ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Freshfield Lane™ Clamp-fired Stock Clay Facing Bricks
Michelmersh Brick Holdings PLC

EPD HUB, HUB-6020

Published on 16.04.2026, last updated on 16.04.2026, valid until 16.04.2031

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.

MICHELMERSH
Brick Holdings PLC

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Michelmersh Brick Holdings PLC
Address	Freshfield Lane, Danehill, Haywards Heath, West Sussex, RH17 7HH, UK
Contact details	technical@mbhplc.co.uk
Website	https://www.mbhplc.co.uk/

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	Third party verified EPD
Parent EPD number	n/a
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	Yazan Badour 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	Freshfield Lane™ Frogged Clay Facing Brick
Additional labels	-
Product reference	-
Place(s) of raw material origin	Predominantly UK with minor raw materials sourced from Norway, Poland and Colombia
Place of production	Sussex, UK
Place(s) of installation and use	UK
Period for data	Calendar year 2024
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	+2.0% / -0.3%
A1-A3 Specific data (%)	98.9

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 Tonne
Declared unit mass	1000 kg
Mass of packaging	1.05 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	317
GWP-total, A1-A3 ($kgCO_2e$)	311
Secondary material, inputs (%)	0
Secondary material, outputs (%)	92.6
Total energy use, A1-A3 (kWh)	209
Net freshwater use, A1-A3 (m^3)	0.69

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Michelmersh is the UK's premium producer of clay bricks, pavers, special shaped bricks and prefabricated brick components or systems. Leaders in sustainability and innovation, renowned for quality clay products and a bespoke service.

PRODUCT DESCRIPTION

Freshfield Lane produces a varied selection of clamp-fired stock facing bricks in a range of appealing colours, either with a machine-made or handmade variety of rich textural finishes. Combining the latest technology with traditional manufacturing techniques, Freshfield Lane produces a full range of special shaped bricks and clay pavers to complement your project.

Bricks produced are soft mud, clamp fired stock clay facing bricks. Examples of typical technical specifications include compressive strengths of >=27 N/mm2, reaction to fire of class A1 and thermal conductivity of approximately 0.5 W/m.K.

Further information can be found at:
https://www.mbhplc.co.uk/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	-	-
Minerals	89.2%	UK
Fossil materials	10.5%	Poland, Colombia
Bio-based materials	0.3%	Norway

BIOGENIC CARBON CONTENT

Product’s biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	1.34
Biogenic carbon content in packaging, kg C	0.45

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 Tonne
Mass per declared unit	1000 kg
Functional unit	One tonne of clay facing brick
Reference service life	150 years

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0.1% (1000 ppm).

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 Freshfield Lane brickworks has its own onsite quarry from which the clay is 'won' (sourced). To expose the clay, overburden and vegetation is removed during a process known as a 'campaign'. The removal of overburden exposes usable clay. The clay is extracted and stockpilled. The clay is then loaded for milling along with Grog Sand and Coke Breeze, using a Wheel Loader.

The clay is then milled and mixed, at this point water and ligosulfonates are added. The clay is formed into bricks using a mould and Facing Sand is applied. The facing sand aids removal of the 'green' brick from the mould. Once moulded the bricks are dried in an oven. The dried bricks are loaded onto kiln cars prior to entering the kiln for vitrifying which normally takes place at around 1000 degrees. After firing the bricks are cooled and stacked for packing and onward distribution to site.

Bricks are stacked on a wooden pallet and shrink-wrapped prior to shipping. Small amounts of 'green' brick waste are reground and incorporated back into the mix. Fired brick waste is taken offsite where it is recycled for use as an aggregate. The distance for waste treatment of fired brick waste is 50km via 16-32 tonne lorry.

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.

Transportation to site has been calculated at 131km based on a weighted average of transportation distances during the reference period. Transportation is via 16-32 tonne lorry which is fully laden.

Installation waste percentages are based on RICS v2 guidance and have been modelled at 6%. Installation waste is assumed to be fully recycled and distance to waste treatment assumed to be 50km via 16-32 tonne lorry.

