



Declared unit Square Meter

Declared unit mass 37.5 kg

GWP-fossil, A1-A3 79.20 kgCO₂e

GWP-biogenic -25.10 kgCO₂e

GWP-total, A1-A3 54.10 kgCO₂e

Date April 2025

Version 3

STANDARDS, SCOPE, AND VERIFICATION

This is a self-declared Environmental Product Declaration (EPD) by VETTA Building Technologies Inc. for aluminum clad wood window systems. The study includes all modules stated mandatory in the reference standard and the applied Product Category Rules (PCR). The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no known neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

Reference Standard	TRACI 2.1. / ISO 21930
Category of EPD	Self-declared EPD
EPD author	Kim-Marie Degenkolb, VETTA Building Technologies Inc.

VETTA has the sole ownership, liability, and responsibility for the EPD. EPDs of non-VETTA tilt & turn windows may not be comparable if they do not comply with TRACI 2.1. / ISO 21930 and if they are not intended for the same building application.

NORTH AMERICAN DISTRIBUTOR

Name	VETTA Building Technologies
Address	318 Lake Promenade Toronto, ON M8W 1B5
Contact	inquiry@vettawindows.com
Website	www.vettawindows.com

VETTA is a proudly Canadian company, exclusively offering triple glazed, wood windows and doors, custom hand crafted in Poland since 1972. Sustainably harvested PEFC/FSC certified. Passive House PHI & PHIUS validated and certified.

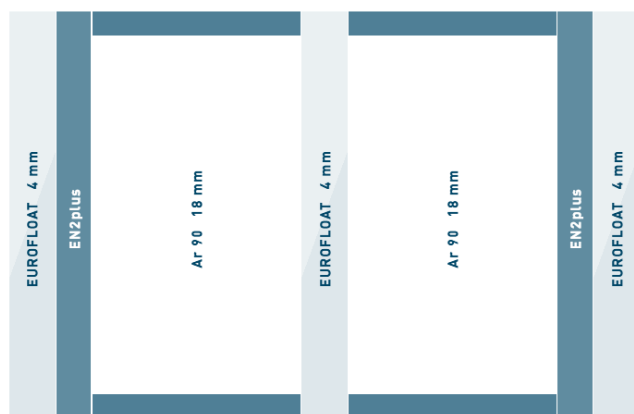
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PRODUCT

The ELITE E92 is a high-performance, Passive House/Net Zero ready window. The wood cross-section thickness is 92mm. It is made from PEFC certified European Sylvestris pine with heavy-gauge aluminum exterior cladding. The test window is 1000mm x 1000mm large tilt & turn window with 3 sealing gaskets and German steel multi-point locking hardware.

The insulated glass unit (IGU) is triple-glazed with non-metal, thermally broken spacers, low-E coating, and argon filled. The U-Value of the window is 0.72 W/m²K (R8), while the U-Value of the glazing is 0.52 W/m²K (R11). The E92 is validated by the Passive House Institute (PHI) and certified by the Passive House Institute US (Phius).



Product name	ELITE E92 Fixed
Place of production	Poland
Period for data	Calendar Year

The main model used for calculation is a 1000mm x 1000mm **ELITE E92** fixed window with a weight of 35.7 kg. The IGU is triple-glazed with a U_g -Value of **0.52 W/m²K**. The wood, has a clear water-based stain, and is sustainably harvested PEFC certified European Sylvestris pine with aluminum cladding. U_w -Value is **0.72 W/m²K**.



A comparison table is included for models ELITE E92 operable and ELITE S68 fixed and operable.

RAW MATERIAL COMPOSITION

Category	Amount, mass %	Material origin
Metals	19.56%	Poland/Germany
Minerals	43.65%	Poland
Fossil materials	<1%	Poland
Bio-based materials	36.79%	Poland

BIOGENIC CARBON CONTENT

Biogenic carbon content in product	25.10 kg
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FUNCTIONAL UNIT AND SERVICE LIFE



Declared unit	m ²
Mass per Declared Unit	37.5 kg
Functional unit	non-operational
Reference service life	60 Years

