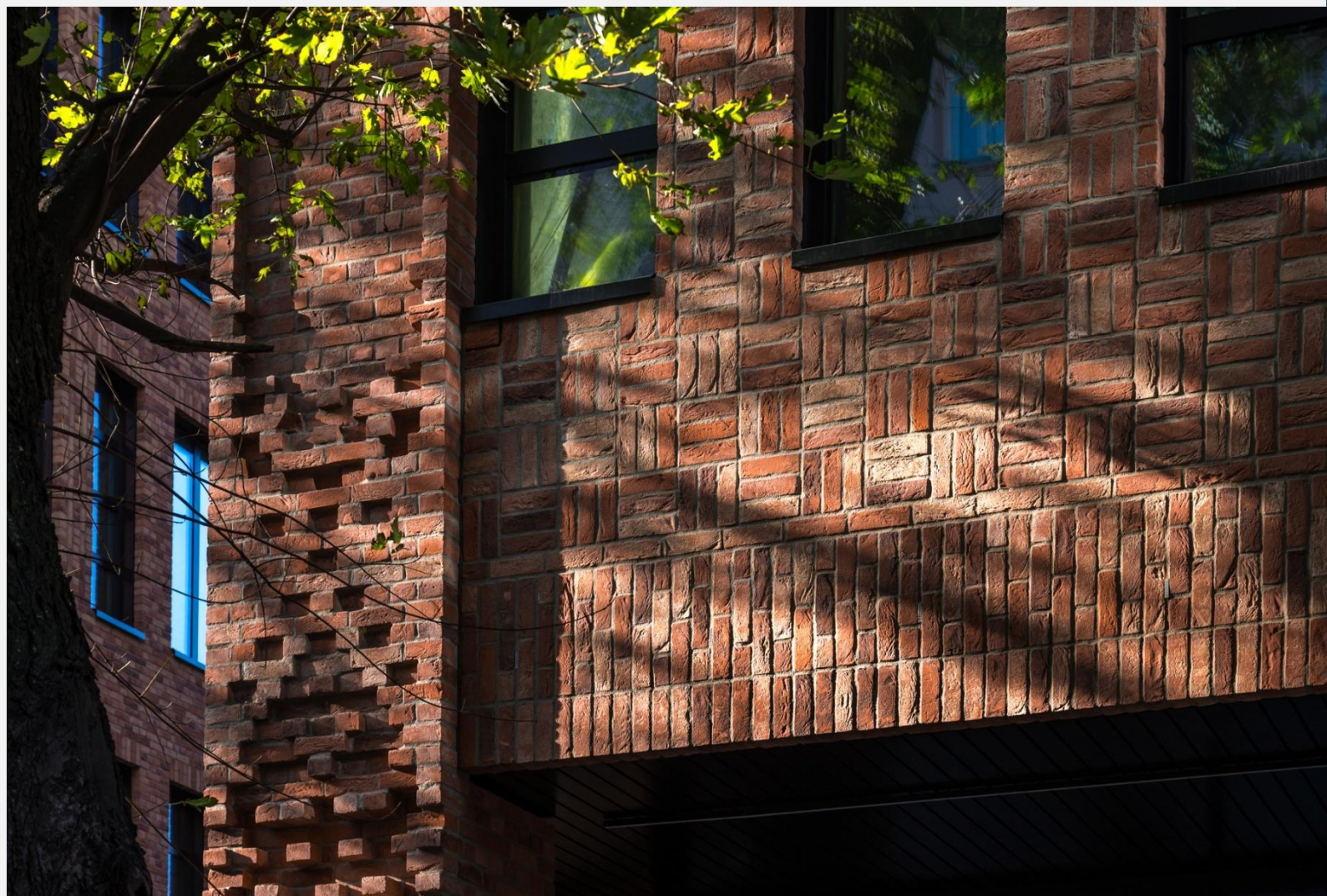


ENVIRONMENTAL PRODUCT DECLARATION

No. 04-11/2025

NOVA Facade System

NOVA Sp. z o.o.



Owner of the declaration:

Nova Sp. zo.o.

Programm owner:

Łukasiewicz Research Network – Institute of Ceramics and Building Materials

Program name:

Environmental product declaration

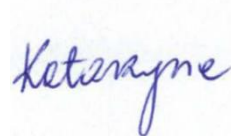
Data of issue:

20.11.2025

Declaration valid until:

20.11.2030

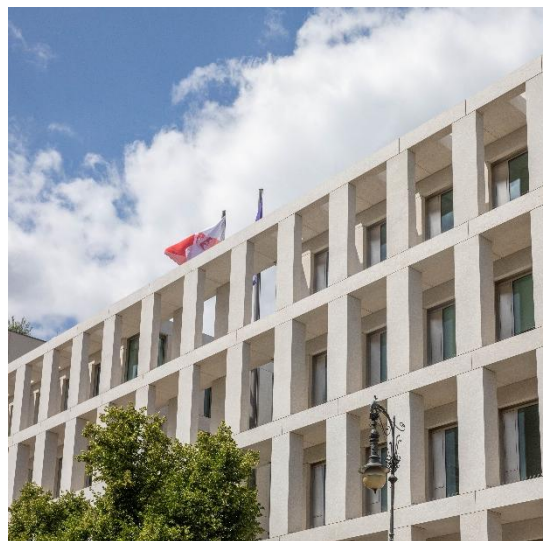
1. GENERAL INFORMATION

Product of declaration:	Elements for fastening brick and prefabricated facades - Type 1, Type 2, Type 3, Type 4.
Program owner: Łukasiewicz Research Network – Institute of Ceramics and Building Materials Environmental Engineering Center in Opole. http://www.icimb.pl/opole/	Declaration owner: NOVA Sp. z o.o. ul. Zerzeńska 33, 04-787 Warszawa Telefon: +48 601 889 745 Adres: biuro@nova-elewacje.pl nova-elewacje.pl
Declared unit:	1 kg
Date of issue:	20.11.2025
Declaration valid until:	20.11.2030
Life Cycle Analysis (LCA):	A1-A3, C1-C4 and D according to PN-EN 15804+A2 (Cradle-to-Gate with options)
Product Categorization (PCR) Rules	PN-EN 15804+A2:2020-03 Sustainability of construction works. Environmental Product Declarations. Basic principles of categorization of construction products, ICIMB-PCR A.
Representatives:	Polish product, year 2024/2025
Declared durability:	No declared product durability
Reasons for performing LCA:	B2B
Standard of product	none
Declarations that are the result of different programs or are not performed in accordance with the standard may not be comparable.	
The Łukasiewicz – Institute of Ceramics and Building Materials Environmental Engineering Center provides access to the Type III environmental declaration for NOVA Facade System to interested parties.	
The declaration owner is responsible for the information and the base evidence. Łukasiewicz Research Network - Institute of Ceramics and Building Materials Center for Environmental Engineering is not responsible for the manufacturer's information and data and evidence regarding the life cycle assessment.	
Authors' team: Katarzyna Kiprian, M.Sc. Ewa Głodek-Bucyk, Ph.D. Patryk Okoń, M.Sc. Kamil Ryfiak Eng. Approved:  Joanna Poluszyńska, PhD Director of the Environmental Engineering Center  Ewa Głodek-Bucyk, Ph.D. Leader of the Process Engineering Research Group	Review: CEN standard PN-EN 15804+A2 serves as the main PCR document. Independent verification of declarations and data according to EN ISO 14025:2010 ☐ Internal ☒ External   Katarzyna Grzesik, PhD, DSc

2. MANUFACTURER AND PRODUCT INFORMATION

Nova is one of the fastest-growing companies in the modern construction technology sector in Europe. For years, we have set standards in the design and production of facade systems, combining advanced engineering with a personalized approach to each project. We specialize in the design and production of systems in three areas:

- brick facades,
- architectural concrete facades,
- masonry structures. Thanks to our fastening systems, the surface area of facades completed with Nova's support exceeds one million square meters in over 10 European countries. Over 2,000 companies have already expressed their trust in our products, appreciating both the reliability and elegance of our solutions.