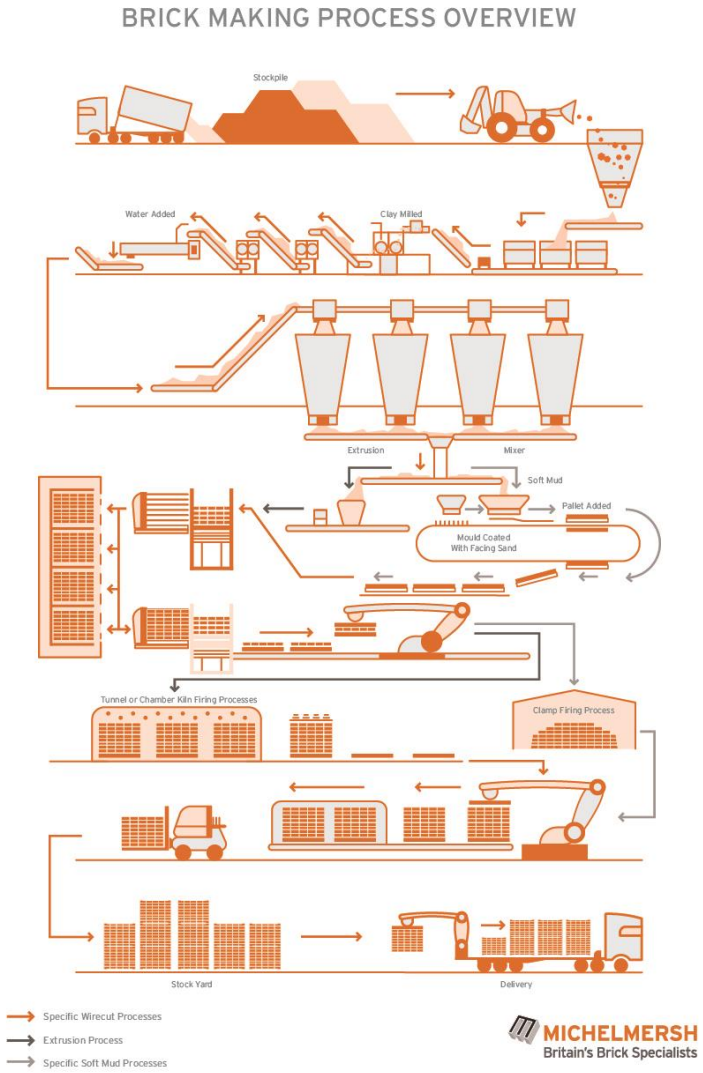
PRODUCT USE AND MAINTENANCE (B1-B7)

B1 - The bricks do not emit any emissions to air during their use.
B2- Once installed, the bricks require no maintenance during their service life.
B3 - It is assumed that the bricks require no repair during their service life.
B4 - No replacements are anticipated during the service period.
B5 - No refurbishment of the wall is anticipated during the service period.
B6 - The bricks do not require any operational energy during its life.
B7 - The bricks do not require any water during its life.
Therefore the impacts of modules B1-B7 are set to zero.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The end of life scenario modelled in this EPD is based on a 92.6% recycling rate, with the remaining 7.4% reaching landfill (UK Government Statistics). This scenario assumes that once the building containing the bricks is demolished, 1000kg (100%) the bricks are crushed further to be used as an aggregate. This crushing activity results in 926kg of usable aggregate, with 74kg of the crushed brick considered unusable and set to landfill. The crushing is assumed to take place at the demolition site at which point the bricks are considered to have passed the end-of-waste state. The proportion of unusable bricks (74k) sent to landfill are assumed to be transported locally (15km) via 16-32 tonne lorry.

