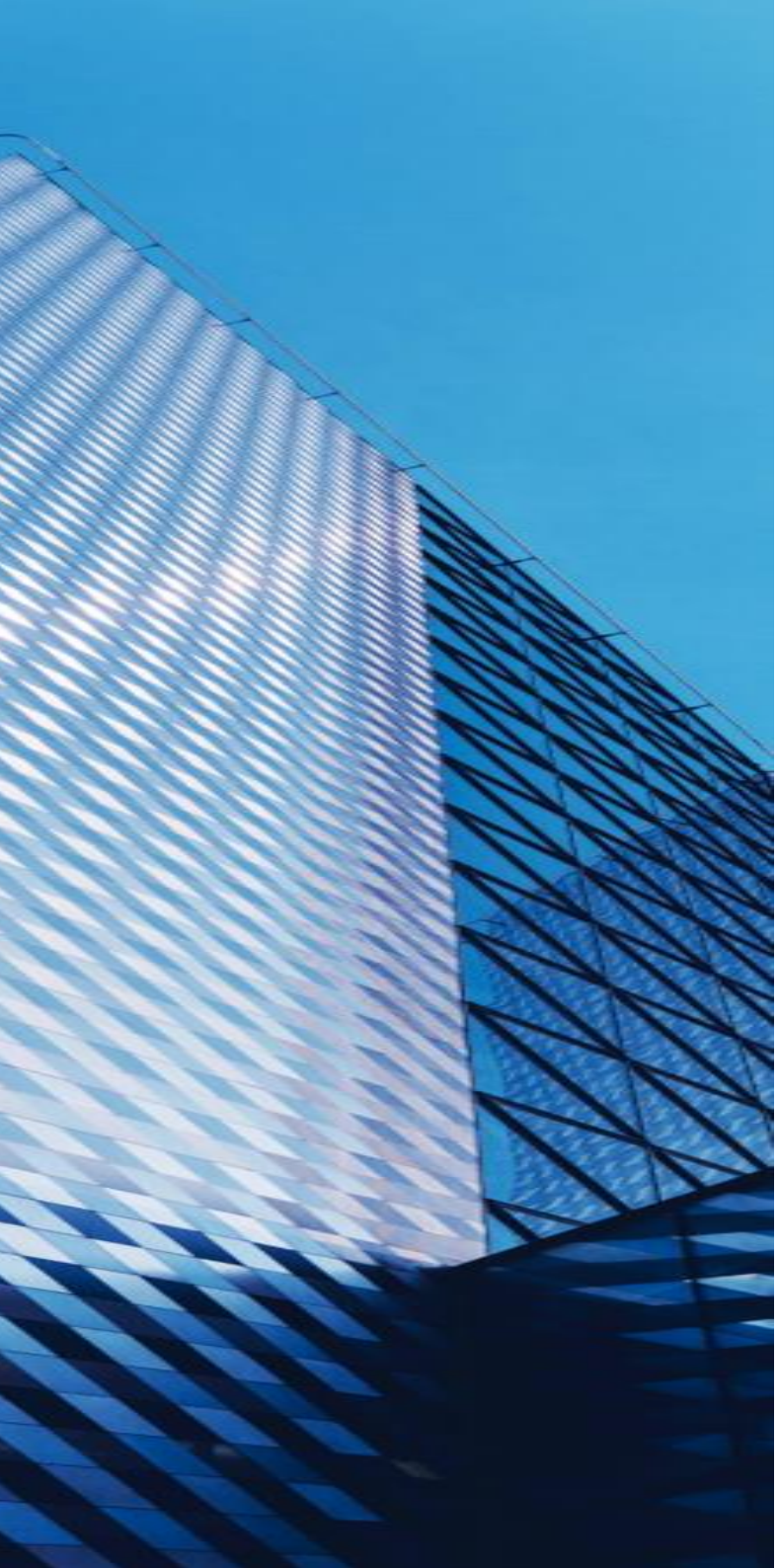


# ENVIRONMENTAL PRODUCT DECLARATION

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

Roof Cowls- Metal coated steel

BEVENT RASCH

**EPD HUB, HUB-1310**
Published on 18.04.2024, last updated on 18.04.2024, valid until 18.04.2029.

Created with One Click LCA

BEVENT RASCH

# GENERAL INFORMATION

## MANUFACTURER

| | |
|---|---|
| Manufacturer | Bevent Rasch AB |
| Address | Box 1739 |
| Contact details | - |
| Website | https://www.bevent-rasch.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 1.0, 1 Feb 2022 |
| 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 | Tobias Jakobsson |
| EPD verification | Independent verification of this EPD and data, according to ISO 14025:<br>☐ Internal verification ☑ External verification |
| EPD verifier | Nemanja Nedic, 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 | Roof Cowls- Metal coated steel |
| Additional labels | - |
| Product reference | - |
| Place of production | Sweden |
| Period for data | Calendar year 2023 |
| Averaging in EPD | Multiple products |
| Variation in GWP-fossil for A1-A3 | 7,7 % |

## ENVIRONMENTAL DATA SUMMARY

| | |
|---|---|
| **Declared unit** | 1 kg of product |
| **Declared unit mass** | 1 kg |
| **GWP-fossil, A1-A3 (kgCO2e)** | 3,51E+00 |
| **GWP-total, A1-A3 (kgCO2e)** | 3,26E+00 |
| **Secondary material, inputs (%)** | 3.56 |
| **Secondary material, outputs (%)** | 89.9 |
| **Total energy use, A1-A3 (kWh)** | 20 |
| **Total water use, A1-A3 (m3e)** | 0.01 |

# PRODUCT AND MANUFACTURER

## ABOUT THE MANUFACTURER

Bevent Rasch is an industry-leading manufacturer of ventilation products in Sweden and the Nordic countries, with collaboration partners on the export market. Our products are at the forefront of development and have long set standards followed by the rest of the industry. With innovation, technology, and a long-term perspective as watchwords, we develop smart, high-tech solutions and safe installation methods, delivered with uncompromising timeliness.