At Nova, we believe that every project deserves a personalized approach. Our systems are flexible and fully tailored to the requirements of architects and investors, allowing us to realize even the most ambitious and unique building concepts. From initial concept, through detailed design, to supervision of implementation, we support our clients at every stage of the investment. Innovation and sustainability are the foundation of our business. We use fully recyclable materials in the production process, and our employees regularly participate in training in ecology and environmental responsibility. We create solutions that reduce the negative impact of buildings on the environment while supporting local charitable initiatives and social projects. By combining modern technology, high-quality materials, and engineering expertise, Nova also creates comprehensive solutions that support sustainable, modern construction. By choosing our company, you are investing in confidence, elegance, and the future of the construction industry.

GROUP OF PRODUCTS COVERED BY THE DECLARATION

NOVA Facade System

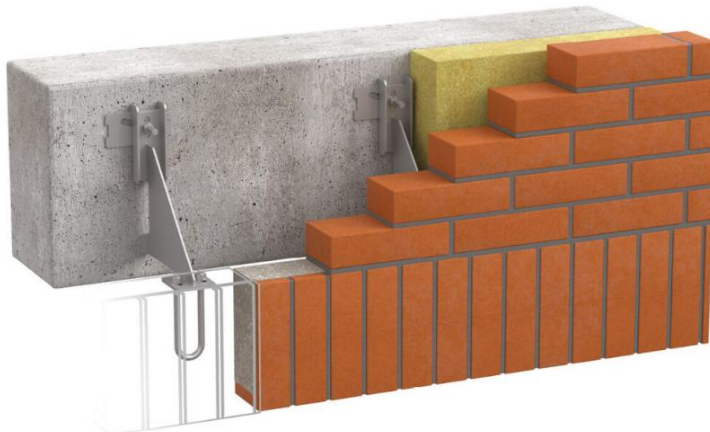
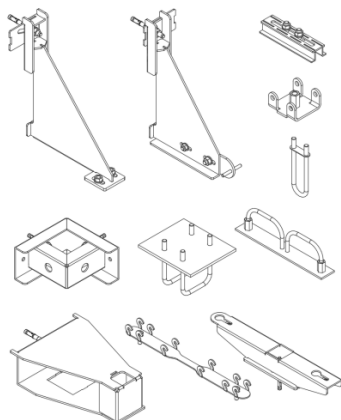
Elements for fastening brick and prefabricated facades Type 1

Elements for fastening brick and prefabricated facades Type 2

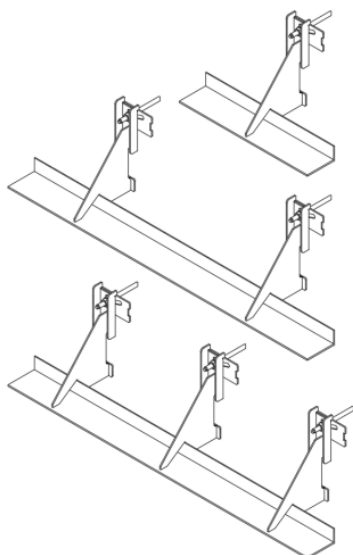
Elements for fastening brick and prefabricated facades Type 3

Elements for fastening brick and prefabricated facades Type 4

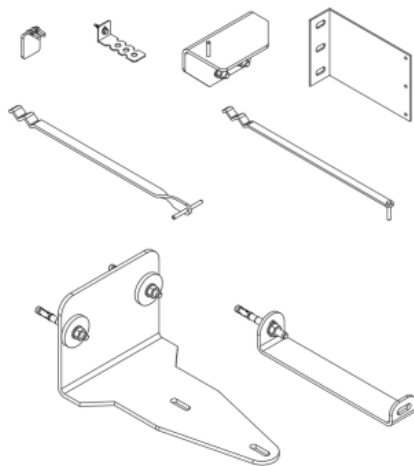
Type 1 Laser-cut, bent and spot-welded elements (e.g. hangers, labels).



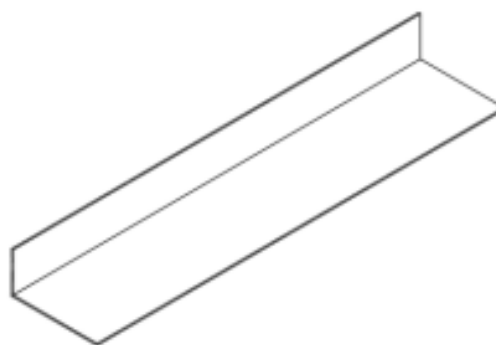
Type 2 Laser-cut and linear bent elements (e.g. 1-, 2- and 3-hanger consoles).



Type 3 Laser-cut and bent elements (e.g. stabilization).



Type 4 Elements cut on a guillotine and (e.g. angle brackets).



The composition of the products covered by the declaration is provided in the table below.

Table 1: Material composition of products - NOVA Facade System - elements for fastening brick and prefabricated facades Type 1, Type 2, Type 3, Type 4.

Material	Mass participation
Stainless steel	100%

The production process for metal components, encompassing four product types, begins with the collection of sheet metal with specific parameters from the materials warehouse. These sheets constitute the starting material, which is then subjected to precise pre-processing operations. Depending on the type of component and technological requirements, different cutting methods are used: for Type 1 and Type 3 components, laser cutting is used, enabling high-precision edges and complex shapes; for Type 2 elements, laser and guillotine cutting are used, and for Type 4 elements, only a guillotine is used, ensuring efficient cutting of simple forms while maintaining adequate process efficiency. After the cutting stage is completed, the components are sent for further plastic forming operations, including bending. The bending operation aims to give the components the required geometric shape and is used in all product types, unless the component design does not require this procedure. The bending process is performed using press brakes, which allow for precise forming of sheet metal while maintaining the dimensional tolerances specified in the technical documentation. For more structurally complex products, including Type 1 and Type 2, the next step after bending is pre-assembly of the components. This involves assembling and joining them using a hefting technique, which prepares the structure for welding. Welding is then performed, ensuring a permanent connection of all components into a finished structure. After welding, the components undergo quality control and are transported to the finished goods warehouse. The final step in the process is packaging the assemblies to ensure safe transport and compliance with logistical requirements. For Type 3 and Type 4 products, the production process is somewhat simplified. After bending, the components are sent directly to the finished goods warehouse and then packed for shipment. These types do not require assembly or welding, due to the simpler geometry of the components and their lower structural complexity. The entire production process, regardless of type, therefore includes the following steps: material collection, cutting, possible bending and assembly, welding (if applicable), transport to the warehouse, and packaging. The differences between the individual types result primarily from the cutting technology used and the structural complexity of the manufactured elements. A schematic representation of the production process for all types of elements for fastening brick and prefabricated facades is provided in Figure 1.

NOVA Sp. z o.o. products are designed and manufactured in accordance with the requirements of the PN-EN 1090-1 standard, which authorizes the production of load-bearing steel components and their assemblies up to class EXC3 according to EN 1090-2, and ISO 3834, which defines the principles for the quality of steel structure construction. Compliance with the ISO 3834 standard confirms the high quality of steel structures and the controlled, supervised manufacturing process.

