



# ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

**Bat Ridge Roost**  
Manthorpe Building Products



## EPD HUB, HUB-5092

Published on 24.01.2026, last updated on 24.01.2026, valid until 23.01.2031

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.

## GENERAL INFORMATION

### MANUFACTURER

Manufacturer	Manthorpe Building Products
Address	Manthorpe House, Brittain Dr, Codnor Gate Business Park, Ripley, Derbyshire, DE5 3ND, UK
Contact details	mbp.care@manthorpebp.co.uk
Website	www.manthorpebp.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	-
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Ben Hales, Manthorpe Building Products
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	D.V, as authorized verifier acting for EPD HUB Limited

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	Bat Ridge Roost
Additional labels	GBAT-A
Product reference	GBAT-R
Place(s) of raw material origin	United Kingdom
Place of production	United Kingdom
Place(s) of installation and use	United Kingdom
Period for data	01/01/2024 - 31/12/2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	N/A
GTIN (Global Trade Item Number)	5053062205574
A1-A3 Specific data (%)	3.79

**ENVIRONMENTAL DATA SUMMARY**

<b>Declared unit</b>	1 Bat Ridge Roost
<b>Declared unit mass</b>	0.479 kg
<b>Mass of packaging</b>	kg
<b>GWP-fossil, A1-A3 (kgCO<sub>2</sub>e)</b>	0.486
<b>GWP-total, A1-A3 (kgCO<sub>2</sub>e)</b>	-0.167
<b>Secondary material, inputs (%)</b>	98
<b>Secondary material, outputs (%)</b>	23.5
<b>Total energy use, A1-A3 (kWh)</b>	-2.15
<b>Net freshwater use, A1-A3 (m<sup>3</sup>)</b>	0.02

# PRODUCT AND MANUFACTURER

## ABOUT THE MANUFACTURER

Manthorpe has been developing innovative building products for the construction industry since 1986. Our comprehensive range of quality building products is designed to meet your every need, from the groundwork to roofline and from new build to refurb.

With extensive experience in the plastics industry, we have the expertise to manufacture virtually all our building products in-house and continue to invest heavily in new technology, cutting-edge machinery and production processes. This enables our team to be at the forefront of product development, driving industry progress through precision and innovation.

## PRODUCT DESCRIPTION

The **GBAT Bat Ridge Roosts** provide a habitable roost space for small crevice-dwelling bat species found in the UK.

Designed in association with the Bat Conservation Trust as part of their Roost Partnership scheme the product is a self-contained, externally mounted unit which offers no means of access for the bats to enter the roof space or the inside of the property.

The Bat Ridge Roost is optimised to work in conjunction with the Manthorpe SmartVerge dry verge systems but alternatively, could also be used with third party dry verges, traditional verge tiles or mortared in verge details.

The dual-purpose product also acts as a ridge end cap, providing a durable and protected covered finish for most styles of round ridge tiles and is located at the end of the ridge tiles on a gable end.

## PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	2.7	EU
Minerals	-	-
Fossil materials	97.3	EU
Bio-based materials	-	-

## BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	-
Biogenic carbon content in packaging, kg C	0.18

## FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 Bat Ridge Roost
Mass per declared unit	0.479 kg
Functional unit	-
Reference service life	In excess of 40 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	ND	ND	ND	ND	ND	ND	ND	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

Modules not declared = ND. Modules not relevant = MNR

## 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 manufactured from a mixture of recycled post-consumer materials, consisting of polypropylene sourced from various manufacturers and recycled sources. This material is then processed via an injection moulding machine to create the outer cover, mounting plate and inner habitat of the roost. The components are then assembled together using stainless steel screws and the assembled unit is placed into a cardboard box with a packing insert, with 108 boxes then stacked onto a wooden pallet secured with plastic shrink wrapping. Hydraulic oil and lubricants have been included as ancillary materials used within the manufacturing process. All electricity used in the manufacturing and polymer processing is procured through a renewable energy guarantee of origin via 100% wind power. Water used to cool the tooling during the manufacturing of the mouldings forms part of a sealed and closed loop and is recycled continuously, cooled via a chiller and fed back into the mould, the energy use for the chiller is fed by and allocated to the moulding machine.

