Fiberglass Picture, Casement and Awning Windows (Series 2100, Series 4500 and Series 6500)

SILEX FIBERGLASS WINDOWS & DOORS

ENVIRONMENTAL PRODUCT DECLARATION

ISO 14025:2006 and ISO 21930:2017

ASTM INTERNATIONAL

SILEX FIBERGLASS WINDOWS & DOORS is pleased to present this Environmental Product Declaration (EPD) for their picture, casement and awning windows (Series 2100, Series 4500, Series 6500). This EPD was developed in compliance with ISO 14025 and ISO 21930 and has been verified by Lindita Bushi, Ph D, Athena Sustainable Materials Institute.

The LCA and the EPD were preparated by Vertima Inc. The EPD includes cradle-to-gate life cycle assessment (LCA) results.

For more information about SILEX FIBERGLASS WINDOWS & DOORS, visit www.silexfiberglass.com

For any explanatory material regarding this EPD, please contact the program operator.

1. GENERAL INFORMATION

PCR GENERAL INFORMATION			
Reference PCR	NSF 1102-23 Product Category Rule for Environmental Product Declaration: Fenestration Assemblies NSF International January 1, 2024 to December 31, 2028 (validity period)		
The PCR review was conducted by:	*Thomas Gloria, PhD (chair)* *Industrial Ecology Consultants* *t.gloria@industrial-ecology.com*	*Jack Geibig* *EcoForm* *jgeibig@ecoform.com*	*Bill Stough* *Bill Stough, LLC* *bill@billstough.net*

EPD GENERAL INFORMATION		
Program Operator	ASTM International 100 Barr Harbor Drive, West Conshohocken, PA 19428 USA www.astm.org	
Declared Products	**Fiberglass Picture, Casement and Awning Windows (Series 2100, Series 4500, Series 6500)**	
EPD Registration Number 1061	**EPD Date of Issue** September 8, 2025	**EPD Period of Validity** 5 Years
EPD Recipient Organization	SILEX FIBERGLASS WINDOWS & DOORS 1450 Wall Street Winnipeg (Manitoba) R3E 2S3 Canada www.silexfiberglass.com	

EPD Type/Scope and Declared Unit	**Year of Reported Manufacturer Primary Data**
Product-specific cradle-to-gate EPD with declared unit of one square metre (1 m^2)	2023

Geographical Scope	**LCA Software**	**LCI Databases**	**LCIA Methodology**
North America	OpenLCA v.2.1	Ecoinvent 3.9.1 and US LCI	TRACI 2.1 and IPCC AR5

This LCA and EPD were prepared by:	Vertima Inc. www.vertima.ca
This EPD and LCA were independently verified in accordance with ISO 14025:2006, ISO 14040:2006, ISO 14044:2006. ISO 2190:2017 serves as the core PCR and the NSF International PCR "NSF 1102-23 Product Category Rule For Environmental Product Declaration: Fenestration Assemblies", which is used as the specific PCR. ☐ ☒ External	Lindita Bushi Lindita Bushi, PhD Athena Sustainable Materials Institute

The owner of the declaration shall be liable for the underlying information and evidence; ASTM, or its affiliates, shall not be liable with respect to manufacturer information, life cycle assessment data, and evidence.

LIMITATIONS

"This EPD meets all comparability requirements stated in ISO 14025:2006. [1] However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers or programs, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the construction works level per ISO 21930:2017 guidelines. [2] The results presented in this EPD reflect an average performance by the products and its actual impacts may vary on a case-to-case basis." [3, p. 15]

Given concerns about variable or nonexistent waste flows in commercially available LCIs, the following statement shall accompany the waste metrics: "Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-gate waste performance between products should be derived from these reported values." [3, p. 31]

96 St. Mary's Road Apartment Project – Winnipeg, MB (Photo Courtesy of SILEX FIBERGLASS WINDOWS & DOORS)

2. PRODUCT SYSTEM DESCRIPTION

A Canadian window and door industry player, Silex Fiberglass Windows & Doors, a company based in Manitoba (MB) Canada, specializes in pultruded fiberglass windows and doors systems, which are one of the best choices for extreme hot and cold temperatures. Pultruded fiberglass profiles provide better insulation than the traditional materials used for windows and doors. Its thermal conductibility ratio is 500x lower than aluminium's. Insulating the frame and sash components reduces the conductivity even further, allowing for the creation of some of the most energy efficient window and door systems. Targeting the North American market, Silex Fiberglass Windows & Doors manufactures many types of windows. This encompasses picture, casement and awning windows, which are available in various series (such as Series 2100, Series 4500, Series 6500), and can be tailored to meet specific customer requirements. All the products studied in this EPD are manufactured at the Silex Fiberglass Windows & Doors plant, which is located at 1450 Wall Street, Winnipeg, Manitoba, R3E 2S3 Canada.

2.1. PRODUCT DESCRIPTION

The Silex Fiberglass Windows & Doors company name was inspired by "silica," the essential element found in both the glazing unit and frame. Silex fiberglass products meet the AAMA/WDMA/CSA 101/I.S.2/A440 standards of high-performance.

Fabricated and factory-assembled Silex Fiberglass windows have three main product specifications. Firstly, the frame is filled with high-density insulation: pultruded fiberglass with an outward sash. The frame is reinforced with mechanical joints and sealed with silicone. Secondly, the glazing system is offered with double or triple glazing with a Low-E coating. The glazing cavity is edge-drained and vented to the exterior through concealed drainage and vent holes, ensuring proper water management. Thirdly, the weather-stripping consists of the three-seal design which conforms to the rain screen principle: a single foam-filled weather stripping on the sash and a dual foam on frame.

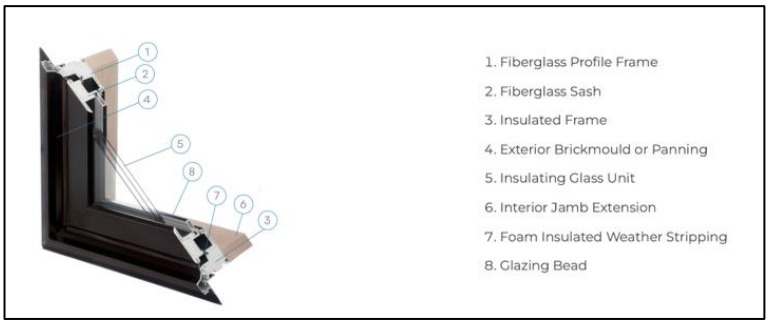


Figure 1: Silex Fiberglass Windows & Doors product diagram

Silex Fiberglass Windows & Doors products are designed with customized shapes, sizes and finish. As in the typical windows and doors manufacturing process, all individual components such as the glazing system, framing, hardware (hinges, locks, handles, jamb extensions, gaskets, screws, etc.) are delivered to the manufacturing site.

The manufacturer provides a one-year warranty, from the date of completion, covering material defects. Additionally, the manufacturer provides a 10-year warranty on the glazing and a lifetime warranty on the fiberglass frame. The reference service life (RSL) is not addressed by NSF PCR. [3, p. 17]

Product technical specification

The Product Construction Specification Institute (CSI) MasterFormat code is 08 50 00 for Windows. Online product resources for architects and engineers can be found on the Silex website (https://silexfiberglass.com/resources/).

Silex certifies that its products comply with superior quality standards. This is evidenced by third-party test performance, certifications and labeling programs to ensure that all products meet or exceed North American building codes and regulations, including the following standards:

- AAMA/WDMA/CSA 101/I.S.2/A440-08, NAFS—North American Fenestration Standard/Specification for windows, doors and skylights
- AAMA/WDMA/CSA 101/I.S.2/A440-11, NAFS—North American Fenestration Standard/Specification for windows, doors and skylights
- AAMA/WDMA/CSA 101/I.S.2/A440-17, NAFS—North American Fenestration Standard/Specification for windows, doors and skylights
- AAMA/WDMA/CSA 101/I.S.2/A440-22, NAFS—North American Fenestration Standard/Specification for windows, doors and skylights
- CSA A440S1-09, Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS—North American Fenestration Standard/Specification for windows, doors and skylights
- CSA A440S1-17, Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS—North American Fenestration Standard/Specification for windows, doors and skylights
- CSA A440S1-19, Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS—North American Fenestration Standard/Specification for windows, doors and skylights
- CSA A440.2-14/A440.3-14, Fenestration Energy Performance/User's Guide to CSA A440.2-14, Fenestration Energy Performance
- NFRC 100-2023, Procedure for Determining Fenestration Product U-factors
- NFRC 200-2023, Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Light Transmittance
- NFRC 500-2017, Procedure for Determining Fenestration Product Condensation Resistance Values

Other standards applicable to windows and doors as defined in the Canadian National Building Code, including:

- AAMA 450-20, ASTM E283/E283M19, ASTM E330/E330M-14(2021), ASTM E547-00(2016), ASTM F588-17
- ASTM E2190, ASTM F476, CGSB 12.1, CGSB 12.2, CGSB 12.3, CGSB 12.4, CGSB 12.8, CGSB 12.10, CGSB 12.11, CGSB 12.20, NAFS and the Canadian Supplement for NAFS, A440S1, A440.2/.3. A440.4. and A440.6

Further details on test performance and standards can be provided by the manufacturer. Silex products contribute to the Passive House Canada certification (Victoria, British Columbia).

2.2. PRODUCT COVERED BY THE EPD

The following three types of windows are covered in this EPD: picture windows, casement windows and awning windows. Each of these window types is representative of the average of this type for Series 2100, Series 4500 and Series 6500. These series are also known as 2100 Series, 4500 Series, and 6500 Series.

2.3. MATERIAL COMPOSITION

Silex Fiberglass Windows & Doors products are available in various sizes and configurations. Table 1 shows the mass composition of the window types studied, which has been normalized to one square metre ($1m^2$). The average mass composition of each window type (e.g. picture windows average) represents the average for Series 2100, Series 4500 and Series 6500.

Table 1: Average composition for one square metre (1 m^2) of Silex fiberglass windows from 2023

Materials /Inputs	Picture Windows Average	Casement Windows Average	Awning Windows Average
LP	11.3%	0.0%	0.0%
Glazing Stop	1.3%	1.1%	1.1%
Glass	79.2%	66.0%	66.0%
Metal	5.0%	4.3%	4.3%
Silicone	0.5%	0.3%	0.3%
Tape	0.2%	0.2%	0.2%
Drain Hole Cover	0.1%	0.0%	0.0%
Corner Keys	0.8%	1.1%	1.1%
Screws	0.5%	0.1%	0.1%
Operator	0.0%	11.9%	11.9%
Sash	0.0%	9.9%	9.9%
Hardware	0.0%	4.0%	4.0%
Weatherstripping	0.0%	0.3%	0.3%
4.5 Jmb (Jamb extension)	0.4%	0.3%	0.3%
6.5 Jmb (Jamb extension)	0.6%	0.5%	0.5%
TOTAL	100.0%	100.0%	100.0%

2.4. PRODUCT APPLICATION

Silex Fiberglass Windows & Doors manufactures a wide range of high-performance windows and doors used in residential and commercial constructions. They provide a durable and aesthetically pleasing finish to architecturally exposed areas of buildings such as hospitals, schools, cafeterias, shopping centres, condominiums, cottages and countless other structures.

Should you require further details, please visit: https://silexfiberglass.com/projects/

The image below shows Silex fiberglass windows in the Tla'amin Youth Centre project in British Columbia's Indigenous communities.

Tla'amin Youth Centre – Powell River, BC (Photo courtesy of SILEX FIBERGLASS WINDOWS & DOORS)

2.5. MANUFACTURING

Typical Silex Fiberglass Windows & Doors manufacturing processes include the production of pultruded fiberglass, cutting extruded profiles, shaping of profiles, assembly of profiles and infill and building hardware into a complete finished window or door product. Different components are used such as insulated glazing unit blocks, sealants, drain hole covers, gaskets, operators, screws, corner key and jamb extensions. Processing includes chemicals such as glass cleaner and lubricating oil. No electrical motors or devices for opening/closing of windows or doors are covered by the manufacturing processes considered in this LCA's study. Figure 2 shows the flow diagram for the life cycle stages (A1-A3) of Silex Fiberglass Windows & Doors products.

With regard to other window and door products manufactured in the same plant, as far as possible, the Silex Fiberglass Windows & Doors manufacturing process is divided into different sub-process which can be allocated to the other products by collecting input and output data related to the product under study. Water consumption was not related to the manufacturing of products under study.

