Type III Environmental Product Declaration ITB No. 177/2021

Bildau & Bussmann

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wooden and wooden-aluminium single-frame windows and doors

ECO PLATFORM EPD EN 15804 VERIFIED

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ITB is the verified member of The European Platform for EPD program operators and LCA practitioner www.eco-platform.org

Basic information

This declaration is the Type III Environmental Product Declaration (EPD) based on EN 15804 and verified according to ISO 14025 by an external auditor. It contains the information on the impacts of the declared construction materials on the environment. Their aspects were verified by the independent body according to ISO 14025. Basically, a comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804:2012 (see point 5.3 of the standard).

Life cycle analysis (LCA): A1-A3, C1-C4 and D modules in accordance with EN 15804:2012
(Cradle to Gate with options)
The year of preparing the EPD: 2020
Product standards: PN-EN 14351-1+A2
Service Life: no RSL declared
PCR: ITB-PCR A (PCR based on EN 15804)
Declared unit: 1 square metre of window (wooden and wooden-aluminium)
Reasons for performing LCA: B2B
Representativeness: Polish production, year 2019 (production)

MANUFACTURER AND PRODUCT DESCRIPTION

Bildau & Bussmann is a large manufacturer of wooden and wooden-aluminium windows and doors and has been in production since 1975. The company Bildau & Bussmann Polska Sp. z o.o. was established in Płock in 1995 and this manufacturing plant specializes in doors and windows production. Polish B&B chapter manufactures wooden windows and doors, standard and tailored to the individual needs of the client as well as windows and doors for historic buildings. Bildau & Bussmann products are built for long life using sustainable resources.

A wooden and aluminium-wooden windows are a standard and representative windows covered by this declaration. EPD covers single-frame, single-leaf windows and doors in the IV68, IV78, IV90 system with maximum size 1400 x 2300 mm, colours acc. RAL, NCS and Lazury palettes. It captivates with technically adequate parameters in terms of thermal resistance, resistance to wind, air and rain.

The reference unit for wooden window is 1m x 1m; single-leaf IV78 with double-chamber glass, pine timber with mini-joints, its weight is about 38 kg, including: wood - 16.5 kg; paint-1.7l (2kg); glass – 18.9 kg; fittings - 0.8kg; screws - 0.2 kg.

The reference unit for wood-aluminium window is 1m x 1m; single-leaf 78 H/ALU with double-chamber glass, pine timber and aluminium with mini-joints, its weight is about 47 kg, including: wood - 18.7 kg; aluminium 7 kg; paint-1.5 kg; glass – 18.9 kg; fittings - 0.8 kg; screws - 0.3 kg.

Table 1. The Bildau & Bussmann; wooden and wood-aluminium window -reference input materials composition (approx.)

Input products	Content (mass basis) wooden %	Content (mass basis) wooden-aluminium %
Timber	43%	40%
Aluminium	-	15%
Paint	5%	3%
Glass	50%	40%
Fittings	2%	2%
Screws	<1%	<1%

All details (technical) on products can be found on the website www.bildau.pl or www.bildau.de.

LIFE CYCLE ASSESSMENT (LCA) – general rules applied

The LCA for this EPD is conducted according to the guidelines of ISO 14040-44, the requirements given in the Product Category Rules (ITB PCR-A), EN 15804:2012 + A1:2013 Sustainability of Construction Works: Environmental Product Declarations and the general program guidelines by ITB

EPD system. As on the day of issuing the declaration, the transition period for the implementation and implementation of the EN 15804 + A2 standard applies, therefore ITB partially does it best to implement the new provisions of Annex 2 . The LCI inventory (verified) for the LCA study is based on the year 2019. Production figures for B&B windows and detailed profiles' from production plant at Płock were collected by manufacturer in LCI questionnaire. LCA was modelled with ITB software using the latest version of the Ecoinvent database (3.7.1) and latest impact models. The EPD, its background data and the results may be used for business-to-business communications and is expected to be a reliable document for green building designers, architectures, manufacturers of construction products and the other stakeholders in the construction sector to understand the potential environmental impacts caused by B&B windows products.

