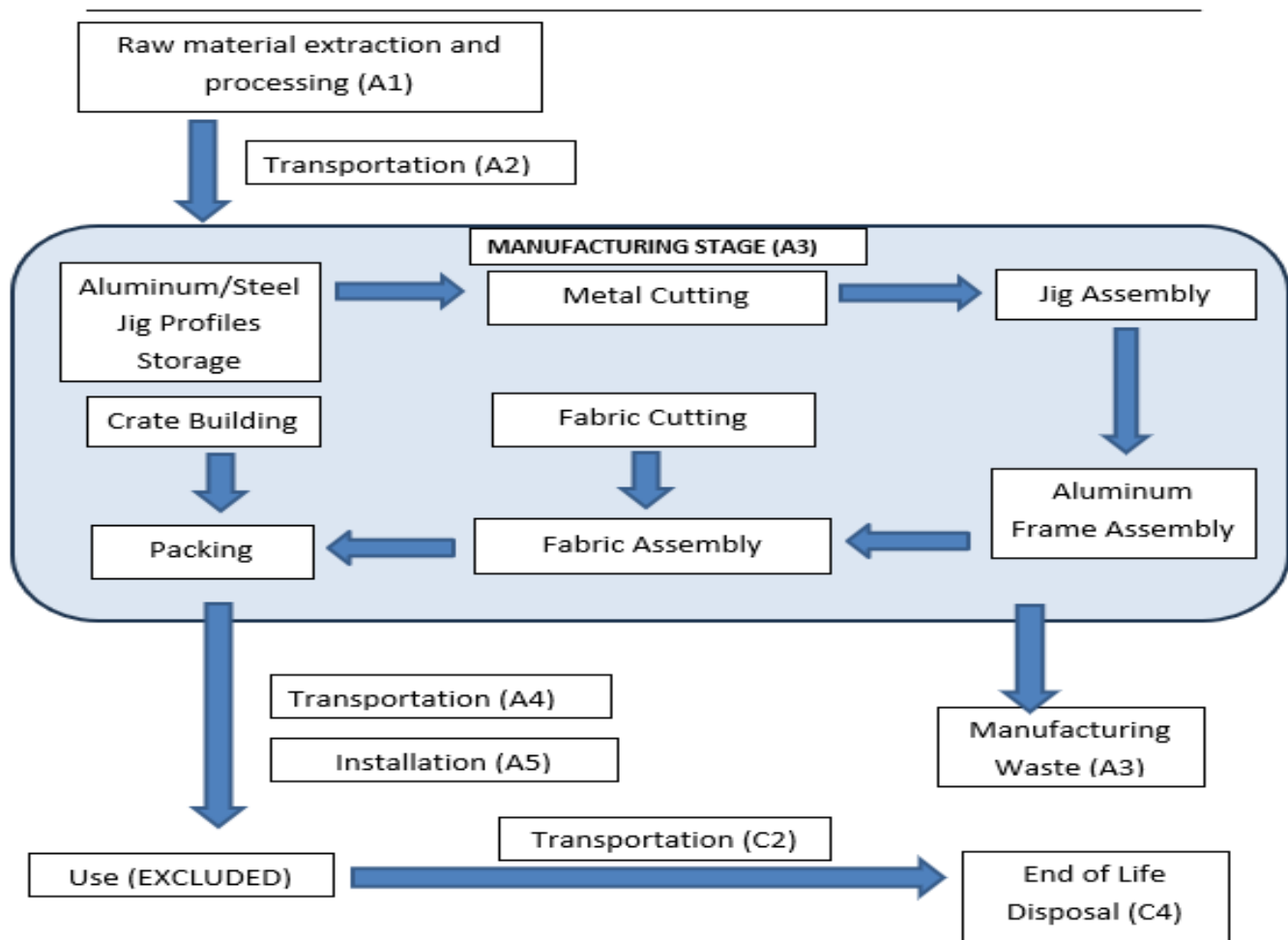
Plants



CertainTeed Architectural
61 Royal Group Crescent, Woodbridge, Vaughan, ON, Canada

