ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

SMU101/201 EI30
Tammer OÜ

EPD HUB, HUB-3387
Published on 30.05.2025, last updated on 06.06.2025, valid until 29.05.2030

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.1(5 Dec 2023) and JRC characterization factors EF 3.1.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Tammer OÜ
Address	Väike-Paala tn 4, Tallinn Harjumaa 11415, Estonia
Contact details	info@tammer.ee
Website	https://tammer.ee/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023 EN 17213 Windows and doors
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, D
EPD author	Anni Oviir
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Haiha Nguyen, as an 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	SMU101/201 EI30
Additional labels	SMU doors with EI 30 fire resistance
Place of production	Tallinn, Estonia
Period for data	01.01.2024-31.12.2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	NA

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 square meter of door based on a standard size door
Declared unit mass	44,11 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	1,72E+02
GWP-total, A1-A3 ($kgCO_2e$)	1,61E+02
Secondary material, inputs (%)	14,6
Secondary material, outputs (%)	68,1
Total energy use, A1-A3 (kWh)	612
Net freshwater use, A1-A3 (m^3)	0,93

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

With more than 200 employees Tammer is the largest producer of metal doors in Baltic States. Our customers are construction companies, shipbuilding companies, real estate maintance companies and re-sellers. We produce over 40,000 doors and have turnover 35 million euros per year. Every door we produce can be unique because we take every new project as a new challenge. Our machinery and technology is capable of adapting all the needs neccessary for todays safety regulations and innovation. Our products comply with ISO9001, ISO14001 and ISO45001 certificates, and our product development department tests and tests new doors on a daily basis to further expand Tammer's product range and add new functionality.

PRODUCT DESCRIPTION

Tammer metal doors are made of galvanized or stainless steel sheet metal. Door set can be painted in different RAL colors or have stainless steel brushed or polished finish. Metal doors are intended for indoor and outdoor use in both residential and public buildings. Construction doors are designed for various purposes, including fire resistance, security, exterior use, industrial applications, and soundproofing. Specialized options are also available, offering protection against burglary, bullets, blasts, and radiation.

The fire resistance of the doors is certified in accordance with the EN 16034 standard.

The product impacts are calculated covering the door leaf, frame, threshold, hinges, hinge fittings, and frame fixing elements, including all components necessary to fill the door opening. The indicator results are calculated for standard sized elements 1,23 m × 2,18 m, and then declared per square meter of product in the EPD.

Further information can be found at:
https://tammer.ee/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	82	Europe
Minerals	15	Europe
Fossil materials	3	Europe
Bio-based materials	NA	NA

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	2,86

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 square meter of door based on a standard size door
Mass per declared unit	44,11 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	Deconstruction/ demolition	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.

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

The product manufacturing process begins with order handling and material procurement. The factory process starts with sheet metal processing, which includes punching/cutting, and bending. Semi-processed products are assembled on different production lines, where they are transformed into door leaves and door frames. The door leaf consists of two or three sheet metal layers, with stone wool, gypsum boards, reinforcement components, and adhesives used for structural strength in between. Door frames undergo a welding process before being paired with the door leaves for painting. The process continues to final assembly, where gaskets, hardware, and other small parts are added to complete the product. The final step before packing is quality control, followed by packing and delivery.

Tammer uses 100% certified green energy from wind and solar the manufacturing plant is heated with natural gas.

All waste is collected by type, metal is sold to a scrap dealer other materials are disposed of by the municipality waste management.

Products are packaged using. Using ISPM (thermally treated) wood to make custom packing for the doors, for transport. To protect against scrapes additional shrink-wrap and foam-film.

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 transportation distance is defined according to the most common scenario - from the place

of manufacturing to Stockholm, Sweden. According to the manufacturer, transportation doesn't cause losses as products are packaged properly. The final product is transported 430 km (140 km by lorry and 290 km by ferry). Vehicle capacity utilization volume factor is assumed to be 1, which means full load. It may vary but as the role of transportation emission in total results is small and so the variety in load is assumed to be negligible. Empty returns are not taken into account as it is assumed that return trips are used by transportation companies to serve the needs of other clients. Module A5 includes the end-of-life treatment of packaging materials. It is assumed that all packaging is collected for recycling, and the average transport distance to the recycling facility is 50 km from the installation site15