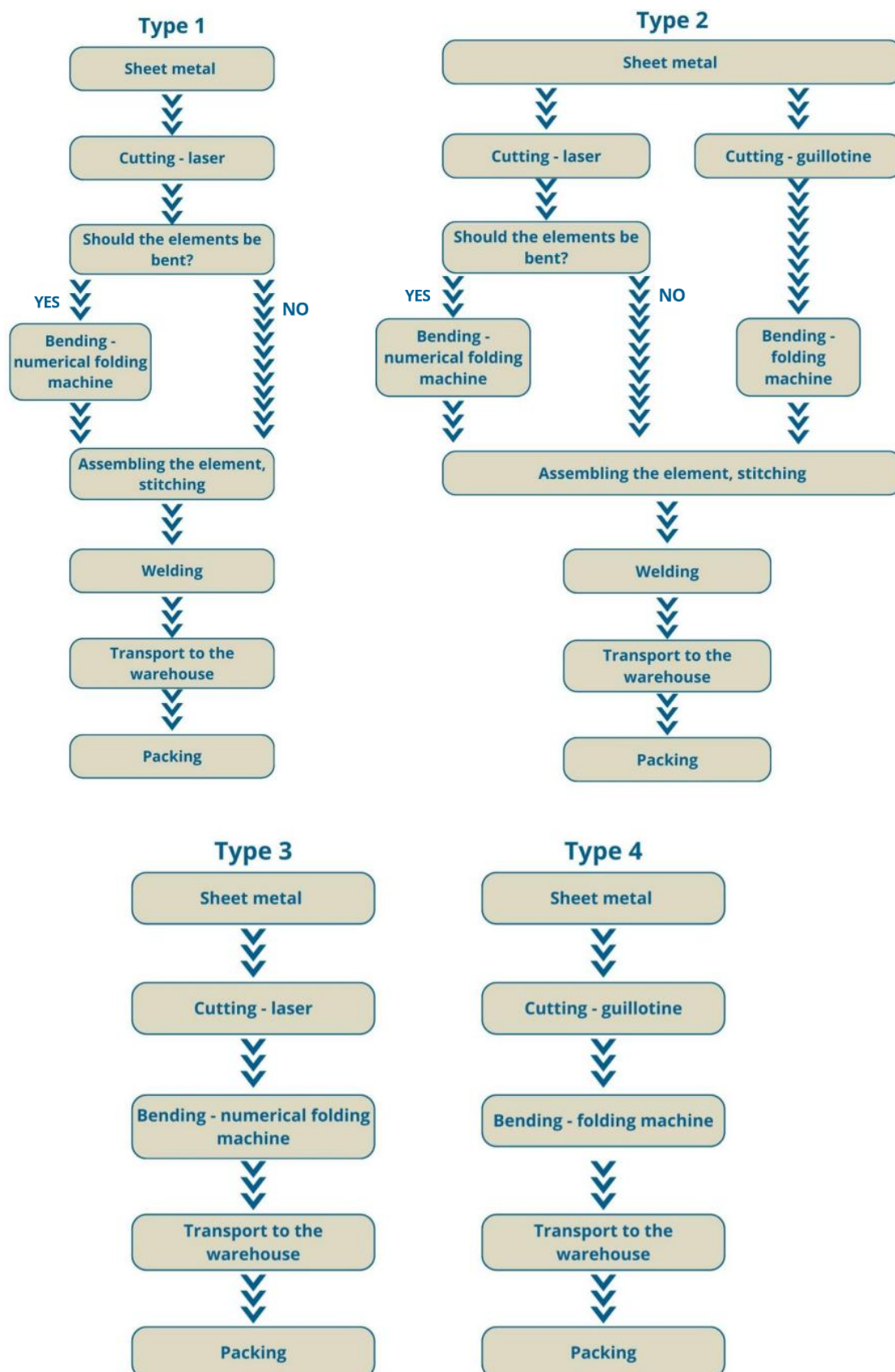


Figure 1: Production diagrams of NOVA Facade System-elements for fastening brick and prefabricated facades with division into individual types, Type 1, Type 2, Type 3, Type

3. LCA: CALCULATION RULES

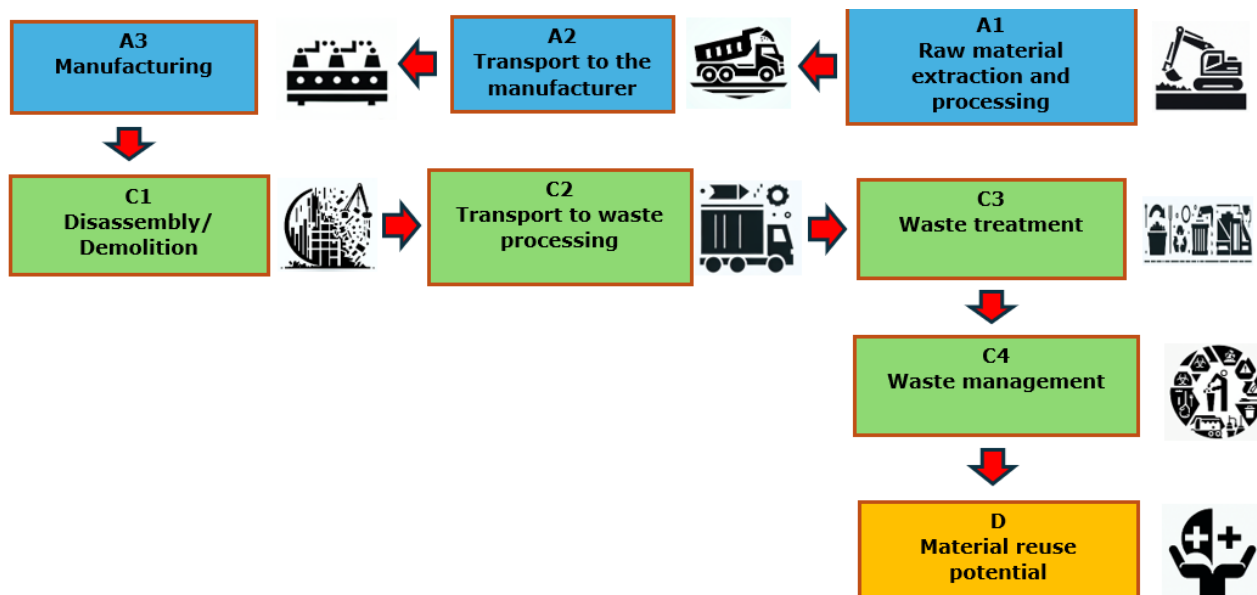
The environmental declaration is based on data provided by the declaration owner, Nova Sp. z o.o., for the Bujalski Metal Center Sp. z o.o. production plant located in Warsaw at 223 Chelmska Street. The study covers processes related to the production of elements for fastening brick and prefabricated facades in four technological variants:

1. Fastening elements for brick and prefabricated facades Type 1,
2. Fastening elements for brick and prefabricated facades Type 2,
3. Fastening elements for brick and prefabricated facades Type 3,
4. Fastening elements for brick and prefabricated facades Type 4.

Separate life cycle assessments (LCA) were conducted for each of the above-mentioned types, covering all relevant processes occurring in the production system. Raw material consumption figures were provided separately for each type of masonry and precast facade fastener. Energy consumption and emissions data were provided separately for each type of masonry and precast facade fastener. Allocations were made based on data provided by the manufacturer.

System limitations

The life cycle analysis of the tested products includes modules A1-A3, C1-C4 and D (Cradle to Gate with options) in accordance with PN-EN 15804.



Data colleration period

Data regarding the production process were provided in 2025 for the period 01/07/2024 - 30/06/2025 (12 months) and correspond to the production technology at that time.

Declared unit

1 kg

Assumptions

A1 – Raw material extraction and consumption refers to specific mass shares in the production process per declared unit of product.
A2 – Distances from the raw material extraction site to the production plant are individual for each raw material, with means of transport varying depending on the method of raw material delivery.

A3 – CO₂, NO_x, SO₂, and dust emission values from the production process obtained as a result of an estimate based on fuel consumption.

C1 – Describes the handling of elements used to fasten masonry and prefabricated facades during dismantling/demolition. Calculations are performed based on a developed scenario.

C2 – Refers to the transport of construction waste to the recovery facility. Calculations are performed based on a developed scenario.

C3 – Considers the environmental impact during demolition waste processing at the waste recovery facility. Calculations are performed based on a developed scenario.

C4 – Considers the environmental impact of storage and recycling. Calculations are performed based on a developed scenario.

D – Concerns the impact and consequences of using recycled material. Calculations are performed based on the developed scenario.

Cut-off criteria

Ninety-nine percent of all mass flows involved in the production process were accounted for. All energy used in production was included in the environmental declaration.