MANUFACTURING PROCESS



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	Allocated by mass or volume
Packaging material	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on the average results of a product group
Variation in GWP-fossil for A1-A3, %	+2.0% / -0.3%

This EPD is based on a production weighted average from the reference year (2024) for all products manufactured at this site. The variation in GWP-fossil (in %) for A1-A3 represents a worst-case scenario based on a specific product with the highest GWP-fossil results. The worst-case scenario has been calculated by adjusting material (A1 raw material content) and energy (firing time / temperature variation) flows according to specific products produced at this site. Changes from the production weighted average to the

worst-case scenario are predominantly associated with an increase in the quantity of coal fines and lime powder utilized and their associated process emissions during firing.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.3. 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 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

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_2e	-7.85E-01	6.21E+00	3.05E+02	3.11E+02	2.57E+01	2.34E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E+00	2.11E-01	4.79E+00	8.27E-01	-1.72E+01
GWP – fossil	kg CO_2e	4.14E+00	6.21E+00	3.06E+02	3.17E+02	2.57E+01	2.16E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E+00	2.11E-01	2.29E-01	4.62E-01	-1.72E+01
GWP – biogenic	kg CO_2e	-4.93E+00	1.25E-03	-1.18E+00	-6.11E+00	5.15E-03	1.79E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-04	4.23E-05	4.57E+00	3.65E-01	0.00E+00
GWP – LULUC	kg CO_2e	7.27E-03	2.63E-03	1.75E-02	2.74E-02	9.21E-03	2.73E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E-04	7.56E-05	6.76E-04	2.64E-04	-1.32E-02
Ozone depletion pot.	kg CFC_{-11}e	1.68E-07	1.21E-07	9.73E-06	1.00E-05	5.11E-07	6.51E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-08	4.19E-09	3.82E-09	1.34E-08	-1.87E-07
Acidification potential	mol H^+e	3.44E-02	5.18E-02	6.65E+00	6.74E+00	5.34E-02	4.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-02	4.38E-04	1.15E-03	3.27E-03	-1.07E-01
EP-freshwater[2)]	kg Pe	6.90E-03	3.81E-04	2.44E-03	9.72E-03	1.73E-03	9.84E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.20E-05	1.42E-05	1.96E-04	3.80E-05	-3.78E-03
EP-marine	kg Ne	1.12E-02	1.31E-02	1.29E-01	1.54E-01	1.28E-02	1.22E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.55E-03	1.05E-04	2.02E-04	1.25E-03	-2.98E-02
EP-terrestrial	mol Ne	1.10E-01	1.44E-01	1.39E+00	1.65E+00	1.38E-01	1.31E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.26E-02	1.14E-03	1.78E-03	1.36E-02	-3.42E-01
POCP ("smog")[3)]	kg NMVOCe	3.12E-02	5.01E-02	8.22E-01	9.03E-01	8.88E-02	6.78E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.46E-02	7.29E-04	6.04E-04	4.88E-03	-1.04E-01
ADP-minerals & metals[4)]	kg Sbe	1.85E-05	1.52E-05	7.61E-05	1.10E-04	8.54E-05	1.48E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.46E-07	7.01E-07	5.52E-07	7.34E-07	-8.22E-05
ADP-fossil resources	MJ	1.69E+02	8.94E+01	2.91E+03	3.16E+03	3.61E+02	2.28E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E+01	2.96E+00	5.24E+00	1.13E+01	-2.23E+02
Water use[5)]	m^3e depr.	9.31E-01	4.19E-01	5.43E+00	6.78E+00	1.79E+00	6.31E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.89E-02	1.47E-02	1.34E-01	3.27E-02	-1.46E+01

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	4.26E-07	5.12E-07	4.15E-05	4.24E-05	1.89E-06	3.25E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.62E-07	1.55E-08	5.22E-09	7.45E-08	-1.60E-06
Ionizing radiation[6]	kBq U235e	2.32E-01	9.51E-02	8.76E+00	9.09E+00	4.66E-01	6.34E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-02	3.82E-03	1.42E-01	7.13E-03	-1.06E+00
Ecotoxicity (freshwater)	CTUe	1.69E+02	9.79E+00	5.21E+01	2.31E+02	4.80E+01	2.00E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E+00	3.94E-01	5.83E-01	9.51E-01	-4.45E+01
Human toxicity, cancer	CTUh	3.17E-09	1.10E-09	1.40E-08	1.82E-08	4.31E-09	1.58E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E-10	3.54E-11	8.39E-11	8.52E-11	-6.10E-09
Human tox. non-cancer	CTUh	3.79E-07	5.10E-08	2.63E-07	6.92E-07	2.28E-07	6.59E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-09	1.88E-09	3.92E-09	1.96E-09	-1.44E-07
SQP[7]	-	4.00E+02	7.44E+01	1.47E+02	6.21E+02	2.18E+02	6.57E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E+00	1.79E+00	9.02E-01	2.23E+01	-1.72E+02