According to information provided by the manufacturer, window production does not generate significant waste. The main waste collected is metals and cardboard packaging, which are sent to recycling centres. Office waste and contaminated cardboard from the Silex Fiberglass Windows & Doors plant are sent to landfill.

The window types manufactured and under study are packaged with packaging materials detailed in the section below.

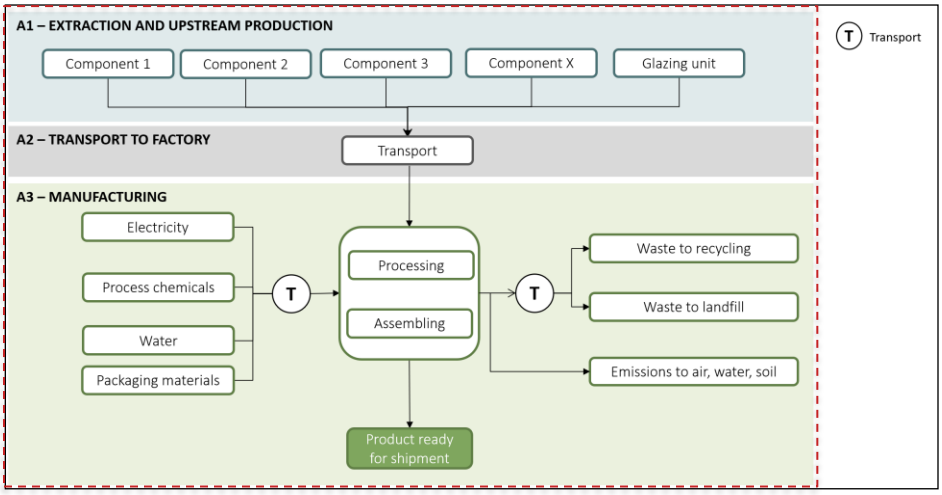


Figure 2: Cradle-to-gate flow diagram of the Silex Fiberglass Windows & Doors products

2.6. PACKAGING

Silex Fiberglass Windows & Doors products are packaged in various materials, including corrugated wrap, shrink wrap and 2”x4” wooden pallet blocks for transport to the point of sale. Secondary packaging, which is not relevant, shall be an exception of inputs in LCA models.

2.7. DISPOSAL

According to the NSF PCR [3] assumptions, as this PCR does not address Module A5 and Modules C1-C4 (End-of-Life), the disposal of the fenestration assembly is not included in the LCA framework.

3. LCA CALCULATION RULES

3.1. DECLARED UNIT

According to the PCR [3], the declaration unit (DU) selected for this study is **one (1) square metre** (1 m^2) of fenestration assemblies. This includes the frame and glazing meeting the relevant ANSI/NFRC 100 performance standards per the identified window types (picture, casement and awning windows). The declared unit refers to the finished product and its packaging. The EPD results shall be disclosed separately for the frame and glazing. In addition, the reference unit is in kilograms (kg) per 1 m^2.

Glazing beads and stops, sealants, gaskets, and other parts that retain or support the glazing are considered as part of the framing assembly and not the glazing assembly.

Table 2: Declared unit (DU) and reference flows for the Silex fiberglass product systems under study

Materials /Inputs	Unit	Picture Windows Average	Casement Windows Average	Awning Windows Average
Declared Unit	m^2	1	1	1
Mass - Average	kg	5.08E+01	6.28E+01	6.17E+01
Product density – Average	kg/m^3	4.15E+02	5.13E+02	5.04E+02
Product thickness – Average	cm	12.25	12.25	12.25

Note: Product means a finished product including the frame and glazing.

3.2. PRODUCTION AVERAGE

This EPD of Silex Fiberglass Windows & Doors windows covers an average of the wide range of performance and aesthetic variation of three series (Series 2100, Series 4500, Series 6500), where the products (window types) must be functionally equivalent and comply with the ±10% difference requirement on environmental indicators for an average composition.

3.3. REFERENCE PERIOD

The reference period is the 2023 calendar year (from January 1, 2023 to December 31, 2023).

3.4. SYSTEM BOUNDARIES

The system boundaries are cradle-to-gate, i.e., only cover the production life cycle stage as illustrated in

Table 3. Within this life cycle stage, three (3) modules are considered, namely A-1) Extraction and Upstream Production, A-2) Transport to Factory and A-3) Manufacturing. Thus, the other life cycle stages (Construction (A-4; A-5), Use (B-1 to B-7) and End-of-life (C-1 to C-4)) are not included in this study.

Table 3: Description of the system boundary life cycle stages and related information modules

PRODUCTION STAGE			CONSTRUC-TION PROCESS STAGE		USE STAGE							END-OF-LIFE STAGE			
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
Extraction and Upstream Production	Transport to Factory	Manufacturing	Transport to site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction / Demolition	Transport to Waste Processing or Disposal	Waste Processing	Disposal of Waste
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Key: X = included; MND = module not declared (excluded)

Production (modules A1 to A3)

Extraction and upstream production (module A1): This module includes all components used in the process. These components include the parts of the frame, the glazing unit and their respective packaging.

Transport to factory (module A2): This module includes the transportation of raw materials from suppliers to the Silex Fiberglass Windows & Doors manufacturing plant in Winnipeg, Manitoba, Canada.

Manufacturing (module A3): This module includes energy consumption (electricity) for the manufacturing processes. Natural gas consumption relating to building heating is also taken into consideration. Chemicals needed in the manufacturing process have been considered here, as well as their transport to the plant. Since the manufacturer has committed to recycling certain packaging materials, the transportation of these materials to the recycling centre is considered in module A3. No green power certificates are used in this LCA report as Silex Fiberglass Windows & Doors does not purchase biogas or CO_2 certificates or any other renewable energy certificates (RECs).

3.5. CUT-OFF CRITERIA

According to ISO 21930:2017 Section 7.1.8 [2] and the NSF PCR [3], if a mass flow or energy flow represents less than 1% of the cumulative mass or energy flow of the system, it may be excluded from the system boundaries. However, these flows should not have a relevant environmental impact. In addition, at least 95% of the energy usage, mass and environmental impact input flows shall be included. The cumulative mass or environmental impacts of the excluded flows shall not exceed 5% of the total mass and energy flows or potential environmental impacts.

In this study, no known primary data (input material, energy consumption) was deliberately excluded from the system boundaries. Using the principle of the cut-off approach in accordance with ISO 21930:2017, no environmental benefits associated with materials sent for recycling (cardboard, metals) were accounted for.

For the materials characterized as hazardous by the TRI,10 cut-off rules shall not be applied, and such substances shall be included in the inventory regardless of the percent of total mass.

Water consumption was assumed to be 100% dedicated to the employees and not to manufacturing processes of the product studied. In addition, primary data on the construction, maintenance or dismantling of the company's capital assets, daily transport of the employees, office work, business trips and other activity from Silex employees was not included in the model. The model only takes into account the flows associated with infrastructure amortization, which are already included in the ecoinvent unit processes.

3.6. ALLOCATION

The ISO 14044 [4] allocation procedure states that, whenever possible, allocation should be avoided by collecting data related to the process under study or by expanding the product system. According to ISO 14044, the next rule consists of partitioning the inputs and outputs between the different products in a way that reflects the physical relationship between them.

According to the NSF PCR [3, pp. 24-25], in this study, the mass allocation approach is used as the primary basis for the co-products of the Silex manufacturing process. The mass of yearly plant production of each product under study was required. The ecoinvent data allocation approach, "Allocation, cut-off by classification," attributes the impacts of secondary materials entering in the system to those that generated them and excludes the benefits associated with recycling materials. This is in line with the cut-off rule specified in ISO 21930:2017. Allocation and the cut-off approach has been used for recycled materials sent to recycling partners only to take into account the environmental impacts of transport. Mass allocation was used to partition the inputs and outputs of the production process.

96 St. Mary's Road Apartment Project – Winnipeg, MB (Photo Courtesy of SILEX FIBERGLASS WINDOWS & DOORS)

3.7. DATA SOURCES AND QUALITY REQUIREMENTS

Data Quality Parameter	Data Quality Discussion
Source of manufacturing data: Description sources of data	Manufacturing data was collected from the Silex Fiberglass Windows & Doors manufacturing plant located in Winnipeg, MB, Canada for the 2023 production year. This data included: total annual mass of products produced at the manufacturing plant: specific product composition; raw materials and fuels entering the product production process; transport distance of materials and fuels, electricity consumption, water consumption, emissions to the environment at the manufacturing plant, and packaging.
Source of secondary data: Description sources of raw materials, fuels and electricity data	In priority, background data was taken from ecoinvent 3.9.1 "cut-off" datasets representative of Canada, the United States or North America. When appropriate, the grid mix was changed for the grid mix of the province or country where production takes place. Otherwise, ecoinvent data representative of the global market or the "rest-of-the-world" was selected as proxies. Transport data were taken from the US LCI Database, which is specific to a North American context.
Geographical representativeness	The Silex Fiberglass Windows & Doors manufacturing facility is based in the province of Manitoba; hence, electricity consumption is based on the Manitoba grid mix and natural gas consumption from the same area supplier. Geographical correlation of the material supply and the selected datasets are largely representative of the same area. When this was not possible, datasets representing a larger geographical area were used.
Temporal representativeness	Primary data was collected so as to be representative of the full 2023 year, while this is not always the case for ecoinvent and US LCI datasets. Nevertheless, ecoinvent and US LCI remain the reference LCI databases used in this study.
Technological representativeness	Primary data, obtained from the manufacturer, is representative of the current technologies and materials used by this company.
Completeness	All relevant process steps were considered and modelled to satisfy the goal and scope. Cut-off criteria were respected. No known mass or energy flows were excluded.

4. LIFE CYCLE ASSESSMENT RESULTS

It should be noted that Life Cycle Impact Assessment (LCIA) results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

The results are reported for the declared unit (DU), i.e. **one (1) square metre** (1 m^2) of fenestration assemblies including the frame and glazing meeting the relevant ANSI/NFRC 100 performance standards per the identified window types (picture, casement and awning windows). For each window type, the results are presented for the total finished product and packaging (frame + glazing) and for the frame and the glazing separately.

4.1. ENVIRONMENTAL LIFE CYCLE IMPACTS

Table 4 to Table 9 present the LCIA results according to the PCR NSF 1102-23 and ISO 21930:2017, as minimum pre-set indicators to report impact categories. This set includes the TRACI 2.1 impact categories for the three life cycle modules (A1, A2 and A3). The term "potential" means that the impact scores do not represent the actual impacts measured but are the results of theoretical modelling using an impact assessment method such as TRACI 2.1.

96 St. Mary's Road Apartment Project – Winnipeg, MB (Photo Courtesy of SILEX FIBERGLASS WINDOWS & DOORS)

Table 4 : Life cycle impact assessment (LCIA) results for one square metre (1 m^2) of Silex Fiberglass Picture Windows (Frame + Glazing)

Environmental Indicator	Unit	Results for 1 m^2 DU of Picture Windows (Frame + Glazing)			
		A1	A2	A3	A1 - A3
TRACI 2.1					
GWP_{100}-AR5[(1)]	kg CO_2 eq.	8.52E+01	1.91E+00	1.07E+01	9.78E+01
GWP_{100}-AR4[(2)]	kg CO_2 eq.	8.40E+01	1.90E+00	1.06E+01	9.65E+01
AP	kg SO2 eq.	4.84E-01	1.59E-02	9.76E-03	5.10E-01
EP	kg N eq.	1.93E-01	1.11E-03	6.06E-03	2.00E-01
ODP	kg CFC-11 eq.	4.72E-06	4.85E-09	2.35E-07	4.96E-06
SFP	kg O_3 eq.	6.51E+00	4.30E-01	2.01E-01	7.14E+00
ADP_{Fossil}[(3)]	MJ, LHV	6.28E+02	1.67E+01	1.17E+01	6.57E+02
$ADP_{Element}$[(3)]	kg Sb eq.	1.00E-04	2.92E-08	2.98E-06	1.03E-04

GWP: Global Warming Potential; **AP**: Acidification Potential; **EP**: Eutrophication Potential; **ODP**: Ozone Layer Depletion Potential; **SFP**: Smog Formation Potential; **ADP_{Fossil}**: Abiotic Resource Depletion Potential of Non-Renewable (Fossil) Energy Resources; **$ADP_{Element}$**: Abiotic Resource Depletion Potential of Non-Renewable (Non-Fossil) Mineral Resources.