Unit

The declared unit is 1 m² of a product (38 kg wooden window and 47 kg aluminium-wooden)

System boundary

Type of EPD: cradle to gate with options. The life cycle analysis of the declared products covers "Product Stage" A1-A3, and End of Life stage C1- C4 and gains beyond system in D module (Cradle to Gate with options) in accordance with EN 15804:2012+A1:2013 and ITB PCR A. The system boundary covers the production of raw materials (timber, glass, aluminium, paints, joints), all relevant transport down to factory gate and manufacturing by B&B (cradle to gate). The review framework comprises the following details:

- Raw materials acquisition and transport,
- Further processing of raw materials for windows and doors products,
- Production operations includes timber mechanical treatment, element bonding and varnishing
- Energy and water consumption, waste management.

Modules A1-A3 include processes that provide materials and energy input for the system, manufacturing and transport processes up to the factory gate, as well as waste processing. Module C1 considers electricity supply for the deconstruction of the window form a building. Module C2 includes transportation of the postconsumer waste to the waste processing plant. End of life scenarios are presented in Table 2. Module D includes potential benefits from all net flows given in modules A1-A3 and C3-C4 that leave the product boundary system after having passed the end-of-waste state in the form of recovery and/or recycling potentials.

Allocation

Production of the products is a line process in one manufacturing plant located in Płock, Poland. Allocation of impact is done on product mass basis. The impacts from raw materials extraction/production (timber, glass, paint, foil, aluminium, steel) are allocated in A1 module of the LCA (not excluding more than 1% of secondary production inputs). Not less than 99% of impacts from a line production were allocated. Module A2 includes transport of all raw materials such as timber and glass from their suppliers to the manufacturing plant. Municipal wastes of factory were allocated to module A3. Energy supply (Polish electricity mix -based on national data reference by KOBiZE 2019) was inventoried for the whole factory and allocated to the product assessed in module A3. Emissions in the factory (combustion/energy use) are assessed using national KOBiZE emission

factors. The majority of the production plant energy demand is fulfilled by incineration of the produced wood scrap in 600 kW furnace (renewable energy).

System limits

99.0% input materials and 100% energy consumption were inventoried in factory and were included in calculation. In the assessment, all significant parameters from gathered production data are considered. It is assumed that the total sum of omitted processes does not exceed 1% of all impact categories. In accordance with EN 15804:2012+A1:2013, machines and facilities (capital goods) required for and during production are excluded, as is transportation of employees. The impact of the production of packaging materials was considering excluding wooden pallets.

A1 and A2 modules: Raw materials supply and transport

Raw materials (see table 1) come in a main part from suppliers that environmental data for production is published in reports or can be found in a relevant literature or data bases. Data on transport of the different input products to the manufacturing plants were inventoried in detail as LCI and modelled by assessor. Means of transport include trucks. For calculation purposes European fuel averages are applied. Transport is only relevant for delivery of raw materials to the plant and in C2 module as transport to the process plants. The calculations assume the use of 50% recycled aluminium.

A3 module: Production

Energy for production is provided from the electricity grid and from a local biomass furnace (using waste wood from production). The input timber scantlings are mechanically processed (Figure 1). The obtained elements are varnished and then connected to the glass and finishing elements with screws.