## PRODUCT DESCRIPTION

Our cowls are developed and manufactured to ensure optimal performance and excellent water separation. The models are suitable for a variety of application areas and utilised in many different types of projects, including offices, schools, hospitals, laboratories, and industrial and residential buildings. All cowls are manufactured in our modern factory in Motala, Sweden, and can be customised based on your specifications by our product-design department.

*For all product sizes and weight see Appendix 1.*

Further information can be found at https://www.bevent-rasch.se/.

## PRODUCT RAW MATERIAL MAIN COMPOSITION

| Raw material category | Amount, mass- % | Material origin |
|---|---|---|
| Metals | 99,87 | Europe |
| Minerals | | |
| Fossil materials | 0,13 | Europe |
| Bio-based materials | | |

## 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 | 0.068 |

## FUNCTIONAL UNIT AND SERVICE LIFE

| | |
|---|---|
| Declared unit | 1 kg of product |
| Mass per declared unit | 1 kg |
| Functional unit | - |
| Reference service life | 30 |

## 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 raw materials and components (A1) are predominantly sourced from European suppliers, with a few minor components sourced from Asian countries. The final products manufacturing (A3) occurs in Motala, Sweden. This manufacturing process entails cutting and shaping steel sheets, assembling, and packaging. Waste generated at the factory is sent for recycling. All operations at the factory site are powered by electricity, which is fossil-free. Approximately 30% of this electricity is generated from on-site solar cells.

## 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 assumed average transportation distance from the production plant to the building site is 250 km, utilizing lorries as the transportation method. It is assumed that the vehicle capacity utilization volume factor is 100%, indicating a full load. Although this factor may vary, the impact of transportation emissions on the overall results is considered minor, thus variations in load are regarded as negligible for this study. As a conservative measure, empty returns are factored into this analysis, incorporated through an average load factor within the Ecoinvent transport datapoints. Proper packaging ensures that transportation does not incur losses for the products being transported. Installation loss of the product is estimated to be zero. The handling of packaging has been considered.