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	2.35E+01	1.31E+00	6.70E+01	9.19E+01	6.32E+00	5.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-01	5.19E-02	1.19E+00	1.09E-01	-1.34E+01
Renew. PER as material	MJ	5.78E+01	0.00E+00	9.90E+00	6.77E+01	0.00E+00	-9.90E+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	-5.35E+01	-4.27E+00	0.00E+00
Total use of renew. PER	MJ	8.13E+01	1.31E+00	7.69E+01	1.60E+02	6.32E+00	-4.80E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-01	5.19E-02	-5.23E+01	-4.17E+00	-1.34E+01
Non-re. PER as energy	MJ	2.93E+01	8.94E+01	5.41E+02	6.60E+02	3.61E+02	7.54E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E+01	2.96E+00	5.24E+00	1.13E+01	-2.23E+02
Non-re. PER as material	MJ	1.40E+02	0.00E+00	2.06E+00	1.42E+02	0.00E+00	-2.06E+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	-1.29E+02	-1.03E+01	0.00E+00
Total use of non-re. PER	MJ	1.69E+02	8.94E+01	5.43E+02	8.01E+02	3.61E+02	7.33E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E+01	2.96E+00	-1.24E+02	1.00E+00	-2.23E+02
Secondary materials	kg	2.57E-02	3.94E-02	2.91E-01	3.56E-01	1.68E-01	3.80E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.79E-03	1.38E-03	3.23E-03	2.85E-03	-1.86E-01
Renew. secondary fuels	MJ	1.32E-04	4.13E-04	1.87E-03	2.42E-03	2.12E-03	3.42E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-05	1.74E-05	3.51E-06	5.90E-05	-1.40E-03
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	5.63E-01	1.19E-02	1.16E-01	6.91E-01	4.92E-02	1.78E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-03	4.04E-04	4.29E-03	1.18E-02	-3.51E-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	1.79E+00	1.27E-01	1.02E+00	2.94E+00	5.25E-01	2.35E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.62E-02	4.31E-03	1.42E-02	1.25E-02	-1.12E+00
Non-hazardous waste	kg	3.45E+01	2.40E+00	1.70E+01	5.39E+01	1.11E+01	4.22E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.58E-01	9.09E-02	9.68E-01	2.86E-01	-2.09E+01
Radioactive waste	kg	9.04E-05	2.35E-05	1.91E-03	2.02E-03	1.16E-04	1.44E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-06	9.50E-07	3.65E-05	1.74E-06	-2.58E-04