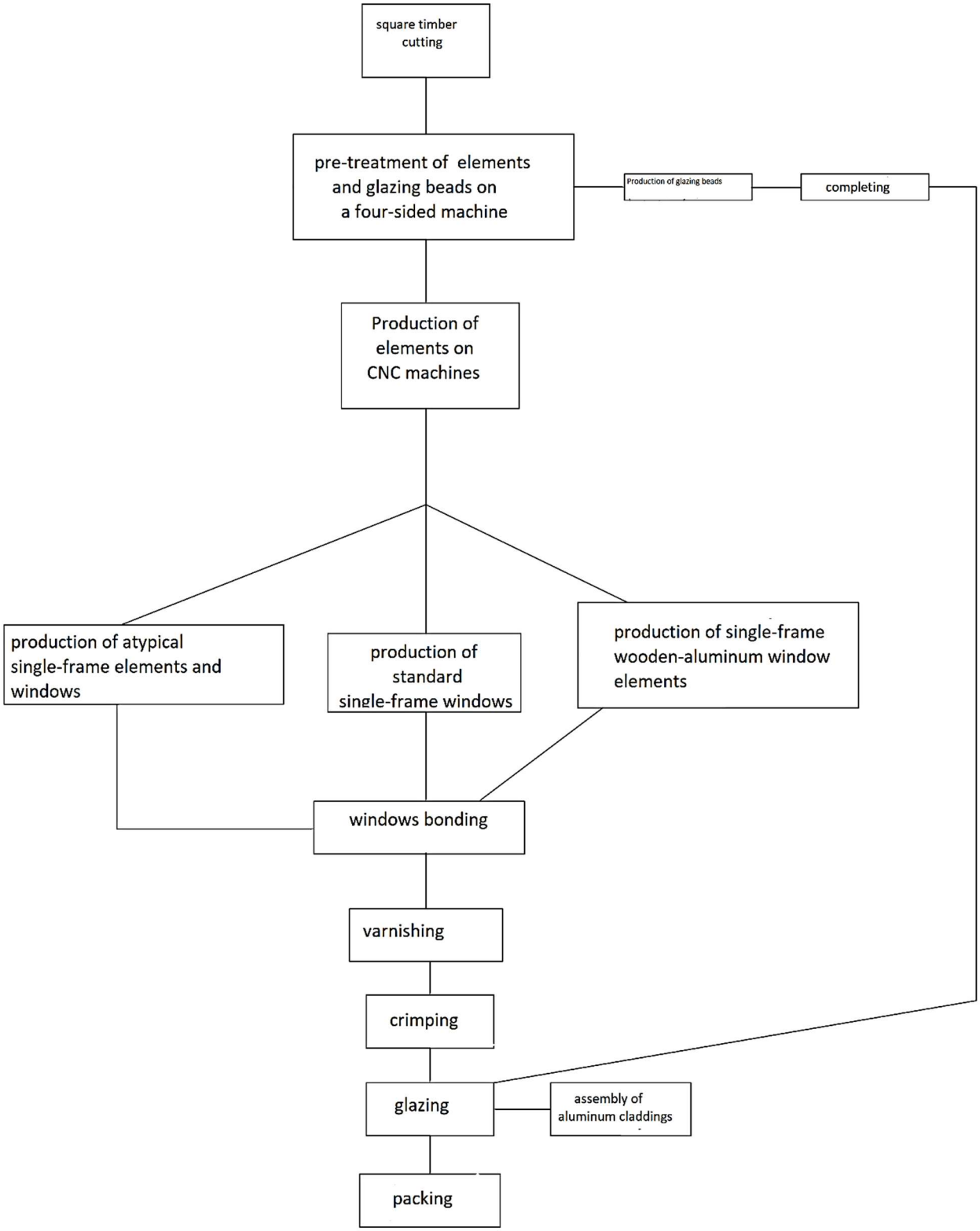

Figure 1. A scheme of manufacturing process (module A3)

C1-C4 and D modules: End of life scenarios

It is assumed in phase C1 that windows may be removed/re-assembled with a the use of small-scale electro-mechanical equipment (electricity used). It is assumed that at the end of life the transport

distance from the product deconstruction place to a waste processing (module C2) is 50 km on > 16 t loaded lorry with 75% capacity utilization and fuel consumption of 30 l of ON per 100 km.
Materials recovered from dismantled products are recycled, incinerated (module C3) and landfilled (module C4) according to the realistic treatment practice (mass allocation) of industrial waste what is presented in Table 2. The recycling potential for a new product systems is considered beyond the system boundaries (module D) based on literature recommendations and potentially realistic practice.

Table 2. End-of-life scenarios of recovered materials

Material	Material recovery	Energy recovery	Recycling	Landfilling
steel	95%	0%	100%	0%
aluminium	95%	0%	75%	25%
wood-based products	95%	50%	50%	0%
polymers	80%	30%	30%	40%
glass	90%	0%	100%	0%

Data collection period

The data for manufacture of the declared products refer to period between 01.01.2019 – 31.12.2019 (1 year). The life cycle assessments were prepared for Poland as reference area.

Data quality

The primary data collection has been done thoroughly, all relevant flows are collected and considered in the LCI questionnaire document. Technological, geographical and temporal representativeness is given. The values determined to calculate A3 originate directly from verified LCI inventory questionnaire filled by B&B representative. The values of the indicators presented in A1 module were calculated using Ecoinvent data V3.7 (aluminium, water, paint). Data on Polish electricity is supported by KOBiZE. Specific EPDs were used for timber, steel based elements and glass inputs. A heat from waste wood scraps production data and end of life processes are taken from the Ecoinvent.

Calculation rules

LCA was done in accordance with ITB PCR A document.

Databases

The background data for the processes come from the following databases: Ecoinvent v.3.7. Specific data quality analysis was audited. Characterization factors are CML ver. 4.2 based. ITB-LCA algorithms were used for all impact calculations. The time related quality of the data used is valid (5 years).