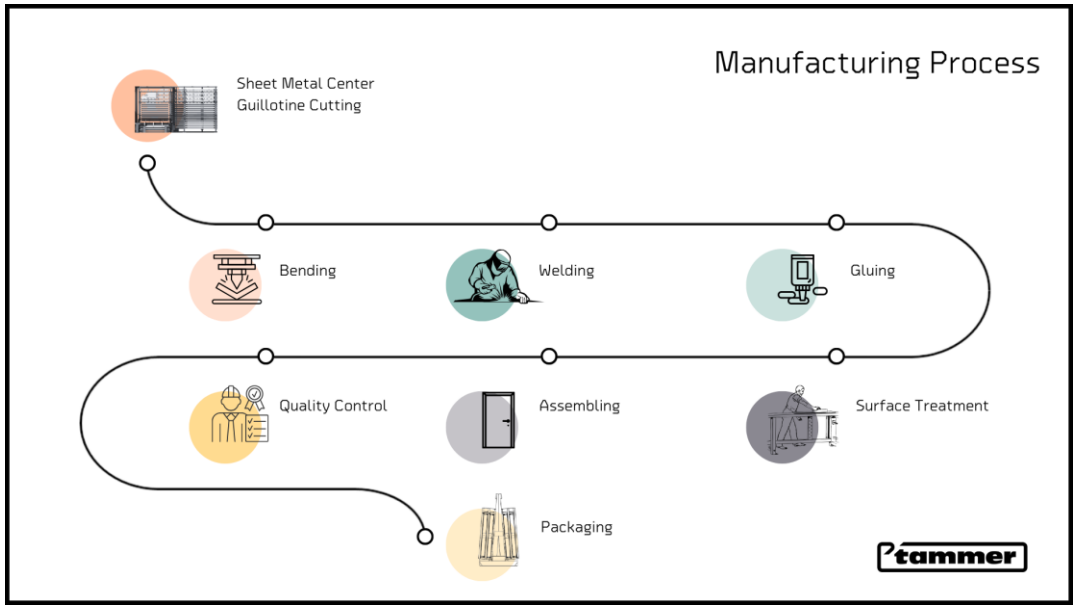
PRODUCT USE AND MAINTENANCE (B1-B7)

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)

End Of Life (EOL) scenarios have been based on default scenarios given in standard EN 17213:2020 (Windows and doors -Environmental Product Declarations - Product category rules for windows and pedestrian doorsets). The EOL scenario is representative of Europe It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed to have the same weight as the declared product. All the end-of-life products are assumed to be sent to the closest facilities such as recycling or landfill. Transportation distance to the closest disposal area is estimated as 100 km and the transportation method is assumed as lorry which is the most common option.
It is assumed that 100% of the products are collected via dismantling that does not require any energy or resources.
Waste treatment includes shredding and sorting for all materials. The recovery rate for metal extraction is assumed to be 95% that will get recycled, with a 100% rate or recovery. The remaining 5% of metal is assumed to be landfilled with other inert materials.
Non-metal inert materials are landfilled, combustible materials are sent to incineration. It is assumed that the metals enter the market as metal scrap to be used as input for electric arc furnaces. The recycling rate for metals is assumed to be 100%.
Only recycled materials have been considered in module D where only net benefits are taken into account.
Modul D scenario is representative of Europe.

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	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, %	NA

This EPD is specific to the SMU-type steel metal door SMU101 EI30 and its manufacturing facility. The environmental impact calculations are based on this product's specific characteristics.

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. The EPD Generator uses Ecoinvent v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 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

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	1,57E+02	9,59E+00	-5,19E+00	1,61E+02	2,48E+00	1,08E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,75E-01	7,74E-01	1,35E-01	-6,11E+01
GWP – fossil	kg CO_2e	1,57E+02	9,58E+00	5,28E+00	1,72E+02	2,48E+00	2,90E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,75E-01	7,73E-01	1,35E-01	-6,11E+01
GWP – biogenic	kg CO_2e	0,00E+00	2,70E-07	-1,05E+01	-1,05E+01	0,00E+00	1,05E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO_2e	1,20E-01	4,29E-03	1,48E-02	1,39E-01	1,18E-03	3,88E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,12E-04	8,38E-04	4,01E-05	-6,80E-03
Ozone depletion pot.	kg CFC-$_{11}$e	1,09E-06	1,41E-07	1,45E-07	1,38E-06	3,60E-08	1,47E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,01E-09	9,15E-09	4,20E-09	-3,47E-07
Acidification potential	mol H^+e	1,59E+00	3,27E-02	2,49E-02	1,65E+00	5,38E-02	1,05E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,62E-03	8,09E-03	1,45E-03	-2,14E-01
EP-freshwater[2)]	kg Pe	7,94E-02	7,46E-04	1,45E-03	8,16E-02	1,08E-04	4,10E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,70E-05	4,37E-04	2,10E-04	-2,26E-02
EP-marine	kg Ne	1,52E-01	1,07E-02	6,44E-03	1,69E-01	1,38E-02	5,33E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,32E-04	1,80E-03	3,70E-04	-4,79E-02
EP-terrestrial	mol Ne	5,81E+00	1,17E-01	6,96E-02	6,00E+00	1,53E-01	5,17E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,79E-03	2,03E-02	3,98E-03	-5,24E-01
POCP ("smog")[3)]	kg NMVOCe	4,21E-01	4,82E-02	2,89E-02	4,98E-01	4,25E-02	1,36E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,39E-03	6,01E-03	1,45E-03	-1,87E-01
ADP-minerals & metals[4)]	kg Sbe	3,63E-03	2,67E-05	6,33E-05	3,72E-03	3,62E-06	2,72E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,32E-06	4,81E-05	2,61E-07	-4,96E-04
ADP-fossil resources	MJ	1,67E+03	1,39E+02	7,95E+01	1,89E+03	3,20E+01	1,25E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,89E+00	9,11E+00	3,15E+00	-6,16E+02
Water use[5)]	m^3e depr.	3,28E+01	6,87E-01	2,73E+00	3,62E+01	1,08E-01	1,92E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,40E-02	1,70E-01	1,83E-02	-8,81E+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