An additional variant is available with a different shaped outer cover for angled ridge tiles (GBAT-A). This variant is manufactured in the same manner from the same materials, with only a small variance in the part mass as a variable from the main declared unit, an individual calculation has been performed for this variant to determine the specific differences in A1-A3 GWP shown in Annex A.

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

## 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 transport distance is defined by the product category rules (PCR). The average transport distance from the manufacturing facility to the site was 242 kilometres. This was calculated using the distribution data for the sales to the top 10 merchant locations in each sales area during the sample timeframe, with a weighted ratio applied based on the percentage of overall sales by individual area. This could vary depending on the specific order. All vehicles used are to the Euro5 standard. Empty returns are not considered as it is assumed that the vehicle will be used to facilitate the transportation of different products from other sites. There are no losses associated with transportation as the product is packaged and strapped effectively. Volume capacity utilisation is assumed to be 1 for the nested packaging products.

The product is installed by a roofer as part of the finishing of the gable end of a roof, either as part of the fitting of a dry verge system or separately after pointing in the verge in the traditional manner. The product is installed in its entirety using the supplied fixings and is mounted to the existing timber structure of the roof, there is no requirement for additional fixings or mounting substrates, and the installation can be achieved by a single person with the use of basic hand tools.

At the point of installation, the waste treatment of the packaging has been judged according to the averaged EU scenarios given in Ecoinvent datasets provided by OneClick; with the following percentages given for the recycling, incineration w. energy recovery and landfill of the cardboard (83%, 8%, 9%), PE film (40%, 37%, 23%) and wood pallet (30%, 30%, 40%) respectively.

## PRODUCT USE AND MAINTENANCE (B1-B7)

The use phase of this product has been analysed and found to be immaterial to the overall carbon impact of the declared unit, this is due to the product application. This assumption is in alignment with the product category rules (PCRs). Air, soil and water impacts during the use phase have not been studied.

Air, soil, and water impacts during the use phase have not been studied.