HAZARDOUS/HIGH CONCERN SUBSTANCES

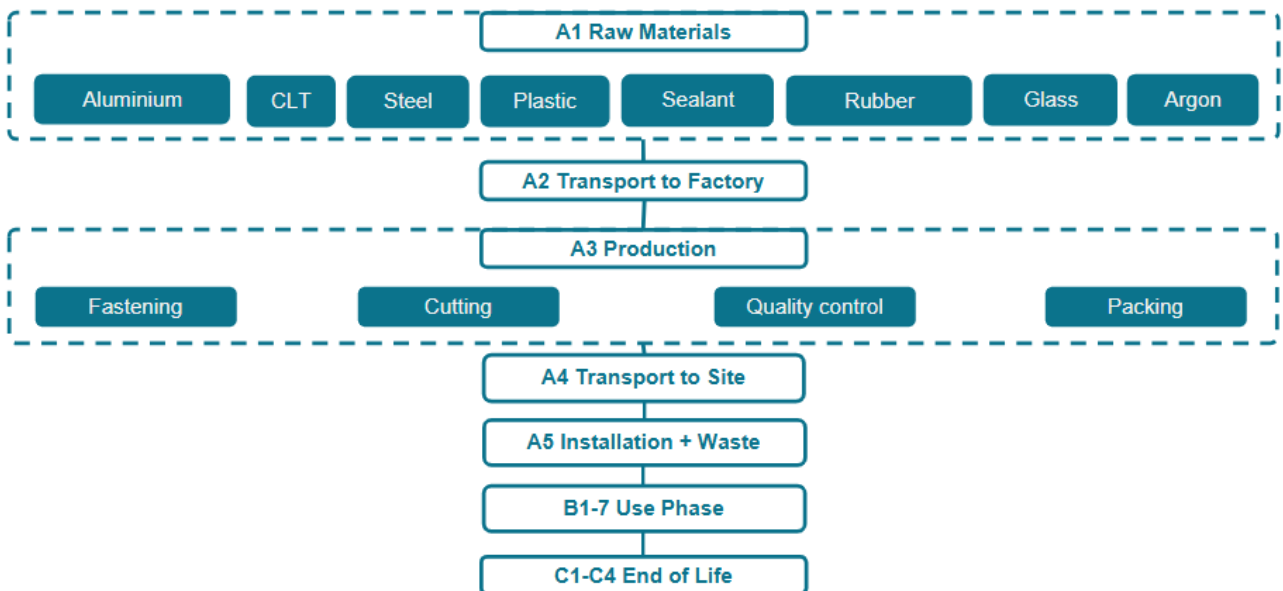
The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage								End of life stage			
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7		C1	C2	C3	C4
x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use		Deconstruction/ demolition	Transport	Waste processing (Reuse, Recycle)	Disposal

MANUFACTURING PROCESS



PRODUCT STAGE (A1-A3)

The environmental impacts, considered for the product stage, cover the manufacturing of raw materials used in the production as well as packaging and other ancillary materials. This includes electricity and fossil fuels used by machines, production waste/material losses and electricity transmission losses.

This stage also includes transport from raw material suppliers in Poland and Germany to our window factory in Sokolka, Poland.

Transportation emission and environmental impact, for this stage and all other stages with transportation, considers fuel use and its related production and infrastructure. All environmental impacts related to transport were drawn from OCLCA databases based on distance and weight.

TRANSPORT AND ASSEMBLY STAGE (A4-A5)

VETTA ships to seaports and client locations across North America. Our selected 'default' destination for this EPD is London, ON, Canada (200km from Toronto). To compare VETTA's imported products to NA-manufacturer products, A4 has been broken out as shown on the right.

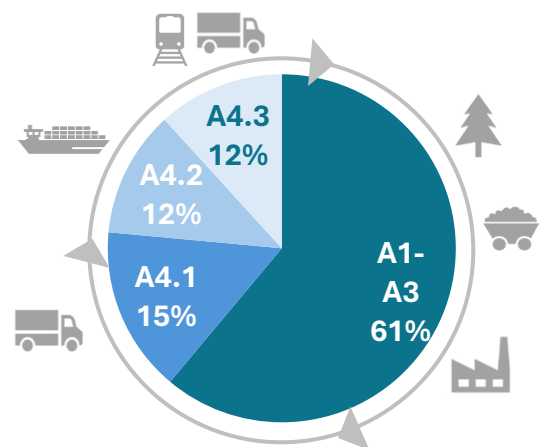
A4 | Post Manufacture Transportation

- A4.1 Europe: From factory to Gdynia Port by truck (diesel tractor with chassis hauling 40' container) (470km)
- A4.2 Sea: ship loading, ocean crossing to Montreal Port, and transfer to rail. (6759km)
- A4.3 Canada: intermodal rail loading, rail to Toronto (566km); transfer to diesel tractor with chassis for container haul to 'default' destination (200km)

A5 | Assembly

- Container unload with telehandler and product installation at the 'default' destination.
- Power-tools and hardware for install

BREAKOUT OF UPFRONT EMBODIED CARBON



PRODUCT USE AND MAINTENANCE (B1-B7)

The passive design of VETTA high-performance windows and doors significantly reduces energy use in a building. These products are not power operated, and their manual operation does not cause an environmental impact. With proper maintenance as outlined in VETTA's Owner Manual, the life expectancy of a unit is estimated at 60 years. Materials associated with maintenance, such as soap and water, lubrication, silicone, paint touch-ups, and potential replacement hardware were excluded from EPD values.

PRODUCT END OF LIFE (C1-C4)

Our products are designed for end-of-life disassembly into its wood, glass, metal, and rubber. Wood and metals have high demand recycling markets. Window glass has a lower recycling demand than bottle glass currently. The rubber recycling market is fully supplied through waste tires, so rubber recycling for these windows was considered an opportunity of zero.