Product Flow Diagram

LCA Study System Boundary for Decoustics (LightFrame)



Software and Database

LCA Software:

 Sphera LCA for Experts (formerly GaBi) v. 10.8

LCI Foreground Database(s):  GaBi Professional Database v. 2022

LCI Background Database(s):  Ecoinvent v. 3.9.1

Data Quality

Wherever secondary data is used, the study adopts critically reviewed data for consistency, precision, and reproducibility to limit uncertainty. The data sources used are complete and representative of North America (depending on the material source) in terms of the geographic and technological coverage and are less than ten years old. Any deviations from these initial data quality requirements for secondary data are documented in the report.

The results of an LCA are only as good as the quality of input data used. Important data quality factors include precision (measured, calculated, or estimated), completeness, consistency, and reproducibility. The primary data from the manufacturing facilities was from January 2023 to December 2023. Each background dataset used was taken from the Sphera LCA FE, US LCI, and Ecoinvent v3.9.1 databases. These databases are widely distributed and referenced within the LCA community and are either partially or fully critically reviewed.

Life Cycle Module Descriptions

Raw Materials (Module A1)

A thorough analysis of the material inputs was completed for the inventory of this study.

Raw Material Transportation (Module A2)

Raw materials are transported to the manufacturing sites by standard freight truck or ocean freighters. Unless otherwise noted, transport vehicles are fueled with diesel fuel.

Manufacturing (Module A3)

A detailed analysis of the ceiling tile manufacturing process was completed by the Saint-Gobain North American Environmental, Social and Governance (ESG) department to observe and understand the manufacturing processes for the Decoustics ceiling panels.

Extruded aluminum profiles, steel jigs, and fabrics are received and stored upon arrival at the facility. The aluminum extrusions and jigs are then cut using saws according to the work orders. Next, the aluminum frames and jigs are assembled with the necessary hardware. The fabrics for the front and back of the panels are also cut to the specified panel sizes, then applied, stretched, and secured with rubber cord around the edges. After the face material is applied, the finished product is packaged in a crate made from cardboard or a wooden skid, ready for shipment.

Packaging (Module A3)

Packaging of the final product after production is included in the life cycle assessment. The product is packaged in crate made from cardboard/wooden skid before being shipped. The weight of each material per square foot of finished product was calculated.

Final Product Transportation (Module A4)

Final products are transported on trucks throughout the United States and Canada. This study assumed an average of 800 km for the final shipment of product based on the assumption within the PCR.

Installation (Module A5)

The Decoustics panels must be installed in accordance with all applicable CertainTeed installation guidelines at the time of installation. Approved installation procedures are in the Ceilings/Wall Systems Handbook published by the Ceilings & Interior Systems Construction Association must be followed. Please follow link to handbook

<https://www.cisca.org/i4a/pages/index.cfm?pageid=3281>

Installation of Decoustics is accomplished by manual labor and typically does not require any additional materials. If necessary, cutting is done by hand using handheld cutting tools.

There are no apparent risks involved with the installation of Decoustics' panels since no additional coating or finishing is required. The installer should wear safety glasses while installing the panels to avoid debris from falling into the eyes as well as approved gloves.

Based on discussions with Decoustics personnel, a scrap rate of 1% was used for this study, due to the highly custom nature of the product and the resulting minimal product loss per functional unit was generated by calculating the total scrap rate for each product. The waste materials at the construction site before waste processing included the product loss per functional unit and packaging waste.

Within the LCA FE model, transportation of installation waste and disposal of packaging and product loss were included within this study. All installation waste disposal is based off Part A (Product Category Rules for Building-Related Product and Services: Part A – Life Cycle Assessment Calculation Rules and Report Requirements. Version 4. March 2022. UL Environment) guidance.

Use Phase (Modules B1-B5)

The use phase is excluded from the study.

End of Life (Modules C1-C4)

This study assumes a product service life of 30 years. The selected service life used in this study reflects the indicated in the PCR. Per Part A (Part A: Life Cycle Assessment Calculation Rules and Report Requirements UL Environment December 2018, version 3.2) guidance, see end of life disposal assumptions in Table 4 9. For this study all scrap rate materials were considered “Other materials.”

