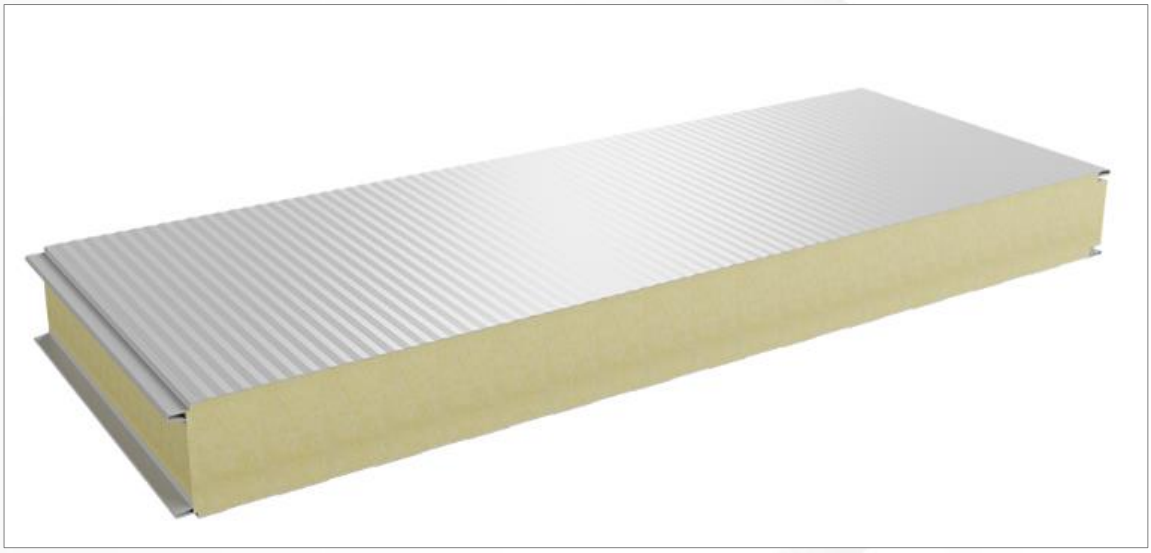
ENVIRONMENTAL PRODUCT DECLARATION

In accordance with EN 15804 and ISO 14025

SANDWICH PANELS

WITH MINERAL WOOL CORE



OWNER OF THE EPD:

PRUSZYŃSKI Sp. z o.o.
Sokołów, ul. Sokołowska 32B
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EPD Ref. No.: 2023-0010 ed.2 Date of issue: 01.09.2023 Validity date: 01.09.2028
Date of revision: 31.03.2026

1. GENERAL INFORMATION

This Environmental Product Declaration (EPD) is developed in accordance with the European standard EN 15804 and ISO 14025. It contains the information on the impacts of the declared construction materials on the environment.
EPDs may not be comparable if they do not comply with the EN 15804 standard and if the core systems are not based on the same database.

Owner of the EPD	PRUSZYŃSKI Sp. z o.o. Sokołów, ul. Sokołowska 32B 05-806 Komorów NIP: 534-213-92-35
EPD program operator	CERTBUD Sp. z o.o. ul. Mokotowska 46 lok. 8, 00-543 Warszawa e-mail: biuro@certyfikacja-certbud.pl www.certyfikacja-certbud.pl
Declared product(s)	Sandwich panels with wool core: - PWS2 - MW – ST - PWS2 - MW – PL - PWD2 – MW - PWS2 - MWA - ST - PWS2 - MW - ST EKO - PWS2 - MW - PL EKO
Declaration reference number	EPD Ref. No. 2023-0010
PCR	PCR in accordance with EN 15804+A2:2020
Date of issue	01/09/2023
Date of revision	31/03/2026
Validity date	01/09/2028
Declared unit	1 m^2
Life cycle analysis (LCA)	Modules: A1-A3, C3, C4 and D in accordance with EN 15804 („Cradle-to-gate" with options)
Reference Service Life	The sandwich panel manufactured by Pruszyński Sp. z o.o. with a mineral wool core under normal ambient conditions has a reference service life (RSL) of 50 years.
Reasons for performing LCA:	B2B
Representativeness	Polish product, 2022

VERIFICATION

This Environmental Product Declaration (EPD) has been verified in accordance with ISO14025 and is valid for 5 years from the date of issue if the underlying data have not changed significantly.

CEN EN 15804 standard serves as the main PCR document.
Independent verification corresponding to ISO 14025:2010 ☐ Internal ☒ External
Third party verifier: Monika Kotkiewicz, CERTBUD Sp. z o.o.
External verification of EPD: Monika Kotkiewicz, CERTBUD Sp. z o. o. Input data verification, LCA: Krzysztof Bałkowiec, TBF Systemy Jakości Verification of LCA: Monika Kotkiewicz, CERTBUD Sp. z o. o.

CERTBUD Sp. z o.o. ZAKŁAD CERTYFIKACJI CERTBUD

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2. MANUFACTURER

Pic. 1 - View of the production halls of Pruszyński Sp. z o.o. in Sokołów

Pruszyński Sp. z o. o. is the Polish producer of construction products. The core of the activities are: steel roofing, elevation, trapezoidal steel sheets, sandwich panels and cold formed profiles.

Since the beginning of the activity, Pruszyński Sp. z o. o. has paid the attention to the importance of the highest quality of its products and long-term relationships with customers. The commercial offer is wide therefore the products can be combined into systems that provide investors with complete solutions at site and shorten the finishing of the project.

3. DESCRIPTION AND CLASSIFICATION OF PRODUCTS

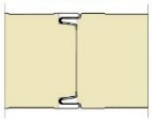
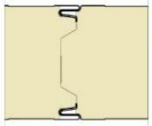
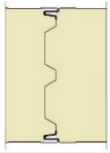
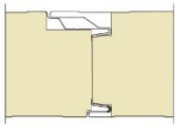
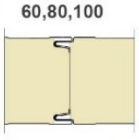
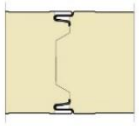
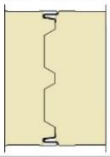
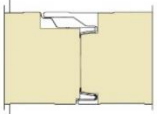
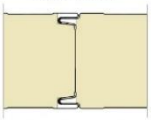
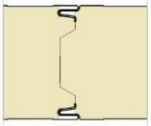
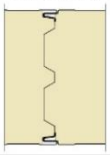
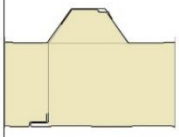
Wall and roof sandwich panels

Sandwich panels system with mineral wool core (MW) in metal facings from production of Pruszyński Sp. z o. o. includes:

- wall panels with visible joint PWS2 – MW – ST with MW 115 kg/m^3 ± 15%,
- wall panels with hidden joint PWS2 – MW – PL with MW 115 kg/m^3 ± 15%,
- roof panels PWD2 – MW with MW 115 kg/m^3 ± 15%,
- wall panels with visible joint (internal steel facing perforated) PWS2 – MWA – ST with MW 115 kg/m^3 ± 15%,
- wall panels with visible joint PWS2 – MW – ST EKO with 80 kg/m^3 ± 15%,
- wall panels with hidden joint PWS2 – MW – PL EKO with 80 kg/m^3 ± 15%.

Basic modular widths are:

- Wall panels with visible joints from 1000 mm to 1150 mm.
- Wall panels with hidden joints from 1000 mm to 1050 mm
- Roof panels 1050 mm

Types of WOOLTECH panels						
name	STANDARD	PLUS	EKO		ACOUSTIC	ROOF
joint	60,80,100  120,140,150,160,180  200/220/240/260 		60,80,100  120,140,150, 160,180  200/220/240/260 		60,80,100  120,140,150, 160,180  200/220/240/260 	
symbol	PWS2-MW-ST	PWS2-MW-PL	PWS2-MW-ST EKO	PWS2-MW-PL EKO	PWS2-MWA-ST	PWD2-MW
core (kg/m3)	mineral wool with density 115	mineral wool with density 115	mineral wool with density 80		mineral wool with density 115	mineral wool with density 115
thickness (mm)	60/80/100/120/140/150 160/180/200/220/240/260	100/120/140/150/160 180/200/220/240	60/80/100/120 140/150/160/180 200/220/240/260	100/120/140/150/160 180/200/220/240	60/80/100/120 140/150/160/180 200/220/240/260	100/120/140/150/160 180/200/230/240 /250/260/270/280
effective width (mm)	1000-1150	1000-1050	1000-1150		1000-1150	1050
thickness of the facing (mm)	0,50	0,50	0,50		0,50	0,50
range of external profiling	trapezoidal - T / micro-trapezoidal - MT / wave - F / nano wave - N / floor - P					trapezoidal T40
range of internal profiling	trapezoidal - T / floor - P					trapezoidal - T
anti-corrosion coating	glossy polyester, matt polyester, poliurethane (PURMAT, PURLAK), hybrid coating PURMAX, HPS, PVDF					

TECHNICAL PROPERTIES

All technical properties of sandwich panels in the field of:
- reaction to fire,
- external exposure to fire
- fire resistance,
- flame propagation,
- thermal physics,
- acoustic insulation,
- corrosion resistance,
- statics

are detailed at www.pruszynski.com.pl.

PWS2 – MW - ST, PWS2 – MW – PL, PWD2 – MW , PWS2 – MW – ST EKO, PWS2 – MW –PL EKO sandwich panels are manufactured in accordance with EN 14509, CE marked and the Declaration of Performance is issued.

PWS2 – MWA – ST sandwich panels are manufactured in accordance with National Technical assessment ITB – KOT–2023/2000, B marked and National Declaration of Performance is issued.

In addition:

- The company PRUSZYŃSKI Sp. z o. o. has the CERTIFICATE No. J-1581/4/2019 according to PN–EN ISO 9001:2015-10.

APPLICATION

Sandwich panels consist of two facings of steel and a core. The core is made of mineral wool. The purpose of the facings is to transfer normal stresses, while the core is responsible for transferring tangential stresses and maintaining a constant distance between the facings. A polyurethane adhesive glue is used to properly bond the core to the cladding sheets. The adhesive consumption is 0.30 - 0.35 kg/m2 of board.

Sandwich panels are used in the buildings industry as:
- Curtain walls,
- Internal partition walls,
- Occasionally as load-bearing walls (in the case of single-storey small buildings such a small cubic chambers, backyard facilities, rarely cottages),
- Suspended ceiling elements.

In the buildings of various uses, which include objects:
- One-storey (multi-storey) industrial buildings,
- Public utilities (sport and entertainment halls, large commercial halls, swimming pools, etc.),
- Agricultural construction,
- Special construction (eg. cooling towers, back office buildings construction, floating military containers, etc.).

PRODUCTION

Pic. 2 - MW sandwich panel production line

The first production at PRUSZYŃSKI Sp. z o. o. of sandwich panels with mineral wool core (MW) was launched in 2008. The currently production process is carried out continuously, fully automated line (the second generation the production line launched in 2021).

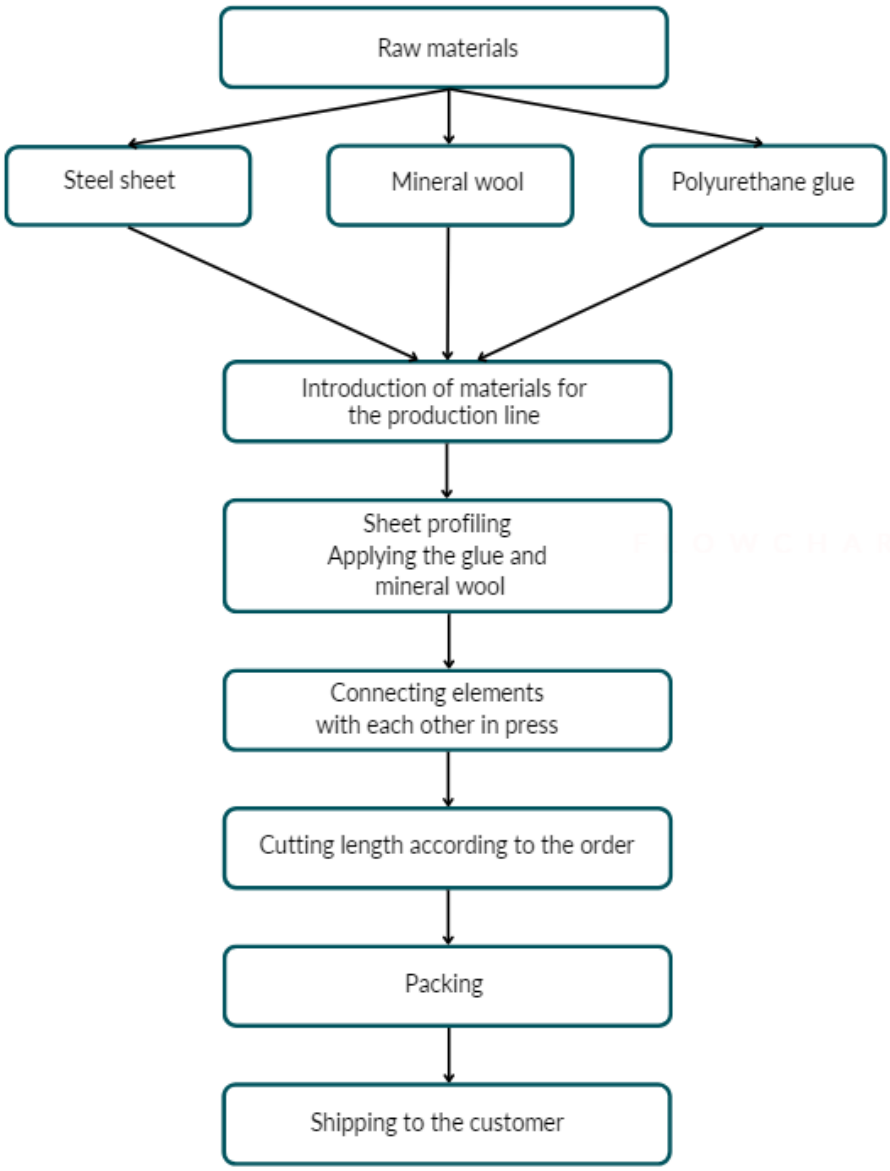
The production of sandwich panels is a continuous process. The production of sandwich panels with a mineral wool core begins with the unrolling of the sheets, which are directed to the profiling machine to form the longitudinal joints ("lock") and the shape of the surface profiles. After leaving the profiling section, the sheets are fed into the wool insertion zone. In the third phase of the process, the panel is transported to the press and glue area.

The steel facings are bonded to the core with polyurethane adhesive glue. The adhesive consumption is 0.30 to 0.35 kg/m2. The glue is applied to the steel facings (part of their inner side). The maximum production speed is up to 10.0 m/min. Steel facings are produced in thicknesses from 0.50 mm to 0.60 mm and are coated with protective metallic and organic coatings. The protective coatings are offered in a variety of colours to meet the sophisticated expectations of investors.

Finally, the board is taken to the cutting area, where it is trimmed to the desired dimensions. The finished construction product is packaged and labelled before being transported to the customer.

Fig.1 shows a schematic of the production line of a sandwich panel with a mineral wool core.

Fig. 1 - The scheme of the sandwich panels with MW core production process



4. LIFE CYCLE ASSSSMENT (LCA) - RULES

3.1 Declared unit (DU)

The declaration refers to declared unit (DU) – 1 m^2 of the sandwich panels with MW core manufactured by Pruszyński Sp. z o.o.

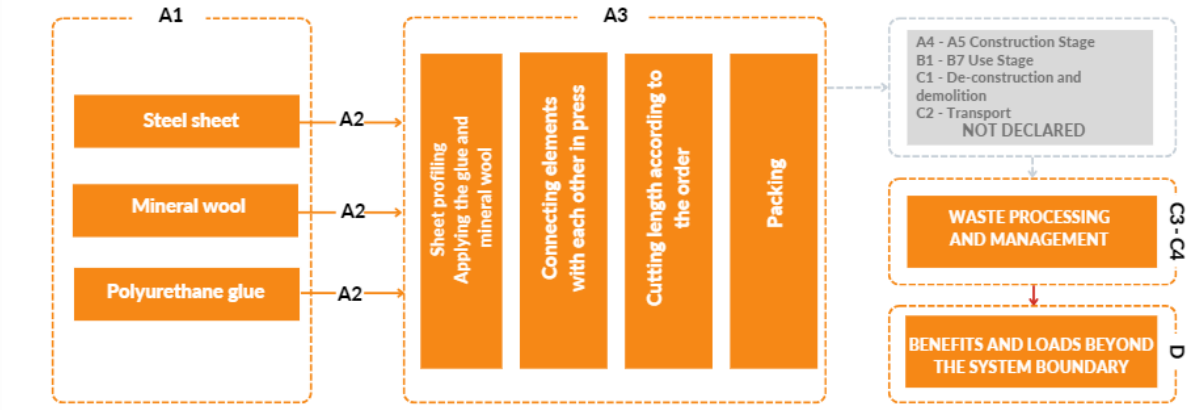
3.2 ALLOCATION

The allocation rules used for this EPD are based on EN 15804+A2. Production of the sandwich panels is a continuous process, manufactured at Pruszyński Sp. z o.o. factory in Sokolow, Poland. All the data provided by the manufacturer were referred to the declared unit (DU) of the product - 1 m^2 of sandwich panels with mineral wool core. Allocation was done on product mass basis.

3.3 SYSTEM BOUNDARY

The system limits for the environmental characteristics of PRUSZYŃSKI sandwich panels with mineral wool core are shown in Figure 2.

Fig 2: Life cycle assessment included or not included in the system boundaries



------ : *Module Declared* ------ : *Module Not Declared*

This Environmental Product Declaration includes a life cycle assessment (LCA) for the Cradle-to-Gate with options, according to EN 15804+A2.

Impacts from the global line production Pruszyński were inventoried and 4.73% were allocated to the production of sandwich panels with mineral wool core lining based on the annual production volume expressed in m^2.

All significant parameters from collected production data, i.e. all materials used by recipe, electricity consumed, internal fuel consumption and thermal energy, direct production waste, and the results of all available emission measurements were included in the calculations. In accordance with EN 15804, machinery and equipment (capital assets) needed for and during production, as well as the transportation of production facility employees, were not included.

The sum of processes and impacts omitted from the calculations does not exceed 5% of all impact categories according to EN 15804+A2.

A1 – RAW MATERIALS SUPPLY

This module takes into account the extraction and processing of all raw materials, as well as energy consumption. The extraction and consumption of raw materials refers to specific mass shares in the production process per unit of declared product.

