



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

UNihouse



EPD HUB, HUB-7438

Published on 04.09.2026, last updated on 04.09.2026, valid until 03.03.2028

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.



GENERAL INFORMATION

MANUFACTURER

Manufacturer	British Offsite
Address	Horizon, 1 Rontgen Place, Horizon Boulevard, Braintree, Essex, CM77 7AX, UK
Contact details	info@britishoffsite.com
Website	https://britishoffsite.com/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Design phase EPD
Parent EPD number	Not applicable
Scope of the EPD	Cradle to gate with options, A4-B7, and modules C1-C4, D
EPD author	Sam McGarrick (Blue Marble Environmental Partnerships Ltd.)
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ External verification
EPD verifier	Elena Antuña-Bernardo as an authorized verifier for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	UNihouse
Additional labels	-
Product reference	-
Place(s) of raw material origin	UK, EU
Place of production	Essex, UK
Place(s) of installation and use	UK
Period for data	01 January 2026 - 31 January 2026
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	Not applicable
A1-A3 Specific data (%)	97.9

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m ²
Declared unit mass	34.203 kg
Mass of packaging	0.774 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	51.3
GWP-total, A1-A3 (kgCO ₂ e)	37.9
Secondary material, inputs (%)	10.8
Total energy use, A1-A3 (kWh)	229
Net freshwater use, A1-A3 (m ³)	0.16



UNihouse on-site as installed, internal image

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

British Offsite is a wholly owned subsidiary of The Weston Group, a builder of homes for over 35 years. With Group backing, we've created the next generation in light gauge steel frame construction and delivered one of the largest automated assembly lines in Europe.

The Group's confidence in UNisystem and invaluable insights from Weston Homes' design, technical and on site teams, enabled three years of product development before the launch of our Horizon factory in 2023. We continue to use products the construction industry is 100% familiar with but pre-manufacture more onto our panels, offsite. Enabling faster delivery of essential buildings and homes.

PRODUCT DESCRIPTION

British Offsite is the creator of **UNihouse**, an open panel, light gauge steel framing system that's bringing speed, flexibility, reliability and cost-competitiveness to the house building market, through the pre-manufacture of panels at our advanced production facility.

Adaptable to any design vision, UNihouse has been developed specifically for rapid deployment in the low-rise housebuilding market. It utilises standard building materials to create a solution that has all the benefits of steel frame construction with none of the issues of timber frame or traditional brick/block building.

UNihouse is manufactured at our Horizon factory in the heart of Essex, founded with investment from the Weston Group PLC. Using Randek's state-of-the-art Kuka robots we have substantially increased our production capacity from 700 homes to 6,000 homes per year. At 80% capacity, that's equal to 110000Lm of UNihouse coming off our line each year.

Further information can be found at: <https://britishoffsite.com/>

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	33%	EU
Minerals	46%	UK
Fossil materials	2%	EU and Asia
Bio-based materials	19%	Turkey

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate. Biogenic content of wood-based components and packaging based on EN 16449 methodology.

Biogenic carbon content in product, kg C	2.9718
Biogenic carbon content in packaging, kg C	0.2411

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m ²
Mass per declared unit	34.203 kg
Functional unit	1 square metre of prefabricated panel system providing structural external wall support for a minimum of 60 years
Reference service life	60 years

SUBSTANCES, REACH - VERY HIGH CONCERN

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



Production line at Horizon Factory

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

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

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Not declared = ND.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilized in the factory.

The product is comprised of an assembly of components including galvanised steel, oriented strand board (OSB), glass mineral wool insulation, gypsum board, nonwoven HDPE underlay, flexible air-tight and fire-resistant membrane, nails and screws. (A1)

Components are sourced from suppliers in the UK, EU and in Asia; and transported to the British Offsite factory in Essex, UK.(A2)

The product is assembled using a largely automated production line. The production line uses a combination of medium voltage electricity drawn from the UK grid (residual mix) and on-site PV to generate energy required for product assembly. Allocation has been performed on manufacturing energy requirements on the basis that UNihouse represents 16.55% of factory output during the reference period on a metre square basis.

An allowance for 10% wastage in steel profiles and plasterboard has been modelled. Manufacturing waste is collected by specialist firms and recycled; the distance to waste treatment is assumed to be 85km.