Deconstruction of Decoustics is accomplished by manual labor and typically does not require any additional materials. If necessary, cutting is done by hand using handheld cutting tools. No additional electricity is required for deconstruction.

LCA Discussion

Allocation Procedure

The Woodbridge, ON facility is the only location that produces the Decoustics Ceiling Panel product lines in Canada for CertainTeed Corporation. However, there are additional products produced at this location. The wood ceiling products are excluded from the study. The allocation for this Life Cycle Assessment (LCA) was based on production area, which can limit the accuracy of results when production mass plays a significant role in resource consumption or environmental impact. Relying solely on production area may overlook critical factors related to the scale of production, so it is important to consider that when using the results from this report. The study used the cut-off approach. No credit was taken for recycled content at end of life.

Cut-off Procedure

All inputs and outputs to a process shall be included in the calculation of results, for which data are available. Any data gaps are filled by conservative assumptions with average, generic, or proxy data.

For hazardous substances, as defined by the U.S. Resource Conservation and Recovery Act (RCRA), the following requirements apply:

- The Life Cycle Inventory (LCI) of hazardous substances will be included if the inventory is available.
- If the LCI for a hazardous substance is not available, the substance will appear as an input in the LCI of the product, if its mass represents more than 0.1% of the product composition.
- If the LCI of a hazardous substance is approximated by modeling another substance, documentation will be provided.

This LCA is in compliance with the cut-off criteria since no known processes were neglected or excluded from this analysis outside of the specific items outside the system boundary.

Renewable Electricity

Energy Attribute Certificates (EACs) such as Renewable Energy Certificates (RECs) or Power Purchase Agreements (PPAs) are included in the baseline reported results:

✗ No

Scenarios

Transport to the building/construction site (A4)

A4 Module

Fuel Type:	Diesel
Liters of Fuel:	30 l/100km
Vehicle Type:	Standard Freight Trailer
Transport Distance:	800 km
Capacity Utilization:	85 %
Packaging Mass:	0.11 kg
Capacity utilization volume factor:	<1
Assumptions for scenario development:	Final products are transported on trucks throughout the United States. This study assumed an average of 800 km for the final shipment of product based on the assumption within the PCR.

Installation in to the building/construction site (A5)

A5 Module

Installation Scrap Rate Assumed:	1 %
Product Lost per Functional Unit:	0.0063 kg
Waste Materials at the Construction Site Before Waste Processing:	0.0417 kg
Biogenic Carbon Contained in Packaging:	0.0048 kg
Assumptions for scenario development:	The Decoustics panels must be installed in accordance with all applicable CertainTeed installation guidelines at the time of installation. Approved installation procedures are in the Ceilings/Wall Systems Handbook published by the Ceilings & Interior Systems Construction Association must be followed. Please follow link to handbook https://www.cisca.org/i4a/pages/index.cfm?pageid=3281 Installation of Decoustics is accomplished by manual labor and typically does not require any additional materials. If necessary, cutting is done by hand using handheld cutting tools. There are no apparent risks involved with the installation of Decoustics' panels since no additional coating or finishing is required. The installer should wear safety glasses while installing the panels to avoid debris from falling into the eyes as well as approved gloves.

End of Life (C1 - C4)

C1 - C4 Modules

Recovery

Recycling:	0.3310 kg
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Disposal

Product or Material for Final Disposal:	0.0621 kg
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Assumptions for scenario development:

This study assumes a product service life of 30 years. The selected service life used in this study reflects the indicated in the PCR. Per Part A (Part A: Life Cycle Assessment Calculation Rules and Report Requirements UL Environment December 2018, version 3.2) guidance, see end of life disposal assumptions in Table 4.9. For this study all scrap rate materials were considered "Other materials." Deconstruction of Decoustics is accomplished by manual labor and typically does not require any additional materials. If necessary, cutting is done by hand using handheld cutting tools. No additional electricity is required for deconstruction.

Results

Environmental Impact Assessment Results

IPCC AR5 GWP 100, TRACI 2.1, CML 2016 v4.8

per 0.093 m2 of product .