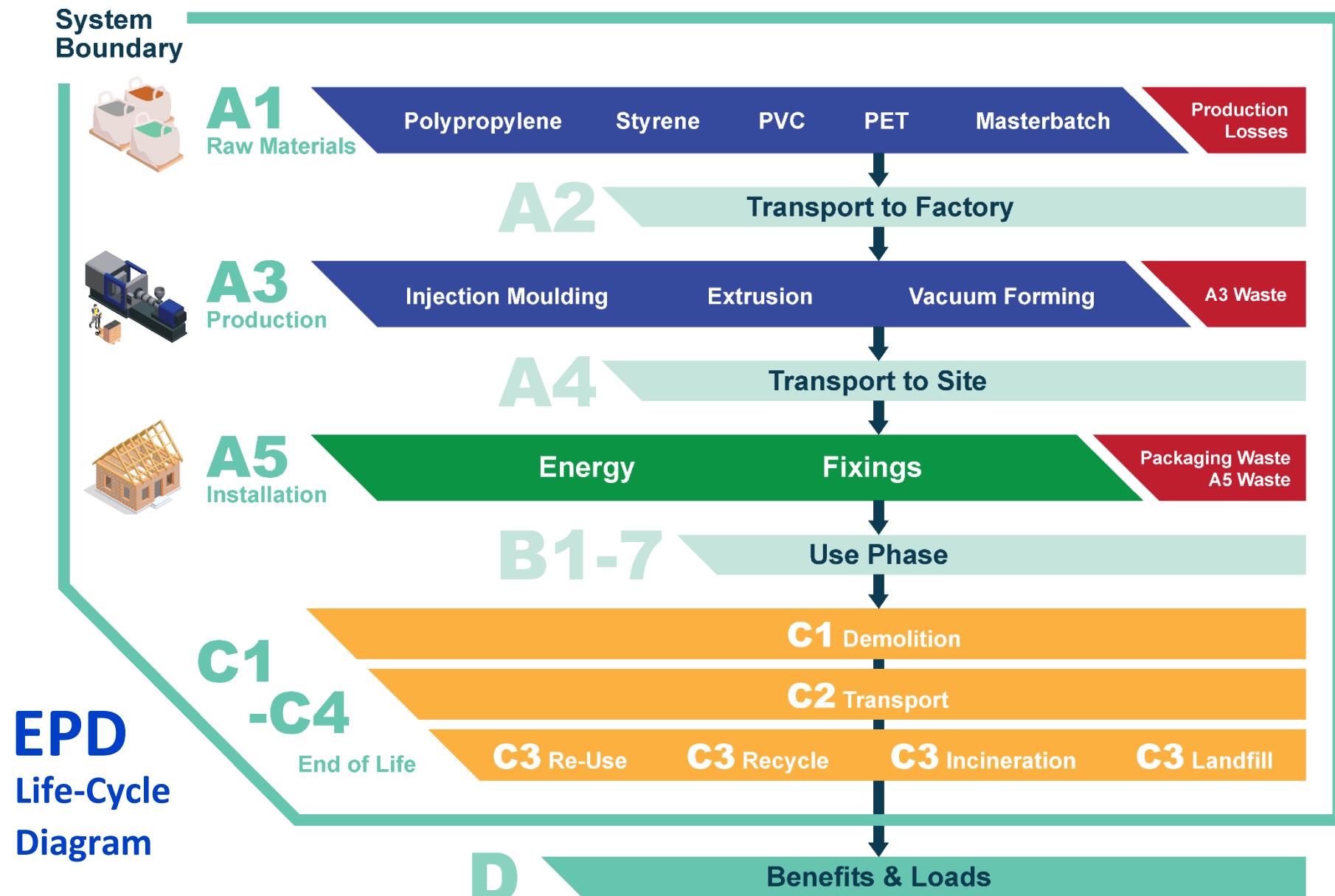
## PRODUCT END OF LIFE (C1-C4, D)

The end-of-life product is assumed to be sent back to the nearest waste processing plant following the demolition of the building, with a transport assumption of 250 km for recycling and 50 km to landfill by lorry. Using the pre-defined waste allocation attributes provided by the OneClick software, the following output allocations have been utilised:

C2-C4 PP, Construction (Plastics Europe 2020) dataset, the division of this material for onward recycling, energy recovery or subsequent landfill has been allocated at 23% recycled, 50% energy recovery and 27% landfill.

C2-C4 Polystyrene, Insulation (Plastics Europe 2020) dataset, the division of this material for onward recycling, energy recovery or subsequent landfill has been allocated at 9% recycled, 59% energy recovery and 32% landfill.

C2-C4 Steel & ferrous metals, Electrics (EN 50693) dataset, the division of this material for onward recycling, energy recovery or subsequent landfill has been allocated at 80% recycled and 20% landfill.



# A3 Manufacturing Process



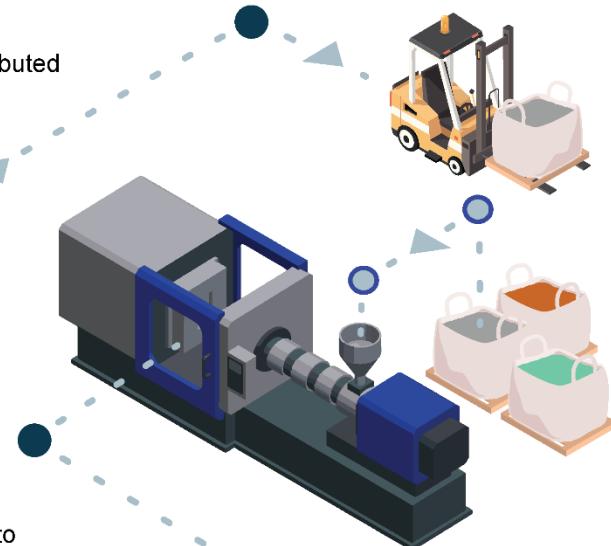
## Step 1

Raw material is delivered to our factory via lorry or tanker.