General data

The calculation data comes from Ecoinvent v. 3.10 and was supplemented with the KOBiZE CO₂, SO₂, NO_x, CO, and total particulate matter emission factors for electricity, December 2024. Emission factors for electricity were determined using actual KOBiZE data. The Polish electricity emission factor used (Ecoinvent supplemented with current KOBiZE national data) is 0.597 kg CO₂/kWh. A detailed data quality analysis was part of the external audit.

Allocation

All data regarding components manufactured at the plant was provided by the declaration owner, Nova Sp. z o.o., and was referenced to the declared product unit – 1 kg. The allocation principles used in this EPD are based on the general ICIMB-PCR A principles.

4. LCA: SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

The Life Cycle Assessment has been developed in accordance with the requirements of PN-EN ISO 15804+A2:2020, PN-EN ISO 14025 and PN-EN ISO 14040. The rules for product categorization have been adopted in accordance with the PN-EN 15804 standard.

For the purpose of the life cycle analysis of products covered by the environmental declaration in the scope of "cradle to gate with options", scenarios have been developed for modules C1-C4 and D:

Module C1 Demolition, including dismantling, including on-site pre-sorting of materials:

The demolition includes the dismantling of elements for fixing masonry and prefabricated facades along with the entire facade (insulation layers and masonry). Dismantling operations are not carried out as a separate process – elements are removed together with the facade structure. Due to the low complexity and the lack of the need for additional equipment or energy, the emissions associated with dismantling are considered negligible (negligible). Value of environmental indicators: 0.

Module C2 Waste Transport:

After initial sorting at the demolition site, all fractions are directed to appropriate disposal sites:

- Transport is carried out using 16-32 ton trucks meeting EURO 6 emission standards.
- Transport to the reuse facility takes place within 100 km of the demolition site.
- Transport to the recycling facility takes place within 100 km of the demolition site.

Identical transport distances were assumed for all variants analyzed as part of the declaration.

Module C3 Waste processing, e.g., collection of demolition waste fractions and processing of material streams intended for reuse, recycling, and energy recovery:

The module covers standard operations used in demolition waste treatment plants, including:

- unloading (loader),
- crushing (crusher),
- magnetic separation for separating steel fractions,
- material cleaning and screening processes.

Based on industry data and average indicators of mechanical waste processing processes, the following specific consumptions were assumed:

- electricity consumption: 0.04 kWh/kg,
- fuel consumption (diesel): 0.315 MJ/kg,

These values were adopted the same for all analysed product variants (Type 1–Type 4), as the method of waste treatment and the intensity of the operation do not differ between the types of elements. The assumed processes allow for the full preparation of steel fractions for material recovery and the preparation of other elements for possible reuse. No processes requiring additional chemical or thermal treatment of waste in this module are foreseen.

Module C4 Waste storage, including physical pre-treatment and disposal site management (environmental burdens).

It was assumed that after the end of operation, all elements for fixing masonry and prefabricated facades are directed to full material recovery, without generating waste requiring storage or incineration. Disposal processes do not occur and therefore no emissions to the environment have been attributed. Value of environmental indicators: 0.

Module D Benefits and Workloads Beyond System Boundaries. Reusable potential.

Module D takes into account the environmental benefits of using steel scrap and reusable components at the end of the product's life cycle.

The following proportions of development have been assumed:

- 89% of the product mass – sent for material recycling as steel scrap,
- 11% of the product mass – sent for reuse without the need for melting.

Potencjał odzysku przypisano zgodnie z:

- LCA methodology for Steel Construction (European Commission, <https://op.europa.eu/>)
- World Steel Association guidelines, which take into account the substitution of virgin steel with recycled steel.

Module D demonstrates the benefits of avoiding the production of primary steel and avoiding the production of new components that can be replaced by reused components.

5. LCA: RESULTS

The table below shows the LCA modules taken into account when calculating the environmental impact categories for the products covered by the declaration.

SYSTEM BOUNDARIES (X –MODULE INCLUDED IN LCA, MND – MODULE NOT DECLARED)																
Products stage			Construction process stage		Use stage							End-of-life stage				Benefits and loads beyond the system boundary
Raw material supply	Transport	Production	Transport	Construction process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction	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
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

The following tables present the LCA results for NOVA Facade System. The abbreviations used to describe the impact categories are explained below:

GWP-total	Global warming potential
GWP-fossil	Global warming potential fossil fuel
GWP-biogenic	Global warming potential biogenic
GWP-luluc	Global warming potential land use and land change
ODP	Depletion potential of the stratospheric ozone layer
AP	Acidification potential of land and water
EP-freshwater	Eutrophication potential, fraction of nutrients reaching freshwater end compartment
EP-marine	Eutrophication potential, fraction of nutrients reaching marine end compartment
EP-terrestrial	Eutrophication potential, Accumulated Exceedance
POCP	Formation potential of tropospheric ozone photochemical oxidants
ADP-minerals&metals	Abiotic depletion potential for nonfossil resources
ADP-fossil	Abiotic depletion potential for fossil resources

WDP	Water (user) deprivation potential
PM	Potential incidence of disease due to PM emissions
IRP	Potential Human exposure efficiency relative to U235
ETP-fw	Potential comparative Toxic Unit for ecosystems
HTP-c	Potential comparative Toxic Unit for humans (cancerogenic)
HTP-nc	Potential comparative Toxic Unit for humans (non-cancerogenic)
SQP	Potential soil quality index
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials
PERM	Use of renewable primary energy resources used as raw materials
PERT	Total use of renewable primary energy resources
PEN-RE	Use of non-renewable primary energy resources excluding non-renewable primary energy resources used as raw materials
RE	Use of non-renewable primary energy resources used as raw materials
PENRT	Total use of non-renewable primary energy resources
SM	Use of secondary material
RSF	Use of renewable fuels
NRSF	Use of non-renewable secondary fuels
FW	Use of net fresh water

MAIN IMPACT INDICATORS: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 1

Life Cycle Stage									
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	6,65E+00	2,20E-02	5,61E-01	0,00E+00	2,39E-02	6,04E-02	0,00E+00	-1,66E+00
GWP-fossil	kg CO ₂ eq.	6,57E+00	2,19E-02	5,59E-01	0,00E+00	2,39E-02	6,03E-02	0,00E+00	-1,66E+00
GWP-biogenic	kg CO ₂ eq.	7,65E-02	1,46E-05	1,70E-03	0,00E+00	1,66E-05	1,03E-04	0,00E+00	4,76E-03
GWP-luluc	kg CO ₂ eq.	5,62E-03	8,23E-06	7,64E-04	0,00E+00	7,93E-06	4,36E-05	0,00E+00	-3,80E-04
ODP	kg CFC11 eq.	5,28E-08	4,34E-10	5,63E-09	0,00E+00	4,75E-10	5,30E-10	0,00E+00	-7,10E-09
AP	mol H+ eq.	3,59E-02	4,46E-05	2,51E-03	0,00E+00	4,98E-05	4,07E-04	0,00E+00	-5,91E-03
EP-freshwater	kg P eq.	2,31E-03	1,71E-06	5,88E-04	0,00E+00	1,62E-06	3,42E-05	0,00E+00	-6,39E-04
EP-marine	kg N eq.	6,39E-03	9,93E-06	4,47E-04	0,00E+00	1,20E-05	1,54E-04	0,00E+00	-1,38E-03
EP-terrestrial	mol N eq.	6,76E-02	1,07E-04	3,77E-03	0,00E+00	1,29E-04	1,62E-03	0,00E+00	-1,48E-02
POCP	kg NMVOC eq.	2,19E-02	7,12E-05	1,14E-03	0,00E+00	8,27E-05	4,81E-04	0,00E+00	-5,10E-03
ADP-minerals & metals	kg Sb eq.	1,65E-04	9,14E-08	4,85E-06	0,00E+00	7,78E-08	5,09E-08	0,00E+00	-3,02E-06
ADP-fossil	MJ	7,71E+01	3,06E-01	6,23E+00	0,00E+00	3,36E-01	7,22E-01	0,00E+00	-1,73E+01
WDP	WDP (m ³) świat. ekw	2,05E+00	1,30E-03	8,31E-02	0,00E+00	1,40E-03	2,36E-03	0,00E+00	-1,25E-01