Raw materials for the production of components of mineral wool core sandwich panels come from Polish and foreign suppliers.

A2 – TRANSPORT TO THE PRODUCTION SITE

Raw materials are transported to the production plant from Polish and foreign suppliers. The distances from the place of obtaining raw materials to the production plant are individual for each raw material. The means of transportation have been varied due to the method of delivery of raw materials. The adopted model includes road transport (average values) for each raw material. Polish and European average values for fuels were adopted.

A3 - PRODUCTION

Module A3 covers all the processes involved in manufacturing - including the production of mineral wool core sandwich panel components, their packaging and internal transportation.

A schematic of the production line for mineral wool core sandwich panel at Pruszyński is shown in Fig. 2. This module takes into account energy consumption and waste generated at the production plant, as well as losses generated in the production process.

C3-C4 - WASTE PROCESSING AND MANAGEMENT

For the purpose of life cycle analysis, scenarios were developed for modules C3 and C4. It was assumed that nearly 98% of steel scrap would undergo recycling. The remaining waste is directed to a landfill in the form of mixed construction and demolition waste (comprising 100% mineral wool and 2% steel plates).

Table 1: End-of-life scenario for the sandwich panels with mineral wool core

Material	Re-using	Landfilling	Energy recovery
Steel plates lining	98%	2%	0%
Mineral wool	0%	100%	0%

D - BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY

Module D cover the environmental benefits of reusing, recovering or recycling panel materials at the end of their life cycle, which will be incorporated into the life cycle of a new product as recycled materials. The positive environmental impact was assumed to result from the reuse of recycled steel from the panel's steel cladding. Module D was calculated for steel cladding according to the approach proposed by the World Steel Association.

DATA COLLECTION PERIOD	The data regarding the production of products refer to period between 01.01.2022 - 31.12.2022.
DATA QUALITY	The values determined to calculate the LCA originate from verified Pruszyński Sp. z o.o. inventory data. The LCA analysis uses data prepared based on actual consumption at the production site. The details collected are no more than two years old.
CALCULATION RULES	The impacts of the representative Pruszyński Sp. z o.o. products were aggregated using weighted average. The weighted average method was used according to the percentage of each product in sandwich panels with mineral wool core based on the relation to whole production quantity. Impacts were calculated for all sandwich panels witch MW-core and are shown in Tables 5.1 - 5.25. The LCA analysis was conducted in accordance with the EN15804+A2.
BACKGROUND DATA	The main source of general and auxiliary data is the Ecoinvent 3.9 database.

5. LIFE CYCLE ASSESSMENT (LCA) – RESULTS

Table 2 shows the LCA modules considered in calculating the environmental impact categories for the products covered by this declaration.

Table 5: Life cycle stages included or not included in the system limits

Product Stage			Construction Stage		Use Stage							End-of-life Stage				
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw Materials Supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction and demolition	Transport	Waste processing for reuse, recovery and/or recycling	Disposal	Reuse-Recovery-Recycling-potential
x	x	x	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x

Wyjśnienie:

X: moduł zadeklarowano *MND: modułu nie oceniono*

Tables 5.1 to 5.13 show the results of the LCA analysis for 1 m^2 of sandwich panels from 60 mm to 260 mm thick, with a mineral wool core and a density of ρ = 115 kg/m^3.

Tables 5.14 to 5.25 show the results of the LCA analysis for 1 m^2 of sandwich panels from 60 mm to 260 mm thick, with a mineral wool core and a density of ρ = 80 kg/m^3.

ENVIRONMENTAL INDICATORS LEGEND

ENVIRONMENTAL IMPACT INDICATORS

GWP-total	Global Warming Potential – total
GWP-fossil	Greenhouse potential - fossil
GWP-biogenic	Greenhouse potential - biogenic
GWP-luluc	Global warming potential - land use and land use change
ODP	Stratospheric ozone depletion potential
AP	Soil and water acidification potential
EP-freshwater	Eutrophication potential - freshwater
EP-marine	Eutrophication potential - seawater
EP-terrestrial	Eutrophication potential - terrestrial
POCP	Potential for photochemical ozone synthesis
ADP-minerals &metals	Potential for depletion of abiotic resources - non-fossil resources
ADP-fossil	Abiotic depletion potential – fossil fuels
WDP	Water deprivation potential

ADDITIONAL ENVIRONMENTAL IMPACTS INDICATORS

PM	Particulate matter
IRP	Potential human exposure efficiency relative to U235
ETP-fw	Potential comparative toxic unit for ecosystems
HTP-c	Potential comparative toxic unit for humans (cancer effects)
HTP-nc	Potential comparative toxic unit for humans (non-cancer effects)
SQP	Potential soil quality index

ENVIRONMENTAL ASPECTS RELATED TO RESOURCE

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 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 secondary fuels
NRSF	Use of non-renewable secondary fuels
FW	Use of net fresh water