(1): GWP 100, excludes biogenic CO_2 removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2013 Fifth Assessment Report (AR5).
(2): GWP 100, excludes biogenic CO_2 removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2007 Fourth Assessment Report (AR4).
(3): Calculated according to CML-baseline, v.4.8, August 2016.

Table 5: Life cycle impact assessment (LCIA) results for one square metre (1 m^2) of Silex Fiberglass Picture Windows (Frame and Glazing separately)

Environmental Indicator	Unit	Results for 1 m^2 DU of Picture Windows (Frame and Glazing separately)						
		A1		A2		A3		A1 - A3
		FRAME	GLAZING	FRAME	GLAZING	FRAME	GLAZING	TOTAL SYSTEM
TRACI 2.1								
GWP_{100}-AR5[1]	kg CO_2 eq.	3.25E+01	5.27E+01	1.87E+00	3.91E-02	1.07E+01	1.78E-02	9.78E+01
GWP_{100}-AR4[2]	kg CO_2 eq.	3.21E+01	5.19E+01	1.86E+00	3.89E-02	1.06E+01	1.77E-02	9.65E+01
AP	kg SO2 eq.	1.44E-01	3.40E-01	1.56E-02	3.20E-04	9.64E-03	1.20E-04	5.10E-01
EP	kg N eq.	7.92E-02	1.14E-01	1.09E-03	2.46E-05	6.04E-03	1.55E-05	2.00E-01
ODP	kg CFC-11 eq.	1.63E-06	3.09E-06	4.71E-09	1.40E-10	2.35E-07	2.40E-10	4.96E-06
SFP	kg O_3 eq.	2.17E+00	4.34E+00	4.21E-01	8.78E-03	1.95E-01	5.10E-03	7.14E+00
ADP_{Fossil}[3]	MJ, LHV	2.69E+02	3.60E+02	1.62E+01	5.51E-01	1.16E+01	1.44E-01	6.57E+02
$ADP_{Element}$[3]	kg Sb eq.	2.02E-05	7.98E-05	2.91E-08	3.01E-11	2.97E-06	8.47E-09	1.03E-04

GWP: Global Warming Potential; **AP**: Acidification Potential; **EP**: Eutrophication Potential; **ODP**: Ozone Layer Depletion Potential; **SFP**: Smog Formation Potential; **ADP_{Fossil}**: Abiotic Resource Depletion Potential of Non-Renewable (Fossil) Energy Resources; **$ADP_{Element}$**: Abiotic Resource Depletion Potential of Non-Renewable (Non-Fossil) Mineral Resources.

(1): GWP 100, excludes biogenic CO_2 removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2013 Fifth Assessment Report (AR5).

(2): GWP 100, excludes biogenic CO_2 removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2007 Fourth Assessment Report (AR4).

(3): Calculated according to CML-baseline, v.4.8, August 2016.

Table 6: Life cycle impact assessment (LCIA) results for one square metre (1 m^2) of Silex Fiberglass Casement Windows (Frame + Glazing)

Environmental Indicator	Unit	Results for 1 m^2 DU of Casement Windows (Frame + Glazing)			
		A1	A2	A3	A1 - A3
TRACI 2.1					
GWP_{100}-AR5[(1)]	kg CO_2 eq.	1.54E+02	1.11E+01	1.33E+01	1.79E+02
GWP_{100}-AR4[(2)]	kg CO_2 eq.	1.52E+02	1.11E+01	1.31E+01	1.76E+02
AP	kg SO2 eq.	7.03E-01	8.91E-02	1.20E-02	8.04E-01
EP	kg N eq.	2.79E-01	6.33E-03	7.48E-03	2.93E-01
ODP	kg CFC-11 eq.	4.17E-06	2.50E-08	2.93E-07	4.48E-06
SFP	kg O_3 eq.	8.72E+00	2.45E+00	2.48E-01	1.14E+01
ADP_{Fossil}[(3)]	MJ, LHV	1.03E+03	9.47E+01	1.39E+01	1.14E+03
$ADP_{Element}$[(3)]	kg Sb eq.	1.20E-04	5.17E-08	3.48E-06	1.24E-04

GWP: Global Warming Potential; **AP**: Acidification Potential; **EP**: Eutrophication Potential; **ODP**: Ozone Layer Depletion Potential; **SFP**: Smog Formation Potential; **ADP_{Fossil}**: Abiotic Resource Depletion Potential of Non-Renewable (Fossil) Energy Resources; **$ADP_{Element}$**: Abiotic Resource Depletion Potential of Non-Renewable (Non-Fossil) Mineral Resources.

(1): GWP 100, excludes biogenic CO_2 removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2013 Fifth Assessment Report (AR5).
(2): GWP 100, excludes biogenic CO_2 removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2007 Fourth Assessment Report (AR4).
(3): Calculated according to CML-baseline, v.4.8, August 2016.

Table 7: Life cycle impact assessment (LCIA) results for one square metre (1 m^2) of Silex Fiberglass Casement Windows (Frame and Glazing separately)

Environmental Indicator	Unit	Results for 1 m^2 DU of Casement Windows (Frame and Glazing separately)						
		A1		A2		A3		A1 - A3
		FRAME	GLAZING	FRAME	GLAZING	FRAME	GLAZING	TOTAL SYSTEM
TRACI 2.1								
GWP_{100}-AR5[1]	kg CO_2 eq.	9.99E+01	5.43E+01	1.10E+01	4.02E-02	1.32E+01	2.20E-02	1.79E+02
GWP_{100}-AR4[2]	kg CO_2 eq.	9.81E+01	5.35E+01	1.10E+01	4.01E-02	1.31E+01	2.19E-02	1.76E+02
AP	kg SO2 eq.	3.52E-01	3.51E-01	8.88E-02	3.30E-04	1.19E-02	1.50E-04	8.04E-01
EP	kg N eq.	1.61E-01	1.18E-01	6.30E-03	2.53E-05	7.46E-03	1.92E-05	2.93E-01
ODP	kg CFC-11 eq.	9.79E-07	3.19E-06	2.49E-08	1.44E-10	2.92E-07	2.98E-10	4.48E-06
SFP	kg O_3 eq.	4.25E+00	4.48E+00	2.44E+00	9.05E-03	2.41E-01	6.32E-03	1.14E+01
ADP_{Fossil}[3]	MJ, LHV	6.62E+02	3.71E+02	9.41E+01	5.68E-01	1.37E+01	1.78E-01	1.14E+03
$ADP_{Element}$[3]	kg Sb eq.	3.77E-05	8.23E-05	5.16E-08	3.10E-11	3.47E-06	1.05E-08	1.24E-04

GWP: Global Warming Potential; **AP**: Acidification Potential; **EP**: Eutrophication Potential; **ODP**: Ozone Layer Depletion Potential; **SFP**: Smog Formation Potential; **ADP_{Fossil}**: Abiotic Resource Depletion Potential of Non-Renewable (Fossil) Energy Resources; **$ADP_{Element}$**: Abiotic Resource Depletion Potential of Non-Renewable (Non-Fossil) Mineral Resources.

(1): GWP 100, excludes biogenic CO_2 removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2013 Fifth Assessment Report (AR5).

(2): GWP 100, excludes biogenic CO_2 removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2007 Fourth Assessment Report (AR4).

(3): Calculated according to CML-baseline, v.4.8, August 2016.

Table 8: Life cycle impact assessment (LCIA) results for one square metre (1 m²) of Silex Fiberglass Awning Windows (Frame + Glazing)

Environmental Indicator	Unit	Results for 1 m² DU of Awning Windows (Frame + Glazing)			
		A1	A2	A3	A1 - A3
TRACI 2.1					
GWP_{100}-AR5[(1)]	kg CO_2 eq.	1.51E+02	1.10E+01	1.31E+01	1.75E+02
GWP_{100}-AR4[(2)]	kg CO_2 eq.	1.49E+02	1.09E+01	1.29E+01	1.73E+02
AP	kg SO2 eq.	6.89E-01	8.82E-02	1.19E-02	7.90E-01
EP	kg N eq.	2.74E-01	6.27E-03	7.41E-03	2.87E-01
ODP	kg CFC-11 eq.	4.00E-06	2.48E-08	2.89E-07	4.32E-06
SFP	kg O_3 eq.	8.55E+00	2.42E+00	2.45E-01	1.12E+01
ADP_{Fossil}[(3)]	MJ, LHV	1.01E+03	9.37E+01	1.38E+01	1.12E+03
$ADP_{Element}$[(3)]	kg Sb eq.	1.20E-04	5.11E-08	3.45E-06	1.23E-04

GWP: Global Warming Potential; **AP**: Acidification Potential; **EP**: Eutrophication Potential; **ODP**: Ozone Layer Depletion Potential; **SFP**: Smog Formation Potential; **ADP_{Fossil}**: Abiotic Resource Depletion Potential of Non-Renewable (Fossil) Energy Resources; **$ADP_{Element}$**: Abiotic Resource Depletion Potential of Non-Renewable (Non-Fossil) Mineral Resources.

(1): GWP 100, excludes biogenic CO_2 removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2013 Fifth Assessment Report (AR5).

(2): GWP 100, excludes biogenic CO_2 removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2007 Fourth Assessment Report (AR4).

(3): Calculated according to CML-baseline, v.4.8, August 2016.

Table 9: Life cycle impact assessment (LCIA) results for one square metre (1 m2) of Silex Fiberglass Awning Windows (Frame and Glazing separately)

Environmental Indicator	Unit	Results for 1 m^2 DU of Awning Windows (Frame and Glazing separately)						
		A1		A2		A3		A1 - A3
		FRAME	GLAZING	FRAME	GLAZING	FRAME	GLAZING	TOTAL SYSTEM
TRACI 2.1								
GWP_{100}-AR5[1]	kg CO_2 eq.	9.78E+01	5.34E+01	1.09E+01	3.96E-02	1.31E+01	2.18E-02	1.75E+02
GWP_{100}-AR4[2]	kg CO_2 eq.	9.60E+01	5.26E+01	1.09E+01	3.94E-02	1.29E+01	2.16E-02	1.73E+02
AP	kg SO2 eq.	3.45E-01	3.45E-01	8.79E-02	3.30E-04	1.17E-02	1.50E-04	7.90E-01
EP	kg N eq.	1.58E-01	1.16E-01	6.25E-03	2.49E-05	7.39E-03	1.90E-05	2.87E-01
ODP	kg CFC-11 eq.	8.70E-07	3.13E-06	2.46E-08	1.42E-10	2.89E-07	2.94E-10	4.32E-06
SFP	kg O_3 eq.	4.15E+00	4.40E+00	2.41E+00	8.89E-03	2.39E-01	6.25E-03	1.12E+01
ADP_{Fossil}[3]	MJ, LHV	6.49E+02	3.65E+02	9.32E+01	5.58E-01	1.36E+01	1.76E-01	1.12E+03
$ADP_{Element}$[3]	kg Sb eq.	3.91E-05	8.09E-05	5.11E-08	3.05E-11	3.44E-06	1.04E-08	1.23E-04

GWP: Global Warming Potential; **AP**: Acidification Potential; **EP**: Eutrophication Potential; **ODP**: Ozone Layer Depletion Potential; **SFP**: Smog Formation Potential; **ADP_{Fossil}**: Abiotic Resource Depletion Potential of Non-Renewable (Fossil) Energy Resources; **$ADP_{Element}$**: Abiotic Resource Depletion Potential of Non-Renewable (Non-Fossil) Mineral Resources.

(1): GWP 100, excludes biogenic CO_2 removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2013 Fifth Assessment Report (AR5).

(2): GWP 100, excludes biogenic CO_2 removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2007 Fourth Assessment Report (AR4).

(3): Calculated according to CML-baseline, v.4.8, August 2016.

4.2. LIFE CYCLE INVENTORY CATEGORIES

According to the PCR NSF 1102-23 and ISO 21930:2017, the life cycle inventory (LCI) categories shall be presented for resources used and output flows, waste categories and biogenic carbon dioxide emissions and removals. [3, pp. 26-28] The environmental parameters used for the inventory analysis describe the use of renewable and non-renewable material resources, renewable and non-renewable primary energy, and water.

Inventory categories regarding biogenic carbon, carbonation, and CO_2 emissions from waste combustion are not included because the results are either zero (biogenic carbon in the product, carbonation, waste combustion) or below the cut-off criteria (biogenic carbon in packaging).