Comparability

Environmental product declarations of construction products may not be comparable if they do not comply with EN 15804. The manufacturer is responsible for its own data presented in the declarations.

Health related issues

Product can be considered as neutral for Indoor Air Quality. According to the latest revision of Article 59, the Regulation (EC) No 1907/2006 on the Registration, Evaluation, Authorization and restriction

of Chemicals (REACH), "the REACH list", of substances of very high concern' (SVHC) the B&B window product is not manufactured with or contains any of these substances above a concentration of 0.1% by weight.

LIFE CYCLE ASSESSMENT (LCA) – Results

Declared unit

The declaration refers to the unit DU– 1 m^2 of window.

Table 3. System boundaries (life cycle modules) included in a product environmental assessment

Environmental assessment information (MA – Module assessed, MNA – Module not assessed, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
MA	MA	MA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MA	MA	MA	MA	MA

Table 4. Environmental product characteristic – 1 m^2 of wooden window product (38 kg)

Environmental impacts: (DU) 1 square meter									
Indicator	**Unit**	**A1**	**A2**	**A3**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential total	kg CO_2 eq.	3.98E+01	1.21E+00	3.74E+00	1.57E-01	1.40E-01	8.20E-01	3.73E+00	-1.38E+01
Global warming potential fossil	kg CO_2 eq.	6.05E+01	1.15E+00	2.80E+00	1.42E-01	1.27E-01	4.29E-01	4.70E-01	-3.34E+00
Global warming potential biogenic	kg CO_2 eq.	-2.07E+01	6.07E-02	9.41E-01	1.57E-02	1.31E-02	3.91E-01	3.26E+00	-1.05E+01
Depletion potential of the stratospheric ozone layer	kg CFC 11 eq.	1.28E-06	0.00E+00	8.67E-08	1.73E-09	0.00E+00	3.37E-08	2.76E-09	-8.69E-08
Acidification potential of soil and water	kg SO_2 eq.	2.75E-01	9.09E-03	1.58E-02	1.38E-04	1.10E-03	3.04E-03	7.76E-03	-2.57E-02
Formation potential of tropospheric ozone	kg Ethene eq.	5.42E-02	6.37E-04	1.04E-02	7.17E-04	7.71E-05	3.19E-04	7.85E-04	-8.67E-03
Eutrophication potential	kg $(PO_4)^{3-}$ eq.	5.27E-02	1.60E-03	3.37E-03	5.77E-06	1.94E-04	9.05E-04	1.05E-03	-5.87E-03
Abiotic depletion potential (ADP-elements) for non-fossil resources	kg Sb eq.	1.07E-03	0.00E+00	2.96E-02	1.17E-03	0.00E+00	4.90E-06	9.94E-07	-2.32E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	MJ	8.58E+02	2.41E+01	3.30E+01	1.80E+00	2.92E+00	1.09E+01	3.18E+01	-2.14E+02
Environmental aspects: (DU) 1 square meter									
Indicator	**Unit**	**A1**	**A2**	**A3**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	5.18E+02	1.69E+00	1.02E+02	2.70E-01	2.04E-01	4.88E+01	2.23E+00	-3.76E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	8.75E+02	2.53E+01	3.55E+01	1.98E+00	3.06E+00	1.25E+01	3.23E+01	-2.17E+02
Use of secondary material	kg	2.89E+00	0.00E+00	3.27E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.84E+00
Use of renewable secondary fuels	MJ	3.57E-02	1.27E+00	1.39E-05	0.00E+00	1.53E-01	0.00E+00	4.73E-02	1.33E+02
Use of non-renewable secondary fuels	MJ	2.41E-19	0.00E+00	4.18E-01	0.00E+00	0.00E+00	1.01E-00	5.67E-02	9.90E+00
Net use of fresh water	m^3	4.02E-02	3.20E-05	2.61E-02	5.69E-04	3.87E-06	5.00E-06	7.18E-04	-6.98E-03
Other environmental information describing waste categories: (DU) 1 square meter									
Indicator	**Unit**	**A1**	**A2**	**A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.24E-03	1.47E-04	1.97E-03	2.40E-06	1.78E-05	1.13E-05	8.60E-07	-5.58E-03
Non-hazardous waste disposed	kg	2.76E+01	1.37E-01	6.29E-01	2.17E-02	1.65E-02	1.39E-01	3.14E+01	-5.89E+00
Radioactive waste disposed	kg	4.55E-03	0.00E+00	0.00E+00	2.40E-06	0.00E+00	1.16E-03	2.51E-04	-1.60E-03
Components for re-use	kg	4.02E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.40E-02	0.00E+00	0.00E+00
Materials for recycling	kg	3.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.80E+00	2.75E+01	0.00E+00
Materials for energy recover	kg	4.50E-03	0.00E+00	6.68E+00	0.00E+00	0.00E+00	1.65E+01	7.60E+00	0.00E+00
Exported energy	MJ	2.50E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 4. Environmental product characteristic – 1 m^2 of wooden aluminium window product (47 kg)