Table 5.1 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST, PWS2 – MWA-ST with thickness of 60 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 60 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	2,81E+01	1.11E+00	1.48E+00	3,07E+01	2.13E-01	2.82E-02	-7.63E+00
GWP-fossil	eq. kg CO2	2,81E+01	1.11E+00	1.48E+00	3,07E+01	2.16E-01	2.81E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	5,83E-03	8.21E-04	7.63E-03	1,43E-02	-3.82E-03	1.50E-05	7.33E-02
GWP-luluc	eq. kg CO2	1,88E-02	5.23E-04	4.53E-04	1,97E-02	3.17E-04	1.70E-05	1.19E-03
ODP	eq. kg CFC 11	5,13E-07	2.43E-08	1.53E-08	5,52E-07	3.43E-09	8.15E-10	-2.01E-07
AP	mol H+	1,66E-01	3.74E-03	1.07E-02	1,80E-01	2.42E-03	2.12E-04	-2.49E-02
EP-freshwater	eq. kg P	1,19E-02	7.91E-05	1.74E-03	1,37E-02	1.27E-04	2.34E-06	-3.67E-03
EP-marine	eq. kg N	2,81E-02	1.29E-03	1.52E-03	3,09E-02	5.65E-04	8.14E-05	-6.45E-03
EP-terrestrial	eq. mol N	3,38E-01	1.37E-02	1.34E-02	3,65E-01	6.30E-03	8.72E-04	-6.96E-02
POCP	eq. kg NMVOC	1,36E-01	5.82E-03	4.06E-03	1,46E-01	1.89E-03	3.04E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	1,80E-04	3.07E-06	5.92E-06	1,89E-04	1.33E-05	3.99E-08	1.07E-05
ADP-fossil	MJ	3,14E+02	1.64E+01	1.52E-03	3,30E+02	2.96E+00	7.06E-01	-6.27E+01
WDP	eq. m3	1,11E+01	8.41E-02	1.34E-02	1,12E+01	4.90E-02	2.20E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 60 mm, core density 115 kg/m³)								
PM	Disease incidence	2,12E-06	1.12E-07	4.06E-03	4,06E-03	3.34E-08	4.64E-09	-4.24E-07
IRP	eg. kBq U235	9,97E-01	2.05E-02	4.79E-02	1,07E+00	2.33E-02	4.44E-04	6.51E-01
ETP-fw	CTUe	1,32E+02	7.82E+00	4.83E+00	1,45E+02	2.30E+00	3.29E-01	3.26E+00
HTP-c	CTUh	1,78E-07	4.83E-10	6.32E-10	1,79E-07	3.31E-10	1.20E-11	1.14E-07
HTP-nc	CTUh	4,88E-07	1.18E-08	2.85E-08	5,28E-07	1.49E-08	1.52E-10	2.49E-08
SQP	dimensionless	1,04E+02	1.65E+01	3.64E+00	1,25E+02	5.20E+00	1.39E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 60 mm, core density 115 kg/m³)								
PERE	MJ	2,38E+01	2.38E-01	1.58E+00	2,56E+01	4.54E-01	5.94E-03	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2,38E+01	2.38E-01	1.58E+00	2,56E+01	4.54E-01	5.94E-03	3.58E+00
PEN-RE	MJ	3,05E+02	1.50E+01	1.85E+01	3,39E+02	2.79E+00	6.42E-01	-6.23E+01
RE	MJ	8,49E+00	1.42E+00	2.35E-01	1,01E+01	1.74E-01	6.37E-02	-3.84E-01
PENRT	MJ	3,14E+02	1.64E+01	1.87E+01	3,49E+02	2.96E+00	7.06E-01	-6.27E+01
SM	kg	3,93E+00	1.64E-02	8.93E-02	4,04E+00	8.35E+00	3.12E-04	6.36E+00
RSF	MJ	1,39E-01	4.00E-03	5.06E-02	1,94E-01	5.95E-03	6.07E-05	1.79E-01
NRSF	MJ	7,31E-01	8.29E-03	1.74E-01	9,14E-01	6.83E-03	1.56E-04	1.60E-01
FW	m³	6,74E-02	2.19E-03	4.35E-02	1,13E-01	1.38E-03	7.30E-04	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 60 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	6,51E+00	1.54E-02	5.00E-02	6,58E+00	1.27E-02	4.85E-04	1.20E+00
Non-hazardous waste disposed	kg	2,28E+00	1.41E+00	5.74E-02	3,75E+00	7.60E-02	4.63E+00	-9.38E-02
Radioactive waste disposed	kg	2,47E-04	4.95E-06	1.18E-05	2,64E-04	5.93E-06	1.07E-07	1.68E-04
Components for re-use	kg	2,80E-21	-7.02E-22	1.20E-21	3,30E-21	8.22E-23	5.52E-23	-1.53E-20
Materials for recycling	kg	2,46E+00	1.41E-02	8.66E-02	2,56E+00	1.24E-02	2.56E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.2 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST, PWS2 – MWA-ST with thickness of 80 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 80 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	3,12E+01	1.11E+00	1.48E+00	3,38E+01	2.13E-01	3.79E-02	-7.63E+00
GWP-fossil	eq. kg CO2	3,11E+01	1.11E+00	1.48E+00	3,37E+01	2.16E-01	3.79E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-5,37E-03	8.21E-04	7.63E-03	3,08E-03	-3.82E-03	2.01E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,05E-02	5.23E-04	4.53E-04	2,15E-02	3.17E-04	2.29E-05	1.19E-03
ODP	eq. kg CFC 11	5,74E-07	2.43E-08	1.53E-08	6,14E-07	3.43E-09	1.10E-09	-2.01E-07
AP	mol H+	1,93E-01	3.74E-03	1.07E-02	2,07E-01	2.42E-03	2.85E-04	-2.49E-02
EP-freshwater	eq. kg P	1,28E-02	7.91E-05	1.74E-03	1,47E-02	1.27E-04	3.15E-06	-3.67E-03
EP-marine	eq. kg N	3,11E-02	1.29E-03	1.52E-03	3,39E-02	5.65E-04	1.10E-04	-6.45E-03
EP-terrestrial	eq. mol N	3,86E-01	1.37E-02	1.34E-02	4,13E-01	6.30E-03	1.17E-03	-6.96E-02
POCP	eq. kg NMVOC	1,51E-01	5.82E-03	4.06E-03	1,61E-01	1.89E-03	4.09E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	1,99E-04	3.07E-06	5.92E-06	2,08E-04	1.33E-05	5.36E-08	1.07E-05
ADP-fossil	MJ	3,49E+02	1.64E+01	1.52E-03	3,65E+02	2.96E+00	9.50E-01	-6.27E+01
WDP	eq. m3	1,20E+01	8.41E-02	1.34E-02	1,21E+01	4.90E-02	2.95E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 80 mm, core density 115 kg/m³)								
PM	Disease incidence	2,29E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	6.25E-09	-4.24E-07
IRP	eg. kBq U235	1,09E+00	2.05E-02	4.79E-02	1,16E+00	2.33E-02	5.97E-04	6.51E-01
ETP-fw	CTUe	1,42E+02	7.82E+00	4.83E+00	1,54E+02	2.30E+00	4.43E-01	3.26E+00
HTP-c	CTUh	1,89E-07	4.83E-10	6.32E-10	1,91E-07	3.31E-10	1.62E-11	1.14E-07
HTP-nc	CTUh	5,16E-07	1.18E-08	2.85E-08	5,56E-07	1.49E-08	2.04E-10	2.49E-08
SQP	dimensionless	1,19E+02	1.65E+01	3.64E+00	1,39E+02	5.20E+00	1.87E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 80 mm, core density 115 kg/m³)								
PERE	MJ	2,57E+01	2.38E-01	1.58E+00	2,75E+01	4.54E-01	7.99E-03	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2,57E+01	2.38E-01	1.58E+00	2,75E+01	4.54E-01	7.99E-03	3.58E+00
PEN-RE	MJ	3,39E+02	1.50E+01	1.85E+01	3,73E+02	2.79E+00	8.65E-01	-6.23E+01
RE	MJ	9,67E+00	1.42E+00	2.35E-01	1,13E+01	1.74E-01	8.57E-02	-3.84E-01
PENRT	MJ	3,49E+02	1.64E+01	1.87E+01	3,84E+02	2.96E+00	9.50E-01	-6.27E+01
SM	kg	4,02E+00	1.64E-02	8.93E-02	4,12E+00	8.35E+00	4.19E-04	6.36E+00
RSF	MJ	1,50E-01	4.00E-03	5.06E-02	2,05E-01	5.95E-03	8.17E-05	1.79E-01
NRSF	MJ	7,65E-01	8.29E-03	1.74E-01	9,48E-01	6.83E-03	2.09E-04	1.60E-01
FW	m³	8,55E-02	2.19E-03	4.35E-02	1,31E-01	1.38E-03	9.82E-04	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 80 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	6,58E+00	1.54E-02	5.00E-02	6,64E+00	1.27E-02	6.53E-04	1.20E+00
Non-hazardous waste disposed	kg	2,42E+00	1.41E+00	5.74E-02	3,89E+00	7.60E-02	6.23E+00	-9.38E-02
Radioactive waste disposed	kg	2,70E-04	4.95E-06	1.18E-05	2,87E-04	5.93E-06	1.43E-07	1.68E-04
Components for re-use	kg	-1,86E-21	-7.02E-22	1.20E-21	-1,36E-21	8.22E-23	7.44E-23	-1.53E-20
Materials for recycling	kg	2,49E+00	1.41E-02	8.66E-02	2,59E+00	1.24E-02	3.44E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.3 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2-MW-ST, PWS2–MWA-ST, PWS2-MW-PL, PWD2-MW with thickness of 100 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 100 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	3,42E+01	1.11E+00	1.48E+00	3,68E+01	2.13E-01	4.76E-02	-7.63E+00
GWP-fossil	eq. kg CO2	3,42E+01	1.11E+00	1.48E+00	3,68E+01	2.16E-01	4.76E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-1,66E-02	8.21E-04	7.63E-03	-8,12E-03	-3.82E-03	2.53E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,23E-02	5.23E-04	4.53E-04	2,33E-02	3.17E-04	2.87E-05	1.19E-03
ODP	eq. kg CFC 11	6,35E-07	2.43E-08	1.53E-08	6,75E-07	3.43E-09	1.38E-09	-2.01E-07
AP	mol H+	2,20E-01	3.74E-03	1.07E-02	2,35E-01	2.42E-03	3.59E-04	-2.49E-02
EP-freshwater	eq. kg P	1,38E-02	7.91E-05	1.74E-03	1,56E-02	1.27E-04	3.96E-06	-3.67E-03
EP-marine	eq. kg N	3,40E-02	1.29E-03	1.52E-03	3,68E-02	5.65E-04	1.38E-04	-6.45E-03
EP-terrestrial	eq. mol N	4,33E-01	1.37E-02	1.34E-02	4,60E-01	6.30E-03	1.47E-03	-6.96E-02
POCP	eq. kg NMVOC	1,66E-01	5.82E-03	4.06E-03	1,76E-01	1.89E-03	5.13E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,18E-04	3.07E-06	5.92E-06	2,27E-04	1.33E-05	6.74E-08	1.07E-05
ADP-fossil	MJ	3,84E+02	1.64E+01	1.52E-03	4,01E+02	2.96E+00	1.19E+00	-6.27E+01
WDP	eq. m3	1,28E+01	8.41E-02	1.34E-02	1,29E+01	4.90E-02	3.71E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 100 mm, core density 115 kg/m³)								
PM	Disease incidence	2,46E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	7.85E-09	-4.24E-07
IRP	eg. kBq U235	1,19E+00	2.05E-02	4.79E-02	1,25E+00	2.33E-02	7.51E-04	6.51E-01
ETP-fw	CTUe	1,52E+02	7.82E+00	4.83E+00	1,64E+02	2.30E+00	5.57E-01	3.26E+00
HTP-c	CTUh	2,01E-07	4.83E-10	6.32E-10	2,02E-07	3.31E-10	2.03E-11	1.14E-07
HTP-nc	CTUh	5,44E-07	1.18E-08	2.85E-08	5,84E-07	1.49E-08	2.56E-10	2.49E-08
SQP	dimensionless	1,33E+02	1.65E+01	3.64E+00	1,53E+02	5.20E+00	2.35E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 100 mm, core density 115 kg/m³)								
PERE	MJ	2,76E+01	2.38E-01	1.58E+00	2,94E+01	4.54E-01	1.00E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2,76E+01	2.38E-01	1.58E+00	2,94E+01	4.54E-01	1.00E-02	3.58E+00
PEN-RE	MJ	3,74E+02	1.50E+01	1.85E+01	4,07E+02	2.79E+00	1.09E+00	-6.23E+01
RE	MJ	1,09E+01	1.42E+00	2.35E-01	1,25E+01	1.74E-01	1.08E-01	-3.84E-01
PENRT	MJ	3,84E+02	1.64E+01	1.87E+01	4,20E+02	2.96E+00	1.19E+00	-6.27E+01
SM	kg	4,10E+00	1.64E-02	8.93E-02	4,21E+00	8.35E+00	5.27E-04	6.36E+00
RSF	MJ	1,62E-01	4.00E-03	5.06E-02	2,16E-01	5.95E-03	1.03E-04	1.79E-01
NRSF	MJ	8,00E-01	8.29E-03	1.74E-01	9,82E-01	6.83E-03	2.63E-04	1.60E-01
FW	m³	1,04E-01	2.19E-03	4.35E-02	1,49E-01	1.38E-03	1.23E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 100 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	6,65E+00	1.54E-02	5.00E-02	6,71E+00	1.27E-02	8.21E-04	1.20E+00
Non-hazardous waste disposed	kg	2,55E+00	1.41E+00	5.74E-02	4,02E+00	7.60E-02	7.83E+00	-9.38E-02
Radioactive waste disposed	kg	2,93E-04	4.95E-06	1.18E-05	3,10E-04	5.93E-06	1.79E-07	1.68E-04
Components for re-use	kg	-6,52E-21	-7.02E-22	1.20E-21	-6,03E-21	8.22E-23	9.35E-23	-1.53E-20
Materials for recycling	kg	2,52E+00	1.41E-02	8.66E-02	2,62E+00	1.24E-02	4.33E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.4 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2-MW-ST, PWS2–MWA-ST, PWS2-MW-PL, PWD2-MW with thickness of 120 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 120 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	3,72E+01	1.11E+00	1.48E+00	3,98E+01	2.13E-01	5.74E-02	-7.63E+00
GWP-fossil	eq. kg CO2	3,72E+01	1.11E+00	1.48E+00	3,98E+01	2.16E-01	5.73E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-2,78E-02	8.21E-04	7.63E-03	-1,93E-02	-3.82E-03	3.05E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,41E-02	5.23E-04	4.53E-04	2,51E-02	3.17E-04	3.46E-05	1.19E-03
ODP	eq. kg CFC 11	6,97E-07	2.43E-08	1.53E-08	7,36E-07	3.43E-09	1.66E-09	-2.01E-07
AP	mol H+	2,47E-01	3.74E-03	1.07E-02	2,62E-01	2.42E-03	4.32E-04	-2.49E-02
EP-freshwater	eq. kg P	1,48E-02	7.91E-05	1.74E-03	1,66E-02	1.27E-04	4.77E-06	-3.67E-03
EP-marine	eq. kg N	3,69E-02	1.29E-03	1.52E-03	3,98E-02	5.65E-04	1.66E-04	-6.45E-03
EP-terrestrial	eq. mol N	4,80E-01	1.37E-02	1.34E-02	5,07E-01	6.30E-03	1.78E-03	-6.96E-02
POCP	eq. kg NMVOC	1,81E-01	5.82E-03	4.06E-03	1,91E-01	1.89E-03	6.18E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,36E-04	3.07E-06	5.92E-06	2,45E-04	1.33E-05	8.12E-08	1.07E-05
ADP-fossil	MJ	4,20E+02	1.64E+01	1.52E-03	4,36E+02	2.96E+00	1.44E+00	-6.27E+01
WDP	eq. m3	1,36E+01	8.41E-02	1.34E-02	1,37E+01	4.90E-02	4.47E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 120 mm, core density 115 kg/m³)								
PM	Disease incidence	2,62E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	9.45E-09	-4.24E-07
IRP	eg. kBq U235	1,28E+00	2.05E-02	4.79E-02	1,35E+00	2.33E-02	9.04E-04	6.51E-01
ETP-fw	CTUe	1,61E+02	7.82E+00	4.83E+00	1,74E+02	2.30E+00	6.70E-01	3.26E+00
HTP-c	CTUh	2,12E-07	4.83E-10	6.32E-10	2,13E-07	3.31E-10	2.45E-11	1.14E-07
HTP-nc	CTUh	5,72E-07	1.18E-08	2.85E-08	6,12E-07	1.49E-08	3.09E-10	2.49E-08
SQP	dimensionless	1,48E+02	1.65E+01	3.64E+00	1,68E+02	5.20E+00	2.83E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 120 mm, core density 115 kg/m³)								
PERE	MJ	2,96E+01	2.38E-01	1.58E+00	3,14E+01	4.54E-01	1.21E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2,96E+01	2.38E-01	1.58E+00	3,14E+01	4.54E-01	1.21E-02	3.58E+00
PEN-RE	MJ	4,08E+02	1.50E+01	1.85E+01	4,41E+02	2.79E+00	1.31E+00	-6.23E+01
RE	MJ	1,20E+01	1.42E+00	2.35E-01	1,37E+01	1.74E-01	1.30E-01	-3.84E-01
PENRT	MJ	4,20E+02	1.64E+01	1.87E+01	4,55E+02	2.96E+00	1.44E+00	-6.27E+01
SM	kg	4,19E+00	1.64E-02	8.93E-02	4,30E+00	8.35E+00	6.35E-04	6.36E+00
RSF	MJ	1,73E-01	4.00E-03	5.06E-02	2,28E-01	5.95E-03	1.24E-04	1.79E-01
NRSF	MJ	8,34E-01	8.29E-03	1.74E-01	1,02E+00	6.83E-03	3.17E-04	1.60E-01
FW	m³	1,22E-01	2.19E-03	4.35E-02	1,67E-01	1.38E-03	1.49E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 120 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	6,71E+00	1.54E-02	5.00E-02	6,78E+00	1.27E-02	9.88E-04	1.20E+00
Non-hazardous waste disposed	kg	2,69E+00	1.41E+00	5.74E-02	4,16E+00	7.60E-02	9.43E+00	-9.38E-02
Radioactive waste disposed	kg	3,16E-04	4.95E-06	1.18E-05	3,33E-04	5.93E-06	2.15E-07	1.68E-04
Components for re-use	kg	-1,12E-20	-7.02E-22	1.20E-21	-1,07E-20	8.22E-23	1.13E-22	-1.53E-20
Materials for recycling	kg	2,55E+00	1.41E-02	8.66E-02	2,65E+00	1.24E-02	5.21E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.5 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2-MW-ST, PWS2- MWA-ST, PWS2-MW-PL, PWD2-MW with thickness of 140 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 140 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	4,02E+01	1.11E+00	1.48E+00	4,28E+01	2.13E-01	6.71E-02	-7.63E+00
GWP-fossil	eq. kg CO2	4,03E+01	1.11E+00	1.48E+00	4,28E+01	2.16E-01	6.70E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-3,90E-02	8.21E-04	7.63E-03	-3,05E-02	-3.82E-03	3.56E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,59E-02	5.23E-04	4.53E-04	2,69E-02	3.17E-04	4.05E-05	1.19E-03
ODP	eq. kg CFC 11	7,58E-07	2.43E-08	1.53E-08	7,98E-07	3.43E-09	1.94E-09	-2.01E-07
AP	mol H+	2,74E-01	3.74E-03	1.07E-02	2,89E-01	2.42E-03	5.05E-04	-2.49E-02
EP-freshwater	eq. kg P	1,57E-02	7.91E-05	1.74E-03	1,75E-02	1.27E-04	5.58E-06	-3.67E-03
EP-marine	eq. kg N	3,99E-02	1.29E-03	1.52E-03	4,27E-02	5.65E-04	1.94E-04	-6.45E-03
EP-terrestrial	eq. mol N	5,28E-01	1.37E-02	1.34E-02	5,55E-01	6.30E-03	2.08E-03	-6.96E-02
POCP	eq. kg NMVOC	1,96E-01	5.82E-03	4.06E-03	2,06E-01	1.89E-03	7.23E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,55E-04	3.07E-06	5.92E-06	2,64E-04	1.33E-05	9.50E-08	1.07E-05
ADP-fossil	MJ	4,55E+02	1.64E+01	1.52E-03	4,72E+02	2.96E+00	1.68E+00	-6.27E+01
WDP	eq. m3	1,44E+01	8.41E-02	1.34E-02	1,45E+01	4.90E-02	5.23E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 140 mm, core density 115 kg/m³)								
PM	Disease incidence	2,79E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.11E-08	-4.24E-07
IRP	eg. kBq U235	1,37E+00	2.05E-02	4.79E-02	1,44E+00	2.33E-02	1.06E-03	6.51E-01
ETP-fw	CTUe	1,71E+02	7.82E+00	4.83E+00	1,84E+02	2.30E+00	7.84E-01	3.26E+00
HTP-c	CTUh	2,24E-07	4.83E-10	6.32E-10	2,25E-07	3.31E-10	2.86E-11	1.14E-07
HTP-nc	CTUh	6,00E-07	1.18E-08	2.85E-08	6,40E-07	1.49E-08	3.61E-10	2.49E-08
SQP	dimensionless	1,62E+02	1.65E+01	3.64E+00	1,82E+02	5.20E+00	3.32E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 140 mm, core density 115 kg/m³)								
PERE	MJ	3,15E+01	2.38E-01	1.58E+00	3,33E+01	4.54E-01	1.41E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3,15E+01	2.38E-01	1.58E+00	3,33E+01	4.54E-01	1.41E-02	3.58E+00
PEN-RE	MJ	4,42E+02	1.50E+01	1.85E+01	4,76E+02	2.79E+00	1.53E+00	-6.23E+01
RE	MJ	1,32E+01	1.42E+00	2.35E-01	1,49E+01	1.74E-01	1.52E-01	-3.84E-01
PENRT	MJ	4,55E+02	1.64E+01	1.87E+01	4,91E+02	2.96E+00	1.68E+00	-6.27E+01
SM	kg	4,28E+00	1.64E-02	8.93E-02	4,38E+00	8.35E+00	7.43E-04	6.36E+00
RSF	MJ	1,84E-01	4.00E-03	5.06E-02	2,39E-01	5.95E-03	1.45E-04	1.79E-01
NRSF	MJ	8,69E-01	8.29E-03	1.74E-01	1,05E+00	6.83E-03	3.71E-04	1.60E-01
FW	m³	1,40E-01	2.19E-03	4.35E-02	1,85E-01	1.38E-03	1.74E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 140 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	6,78E+00	1.54E-02	5.00E-02	6,85E+00	1.27E-02	1.16E-03	1.20E+00
Non-hazardous waste disposed	kg	2,83E+00	1.41E+00	5.74E-02	4,29E+00	7.60E-02	1.10E+01	-9.38E-02
Radioactive waste disposed	kg	3,40E-04	4.95E-06	1.18E-05	3,56E-04	5.93E-06	2.51E-07	1.68E-04
Components for re-use	kg	-1,58E-20	-7.02E-22	1.20E-21	-1,54E-20	8.22E-23	1.32E-22	-1.53E-20
Materials for recycling	kg	2,57E+00	1.41E-02	8.66E-02	2,67E+00	1.24E-02	6.09E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.6 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST, PWS –MWA-ST, PWS2-MW-PL, PWD2-MW with thickness of 150 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 150 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	4,18E+01	1.11E+00	1.48E+00	4,44E+01	2.13E-01	7.20E-02	-7.63E+00
GWP-fossil	eq. kg CO2	4,18E+01	1.11E+00	1.48E+00	4,44E+01	2.16E-01	7.19E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-4,46E-02	8.21E-04	7.63E-03	-3,61E-02	-3.82E-03	3.82E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,68E-02	5.23E-04	4.53E-04	2,78E-02	3.17E-04	4.34E-05	1.19E-03
ODP	eq. kg CFC 11	7,89E-07	2.43E-08	1.53E-08	8,28E-07	3.43E-09	2.08E-09	-2.01E-07
AP	mol H+	2,88E-01	3.74E-03	1.07E-02	3,03E-01	2.42E-03	5.42E-04	-2.49E-02
EP-freshwater	eq. kg P	1,62E-02	7.91E-05	1.74E-03	1,80E-02	1.27E-04	5.99E-06	-3.67E-03
EP-marine	eq. kg N	4,14E-02	1.29E-03	1.52E-03	4,42E-02	5.65E-04	2.08E-04	-6.45E-03
EP-terrestrial	eq. mol N	5,51E-01	1.37E-02	1.34E-02	5,78E-01	6.30E-03	2.23E-03	-6.96E-02
POCP	eq. kg NMVOC	2,04E-01	5.82E-03	4.06E-03	2,14E-01	1.89E-03	7.76E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,64E-04	3.07E-06	5.92E-06	2,73E-04	1.33E-05	1.02E-07	1.07E-05
ADP-fossil	MJ	4,73E+02	1.64E+01	1.52E-03	4,90E+02	2.96E+00	1.80E+00	-6.27E+01
WDP	eq. m3	1,48E+01	8.41E-02	1.34E-02	1,49E+01	4.90E-02	5.61E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 150 mm, core density 115 kg/m³))								
PM	Disease incidence	2,88E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.19E-08	-4.24E-07
IRP	eg. kBq U235	1,42E+00	2.05E-02	4.79E-02	1,49E+00	2.33E-02	1.13E-03	6.51E-01
ETP-fw	CTUe	1,76E+02	7.82E+00	4.83E+00	1,88E+02	2.30E+00	8.41E-01	3.26E+00
HTP-c	CTUh	2,29E-07	4.83E-10	6.32E-10	2,30E-07	3.31E-10	3.07E-11	1.14E-07
HTP-nc	CTUh	6,14E-07	1.18E-08	2.85E-08	6,54E-07	1.49E-08	3.87E-10	2.49E-08
SQP	dimensionless	1,69E+02	1.65E+01	3.64E+00	1,89E+02	5.20E+00	3.56E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 150 mm, core density 115 kg/m³)								
PERE	MJ	3,25E+01	2.38E-01	1.58E+00	3,43E+01	4.54E-01	1.52E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3,25E+01	2.38E-01	1.58E+00	3,43E+01	4.54E-01	1.52E-02	3.58E+00
PEN-RE	MJ	4,59E+02	1.50E+01	1.85E+01	4,93E+02	2.79E+00	1.64E+00	-6.23E+01
RE	MJ	1,38E+01	1.42E+00	2.35E-01	1,55E+01	1.74E-01	1.63E-01	-3.84E-01
PENRT	MJ	4,73E+02	1.64E+01	1.87E+01	5,08E+02	2.96E+00	1.80E+00	-6.27E+01
SM	kg	4,32E+00	1.64E-02	8.93E-02	4,43E+00	8.35E+00	7.97E-04	6.36E+00
RSF	MJ	1,90E-01	4.00E-03	5.06E-02	2,44E-01	5.95E-03	1.55E-04	1.79E-01
NRSF	MJ	8,86E-01	8.29E-03	1.74E-01	1,07E+00	6.83E-03	3.98E-04	1.60E-01
FW	m³	1,49E-01	2.19E-03	4.35E-02	1,94E-01	1.38E-03	1.86E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 150 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	6,82E+00	1.54E-02	5.00E-02	6,88E+00	1.27E-02	1.24E-03	1.20E+00
Non-hazardous waste disposed	kg	2,90E+00	1.41E+00	5.74E-02	4,36E+00	7.60E-02	1.18E+01	-9.38E-02
Radioactive waste disposed	kg	3,51E-04	4.95E-06	1.18E-05	3,68E-04	5.93E-06	2.68E-07	1.68E-04
Components for re-use	kg	-1,82E-20	-7.02E-22	1.20E-21	-1,77E-20	8.22E-23	1.41E-22	-1.53E-20