In addition, "The LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations currently have significant limitations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-gate waste performance between products should be derived from these reported values." [3, p. 27]

Table 10 to Table 21 present the life cycle inventories categories for resource use as well as output flows and waste categories.

The Gallo Residence Project – Winnipeg, MB (Photo Courtesy of SILEX FIBERGLASS WINDOWS & DOORS)

Table 10: Resource use LCI results for one square metre (1 m²) of Silex Fiberglass Picture Windows (Frame + Glazing)

Environmental Indicator	Unit	Results for 1 m² DU of Picture Windows (Frame + Glazing)			
		A1	A2	A3	A1 - A3
Resource Use					
RPR_E (1)	MJ, LHV	8.93E+01	3.55E-02	2.50E+01	1.14E+02
RPR_M (2)	MJ, LHV	9.41E-01	0.00E+00	7.16E+00	8.10E+00
RPR_T	MJ, LHV	9.03E+01	3.55E-02	3.22E+01	1.23E+02
$NRPR_E$ (3)	MJ, LHV	7.06E+02	1.67E+01	1.13E+01	7.34E+02
$NRPR_M$ (4)	MJ, LHV	0.00E+00	0.00E+00	1.93E+00	1.93E+00
$NRPR_T$	MJ, LHV	7.06E+02	1.67E+01	1.32E+01	7.36E+02
SM	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE (5)	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW (6)	m³	7.56E-01	2.40E-04	1.46E-01	9.03E-01

RPRE: Renewable Primary Resources Used as Energy Carrier (Fuel); **RPRM**: Renewable Primary Resources with Energy Content Used as Material; **RPRT**: Renewable Primary Resources Total; **NRPRE**: Non-Renewable Primary Resources Used as Energy Carrier (Fuel); **NRPRM**: Non-Renewable Primary Resources with Energy Content Used as Material; **NRPRT**: Non-Renewable Primary Resources Total; **SM**: Secondary Materials; **RSF:** Renewable Secondary Fuels; **NRSF:** Non-Renewable Secondary Fuels; **RE**: Recovered Energy; **FW**: Use of Net Fresh Water Resources.

(1): RPRE = RPRT - RPRM, where RPRT is equal to the value for renewable energy obtained using the CED methodology (LHV).
(2): Calculated as per ACLCA ISO 21930 Guidance, 6.2 Renewable primary resources with energy content used as a material, RPRM.
(3): NRPRE = NRPRT - NRPRM, where NRPRT is equal to the value for non-renewable energy obtained using the CED methodology (LHV).
(4): Calculated as per ACLCA ISO 21930 Guidance, 6.4 Non-renewable primary resources with energy content used as a material, NRPRM.
(5): Category meeting the requirements of ISO 21930:2017. Silex Fiberglass Windows & Doors products are not recovered for energy purposes, so this category is zero.
(6): Represents the use of net fresh water calculated from life cycle inventory results, i.e., water consumption.

Table 11: Resource use LCI results for one square metre (1 m²) of Silex Fiberglass Picture Windows (Frame and Glazing separately)

Environmental Indicator	Unit	Results for 1 m² DU of Picture Windows (Frame and Glazing separately)						
		A1		A2		A3		A1 - A3
		FRAME	GLAZING	FRAME	GLAZING	FRAME	GLAZING	TOTAL SYSTEM
Resource Use								
RPR_E (1)	MJ, LHV	4.40E+01	4.53E+01	3.45E-02	1.05E-03	2.50E+01	3.01E-03	1.14E+02
RPR_M (2)	MJ, LHV	9.41E-01	0.00E+00	0.00E+00	0.00E+00	7.16E+00	0.00E+00	8.10E+00
RPR_T	MJ, LHV	4.49E+01	4.53E+01	3.45E-02	1.05E-03	3.22E+01	3.01E-03	1.23E+02
$NRPR_E$ (3)	MJ, LHV	3.05E+02	4.01E+02	1.61E+01	5.49E-01	1.11E+01	1.45E-01	7.34E+02
$NRPR_M$ (4)	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E+00	0.00E+00	1.93E+00
$NRPR_T$	MJ, LHV	3.05E+02	4.01E+02	1.61E+01	5.49E-01	1.31E+01	1.45E-01	7.36E+02
SM	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE(5)	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW(6)	m³	4.09E-01	3.47E-01	2.33E-04	6.72E-06	1.46E-01	3.27E-05	9.03E-01

RPRE: Renewable Primary Resources Used as Energy Carrier (Fuel); **RPRM**: Renewable Primary Resources with Energy Content Used as Material; **RPRT**: Renewable Primary Resources Total; **NRPRE**: Non-Renewable Primary Resources Used as Energy Carrier (Fuel); **NRPRM**: Non-Renewable Primary Resources with Energy Content Used as Material; **NRPRT**: Non-Renewable Primary Resources Total; **SM**: Secondary Materials; **RSF:** Renewable Secondary Fuels; **NRSF:** Non-Renewable Secondary Fuels; **RE**: Recovered Energy; **FW**: Use of Net Fresh Water Resources.

(1): RPRE = RPRT - RPRM, where RPRT is equal to the value for renewable energy obtained using the CED methodology (LHV).
(2) Calculated as per ACLCA ISO 21930 Guidance, 6.2 Renewable primary resources with energy content used as a material, RPRM.
(3): NRPRE = NRPRT - NRPRM, where NRPRT is equal to the value for non-renewable energy obtained using the CED methodology (LHV).
(4): Calculated as per ACLCA ISO 21930 Guidance, 6.4 Non-renewable primary resources with energy content used as a material, NRPRM.
(5): Category meeting the requirements of ISO 21930:2017. Silex Fiberglass Windows & Doors products are not recovered for energy purposes, so this category is zero.
(6): Represents the use of net fresh water calculated from life cycle inventory results, i.e., water consumption.

Table 12: Output flows and waste LCI results for one square metre (1 m^2) of Silex Fiberglass Picture Windows (Frame + Glazing)

Environmental Indicator	Unit	Results for 1 m^2 DU of Picture Windows (Frame + Glazing)			
		A1	A2	A3	A1 - A3
Output flows and waste categories					
HWD (1,5)	kg	8.47E+01	1.05E-02	1.04E+00	8.57E+01
NHWD (2,5)	kg	8.08E+00	1.56E-02	1.66E-01	8.27E+00
HLRW (3,5)	m^3	4.77E-08	1.20E-12	6.02E-10	4.83E-08
ILLRW (4,5)	m^3	2.63E-07	7.14E-12	3.45E-09	2.66E-07
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	1.68E-01	0.00E+00	1.69E-01	3.37E-01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00

HWD: Hazardous Waste Disposed; **NHWD**: Non-Hazardous Waste Disposed; **RWD**: Radioactive Waste Disposed; **HLRW**: High-Level Radioactive Waste, Conditioned, to Final Repository; **ILLRW**: Intermediate and Low-Level Radioactive Waste, Conditioned, to Final Repository; **CRU**: Components for Re-Use; **MFR**: Materials for Recycling; **MER**: Materials for Energy Recovery; **EE**: Exported Energy.

(1): Calculated from life cycle inventory results, based on datasets classified under "treatment and disposal of hazardous waste." The manufacturer does not generate hazardous waste.
(2): Calculated from life cycle inventory results, based on waste that is neither "hazardous" nor "radioactive" and EPD values.
(3): Calculated from life cycle inventory results, based on ecoinvent waste flow "high-level radioactive waste for final repository." The manufacturer does not generate radioactive waste.
(4): Calculated from life cycle inventory results, based on ecoinvent waste flow "low-level radioactive waste for final repository." The manufacturer does not generate radioactive waste.
(5): "The LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations currently have significant limitations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-gate waste performance between products should be derived from these reported values."

Table 13: Output flows and waste LCI results for one square metre (1 m2) of Silex Fiberglass Picture Windows (Frame and Glazing separately)

Environmental Indicator	Unit	Results for 1 m^2 DU of Picture Windows (Frame and Glazing separately)						
		A1		A2		A3		A1 - A3
		FRAME	GLAZING	FRAME	GLAZING	FRAME	GLAZING	TOTAL SYSTEM
Output flows and waste categories								
HWD (1,5)	kg	3.17E+01	5.29E+01	1.01E-02	3.50E-04	1.04E+00	1.69E-03	8.57E+01
NHWD (2,5)	kg	2.19E+00	5.89E+00	1.51E-02	5.30E-04	1.66E-01	1.60E-04	8.27E+00
HLRW (3,5)	m^3	1.87E-08	2.90E-08	1.16E-12	4.08E-14	6.01E-10	8.63E-13	4.83E-08
ILLRW (4,5)	m^3	1.06E-07	1.57E-07	6.90E-12	2.42E-13	3.45E-09	4.67E-12	2.66E-07
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	1.68E-01	0.00E+00	0.00E+00	0.00E+00	1.69E-01	0.00E+00	3.37E-01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

HWD: Hazardous Waste Disposed; **NHWD**: Non-Hazardous Waste Disposed; **RWD**: Radioactive Waste Disposed; **HLRW**: High-Level Radioactive Waste, Conditioned, to Final Repository; **ILLRW**: Intermediate and Low-Level Radioactive Waste, Conditioned, to Final Repository; **CRU**: Components for Re-Use; **MFR**: Materials for Recycling; **MER**: Materials for Energy Recovery; **EE**: Exported Energy.

(1): Calculated from life cycle inventory results, based on datasets classified under "treatment and disposal of hazardous waste." The manufacturer does not generate hazardous waste.
(2): Calculated from life cycle inventory results, based on waste that is neither "hazardous" nor "radioactive" and EPD values.
(3): Calculated from life cycle inventory results, based on ecoinvent waste flow "high-level radioactive waste for final repository." The manufacturer does not generate radioactive waste.
(4): Calculated from life cycle inventory results, based on ecoinvent waste flow "low-level radioactive waste for final repository." The manufacturer does not generate radioactive waste.
(5): "The LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations currently have significant limitations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-gate waste performance between products should be derived from these reported values."

Table 14: Resource use LCI results for one square metre (1 m²) of Silex Fiberglass Casement Windows (Frame + Glazing)

Environmental Indicator	Unit	Results for 1 m² DU of Casement Windows (Frame + Glazing)			
		A1	A2	A3	A1 - A3
Resource Use					
RPR_E (1)	MJ, LHV	9.91E+01	1.88E-01	3.05E+01	1.30E+02
RPR_M (2)	MJ, LHV	1.17E+00	0.00E+00	8.87E+00	1.00E+01
RPR_T	MJ, LHV	1.00E+02	1.88E-01	3.94E+01	1.40E+02
$NRPR_E$ (3)	MJ, LHV	1.23E+03	9.43E+01	1.33E+01	1.34E+03
$NRPR_M$ (4)	MJ, LHV	0.00E+00	0.00E+00	2.38E+00	2.38E+00
$NRPR_T$	MJ, LHV	1.23E+03	9.43E+01	1.57E+01	1.34E+03
SM	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE (5)	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW (6)	m³	2.56E+00	1.22E-03	1.81E-01	2.74E+00

RPRE: Renewable Primary Resources Used as Energy Carrier (Fuel); **RPRM**: Renewable Primary Resources with Energy Content Used as Material; **RPRT**: Renewable Primary Resources Total; **NRPRE**: Non-Renewable Primary Resources Used as Energy Carrier (Fuel); **NRPRM**: Non-Renewable Primary Resources with Energy Content Used as Material; **NRPRT**: Non-Renewable Primary Resources Total; **SM**: Secondary Materials; **RSF:** Renewable Secondary Fuels; **NRSF:** Non-Renewable Secondary Fuels; **RE**: Recovered Energy; **FW**: Use of Net Fresh Water Resources.