It is assumed that no energy is needed during the installation process, except for human labour. However, the impact arises from the waste treatment of the packaging materials. The transportation of this waste is modelled using the transportation distance to treatment is assumed as 50 km and the transportation method is assumed to be lorry.

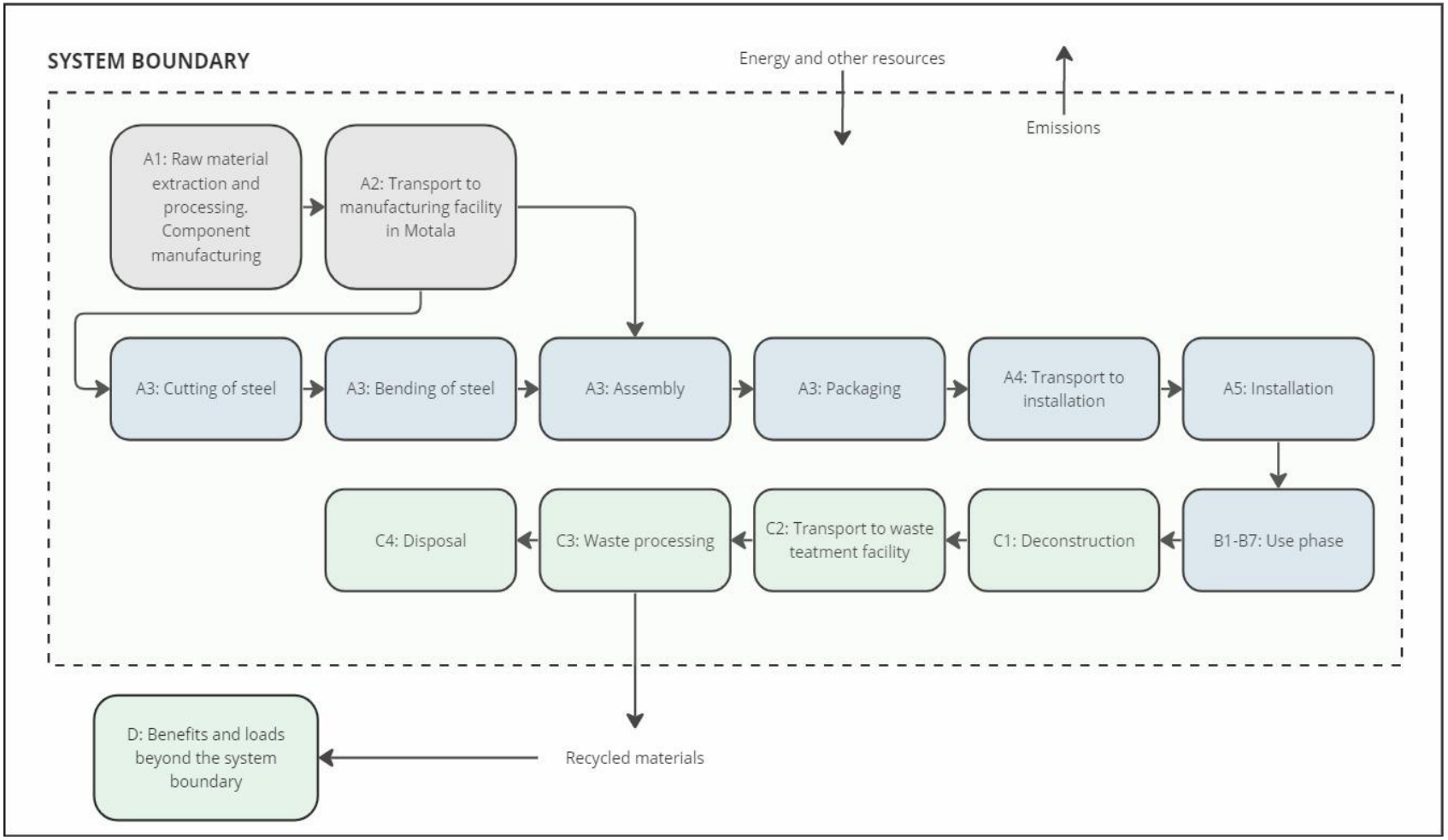
## PRODUCT USE AND MAINTENANCE (B1-B7)

The product is assumed to have no environmental impacts during the use phase; therefore, these modules are not included in the analysis.
Air, soil, and water impacts during the use phase have not been studied.