Materials for recycling	kg	2,59E+00	1.41E-02	8.66E-02	2,69E+00	1.24E-02	6.54E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.7 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW ST, PWS2 – MWA-ST, PWS2-MW-PL, PWD2-MW with thickness of 160 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 160 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	4,33E+01	1.11E+00	1.48E+00	4,59E+01	2.13E-01	7.68E-02	-7.63E+00
GWP-fossil	eq. kg CO2	4,33E+01	1.11E+00	1.48E+00	4,59E+01	2.16E-01	7.67E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-5,02E-02	8.21E-04	7.63E-03	-4,17E-02	-3.82E-03	4.08E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,77E-02	5.23E-04	4.53E-04	2,87E-02	3.17E-04	4.63E-05	1.19E-03
ODP	eq. kg CFC 11	8,19E-07	2.43E-08	1.53E-08	8,59E-07	3.43E-09	2.22E-09	-2.01E-07
AP	mol H+	3,02E-01	3.74E-03	1.07E-02	3,16E-01	2.42E-03	5.78E-04	-2.49E-02
EP-freshwater	eq. kg P	1,67E-02	7.91E-05	1.74E-03	1,85E-02	1.27E-04	6.39E-06	-3.67E-03
EP-marine	eq. kg N	4,28E-02	1.29E-03	1.52E-03	4,57E-02	5.65E-04	2.22E-04	-6.45E-03
EP-terrestrial	eq. mol N	5,75E-01	1.37E-02	1.34E-02	6,02E-01	6.30E-03	2.38E-03	-6.96E-02
POCP	eq. kg NMVOC	2,11E-01	5.82E-03	4.06E-03	2,21E-01	1.89E-03	8.28E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,73E-04	3.07E-06	5.92E-06	2,82E-04	1.33E-05	1.09E-07	1.07E-05
ADP-fossil	MJ	4,91E+02	1.64E+01	1.52E-03	5,07E+02	2.96E+00	1.93E+00	-6.27E+01
WDP	eq. m3	1,52E+01	8.41E-02	1.34E-02	1,53E+01	4.90E-02	5.99E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 160 mm, core density 115 kg/m³)								
PM	Disease incidence	2,96E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.27E-08	-4.24E-07
IRP	eg. kBq U235	1,47E+00	2.05E-02	4.79E-02	1,54E+00	2.33E-02	1.21E-03	6.51E-01
ETP-fw	CTUe	1,81E+02	7.82E+00	4.83E+00	1,93E+02	2.30E+00	8.98E-01	3.26E+00
HTP-c	CTUh	2,35E-07	4.83E-10	6.32E-10	2,36E-07	3.31E-10	3.28E-11	1.14E-07
HTP-nc	CTUh	6,27E-07	1.18E-08	2.85E-08	6,68E-07	1.49E-08	4.13E-10	2.49E-08
SQP	dimensionless	1,77E+02	1.65E+01	3.64E+00	1,97E+02	5.20E+00	3.80E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 160 mm, core density 115 kg/m³)								
PERE	MJ	3,34E+01	2.38E-01	1.58E+00	3,52E+01	4.54E-01	1.62E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3,34E+01	2.38E-01	1.58E+00	3,52E+01	4.54E-01	1.62E-02	3.58E+00
PEN-RE	MJ	4,77E+02	1.50E+01	1.85E+01	5,10E+02	2.79E+00	1.75E+00	-6.23E+01
RE	MJ	1,44E+01	1.42E+00	2.35E-01	1,61E+01	1.74E-01	1.74E-01	-3.84E-01
PENRT	MJ	4,91E+02	1.64E+01	1.87E+01	5,26E+02	2.96E+00	1.93E+00	-6.27E+01
SM	kg	4,36E+00	1.64E-02	8.93E-02	4,47E+00	8.35E+00	8.50E-04	6.36E+00
RSF	MJ	1,96E-01	4.00E-03	5.06E-02	2,50E-01	5.95E-03	1.66E-04	1.79E-01
NRSF	MJ	9,03E-01	8.29E-03	1.74E-01	1,09E+00	6.83E-03	4.25E-04	1.60E-01
FW	m³	1,58E-01	2.19E-03	4.35E-02	2,03E-01	1.38E-03	1.99E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 160 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	6,85E+00	1.54E-02	5.00E-02	6,91E+00	1.27E-02	1.32E-03	1.20E+00
Non-hazardous waste disposed	kg	2,96E+00	1.41E+00	5.74E-02	4,43E+00	7.60E-02	1.26E+01	-9.38E-02
Radioactive waste disposed	kg	3,63E-04	4.95E-06	1.18E-05	3,79E-04	5.93E-06	2.86E-07	1.68E-04
Components for re-use	kg	-2,05E-20	-7.02E-22	1.20E-21	-2,00E-20	8.22E-23	1.51E-22	-1.53E-20
Materials for recycling	kg	2,60E+00	1.41E-02	8.66E-02	2,70E+00	1.24E-02	6.98E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.8 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST, PWS2 – MWA-ST, PWS2-MW-PL, PWD2-MW with thickness of 180 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 180 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	4,63E+01	1.11E+00	1.48E+00	4,89E+01	2.13E-01	8.66E-02	-7.63E+00
GWP-fossil	eq. kg CO2	4,63E+01	1.11E+00	1.48E+00	4,89E+01	2.16E-01	8.65E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-6,14E-02	8.21E-04	7.63E-03	-5,29E-02	-3.82E-03	4.60E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,95E-02	5.23E-04	4.53E-04	3,05E-02	3.17E-04	5.22E-05	1.19E-03
ODP	eq. kg CFC 11	8,81E-07	2.43E-08	1.53E-08	9,20E-07	3.43E-09	2.50E-09	-2.01E-07
AP	mol H+	3,29E-01	3.74E-03	1.07E-02	3,43E-01	2.42E-03	6.52E-04	-2.49E-02
EP-freshwater	eq. kg P	1,76E-02	7.91E-05	1.74E-03	1,95E-02	1.27E-04	7.20E-06	-3.67E-03
EP-marine	eq. kg N	4,58E-02	1.29E-03	1.52E-03	4,86E-02	5.65E-04	2.50E-04	-6.45E-03
EP-terrestrial	eq. mol N	6,22E-01	1.37E-02	1.34E-02	6,49E-01	6.30E-03	2.68E-03	-6.96E-02
POCP	eq. kg NMVOC	2,26E-01	5.82E-03	4.06E-03	2,36E-01	1.89E-03	9.33E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,92E-04	3.07E-06	5.92E-06	3,01E-04	1.33E-05	1.23E-07	1.07E-05
ADP-fossil	MJ	5,26E+02	1.64E+01	1.52E-03	5,43E+02	2.96E+00	2.17E+00	-6.27E+01
WDP	eq. m3	1,61E+01	8.41E-02	1.34E-02	1,62E+01	4.90E-02	6.75E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 180 mm, core density 115 kg/m³)								
PM	Disease incidence	3,13E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.43E-08	-4.24E-07
IRP	eg. kBq U235	1,56E+00	2.05E-02	4.79E-02	1,63E+00	2.33E-02	1.36E-03	6.51E-01
ETP-fw	CTUe	1,90E+02	7.82E+00	4.83E+00	2,03E+02	2.30E+00	1.01E+00	3.26E+00
HTP-c	CTUh	2,46E-07	4.83E-10	6.32E-10	2,47E-07	3.31E-10	3.69E-11	1.14E-07
HTP-nc	CTUh	6,55E-07	1.18E-08	2.85E-08	6,96E-07	1.49E-08	4.66E-10	2.49E-08
SQP	dimensionless	1,91E+02	1.65E+01	3.64E+00	2,11E+02	5.20E+00	4.28E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 180 mm, core density 115 kg/m³)								
PERE	MJ	3,54E+01	2.38E-01	1.58E+00	3,72E+01	4.54E-01	1.82E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3,54E+01	2.38E-01	1.58E+00	3,72E+01	4.54E-01	1.82E-02	3.58E+00
PEN-RE	MJ	5,11E+02	1.50E+01	1.85E+01	5,44E+02	2.79E+00	1.97E+00	-6.23E+01
RE	MJ	1,56E+01	1.42E+00	2.35E-01	1,73E+01	1.74E-01	1.96E-01	-3.84E-01
PENRT	MJ	5,26E+02	1.64E+01	1.87E+01	5,62E+02	2.96E+00	2.17E+00	-6.27E+01
SM	kg	4,45E+00	1.64E-02	8.93E-02	4,55E+00	8.35E+00	9.58E-04	6.36E+00
RSF	MJ	2,07E-01	4.00E-03	5.06E-02	2,61E-01	5.95E-03	1.87E-04	1.79E-01
NRSF	MJ	9,37E-01	8.29E-03	1.74E-01	1,12E+00	6.83E-03	4.78E-04	1.60E-01
FW	m³	1,76E-01	2.19E-03	4.35E-02	2,21E-01	1.38E-03	2.24E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 180 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	6,92E+00	1.54E-02	5.00E-02	6,98E+00	1.27E-02	1.49E-03	1.20E+00
Non-hazardous waste disposed	kg	3,10E+00	1.41E+00	5.74E-02	4,57E+00	7.60E-02	1.42E+01	-9.38E-02
Radioactive waste disposed	kg	3,86E-04	4.95E-06	1.18E-05	4,02E-04	5.93E-06	3.22E-07	1.68E-04
Components for re-use	kg	-2,52E-20	-7.02E-22	1.20E-21	-2,47E-20	8.22E-23	1.70E-22	-1.53E-20
Materials for recycling	kg	2,63E+00	1.41E-02	8.66E-02	2,73E+00	1.24E-02	7.86E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.9 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST, PWS2 – MWA-ST, PWS2-MW-PL, PWD2-MW with thickness of 200 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 200 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	4,93E+01	1.11E+00	1.48E+00	5,19E+01	2.13E-01	9.63E-02	-7.63E+00
GWP-fossil	eq. kg CO2	4,94E+01	1.11E+00	1.48E+00	5,20E+01	2.16E-01	9.62E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-7,26E-02	8.21E-04	7.63E-03	-6,41E-02	-3.82E-03	5.11E-05	7.33E-02
GWP-luluc	eq. kg CO2	3,13E-02	5.23E-04	4.53E-04	3,22E-02	3.17E-04	5.81E-05	1.19E-03
ODP	eq. kg CFC 11	9,42E-07	2.43E-08	1.53E-08	9,82E-07	3.43E-09	2.79E-09	-2.01E-07
AP	mol H+	3,56E-01	3.74E-03	1.07E-02	3,70E-01	2.42E-03	7.25E-04	-2.49E-02
EP-freshwater	eq. kg P	1,86E-02	7.91E-05	1.74E-03	2,04E-02	1.27E-04	8.01E-06	-3.67E-03
EP-marine	eq. kg N	4,87E-02	1.29E-03	1.52E-03	5,15E-02	5.65E-04	2.78E-04	-6.45E-03
EP-terrestrial	eq. mol N	6,70E-01	1.37E-02	1.34E-02	6,97E-01	6.30E-03	2.98E-03	-6.96E-02
POCP	eq. kg NMVOC	2,41E-01	5.82E-03	4.06E-03	2,51E-01	1.89E-03	1.04E-03	-4.52E-02
ADP-minerals &metals	eq. kg Sb	3,11E-04	3.07E-06	5.92E-06	3,20E-04	1.33E-05	1.36E-07	1.07E-05
ADP-fossil	MJ	5,62E+02	1.64E+01	1.52E-03	5,78E+02	2.96E+00	2.41E+00	-6.27E+01
WDP	eq. m3	1,69E+01	8.41E-02	1.34E-02	1,70E+01	4.90E-02	7.51E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 200 mm, core density 115 kg/m³)								
PM	Disease incidence	3,30E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.59E-08	-4.24E-07
IRP	eg. kBq U235	1,66E+00	2.05E-02	4.79E-02	1,72E+00	2.33E-02	1.52E-03	6.51E-01
ETP-fw	CTUe	2,00E+02	7.82E+00	4.83E+00	2,13E+02	2.30E+00	1.13E+00	3.26E+00
HTP-c	CTUh	2,58E-07	4.83E-10	6.32E-10	2,59E-07	3.31E-10	4.11E-11	1.14E-07
HTP-nc	CTUh	6,83E-07	1.18E-08	2.85E-08	7,24E-07	1.49E-08	5.18E-10	2.49E-08
SQP	dimensionless	2,05E+02	1.65E+01	3.64E+00	2,25E+02	5.20E+00	4.76E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 200 mm, core density 115 kg/m³)								
PERE	MJ	3,73E+01	2.38E-01	1.58E+00	3,91E+01	3.00E+00	2.03E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3,73E+01	2.38E-01	1.58E+00	3,91E+01	3.00E+00	2.03E-02	3.58E+00
PEN-RE	MJ	5,45E+02	1.50E+01	1.85E+01	5,79E+02	5.08E+01	2.20E+00	-6.23E+01
RE	MJ	1,68E+01	1.42E+00	2.35E-01	1,84E+01	2.19E+00	2.18E-01	-3.84E-01
PENRT	MJ	5,62E+02	1.64E+01	1.87E+01	5,97E+02	5.30E+01	2.41E+00	-6.27E+01
SM	kg	4,53E+00	1.64E-02	8.93E-02	4,64E+00	2.50E-01	1.07E-03	6.36E+00
RSF	MJ	2,18E-01	4.00E-03	5.06E-02	2,73E-01	6.15E-02	2.08E-04	1.79E-01
NRSF	MJ	9,72E-01	8.29E-03	1.74E-01	1,15E+00	2.14E-01	5.32E-04	1.60E-01
FW	m³	1,94E-01	2.19E-03	4.35E-02	2,40E-01	5.19E-02	2.50E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 200 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	6,98E+00	1.54E-02	5.00E-02	7,05E+00	2.87E-01	1.66E-03	1.20E+00
Non-hazardous waste disposed	kg	3,24E+00	1.41E+00	5.74E-02	4,70E+00	1.57E+00	1.58E+01	-9.38E-02
Radioactive waste disposed	kg	4,09E-04	4.95E-06	1.18E-05	4,26E-04	2.97E-05	3.58E-07	1.68E-04
Components for re-use	kg	-2,98E-20	-7.02E-22	1.20E-21	-2,93E-20	-4.49E-22	1.89E-22	-1.53E-20
Materials for recycling	kg	2,65E+00	1.41E-02	8.66E-02	2,76E+00	1.85E-01	8.75E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.10 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST, PWS2–MWA-ST, PWS2-MW-PL, PWD2-MW with thickness of 220 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 220 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	5,24E+01	1.11E+00	1.48E+00	5,50E+01	2.13E-01	1.06E-01	-7.63E+00
GWP-fossil	eq. kg CO2	5,24E+01	1.11E+00	1.48E+00	5,50E+01	2.16E-01	1.06E-01	-7.71E+00
GWP-biogenic	eq. kg CO2	-8,38E-02	8.21E-04	7.63E-03	-7,53E-02	-3.82E-03	5.63E-05	7.33E-02
GWP-luluc	eq. kg CO2	3,31E-02	5.23E-04	4.53E-04	3,40E-02	3.17E-04	6.39E-05	1.19E-03
ODP	eq. kg CFC 11	1,00E-06	2.43E-08	1.53E-08	1,04E-06	3.43E-09	3.07E-09	-2.01E-07
AP	mol H+	3,83E-01	3.74E-03	1.07E-02	3,98E-01	2.42E-03	7.98E-04	-2.49E-02
EP-freshwater	eq. kg P	1,96E-02	7.91E-05	1.74E-03	2,14E-02	1.27E-04	8.82E-06	-3.67E-03
EP-marine	eq. kg N	5,17E-02	1.29E-03	1.52E-03	5,45E-02	5.65E-04	3.06E-04	-6.45E-03
EP-terrestrial	eq. mol N	7,17E-01	1.37E-02	1.34E-02	7,44E-01	6.30E-03	3.28E-03	-6.96E-02
POCP	eq. kg NMVOC	2,56E-01	5.82E-03	4.06E-03	2,66E-01	1.89E-03	1.14E-03	-4.52E-02
ADP-minerals &metals	eq. kg Sb	3,29E-04	3.07E-06	5.92E-06	3,38E-04	1.33E-05	1.50E-07	1.07E-05
ADP-fossil	MJ	5,97E+02	1.64E+01	1.52E-03	6,14E+02	2.96E+00	2.66E+00	-6.27E+01
WDP	eq. m3	1,77E+01	8.41E-02	1.34E-02	1,78E+01	4.90E-02	8.26E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 220 mm, core density 115 kg/m³)								
PM	Disease incidence	3,47E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.75E-08	-4.24E-07
IRP	eg. kBq U235	1,75E+00	2.05E-02	4.79E-02	1,82E+00	2.33E-02	1.67E-03	6.51E-01
ETP-fw	CTUe	2,10E+02	7.82E+00	4.83E+00	2,23E+02	2.30E+00	1.24E+00	3.26E+00
HTP-c	CTUh	2,69E-07	4.83E-10	6.32E-10	2,70E-07	3.31E-10	4.52E-11	1.14E-07
HTP-nc	CTUh	7,11E-07	1.18E-08	2.85E-08	7,52E-07	1.49E-08	5.71E-10	2.49E-08
SQP	dimensionless	2,20E+02	1.65E+01	3.64E+00	2,40E+02	5.20E+00	5.24E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 220 mm, core density 115 kg/m³)								
PERE	MJ	3,92E+01	2.38E-01	1.58E+00	4,10E+01	4.54E-01	2.23E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3,92E+01	2.38E-01	1.58E+00	4,10E+01	4.54E-01	2.23E-02	3.58E+00
PEN-RE	MJ	5,79E+02	1.50E+01	1.85E+01	6,13E+02	2.79E+00	2.42E+00	-6.23E+01
RE	MJ	1,80E+01	1.42E+00	2.35E-01	1,96E+01	1.74E-01	2.40E-01	-3.84E-01
PENRT	MJ	5,97E+02	1.64E+01	1.87E+01	6,32E+02	2.96E+00	2.66E+00	-6.27E+01
SM	kg	4,62E+00	1.64E-02	8.93E-02	4,73E+00	8.35E+00	1.17E-03	6.36E+00
RSF	MJ	2,30E-01	4.00E-03	5.06E-02	2,84E-01	5.95E-03	2.28E-04	1.79E-01
NRSF	MJ	1,01E+00	8.29E-03	1.74E-01	1,19E+00	6.83E-03	5.86E-04	1.60E-01
FW	m³	2,12E-01	2.19E-03	4.35E-02	2,58E-01	1.38E-03	2.75E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 220 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	7,05E+00	1.54E-02	5.00E-02	7,12E+00	1.27E-02	1.83E-03	1.20E+00
Non-hazardous waste disposed	kg	3,37E+00	1.41E+00	5.74E-02	4,84E+00	7.60E-02	1.74E+01	-9.38E-02
Radioactive waste disposed	kg	4,32E-04	4.95E-06	1.18E-05	4,49E-04	5.93E-06	3.94E-07	1.68E-04
Components for re-use	kg	-3,45E-20	-7.02E-22	1.20E-21	-3,40E-20	8.22E-23	2.08E-22	-1.53E-20
Materials for recycling	kg	2,68E+00	1.41E-02	8.66E-02	2,78E+00	1.24E-02	9.63E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.11- Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST, PWS2–MWA-ST, PWS2-MW-PL, PWD2-MW with thickness of 240 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 240 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	5,54E+01	1.11E+00	1.48E+00	5,80E+01	2.13E-01	1.16E-01	-7.63E+00
GWP-fossil	eq. kg CO2	5,55E+01	1.11E+00	1.48E+00	5,80E+01	2.16E-01	1.16E-01	-7.71E+00
GWP-biogenic	eq. kg CO2	-9,50E-02	8.21E-04	7.63E-03	-8,65E-02	-3.82E-03	6.15E-05	7.33E-02
GWP-luluc	eq. kg CO2	3,48E-02	5.23E-04	4.53E-04	3,58E-02	3.17E-04	6.98E-05	1.19E-03
ODP	eq. kg CFC 11	1,06E-06	2.43E-08	1.53E-08	1,10E-06	3.43E-09	3.35E-09	-2.01E-07
AP	mol H+	4,10E-01	3.74E-03	1.07E-02	4,25E-01	2.42E-03	8.71E-04	-2.49E-02
EP-freshwater	eq. kg P	2,05E-02	7.91E-05	1.74E-03	2,23E-02	1.27E-04	9.63E-06	-3.67E-03
EP-marine	eq. kg N	5,46E-02	1.29E-03	1.52E-03	5,74E-02	5.65E-04	3.34E-04	-6.45E-03
EP-terrestrial	eq. mol N	7,65E-01	1.37E-02	1.34E-02	7,92E-01	6.30E-03	3.58E-03	-6.96E-02
POCP	eq. kg NMVOC	2,71E-01	5.82E-03	4.06E-03	2,81E-01	1.89E-03	1.25E-03	-4.52E-02
ADP-minerals &metals	eq. kg Sb	3,48E-04	3.07E-06	5.92E-06	3,57E-04	1.33E-05	1.64E-07	1.07E-05
ADP-fossil	MJ	6,33E+02	1.64E+01	1.52E-03	6,49E+02	2.96E+00	2.90E+00	-6.27E+01
WDP	eq. m3	1,85E+01	8.41E-02	1.34E-02	1,86E+01	4.90E-02	9.02E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 240 mm, core density 115 kg/m³)								
PM	Disease incidence	3,63E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.91E-08	-4.24E-07
IRP	eg. kBq U235	1,84E+00	2.05E-02	4.79E-02	1,91E+00	2.33E-02	1.83E-03	6.51E-01
ETP-fw	CTUe	2,20E+02	7.82E+00	4.83E+00	2,32E+02	2.30E+00	1.35E+00	3.26E+00
HTP-c	CTUh	2,81E-07	4.83E-10	6.32E-10	2,82E-07	3.31E-10	4.94E-11	1.14E-07
HTP-nc	CTUh	7,39E-07	1.18E-08	2.85E-08	7,80E-07	1.49E-08	6.23E-10	2.49E-08
SQP	dimensionless	2,34E+02	1.65E+01	3.64E+00	2,54E+02	5.20E+00	5.72E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 240 mm, core density 115 kg/m³)								
PERE	MJ	4,11E+01	2.38E-01	1.58E+00	4,30E+01	4.54E-01	2.44E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	4,11E+01	2.38E-01	1.58E+00	4,30E+01	4.54E-01	2.44E-02	3.58E+00
PEN-RE	MJ	6,14E+02	1.50E+01	1.85E+01	6,47E+02	2.79E+00	2.64E+00	-6.23E+01
RE	MJ	1,92E+01	1.42E+00	2.35E-01	2,08E+01	1.74E-01	2.62E-01	-3.84E-01
PENRT	MJ	6,33E+02	1.64E+01	1.87E+01	6,68E+02	2.96E+00	2.90E+00	-6.27E+01
SM	kg	4,71E+00	1.64E-02	8.93E-02	4,81E+00	8.35E+00	1.28E-03	6.36E+00
RSF	MJ	2,41E-01	4.00E-03	5.06E-02	2,95E-01	5.95E-03	2.49E-04	1.79E-01
NRSF	MJ	1,04E+00	8.29E-03	1.74E-01	1,22E+00	6.83E-03	6.40E-04	1.60E-01
FW	m³	2,30E-01	2.19E-03	4.35E-02	2,76E-01	1.38E-03	3.00E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 240 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	7,12E+00	1.54E-02	5.00E-02	7,19E+00	1.27E-02	1.99E-03	1.20E+00
Non-hazardous waste disposed	kg	3,51E+00	1.41E+00	5.74E-02	4,98E+00	7.60E-02	1.90E+01	-9.38E-02
Radioactive waste disposed	kg	4,55E-04	4.95E-06	1.18E-05	4,72E-04	5.93E-06	4.29E-07	1.68E-04
Components for re-use	kg	-3,92E-20	-7.02E-22	1.20E-21	-3,87E-20	8.22E-23	2.27E-22	-1.53E-20
Materials for recycling	kg	2,71E+00	1.41E-02	8.66E-02	2,81E+00	1.24E-02	1.05E-03	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.12 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST, PWS2 – MWA-ST, PWS2-MW-PL, PWD2-MW with thickness of 260 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 260 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	5,84E+01	1.11E+00	1.48E+00	6,10E+01	2.13E-01	1.25E-01	-7.63E+00
GWP-fossil	eq. kg CO2	5,85E+01	1.11E+00	1.48E+00	6,11E+01	2.16E-01	1.25E-01	-7.71E+00
GWP-biogenic	eq. kg CO2	-1,06E-01	8.21E-04	7.63E-03	-9,77E-02	-3.82E-03	6.66E-05	7.33E-02
GWP-luluc	eq. kg CO2	3,66E-02	5.23E-04	4.53E-04	3,76E-02	3.17E-04	7.57E-05	1.19E-03
ODP	eq. kg CFC 11	1,13E-06	2.43E-08	1.53E-08	1,17E-06	3.43E-09	3.63E-09	-2.01E-07
AP	mol H+	4,38E-01	3.74E-03	1.07E-02	4,52E-01	2.42E-03	9.45E-04	-2.49E-02
EP-freshwater	eq. kg P	2,15E-02	7.91E-05	1.74E-03	2,33E-02	1.27E-04	1.04E-05	-3.67E-03
EP-marine	eq. kg N	5,76E-02	1.29E-03	1.52E-03	6,04E-02	5.65E-04	3.63E-04	-6.45E-03
EP-terrestrial	eq. mol N	8,12E-01	1.37E-02	1.34E-02	8,39E-01	6.30E-03	3.89E-03	-6.96E-02
POCP	eq. kg NMVOC	2,86E-01	5.82E-03	4.06E-03	2,96E-01	1.89E-03	1.35E-03	-4.52E-02
ADP-minerals &metals	eq. kg Sb	3,66E-04	3.07E-06	5.92E-06	3,75E-04	1.33E-05	1.78E-07	1.07E-05
ADP-fossil	MJ	6,68E+02	1.64E+01	1.52E-03	6,85E+02	2.96E+00	3.15E+00	-6.27E+01
WDP	eq. m3	1,93E+01	8.41E-02	1.34E-02	1,94E+01	4.90E-02	9.78E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 260 mm, core density 115 kg/m³)								
PM	Disease incidence	3,80E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	2.07E-08	-4.24E-07
IRP	eg. kBq U235	1,94E+00	2.05E-02	4.79E-02	2,01E+00	2.33E-02	1.98E-03	6.51E-01
ETP-fw	CTUe	2,29E+02	7.82E+00	4.83E+00	2,42E+02	2.30E+00	1.47E+00	3.26E+00
HTP-c	CTUh	2,92E-07	4.83E-10	6.32E-10	2,93E-07	3.31E-10	5.35E-11	1.14E-07
HTP-nc	CTUh	7,67E-07	1.18E-08	2.85E-08	8,08E-07	1.49E-08	6.75E-10	2.49E-08
SQP	dimensionless	2,49E+02	1.65E+01	3.64E+00	2,69E+02	5.20E+00	6.20E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 260 mm, core density 115 kg/m³)								
PERE	MJ	4,31E+01	2.38E-01	1.58E+00	4,49E+01	4.54E-01	2.64E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	4,31E+01	2.38E-01	1.58E+00	4,49E+01	4.54E-01	2.64E-02	3.58E+00
PEN-RE	MJ	6,48E+02	1.50E+01	1.85E+01	6,81E+02	2.79E+00	2.86E+00	-6.23E+01
RE	MJ	2,04E+01	1.42E+00	2.35E-01	2,20E+01	1.74E-01	2.84E-01	-3.84E-01
PENRT	MJ	6,68E+02	1.64E+01	1.87E+01	7,03E+02	2.96E+00	3.15E+00	-6.27E+01
SM	kg	4,79E+00	1.64E-02	8.93E-02	4,90E+00	8.35E+00	1.39E-03	6.36E+00
RSF	MJ	2,52E-01	4.00E-03	5.06E-02	3,07E-01	5.95E-03	2.70E-04	1.79E-01
NRSF	MJ	1,08E+00	8.29E-03	1.74E-01	1,26E+00	6.83E-03	6.94E-04	1.60E-01
FW	m³	2,48E-01	2.19E-03	4.35E-02	2,94E-01	1.38E-03	3.25E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 260 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	7,19E+00	1.54E-02	5.00E-02	7,25E+00	1.27E-02	2.16E-03	1.20E+00
Non-hazardous waste disposed	kg	3,64E+00	1.41E+00	5.74E-02	5,11E+00	7.60E-02	2.06E+01	-9.38E-02
Radioactive waste disposed	kg	4,78E-04	4.95E-06	1.18E-05	4,95E-04	5.93E-06	4.65E-07	1.68E-04
Components for re-use	kg	-4,38E-20	-7.02E-22	1.20E-21	-4,33E-20	8.22E-23	2.46E-22	-1.53E-20
Materials for recycling	kg	2,74E+00	1.41E-02	8.66E-02	2,84E+00	1.24E-02	1.14E-03	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.13 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST, PWS2 – MWA-ST, PWS2-MW-PL, PWD2-MW with thickness of 280 mm – core density 115 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 280 mm, core density 115 kg/m³)								
