

ENVIRONMENTAL PRODUCT DECLARATION

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

Pelare Bjästa
Skandinaviska Byggelement AB



EPD HUB, HUB-1645

Publishing on 11.07.2024, last updated on 11.07.2024, valid until 11.07.2029

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Skandinaviska Byggelement AB
Address	Sidensjövägen 3, 89331 Bjästa, Sweden
Contact details	info@byggelement.se
Website	https://byggelement.se

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 1.1, 5 Dec 2023
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4, and modules C1-C4, D
EPD author	Jorgen Danielsson
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	Imane Uald lamkaddam, 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	Pelare Bjästa
Additional labels	-
Product reference	121000
Place of production	Sidensjövägen 3, 89331 Bjästa, Sweden
Period for data	1/1/2023 - 31/12/2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	%

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 ton
Declared unit mass	1000 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	3,05E+02
GWP-total, A1-A3 (kgCO ₂ e)	3,06E+02
Secondary material, inputs (%)	8.36
Secondary material, outputs (%)	81
Total energy use, A1-A3 (kWh)	1100
Net fresh water use, A1-A3 (m ³)	13.9

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

PRODUCT DESCRIPTION

Columns (Pelare) is an reinforced load bearing concrete element manufactured round or square.

The square columns are cast with three molded sides and one steel ground side and can be cast with or without a bracket.

Columns are delivered with lifts and brace sleeves directly to the construction site.

TECHNICAL SPECIFICATIONS

Harmonized Standard	SS-EN 206, EN 13225
Concrete - Compressive strength	fck = 40-50 N/mm ²
Steel - Tensile yield strength	ftk = 500 N/mm ²
Steel - Ultimate tensile strength	fyk = 540 N/mm ²
Exposure class (SS-EN 137003)	XC1, XC4+XF3, XD3+XF4, XD3
VCTekv	0,4
Dimensions	400x400
Weight per m	416,65 Kg.

Other sizes and profiles are listed in the document.

PRODUCT STANDARDS

EN 13225

PHYSICAL PROPERTIES OF THE PRODUCT

Round columns are cast standing in shape with a maximum length of 3.5 meters.

Square columns are cast horizontally in form with a maximum length of 7.5 meters.

Further information can be found at <https://byggelement.se>.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	7,92	EU
Minerals	85,80	EU
Fossil materials	0,041	EU
Bio-based materials	0,003	EU

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	0

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 ton
Mass per declared unit	1000 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	MN D	MN D	MN D	MN D	MN D	MN D	MN D	MN D	x	x	x	x	x	Recycling	Recovery	Reuse
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal				

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.

Columns (Pelare) are a reinforced load-bearing concrete element manufactured round or square. Round columns are cast standing in shape with a maximum length of 3.5 meters. Square columns are cast horizontally in form with a maximum length of 7.5 meters. The square columns are cast with three molded sides and one steel ground side and can be cast with or without a bracket. Columns are delivered with lifts and

brace sleeves directly to the construction site.

The elements are manufactured in the factory by mixing the raw materials for the concrete. The wet mass is filled into molds, prepared with reinforcement steel and embedded goods. The products are then left to cure under controlled conditions to later be transported for storage or to construction site.

The concrete is 100% recyclable, which creates the opportunity to reduce the environmental impact by reducing the need for new raw materials. Based on the European waste hierarchy, the concrete can currently be recycled as filling material or ballast while the reinforcement can be recycled as steel. In addition, the concrete contains no hazardous chemical substances for health nor the environment.

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 PCR. Average distance of transportation from production plant to building site is in average 526 km and the transportation method is assumed to be lorry. Vehicle capacity utilization 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 are packaged properly. Also, volume capacity utilisation factor is assumed to be 100 % for the nested packaged products.