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	1,31E-05	9,60E-07	5,23E-07	1,46E-05	1,25E-07	1,35E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,75E-08	1,10E-07	2,25E-08	-3,46E-06
Ionizing radiation[6)]	kBq U235e	5,59E+00	1,21E-01	5,06E-01	6,22E+00	1,81E-02	1,30E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,00E-03	7,72E-02	4,03E-03	1,55E+00
Ecotoxicity (freshwater)	CTUe	1,31E+03	1,97E+01	1,58E+01	1,35E+03	3,04E+00	6,96E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,75E-01	5,49E+00	1,96E+00	-1,34E+02
Human toxicity, cancer	CTUh	7,63E-08	1,58E-09	1,75E-09	7,97E-08	4,80E-10	1,75E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,84E-11	6,14E-10	5,57E-11	-1,06E-08
Human tox. non-cancer	CTUh	1,44E-06	9,00E-08	7,11E-08	1,60E-06	1,20E-08	1,16E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,46E-09	4,14E-08	3,51E-09	-4,23E-07
SQP[7)]	-	2,57E+02	1,40E+02	1,33E+03	1,73E+03	1,26E+01	6,77E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,94E+00	1,77E+01	7,61E+00	-1,53E+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	1,27E+02	1,91E+00	2,00E+02	3,29E+02	2,95E-01	-9,65E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,44E-02	1,70E+00	6,35E-02	-3,31E+01
Renew. PER as material	MJ	0,00E+00	0,00E+00	8,02E+01	8,02E+01	0,00E+00	-8,02E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	1,27E+02	1,91E+00	2,80E+02	4,09E+02	2,95E-01	-1,77E+02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,44E-02	1,70E+00	6,35E-02	-3,31E+01
Non-re. PER as energy	MJ	1,66E+03	1,39E+02	7,84E+01	1,87E+03	3,20E+01	-9,04E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,89E+00	7,66E+00	3,15E+00	-6,16E+02
Non-re. PER as material	MJ	0,00E+00	0,00E+00	1,16E+00	1,16E+00	0,00E+00	-1,16E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	1,66E+03	1,39E+02	7,95E+01	1,87E+03	3,20E+01	-2,06E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,89E+00	7,66E+00	3,15E+00	-6,16E+02
Secondary materials	kg	6,45E+00	5,92E-02	5,96E-02	6,57E+00	1,39E-02	2,05E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,93E-03	1,11E-02	1,03E-03	2,79E+01
Renew. secondary fuels	MJ	2,92E-02	7,52E-04	2,79E-03	3,27E-02	7,92E-05	6,89E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,73E-05	5,17E-04	1,87E-05	-4,21E-03
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	8,44E-01	2,06E-02	6,17E-02	9,27E-01	2,95E-03	1,24E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,02E-03	4,94E-03	-3,49E-02	-1,36E-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	1,41E+01	2,36E-01	2,57E-01	1,46E+01	4,41E-02	3,90E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,17E-02	6,11E-02	5,17E-03	-1,70E+01
Non-hazardous waste	kg	1,92E+02	4,36E+00	1,14E+01	2,07E+02	6,87E-01	5,92E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,16E-01	2,19E+00	4,46E+01	-1,35E+02
Radioactive waste	kg	6,02E-03	2,96E-05	1,29E-04	6,18E-03	4,40E-06	3,23E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,47E-06	1,98E-05	9,85E-07	4,08E-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	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	1,08E+01	1,08E+01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	3,00E+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	5,75E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	4,00E-02	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,11E+01	MND	MND	MND	MND	MND	MND	MND	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	1,41E+01	MND	MND	MND	MND	MND	MND	MND	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	4,70E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,12E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – 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	1,57E+02	9,59E+00	5,30E+00	1,72E+02	2,48E+00	2,90E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,75E-01	7,74E-01	1,35E-01	-6,11E+01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	21% wind and 79% photovoltaic, 2024 GO, modelled based on Ecoinvent 3.10.1
Electricity CO2e / kWh	0,07
District heating data source and quality	Heat production, natural gas, at boiler condensing modulating >100kW Ecoinvent 3.10.1, Unit: MJ
District heating CO2e / MJ	0,0702

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	0,10
Average transport distance, km	430
Capacity utilization (including empty return) %	100
Bulk density of transported products	352,8
Volume capacity utilization factor	1

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	0
Water use / m^3	0
Other resource use / kg	0
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	0
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	5,7
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	5,7
Direct emissions to ambient air, soil and water / kg	0

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	44,11
Collection process – kg collected with mixed waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	30,01
Recovery process – kg for energy recovery	0,04
Disposal (total) – kg for final deposition	14,06
Scenario assumptions e.g. transportation	All material is transported 100km

THIRD-PARTY 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.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited
30.05.2025