GWP-total	eq. kg CO2	6,15E+01	1.11E+00	1.48E+00	6,41E+01	2.13E-01	1.35E-01	-7.63E+00
GWP-fossil	eq. kg CO2	6,15E+01	1.11E+00	1.48E+00	6,41E+01	2.16E-01	1.35E-01	-7.71E+00
GWP-biogenic	eq. kg CO2	-1,17E-01	8.21E-04	7.63E-03	-1,09E-01	-3.82E-03	7.18E-05	7.33E-02
GWP-luluc	eq. kg CO2	3,84E-02	5.23E-04	4.53E-04	3,94E-02	3.17E-04	8.16E-05	1.19E-03
ODP	eq. kg CFC 11	1,19E-06	2.43E-08	1.53E-08	1,23E-06	3.43E-09	3.91E-09	-2.01E-07
AP	mol H+	4,65E-01	3.74E-03	1.07E-02	4,79E-01	2.42E-03	1.02E-03	-2.49E-02
EP-freshwater	eq. kg P	2,24E-02	7.91E-05	1.74E-03	2,42E-02	1.27E-04	1.12E-05	-3.67E-03
EP-marine	eq. kg N	6,05E-02	1.29E-03	1.52E-03	6,33E-02	5.65E-04	3.91E-04	-6.45E-03
EP-terrestrial	eq. mol N	8,59E-01	1.37E-02	1.34E-02	8,86E-01	6.30E-03	4.19E-03	-6.96E-02
POCP	eq. kg NMVOC	3,01E-01	5.82E-03	4.06E-03	3,11E-01	1.89E-03	1.46E-03	-4.52E-02
ADP-minerals &metals	eq. kg Sb	3,85E-04	3.07E-06	5.92E-06	3,94E-04	1.33E-05	1.91E-07	1.07E-05
ADP-fossil	MJ	7,04E+02	1.64E+01	1.52E-03	7,20E+02	2.96E+00	3.39E+00	-6.27E+01
WDP	eq. m3	2,01E+01	8.41E-02	1.34E-02	2,02E+01	4.90E-02	1.05E-02	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 280 mm, core density 115 kg/m³)								
PM	Disease incidence	3,97E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	2.23E-08	-4.24E-07
IRP	eg. kBq U235	2,03E+00	2.05E-02	4.79E-02	2,10E+00	2.33E-02	2.13E-03	6.51E-01
ETP-fw	CTUe	2,39E+02	7.82E+00	4.83E+00	2,52E+02	2.30E+00	1.58E+00	3.26E+00
HTP-c	CTUh	3,03E-07	4.83E-10	6.32E-10	3,04E-07	3.31E-10	5.77E-11	1.14E-07
HTP-nc	CTUh	7,95E-07	1.18E-08	2.85E-08	8,36E-07	1.49E-08	7.28E-10	2.49E-08
SQP	dimensionless	2,63E+02	1.65E+01	3.64E+00	2,83E+02	5.20E+00	6.68E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 280 mm, core density 115 kg/m³)								
PERE	MJ	4,50E+01	2.38E-01	1.58E+00	4,68E+01	4.54E-01	2.85E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	4,50E+01	2.38E-01	1.58E+00	4,68E+01	4.54E-01	2.85E-02	3.58E+00
PEN-RE	MJ	6,82E+02	1.50E+01	1.85E+01	7,16E+02	2.79E+00	3.08E+00	-6.23E+01
RE	MJ	2,15E+01	1.42E+00	2.35E-01	2,32E+01	1.74E-01	3.06E-01	-3.84E-01
PENRT	MJ	7,04E+02	1.64E+01	1.87E+01	7,39E+02	2.96E+00	3.39E+00	-6.27E+01
SM	kg	4,88E+00	1.64E-02	8.93E-02	4,98E+00	8.35E+00	1.50E-03	6.36E+00
RSF	MJ	2,63E-01	4.00E-03	5.06E-02	3,18E-01	5.95E-03	2.91E-04	1.79E-01
NRSF	MJ	1,11E+00	8.29E-03	1.74E-01	1,29E+00	6.83E-03	7.47E-04	1.60E-01
FW	m³	2,66E-01	2.19E-03	4.35E-02	3,12E-01	1.38E-03	3.50E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 280 mm, core density 115 kg/m³)								
Hazardous waste disposed	kg	7,25E+00	1.54E-02	5.00E-02	7,32E+00	1.27E-02	2.33E-03	1.20E+00
Non-hazardous waste disposed	kg	3,78E+00	1.41E+00	5.74E-02	5,25E+00	7.60E-02	2.22E+01	-9.38E-02
Radioactive waste disposed	kg	5,01E-04	4.95E-06	1.18E-05	5,18E-04	5.93E-06	5.01E-07	1.68E-04
Components for re-use	kg	-4,85E-20	-7.02E-22	1.20E-21	-4,80E-20	8.22E-23	2.66E-22	-1.53E-20
Materials for recycling	kg	2,76E+00	1.41E-02	8.66E-02	2,87E+00	1.24E-02	1.23E-03	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.14 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST EKO with thickness of 60 mm – core density 80 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 60 mm, core density 80 kg/m³)								
GWP-total	eq. kg CO2	2,54E+01	1.11E+00	1.48E+00	2,80E+01	2.13E-01	2.82E-02	-7.63E+00
GWP-fossil	eq. kg CO2	2,53E+01	1.11E+00	1.48E+00	2,79E+01	2.16E-01	2.81E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	1,61E-02	8.21E-04	7.63E-03	2,45E-02	-3.82E-03	1.50E-05	7.33E-02
GWP-luluc	eq. kg CO2	1,71E-02	5.23E-04	4.53E-04	1,81E-02	3.17E-04	1.70E-05	1.19E-03
ODP	eq. kg CFC 11	4,57E-07	2.43E-08	1.53E-08	4,96E-07	3.43E-09	8.15E-10	-2.01E-07
AP	mol H+	1,41E-01	3.74E-03	1.07E-02	1,55E-01	2.42E-03	2.12E-04	-2.49E-02
EP-freshwater	eq. kg P	1,10E-02	7.91E-05	1.74E-03	1,28E-02	1.27E-04	2.34E-06	-3.67E-03
EP-marine	eq. kg N	2,54E-02	1.29E-03	1.52E-03	2,82E-02	5.65E-04	8.14E-05	-6.45E-03
EP-terrestrial	eq. mol N	2,95E-01	1.37E-02	1.34E-02	3,22E-01	6.30E-03	8.72E-04	-6.96E-02
POCP	eq. kg NMVOC	1,23E-01	5.82E-03	4.06E-03	1,32E-01	1.89E-03	3.04E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	1,63E-04	3.07E-06	5.92E-06	1,72E-04	1.33E-05	3.99E-08	1.07E-05
ADP-fossil	MJ	2,81E+02	1.64E+01	1.52E-03	2,97E+02	2.96E+00	7.06E-01	-6.27E+01
WDP	eq. m3	1,04E+01	8.41E-02	1.34E-02	1,05E+01	4.90E-02	2.20E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 60 mm, core density 80 kg/m³)								
PM	Disease incidence	1,97E-06	1.12E-07	4.06E-03	4,06E-03	3.34E-08	4.64E-09	-4.24E-07
IRP	eg. kBq U235	9,11E-01	2.05E-02	4.79E-02	9,79E-01	2.33E-02	4.44E-04	6.51E-01
ETP-fw	CTUe	1,23E+02	7.82E+00	4.83E+00	1,36E+02	2.30E+00	3.29E-01	3.26E+00
HTP-c	CTUh	1,68E-07	4.83E-10	6.32E-10	1,69E-07	3.31E-10	1.20E-11	1.14E-07
HTP-nc	CTUh	4,62E-07	1.18E-08	2.85E-08	5,02E-07	1.49E-08	1.52E-10	2.49E-08
SQP	dimensionless	9,13E+01	1.65E+01	3.64E+00	1,11E+02	5.20E+00	1.39E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 60 mm, core density 80 kg/m³)								
PERE	MJ	2,20E+01	2.38E-01	1.58E+00	2,38E+01	4.54E-01	5.94E-03	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2,20E+01	2.38E-01	1.58E+00	2,38E+01	4.54E-01	5.94E-03	3.58E+00
PEN-RE	MJ	2,74E+02	1.50E+01	1.85E+01	3,07E+02	2.79E+00	6.42E-01	-6.23E+01
RE	MJ	7,40E+00	1.42E+00	2.35E-01	9,06E+00	1.74E-01	6.37E-02	-3.84E-01
PENRT	MJ	2,81E+02	1.64E+01	1.87E+01	3,16E+02	2.96E+00	7.06E-01	-6.27E+01
SM	kg	3,85E+00	1.64E-02	8.93E-02	3,96E+00	8.35E+00	3.12E-04	6.36E+00
RSF	MJ	1,29E-01	4.00E-03	5.06E-02	1,83E-01	5.95E-03	6.07E-05	1.79E-01
NRSF	MJ	6,99E-01	8.29E-03	1.74E-01	8,82E-01	6.83E-03	1.56E-04	1.60E-01
FW	m³	5,09E-02	2.19E-03	4.35E-02	9,66E-02	1.38E-03	7.30E-04	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 60 mm, core density 80 kg/m³)								
Hazardous waste disposed	kg	7,72E-01	1.54E-02	5.00E-02	8,37E-01	1.27E-02	4.85E-04	1.20E+00
Non-hazardous waste disposed	kg	2,16E+00	1.41E+00	5.74E-02	3,63E+00	7.60E-02	4.63E+00	-9.38E-02
Radioactive waste disposed	kg	2,26E-04	4.95E-06	1.18E-05	2,43E-04	5.93E-06	1.07E-07	1.68E-04
Components for re-use	kg	7,06E-21	-7.02E-22	1.20E-21	7,56E-21	8.22E-23	5.52E-23	-1.53E-20
Materials for recycling	kg	2,44E+00	1.41E-02	8.66E-02	2,54E+00	1.24E-02	2.56E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.15- Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST EKO with thickness of 80 mm – core density 80 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 80 mm, core density 80 kg/m³)								
GWP-total	eq. kg CO2	2,75E+01	1.11E+00	1.48E+00	3,01E+01	2.13E-01	3.79E-02	-7.63E+00
GWP-fossil	eq. kg CO2	2,74E+01	1.11E+00	1.48E+00	3,00E+01	2.16E-01	3.79E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	8,26E-03	8.21E-04	7.63E-03	1,67E-02	-3.82E-03	2.01E-05	7.33E-02
GWP-luluc	eq. kg CO2	1,84E-02	5.23E-04	4.53E-04	1,93E-02	3.17E-04	2.29E-05	1.19E-03
ODP	eq. kg CFC 11	4,99E-07	2.43E-08	1.53E-08	5,39E-07	3.43E-09	1.10E-09	-2.01E-07
AP	mol H+	1,60E-01	3.74E-03	1.07E-02	1,74E-01	2.42E-03	2.85E-04	-2.49E-02
EP-freshwater	eq. kg P	1,17E-02	7.91E-05	1.74E-03	1,35E-02	1.27E-04	3.15E-06	-3.67E-03
EP-marine	eq. kg N	2,75E-02	1.29E-03	1.52E-03	3,03E-02	5.65E-04	1.10E-04	-6.45E-03
EP-terrestrial	eq. mol N	3,28E-01	1.37E-02	1.34E-02	3,55E-01	6.30E-03	1.17E-03	-6.96E-02
POCP	eq. kg NMVOC	1,33E-01	5.82E-03	4.06E-03	1,43E-01	1.89E-03	4.09E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	1,76E-04	3.07E-06	5.92E-06	1,85E-04	1.33E-05	5.36E-08	1.07E-05
ADP-fossil	MJ	3,06E+02	1.64E+01	1.52E-03	3,22E+02	2.96E+00	9.50E-01	-6.27E+01
WDP	eq. m3	1,10E+01	8.41E-02	1.34E-02	1,11E+01	4.90E-02	2.95E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 80 mm, core density 80 kg/m³)								
PM	Disease incidence	2,08E-06	1.12E-07	4.06E-03	4,06E-03	3.34E-08	6.25E-09	-4.24E-07
IRP	eg. kBq U235	9,76E-01	2.05E-02	4.79E-02	1,04E+00	2.33E-02	5.97E-04	6.51E-01
ETP-fw	CTUe	1,30E+02	7.82E+00	4.83E+00	1,43E+02	2.30E+00	4.43E-01	3.26E+00
HTP-c	CTUh	1,76E-07	4.83E-10	6.32E-10	1,77E-07	3.31E-10	1.62E-11	1.14E-07
HTP-nc	CTUh	4,82E-07	1.18E-08	2.85E-08	5,22E-07	1.49E-08	2.04E-10	2.49E-08
SQP	dimensionless	1,01E+02	1.65E+01	3.64E+00	1,21E+02	5.20E+00	1.87E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 80 mm, core density 80 kg/m³)								
PERE	MJ	2,33E+01	2.38E-01	1.58E+00	2,52E+01	4.54E-01	7.99E-03	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2,33E+01	2.38E-01	1.58E+00	2,52E+01	4.54E-01	7.99E-03	3.58E+00
PEN-RE	MJ	2,98E+02	1.50E+01	1.85E+01	3,31E+02	2.79E+00	8.65E-01	-6.23E+01
RE	MJ	8,23E+00	1.42E+00	2.35E-01	9,88E+00	1.74E-01	8.57E-02	-3.84E-01
PENRT	MJ	3,06E+02	1.64E+01	1.87E+01	3,41E+02	2.96E+00	9.50E-01	-6.27E+01
SM	kg	3,91E+00	1.64E-02	8.93E-02	4,02E+00	8.35E+00	4.19E-04	6.36E+00
RSF	MJ	1,37E-01	4.00E-03	5.06E-02	1,91E-01	5.95E-03	8.17E-05	1.79E-01
NRSF	MJ	7,23E-01	8.29E-03	1.74E-01	9,06E-01	6.83E-03	2.09E-04	1.60E-01
FW	m³	6,35E-02	2.19E-03	4.35E-02	1,09E-01	1.38E-03	9.82E-04	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 80 mm, core density 80 kg/m³)								
Hazardous waste disposed	kg	8,19E-01	1.54E-02	5.00E-02	8,84E-01	1.27E-02	6.53E-04	1.20E+00
Non-hazardous waste disposed	kg	2,25E+00	1.41E+00	5.74E-02	3,72E+00	7.60E-02	6.23E+00	-9.38E-02
Radioactive waste disposed	kg	2,42E-04	4.95E-06	1.18E-05	2,59E-04	5.93E-06	1.43E-07	1.68E-04
Components for re-use	kg	3,82E-21	-7.02E-22	1.20E-21	4,31E-21	8.22E-23	7.44E-23	-1.53E-20
Materials for recycling	kg	2,46E+00	1.41E-02	8.66E-02	2,56E+00	1.24E-02	3.44E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.16 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST EKO, PWS2-MW-PL EKO with thickness of 100 mm – core density 80 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 100 mm, core density 80 kg/m³)								
GWP-total	eq. kg CO2	2,96E+01	1.11E+00	1.48E+00	3,22E+01	2.13E-01	4.76E-02	-7.63E+00
GWP-fossil	eq. kg CO2	2,96E+01	1.11E+00	1.48E+00	3,21E+01	2.16E-01	4.76E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	4,73E-04	8.21E-04	7.63E-03	8,92E-03	-3.82E-03	2.53E-05	7.33E-02
GWP-luluc	eq. kg CO2	1,96E-02	5.23E-04	4.53E-04	2,06E-02	3.17E-04	2.87E-05	1.19E-03
ODP	eq. kg CFC 11	5,42E-07	2.43E-08	1.53E-08	5,82E-07	3.43E-09	1.38E-09	-2.01E-07
AP	mol H+	1,79E-01	3.74E-03	1.07E-02	1,93E-01	2.42E-03	3.59E-04	-2.49E-02
EP-freshwater	eq. kg P	1,23E-02	7.91E-05	1.74E-03	1,42E-02	1.27E-04	3.96E-06	-3.67E-03
EP-marine	eq. kg N	2,95E-02	1.29E-03	1.52E-03	3,23E-02	5.65E-04	1.38E-04	-6.45E-03
EP-terrestrial	eq. mol N	3,61E-01	1.37E-02	1.34E-02	3,88E-01	6.30E-03	1.47E-03	-6.96E-02
POCP	eq. kg NMVOC	1,43E-01	5.82E-03	4.06E-03	1,53E-01	1.89E-03	5.13E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	1,89E-04	3.07E-06	5.92E-06	1,98E-04	1.33E-05	6.74E-08	1.07E-05
ADP-fossil	MJ	3,30E+02	1.64E+01	1.52E-03	3,47E+02	2.96E+00	1.19E+00	-6.27E+01
WDP	eq. m3	1,15E+01	8.41E-02	1.34E-02	1,16E+01	4.90E-02	3.71E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 100 mm, core density 80 kg/m³)								
PM	Disease incidence	2,20E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	7.85E-09	-4.24E-07
IRP	eg. kBq U235	1,04E+00	2.05E-02	4.79E-02	1,11E+00	2.33E-02	7.51E-04	6.51E-01
ETP-fw	CTUe	1,37E+02	7.82E+00	4.83E+00	1,49E+02	2.30E+00	5.57E-01	3.26E+00
HTP-c	CTUh	1,84E-07	4.83E-10	6.32E-10	1,85E-07	3.31E-10	2.03E-11	1.14E-07
HTP-nc	CTUh	5,01E-07	1.18E-08	2.85E-08	5,41E-07	1.49E-08	2.56E-10	2.49E-08
SQP	dimensionless	1,11E+02	1.65E+01	3.64E+00	1,31E+02	5.20E+00	2.35E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 100 mm, core density 80 kg/m³)								
PERE	MJ	2,47E+01	2.38E-01	1.58E+00	2,65E+01	4.54E-01	1.00E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2,47E+01	2.38E-01	1.58E+00	2,65E+01	4.54E-01	1.00E-02	3.58E+00
PEN-RE	MJ	3,21E+02	1.50E+01	1.85E+01	3,55E+02	2.79E+00	1.09E+00	-6.23E+01
RE	MJ	9,05E+00	1.42E+00	2.35E-01	1,07E+01	1.74E-01	1.08E-01	-3.84E-01
PENRT	MJ	3,31E+02	1.64E+01	1.87E+01	3,66E+02	2.96E+00	1.19E+00	-6.27E+01
SM	kg	3,97E+00	1.64E-02	8.93E-02	4,08E+00	8.35E+00	5.27E-04	6.36E+00
RSF	MJ	1,44E-01	4.00E-03	5.06E-02	1,99E-01	5.95E-03	1.03E-04	1.79E-01
NRSF	MJ	7,47E-01	8.29E-03	1.74E-01	9,30E-01	6.83E-03	2.63E-04	1.60E-01
FW	m³	7,60E-02	2.19E-03	4.35E-02	1,22E-01	1.38E-03	1.23E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 100 mm, core density 80 kg/m³)								
Hazardous waste disposed	kg	8,66E-01	1.54E-02	5.00E-02	9,31E-01	1.27E-02	8.21E-04	1.20E+00
Non-hazardous waste disposed	kg	2,35E+00	1.41E+00	5.74E-02	3,82E+00	7.60E-02	7.83E+00	-9.38E-02
Radioactive waste disposed	kg	2,58E-04	4.95E-06	1.18E-05	2,75E-04	5.93E-06	1.79E-07	1.68E-04
Components for re-use	kg	5,72E-22	-7.02E-22	1.20E-21	1,07E-21	8.22E-23	9.35E-23	-1.53E-20
Materials for recycling	kg	2,48E+00	1.41E-02	8.66E-02	2,58E+00	1.24E-02	4.33E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.17- Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST EKO, PWS2-MW-PL EKO with thickness of 120 mm – core density 80 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 120 mm, core density 80 kg/m³)								
GWP-total	eq. kg CO2	3,17E+01	1.11E+00	1.48E+00	3,43E+01	2.13E-01	5.74E-02	-7.63E+00
GWP-fossil	eq. kg CO2	3,17E+01	1.11E+00	1.48E+00	3,43E+01	2.16E-01	5.73E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-7,32E-03	8.21E-04	7.63E-03	1,13E-03	-3.82E-03	3.05E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,09E-02	5.23E-04	4.53E-04	2,18E-02	3.17E-04	3.46E-05	1.19E-03
ODP	eq. kg CFC 11	5,85E-07	2.43E-08	1.53E-08	6,24E-07	3.43E-09	1.66E-09	-2.01E-07
AP	mol H+	1,98E-01	3.74E-03	1.07E-02	2,12E-01	2.42E-03	4.32E-04	-2.49E-02
EP-freshwater	eq. kg P	1,30E-02	7.91E-05	1.74E-03	1,48E-02	1.27E-04	4.77E-06	-3.67E-03
EP-marine	eq. kg N	3,16E-02	1.29E-03	1.52E-03	3,44E-02	5.65E-04	1.66E-04	-6.45E-03
EP-terrestrial	eq. mol N	3,94E-01	1.37E-02	1.34E-02	4,21E-01	6.30E-03	1.78E-03	-6.96E-02
POCP	eq. kg NMVOC	1,54E-01	5.82E-03	4.06E-03	1,64E-01	1.89E-03	6.18E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,02E-04	3.07E-06	5.92E-06	2,11E-04	1.33E-05	8.12E-08	1.07E-05
ADP-fossil	MJ	3,55E+02	1.64E+01	1.52E-03	3,72E+02	2.96E+00	1.44E+00	-6.27E+01
WDP	eq. m3	1,21E+01	8.41E-02	1.34E-02	1,22E+01	4.90E-02	4.47E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 120 mm, core density 80 kg/m³)								
PM	Disease incidence	2,32E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	9.45E-09	-4.24E-07
IRP	eg. kBq U235	1,11E+00	2.05E-02	4.79E-02	1,18E+00	2.33E-02	9.04E-04	6.51E-01
ETP-fw	CTUe	1,43E+02	7.82E+00	4.83E+00	1,56E+02	2.30E+00	6.70E-01	3.26E+00
HTP-c	CTUh	1,91E-07	4.83E-10	6.32E-10	1,93E-07	3.31E-10	2.45E-11	1.14E-07
HTP-nc	CTUh	5,20E-07	1.18E-08	2.85E-08	5,61E-07	1.49E-08	3.09E-10	2.49E-08
SQP	dimensionless	1,21E+02	1.65E+01	3.64E+00	1,42E+02	5.20E+00	2.83E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 120 mm, core density 80 kg/m³)								
PERE	MJ	2,60E+01	2.38E-01	1.58E+00	2,78E+01	4.54E-01	1.21E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2,60E+01	2.38E-01	1.58E+00	2,78E+01	4.54E-01	1.21E-02	3.58E+00
PEN-RE	MJ	3,45E+02	1.50E+01	1.85E+01	3,79E+02	2.79E+00	1.31E+00	-6.23E+01
RE	MJ	9,88E+00	1.42E+00	2.35E-01	1,15E+01	1.74E-01	1.30E-01	-3.84E-01
PENRT	MJ	3,55E+02	1.64E+01	1.87E+01	3,90E+02	2.96E+00	1.44E+00	-6.27E+01
SM	kg	4,03E+00	1.64E-02	8.93E-02	4,14E+00	8.35E+00	6.35E-04	6.36E+00
RSF	MJ	1,52E-01	4.00E-03	5.06E-02	2,07E-01	5.95E-03	1.24E-04	1.79E-01
NRSF	MJ	7,71E-01	8.29E-03	1.74E-01	9,54E-01	6.83E-03	3.17E-04	1.60E-01
FW	m³	8,86E-02	2.19E-03	4.35E-02	1,34E-01	1.38E-03	1.49E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 120 mm, core density 80 kg/m³)								
Hazardous waste disposed	kg	9,13E-01	1.54E-02	5.00E-02	9,78E-01	1.27E-02	9.88E-04	1.20E+00
Non-hazardous waste disposed	kg	2,44E+00	1.41E+00	5.74E-02	3,91E+00	7.60E-02	9.43E+00	-9.38E-02
Radioactive waste disposed	kg	2,74E-04	4.95E-06	1.18E-05	2,91E-04	5.93E-06	2.15E-07	1.68E-04
Components for re-use	kg	-2,67E-21	-7.02E-22	1.20E-21	-2,17E-21	8.22E-23	1.13E-22	-1.53E-20
Materials for recycling	kg	2,50E+00	1.41E-02	8.66E-02	2,60E+00	1.24E-02	5.21E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.18 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST EKO, PWS2-MW-PL EKO with thickness of 140 mm – core density 80 kg/m3 (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 140 mm, core density 80 kg/m³)								
GWP-total	eq. kg CO2	3,38E+01	1.11E+00	1.48E+00	3,64E+01	2.13E-01	6.71E-02	-7.63E+00
GWP-fossil	eq. kg CO2	3,38E+01	1.11E+00	1.48E+00	3,64E+01	2.16E-01	6.70E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-1,51E-02	8.21E-04	7.63E-03	-6,66E-03	-3.82E-03	3.56E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,21E-02	5.23E-04	4.53E-04	2,31E-02	3.17E-04	4.05E-05	1.19E-03
ODP	eq. kg CFC 11	6,27E-07	2.43E-08	1.53E-08	6,67E-07	3.43E-09	1.94E-09	-2.01E-07
AP	mol H+	2,17E-01	3.74E-03	1.07E-02	2,31E-01	2.42E-03	5.05E-04	-2.49E-02
EP-freshwater	eq. kg P	1,37E-02	7.91E-05	1.74E-03	1,55E-02	1.27E-04	5.58E-06	-3.67E-03
EP-marine	eq. kg N	3,36E-02	1.29E-03	1.52E-03	3,64E-02	5.65E-04	1.94E-04	-6.45E-03
EP-terrestrial	eq. mol N	4,27E-01	1.37E-02	1.34E-02	4,54E-01	6.30E-03	2.08E-03	-6.96E-02
POCP	eq. kg NMVOC	1,64E-01	5.82E-03	4.06E-03	1,74E-01	1.89E-03	7.23E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,15E-04	3.07E-06	5.92E-06	2,24E-04	1.33E-05	9.50E-08	1.07E-05
ADP-fossil	MJ	3,80E+02	1.64E+01	1.52E-03	3,96E+02	2.96E+00	1.68E+00	-6.27E+01
WDP	eq. m3	1,27E+01	8.41E-02	1.34E-02	1,28E+01	4.90E-02	5.23E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 140 mm, core density 80 kg/m³)								
PM	Disease incidence	2,43E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.11E-08	-4.24E-07
IRP	eg. kBq U235	1,17E+00	2.05E-02	4.79E-02	1,24E+00	2.33E-02	1.06E-03	6.51E-01
ETP-fw	CTUe	1,50E+02	7.82E+00	4.83E+00	1,63E+02	2.30E+00	7.84E-01	3.26E+00
HTP-c	CTUh	1,99E-07	4.83E-10	6.32E-10	2,00E-07	3.31E-10	2.86E-11	1.14E-07
HTP-nc	CTUh	5,40E-07	1.18E-08	2.85E-08	5,80E-07	1.49E-08	3.61E-10	2.49E-08
SQP	dimensionless	1,31E+02	1.65E+01	3.64E+00	1,52E+02	5.20E+00	3.32E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 140 mm, core density 80 kg/m³)								
PERE	MJ	2,74E+01	2.38E-01	1.58E+00	2,92E+01	4.54E-01	1.41E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2,74E+01	2.38E-01	1.58E+00	2,92E+01	4.54E-01	1.41E-02	3.58E+00
PEN-RE	MJ	3,69E+02	1.50E+01	1.85E+01	4,03E+02	2.79E+00	1.53E+00	-6.23E+01
RE	MJ	1,07E+01	1.42E+00	2.35E-01	1,24E+01	1.74E-01	1.52E-01	-3.84E-01
PENRT	MJ	3,80E+02	1.64E+01	1.87E+01	4,15E+02	2.96E+00	1.68E+00	-6.27E+01
SM	kg	4,09E+00	1.64E-02	8.93E-02	4,20E+00	8.35E+00	7.43E-04	6.36E+00
RSF	MJ	1,60E-01	4.00E-03	5.06E-02	2,15E-01	5.95E-03	1.45E-04	1.79E-01
NRSF	MJ	7,95E-01	8.29E-03	1.74E-01	9,78E-01	6.83E-03	3.71E-04	1.60E-01
FW	m³	1,01E-01	2.19E-03	4.35E-02	1,47E-01	1.38E-03	1.74E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 140 mm, core density 80 kg/m³)								
Hazardous waste disposed	kg	9,60E-01	1.54E-02	5.00E-02	1,03E+00	1.27E-02	1.16E-03	1.20E+00
Non-hazardous waste disposed	kg	2,54E+00	1.41E+00	5.74E-02	4,00E+00	7.60E-02	1.10E+01	-9.38E-02
Radioactive waste disposed	kg	2,90E-04	4.95E-06	1.18E-05	3,07E-04	5.93E-06	2.51E-07	1.68E-04
Components for re-use	kg	-5,92E-21	-7.02E-22	1.20E-21	-5,42E-21	8.22E-23	1.32E-22	-1.53E-20
Materials for recycling	kg	2,51E+00	1.41E-02	8.66E-02	2,62E+00	1.24E-02	6.09E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.19 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST EKO, PWS2-MW-PL EKO with thickness of 150 mm – core density 80 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 150 mm, core density 80 kg/m³)								