Environmental impacts: (DU) 1 square meter									
Indicator	**Unit**	**A1**	**A2**	**A3**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential total	kg CO_2 eq.	6.24E+01	1.37E+00	4.23E+00	1.78E-01	1.51E-01	6.38E+00	4.27E+00	-2.29E+01
Global warming potential fossil	kg CO_2 eq.	8.62E+01	1.30E+00	3.17E+00	1.60E-01	1.50E-01	5.94E+00	7.37E-01	-1.10E+01
Global warming potential biogenic	kg CO_2 eq.	-2.38E+01	6.86E-02	1.06E+00	1.78E-02	1.51E-02	4.43E-01	3.53E+00	-1.19E+01
Depletion potential of the stratospheric ozone layer	kg CFC 11 eq.	5.20E-06	0.00E+00	9.80E-08	1.96E-09	0.00E+00	3.45E-07	1.19E-08	-1.64E-07
Acidification potential of soil and water	kg SO_2 eq.	3.38E-01	1.03E-02	1.78E-02	1.56E-04	1.24E-03	6.97E-02	8.61E-03	-4.51E-02
Formation potential of tropospheric ozone	kg Ethene eq.	4.15E-01	7.20E-04	1.18E-02	8.10E-04	8.72E-05	3.68E-03	1.21E-03	-1.15E-02
Eutrophication potential	kg $(PO_4)^{3-}$ eq.	1.14E+00	1.81E-03	3.81E-03	6.52E-06	2.19E-04	2.77E-02	1.71E-03	-8.97E-03
Abiotic depletion potential (ADP-elements) for non-fossil resources	kg Sb eq.	1.08E-03	0.00E+00	3.35E-02	1.32E-03	0.00E+00	3.64E-04	1.11E-06	-8.74E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	MJ	2.23E+03	2.72E+01	3.73E+01	2.03E+00	3.30E+00	7.69E+01	3.68E+01	-3.02E+02
Environmental aspects: (DU) 1 square meter									
Indicator	**Unit**	**A1**	**A2**	**A3**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	8,81E+02	1,91E+00	1,16E+02	3,05E-01	2,31E-01	6,77E+01	2,56E+00	-3,62E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	MJ	INA	INA	INA	INA	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	2,25E+03	2,86E+01	4,28E+01	2,24E+00	3,46E+00	6,95E+01	3,74E+01	-2,77E+02
Use of secondary material	kg	2,89E+00	0,00E+00	3,70E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,88E+00
Use of renewable secondary fuels	MJ	2,41E-01	1,43E+00	1,57E-05	0,00E+00	1,73E-01	0,00E+00	4,73E-02	1,51E+02
Use of non-renewable secondary fuels	MJ	2,41E-01	0,00E+00	4,72E-01	0,00E+00	0,00E+00	1,00E+00	5,67E-02	1,12E+01
Net use of fresh water	m^3	5.52E-02	3,62E-05	2,95E-02	6,43E-04	4,38E-06	5.00E-06	7.18E-04	-7.98E-03
Other environmental information describing waste categories: (DU) 1 square meter									
Indicator	**Unit**	**A1**	**A2**	**A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.22E-03	1.66E-04	2.23E-03	2.71E-06	2.01E-05	9.19E-01	8.71E-07	-5.79E-03
Non-hazardous waste disposed	kg	2.72E+01	1.54E-01	7.11E-01	2.45E-02	1.87E-02	2.11E-01	4.26E+01	-6.44E+00
Radioactive waste disposed	kg	4.62E-03	0.00E+00	0.00E+00	2.71E-06	0.00E+00	1.30E-03	2.78E-04	-6.05E-03
Components for re-use	kg	4.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.40E-02	0.00E+00	0.00E+00
Materials for recycling	kg	3.84E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.80E+00	3.45E+01	0.00E+00
Materials for energy recover	kg	0.00E+00	0.00E+00	7.55E+00	0.00E+00	0.00E+00	1.87E+01	7.7E+01	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