ADDITIONAL IMPACT INDICATORS: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 1

Life Cycle Stage									
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
PM	Disease incidence	5,35E-07	1,23E-09	8,87E-09	0,00E+00	1,76E-09	8,35E-09	0,00E+00	-1,14E-07
IRP	kBq U235 eq.	6,20E-01	5,48E-04	9,66E-03	0,00E+00	4,36E-04	4,55E-04	0,00E+00	-2,58E-02
ETP-fw	CTUe	1,44E-03	1,06E-06	3,66E-04	0,00E+00	1,01E-06	2,13E-05	0,00E+00	-3,98E-04
HTP-c	CTUh	1,82E-07	1,66E-10	1,09E-09	0,00E+00	1,70E-10	1,53E-10	0,00E+00	-5,11E-07
HTP-nc	CTUh	1,33E-07	1,84E-10	8,86E-09	0,00E+00	2,11E-10	4,07E-10	0,00E+00	-7,14E-09
SQP	-	3,43E+01	1,37E-01	1,60E+00	0,00E+00	2,03E-01	1,09E-01	0,00E+00	-3,51E+00

INDICATORS DESCRIBING RESOURCE CONSUMPTION: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 1

Life Cycle Stage									
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	MJ	1,86E+01	7,01E-03	3,41E+00	0,00E+00	5,77E-03	4,47E-02	0,00E+00	-5,84E-01
PERM	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
PERT	MJ	1,86E+01	7,01E-03	3,41E+00	0,00E+00	5,77E-03	4,47E-02	0,00E+00	-5,84E-01
PEN-RE	MJ	8,22E+01	3,25E-01	6,62E+00	0,00E+00	3,57E-01	7,67E-01	0,00E+00	-1,84E+01
RE	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
PENRT	MJ	8,22E+01	3,25E-01	6,62E+00	0,00E+00	3,57E-01	7,67E-01	0,00E+00	-1,84E+01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	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
NRSF	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
FW	m ³	8,66E-02	7,42E-05	8,08E-03	0,00E+00	5,85E-05	4,82E-04	0,00E+00	-3,24E-03

INDICATORS DESCRIBING OUTPUT FLOWS AND WASTE: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 1

Life Cycle Stage									
Indicator	Unit (expressed per DU)	A1	A2	A3	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste	kg	WN	WN	2,61E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	2,61E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	1,86E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,39E-02

CARBON BIOGENIC

Contents organic carbon in product (kg C_{org})	0,00E+00
Contents organic carbon in packaging (kg C_{org})	2,41E-03

MAIN IMPACT INDICATORS: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 2

Life Cycle Stage									
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	6,48E+00	2,20E-02	3,12E-01	0,00E+00	2,29E-02	6,04E-02	0,00E+00	-1,66E+00
GWP-fossil	kg CO ₂ eq.	6,40E+00	2,19E-02	3,11E-01	0,00E+00	2,28E-02	6,03E-02	0,00E+00	-1,66E+00
GWP-biogenic	kg CO ₂ eq.	7,17E-02	1,46E-05	9,32E-04	0,00E+00	1,58E-05	1,03E-04	0,00E+00	4,76E-03
GWP-luluc	kg CO ₂ eq.	5,47E-03	8,23E-06	4,11E-04	0,00E+00	7,58E-06	4,36E-05	0,00E+00	-3,80E-04
ODP	kg CFC11 eq.	5,12E-08	4,34E-10	3,10E-09	0,00E+00	4,54E-10	5,30E-10	0,00E+00	-7,10E-09
AP	mol H ⁺ eq.	3,51E-02	4,46E-05	1,35E-03	0,00E+00	4,76E-05	4,07E-04	0,00E+00	-5,91E-03
EP-freshwater	kg P eq.	2,25E-03	1,71E-06	3,18E-04	0,00E+00	1,55E-06	3,42E-05	0,00E+00	-6,39E-04
EP-marine	kg N eq.	6,23E-03	9,93E-06	2,43E-04	0,00E+00	1,14E-05	1,54E-04	0,00E+00	-1,38E-03
EP-terrestrial	mol N eq.	6,59E-02	1,07E-04	2,04E-03	0,00E+00	1,23E-04	1,62E-03	0,00E+00	-1,48E-02
POCP	kg NMVOC eq.	2,14E-02	7,12E-05	6,26E-04	0,00E+00	7,91E-05	4,81E-04	0,00E+00	-5,10E-03
ADP-minerals & metals	kg Sb eq.	1,61E-04	9,14E-08	2,34E-06	0,00E+00	7,44E-08	5,09E-08	0,00E+00	-3,02E-06
ADP-fossil	MJ	7,51E+01	3,06E-01	3,50E+00	0,00E+00	3,21E-01	7,22E-01	0,00E+00	-1,73E+01
WDP	WDP (m ³) świat. ekw	2,02E+00	1,30E-03	4,11E-02	0,00E+00	1,33E-03	2,36E-03	0,00E+00	-1,25E-01

ADDITIONAL IMPACT INDICATORS: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 2

Life Cycle Stage									
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
PM	Disease incidence	5,22E-07	1,23E-09	4,67E-09	0,00E+00	1,68E-09	8,35E-09	0,00E+00	-1,14E-07
IRP	kBq U235 eq.	6,02E-01	5,48E-04	5,01E-03	0,00E+00	4,17E-04	4,55E-04	0,00E+00	-2,58E-02
ETP-fw	CTUe	1,40E-03	1,06E-06	1,98E-04	0,00E+00	9,63E-07	2,13E-05	0,00E+00	-3,98E-04
HTP-c	CTUh	1,77E-07	1,66E-10	5,84E-10	0,00E+00	1,62E-10	1,53E-10	0,00E+00	-5,11E-07
HTP-nc	CTUh	1,30E-07	1,84E-10	4,63E-09	0,00E+00	2,02E-10	4,07E-10	0,00E+00	-7,14E-09
SQP	-	3,34E+01	1,37E-01	8,56E-01	0,00E+00	1,94E-01	1,09E-01	0,00E+00	-3,51E+00

INDICATORS DESCRIBING RESOURCE CONSUMPTION: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 2

Life Cycle Stage									
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	MJ	1,82E+01	7,01E-03	1,65E+00	0,00E+00	5,52E-03	4,47E-02	0,00E+00	-5,84E-01
PERM	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
PERT	MJ	1,82E+01	7,01E-03	1,65E+00	0,00E+00	5,52E-03	4,47E-02	0,00E+00	-5,84E-01
PEN-RE	MJ	8,01E+01	3,25E-01	3,73E+00	0,00E+00	3,42E-01	7,67E-01	0,00E+00	-1,84E+01
RE	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
PENRT	MJ	8,01E+01	3,25E-01	3,73E+00	0,00E+00	3,42E-01	7,67E-01	0,00E+00	-1,84E+01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	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
NRSF	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
FW	m ³	8,34E-02	8,63E-05	4,40E-03	0,00E+00	5,60E-05	4,82E-04	0,00E+00	-3,24E-03

INDICATORS DESCRIBING OUTPUT FLOWS AND WASTE: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 2

Life Cycle Stage									
Indicator	Unit (expressed per DU)	A1	A2	A3	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste	kg	WN	WN	2,61E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	2,61E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	1,86E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,39E-02

CARBON BIOGENIC

Contents organic carbon in product (kg C _{org})	0,00E+00
Contents organic carbon in packaging (kg C _{org})	2,41E-03