(1): RPRE = RPRT - RPRM, where RPRT is equal to the value for renewable energy obtained using the CED methodology (LHV).
(2): Calculated as per ACLCA ISO 21930 Guidance, 6.2 Renewable primary resources with energy content used as a material, RPRM.
(3): NRPRE = NRPRT - NRPRM, where NRPRT is equal to the value for non-renewable energy obtained using the CED methodology (LHV).
(4): Calculated as per ACLCA ISO 21930 Guidance, 6.4 Non-renewable primary resources with energy content used as a material, NRPRM.
(5): Category meeting the requirements of ISO 21930:2017. Silex Fiberglass Windows & Doors products are not recovered for energy purposes, so this category is zero.
(6): Represents the use of net fresh water calculated from life cycle inventory results, i.e., water consumption

Table 15: Resource use LCI results for one square metre (1 m²) of Silex Fiberglass Casement Windows (Frame and Glazing separately)

Environmental Indicator	Unit	Results for 1 m² DU of Casement Windows (Frame and Glazing separately)						
		A1		A2		A3		A1 - A3
		FRAME	GLAZING	FRAME	GLAZING	FRAME	GLAZING	TOTAL SYSTEM
Resource Use								
RPR_E (1)	MJ, LHV	5.23E+01	4.68E+01	1.87E-01	1.08E-03	3.05E+01	3.73E-03	1.30E+02
RPR_M (2)	MJ, LHV	1.17E+00	0.00E+00	0.00E+00	0.00E+00	8.87E+00	0.00E+00	1.00E+01
RPR_T	MJ, LHV	5.35E+01	4.68E+01	1.87E-01	1.08E-03	3.94E+01	3.73E-03	1.40E+02
$NRPR_E$ (3)	MJ, LHV	8.15E+02	4.14E+02	9.37E+01	5.66E-01	1.32E+01	1.79E-01	1.34E+03
$NRPR_M$ (4)	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.38E+00	0.00E+00	2.38E+00
$NRPR_T$	MJ, LHV	8.15E+02	4.14E+02	9.37E+01	5.66E-01	1.56E+01	1.79E-01	1.34E+03
SM	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE (5)	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW (6)	m³	2.20E+00	3.58E-01	1.21E-03	6.92E-06	1.81E-01	4.06E-05	2.74E+00

RPRE: Renewable Primary Resources Used as Energy Carrier (Fuel); **RPRM**: Renewable Primary Resources with Energy Content Used as Material; **RPRT**: Renewable Primary Resources Total; **NRPRE**: Non-Renewable Primary Resources Used as Energy Carrier (Fuel); **NRPRM**: Non-Renewable Primary Resources with Energy Content Used as Material; **NRPRT**: Non-Renewable Primary Resources Total; **SM**: Secondary Materials; **RSF:** Renewable Secondary Fuels; **NRSF:** Non-Renewable Secondary Fuels; **RE**: Recovered Energy; **FW**: Use of Net Fresh Water Resources.

(1): RPRE = RPRT - RPRM, where RPRT is equal to the value for renewable energy obtained using the CED methodology (LHV).
(2) Calculated as per ACLCA ISO 21930 Guidance, 6.2 Renewable primary resources with energy content used as a material, RPRM.
(3): NRPRE = NRPRT - NRPRM, where NRPRT is equal to the value for non-renewable energy obtained using the CED methodology (LHV).
(4): Calculated as per ACLCA ISO 21930 Guidance, 6.4 Non-renewable primary resources with energy content used as a material, NRPRM.
(5): Category meeting the requirements of ISO 21930:2017. Silex Fiberglass Windows & Doors products are not recovered for energy purposes, so this category is zero.
(6): Represents the use of net fresh water calculated from life cycle inventory results, i.e., water consumption.

Table 16: Output flows and waste LCI results for one square metre (1 m²) of Silex Fiberglass Casement Windows (Frame + Glazing)

Environmental Indicator	Unit	Results for 1 m² DU of Casement Windows (Frame + Glazing)			
		A1	A2	A3	A1 - A3
Output flows and waste categories					
HWD (1,5)	kg	9.47E+01	6.06E-02	1.33E+00	9.61E+01
NHWD (2,5)	kg	1.15E+01	9.05E-02	2.13E-01	1.18E+01
HLRW (3,5)	m³	5.89E-08	6.98E-12	7.79E-10	5.97E-08
ILLRW (4,5)	m³	3.32E-07	4.14E-11	4.52E-09	3.37E-07
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	2.08E-01	0.00E+00	2.09E-01	4.17E-01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00

HWD: Hazardous Waste Disposed; **NHWD**: Non-Hazardous Waste Disposed; **RWD**: Radioactive Waste Disposed; **HLRW**: High-Level Radioactive Waste, Conditioned, to Final Repository; **ILLRW**: Intermediate and Low-Level Radioactive Waste, Conditioned, to Final Repository; **CRU**: Components for Re-Use; **MFR**: Materials for Recycling; **MER**: Materials for Energy Recovery; **EE**: Exported Energy.

(1): Calculated from life cycle inventory results, based on datasets classified under "treatment and disposal of hazardous waste." The manufacturer does not generate hazardous waste.
(2): Calculated from life cycle inventory results, based on waste that is neither "hazardous" nor "radioactive" and EPD values.
(3): Calculated from life cycle inventory results, based on ecoinvent waste flow "high-level radioactive waste for final repository." The manufacturer does not generate radioactive waste.
(4): Calculated from life cycle inventory results, based on ecoinvent waste flow "low-level radioactive waste for final repository." The manufacturer does not generate radioactive waste.
(5): "The LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations currently have significant limitations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-gate waste performance between products should be derived from these reported values."

Table 17: Output flows and waste LCI results for one square metre (1 m²) of Silex Fiberglass Casement Windows (Frame and Glazing separately)

Environmental Indicator	Unit	Results for 1 m² DU of Casement Windows (Frame and Glazing separately)						
		A1		A2		A3		A1 - A3
		FRAME	GLAZING	FRAME	GLAZING	FRAME	GLAZING	TOTAL SYSTEM
Output flows and waste categories								
HWD (1,5)	kg	4.01E+01	5.46E+01	6.02E-02	3.60E-04	1.33E+00	2.09E-03	9.61E+01
NHWD (2,5)	kg	5.37E+00	6.08E+00	9.00E-02	5.50E-04	2.12E-01	2.00E-04	1.18E+01
HLRW (3,5)	m³	2.90E-08	2.99E-08	6.94E-12	4.20E-14	7.78E-10	1.07E-12	5.97E-08
ILLRW (4,5)	m³	1.70E-07	1.62E-07	4.11E-11	2.49E-13	4.52E-09	5.79E-12	3.37E-07
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	2.08E-01	0.00E+00	0.00E+00	0.00E+00	2.09E-01	0.00E+00	4.17E-01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

HWD: Hazardous Waste Disposed; **NHWD**: Non-Hazardous Waste Disposed; **RWD**: Radioactive Waste Disposed; **HLRW**: High-Level Radioactive Waste, Conditioned, to Final Repository; **ILLRW**: Intermediate and Low-Level Radioactive Waste, Conditioned, to Final Repository; **CRU**: Components for Re-Use; **MFR**: Materials for Recycling; **MER**: Materials for Energy Recovery; **EE**: Exported Energy.

(1): Calculated from life cycle inventory results, based on datasets classified under "treatment and disposal of hazardous waste." The manufacturer does not generate hazardous waste.
(2): Calculated from life cycle inventory results, based on waste that is neither "hazardous" nor "radioactive" and EPD values.
(3): Calculated from life cycle inventory results, based on ecoinvent waste flow "high-level radioactive waste for final repository." The manufacturer does not generate radioactive waste.
(4): Calculated from life cycle inventory results, based on ecoinvent waste flow "low-level radioactive waste for final repository." The manufacturer does not generate radioactive waste.
(5): "The LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations currently have significant limitations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-gate waste performance between products should be derived from these reported values."

Table 18: Resource use LCI results for one square metre (1 m²) of Silex Fiberglass Awning Windows (Frame + Glazing)

Environmental Indicator	Unit	Results for 1 m² DU of Awning Windows (Frame + Glazing)			
		A1	A2	A3	A1 - A3
Resource Use					
RPR_E (1)	MJ, LHV	9.71E+01	1.86E-01	3.03E+01	1.28E+02
RPR_M (2)	MJ, LHV	1.15E+00	0.00E+00	8.76E+00	9.91E+00
RPR_T	MJ, LHV	9.82E+01	1.86E-01	3.91E+01	1.37E+02
$NRPR_E$ (3)	MJ, LHV	1.21E+03	9.33E+01	1.33E+01	1.31E+03
$NRPR_M$ (4)	MJ, LHV	0.00E+00	0.00E+00	2.36E+00	2.36E+00
$NRPR_T$	MJ, LHV	1.21E+03	9.33E+01	1.56E+01	1.31E+03
SM	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE (5)	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW (6)	m³	2.50E+00	1.21E-03	1.79E-01	2.68E+00

RPRE: Renewable Primary Resources Used as Energy Carrier (Fuel); **RPRM**: Renewable Primary Resources with Energy Content Used as Material; **RPRT**: Renewable Primary Resources Total; **NRPRE**: Non-Renewable Primary Resources Used as Energy Carrier (Fuel); **NRPRM**: Non-Renewable Primary Resources with Energy Content Used as Material; **NRPRT**: Non-Renewable Primary Resources Total; **SM**: Secondary Materials; **RSF**: Renewable Secondary Fuels; **NRSF**: Non-Renewable Secondary Fuels; **RE**: Recovered Energy; **FW**: Use of Net Fresh Water Resources.

(1): RPRE = RPRT - RPRM, where RPRT is equal to the value for renewable energy obtained using the CED methodology (LHV).
(2): Calculated as per ACLCA ISO 21930 Guidance, 6.2 Renewable primary resources with energy content used as a material, RPRM.
(3): NRPRE = NRPRT - NRPRM, where NRPRT is equal to the value for non-renewable energy obtained using the CED methodology (LHV).
(4): Calculated as per ACLCA ISO 21930 Guidance, 6.4 Non-renewable primary resources with energy content used as a material, NRPRM.
(5): Category meeting the requirements of ISO 21930:2017. Silex Fiberglass Windows & Doors products are not recovered for energy purposes, so this category is zero.
(6): Represents the use of net fresh water calculated from life cycle inventory results, i.e., water consumption.

Table 19: Resource use LCI results for one square metre (1 m²) of Silex Fiberglass Awning Windows (Frame and Glazing separately)

Environmental Indicator	Unit	Results for 1 m² DU of Awning Windows (Frame and Glazing separately)						
		A1		A2		A3		A1 - A3
		FRAME	GLAZING	FRAME	GLAZING	FRAME	GLAZING	TOTAL SYSTEM
Resource Use								
RPR_E (1)	MJ, LHV	5.11E+01	4.60E+01	1.85E-01	1.06E-03	3.03E+01	3.69E-03	1.28E+02
RPR_M (2)	MJ, LHV	1.15E+00	0.00E+00	0.00E+00	0.00E+00	8.76E+00	0.00E+00	9.91E+00
RPR_T	MJ, LHV	5.23E+01	4.60E+01	1.85E-01	1.06E-03	3.91E+01	3.69E-03	1.37E+02
$NRPR_E$ (3)	MJ, LHV	7.99E+02	4.07E+02	9.28E+01	5.56E-01	1.31E+01	1.77E-01	1.31E+03
$NRPR_M$ (4)	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E+00	0.00E+00	2.36E+00
$NRPR_T$	MJ, LHV	7.99E+02	4.07E+02	9.28E+01	5.56E-01	1.54E+01	1.77E-01	1.31E+03
SM	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE (5)	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW (6)	m³	2.15E+00	3.52E-01	1.20E-03	6.80E-06	1.78E-01	4.01E-05	2.68E+00

RPRE: Renewable Primary Resources Used as Energy Carrier (Fuel); **RPRM**: Renewable Primary Resources with Energy Content Used as Material; **RPRT**: Renewable Primary Resources Total; **NRPRE**: Non-Renewable Primary Resources Used as Energy Carrier (Fuel); **NRPRM**: Non-Renewable Primary Resources with Energy Content Used as Material; **NRPRT**: Non-Renewable Primary Resources Total; **SM**: Secondary Materials; **RSF**: Renewable Secondary Fuels; **NRSF**: Non-Renewable Secondary Fuels; **RE**: Recovered Energy; **FW**: Use of Net Fresh Water Resources.

(1): RPRE = RPRT - RPRM, where RPRT is equal to the value for renewable energy obtained using the CED methodology (LHV).
(2) Calculated as per ACLCA ISO 21930 Guidance, 6.2 Renewable primary resources with energy content used as a material, RPRM.
(3): NRPRE = NRPRT - NRPRM, where NRPRT is equal to the value for non-renewable energy obtained using the CED methodology (LHV).
(4): Calculated as per ACLCA ISO 21930 Guidance, 6.4 Non-renewable primary resources with energy content used as a material, NRPRM.
(5): Category meeting the requirements of ISO 21930:2017. Silex Fiberglass Windows & Doors products are not recovered for energy purposes, so this category is zero.
(6): Represents the use of net fresh water calculated from life cycle inventory results, i.e., water consumption.