## Step 2

The raw material is distributed to our injection moulding machines via silo or individual bags of pellets.



## Step 3

The raw material is fed into the machine's hopper where it melts within the barrel before being injected into the mould to form the part.



## Step 4

Once produced, the components are assembled together by hand or robot and packed into boxes. These boxes of product are stacked in multiples on pallets and stored on site.

## Step 5

Finished product is then loaded onto a lorry for onward distribution to customers.

# 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	Allocated by mass or volume
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.

## 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 <sup>1)</sup>	kg CO <sub>2</sub> e	2.10E-01	1.26E-02	-3.90E-01	-1.67E-01	3.52E-02	6.90E-01	ND	0.00E+00	7.89E-03	6.47E-01	1.55E-02	-8.02E-01						
GWP – fossil	kg CO <sub>2</sub> e	2.03E-01	1.26E-02	2.70E-01	4.86E-01	3.52E-02	1.95E-02	ND	0.00E+00	7.88E-03	6.47E-01	1.55E-02	-4.23E-01						
GWP – biogenic	kg CO <sub>2</sub> e	7.03E-03	2.45E-06	-6.70E-01	-6.63E-01	7.95E-06	6.70E-01	ND	0.00E+00	1.78E-06	-1.22E-05	-8.13E-06	-3.80E-01						
GWP – LULUC	kg CO <sub>2</sub> e	3.10E-04	5.57E-06	9.64E-03	9.95E-03	1.52E-05	1.66E-05	ND	0.00E+00	3.51E-06	1.15E-05	9.53E-07	1.04E-03						
Ozone depletion pot.	kg CFC-11e	4.47E-09	1.93E-10	7.48E-09	1.21E-08	5.86E-10	2.15E-10	ND	0.00E+00	1.17E-10	1.35E-10	3.78E-11	-1.23E-08						
Acidification potential	mol H <sup>+</sup> e	8.88E-04	4.23E-05	1.31E-03	2.24E-03	1.14E-04	7.76E-05	ND	0.00E+00	2.68E-05	1.10E-04	1.04E-05	-2.09E-03						
EP-freshwater <sup>2)</sup>	kg Pe	8.76E-05	9.82E-07	1.42E-04	2.30E-04	2.76E-06	3.95E-06	ND	0.00E+00	6.11E-07	2.75E-06	1.53E-07	-3.20E-04						
EP-marine	kg Ne	1.91E-04	1.38E-05	6.13E-04	8.19E-04	3.68E-05	9.99E-05	ND	0.00E+00	8.80E-06	5.69E-05	3.80E-05	-4.69E-04						
EP-terrestrial	mol Ne	1.76E-03	1.51E-04	4.43E-03	6.34E-03	4.01E-04	2.86E-04	ND	0.00E+00	9.57E-05	5.03E-04	4.24E-05	-4.69E-03						
POCP ("smog") <sup>3)</sup>	kg NMVOCe	1.10E-03	6.25E-05	1.34E-03	2.51E-03	1.69E-04	9.93E-05	ND	0.00E+00	3.94E-05	1.30E-04	1.84E-05	-2.26E-03						
ADP-minerals & metals <sup>4)</sup>	kg Sbe	1.54E-06	3.74E-08	1.43E-06	3.00E-06	1.20E-07	7.54E-08	ND	0.00E+00	2.23E-08	9.39E-08	3.28E-09	-2.03E-06						
ADP-fossil resources	MJ	4.17E+00	1.82E-01	4.24E+00	8.60E+00	5.03E-01	1.89E-01	ND	0.00E+00	1.14E-01	1.17E-01	3.25E-02	-1.04E+01						
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	2.13E+00	9.14E-04	1.69E-01	2.30E+00	2.63E-03	5.15E-03	ND	0.00E+00	5.61E-04	1.83E-02	1.58E-04	3.58E-02						