RESULTS INTERPRETATION

The production of the entire representative "window" product (1 m^2; A1-A3 modules) consumes approximately 858 MJ of fossil fuels and gives a total carbon footprint (GWP) of almost 40 kg CO_2 /wooden window and 63kg CO_2/alu&wooden window at the product stage (A1-A3 modules). These values are below the average for the window market. In the production stage of raw materials (A1) there are three important factors that affect the environmental impact of the product. The low carbon footprint results from the use of square timber (dominant in the product by mass, 40/43%) - having a negative (minus) carbon footprint resulting from CO_2 sequestration by wood/trees in the growing phase amounting to approx. minus 21-24 kg CO_2 / kg of window. Secondly, a significant factor for the carbon footprint is the emission of glass production – for 42 kg CO_2 / window (3 layers of glass - 6.3 kg each) and the use of varnish / paints - almost -14 kg CO_2/window. Metal elements in wooden window have a minor impact of about 2 kg CO_2/window. The use of aluminium in the window deteriorate the environmental performance of the window by 200% in term of the carbon footprint (A1-A3 product stage) in comparison to pure wooden and almost 250% for the energy consumption of fossil fuels. This is due to the significant emissions and energy consumption of the aluminium production process.

A3 production (windows assembly) in most categories has a value of about a few to a dozen times lower than the production of feedstock resources itself, for example, it accounts for 73% for carbon impact as GWP and the production of windows in the A3 stage only 11%. The impact of the production of products at the A3 plant is mainly related to the use of electricity that consumes 10 MJ / window with a carbon footprint of approx. 2.5 kg CO_2 / window. A significant part of the demand for production is obtained from the low-emission combustion of wood production waste. i.e. almost 70 MJ of renewable energy / window with a carbon footprint below 1 kg CO_2/window which significantly reduces the total impact values and which is the basic pro-sustainable factor in a window production.

VERIFICATION

The process of verification of this EPD was in accordance with ISO 14025 and ISO 21930. After verification. this EPD is valid for a 5-year-period. EPD does not have to be recalculated after 5 years. if the underlying data have not changed significantly.

The basis for LCA analysis was EN 15804:2012and ITB PCR A
Independent verification corresponding to ISO 14025 (sub clause 8.1.3.) [x] external [ ] internal
External verification of EPD: Ph.D. Eng. Halina Prejzner LCA/LCI input data verification: Ph.D. D.SC. Eng. Michał Piasecki. m.piasecki@itb.pl Verification of LCA: Ph.D. Eng. Justyna Tomaszewska. j.tomaszewska@itb.pl

Normative references

- PN-EN 14351-1+A2:2016-10 Okna i drzwi - Norma wyrobu- właściwości eksploatacyjne - Część 1: Okna i drzwi zewnętrzne
- https://www.kobize.pl/uploads/materialy/materialy_do_pobrania/krajowa_inwentaryzacja_emisji/NIR_POL_2019_23.05.2019.pdf
- ITB PCR A General Product Category Rules for Construction Products
- ISO 14025:2006. Environmental labels and declarations – Type III environmental declarations – Principles and procedures
- ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
- ISO 15686-1:2011 Buildings and constructed assets – Service life planning – Part 1: General principles and framework
- ISO 15686-8:2008 Buildings and constructed assets – Service life planning – Part 8: Reference service life and service-life estimation
- EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- /Ecoinvent / Ecoinvent Centre. www.Eco-invent.org

Instytut Techniki Budowlanej
00-611 Warsaw, Filtrowa 1

Thermal Physics, Acoustics and Environment Department
02-656 Warsaw, Ksawerów 21

CERTIFICATE № 177/2021
of TYPE III ENVIRONMENTAL DECLARATION

Products:

Wooden and wooden-aluminum single-frame windows and doors

Manufacturer:

Bildau & Bussmann Polska Sp. z o.o.

ul. Otolińska 25, 09-407 Płock, Poland

confirms the correctness of the data included in the development of
Type III Environmental Declaration and accordance with the requirements of the standard

PN-EN 15804+A1

Sustainability of construction works.
Environmental product declarations.
Core rules for the product category of construction products.

This certificate, issued for the first time on 1st March 2021 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Acting Head of the Thermal Physic, Acoustics and Environment Department
Agnieszka Winkler-Skalna, PhD

INSTYTUT TECHNIKI BUDOWLANEJ

Deputy Director
for Research and Innovation
Krzysztof Kuczyński, PhD

Warsaw, March 2021