

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Bathgate Flooring Ltd
BG3 Raised Access Flooring Panel



EPD HUB, HUB-0159

Publishing date 27 October 2022, last updated date 27 October 2022, valid until 27 October 2027

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Bathgate Flooring Ltd
Address	Unit 6, E, F & G Thorn Business Park, Hereford.
Contact details	r.smith@bathgateflooring.co.uk
Website	bathgateflooring.co.uk

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR version 1.0, 1 Feb 2022
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4 and D
EPD author	Romane Smith, Bathgate Flooring
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
EPD verifier	E.A, as an authorized verifier acting for EPD Hub Limited

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	BG3 Raised Access Flooring Panel
Additional labels	Permaflor BG3 / BG3S
Product reference	BSEN BG3
Place of production	Hereford, United Kingdom
Period for data	Calendar year 2020
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	%

ENVIRONMENTAL DATA SUMMARY

Declared unit	One raised access floor panel 600 x 600 x 31
Declared unit mass	9.79 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	14.1
GWP-total, A1-A3 (kgCO ₂ e)	7.99
Secondary material, inputs (%)	7.17
Secondary material, outputs (%)	84.1
Total energy use, A1-A3 (kWh)	58.6
Total water use, A1-A3 (m ³ e)	0.269

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Bathgate Flooring are the largest independent manufacturer of Raised Access Flooring in the UK.

PRODUCT DESCRIPTION

The BG3 Raised Access Flooring Panel is widely used in commercial offices to provide easy access to services held within the flooring void and thereby provide the greatest flexibility in a changing environment.

The product is designed to be gravity laid for easy access to the floor void. The fitted panels form an electrically continuous floor that should be earthed in accordance with IEE regulations. Earthing connection points can be fitted during installation.

The panel is designed for general office use and is tested to provide Ultimate Load in excess of 8kN. Typical acoustic performance is 42dB airborne sound and 68dB impact sound. Final performance depending on surface finish which is applied. The product is manufactured in accordance with BSEN EN 12825:2001 for Raised Access Floors

This EPD represents a raised access floor panel produced at Bathgate Flooring Ltd Hereford facility in United Kingdom. The panel is based on a 600 mm-square unit made of high-density 31 mm particle board core in a galvanised steel envelope. The galvanised steel shell comprises a bottom steel tray and a top lid that is wrapped around and laminated to the FSC Certified board core. This is then mechanically pressed together. This is done for greater strength and to provide full electrical continuity of the system and provide a high resistance to damage. The edges are ribbed for added rigidity.

<https://www.bathgateflooring.co.uk/raised-access-products/bsen-steel-encapsulated-panels/>

Further information can be found at bathgateflooring.co.uk.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	25.30	Asia
Minerals		
Fossil materials	0.62	UK
Bio-based materials	74.098	Germany

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	3.239
Biogenic carbon content in packaging, kg C	0.00178

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	One raised access floor panel 600 x 600 x 31
Mass per declared unit	9.79 kg
Functional unit	
Reference service life	

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	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. 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.

The product is made of particle board encapsulated in a galvanised steel sheet. The materials are transported to Bathgate Floorings production facility, where the main manufacturing processes include cutting of particle board and pressing the galvanised steel sheet, encapsulation of the board in the steel sheet and finally, pressing together. The manufacturing process requires electricity and fuels for the different equipment as well as heating. Certain ancillary materials are also included. The study considers the losses of raw materials occurring during the

manufacturing process. The finished product is packaged in polypropylene straps to hold the panels before being sent to the installation site on a wooden pallet. Pedestals for the panels are excluded from the study.

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.

Environmental impacts from installation into the building include waste packaging materials (A5) and release of biogenic carbon dioxide from waste processing of wood pallets. Electricity consumption for installation of the raised access floor panel is included to cover the use of standard power tools is assumed to be negligible.

Transportation distance is defined according to the PCR. Average distance of transportation from production plant to building site is assumed as 227 km and the transportation method is assumed to be lorry. Vehicle capacity utilization volume factor is assumed to be 100 % which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as product is packaged properly. Also, volume capacity utilisation factor is assumed to be 100 % for the nested packaged products. Transportation impacts that occur from delivery of the product cover direct exhaust emissions of fuel, environmental impacts of fuel production, as well as related infrastructure emissions. Installation scenario is not taken into account.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

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

PRODUCT END OF LIFE (C1-C4, D)