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Impact Category	Method	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
GWP-total	IPCC AR5 GWP 100	kg CO2 eq	5.34	0.0474	0.0201	ND	0.00207	ND	0.0374
ODP	TRACI 2.1	kg CFC 11 eq	6.14e-9	1.77e-12	5.59e-14	ND	7.74e-14	ND	1.35e-12
AP	TRACI 2.1	kg SO2 eq	0.0156	0.000281	0.0000818	ND	0.0000123	ND	0.000221
EP	TRACI 2.1	kg N eq	0.0027	0.0000156	0.0000265	ND	6.81e-7	ND	0.0000121
POCP	TRACI 2.1	kg O3 eq	0.186	0.00774	0.000432	ND	0.000338	ND	0.006
ADP-fossil	CML 2016 v4.8	MJ	68.9	0.597	0.0294	ND	0.0261	ND	0.473
GWP-fossil	IPCC AR5 GWP 100	kg CO2 eq	5.5	0.0474	0.0172	ND	0.00207	ND	0.0374

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

GWP = Global Warming Potential, 100 years (may also be denoted as GWP-total, GWP-fossil (fossil fuels), GWP-biogenic (biogenic sources), GWP-luluc (land use and land use change)), ODP = Ozone Depletion Potential, AP = Acidification Potential, EP = Eutrophication Potential, SFP = Smog Formation Potential, POCP = Photochemical oxidant creation potential, ADP-Fossil = Abiotic depletion potential for fossil resources, ADP-Minerals&Metals = Abiotic depletion potential for non-fossil resources, WDP = Water deprivation potential, PM = Particular Matter Emissions, IRP = Ionizing radiation, human health, ETP-fw = Eco-toxicity (freshwater), HTP-c = Human toxicity (cancer), HTP-nc = Human toxicity (non-cancer), SQP = Soil quality index.

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Any comparison of EPDs shall be subject to the requirements of ISO 21930 or EN 15804. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparison can be inaccurate, and could lead to erroneous selection of materials or products which are higher-impact, at least in some impact categories.

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Any comparison of EPDs shall be subject to the requirements of ISO 21930 or EN 15804. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparison can be inaccurate, and could lead to erroneous selection of materials or products which are higher-impact, at least in some impact categories.

Resource Use Indicators

per 0.093 m2 of product .

Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
RPRE	MJ	25.2	ND	0.00136	ND	ND	ND	0.00252
RPRM	MJ	0.513	ND	ND	ND	ND	ND	ND
NRPRE	MJ	82.5	0.602	0.0299	ND	0.0263	ND	0.478
NRPRM	MJ	0.253	ND	ND	ND	ND	ND	ND
SM	kg	0.369	ND	ND	ND	ND	ND	ND
RSF	MJ	ND	ND	ND	ND	ND	ND	ND
NRSF	MJ	ND	ND	ND	ND	ND	ND	ND
FW	m3	0.0756	ND	0.00000305	ND	ND	ND	0.00000263
RE	MJ	ND	ND	ND	ND	ND	ND	ND

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

RPRE or PERE = Renewable primary resources used as energy carrier (fuel), RPRM or PERM = Renewable primary resources with energy content used as material, RPRT or PERT = Total use of renewable primary resources with energy content, NRPRE or PENRE = Non-renewable primary resources used as an energy carrier (fuel), NRPRM or PENRM = Non-renewable primary resources with energy content used as material, NRPT or PENRT = Total non-renewable primary resources with energy content, SM = Secondary materials, RSF = Renewable secondary fuels, NRSF = Non-renewable secondary fuels, RE = Recovered energy, ADPF = Abiotic depletion potential, FW = Use of net freshwater resources, VOCs = Volatile Organic Compounds.

Waste and Output Flow Indicators

per 0.093 m2 of product .

Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
HWD	kg	4.03e-7	ND	2.7e-12	ND	ND	ND	5.03e-12
NHWD	kg	0.99	ND	0.029	ND	ND	ND	0.0622
HLRW	kg	0.00000575	ND	1.3e-10	ND	ND	ND	2.42e-10
ILLRW	kg	0.00479	ND	1.16e-7	ND	ND	ND	2.16e-7
CRU	kg	ND	ND	ND	ND	ND	ND	ND
MFR	kg	ND	ND	0.00835	ND	ND	0.331	ND
MER	kg	ND	ND	ND	ND	ND	ND	ND
RWD	kg	ND	ND	ND	ND	ND	ND	ND

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

HWD = Hazardous waste disposed, NHWD = Non-hazardous waste disposed, RWD = Radioactive waste disposed, HLRW = High-level radioactive waste, ILLRW = Intermediate- and low-level radioactive waste, CRU = Components for re-use, MFR or MR = Materials for recycling, MER = Materials for energy recovery, MNER = Materials for incineration, no energy recovery, EE or EEE = Recovered energy exported from the product system, EET = Exported thermal energy.

Carbon Emissions and Removals
per 0.093 m2 of product .

Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
BCRP	kg CO2	ND	ND	ND	ND	ND	ND	ND
BCEP	kg CO2	ND	ND	ND	ND	ND	ND	ND
BCRK	kg CO2	-0.0176	ND	ND	ND	ND	ND	ND
BCEK	kg CO2	ND	ND	0.0176	ND	ND	ND	ND
BCEW	kg CO2	ND	ND	ND	ND	ND	ND	ND
CCE	kg CO2	ND	ND	ND	ND	ND	ND	ND
CCR	kg CO2	ND	ND	ND	ND	ND	ND	ND
CWNR	kg CO2	ND	ND	ND	ND	ND	ND	ND

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

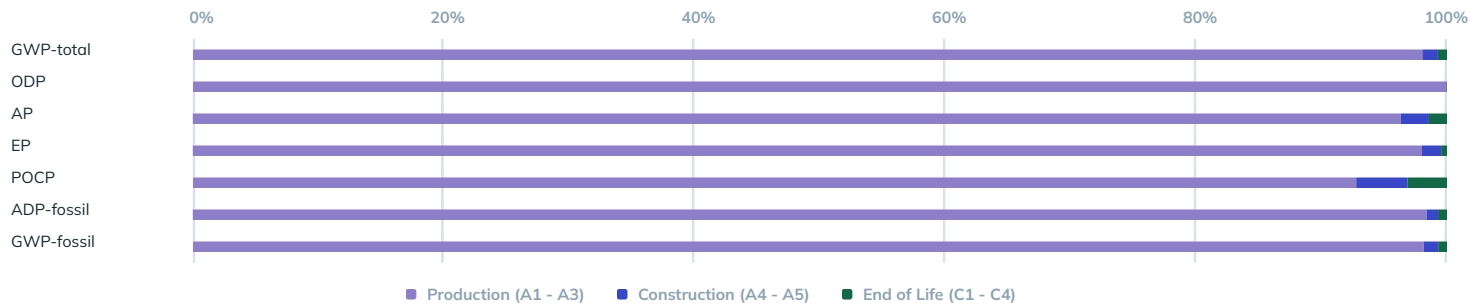
BCRP = Biogenic Carbon Removal from Product, BCEP = Biogenic Carbon Emission from Product, BCRK = Biogenic Carbon Removal from Packaging, BCEK = Biogenic Carbon Emission from Packaging, BCEW = Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes, CCE = Calcination Carbon Emissions, CCR = Carbonation Carbon Removals, CWNR = Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes, GWP-luc = Carbon Emissions from Land-use Change.

Impact Scaling Factors

Product Name and/or Product Attribute	Product Specific Functional/Declared Unit Multiplier
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Interpretation

Based on the results from the life cycle assessment, the life cycle impacts are strongly driven by the raw materials and manufacturing processes. These two stages account for nearly 99% of the entire Global Warming Potential (GWP) for the LightFrame product. Since the manufacturing stage accounts for about 30% of the GWP, it would be recommended to increase energy efficiency to help reduce the overall impacts for the products. Within the manufacturing stage, natural gas consumption makes up nearly 89% of the impacts. Switching to renewable energy sources would be recommended to decrease the GWP impacts of manufacturing. If possible, incorporating more recycled content, replacing virgin aluminum, into the product will help reduce the environmental impacts of the raw materials stage in the life cycle of the ceiling panels. As recycled content increases, the raw materials driving impacts will decrease, thus improving the overall environmental impacts. The aluminum was the largest contributor to the raw material impacts for the ceiling product line. This material was responsible for more than 86% of the environmental impact potentials in the global warming category.