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	6.19E-09	1.20E-09	1.49E-08	2.23E-08	2.96E-09	1.23E-09	ND	0.00E+00	7.74E-10	8.89E-10	2.35E-10	-1.48E-08						
Ionizing radiation <sup>6)</sup>	kBq I <sub>1235e</sub>	4.78E-02	1.78E-04	2.94E-02	7.74E-02	6.24E-04	7.92E-04	ND	0.00E+00	1.00E-04	5.27E-04	3.22E-05	-6.16E-02						
Ecotoxicity (freshwater)	CTUe	1.46E+00	2.64E-02	2.29E+00	3.78E+00	7.80E-02	3.01E-01	ND	0.00E+00	1.62E-02	4.44E-01	4.78E-02	-7.97E-01						
Human toxicity, cancer	CTUh	6.97E-11	2.11E-12	3.90E-10	4.62E-10	6.07E-12	9.94E-12	ND	0.00E+00	1.31E-12	2.84E-11	7.62E-13	-4.84E-11						
Human tox. non-cancer	CTUh	1.88E-09	1.17E-10	2.43E-09	4.43E-09	3.18E-10	5.30E-10	ND	0.00E+00	7.36E-11	1.10E-09	1.48E-10	-1.81E-09						
SQP <sup>7)</sup>	-	8.61E-01	1.72E-01	3.54E+01	3.65E+01	3.98E-01	1.62E-01	ND	0.00E+00	1.11E-01	1.21E-01	7.56E-02	-2.54E+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 <sup>8)</sup>	MJ	6.94E-01	2.70E-03	2.20E+00	2.90E+00	8.85E-03	-7.02E+00	ND	0.00E+00	1.57E-03	8.88E-03	5.06E-04	-4.33E+00						
Renew. PER as material	MJ	6.56E-02	0.00E+00	5.79E+00	5.86E+00	0.00E+00	-5.79E+00	ND	0.00E+00	0.00E+00	-4.66E-02	-1.90E-02	3.53E+00						
Total use of renew. PER	MJ	7.59E-01	2.70E-03	7.99E+00	8.76E+00	8.85E-03	-1.28E+01	ND	0.00E+00	1.57E-03	-3.77E-02	-1.85E-02	-8.05E-01						
Non-re. PER as energy	MJ	-1.49E+01	1.82E-01	3.96E+00	-1.08E+01	5.03E-01	7.79E-02	ND	0.00E+00	1.14E-01	-1.33E+01	-5.02E+00	-1.14E+01						
Non-re. PER as material	MJ	1.94E+01	0.00E+00	3.21E-01	1.97E+01	0.00E+00	-3.21E-01	ND	0.00E+00	0.00E+00	-1.41E+01	-5.25E+00	3.50E+00						
Total use of non-re. PER	MJ	4.48E+00	1.82E-01	4.29E+00	8.95E+00	5.03E-01	-2.43E-01	ND	0.00E+00	1.14E-01	-2.74E+01	-1.03E+01	-7.89E+00						
Secondary materials	kg	4.70E-01	7.98E-05	2.32E-01	7.02E-01	2.37E-04	2.03E-04	ND	0.00E+00	4.88E-05	4.48E-04	1.17E-05	2.56E-01						
Renew. secondary fuels	MJ	2.38E-04	9.94E-07	1.20E-01	1.20E-01	2.82E-06	1.49E-06	ND	0.00E+00	6.20E-07	3.39E-06	2.19E-07	-1.27E-05						
Non-ren. secondary fuels	MJ	1.96E-04	0.00E+00	0.00E+00	1.96E-04	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
Use of net fresh water	m <sup>3</sup>	1.84E-02	2.71E-05	4.03E-03	2.24E-02	7.63E-05	-3.36E-04	ND	0.00E+00	1.67E-05	1.58E-04	-4.77E-04	-5.31E-04						