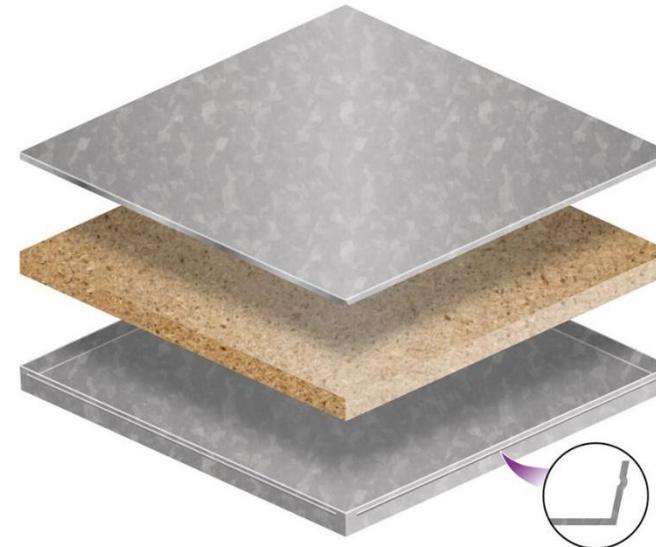
It is assumed that the remaining materials from the product - 10% of galvanised steel and 20% of particle board - are sent to sanitary landfill. Due to the material and energy recovery potential of the materials, a part of the end-of-life product is converted into recycled raw materials of steel and particle board. The packaging element of the wood pallet and polypropylene straps are incinerated and recycled respectively, where the energy recovered from incineration displaces electricity and heat production. The benefits and loads of incineration and recycling are included in Module D (packaging materials included).

For the purposes of this EPD, we have used the data from United Kingdom construction waste statistics, the metals and plastics from the raised access floor panel are sorted. These are conservative assumptions based on current data. Module C3 accounts for energy and resource inputs for sorting and treating these waste streams - 90% of galvanised steel and 80% particle board are assumed to be recycled while there is no incineration for energy recovery.

Energy consumption is considered for the process of panel de-construction from the building is assumed as negligible. It is assumed that the waste is collected separately and transported to the waste treatment center. Transportation distance to treatment is assumed as 16 km and the transportation method is assumed to be lorry (C2).

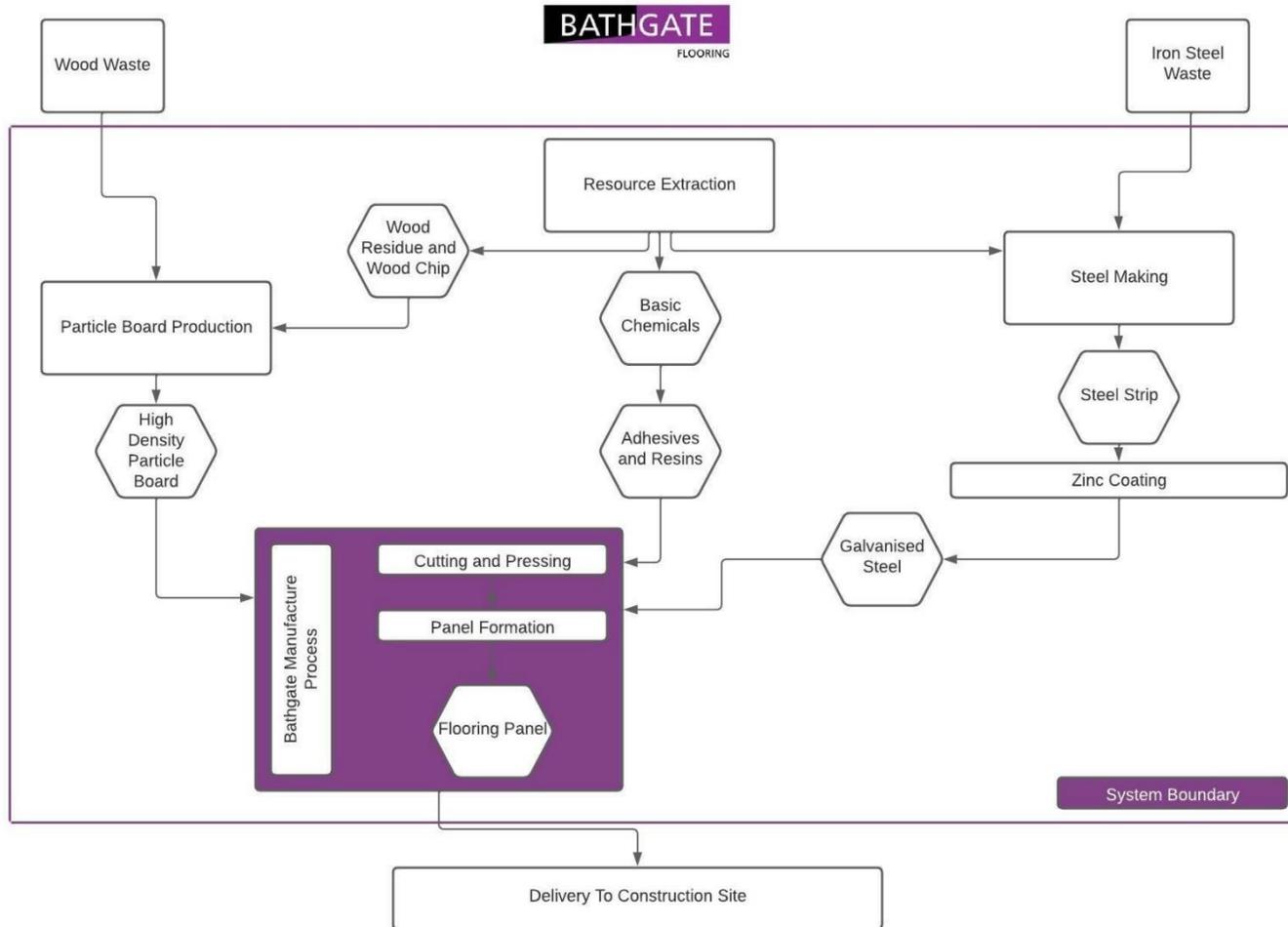
Over 99% of the product (steel and chipboard) has the potential to be widely recycled and can be separated out into relevant recycling streams for this purpose. This can be done on site or at the recycling centre.