MAIN IMPACT INDICATORS: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 3

Life Cycle Stage									
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	6,48E+00	2,20E-02	4,67E-01	0,00E+00	2,11E-01	6,04E-02	0,00E+00	-1,66E+00
GWP-fossil	kg CO ₂ eq.	6,40E+00	2,19E-02	4,65E-01	0,00E+00	2,10E-01	6,03E-02	0,00E+00	-1,66E+00
GWP-biogenic	kg CO ₂ eq.	7,17E-02	1,46E-05	1,42E-03	0,00E+00	1,46E-04	1,03E-04	0,00E+00	4,76E-03
GWP-luluc	kg CO ₂ eq.	5,47E-03	8,23E-06	6,32E-04	0,00E+00	6,98E-05	4,36E-05	0,00E+00	-3,80E-04
ODP	kg CFC11 eq.	5,12E-08	4,34E-10	4,67E-09	0,00E+00	4,19E-09	5,30E-10	0,00E+00	-7,10E-09
AP	mol H ⁺ eq.	3,51E-02	4,46E-05	2,08E-03	0,00E+00	4,38E-04	4,07E-04	0,00E+00	-5,91E-03
EP-freshwater	kg P eq.	2,25E-03	1,71E-06	4,87E-04	0,00E+00	1,43E-05	3,42E-05	0,00E+00	-6,39E-04
EP-marine	kg N eq.	6,23E-03	9,93E-06	3,70E-04	0,00E+00	1,05E-04	1,54E-04	0,00E+00	-1,38E-03
EP-terrestrial	mol N eq.	6,60E-02	1,07E-04	3,12E-03	0,00E+00	1,14E-03	1,62E-03	0,00E+00	-1,48E-02
POCP	kg NMVOC eq.	2,14E-02	7,12E-05	9,46E-04	0,00E+00	7,28E-04	4,81E-04	0,00E+00	-5,10E-03
ADP-minerals & metals	kg Sb eq.	1,61E-04	9,14E-08	3,91E-06	0,00E+00	6,85E-07	5,09E-08	0,00E+00	-3,02E-06
ADP-fossil	MJ	7,51E+01	3,06E-01	5,20E+00	0,00E+00	2,96E+00	7,22E-01	0,00E+00	-1,73E+01
WDP	WDP (m ³) świat. ekw	2,02E+00	1,30E-03	6,74E-02	0,00E+00	1,23E-02	2,36E-03	0,00E+00	-1,25E-01

ADDITIONAL IMPACT INDICATORS: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 3

Life Cycle Stage									
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
PM	Disease incidence	5,22E-07	1,23E-09	7,28E-09	0,00E+00	1,55E-08	8,35E-09	0,00E+00	-1,14E-07
IRP	kBq U235 eq.	6,02E-01	5,48E-04	7,92E-03	0,00E+00	3,84E-03	4,55E-04	0,00E+00	-2,58E-02
ETP-fw	CTUe	1,40E-03	1,06E-06	3,03E-04	0,00E+00	8,87E-06	2,13E-05	0,00E+00	-3,98E-04
HTP-c	CTUh	1,77E-07	1,66E-10	8,95E-10	0,00E+00	1,49E-09	1,53E-10	0,00E+00	-5,11E-07
HTP-nc	CTUh	1,30E-07	1,84E-10	7,28E-09	0,00E+00	1,86E-09	4,07E-10	0,00E+00	-7,14E-09
SQP	-	3,34E+01	1,37E-01	1,32E+00	0,00E+00	1,79E+00	1,09E-01	0,00E+00	-3,51E+00

INDICATORS DESCRIBING RESOURCE CONSUMPTION: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 3

Life Cycle Stage									
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	MJ	1,82E+01	7,01E-03	2,75E+00	0,00E+00	5,08E-02	4,47E-02	0,00E+00	-5,84E-01
PERM	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
PERT	MJ	1,82E+01	7,01E-03	2,75E+00	0,00E+00	5,08E-02	4,47E-02	0,00E+00	-5,84E-01
PEN-RE	MJ	8,01E+01	3,25E-01	5,53E+00	0,00E+00	3,15E+00	7,67E-01	0,00E+00	-1,84E+01
RE	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
PENRT	MJ	8,01E+01	3,25E-01	5,53E+00	0,00E+00	3,15E+00	7,67E-01	0,00E+00	-1,84E+01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	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
NRSF	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
FW	m ³	8,34E-02	8,63E-05	6,71E-03	0,00E+00	5,15E-04	4,82E-04	0,00E+00	-3,24E-03

INDICATORS DESCRIBING OUTPUT FLOWS AND WASTE: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 3

Life Cycle Stage									
Indicator	Unit (expressed per DU)	A1	A2	A3	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste	kg	WN	WN	2,61E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	2,61E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	1,86E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,38E-02

CARBON BIOGENIC

Contents organic carbon in product (kg C_{org})	0,00E+00
Contents organic carbon in packaging (kg C_{org})	2,40E-03

MAIN IMPACT INDICATORS: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 4

Life Cycle Stage									
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	6,48E+00	2,20E-02	1,29E-01	0,00E+00	2,35E-01	6,04E-02	0,00E+00	-1,66E+00
GWP-fossil	kg CO ₂ eq.	6,40E+00	2,19E-02	1,28E-01	0,00E+00	2,35E-01	6,03E-02	0,00E+00	-1,66E+00
GWP-biogenic	kg CO ₂ eq.	7,17E-02	1,46E-05	3,65E-04	0,00E+00	1,63E-04	1,03E-04	0,00E+00	4,76E-03
GWP-luluc	kg CO ₂ eq.	5,47E-03	8,23E-06	1,52E-04	0,00E+00	7,79E-05	4,36E-05	0,00E+00	-3,80E-04
ODP	kg CFC11 eq.	5,12E-08	4,34E-10	1,24E-09	0,00E+00	4,67E-09	5,30E-10	0,00E+00	-7,10E-09
AP	mol H+ eq.	3,51E-02	4,46E-05	4,89E-04	0,00E+00	4,89E-04	4,07E-04	0,00E+00	-5,91E-03
EP-freshwater	kg P eq.	2,25E-03	1,71E-06	1,19E-04	0,00E+00	1,59E-05	3,42E-05	0,00E+00	-6,39E-04
EP-marine	kg N eq.	6,23E-03	9,93E-06	9,22E-05	0,00E+00	1,17E-04	1,54E-04	0,00E+00	-1,38E-03
EP-terrestrial	mol N eq.	6,59E-02	1,07E-04	7,73E-04	0,00E+00	1,27E-03	1,62E-03	0,00E+00	-1,48E-02
POCP	kg NMVOC eq.	2,14E-02	7,12E-05	2,47E-04	0,00E+00	8,13E-04	4,81E-04	0,00E+00	-5,10E-03
ADP-minerals & metals	kg Sb eq.	1,61E-04	9,14E-08	4,87E-07	0,00E+00	7,64E-07	5,09E-08	0,00E+00	-3,02E-06
ADP-fossil	MJ	7,51E+01	3,06E-01	1,50E+00	0,00E+00	3,30E+00	7,22E-01	0,00E+00	-1,73E+01
WDP	WDP (m ³) świat. ekw	2,01E+00	1,30E-03	1,02E-02	0,00E+00	1,37E-02	2,36E-03	0,00E+00	-1,25E-01

ADDITIONAL IMPACT INDICATORS: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 4

Life Cycle Stage									
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
PM	Disease incidence	5,22E-07	1,23E-09	1,58E-09	0,00E+00	1,73E-08	8,35E-09	0,00E+00	-1,14E-07
IRP	kBq U235 eq.	6,02E-01	5,48E-04	1,58E-03	0,00E+00	4,28E-03	4,55E-04	0,00E+00	-2,58E-02
ETP-fw	CTUe	1,40E-03	1,06E-06	7,43E-05	0,00E+00	9,90E-06	2,13E-05	0,00E+00	-3,98E-04
HTP-c	CTUh	1,77E-07	1,66E-10	2,13E-10	0,00E+00	1,67E-09	1,53E-10	0,00E+00	-5,11E-07
HTP-nc	CTUh	1,30E-07	1,84E-10	1,51E-09	0,00E+00	2,07E-09	4,07E-10	0,00E+00	-7,14E-09
SQP	-	3,34E+01	1,37E-01	3,11E-01	0,00E+00	2,00E+00	1,09E-01	0,00E+00	-3,51E+00