GWP-total	eq. kg CO2	3,48E+01	1.11E+00	1.48E+00	3,74E+01	2.13E-01	7.20E-02	-7.63E+00
GWP-fossil	eq. kg CO2	3,48E+01	1.11E+00	1.48E+00	3,74E+01	2.16E-01	7.19E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-1,90E-02	8.21E-04	7.63E-03	-1,06E-02	-3.82E-03	3.82E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,27E-02	5.23E-04	4.53E-04	2,37E-02	3.17E-04	4.34E-05	1.19E-03
ODP	eq. kg CFC 11	6,49E-07	2.43E-08	1.53E-08	6,88E-07	3.43E-09	2.08E-09	-2.01E-07
AP	mol H+	2,26E-01	3.74E-03	1.07E-02	2,40E-01	2.42E-03	5.42E-04	-2.49E-02
EP-freshwater	eq. kg P	1,40E-02	7.91E-05	1.74E-03	1,58E-02	1.27E-04	5.99E-06	-3.67E-03
EP-marine	eq. kg N	3,46E-02	1.29E-03	1.52E-03	3,75E-02	5.65E-04	2.08E-04	-6.45E-03
EP-terrestrial	eq. mol N	4,43E-01	1.37E-02	1.34E-02	4,70E-01	6.30E-03	2.23E-03	-6.96E-02
POCP	eq. kg NMVOC	1,69E-01	5.82E-03	4.06E-03	1,79E-01	1.89E-03	7.76E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,22E-04	3.07E-06	5.92E-06	2,31E-04	1.33E-05	1.02E-07	1.07E-05
ADP-fossil	MJ	3,92E+02	1.64E+01	1.52E-03	4,09E+02	2.96E+00	1.80E+00	-6.27E+01
WDP	eq. m3	1,30E+01	8.41E-02	1.34E-02	1,31E+01	4.90E-02	5.61E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 150 mm, core density 80 kg/m³)								
PM	Disease incidence	2,49E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.19E-08	-4.24E-07
IRP	eg. kBq U235	1,21E+00	2.05E-02	4.79E-02	1,27E+00	2.33E-02	1.13E-03	6.51E-01
ETP-fw	CTUe	1,54E+02	7.82E+00	4.83E+00	1,66E+02	2.30E+00	8.41E-01	3.26E+00
HTP-c	CTUh	2,03E-07	4.83E-10	6.32E-10	2,04E-07	3.31E-10	3.07E-11	1.14E-07
HTP-nc	CTUh	5,50E-07	1.18E-08	2.85E-08	5,90E-07	1.49E-08	3.87E-10	2.49E-08
SQP	dimensionless	1,36E+02	1.65E+01	3.64E+00	1,57E+02	5.20E+00	3.56E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 150 mm, core density 80 kg/m³)								
PERE	MJ	2,80E+01	2.38E-01	1.58E+00	2,99E+01	4.54E-01	1.52E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2,80E+01	2.38E-01	1.58E+00	2,99E+01	4.54E-01	1.52E-02	3.58E+00
PEN-RE	MJ	3,81E+02	1.50E+01	1.85E+01	4,15E+02	2.79E+00	1.64E+00	-6.23E+01
RE	MJ	1,11E+01	1.42E+00	2.35E-01	1,28E+01	1.74E-01	1.63E-01	-3.84E-01
PENRT	MJ	3,92E+02	1.64E+01	1.87E+01	4,27E+02	2.96E+00	1.80E+00	-6.27E+01
SM	kg	4,12E+00	1.64E-02	8.93E-02	4,23E+00	8.35E+00	7.97E-04	6.36E+00
RSF	MJ	1,64E-01	4.00E-03	5.06E-02	2,19E-01	5.95E-03	1.55E-04	1.79E-01
NRSF	MJ	8,07E-01	8.29E-03	1.74E-01	9,90E-01	6.83E-03	3.98E-04	1.60E-01
FW	m³	1,07E-01	2.19E-03	4.35E-02	1,53E-01	1.38E-03	1.86E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 150 mm, core density 80 kg/m³)								
Hazardous waste disposed	kg	9,83E-01	1.54E-02	5.00E-02	1,05E+00	1.27E-02	1.24E-03	1.20E+00
Non-hazardous waste disposed	kg	2,58E+00	1.41E+00	5.74E-02	4,05E+00	7.60E-02	1.18E+01	-9.38E-02
Radioactive waste disposed	kg	2,98E-04	4.95E-06	1.18E-05	3,15E-04	5.93E-06	2.68E-07	1.68E-04
Components for re-use	kg	-7,54E-21	-7.02E-22	1.20E-21	-7,04E-21	8.22E-23	1.41E-22	-1.53E-20
Materials for recycling	kg	2,52E+00	1.41E-02	8.66E-02	2,62E+00	1.24E-02	6.54E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.20 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST EKO, PWS2-MW-PL EKO with thickness of 160 mm – core density 80 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 160 mm, core density 80 kg/m³)								
GWP-total	eq. kg CO2	3,59E+01	1.11E+00	1.48E+00	3,85E+01	2.13E-01	7.68E-02	-7.63E+00
GWP-fossil	eq. kg CO2	3,59E+01	1.11E+00	1.48E+00	3,85E+01	2.16E-01	7.67E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-2,29E-02	8.21E-04	7.63E-03	-1,45E-02	-3.82E-03	4.08E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,33E-02	5.23E-04	4.53E-04	2,43E-02	3.17E-04	4.63E-05	1.19E-03
ODP	eq. kg CFC 11	6,70E-07	2.43E-08	1.53E-08	7,10E-07	3.43E-09	2.22E-09	-2.01E-07
AP	mol H+	2,35E-01	3.74E-03	1.07E-02	2,50E-01	2.42E-03	5.78E-04	-2.49E-02
EP-freshwater	eq. kg P	1,43E-02	7.91E-05	1.74E-03	1,62E-02	1.27E-04	6.39E-06	-3.67E-03
EP-marine	eq. kg N	3,57E-02	1.29E-03	1.52E-03	3,85E-02	5.65E-04	2.22E-04	-6.45E-03
EP-terrestrial	eq. mol N	4,60E-01	1.37E-02	1.34E-02	4,87E-01	6.30E-03	2.38E-03	-6.96E-02
POCP	eq. kg NMVOC	1,75E-01	5.82E-03	4.06E-03	1,85E-01	1.89E-03	8.28E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,28E-04	3.07E-06	5.92E-06	2,37E-04	1.33E-05	1.09E-07	1.07E-05
ADP-fossil	MJ	4,05E+02	1.64E+01	1.52E-03	4,21E+02	2.96E+00	1.93E+00	-6.27E+01
WDP	eq. m3	1,32E+01	8.41E-02	1.34E-02	1,33E+01	4.90E-02	5.99E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 160 mm, core density 80 kg/m³)								
PM	Disease incidence	2,55E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.27E-08	-4.24E-07
IRP	eg. kBq U235	1,24E+00	2.05E-02	4.79E-02	1,31E+00	2.33E-02	1.21E-03	6.51E-01
ETP-fw	CTUe	1,57E+02	7.82E+00	4.83E+00	1,70E+02	2.30E+00	8.98E-01	3.26E+00
HTP-c	CTUh	2,07E-07	4.83E-10	6.32E-10	2,08E-07	3.31E-10	3.28E-11	1.14E-07
HTP-nc	CTUh	5,59E-07	1.18E-08	2.85E-08	6,00E-07	1.49E-08	4.13E-10	2.49E-08
SQP	dimensionless	1,41E+02	1.65E+01	3.64E+00	1,62E+02	5.20E+00	3.80E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 160 mm, core density 80 kg/m³)								
PERE	MJ	2,87E+01	2.38E-01	1.58E+00	3,05E+01	4.54E-01	1.62E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2,87E+01	2.38E-01	1.58E+00	3,05E+01	4.54E-01	1.62E-02	3.58E+00
PEN-RE	MJ	3,93E+02	1.50E+01	1.85E+01	4,26E+02	2.79E+00	1.75E+00	-6.23E+01
RE	MJ	1,15E+01	1.42E+00	2.35E-01	1,32E+01	1.74E-01	1.74E-01	-3.84E-01
PENRT	MJ	4,05E+02	1.64E+01	1.87E+01	4,40E+02	2.96E+00	1.93E+00	-6.27E+01
SM	kg	4,15E+00	1.64E-02	8.93E-02	4,26E+00	8.35E+00	8.50E-04	6.36E+00
RSF	MJ	1,68E-01	4.00E-03	5.06E-02	2,23E-01	5.95E-03	1.66E-04	1.79E-01
NRSF	MJ	8,19E-01	8.29E-03	1.74E-01	1,00E+00	6.83E-03	4.25E-04	1.60E-01
FW	m³	1,14E-01	2.19E-03	4.35E-02	1,59E-01	1.38E-03	1.99E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 160 mm, core density 80 kg/m³)								
Hazardous waste disposed	kg	1,01E+00	1.54E-02	5.00E-02	1,07E+00	1.27E-02	1.32E-03	1.20E+00
Non-hazardous waste disposed	kg	2,63E+00	1.41E+00	5.74E-02	4,10E+00	7.60E-02	1.26E+01	-9.38E-02
Radioactive waste disposed	kg	3,06E-04	4.95E-06	1.18E-05	3,23E-04	5.93E-06	2.86E-07	1.68E-04
Components for re-use	kg	-9,16E-21	-7.02E-22	1.20E-21	-8,66E-21	8.22E-23	1.51E-22	-1.53E-20
Materials for recycling	kg	2,53E+00	1.41E-02	8.66E-02	2,63E+00	1.24E-02	6.98E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.21 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST EKO, PWS2-MW-PL EKO with thickness of 180 mm – core density 80 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 180 mm, core density 80 kg/m³)								
GWP-total	eq. kg CO2	3,80E+01	1.11E+00	1.48E+00	4,06E+01	2.13E-01	8.66E-02	-7.63E+00
GWP-fossil	eq. kg CO2	3,80E+01	1.11E+00	1.48E+00	4,06E+01	2.16E-01	8.65E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-3,07E-02	8.21E-04	7.63E-03	-2,22E-02	-3.82E-03	4.60E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,46E-02	5.23E-04	4.53E-04	2,56E-02	3.17E-04	5.22E-05	1.19E-03
ODP	eq. kg CFC 11	7,13E-07	2.43E-08	1.53E-08	7,52E-07	3.43E-09	2.50E-09	-2.01E-07
AP	mol H+	2,54E-01	3.74E-03	1.07E-02	2,69E-01	2.42E-03	6.52E-04	-2.49E-02
EP-freshwater	eq. kg P	1,50E-02	7.91E-05	1.74E-03	1,68E-02	1.27E-04	7.20E-06	-3.67E-03
EP-marine	eq. kg N	3,77E-02	1.29E-03	1.52E-03	4,05E-02	5.65E-04	2.50E-04	-6.45E-03
EP-terrestrial	eq. mol N	4,93E-01	1.37E-02	1.34E-02	5,20E-01	6.30E-03	2.68E-03	-6.96E-02
POCP	eq. kg NMVOC	1,85E-01	5.82E-03	4.06E-03	1,95E-01	1.89E-03	9.33E-04	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,41E-04	3.07E-06	5.92E-06	2,50E-04	1.33E-05	1.23E-07	1.07E-05
ADP-fossil	MJ	4,29E+02	1.64E+01	1.52E-03	4,46E+02	2.96E+00	2.17E+00	-6.27E+01
WDP	eq. m3	1,38E+01	8.41E-02	1.34E-02	1,39E+01	4.90E-02	6.75E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 180 mm, core density 80 kg/m³)								
PM	Disease incidence	2,67E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.43E-08	-4.24E-07
IRP	eg. kBq U235	1,30E+00	2.05E-02	4.79E-02	1,37E+00	2.33E-02	1.36E-03	6.51E-01
ETP-fw	CTUe	1,64E+02	7.82E+00	4.83E+00	1,76E+02	2.30E+00	1.01E+00	3.26E+00
HTP-c	CTUh	2,15E-07	4.83E-10	6.32E-10	2,16E-07	3.31E-10	3.69E-11	1.14E-07
HTP-nc	CTUh	5,79E-07	1.18E-08	2.85E-08	6,19E-07	1.49E-08	4.66E-10	2.49E-08
SQP	dimensionless	1,51E+02	1.65E+01	3.64E+00	1,72E+02	5.20E+00	4.28E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 180 mm, core density 80 kg/m³)								
PERE	MJ	3,01E+01	2.38E-01	1.58E+00	3,19E+01	4.54E-01	1.82E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3,01E+01	2.38E-01	1.58E+00	3,19E+01	4.54E-01	1.82E-02	3.58E+00
PEN-RE	MJ	4,17E+02	1.50E+01	1.85E+01	4,50E+02	2.79E+00	1.97E+00	-6.23E+01
RE	MJ	1,24E+01	1.42E+00	2.35E-01	1,40E+01	1.74E-01	1.96E-01	-3.84E-01
PENRT	MJ	4,29E+02	1.64E+01	1.87E+01	4,64E+02	2.96E+00	2.17E+00	-6.27E+01
SM	kg	4,21E+00	1.64E-02	8.93E-02	4,32E+00	8.35E+00	9.58E-04	6.36E+00
RSF	MJ	1,76E-01	4.00E-03	5.06E-02	2,30E-01	5.95E-03	1.87E-04	1.79E-01
NRSF	MJ	8,43E-01	8.29E-03	1.74E-01	1,03E+00	6.83E-03	4.78E-04	1.60E-01
FW	m³	1,26E-01	2.19E-03	4.35E-02	1,72E-01	1.38E-03	2.24E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 180 mm, core density 80 kg/m³)								
Hazardous waste disposed	kg	1,05E+00	1.54E-02	5.00E-02	1,12E+00	1.27E-02	1.49E-03	1.20E+00
Non-hazardous waste disposed	kg	2,73E+00	1.41E+00	5.74E-02	4,19E+00	7.60E-02	1.42E+01	-9.38E-02
Radioactive waste disposed	kg	3,22E-04	4.95E-06	1.18E-05	3,39E-04	5.93E-06	3.22E-07	1.68E-04
Components for re-use	kg	-1,24E-20	-7.02E-22	1.20E-21	-1,19E-20	8.22E-23	1.70E-22	-1.53E-20
Materials for recycling	kg	2,55E+00	1.41E-02	8.66E-02	2,65E+00	1.24E-02	7.86E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.22 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST EKO, PWS2-MW-PL EKO with thickness of 200 mm – core density 80 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 200 mm, core density 80 kg/m³)								
GWP-total	eq. kg CO2	4,01E+01	1.11E+00	1.48E+00	4,27E+01	2.13E-01	9.63E-02	-7.63E+00
GWP-fossil	eq. kg CO2	4,01E+01	1.11E+00	1.48E+00	4,27E+01	2.16E-01	9.62E-02	-7.71E+00
GWP-biogenic	eq. kg CO2	-3,85E-02	8.21E-04	7.63E-03	-3,00E-02	-3.82E-03	5.11E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,58E-02	5.23E-04	4.53E-04	2,68E-02	3.17E-04	5.81E-05	1.19E-03
ODP	eq. kg CFC 11	7,55E-07	2.43E-08	1.53E-08	7,95E-07	3.43E-09	2.79E-09	-2.01E-07
AP	mol H+	2,73E-01	3.74E-03	1.07E-02	2,88E-01	2.42E-03	7.25E-04	-2.49E-02
EP-freshwater	eq. kg P	1,57E-02	7.91E-05	1.74E-03	1,75E-02	1.27E-04	8.01E-06	-3.67E-03
EP-marine	eq. kg N	3,98E-02	1.29E-03	1.52E-03	4,26E-02	5.65E-04	2.78E-04	-6.45E-03
EP-terrestrial	eq. mol N	5,26E-01	1.37E-02	1.34E-02	5,53E-01	6.30E-03	2.98E-03	-6.96E-02
POCP	eq. kg NMVOC	1,96E-01	5.82E-03	4.06E-03	2,05E-01	1.89E-03	1.04E-03	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,54E-04	3.07E-06	5.92E-06	2,63E-04	1.33E-05	1.36E-07	1.07E-05
ADP-fossil	MJ	4,54E+02	1.64E+01	1.52E-03	4,70E+02	2.96E+00	2.41E+00	-6.27E+01
WDP	eq. m3	1,44E+01	8.41E-02	1.34E-02	1,45E+01	4.90E-02	7.51E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 200 mm, core density 80 kg/m³)								
PM	Disease incidence	2,78E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.59E-08	-4.24E-07
IRP	eg. kBq U235	1,37E+00	2.05E-02	4.79E-02	1,44E+00	2.33E-02	1.52E-03	6.51E-01
ETP-fw	CTUe	1,71E+02	7.82E+00	4.83E+00	1,83E+02	2.30E+00	1.13E+00	3.26E+00
HTP-c	CTUh	2,23E-07	4.83E-10	6.32E-10	2,24E-07	3.31E-10	4.11E-11	1.14E-07
HTP-nc	CTUh	5,98E-07	1.18E-08	2.85E-08	6,39E-07	1.49E-08	5.18E-10	2.49E-08
SQP	dimensionless	1,61E+02	1.65E+01	3.64E+00	1,82E+02	5.20E+00	4.76E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 200 mm, core density 80 kg/m³)								
PERE	MJ	3,14E+01	2.38E-01	1.58E+00	3,32E+01	4.54E-01	2.03E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3,14E+01	2.38E-01	1.58E+00	3,32E+01	4.54E-01	2.03E-02	3.58E+00
PEN-RE	MJ	4,41E+02	1.50E+01	1.85E+01	4,74E+02	2.79E+00	2.20E+00	-6.23E+01
RE	MJ	1,32E+01	1.42E+00	2.35E-01	1,48E+01	1.74E-01	2.18E-01	-3.84E-01
PENRT	MJ	4,54E+02	1.64E+01	1.87E+01	4,89E+02	2.96E+00	2.41E+00	-6.27E+01
SM	kg	4,27E+00	1.64E-02	8.93E-02	4,38E+00	8.35E+00	1.07E-03	6.36E+00
RSF	MJ	1,84E-01	4.00E-03	5.06E-02	2,38E-01	5.95E-03	2.08E-04	1.79E-01
NRSF	MJ	8,67E-01	8.29E-03	1.74E-01	1,05E+00	6.83E-03	5.32E-04	1.60E-01
FW	m³	1,39E-01	2.19E-03	4.35E-02	1,85E-01	1.38E-03	2.50E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 200 mm, core density 80 kg/m³)								
Hazardous waste disposed	kg	1,10E+00	1.54E-02	5.00E-02	1,17E+00	1.27E-02	1.66E-03	1.20E+00
Non-hazardous waste disposed	kg	2,82E+00	1.41E+00	5.74E-02	4,29E+00	7.60E-02	1.58E+01	-9.38E-02
Radioactive waste disposed	kg	3,39E-04	4.95E-06	1.18E-05	3,55E-04	5.93E-06	3.58E-07	1.68E-04
Components for re-use	kg	-1,56E-20	-7.02E-22	1.20E-21	-1,51E-20	8.22E-23	1.89E-22	-1.53E-20
Materials for recycling	kg	2,57E+00	1.41E-02	8.66E-02	2,67E+00	1.24E-02	8.75E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.23 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST EKO, PWS2-MW-PL EKO with thickness of 220 mm – core density 80 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 220 mm, core density 80 kg/m³)								
GWP-total	eq. kg CO2	4,22E+01	1.11E+00	1.48E+00	4,48E+01	2.13E-01	1.06E-01	-7.63E+00
GWP-fossil	eq. kg CO2	4,22E+01	1.11E+00	1.48E+00	4,48E+01	2.16E-01	1.06E-01	-7.71E+00
GWP-biogenic	eq. kg CO2	-4,63E-02	8.21E-04	7.63E-03	-3,78E-02	-3.82E-03	5.63E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,71E-02	5.23E-04	4.53E-04	2,80E-02	3.17E-04	6.39E-05	1.19E-03
ODP	eq. kg CFC 11	7,98E-07	2.43E-08	1.53E-08	8,38E-07	3.43E-09	3.07E-09	-2.01E-07
AP	mol H+	2,92E-01	3.74E-03	1.07E-02	3,07E-01	2.42E-03	7.98E-04	-2.49E-02
EP-freshwater	eq. kg P	1,63E-02	7.91E-05	1.74E-03	1,82E-02	1.27E-04	8.82E-06	-3.67E-03
EP-marine	eq. kg N	4,18E-02	1.29E-03	1.52E-03	4,46E-02	5.65E-04	3.06E-04	-6.45E-03
EP-terrestrial	eq. mol N	5,59E-01	1.37E-02	1.34E-02	5,86E-01	6.30E-03	3.28E-03	-6.96E-02
POCP	eq. kg NMVOC	2,06E-01	5.82E-03	4.06E-03	2,16E-01	1.89E-03	1.14E-03	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,67E-04	3.07E-06	5.92E-06	2,76E-04	1.33E-05	1.50E-07	1.07E-05
ADP-fossil	MJ	4,79E+02	1.64E+01	1.52E-03	4,95E+02	2.96E+00	2.66E+00	-6.27E+01
WDP	eq. m3	1,50E+01	8.41E-02	1.34E-02	1,51E+01	4.90E-02	8.26E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 220 mm, core density 80 kg/m³)								
PM	Disease incidence	2,90E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.75E-08	-4.24E-07
IRP	eg. kBq U235	1,43E+00	2.05E-02	4.79E-02	1,50E+00	2.33E-02	1.67E-03	6.51E-01
ETP-fw	CTUe	1,77E+02	7.82E+00	4.83E+00	1,90E+02	2.30E+00	1.24E+00	3.26E+00
HTP-c	CTUh	2,31E-07	4.83E-10	6.32E-10	2,32E-07	3.31E-10	4.52E-11	1.14E-07
HTP-nc	CTUh	6,18E-07	1.18E-08	2.85E-08	6,58E-07	1.49E-08	5.71E-10	2.49E-08
SQP	dimensionless	1,71E+02	1.65E+01	3.64E+00	1,92E+02	5.20E+00	5.24E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 220 mm, core density 80 kg/m³)								
PERE	MJ	3,27E+01	2.38E-01	1.58E+00	3,46E+01	4.54E-01	2.23E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3,27E+01	2.38E-01	1.58E+00	3,46E+01	4.54E-01	2.23E-02	3.58E+00
PEN-RE	MJ	4,65E+02	1.50E+01	1.85E+01	4,98E+02	2.79E+00	2.42E+00	-6.23E+01
RE	MJ	1,40E+01	1.42E+00	2.35E-01	1,57E+01	1.74E-01	2.40E-01	-3.84E-01
PENRT	MJ	4,79E+02	1.64E+01	1.87E+01	5,14E+02	2.96E+00	2.66E+00	-6.27E+01
SM	kg	4,33E+00	1.64E-02	8.93E-02	4,44E+00	8.35E+00	1.17E-03	6.36E+00
RSF	MJ	1,92E-01	4.00E-03	5.06E-02	2,46E-01	5.95E-03	2.28E-04	1.79E-01
NRSF	MJ	8,91E-01	8.29E-03	1.74E-01	1,07E+00	6.83E-03	5.86E-04	1.60E-01
FW	m³	1,51E-01	2.19E-03	4.35E-02	1,97E-01	1.38E-03	2.75E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 220 mm, core density 80 kg/m³)								
Hazardous waste disposed	kg	1,15E+00	1.54E-02	5.00E-02	1,21E+00	1.27E-02	1.83E-03	1.20E+00
Non-hazardous waste disposed	kg	2,92E+00	1.41E+00	5.74E-02	4,38E+00	7.60E-02	1.74E+01	-9.38E-02
Radioactive waste disposed	kg	3,55E-04	4.95E-06	1.18E-05	3,71E-04	5.93E-06	3.94E-07	1.68E-04
Components for re-use	kg	-1,89E-20	-7.02E-22	1.20E-21	-1,84E-20	8.22E-23	2.08E-22	-1.53E-20
Materials for recycling	kg	2,59E+00	1.41E-02	8.66E-02	2,69E+00	1.24E-02	9.63E-04	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Table 5.24 - Life cycle assessment (LCA) results of the sandwich panels with MW: PWS2–MW-ST EKO, PWS2-MW-PL EKO with thickness of 240 mm – core density 80 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 240 mm, core density 80 kg/m³)								
GWP-total	eq. kg CO2	4,43E+01	1.11E+00	1.48E+00	4,69E+01	2.13E-01	1.16E-01	-7.63E+00
GWP-fossil	eq. kg CO2	4,44E+01	1.11E+00	1.48E+00	4,69E+01	2.16E-01	1.16E-01	-7.71E+00
GWP-biogenic	eq. kg CO2	-5,41E-02	8.21E-04	7.63E-03	-4,56E-02	-3.82E-03	6.15E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,83E-02	5.23E-04	4.53E-04	2,93E-02	3.17E-04	6.98E-05	1.19E-03
ODP	eq. kg CFC 11	8,41E-07	2.43E-08	1.53E-08	8,80E-07	3.43E-09	3.35E-09	-2.01E-07
AP	mol H+	3,11E-01	3.74E-03	1.07E-02	3,26E-01	2.42E-03	8.71E-04	-2.49E-02
EP-freshwater	eq. kg P	1,70E-02	7.91E-05	1.74E-03	1,88E-02	1.27E-04	9.63E-06	-3.67E-03
EP-marine	eq. kg N	4,39E-02	1.29E-03	1.52E-03	4,67E-02	5.65E-04	3.34E-04	-6.45E-03
EP-terrestrial	eq. mol N	5,92E-01	1.37E-02	1.34E-02	6,19E-01	6.30E-03	3.58E-03	-6.96E-02
POCP	eq. kg NMVOC	2,16E-01	5.82E-03	4.06E-03	2,26E-01	1.89E-03	1.25E-03	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,80E-04	3.07E-06	5.92E-06	2,89E-04	1.33E-05	1.64E-07	1.07E-05
ADP-fossil	MJ	5,03E+02	1.64E+01	1.52E-03	5,20E+02	2.96E+00	2.90E+00	-6.27E+01
WDP	eq. m3	1,55E+01	8.41E-02	1.34E-02	1,56E+01	4.90E-02	9.02E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 240 mm, core density 80 kg/m³)								
PM	Disease incidence	3,02E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	1.91E-08	-4.24E-07
IRP	eg. kBq U235	1,50E+00	2.05E-02	4.79E-02	1,57E+00	2.33E-02	1.83E-03	6.51E-01
ETP-fw	CTUe	1,84E+02	7.82E+00	4.83E+00	1,97E+02	2.30E+00	1.35E+00	3.26E+00
HTP-c	CTUh	2,39E-07	4.83E-10	6.32E-10	2,40E-07	3.31E-10	4.94E-11	1.14E-07
HTP-nc	CTUh	6,37E-07	1.18E-08	2.85E-08	6,77E-07	1.49E-08	6.23E-10	2.49E-08
SQP	dimensionless	1,82E+02	1.65E+01	3.64E+00	2,02E+02	5.20E+00	5.72E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 240 mm, core density 80 kg/m³)								
PERE	MJ	3,41E+01	2.38E-01	1.58E+00	3,59E+01	4.54E-01	2.44E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3,41E+01	2.38E-01	1.58E+00	3,59E+01	4.54E-01	2.44E-02	3.58E+00
PEN-RE	MJ	4,88E+02	1.50E+01	1.85E+01	5,22E+02	2.79E+00	2.64E+00	-6.23E+01
RE	MJ	1,48E+01	1.42E+00	2.35E-01	1,65E+01	1.74E-01	2.62E-01	-3.84E-01
PENRT	MJ	5,03E+02	1.64E+01	1.87E+01	5,38E+02	2.96E+00	2.90E+00	-6.27E+01
SM	kg	4,39E+00	1.64E-02	8.93E-02	4,50E+00	8.35E+00	1.28E-03	6.36E+00
RSF	MJ	2,00E-01	4.00E-03	5.06E-02	2,54E-01	5.95E-03	2.49E-04	1.79E-01
NRSF	MJ	9,15E-01	8.29E-03	1.74E-01	1,10E+00	6.83E-03	6.40E-04	1.60E-01
FW	m³	1,64E-01	2.19E-03	4.35E-02	2,10E-01	1.38E-03	3.00E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 240 mm, core density 80 kg/m³)								
Hazardous waste disposed	kg	1,19E+00	1.54E-02	5.00E-02	1,26E+00	1.27E-02	1.99E-03	1.20E+00
Non-hazardous waste disposed	kg	3,01E+00	1.41E+00	5.74E-02	4,48E+00	7.60E-02	1.90E+01	-9.38E-02
Radioactive waste disposed	kg	3,71E-04	4.95E-06	1.18E-05	3,87E-04	5.93E-06	4.29E-07	1.68E-04
Components for re-use	kg	-2,21E-20	-7.02E-22	1.20E-21	-2,16E-20	8.22E-23	2.27E-22	-1.53E-20
Materials for recycling	kg	2,61E+00	1.41E-02	8.66E-02	2,71E+00	1.24E-02	1.05E-03	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