Bathgate Flooring—BG3 (BS EN 12825:2001)



MANUFACTURING PROCESS

Product Stage A1 – A3



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.

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

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	%

This EPD is product and factory specific and does not contain average calculations.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent and One Click LCA databases were used as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

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	6,32E0	1,36E0	3,12E-1	7,99E0	2E-1	8,95E-2	MND	0E0	1,42E-2	5,05E0	1,41E0	1,56E1						
GWP – fossil	kg CO ₂ e	1,26E1	1,36E0	1,27E-1	1,41E1	2,02E-1	1,44E-1	MND	0E0	1,42E-2	1,25E-1	3,33E-2	-4,93E0						
GWP – biogenic	kg CO ₂ e	-6,32E0	5,88E-4	1,85E-1	-6,13E0	1,47E-4	-5,42E-2	MND	0E0	1,03E-5	4,92E0	1,38E0	2,05E1						
GWP – LULUC	kg CO ₂ e	1,63E-2	5,69E-4	6,72E-4	1,75E-2	6,08E-5	1,76E-4	MND	0E0	4,28E-6	1,94E-4	2,19E-5	-1,67E-2						
Ozone depletion pot.	kg CFC-11e	1,15E-6	3,07E-7	1,12E-8	1,47E-6	4,75E-8	1,52E-8	MND	0E0	3,35E-9	1,45E-8	7,15E-9	-2,48E-7						
Acidification potential	mol H ⁺ e	3,39E-1	1,41E-2	3E-4	3,53E-1	8,49E-4	3,54E-3	MND	0E0	5,98E-5	1,06E-3	2,14E-4	-2,51E-2						
EP-freshwater ²⁾	kg Pe	7,82E-4	9,91E-6	2,33E-6	7,94E-4	1,64E-6	7,98E-6	MND	0E0	1,16E-7	9,82E-6	8,33E-7	-3,64E-4						
EP-marine	kg Ne	2,3E-2	3,6E-3	5,83E-5	2,66E-2	2,56E-4	2,69E-4	MND	0E0	1,8E-5	2,15E-4	1,13E-4	-5,26E-3						
EP-terrestrial	mol Ne	1,35E0	4E-2	6,48E-4	1,4E0	2,82E-3	1,4E-2	MND	0E0	1,99E-4	2,48E-3	7,48E-4	-5,88E-2						
POCP (“smog”) ³⁾	kg NMVOCe	6,29E-2	1,14E-2	1,84E-4	7,44E-2	9,08E-4	7,55E-4	MND	0E0	6,4E-5	6,83E-4	2,58E-4	-2,9E-2						
ADP-minerals & metals ⁴⁾	kg Sbe	4,18E-2	2E-5	5,13E-7	4,19E-2	3,45E-6	4,19E-4	MND	0E0	2,43E-7	3,73E-6	4,66E-7	-9,11E-5						
ADP-fossil resources	MJ	1,72E2	2,01E1	2,57E0	1,95E2	3,14E0	1,99E0	MND	0E0	2,21E-1	2,07E0	6,35E-1	-4,47E1						
Water use ⁵⁾	m ³ e depr.	9,67E0	6,9E-2	6,11E-3	9,74E0	1,17E-2	9,77E-2	MND	0E0	8,24E-4	2,88E-2	2,24E-2	-2,07E0						