INDICATORS DESCRIBING RESOURCE CONSUMPTION: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 4

Life Cycle Stage									
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	MJ	1,82E+01	7,01E-03	3,56E-01	0,00E+00	5,67E-02	4,47E-02	0,00E+00	-5,84E-01
PERM	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
PERT	MJ	1,82E+01	7,01E-03	3,56E-01	0,00E+00	5,67E-02	4,47E-02	0,00E+00	-5,84E-01
PEN-RE	MJ	8,01E+01	3,25E-01	1,60E+00	0,00E+00	3,51E+00	7,67E-01	0,00E+00	-1,84E+01
RE	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
PENRT	MJ	8,01E+01	3,25E-01	1,60E+00	0,00E+00	3,51E+00	7,67E-01	0,00E+00	-1,84E+01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	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
NRSF	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
FW	m ³	8,34E-02	8,63E-05	1,69E-03	0,00E+00	5,75E-04	4,82E-04	0,00E+00	-3,24E-03

INDICATORS DESCRIBING OUTPUT FLOWS AND WASTE: 1 kg - NOVA Facade System - elements for fastening brick and prefabricated facades Type 4

Life Cycle Stage									
Indicator	Unit (expressed per DU)	A1	A2	A3	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste	kg	WN	WN	2,61E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	2,61E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	1,87E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,40E-02

CARBON BIOGENIC

Contents organic carbon in product (kg C_{org})	0,00E+00
Contents organic carbon in packaging (kg C_{org})	2,42E-03

6. INTERPRETATION OF LCA

Figures 2-5 show graphs of the shares of individual life cycle modules on the basic impact categories for NOVA Facade System:

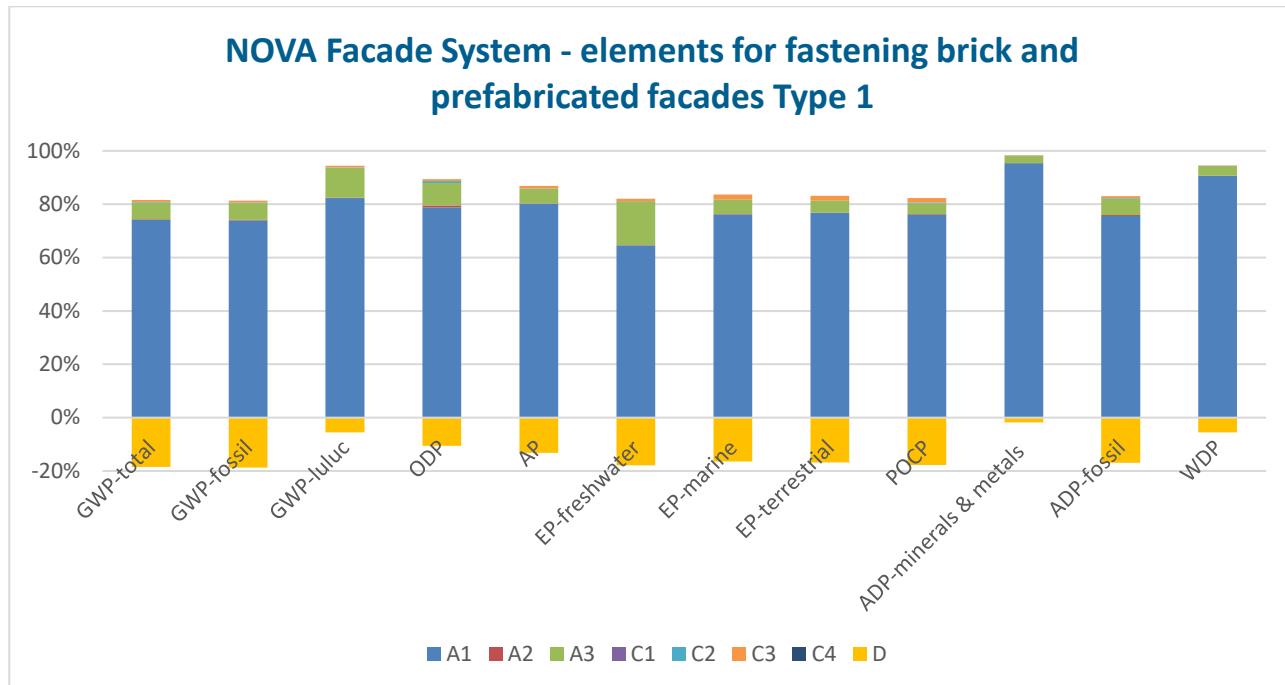


Figure 2 Shares of life cycle modules in the main impact categories – NOVA Facade System – elements for fastening brick and prefabricated facades Type 1

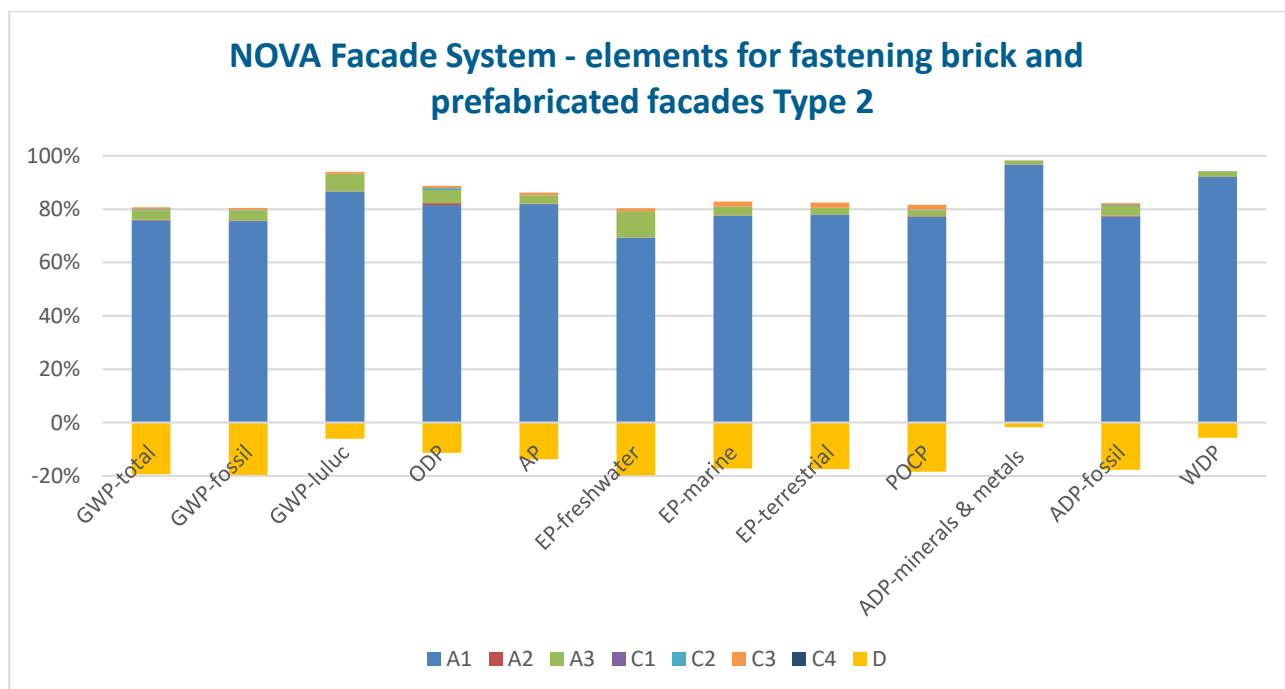


Figure 3 Shares of life cycle modules in the main impact categories – NOVA Facade System – elements for fastening brick and prefabricated facades Type 2