Tabela 5.25 - Life cycle assessment (LCA) results of MW sandwich panels: PWS2–MW-ST EKO, PWS2-MW-PL EKO with thickness of 260 mm – core density 80 kg/m³ (DU: 1 m²)

PARAMETER	UNIT	A1	A2	A3	A1-A3	C3	C4	D
ENVIRONMENTAL IMPACTS: 1m² of sandwich panels with MW (thickness 260 mm, core density 80 kg/m³)								
GWP-total	eq. kg CO2	4,64E+01	1.11E+00	1.48E+00	4,90E+01	2.13E-01	1.25E-01	-7.63E+00
GWP-fossil	eq. kg CO2	4,65E+01	1.11E+00	1.48E+00	4,91E+01	2.16E-01	1.25E-01	-7.71E+00
GWP-biogenic	eq. kg CO2	-6,19E-02	8.21E-04	7.63E-03	-5,34E-02	-3.82E-03	6.66E-05	7.33E-02
GWP-luluc	eq. kg CO2	2,96E-02	5.23E-04	4.53E-04	3,05E-02	3.17E-04	7.57E-05	1.19E-03
ODP	eq. kg CFC 11	8,83E-07	2.43E-08	1.53E-08	9,23E-07	3.43E-09	3.63E-09	-2.01E-07
AP	mol H+	3,30E-01	3.74E-03	1.07E-02	3,44E-01	2.42E-03	9.45E-04	-2.49E-02
EP-freshwater	eq. kg P	1,77E-02	7.91E-05	1.74E-03	1,95E-02	1.27E-04	1.04E-05	-3.67E-03
EP-marine	eq. kg N	4,59E-02	1.29E-03	1.52E-03	4,87E-02	5.65E-04	3.63E-04	-6.45E-03
EP-terrestrial	eq. mol N	6,24E-01	1.37E-02	1.34E-02	6,52E-01	6.30E-03	3.89E-03	-6.96E-02
POCP	eq. kg NMVOC	2,27E-01	5.82E-03	4.06E-03	2,37E-01	1.89E-03	1.35E-03	-4.52E-02
ADP-minerals &metals	eq. kg Sb	2,93E-04	3.07E-06	5.92E-06	3,02E-04	1.33E-05	1.78E-07	1.07E-05
ADP-fossil	MJ	5,28E+02	1.64E+01	1.52E-03	5,44E+02	2.96E+00	3.15E+00	-6.27E+01
WDP	eq. m3	1,61E+01	8.41E-02	1.34E-02	1,62E+01	4.90E-02	9.78E-03	-1.24E+00
ADDITIONAL IMPACTS INDICATORS: 1m² of sandwich panels with MW (thickness 260 mm, core density 80 kg/m³)								
PM	Disease incidence	3,14E-06	1.12E-07	4.06E-03	4,07E-03	3.34E-08	2.07E-08	-4.24E-07
IRP	eg. kBq U235	1,57E+00	2.05E-02	4.79E-02	1,63E+00	2.33E-02	1.98E-03	6.51E-01
ETP-fw	CTUe	1,91E+02	7.82E+00	4.83E+00	2,03E+02	2.30E+00	1.47E+00	3.26E+00
HTP-c	CTUh	2,47E-07	4.83E-10	6.32E-10	2,48E-07	3.31E-10	5.35E-11	1.14E-07
HTP-nc	CTUh	6,57E-07	1.18E-08	2.85E-08	6,97E-07	1.49E-08	6.75E-10	2.49E-08
SQP	dimensionless	1,92E+02	1.65E+01	3.64E+00	2,12E+02	5.20E+00	6.20E+00	-8.11E+00
ENVIRONMENTAL ASPECTS RELATED TO RESOURCE USE: 1m² of sandwich panels with MW (thickness 260 mm, core density 80 kg/m³)								
PERE	MJ	3,54E+01	2.38E-01	1.58E+00	3,72E+01	4.54E-01	2.64E-02	3.58E+00
PERM	MJ	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3,54E+01	2.38E-01	1.58E+00	3,72E+01	4.54E-01	2.64E-02	3.58E+00
PEN-RE	MJ	5,12E+02	1.50E+01	1.85E+01	5,46E+02	2.79E+00	2.86E+00	-6.23E+01
RE	MJ	1,57E+01	1.42E+00	2.35E-01	1,73E+01	1.74E-01	2.84E-01	-3.84E-01
PENRT	MJ	5,28E+02	1.64E+01	1.87E+01	5,63E+02	2.96E+00	3.15E+00	-6.27E+01
SM	kg	4,45E+00	1.64E-02	8.93E-02	4,56E+00	8.35E+00	1.39E-03	6.36E+00
RSF	MJ	2,07E-01	4.00E-03	5.06E-02	2,62E-01	5.95E-03	2.70E-04	1.79E-01
NRSF	MJ	9,39E-01	8.29E-03	1.74E-01	1,12E+00	6.83E-03	6.94E-04	1.60E-01
FW	m³	1,77E-01	2.19E-03	4.35E-02	2,22E-01	1.38E-03	3.25E-03	8.74E-05
ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES: 1m² of sandwich panels with MW (thickness 260 mm, core density 80 kg/m³)								
Hazardous waste disposed	kg	1,24E+00	1.54E-02	5.00E-02	1,31E+00	1.27E-02	2.16E-03	1.20E+00
Non-hazardous waste disposed	kg	3,11E+00	1.41E+00	5.74E-02	4,57E+00	7.60E-02	2.06E+01	-9.38E-02
Radioactive waste disposed	kg	3,87E-04	4.95E-06	1.18E-05	4,03E-04	5.93E-06	4.65E-07	1.68E-04
Components for re-use	kg	-2,54E-20	-7.02E-22	1.20E-21	-2,49E-20	8.22E-23	2.46E-22	-1.53E-20
Materials for recycling	kg	2,63E+00	1.41E-02	8.66E-02	2,73E+00	1.24E-02	1.14E-03	-1.65E+00
Materials for energy recover	kg	0,00E+00	0.00E+00	0.00E+00	0,00E+00	0.00E+00	0.00E+00	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