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 ⁶⁾	MJ	1,32E1	2,3E-1	4,87E-1	1,39E1	3,96E-2	1,4E-1	MND	0E0	2,79E-3	3,11E-1	1,77E-2	-9,6E1						
Renew. PER as material	MJ	5,8E1	0E0	-3,94E-1	5,76E1	0E0	5,18E-1	MND	0E0	0E0	4,47E1	0E0	-1,3E2						
Total use of renew. PER	MJ	7,11E1	2,3E-1	9,37E-2	7,15E1	3,96E-2	6,58E-1	MND	0E0	2,79E-3	4,5E1	1,77E-2	-2,26E2						
Non-re. PER as energy	MJ	1,72E2	2,01E1	2,55E0	1,95E2	3,14E0	1,99E0	MND	0E0	2,21E-1	2,07E0	6,35E-1	-4,47E1						
Non-re. PER as material	MJ	0E0	0E0	2,16E-2	2,16E-2	0E0	-1,98E-2	MND	0E0	0E0	0E0	0E0	0E0						
Total use of non-re. PER	MJ	1,72E2	2,01E1	2,57E0	1,95E2	3,14E0	1,97E0	MND	0E0	2,21E-1	2,07E0	6,35E-1	-4,47E1						
Secondary materials	kg	7,01E-1	0E0	9,82E-4	7,02E-1	0E0	7,02E-3	MND	0E0	0E0	0E0	0E0	1,7E0						
Renew. secondary fuels	MJ	0E0	0E0	2,4E0	2,4E0	0E0	2,4E-2	MND	0E0	0E0	0E0	0E0	0E0						
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0						
Use of net fresh water	m ³	2,65E-1	3,7E-3	6,17E-4	2,69E-1	6,54E-4	2,7E-3	MND	0E0	4,61E-5	7,12E-4	5,1E-4	-3,53E-2						

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	2,54E0	2,11E-2	6,3E-3	2,57E0	3,05E-3	2,58E-2	MND	0E0	2,15E-4	0E0	1,93E-3	-1,66E0						
Non-hazardous waste	kg	4,48E1	1,75E0	9,35E-2	4,66E1	3,38E-1	4,71E-1	MND	0E0	2,38E-2	0E0	1,75E0	-1,46E1						
Radioactive waste	kg	4,55E-4	1,39E-4	1,42E-5	6,08E-4	2,16E-5	6,33E-6	MND	0E0	1,52E-6	0E0	3,34E-6	-6,52E-5						

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	0E0	0E0	0E0	0E0	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0						
Materials for recycling	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	0E0	0E0	8,17E0	0E0	0E0						
Materials for energy rec	kg	0E0	0E0	2,55E-1	2,55E-1	0E0	1,04E-2	MND	0E0	0E0	6,1E-2	0E0	0E0						
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	4,78E-2	MND	0E0	0E0	2,13E0	0E0	0E0						

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

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 ₂ e	1,22E1	1,35E0	1,26E-1	1,37E1	2E-1	1,39E-1	MND	0E0	1,41E-2	1,25E-1	1,01E-1	-4,74E0						
Ozone depletion Pot.	kg CFC ₁₁ e	1,1E-6	2,44E-7	1,07E-8	1,35E-6	3,78E-8	1,39E-8	MND	0E0	2,66E-9	1,36E-8	5,75E-9	-2,11E-7						
Acidification	kg SO ₂ e	2,46E-1	9,83E-3	2,53E-4	2,56E-1	4,11E-4	2,56E-3	MND	0E0	2,9E-5	7,21E-4	1,3E-4	-1,97E-2						
Eutrophication	kg PO ₄ ³ e	6,14E-2	1,23E-3	8,34E-5	6,27E-2	8,31E-5	6,29E-4	MND	0E0	5,85E-6	3,8E-4	3,81E-3	-1,27E-2						
POCP ("smog")	kg C ₂ H ₄ e	5,94E-3	3,47E-4	1,34E-5	6,3E-3	2,61E-5	6,34E-5	MND	0E0	1,84E-6	3,48E-5	2,88E-5	-3,55E-3						
ADP-elements	kg Sbe	4,18E-2	2E-5	5,13E-7	4,19E-2	3,45E-6	4,19E-4	MND	0E0	2,43E-7	3,73E-6	4,66E-7	-9,11E-5						
ADP-fossil	MJ	1,72E2	2,01E1	2,57E0	1,95E2	3,14E0	1,99E0	MND	0E0	2,21E-1	2,07E0	6,35E-1	-4,47E1						

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online
This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Elma Avdyli, as an authorized verifier acting for EPD Hub Limited
27.10.2022