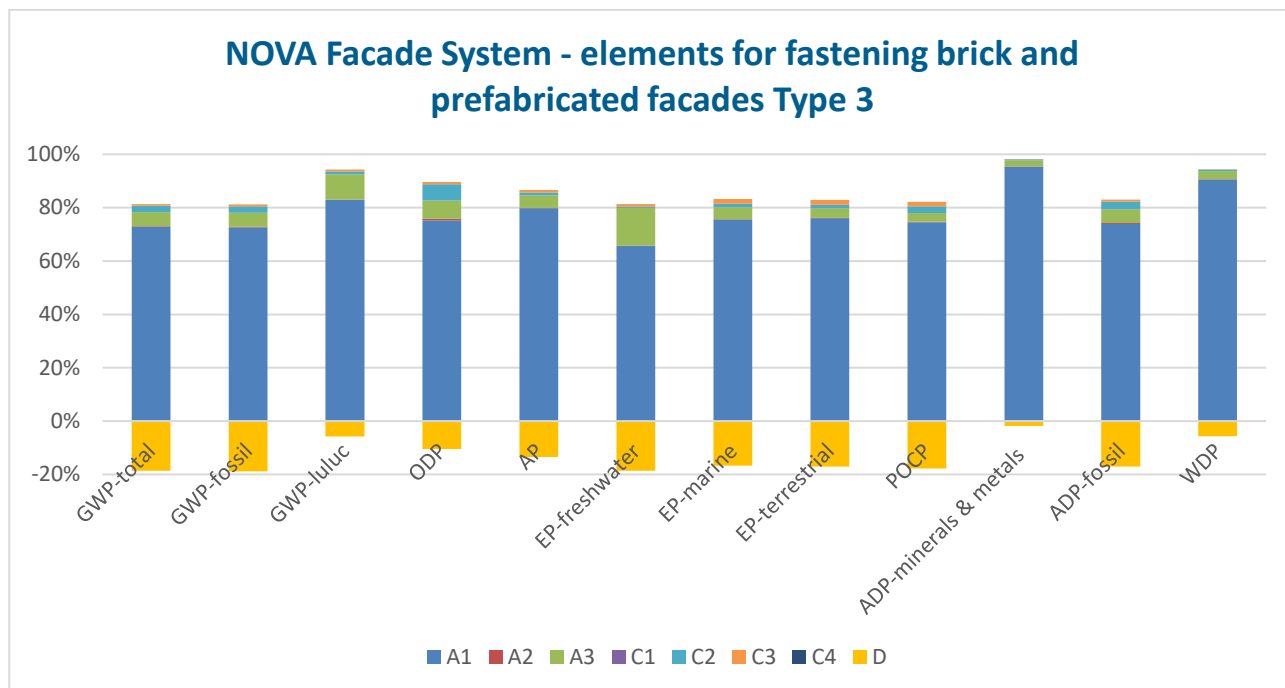


Figure 4. Shares of life cycle modules in the main impact categories – NOVA Facade System – elements for fastening brick and prefabricated facades Type 3

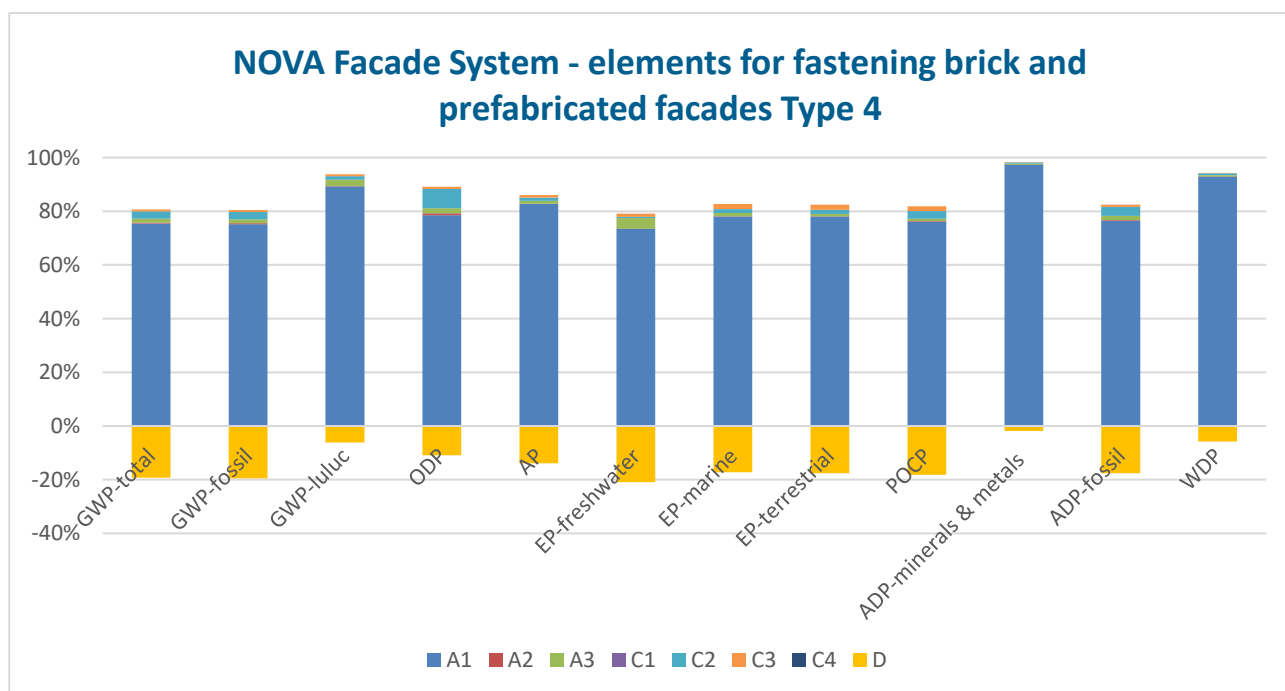


Figure 5. Shares of life cycle modules in the main impact categories – NOVA Facade System – Elements for fastening brick and prefabricated facades Type 4

LITERATURE

- ✓ ICIMB-PCR A. General Rules for the Category of Construction Products.
- ✓ PN-EN ISO 14025:2014-04, Environmental labels and declarations - Type III environmental declarations - Rules and procedures.
- ✓ PN-EN 15804+A2:2020, Sustainability of construction facilities - Product environmental declarations - Basic principles of categorization of construction products.
- ✓ PN-EN ISO 14040:2009 Environmental management. Life cycle assessment. Rules and structure.
- ✓ PN-EN ISO 14044:2009, Environmental management. Life cycle assessment. Requirements and guidelines.
- ✓ EN 15942:2012, Sustainability of construction works – Environmental product declarations – Format for communication between undertakings.
- ✓ KOBIZE CO₂, SO₂, NO_x, CO and total particulate matter emission indicators for electricity, December 2023.
- ✓ Metodyka LCA for Steel Construction (European Commission, <https://op.europa.eu/>)
- ✓ World Steel Association guidelines
- ✓ Additional explanatory materials can be obtained on the company website of the owner of the declaration: **[https:// nova-elewacje.pl](https://nova-elewacje.pl)**



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PROCESS ENGINEERING RESEARCH GROUP

TYPE III ENVIRONMENTAL DECLARATION CERTIFICATE

no. 04-11/2025

Products:

NOVA Facade System

Owner:

**NOVA Sp. z o.o.
33 Zerzeńska str.,
04-787 Warszawa**

The declaration was developed in accordance with the requirements of the standard:

PN-EN 15804+A2: 2020-03

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

The declaration was verified in accordance with the requirements of the standard:

PN-EN ISO 14025:2010

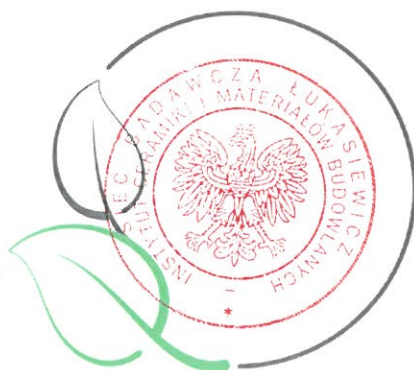
Environmental labels and declarations
Type III environmental declarations. Principles and procedures

The certificate was issued for the first time on **November 20 2025**, and is valid for 5 years or until the said EPD is amended.

**Process Engineering
Research Group Leader**

Ewa Głodek-Bucyk

Ewa Głodek-Bucyk,
PhD Eng.



**Director of
Environmental
Engineering Center**

Joanna Poluszyńska

Joanna Poluszyńska, PhD

Opole, november 2025