Wood	100 % Recycle
Steel & Aluminum	100% Recycle
Glass	20% Recycle 80% Landfill
Rubber	100% Landfill

UPDATES FROM LAST VERSION

- Expanded product calculation model to include operable and fixed window, as well as comparison products.
- Sources of transportation calculations changed from actual data from VETTA logistics partners to OCLCA database.
- Data for A4-Transport expanded from arrival at Montreal port to arrival at a 'default' destination 775 km from Montreal and 200 km from Toronto.
- Scope expanded to include all life stages and environmental impacts as required by TRACI 2.1. / ISO 21930.

ESTIMATES AND ASSUMPTIONS

EPD references:

- Insulated Glass Unit Manufacturer EPD
Pressglass: EPD-MIG-GB-61.0
- Aluminum Cladding Manufacturer EPD;
Aluron Aluminum: ITB No. 525/2023
- Hardware Manufacturer EPD (Proxy);
Arge Fittings: EPD-ARG-20160194-IBG1-EN
- CLT Manufacturer EPD (Proxy);
Stora Enso CLT: EPD-IES-0009949:003

Other:

- 1m³ of pine wood equals 450kg; *based on online tool coolconversion.com*
- 50% of CLT weight is stored biogenic carbon; *based on EN 16449:2014*

REDUCTION & INITIATIVES

Over the past few years our efforts have focused on driving carbon out of Canadian and US domestic transport, where feasible as follows:

- Product quantities per pallet and pallet sizing for max space utilization.
- Sharing containers across multiple client orders for max space utilization.
- Replacing long haul container trucking with intermodal rail.
- Using more Canadian and US seaports to get closer to delivery destination and reduce trucking.
- Reducing empty return trucks, through better coordination with Logistics partners.
- Avoiding air transport, or if necessary, using space on scheduled passenger planes instead of cargo-flights.
- Relocated VETTA warehouse, reducing the distance between it and the Toronto rail terminal by 160 km.
- Increased usage of LTL (less-than-full load) trucking for small order deliveries, for max space utilization.
- Expand product calculation models to include all other VETTA door and window models

RESULTS PER 1M2 OF WOOD-ALUMINUM FIXED WINDOW – TRIPLE GLAZED						
Impact category	GWP	ODP	AP	EP	POCP	ADP
	kg CO ₂ e	kg CFC ₁₁ e	kg SO ₂ e	kg Ne	kg O ₃ e	MJ
A1 Raw Materials	40.60	0.00000186	0.66	0.11	0.31	895.00
A2 Truck to Factory	2.31	0.000000049	0.0065	0.00071	0.17	33.00
A3 Manufacturing	11.20	0.00000027	0.09	0.0083	0.88	11.20
A1-A3	54.11	0.00000218	0.76	0.11	1.36	939.20
A4.1 Truck to PLGDY Port	3.40	0.000000050	0.0035	0.0019	0.74	46.00
A4.2 Sea to MTL Port	2.60	0.000000038	0.0026	0.0014	0.55	34.50
A1-A4.2	60.11	0.00000226	0.76	0.12	2.65	1019.70
A4.3 Rail/Truck Delivery	2.60	0.000000038	0.0026	0.0014	0.55	34.50
A5 Assembly	0.70	0.000000013	0.0031	0.00053	0.037	-3.04
A4.3-A5	3.30	0.00000005	0.0057	0.0019	0.59	31.46
C2 End of Life Transport	0.20	0.0000000031	0.0006	0.00006	0.016	2.93
C3 Waste/Recycling	1.83	0.000000022	0.015	0.0016	0.17	22.20
C1-C3	2.029	0.00000003	0.016	0.0016	0.19	25.13
Acronyms	GWP = Global Warming Potential of greenhouse gases expressed as carbon dioxide equivalent (CO ₂ e) ODP = Depletion potential of the stratospheric ozone layer AP = Acidification potential EP = Eutrophication potential POCP = Formation potential of tropospheric ozone ADP = Abiotic depletion potential					

COMPARISON TABLE

This table was created to compare different window models and operabilities. The comparison focuses on the global warming potential during the product stage (A1-A3).



COMPARISON RESULTS PER 1M2 OF WOOD-ALUMINUM WINDOW – TRIPLE GLAZED

Model	Frame Thickness	IGU Thickness	Weight	Unit	GWP-Fossil	GWP-Biogenic	GWP-Total
ELITE E92 fixed	92 mm	52 mm	35.7 kg	kg CO ₂ e	79.20	25.10	54.10
ELITE E92 operable	92 mm	52 mm	43.3 kg	kg CO ₂ e	97.90	27.70	70.20
ELITE S68 fixed	68 mm	38 mm	32.0 kg	kg CO ₂ e	69.90	12.10	57.80
ELITE S68 operable	68 mm	38 mm	25.5 kg	kg CO ₂ e	88.70	15.80	72.90