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	1.43E-02	3.06E-04	1.83E-02	3.29E-02	8.27E-04	2.01E-03	ND	0.00E+00	1.93E-04	6.34E-03	5.68E-05	-2.12E-02						
Non-hazardous waste	kg	7.33E-01	5.83E-03	4.93E-01	1.23E+00	1.70E-02	6.60E-01	ND	0.00E+00	3.58E-03	2.84E-01	6.41E-01	-2.50E+00						
Radioactive waste	kg	5.33E-05	4.37E-08	7.55E-06	6.09E-05	1.55E-07	2.00E-07	ND	0.00E+00	2.45E-08	1.34E-07	7.88E-09	-1.55E-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	2.40E-04	0.00E+00	0.00E+00	2.40E-04	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
Materials for recycling	kg	3.11E-04	0.00E+00	0.00E+00	3.11E-04	0.00E+00	2.65E-01	ND	0.00E+00	0.00E+00	1.13E-01	0.00E+00	0.00E+00						
Materials for energy rec	kg	1.13E-04	0.00E+00	0.00E+00	1.13E-04	0.00E+00	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
Exported energy	MJ	2.56E-03	0.00E+00	0.00E+00	2.56E-03	0.00E+00	4.75E-01	ND	0.00E+00	0.00E+00	2.05E-01	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	2.03E-01	ND	0.00E+00	0.00E+00	8.50E-02	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	2.72E-01	ND	0.00E+00	0.00E+00	1.20E-01	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 <sub>2</sub> e	1.26E-01	1.25E-02	2.83E-01	4.21E-01	3.50E-02	4.70E-02	ND	0.00E+00	7.84E-03	6.47E-01	1.48E-02	-4.13E-01						
Ozone depletion Pot.	kg CFC- <sub>11</sub> e	1.62E-09	1.54E-10	6.11E-09	7.89E-09	4.68E-10	1.74E-10	ND	0.00E+00	9.34E-11	1.14E-10	3.02E-11	-1.00E-08						
Acidification	kg SO <sub>2</sub> e	4.78E-04	3.23E-05	9.54E-04	1.46E-03	8.71E-05	5.83E-05	ND	0.00E+00	2.05E-05	7.92E-05	7.71E-06	-1.68E-03						
Eutrophication	kg PO <sub>4</sub> <sup>3-</sup> e	8.76E-05	7.93E-06	3.03E-03	3.12E-03	2.17E-05	4.92E-05	ND	0.00E+00	4.99E-06	2.42E-05	5.15E-06	-2.82E-04						
POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	3.50E-05	2.90E-06	1.09E-04	1.47E-04	7.95E-06	1.11E-05	ND	0.00E+00	1.83E-06	5.90E-06	2.87E-06	-1.52E-04						
ADP-elements	kg Sbe	1.36E-06	3.65E-08	1.42E-06	2.82E-06	1.17E-07	7.35E-08	ND	0.00E+00	2.18E-08	8.95E-08	3.18E-09	-2.03E-06						
ADP-fossil	MJ	1.26E+00	1.79E-01	3.71E+00	5.15E+00	4.93E-01	1.75E-01	ND	0.00E+00	1.12E-01	1.08E-01	3.19E-02	-9.28E+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 <sup>9)</sup>	kg CO <sub>2</sub> e	2.03E-01	1.26E-02	2.80E-01	4.96E-01	3.52E-02	1.95E-02	ND	0.00E+00	7.89E-03	6.47E-01	1.55E-02	-4.22E-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 – CH<sub>4</sub> fossil, CH<sub>4</sub> 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 CO<sub>2</sub> is set to zero.

## LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD System Verification 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'.