The product is packaged using plastic wrap over the structure, secured with timber battens on the top and sides. (A3)

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The product is loaded onto a lorry (16-32 tonnes, EURO 6 efficiency rating) and transported as a complete panel direct to site. The average distance travelled during the reference period is 47 km.

It is assumed that in all cases the product requires use of a diesel-powered crane for installation. The power consumption of the crane is assumed to be 30 kW and the amount of time taken in lifting an entire panel (with an average weight of 630kg) into place is assumed to be 20 minutes ~ 10kWh per average panel (21 m²). The datapoint used to represent diesel consumption in the crane is Diesel, burned in building machine, Ecoinvent v3.12.

Packaging waste is assumed to leave the system boundary at the point of installation the quantities of waste and end-of-life scenarios for packaging are described in the scenario documentation section of this EPD.

PRODUCT USE AND MAINTENANCE (B1-B7)

During its reference service life the product does not require any maintenance. No repair, replacement or refurbishment is anticipated. The product does not require any operational energy or water during its use stage. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The end of life of the product is at the point the building is demolished. Energy consumed in demolition activities has been modelled in module C1. (C1).

Transport to waste treatment / disposal is assumed to be 85km via 16-32 tonne lorry. (C2).

Depending on the specific component, collection processes are likely to differ. Scrap steel and OSB is assumed to be collected separately, whereas the

flexible membrane, plasterboard and insulation is assumed to be collected with mixed construction waste.

The allocation between material collected separately and as mixed waste has been done on the basis of the scenarios advised in the EPDs of the respective components. The actual end-of-life scenarios for the components is similarly based on the scenarios stated in the EPDs of the respective components (C3/C4).

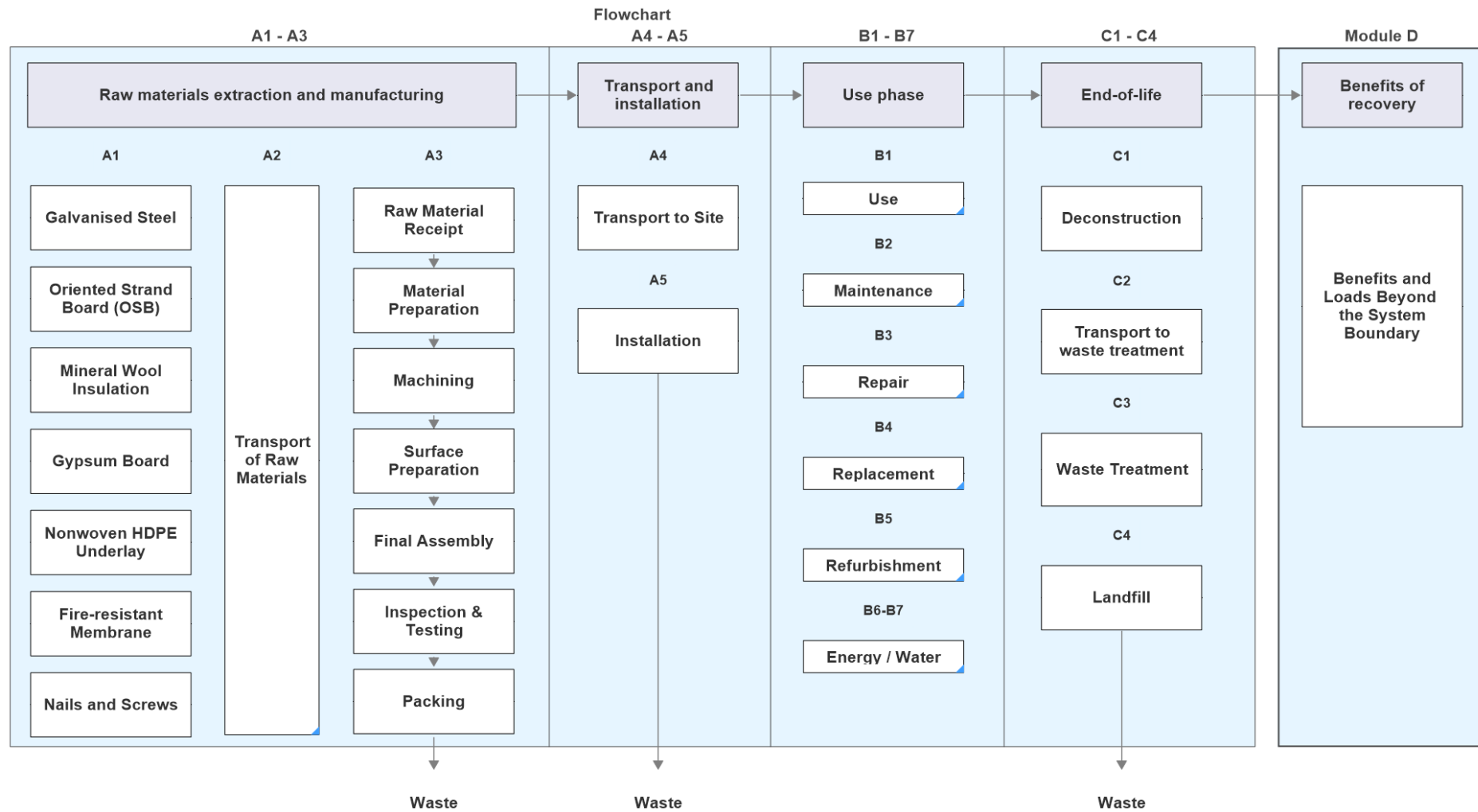
Module D accounts for the benefits and loads beyond the system boundary. The benefits from the provision of recyclates (scrap steel, wood chippings) to subsequent lifecycles are expressed as a negative figure, after first deducting the loads of the recycling process and any recycled content in the material (so as to avoid double counting). Module D also includes the avoided impact in heat and electricity from district heating. The benefits of exported energy from energy recovery in a treatment facility is calculated with substitution of UK electricity market mix and European district heating mix. (D)