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

It is assumed that 100% of the waste is collected and transported to the waste treatment center. Transportation distance to treatment is assumed as 50 km and the transportation method is assumed to be lorry (C2). Approximately 90% of steel is assumed to be recycled based on European Comission 2020 (C3). It is assumed that the remaining 10% of steel is taken to landfill for final disposal (C4). Due to the recycling process, the end-of-life product is converted into recycled steel, while the wooden pallet is in part recycled and mostly incinerated with energy recovery (D). The raw material, which contains 20% recycled steel, is deducted from the 90%. Thus, 70% of the net flow of steel is to be credited in Module D.

# 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.

## 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 | No allocation |
| Ancillary materials | Allocated by mass or volume |
| Manufacturing energy and waste | Allocated by mass or volume |

## AVERAGES AND VARIABILITY

| | |
|---|---|
| Type of average | Multiple products |
| Averaging method | Representative product |
| Variation in GWP-fossil for A1-A3 | 7,7 % |

All products are manufactured at the same site in Motala, Sweden and goes through the same processes.

The roof hoods manufactured are made from galvanized steel sheets, fasteners, and sealant. The range of the percentage of steel sheet in these products is 96-99.9%. The reference product, which is a typical product, contains 99.2% steel sheet, with the remainder being fasteners and sealant.

## 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 | 3,24E+00 | 1,26E-01 | -1,08E-01 | 3,26E+00 | 4,90E-02 | 2,58E-01 | MND | MND | MND | MND | MND | MND | MND | 3,31E-03 | 4,69E-03 | 1,97E-02 | 6,44E-04 | -1,16E+00 |
| GWP – fossil | kg $CO_2$e | 3,24E+00 | 1,26E-01 | 1,38E-01 | 3,51E+00 | 4,90E-02 | 6,96E-03 | MND | MND | MND | MND | MND | MND | MND | 3,31E-03 | 4,69E-03 | 1,97E-02 | 6,43E-04 | -1,16E+00 |
| GWP – biogenic | kg $CO_2$e | 2,04E-04 | 6,71E-06 | -2,51E-01 | -2,51E-01 | 0,00E+00 | 2,51E-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 $CO_2$e | 9,43E-04 | 9,40E-05 | 5,36E-03 | 6,39E-03 | 1,92E-05 | 2,43E-06 | MND | MND | MND | MND | MND | MND | MND | 3,30E-07 | 1,73E-06 | 2,58E-05 | 5,09E-07 | -1,90E-04 |
| Ozone depletion pot. | kg $CFC_{-11}$e | 1,64E-09 | 2,45E-08 | 1,25E-08 | 3,86E-08 | 1,13E-08 | 4,93E-10 | MND | MND | MND | MND | MND | MND | MND | 7,07E-10 | 1,08E-09 | 2,43E-09 | 2,16E-10 | -4,52E-08 |
| Acidification potential | mol $H^+$e | 9,18E-03 | 2,65E-03 | 8,06E-04 | 1,26E-02 | 1,99E-04 | 2,05E-05 | MND | MND | MND | MND | MND | MND | MND | 3,44E-05 | 1,99E-05 | 2,50E-04 | 5,04E-06 | -4,77E-03 |
| EP-freshwater[2)] | kg Pe | 1,30E-06 | 1,44E-06 | 7,30E-06 | 1,00E-05 | 3,44E-07 | 7,88E-08 | MND | MND | MND | MND | MND | MND | MND | 1,10E-08 | 3,84E-08 | 1,06E-06 | 5,71E-09 | -4,79E-05 |
| EP-marine | kg Ne | 2,26E-03 | 6,86E-04 | 2,06E-04 | 3,15E-03 | 5,93E-05 | 9,39E-06 | MND | MND | MND | MND | MND | MND | MND | 1,52E-05 | 5,90E-06 | 5,28E-05 | 1,86E-06 | -9,76E-04 |
| EP-terrestrial | mol Ne | 2,44E-02 | 7,62E-03 | 2,30E-03 | 3,43E-02 | 6,54E-04 | 8,04E-05 | MND | MND | MND | MND | MND | MND | MND | 1,67E-04 | 6,51E-05 | 6,11E-04 | 1,92E-05 | -1,14E-02 |
| POCP ("smog")[3)] | kg NMVOCe | 6,73E-03 | 2,00E-03 | 6,94E-04 | 9,43E-03 | 2,00E-04 | 2,34E-05 | MND | MND | MND | MND | MND | MND | MND | 4,59E-05 | 2,08E-05 | 1,68E-04 | 5,60E-06 | -5,80E-03 |
| ADP-minerals & metals[4)] | kg Sbe | 2,27E-04 | 2,79E-07 | 2,39E-06 | 2,30E-04 | 1,73E-07 | 8,91E-09 | MND | MND | MND | MND | MND | MND | MND | 1,68E-09 | 1,10E-08 | 2,65E-06 | 1,25E-09 | -2,21E-05 |
| ADP-fossil resources | MJ | 3,80E+01 | 1,71E+00 | 2,04E+01 | 6,01E+01 | 7,27E-01 | 4,59E-02 | MND | MND | MND | MND | MND | MND | MND | 4,45E-02 | 7,05E-02 | 2,67E-01 | 1,47E-02 | -1,02E+01 |
| Water use[5)] | $m^3$e depr. | 2,16E-01 | 1,12E-02 | 5,22E-01 | 7,49E-01 | 3,36E-03 | 4,14E-03 | MND | MND | MND | MND | MND | MND | MND | 1,20E-04 | 3,15E-04 | 5,18E-03 | 4,74E-05 | -2,11E-01 |