PRODUCT USE AND MAINTENANCE (B1-B7)

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

PRODUCT END OF LIFE (C1-C4, D)

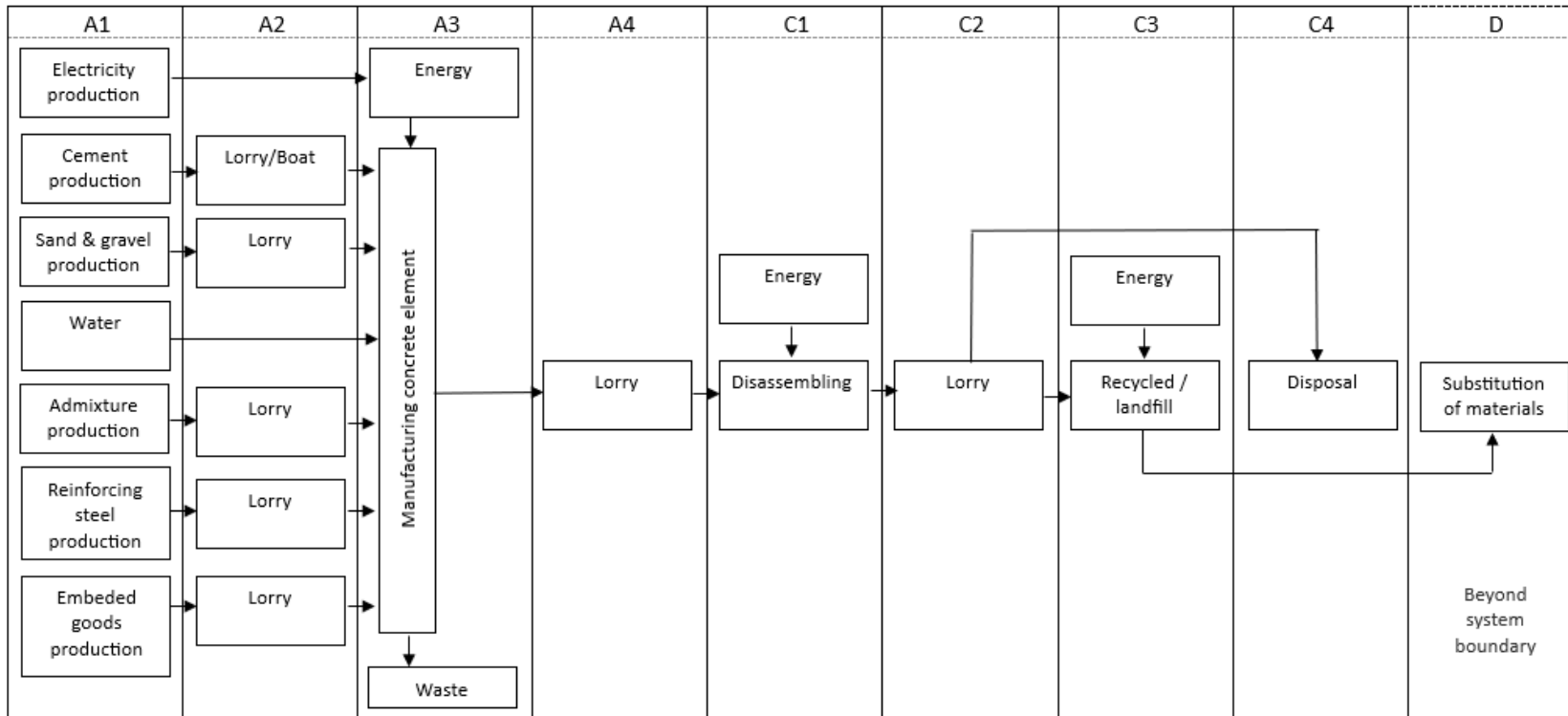
At the end-of-life, in the demolition phase 100% of the waste is assumed to be collected as separate construction waste. The demolition process consumes energy in the form of diesel fuel used by building machines. Energy consumption of a demolition process is on the average 10 kWh/m² (Bozdağ, Ö & Seçer, M. 2007).