<i>Component</i>	<i>%-Collected Separately</i>	<i>%-Mixed Waste</i>	<i>%-Landfill</i>	<i>%-Recycling</i>	<i>%-Energy Recovery</i>	<i>%-Reuse</i>
HDPE Underlay	100%	0%	0%	0%	100%	0%
OSB	100%	0%	0%	100%	0%	0%
Galvanised Steel	100%	0%	2%	98%	0%	0%

Glass Mineral Wool Underlay	0%	100%	100%	0%	0%	0%
Membrane	0%	100%	60%	0%	40%	0%
Gypsum Board	0%	100%	100%	0%	0%	0%
Nails	100%	0%	3%	97%	0%	0%
Screws	100%	0%	3%	97%	0%	0%

End-of-Life Scenarios for Components in Modules C3/C4 as per material EPD

SYSTEM BOUNDARY DIAGRAM



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	No allocation
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	Not applicable

This EPD is product and factory specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.5. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

No additional references have been used.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	3.03E+01	3.95E+00	3.73E+00	3.79E+01	1.66E-01	1.29E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-01	5.44E-01	1.26E+01	4.05E-01	-3.04E+01
GWP – fossil	kg CO ₂ e	4.28E+01	3.95E+00	4.53E+00	5.13E+01	1.66E-01	4.93E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-01	5.43E-01	1.33E+00	4.04E-01	-1.86E+01
GWP – biogenic	kg CO ₂ e	-1.26E+01	8.36E-04	-8.01E-01	-1.34E+01	8.93E-05	7.94E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-05	2.73E-04	1.12E+01	6.26E-04	-1.18E+01
GWP – LULUC	kg CO ₂ e	3.39E-02	1.44E-03	2.04E-03	3.74E-02	6.05E-05	5.72E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-05	1.78E-04	4.59E-04	5.46E-04	-1.14E-02
Ozone depletion pot.	kg CFC ₋₁₁ e	9.83E-07	9.30E-08	1.53E-07	1.23E-06	3.92E-09	3.22E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E-09	1.23E-08	4.28E-09	7.86E-09	-7.75E-08
Acidification potential	mol H ⁺ e	1.60E-01	9.32E-03	1.22E-02	1.82E-01	3.92E-04	1.72E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.13E-03	3.55E-03	1.24E-01	-8.28E-02
EP-freshwater ²⁾	kg Pe	1.23E-03	2.91E-04	1.44E-03	2.97E-03	1.23E-05	1.29E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.97E-06	3.83E-05	2.16E-04	3.94E-05	-1.21E-02
EP-marine	kg Ne	3.32E-02	2.59E-03	3.25E-03	3.91E-02	1.09E-04	8.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.18E-04	2.88E-04	8.23E-04	1.07E-03	-1.87E-02
EP-terrestrial	mol Ne	4.72E-01	2.79E-02	3.21E-02	5.33E-01	1.17E-03	8.59E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.67E-03	3.10E-03	9.11E-03	9.53E-03	-2.02E-01
POCP (“smog”) ³⁾	kg NMVOCe	1.22E-01	1.65E-02	1.23E-02	1.51E-01	6.93E-04	2.60E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-03	1.90E-03	2.65E-03	1.06E-02	-6.45E-02
ADP-minerals & metals ⁴⁾	kg Sbe	4.64E-04	1.19E-05	1.52E-05	4.91E-04	5.00E-07	2.04E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.51E-08	1.92E-06	1.79E-05	9.36E-07	-1.14E-03
ADP-fossil resources	MJ	4.63E+02	5.96E+01	9.59E+01	6.18E+02	2.51E+00	2.69E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E+00	7.68E+00	4.65E+00	6.29E+00	-1.81E+02
Water use ⁵⁾	m ³ e depr.	6.08E+00	3.43E-01	1.12E+00	7.55E+00	1.45E-02	2.18E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.03E-03	4.05E-02	1.09E-01	1.71E-01	-6.18E+00