6. REFERENCES

- EN 15804:2012+A1:2014 Sustainability of construction works. Environmental product declarations.
- Core rules for the product category of construction products.
- ISO 14040:2006: Environmental Management-Life Cycle Assessment-Principles and framework.
- ISO 14044:2006: Environmental Management-Life Cycle Assessment-Requirements an guidelines.
- ISO 14025:2006: Environmental labels and declarations-Type III Environmental Declarations Principles and procedures.
- EN 15804:2012+A1:2014 Sustainability of construction works. Environmental product declarations.
- Core rules for the product category of construction products.
- PN-EN 15942:2012 Sustainability of construction works – Environmental product declaration – Communication format business-to-business
- ISO 20915:2018 Life cycle inventory calculation methodology for steel products
- EN 10346:2009: Continuously hot-dip coated steel flat products. Technical delivery conditions
- EN 13162:2012: Thermal insulation products for buildings. Factory made mineral wool (MW) products. Specification

„CERTBUD" Sp. z o.o.
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CERTYFIKATE No 2023-0010
of TYPE III ENVIRONMENTAL DECLARATION

Product:

Sandwich panels with mineral wool core:

- PWS2 - MW – ST
- PWS2 - MW – PL
- PWD2 – MW
- PWS2 - MWA - ST
- PWS2 - MW - ST EKO
- PWS2 - MW - PL EKO

Manufacturer:
PRUSZYŃSKI Sp. z o.o.
Sokołów, ul. Sokołowska 32B
05-806 Komorów

confirms the correctness of the data included in the development of the Type III Environmental Declaration and 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

This certificate, issued for the first time on 01/09/2023 and is valid for 5 years or until amendment of mentioned Environmental Declaration.

CERTBUD Sp. z o.o. ZAKŁAD CERTYFIKACJI CERTBUD

Director of the Certification Department
CERTBUD Sp. z o.o.

Kamil PAWŁOWSKI

Warsaw, 01/09/2023 r.