Basing on a Level(s) project, an average mass of a reinforced concrete building is about 416 kg/m². Therefore, energy consumption demolition is assumed to be 10 kWh/1000 kg = 0,01 kWh/kg. The source of energy is diesel fuel used by work machines (C1). The dismantled concrete blocks and reinforcement steel are delivered to the nearest construction waste treatment plant. It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed that it has the same weight with the declared product.

Transportation distance to the closest disposal area is estimated as 100 km and the transportation method is lorry which is the most common.

At the waste treatment plant, waste that can be reused, recycled or recovered for energy is separated and diverted for further use. It can be assumed that 100% of the concrete blocks are transported to a waste treatment plant, where the blocks are crushed and separated. About 95% of steel (World Steel Association. 2020) and 80% of concrete (Betoniteollisuus ry, 2020) are recycled. The process losses of the waste treatment plant are assumed to be negligible (C3). The remaining 20% of concrete, 5% of steel and 100% of plastic (<0,2kg) are assumed to be sent to the landfill (C4). Due to the recycling potential of concrete, they can be crushed and used as secondary raw material, which avoids the use of virgin raw materials. The 80 % of concrete going to waste processing is converted into secondary raw materials after recycling. The recycled material content in the concrete itself is assumed to be 0 % but in steel is assumed to be 95% (D).

MANUFACTURING PROCESS



Modul A1: Manufacturing materials

Modul A2: Transport of manufactured materials to Byggelement.

Modul A3: Manufacturing.

Modul A4: Transport to building site.

Modul C1: Disassembling, demolition.

Modul C2: Transport of waste from the demolition site to waste processing and disposal.

Modul C3: Waste processing.

Modul C4: Waste disposal.

Modul D: Benefits and loads beyond the system boundary.

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	No allocation
Packaging materials	Not applicable
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. The EPD Generator uses Ecoinvent v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases 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	2,92E+02	5,18E+00	8,07E+00	3,06E+02	4,87E+01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	3,31E+00	9,38E+00	9,19E+00	1,04E+00	-2,45E+01
GWP – fossil	kg CO ₂ e	2,92E+02	5,18E+00	7,91E+00	3,05E+02	4,87E+01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	3,31E+00	9,38E+00	9,18E+00	1,04E+00	-2,45E+01
GWP – biogenic	kg CO ₂ e	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
GWP – LULUC	kg CO ₂ e	2,79E-01	1,90E-03	1,52E-01	4,33E-01	1,80E-02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	3,30E-04	3,46E-03	6,87E-03	9,44E-04	1,24E-02
Ozone depletion pot.	kg CFC ₁₁ e	1,18E-05	1,20E-06	1,50E-06	1,45E-05	1,12E-05	0,00E+00	MND	MND	MND	MND	MND	MND	MND	7,07E-07	2,16E-06	1,77E-06	4,04E-07	-9,83E-07
Acidification potential	mol H ⁺ e	1,26E+00	2,19E-02	1,19E-01	1,40E+00	2,06E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	3,44E-02	3,97E-02	8,73E-02	9,39E-03	-1,07E-01
EP-freshwater ²⁾	kg Pe	1,10E-02	4,17E-05	3,23E-04	1,14E-02	3,99E-04	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,10E-05	7,68E-05	2,45E-04	1,05E-05	-4,74E-04
EP-marine	kg Ne	1,98E-01	6,52E-03	3,95E-02	2,44E-01	6,13E-02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,52E-02	1,18E-02	3,06E-02	3,30E-03	-8,21E-03
EP-terrestrial	mol Ne	2,46E+00	7,19E-02	5,51E-01	3,08E+00	6,76E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,67E-01	1,30E-01	3,39E-01	3,57E-02	-2,99E-01
POCP (“smog”) ³⁾	kg NMVOCe	8,40E-01	2,30E-02	1,18E-01	9,80E-01	2,16E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	4,59E-02	4,16E-02	9,40E-02	1,04E-02	-1,34E-01
ADP-minerals & metals ⁴⁾	kg Sbe	9,24E-03	1,21E-05	4,33E-05	9,30E-03	1,14E-04	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,68E-06	2,20E-05	2,24E-04	2,30E-06	-6,48E-04
ADP-fossil resources	MJ	2,19E+03	7,79E+01	3,39E+02	2,60E+03	7,31E+02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	4,45E+01	1,41E+02	1,46E+02	2,74E+01	-2,39E+02
Water use ⁵⁾	m ³ e depr.	1,04E+02	3,50E-01	1,20E+01	1,17E+02	3,27E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,20E-01	6,30E-01	1,45E+00	8,72E-02	-3,53E+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, PEF