## SCENARIO DOCUMENTATION

### DATA SOURCES

#### Manufacturing energy scenario documentation

1. Electricity production, wind, 1-3MW turbine, offshore, United Kingdom, Ecoinvent, 0.0168 kgCO2e/kWh

#### Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry >32 metric ton, EURO5, 217 km
2. Market for transport, freight, lorry 3.5-7.5 metric ton, EURO5, 25 km

#### Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50
Bulk density of transported products	0.00E+00
Volume capacity utilization factor	1

#### Installation scenario documentation - A5 (Installation waste)

1. Treatment of waste paperboard, unsorted, sorting, Ecoinvent, Materials for recycling, **0.19 kg** (83%)
2. Treatment of waste packaging paper, municipal incineration, Ecoinvent, **0.018 kg** (8%)
3. Treatment of waste packaging paper, sanitary landfill, Ecoinvent, **0.02 kg** (9%)
4. Exported Energy: Electricity, Ecoinvent, 0.036 MJ
5. Exported Energy: Electricity, Ecoinvent, 0.007 MJ
6. Exported Energy: Electricity, Ecoinvent, 0.16 MJ
7. Exported Energy: Thermal, Ecoinvent, 0.052 MJ
8. Exported Energy: Thermal, Ecoinvent, 0.0097 MJ

9. Exported Energy: Thermal, Ecoinvent, 0.21 MJ
10. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, **0.0011 kg** (40%)
11. Treatment of waste polyethylene, municipal incineration, Ecoinvent, **0.001 kg** (37%)
12. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, **6.4E-4 kg** (23%)
13. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling, **0.074 kg** (32%)
14. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, **0.069 kg** (30%)
15. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, **0.088 kg** (38%)

#### End of life scenario documentation - C1-C4 (Data source)

1. Treatment of waste polypropylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, **0.1 kg** (23% of 0.438 kg)
2. Treatment of waste expanded polystyrene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, **0.0025 kg** (9% of 0.028 kg)
3. Treatment of waste polypropylene, municipal incineration, Ecoinvent, **0.22 kg** (50% of 0.438 kg)
4. Exported Energy: Electricity, Ecoinvent, 1.1432 MJ
5. Exported Energy: Electricity, Ecoinvent, 0.085 MJ
6. Exported Energy: Thermal, Ecoinvent, 1.57 MJ
7. Exported Energy: Thermal, Ecoinvent, 0.12 MJ
8. Treatment of waste polypropylene, sanitary landfill, Ecoinvent, **0.12 kg** (27% of 0.438 kg)
9. Treatment of waste expanded polystyrene, municipal incineration, Ecoinvent, **0.017 kg** (59% of 0.028 kg)
10. Treatment of waste polystyrene, sanitary landfill, Ecoinvent, **0.009 kg** (32% of 0.028 kg)
11. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, **0.01 kg** (80% of 0.013 kg)
12. Treatment of scrap steel, inert material landfill, Ecoinvent, **0.0026 kg** (20% of 0.013 kg)

Scenario information	Value
Scenario assumptions e.g. transportation	Transported 250 km (recycling) and 50 km (landfill) by 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

D.V, as authorized verifier acting for EPD HUB Limited

24.01.2026



## ANNEX A

### PRODUCT RANGE

Product Code	Product Description	Mass (kg)	GWP A1-A3 Fossil (kg CO <sub>2</sub> e)	GWP A1-A3 Total (kg CO <sub>2</sub> e)
GBAT-R	<b>Bat Ridge Roost</b> <i>Round End Cap</i>	<b>0.479</b>	<b>0.486</b>	<b>-0.167</b>
GBAT-A	<b>Bat Ridge Roost</b> <i>Angled End Cap</i>	<b>0.459</b>	<b>0.480</b>	<b>-0.173</b>

### PRODUCT VARIANTS (as per EN 15804+A2)

Primary data set covered in this EPD is taken from the characteristics of the GBAT-R Bat Ridge Roost for use with round ridge tiles. An additional variant is available with a different shaped outer cover and mount plate for use with angled ridge tiles (GBAT-A). This variant is manufactured in the same manner from the same materials, with only a small variance in the part mass as a variable from the main declared unit, an individual calculation has been performed for this variant to determine the specific differences in A1-A3 GWP shown above.