Table 20: Output flows and waste LCI results for one square metre (1 m²) of Silex Fiberglass Awning Windows (Frame + Glazing)

Environmental Indicator	Unit	Results for 1 m² DU of Awning Windows (Frame + Glazing)			
		A1	A2	A3	A1 - A3
Output flows and waste categories					
HWD (1,5)	kg	9.28E+01	6.00E-02	1.31E+00	9.42E+01
NHWD (2,5)	kg	1.12E+01	8.96E-02	2.11E-01	1.15E+01
HLRW (3,5)	m³	5.77E-08	6.91E-12	7.72E-10	5.85E-08
ILLRW (4,5)	m³	3.25E-07	4.10E-11	4.49E-09	3.30E-07
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	2.06E-01	0.00E+00	2.06E-01	4.12E-01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00

HWD: Hazardous Waste Disposed; **NHWD**: Non-Hazardous Waste Disposed; **RWD**: Radioactive Waste Disposed; **HLRW**: High-Level Radioactive Waste, Conditioned, to Final Repository; **ILLRW**: Intermediate and Low-Level Radioactive Waste, Conditioned, to Final Repository; **CRU**: Components for Re-Use; **MFR**: Materials for Recycling; **MER**: Materials for Energy Recovery; **EE**: Exported Energy.

(1): Calculated from life cycle inventory results, based on datasets classified under "treatment and disposal of hazardous waste." The manufacturer does not generate hazardous waste.
(2): Calculated from life cycle inventory results, based on waste that is neither "hazardous" nor "radioactive" and EPD values.
(3): Calculated from life cycle inventory results, based on ecoinvent waste flow "high-level radioactive waste for final repository." The manufacturer does not generate radioactive waste.
(4): Calculated from life cycle inventory results, based on ecoinvent waste flow "low-level radioactive waste for final repository." The manufacturer does not generate radioactive waste.
(5): "The LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations currently have significant limitations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-gate waste performance between products should be derived from these reported values."

Table 21: Output flows and waste LCI results for one square metre (1 m²) of Silex Fiberglass Awning Windows (Frame and Glazing separately)

Environmental Indicator	Unit	Results for 1 m² DU of Awning Windows (Frame and Glazing separately)						
		A1		A2		A3		A1 - A3
		FRAME	GLAZING	FRAME	GLAZING	FRAME	GLAZING	TOTAL SYSTEM
Output flows and waste categories								
HWD (1,5)	kg	3.92E+01	5.36E+01	5.96E-02	3.60E-04	1.31E+00	2.07E-03	9.42E+01
NHWD (2,5)	kg	5.26E+00	5.97E+00	8.91E-02	5.40E-04	2.10E-01	2.00E-04	1.15E+01
HLRW (3,5)	m³	2.83E-08	2.94E-08	6.87E-12	4.13E-14	7.71E-10	1.06E-12	5.85E-08
ILLRW (4,5)	m³	1.66E-07	1.59E-07	4.07E-11	2.45E-13	4.48E-09	5.72E-12	3.30E-07
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	2.06E-01	0.00E+00	0.00E+00	0.00E+00	2.06E-01	0.00E+00	4.12E-01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

HWD: Hazardous Waste Disposed; **NHWD**: Non-Hazardous Waste Disposed; **RWD**: Radioactive Waste Disposed; **HLRW**: High-Level Radioactive Waste, Conditioned, to Final Repository; **ILLRW**: Intermediate and Low-Level Radioactive Waste, Conditioned, to Final Repository; **CRU**: Components for Re-Use; **MFR**: Materials for Recycling; **MER**: Materials for Energy Recovery; **EE**: Exported Energy.

(1): Calculated from life cycle inventory results, based on datasets classified under "treatment and disposal of hazardous waste." The manufacturer does not generate hazardous waste.
(2): Calculated from life cycle inventory results, based on waste that is neither "hazardous" nor "radioactive" and EPD values.
(3): Calculated from life cycle inventory results, based on ecoinvent waste flow "high-level radioactive waste for final repository." The manufacturer does not generate radioactive waste.
(4): Calculated from life cycle inventory results, based on ecoinvent waste flow "low-level radioactive waste for final repository." The manufacturer does not generate radioactive waste.
(5): "The LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations currently have significant limitations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-gate waste performance between products should be derived from these reported values."

4.3. CONTRIBUTION ANALYSIS

This section provides details on the contribution to the potential environmental impacts and resource use of the different life cycle stage modules of each Silex Fiberglass Windows & Doors products studied. The contribution was carried out for the extraction and upstream production (A1), transport (A2) and manufacturing (A3) modules. Figure 3 to Figure 11 present the contribution analysis in relative values of the impacts. As specified in section 7.1.3 of the PCR [3], results must be presented for the frame and glazing:

1. The **frame** includes the low profile, glazing beads and stops, metal steel components, sealants, gaskets, hardware and other parts that retain or support the glazing and the packaging materials.
2. **Glazing** includes the Insulated Glass Unit (IGU) and packaging materials.

As shown in Figure 3 to Figure 11, raw materials extraction and upstream production (A1) is the main contributor to all potential impact categories, as well as renewable and non-renewable resource consumption. Depending on the impact categories, transport (A2) or manufacturing (A3) are the second or third main contributor. For the total product, in terms of global warming potential (GWP), the two main processes contributing to the production stage (A1) are the acquisition of the fiberglass (modelled by nylon 6-6) and the Insulated Glass Unit (IGU), respectively, in "A1 – FRAME" and "A1 – GLAZING." At the manufacturing stage (A3), for energy consumption at the Silex plant, electricity consumption from the Manitoba power grid is the main contributor to GWP.

Based on this EPD, for one square metre (1 m^2) of the Silex Fiberglass Windows & Doors products studied, the window types with the highest impact are Casement Windows and Awning Windows, respectively, with 1.79E+02 kg CO_2 eq. and 1.75E+02 kg CO_2 eq. (module A1-A3) including the frame and glazing. The global warming potential (GWP) is calculated based on IPCC's 5th assessment report.

GWP: Global Warming Potential; **AP**: Acidification Potential; **EP**: Eutrophication Potential; **ODP**: Ozone Layer Depletion Potential; **SFP**: Smog Formation Potential; **ADP_{Fossil}**: Abiotic Resource Depletion Potential of Non-Renewable (Fossil) Energy Resources; **$ADP_{Element}$**: Abiotic Resource Depletion Potential of Non-Renewable (Non-Fossil) Mineral Resources; **RPRT**: Renewable Primary Resources Total; **NRPRT**: Non-Renewable Primary Resources Total.

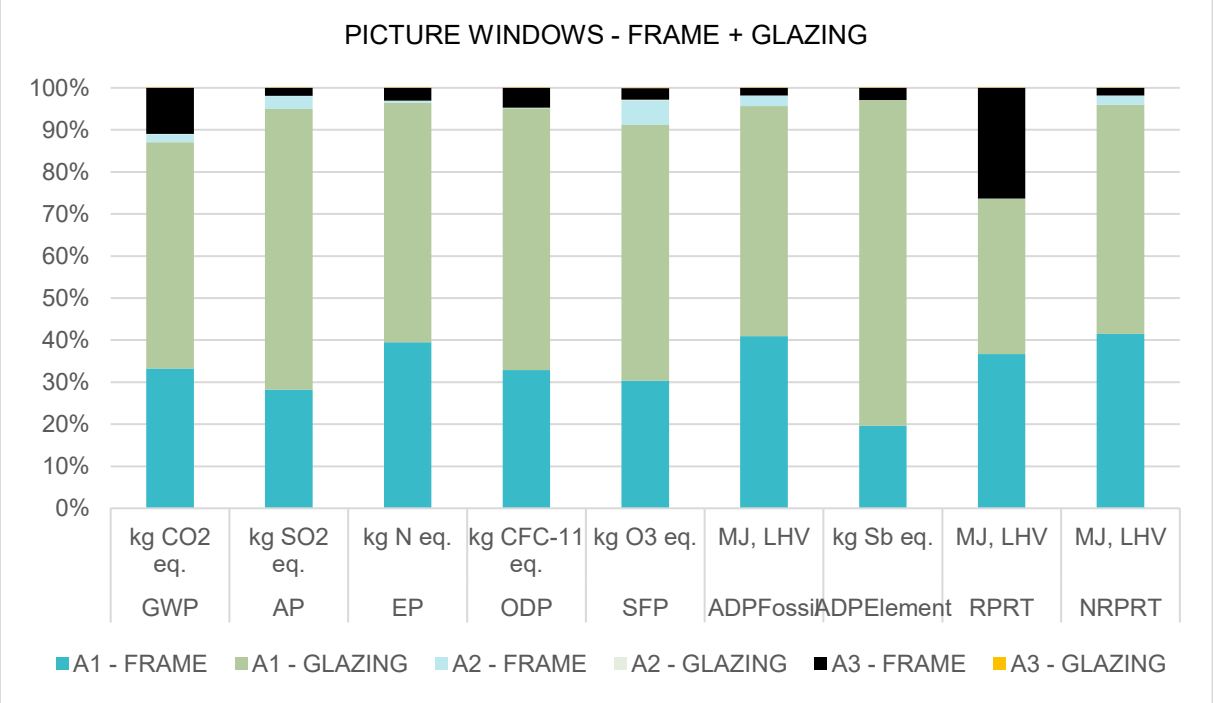


Figure 3: Contribution of life cycle stages (A1-A3) to the environmental impacts for one square metre (1 m²) of Silex Fiberglass Picture Windows - TRACI & CML, and CED indicators

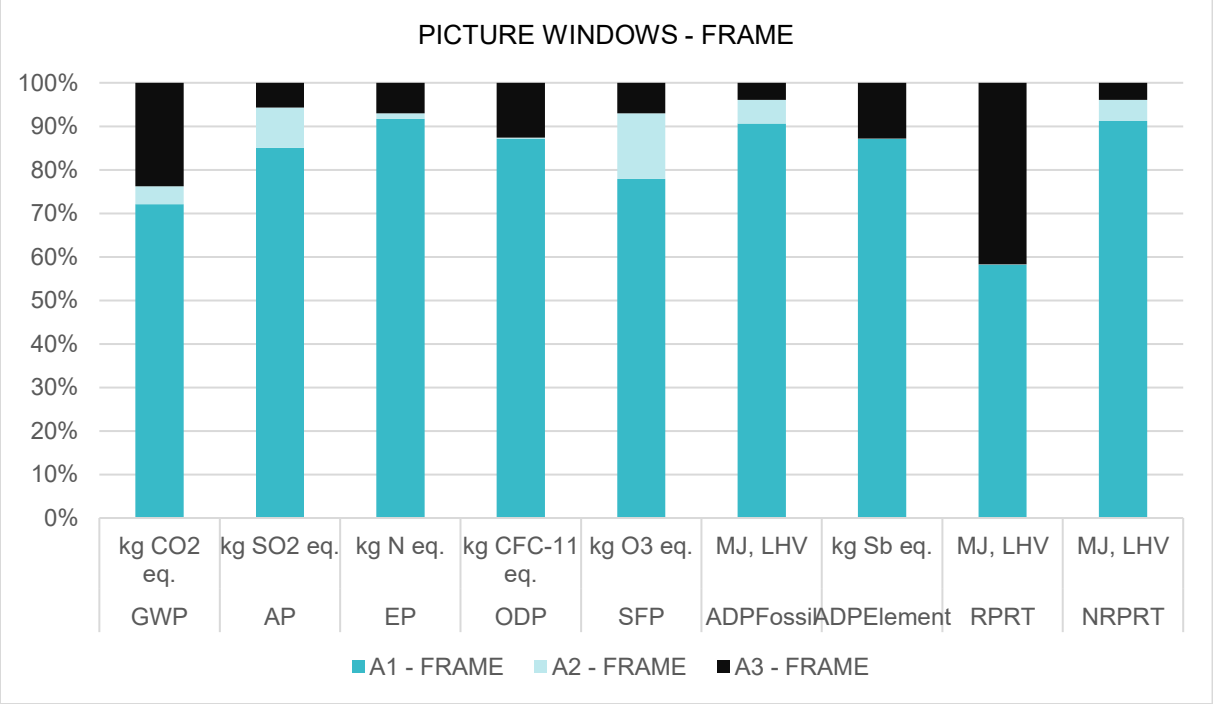


Figure 4: Contribution of life cycle stages (A1-A3) to the environmental impacts for one square metre (1 m²) of Silex Fiberglass Picture Windows Frame - TRACI & CML, and CED indicators