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	1,63E-05	5,98E-07	2,15E-06	1,91E-05	5,61E-06	0,00E+00	MND	MND	MND	MND	MND	MND	MND	9,22E-07	1,08E-06	7,31E-06	1,89E-07	-1,10E-06
Ionizing radiation ⁶⁾	kBq U235e	8,14E+03	3,74E-01	1,89E+01	8,16E+03	3,48E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	2,05E-01	6,71E-01	1,36E+00	1,24E-01	-1,02E+00
Ecotoxicity (freshwater)	CTUe	8,12E+03	6,95E+01	8,18E+02	9,00E+03	6,58E+02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	2,68E+01	1,27E+02	1,79E+02	1,80E+01	-5,40E+02
Human toxicity, cancer	CTUh	1,94E-06	1,72E-09	1,36E-08	1,95E-06	1,62E-08	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,03E-09	3,11E-09	6,54E-09	4,48E-10	1,90E-07
Human tox. non-cancer	CTUh	1,40E-05	6,93E-08	3,54E-07	1,45E-05	6,51E-07	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,94E-08	1,25E-07	1,98E-07	1,17E-08	1,06E-06
SQP ⁷⁾	-	1,07E+03	8,99E+01	1,51E+03	2,67E+03	8,43E+02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	5,79E+00	1,62E+02	1,49E+02	5,86E+01	-1,49E+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	2,65E+02	8,92E-01	6,08E+02	8,74E+02	8,24E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	2,54E-01	1,59E+00	9,49E+00	2,39E-01	-3,04E+01
Renew. PER as material	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
Total use of renew. PER	MJ	2,65E+02	8,92E-01	6,08E+02	8,74E+02	8,24E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	2,54E-01	1,59E+00	9,49E+00	2,39E-01	-3,04E+01
Non-re. PER as energy	MJ	2,33E+03	7,79E+01	3,33E+02	2,74E+03	7,32E+02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	4,45E+01	1,41E+02	1,46E+02	2,74E+01	-2,39E+02
Non-re. PER as material	MJ	1,96E+01	0,00E+00	0,00E+00	1,96E+01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	-1,96E+01	0,00E+00
Total use of non-re. PER	MJ	2,35E+03	7,79E+01	3,33E+02	2,76E+03	7,32E+02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	4,45E+01	1,41E+02	1,46E+02	7,78E+00	-2,39E+02
Secondary materials	kg	8,36E+01	2,17E-02	1,19E-01	8,37E+01	2,03E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,74E-02	3,91E-02	6,84E-02	5,77E-03	1,31E+01
Renew. secondary fuels	MJ	1,24E+02	2,16E-04	4,53E-01	1,25E+02	2,05E-03	0,00E+00	MND	MND	MND	MND	MND	MND	MND	5,70E-05	3,95E-04	1,75E-03	1,51E-04	-3,28E-03
Non-ren. secondary fuels	MJ	2,04E+02	0,00E+00	0,00E+00	2,04E+02	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	1,36E+01	1,01E-02	2,67E-01	1,39E+01	9,48E-02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	2,70E-03	1,82E-02	7,07E-02	3,00E-02	-7,98E-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	5,05E+01	1,01E-01	5,01E-01	5,11E+01	9,70E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	5,96E-02	1,87E-01	3,93E-01	0,00E+00	-1,22E+01
Non-hazardous waste	kg	1,21E+03	1,67E+00	6,84E+00	1,22E+03	1,59E+01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	4,19E-01	3,07E+00	1,37E+02	1,89E+02	-5,25E+01
Radioactive waste	kg	6,90E-03	5,23E-04	4,49E-03	1,19E-02	4,89E-03	0,00E+00	MND	MND	MND	MND	MND	MND	MND	3,13E-04	9,42E-04	9,75E-04	0,00E+00	-3,93E-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	1,19E+01	1,19E+01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	8,10E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	2,80E-01	2,80E-01	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
Exported energy	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