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	1.12E-04	0.00E+00	5.24E+01	5.24E+01	0.00E+00	6.32E+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	9.26E+02	0.00E+00	0.00E+00
Materials for energy rec	kg	2.00E-02	0.00E+00	0.00E+00	2.00E-02	0.00E+00	1.20E-03	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.49E-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	0.00E+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	1.87E-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	0.00E+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	2.62E-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	0.00E+00	0.00E+00	0.00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	3.26E+00	6.17E+00	3.06E+02	3.15E+02	2.55E+01	2.15E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E+00	2.09E-01	2.29E-01	4.58E-01	-1.71E+01
Ozone depletion Pot.	kg $CFC_{-11}e$	2.47E-08	9.59E-08	7.72E-06	7.84E-06	4.06E-07	5.10E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.19E-08	3.34E-09	3.14E-09	1.06E-08	-1.53E-07
Acidification	kg SO_2e	1.95E-02	4.13E-02	6.03E+00	6.09E+00	4.29E-02	3.73E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-02	3.52E-04	9.75E-04	2.42E-03	-8.23E-02
Eutrophication	kg PO_4^3e	6.01E-03	5.80E-03	5.29E-02	6.47E-02	1.08E-02	5.63E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-03	8.89E-05	1.35E-04	7.70E-04	-1.66E-02
POCP (“smog”)	kg C_2H_4e	1.50E-03	2.52E-03	2.52E-01	2.56E-01	4.54E-03	1.60E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.57E-04	3.73E-05	5.84E-05	2.29E-04	-6.96E-03
ADP-elements	kg Sbe	5.99E-06	1.48E-05	6.32E-05	8.40E-05	8.35E-05	1.31E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.28E-07	6.85E-07	5.47E-07	7.19E-07	-8.08E-05
ADP-fossil	MJ	1.55E+02	8.79E+01	2.79E+03	3.03E+03	3.53E+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	2.34E+01	2.90E+00	2.74E+00	1.12E+01	-2.06E+02

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_2e	4.14E+00	6.21E+00	3.07E+02	3.17E+02	2.57E+01	2.16E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E+00	2.11E-01	2.29E-01	4.62E-01	-1.72E+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 scenario documentation – A3

Scenario parameter	Value
Electricity data source and quality	Market for electricity, medium voltage
Electricity kg CO2e / kWh	0.25 kg CO2e / kWh
District heating data source and quality	Modeling of heating in the UK - Utilising European heating datapoint in ecoinvent (Heat, district or industrial, natural gas {Europe without Switzerland}| heat production, natural gas, at industrial furnace >100kW | Cut-off, U) this datapoint has been adjusted altering the natural gas and electricity datapoints within to be UK specific - This has been deemed as an important due the high significance relative to the product impacts arising from heating processes.
District heating kg CO2e / kWh	0.26 kg CO2e / kWh

Transport scenario documentation - A4 (Transport resources)

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	Transport, freight, lorry 16-32 metric ton, EURO6
Average transport distance, km	131
Capacity utilization (including empty return) %	50
Bulk density of transported products	1550 kg /m3
Volume capacity utilization factor	0.5

Installation scenario documentation - A5 (Installation waste)

Scenario information	Value
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	**Brick Waste** – 60kg Waste percentage rate based on RICS Whole Life Carbon Assessment for the Built Environment, 2nd Edition. 6% installation wastage rate. Assumed to be fully recycled. **Plastic Packaging Waste** – 0.05kg **Wood Pallet Waste** – 0.1kg
Output materials (specified by type) as result of waste processing at the building site e.g. collection for recycling, for energy recovery, disposal (specified by route) / kg	**Brick Waste** - Collection for recycling - 100% **Plastic Packaging Waste Materials** - Collection for recycling - 40% - Incineration with Energy Recovery - 37% - Disposal (landfill) - 23% **Wood Packaging Waste Materials** - Collection for recycling - 32% - Incineration with Energy Recovery - 30% - - Disposal (landfill) - 38%
Direct emissions to ambient air, soil and water / kg	Not applicable

End of life scenario documentation – C1-C4

Scenario information	Value
Collection process – kg collected separately	0 kg
Collection process – kg collected with mixed waste	1000 kg
Recovery process – kg for re-use	0 kg
Recovery process – kg for recycling	926 kg
Recovery process – kg for energy recovery	0 kg
Disposal (total) – kg for final deposition	74 kg
Scenario assumptions e.g. transportation	The EoL scenario assumes that once the wall that the brick is in has been knocked down as part of the building demolition, of this 1000 kg (100%) is crushed further. Crushing activity results in 926 kg (92.6%) of usable brick aggregate available for use onsite (no further transportation), whilst 74 kg (7.4%) of the crushed waste is unusable and goes to landfill. Transport to landfill is assumed to be local at 15km 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

Yazan Badour as an authorized verifier for EPD Hub Limited 16.04.2026