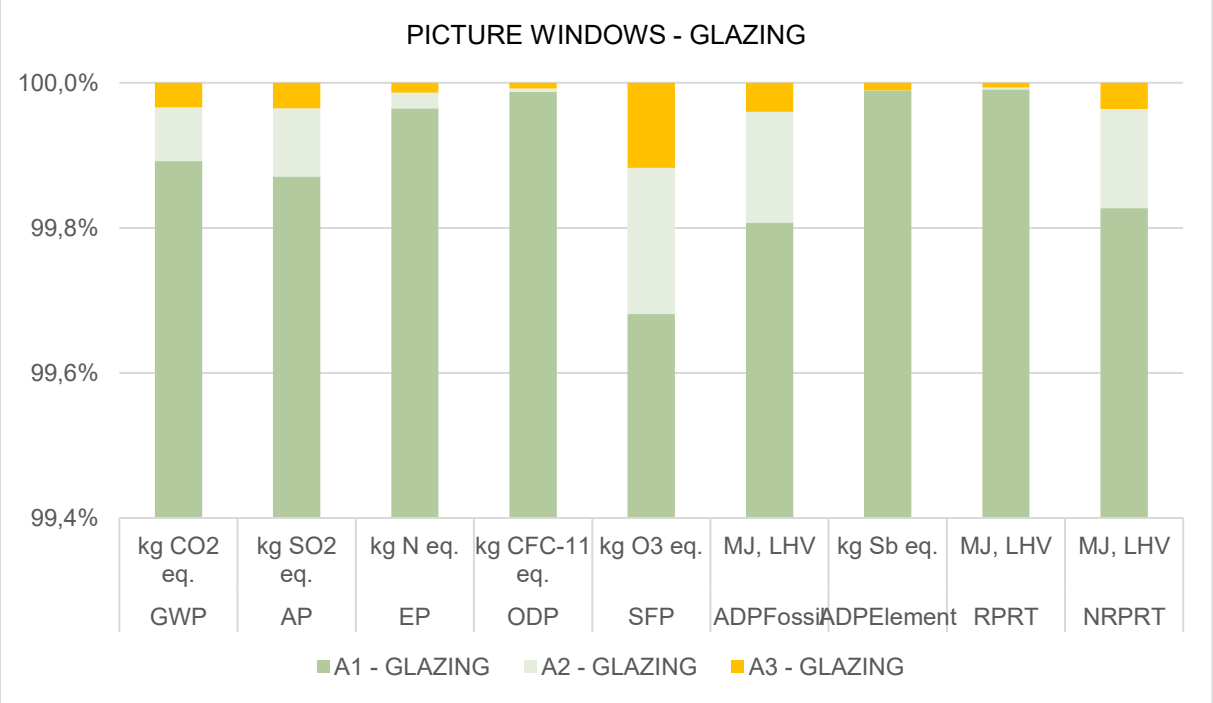


Figure 5: Contribution of life cycle stages (A1-A3) to the environmental impacts for one square metre (1 m²) of Silex Fiberglass Picture Windows Glazing - TRACI & CML, and CED indicators

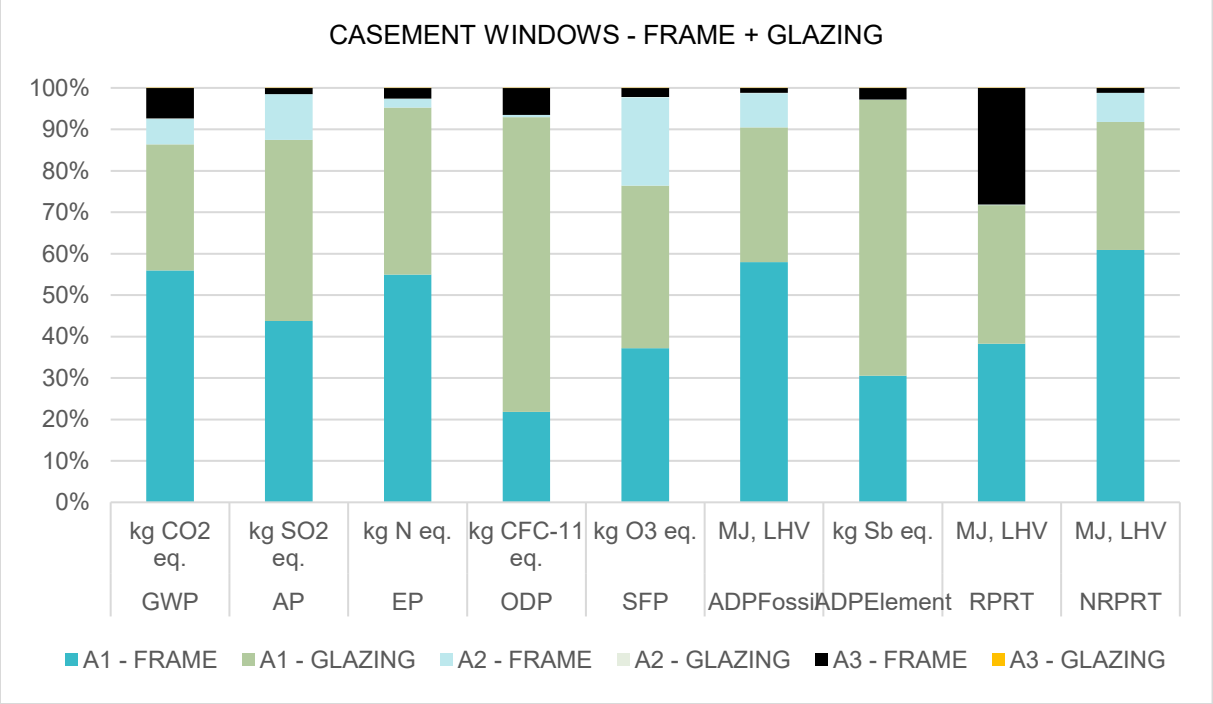


Figure 6: Contribution of life cycle stages (A1-A3) to the environmental impacts for one square metre (1 m²) of Silex Fiberglass Casement Windows - TRACI & CML, and CED indicators

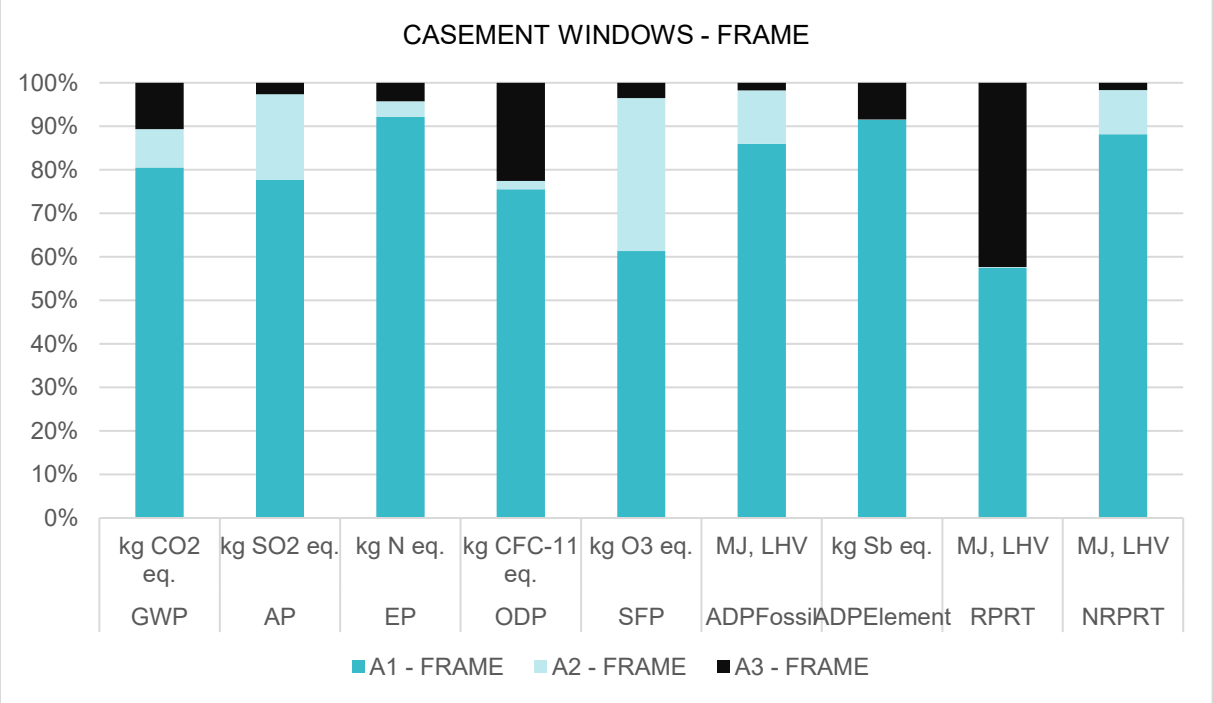


Figure 7: Contribution of life cycle stages (A1-A3) to the environmental impacts for one square metre (1 m²) of Silex Fiberglass Casement Windows Frame - TRACI & CML, and CED indicators

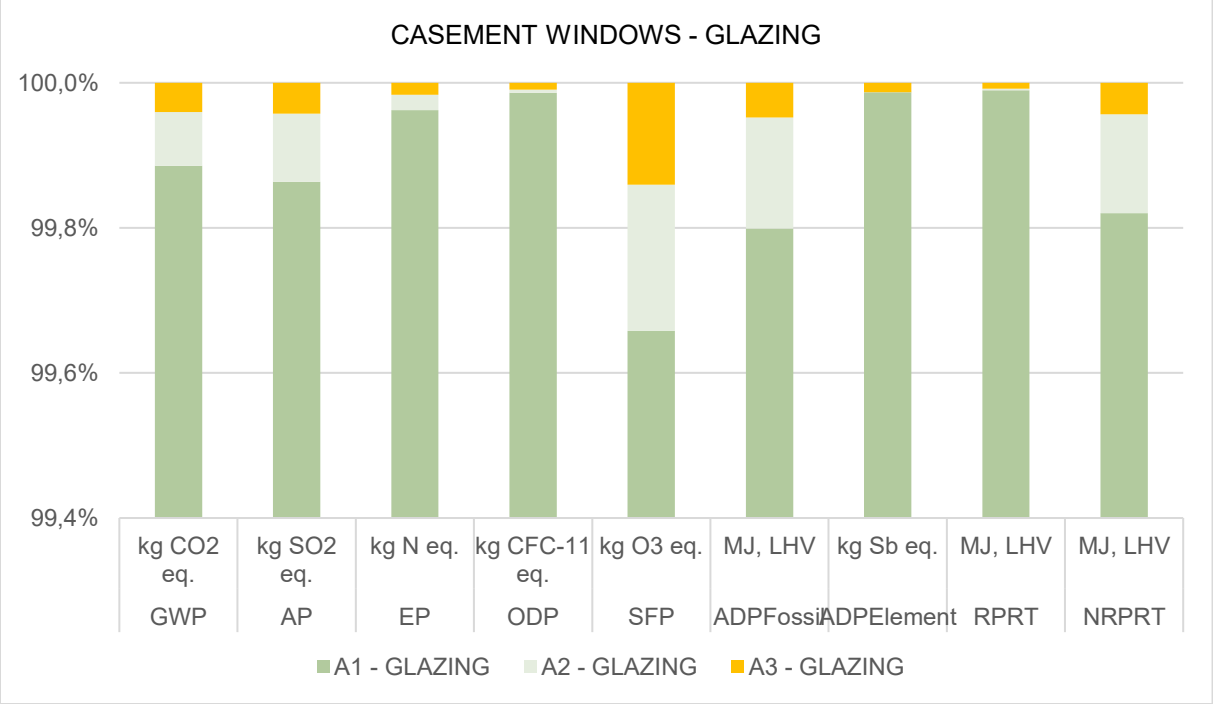


Figure 8: Contribution of life cycle stages (A1-A3) to the environmental impacts for one square metre (1 m²) of Silex Fiberglass Casement Windows Glazing - TRACI & CML, and CED indicators