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	9.49E-07	3.90E-07	1.09E-07	1.45E-06	1.65E-08	4.70E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.16E-08	4.07E-08	4.71E-08	2.36E-07	-1.72E-06
Ionizing radiation ⁶⁾	kBq 11235a	3.73E-01	6.41E-02	1.85E+00	2.29E+00	2.70E-03	2.17E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.71E-04	8.88E-03	3.86E-02	7.60E-03	1.90E-01
Ecotoxicity (freshwater)	CTUe	1.12E+02	8.03E+00	7.98E+00	1.28E+02	3.38E-01	4.54E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-01	1.15E+00	2.47E+00	7.80E+00	-4.03E+02
Human toxicity, cancer	CTUh	1.31E-08	6.31E-10	6.09E-10	1.43E-08	2.66E-11	4.22E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-11	8.72E-11	2.73E-10	2.04E-10	-2.79E-08
Human tox. non-cancer	CTUh	7.63E-08	3.69E-08	2.52E-08	1.38E-07	1.55E-09	1.42E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-10	4.70E-09	1.72E-08	1.38E-08	-3.26E-07
SQP ⁷⁾	-	1.04E+03	5.99E+01	9.34E+01	1.19E+03	2.54E+00	5.88E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-01	4.63E+00	6.87E+00	7.92E+00	-7.27E+01

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	2.36E+02	9.26E-01	1.54E+01	2.52E+02	3.90E-02	-7.86E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-02	1.28E-01	7.90E-01	1.08E-01	4.79E+01
Renew. PER as material	MJ	7.43E+01	0.00E+00	6.10E+00	8.04E+01	0.00E+00	-6.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.28E+01	-1.51E+00	8.74E+01
Total use of renew. PER	MJ	3.10E+02	9.26E-01	2.15E+01	3.33E+02	3.90E-02	-1.40E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-02	1.28E-01	-7.20E+01	-1.40E+00	1.35E+02
Non-re. PER as energy	MJ	4.28E+02	5.96E+01	8.58E+01	5.73E+02	2.51E+00	-6.95E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E+00	7.68E+00	-7.80E+00	-3.93E+00	-1.81E+02
Non-re. PER as material	MJ	6.22E+01	0.00E+00	1.01E+01	7.23E+01	0.00E+00	-1.01E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.89E+01	-3.32E+01	1.37E+01
Total use of non-re. PER	MJ	4.90E+02	5.96E+01	9.59E+01	6.45E+02	2.51E+00	-1.71E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E+00	7.68E+00	-3.67E+01	-3.72E+01	-1.68E+02
Secondary materials	kg	3.71E+00	2.53E-02	1.37E-02	3.75E+00	1.06E-03	1.51E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.66E-04	3.50E-03	4.73E-03	2.20E-03	9.62E+00
Renew. secondary fuels	MJ	7.93E-05	3.34E-04	8.63E-03	9.05E-03	1.41E-05	7.65E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-06	4.60E-05	1.91E-04	3.11E-05	-1.52E-03
Non-ren. secondary fuels	MJ	1.97E-05	0.00E+00	0.00E+00	1.97E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	1.24E-01	7.86E-03	2.57E-02	1.57E-01	3.32E-04	-6.54E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.66E-05	9.21E-04	2.19E-03	-1.04E-02	-1.13E-01