*1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.*

## ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, 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 | 2,32E-09 | 7,82E-09 | 1,40E-08 | 2,41E-08 | 4,22E-09 | 3,24E-10 | MND | MND | MND | MND | MND | MND | MND | 9,22E-10 | 5,41E-10 | 3,27E-09 | 1,01E-10 | -7,73E-08 |
| Ionizing radiation[6)] | kBq U235e | 1,54E-03 | 1,09E-02 | 1,41E+00 | 1,43E+00 | 3,80E-03 | 4,10E-04 | MND | MND | MND | MND | MND | MND | MND | 2,05E-04 | 3,36E-04 | 2,98E-03 | 6,65E-05 | 4,09E-02 |
| Ecotoxicity (freshwater) | CTUe | 1,53E+00 | 1,35E+00 | 6,57E+00 | 9,45E+00 | 6,03E-01 | 4,80E-02 | MND | MND | MND | MND | MND | MND | MND | 2,68E-02 | 6,34E-02 | 1,21E+00 | 9,95E-03 | -4,15E+01 |
| Human toxicity, cancer | CTUh | 1,32E-10 | 7,59E-11 | 4,34E-10 | 6,42E-10 | 1,87E-11 | 3,78E-12 | MND | MND | MND | MND | MND | MND | MND | 1,03E-12 | 1,56E-12 | 3,70E-11 | 2,44E-13 | 9,83E-09 |
| Human tox. non-cancer | CTUh | 6,25E-10 | 1,11E-09 | 3,64E-09 | 5,37E-09 | 6,12E-10 | 1,53E-10 | MND | MND | MND | MND | MND | MND | MND | 1,94E-11 | 6,27E-11 | 1,65E-09 | 6,38E-12 | -2,78E-08 |
| SQP[7)] | - | 1,29E-01 | 9,08E-01 | 2,40E+01 | 2,50E+01 | 5,09E-01 | 5,87E-02 | MND | MND | MND | MND | MND | MND | MND | 5,79E-03 | 8,12E-02 | 5,37E-01 | 3,14E-02 | -3,99E+00 |