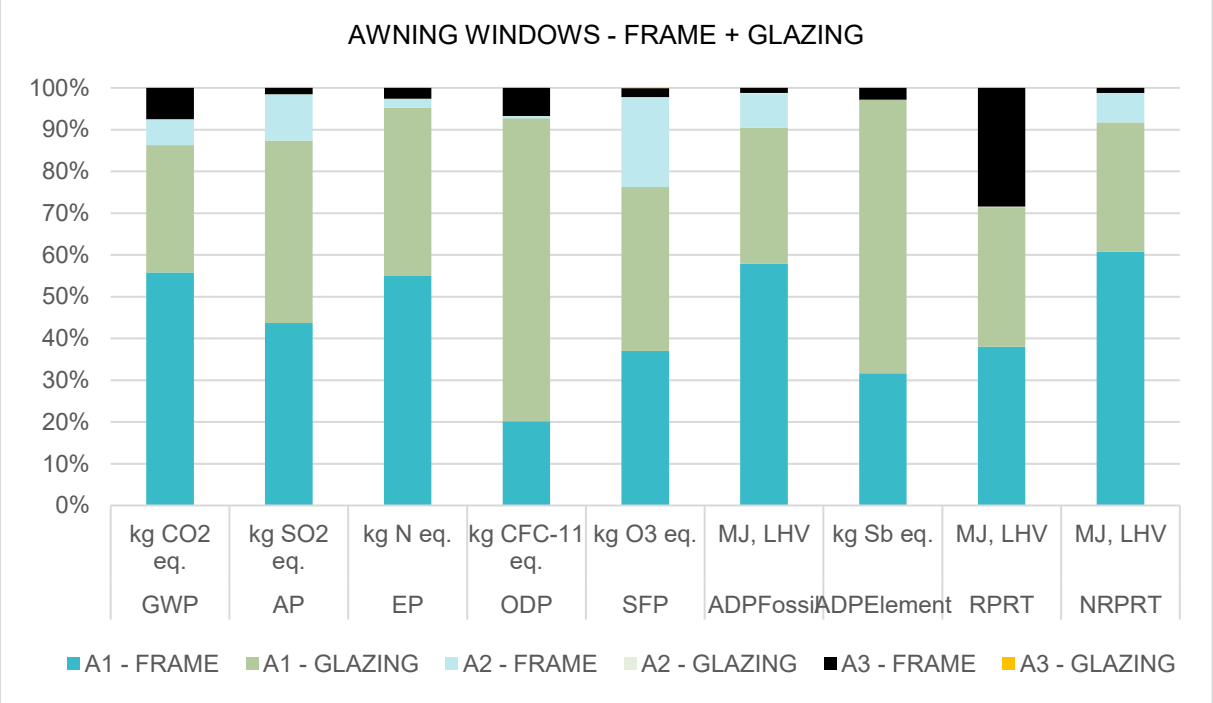


Figure 9: Contribution of life cycle stages (A1-A3) to the environmental impacts for one square metre (1 m²) of Silex Fiberglass Awning Windows - TRACI & CML, and CED indicators

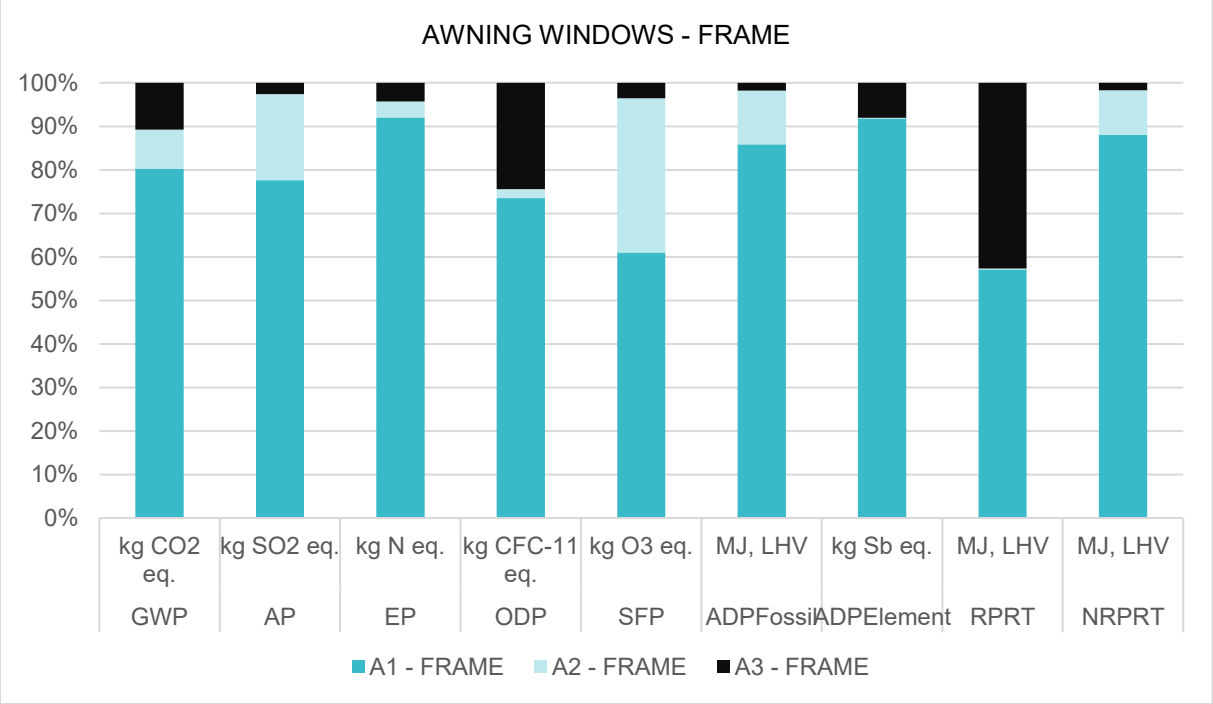


Figure 10: Contribution of life cycle stages (A1-A3) to the environmental impacts for one square metre (1 m²) of Silex Fiberglass Awning Windows Frame - TRACI & CML, and CED indicators

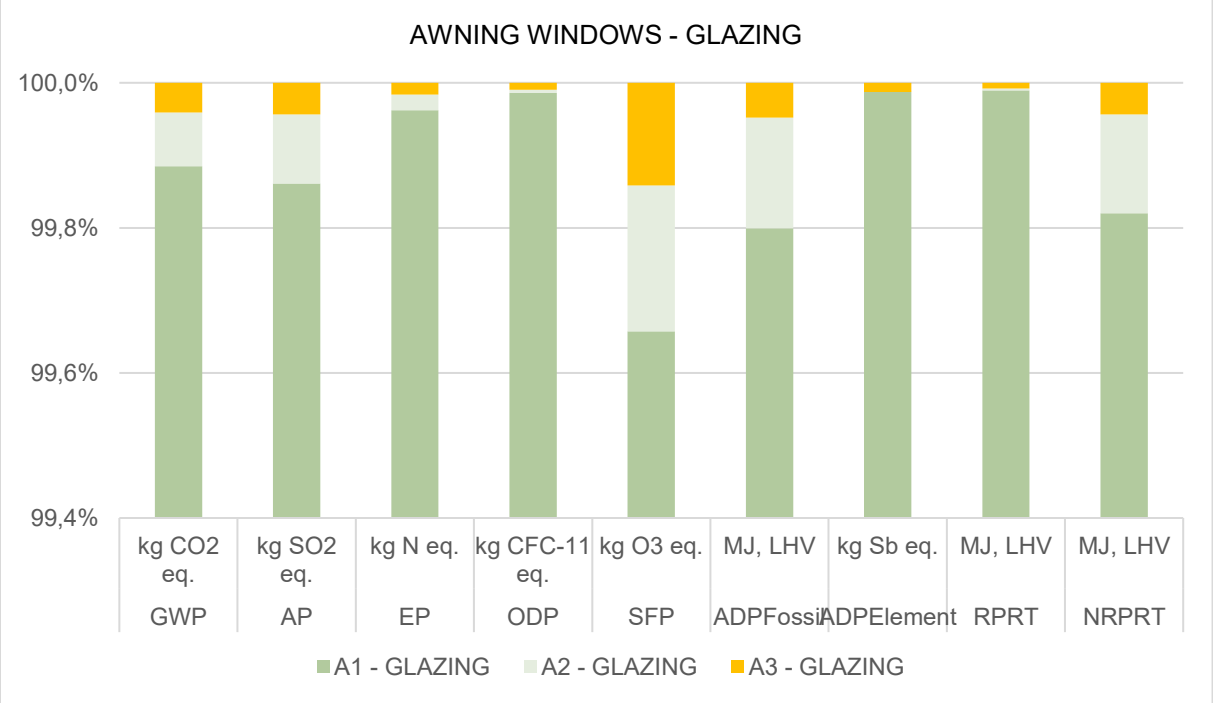
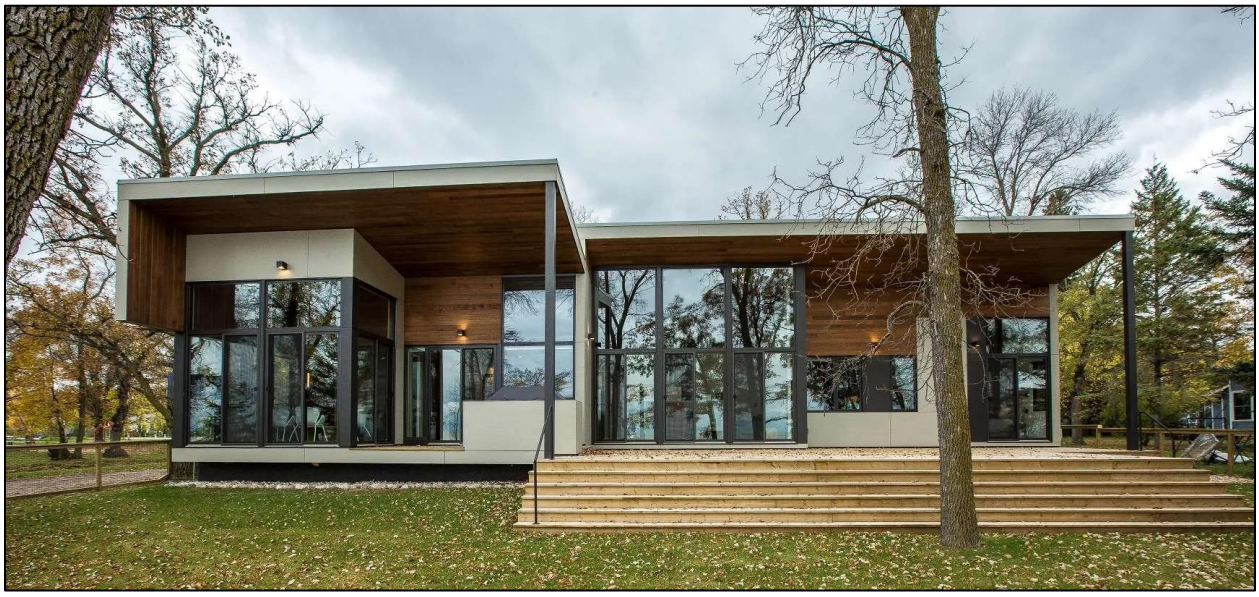


Figure 11: Contribution of life cycle stages (A1-A3) to the environmental impacts for one square metre (1 m²) of Silex Fiberglass Awning Windows Frame - TRACI & CML, and CED indicators



Beach Cottage Residential Project – Winnipeg, MB (Photo courtesy of SILEX FIBERGLASS WINDOWS & DOORS)

5. ADDITIONAL ENVIRONMENTAL INFORMATION

5.1. REGULATED HAZARDOUS SUBSTANCES

Silex Fiberglass Windows & Doors products are not considered to contain regulated hazardous substances based on the manufacturer declaration.

5.2. REALESE OF DANGEROUS SUBSTANCES

Silex Fiberglass Windows & Doors products are not known to release dangerous substances.

5.3. FUTHER INFORMATION

Silex Fiberglass Windows & Doors is fully committed to the diligent protection of both the environment and the health and safety of its workers and its customers' workers. Its manufacturing process includes state-of-the-art environmental control equipment and workers are equipped with the highest quality personal protection gear. The Silex Fiberglass Windows & Doors research and development process strives to create architectural products that have a sustainable impact on buildings and their occupants.

To learn more about Silex Fiberglass Windows & Doors and its products, visit: https://silexfiberglass.com/

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EPD

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