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	6.33E-01	3.36E-01	6.32E-01	1.60E+00	1.42E-02	1.31E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.21E-03	4.76E-02	5.30E-01	4.24E-02	-3.34E+01
Non-hazardous waste	kg	1.28E+01	6.96E+00	1.57E+01	3.55E+01	2.94E-01	1.64E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-02	6.26E-01	1.50E+00	2.60E+01	-5.30E+01
Radioactive waste	kg	7.10E-03	1.55E-05	4.23E-04	7.54E-03	6.51E-07	5.30E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-07	2.15E-06	9.63E-06	1.85E-06	4.83E-05

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	4.37E-02	0.00E+00	2.37E+00	2.41E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E+01	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	6.77E-03	0.00E+00	0.00E+00	6.77E-03	0.00E+00	2.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.80E+00	0.00E+00	0.00E+00
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.57E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.71E+00	0.00E+00	0.00E+00
Exported energy – Heat	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.32E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.10E+00	0.00E+00	0.00E+00

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	4.28E+01	3.95E+00	4.53E+00	5.13E+01	1.66E-01	4.93E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-01	5.44E-01	1.33E+00	4.04E-01	-1.86E+01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO₂ is set to zero.

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy (A3) - Scenario documentation

Scenario parameter	Value
Electricity: On-site photovoltaic	Electricity production, photovoltaic, 3kWp slanted-roof installation, single-Si, panel, mounted, United Kingdom, Ecoinvent - 0.13 kgCO ₂ e/kWh
Electricity: residual mix	Electricity, medium voltage, residual mix, United Kingdom, Ecoinvent - 0.51 kgCO ₂ e/kWh

Transport to the building site (A4) - Scenario documentation

Scenario parameter	Value
Transport resources	Market for transport, freight, lorry, >32 metric ton, diesel, EURO 6
Distance	46.67 km
Capacity utilization (including empty return) %	0.5
Bulk density of transported products	0.126 m ³
Volume capacity utilization factor	1

Installation at the building site (A5) - Scenario documentation

Scenario parameter	Value
Energy: type and consumption (MJ or kWh)	It is assumed that in all cases the product requires use of a diesel-powered crane for installation. The power consumption of the crane is assumed to be 30 kW and the amount of time taken in lifting an entire panel (with an average weight of 630kg) into place is assumed to be 20 minutes ~ 10kWh per average panel (21 m ²). The datapoint used to represent diesel consumption in the crane is Diesel, burned in building machine, Ecoinvent v3.12
Water use (m ³)	Not applicable
Ancillary materials: type and mass (kg)	Not applicable
Waste materials: type and mass (kg)	Waste plastic packaging wrap - 0.2381kg Waste timber battens - 0.53571 kg
Waste materials: output routes	Plastic packaging wrap waste: 37% - Incinerated 23% - landfill 40% - recycled Timber battens packaging waste: 32% - Incinerated 38% - landfill 30% - recycled

	The source for the EoL scenarios for packaging is taken from (source: EUROSTAT, https://ec.europa.eu/eurostat/databrowser/view/env_waspac__custom_8519174/default/table?lang=en)
Direct emissions (kg)	Not applicable

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	18.097
Collection process: Mixed waste (kg)	16.106
Recovery: re-use (kg)	0
Recovery: recycling (kg)	17.723
Recovery: energy recovery (kg)	0.319
Disposal (kg)	16.161
Scenario assumptions e.g. transportation (mode, km) & other	Transportation of the components to waste treatment or disposal (landfill) has been assumed to be 85km via 16-32 tonne lorry.

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez

Tool verification validity: 27 March 2025 - 26 March 2028

Elena Antuña-Bernardo as an authorized verifier for EPD Hub Limited
04.09.2026