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	3,08E+02	2,25E+00	7,95E+00	3,18E+02	4,82E+01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	3,27E+00	9,28E+00	9,07E+00	1,01E+00	-2,29E+01
Ozone depletion Pot.	kg CFC-11e	1,26E-05	4,17E-07	1,32E-06	1,44E-05	8,87E-06	0,00E+00	MND	MND	MND	MND	MND	MND	MND	5,60E-07	1,71E-06	1,41E-06	3,19E-07	-1,15E-06
Acidification	kg SO ₂ e	1,13E+00	7,43E-03	8,02E-02	1,22E+00	1,60E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	2,45E-02	3,08E-02	6,56E-02	7,10E-03	-8,42E-02
Eutrophication	kg PO ₄ ³ e	3,48E-01	1,69E-03	2,71E-02	3,77E-01	3,65E-02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	5,69E-03	7,03E-03	2,05E-02	4,03E-03	-4,32E-02
POCP ("smog")	kg C ₂ H ₄ e	6,73E-02	2,91E-04	4,03E-03	7,16E-02	6,25E-03	0,00E+00	MND	MND	MND	MND	MND	MND	MND	5,36E-04	1,20E-03	2,00E-03	3,03E-04	-1,61E-02
ADP-elements	kg Sbe	7,65E-03	5,16E-06	4,33E-05	7,70E-03	1,11E-04	0,00E+00	MND	MND	MND	MND	MND	MND	MND	1,65E-06	2,13E-05	2,24E-04	2,27E-06	-6,46E-04
ADP-fossil	MJ	2,46E+03	3,42E+01	3,38E+02	2,84E+03	7,31E+02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	4,45E+01	1,41E+02	1,46E+02	2,74E+01	-2,39E+02

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	2,92E+02	5,18E+00	7,91E+00	3,05E+02	4,87E+01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	3,31E+00	9,38E+00	9,18E+00	1,04E+00	-2,45E+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.

ANNEX: ARTICLES COVERED BY THIS EPD

Dimension	Specific net weight (kg per m)	GWP-total A1-A3 (kg CO2e/ton)	GWP-fossil A1-A3 (kg CO2e/ton)	GWP-GHG A1-A3 (kg CO2e/ton)
250x250	173,8	4,07E+02	4,07E+02	4,07E+02
300x300	258,7	4,43E+02	4,42E+02	4,42E+02
350x350	325,5	3,45E+02	3,45E+02	3,45E+02
450x450	529,3	2,99E+02	2,98E+02	2,98E+02
500x500	633,9	2,57E+02	2,57E+02	2,57E+02
400x600	704,1	4,16E+02	4,15E+02	4,15E+02
∅300	194,7	3,50E+02	3,49E+02	3,49E+02
∅350	237,0	3,23E+02	3,22E+02	3,22E+02
∅400	315,8	2,88E+02	2,88E+02	2,88E+02
∅450	473,6	4,04E+02	4,03E+02	4,03E+02
∅550	544,2	3,07E+02	3,07E+02	3,07E+02

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.

Imane Uald lamkaddam, as an authorized verifier acting for EPD Hub Limited
11.07.2024