Modified Impact Results: Renewable Electricity per 0.093 m2 of product .

Impact Category	Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
GWP-total	ND	kg CO2 eq	5.28	0.0474	0.0201	ND	0.00207	ND	0.0374
ODP	ND	kg CFC 11 eq	6.41e-9	1.77e-12	5.59e-14	ND	7.74e-14	ND	1.35e-12
AP	ND	kg SO2 eq	0.0156	0.000281	0.0000818	ND	0.0000123	ND	0.000221
EP	ND	kg N eq	0.00274	0.0000156	0.0000265	ND	6.81e-7	ND	0.0000121
POCP	ND	kg O3 eq	0.186	0.00774	0.000432	ND	0.000338	ND	0.006
ADP-fossil	ND	MJ	ND	ND	ND	ND	ND	ND	ND
GWP-fossil	ND	kg CO2 eq	5.44	0.0474	0.0172	ND	0.00207	ND	0.0374
ADP-fossil	ND	MJ	68	0.597	0.0294	ND	0.0261	ND	0.473

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

GWP = Global Warming Potential, 100 years (may also be denoted as GWP-total, GWP-fossil (fossil fuels), GWP-biogenic (biogenic sources), GWP-luluc (land use and land use change)), ODP = Ozone Depletion Potential, AP = Acidification Potential, EP = Eutrophication Potential, SFP = Smog Formation Potential, POCP = Photochemical oxidant creation potential, ADP-Fossil = Abiotic depletion potential for fossil resources, ADP-Minerals&Metals = Abiotic depletion potential for non-fossil resources, WDP = Water deprivation potential, PM = Particulate Matter Emissions, IRP = Ionizing radiation, human health, ETP-fw = Eco-toxicity (freshwater), HTP-c = Human toxicity (cancer), HTP-nc = Human toxicity (non-cancer), SQP = Soil quality index.

Saint-Gobain is committed to achieving Carbon Neutrality by 2050. In January 2021, Saint-Gobain North America started receiving Renewable Energy Certificates (RECs) from a 12-year virtual power purchase agreement (vPPA) with the Blooming Grove Wind Farm in McLean County, Illinois. Each year within the agreement, the company receives and retires these RECs, effectively reducing CO2 equivalent emissions from electricity usage in the United States and Canada.

The updated results incorporate the impact of RECs on the electricity used in the manufacturing process (A3). The reduced impacts resulting from allocated RECs at the Woodbridge, Ontario site were calculated using 100% wind-generated electricity, covering 47% of the plant's electricity consumption in 2023. The REC data was modeled using the 'US-SERC Electricity production, wind, 1-3MW turbine, onshore' dataset, with a carbon intensity of 13.2 kg CO2e/MWh*. Any remaining energy not covered by RECs was modeled based on local energy grid information for the manufacturing site(s).

References

- Product Category Rules for Building-Related Product and Services: Part A – Life Cycle Assessment Calculation Rules and Report Requirements. Version 4. March 2022. UL Environment.
- Product Category Rule Guidance for Building-Related Products and Services Part B: Non-Metal Ceiling and Interior Wall Panel EPD Requirements, Version 2.0 2021. UL Environment.
- ISO 14040: 2006 Series – Environmental Management-Life Cycle Assessment
- ISO 21930:2017– Sustainability in building construction – Environmental declaration of building products
- LCA FE Databases. <https://LCA FE.sphera.com/america/>
- US LCI Database. <https://www.nrel.gov/lci/>
- Ecoinvent v3.9 Database. <http://ecoinvent.org/>
- CertainTeed Ceilings and Walls Website. <https://www.certainteed.ca/ceilings-decoustics>