*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 | 2,49E+00 | 4,61E-02 | 9,61E+00 | 1,22E+01 | 1,04E-02 | 2,31E-03 | MND | MND | MND | MND | MND | MND | MND | 2,54E-04 | 7,94E-04 | 4,73E-02 | 1,30E-04 | -8,87E-01 |
| Renew. PER as material | MJ | 0,00E+00 | 0,00E+00 | 2,20E+00 | 2,20E+00 | 0,00E+00 | -2,20E+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 | 2,49E+00 | 4,61E-02 | 1,18E+01 | 1,44E+01 | 1,04E-02 | -2,20E+00 | MND | MND | MND | MND | MND | MND | MND | 2,54E-04 | 7,94E-04 | 4,73E-02 | 1,30E-04 | -8,87E-01 |
| Non-re. PER as energy | MJ | 3,80E+01 | 1,71E+00 | 2,01E+01 | 5,98E+01 | 7,27E-01 | 4,59E-02 | MND | MND | MND | MND | MND | MND | MND | 4,45E-02 | 7,05E-02 | 2,67E-01 | 1,47E-02 | -1,01E+01 |
| Non-re. PER as material | MJ | 0,00E+00 | 0,00E+00 | 2,73E-01 | 2,73E-01 | 0,00E+00 | -2,73E-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 non-re. PER | MJ | 3,80E+01 | 1,71E+00 | 2,04E+01 | 6,01E+01 | 7,27E-01 | -2,27E-01 | MND | MND | MND | MND | MND | MND | MND | 4,45E-02 | 7,05E-02 | 2,67E-01 | 1,47E-02 | -1,01E+01 |
| Secondary materials | kg | 3,56E-02 | 9,58E-04 | 9,53E-03 | 4,61E-02 | 2,44E-04 | 3,36E-05 | MND | MND | MND | MND | MND | MND | MND | 1,74E-05 | 1,96E-05 | 2,97E-04 | 3,12E-06 | 6,70E-01 |
| Renew. secondary fuels | MJ | 8,63E-06 | 3,60E-06 | 7,43E-02 | 7,43E-02 | 2,68E-06 | 3,31E-07 | MND | MND | MND | MND | MND | MND | MND | 5,70E-08 | 1,97E-07 | 1,54E-05 | 8,26E-08 | -1,07E-04 |
| Non-ren. secondary fuels | MJ | 1,29E-21 | 0,00E+00 | 0,00E+00 | 1,29E-21 | 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 | $m^3$ | 8,24E-04 | 2,98E-04 | 1,29E-02 | 1,40E-02 | 9,14E-05 | 1,65E-05 | MND | MND | MND | MND | MND | MND | MND | 2,70E-06 | 9,13E-06 | 1,57E-04 | 1,61E-05 | -2,49E-03 |

*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 | 9,08E-02 | 3,52E-03 | 1,59E-02 | 1,10E-01 | 8,15E-04 | 6,18E-05 | MND | MND | MND | MND | MND | MND | MND | 5,96E-05 | 9,34E-05 | 1,81E-03 | 0,00E+00 | -3,87E-01 |
| Non-hazardous waste | kg | 1,47E-01 | 6,18E-02 | 2,49E-01 | 4,58E-01 | 1,45E-02 | 1,25E-01 | MND | MND | MND | MND | MND | MND | MND | 4,19E-04 | 1,54E-03 | 5,79E-02 | 1,01E-01 | -1,91E+00 |
| Radioactive waste | kg | 7,15E-04 | 1,17E-05 | 3,05E-04 | 1,03E-03 | 5,00E-06 | 1,54E-07 | MND | MND | MND | MND | MND | MND | MND | 3,13E-07 | 4,71E-07 | 1,56E-06 | 0,00E+00 | 3,03E-06 |

## 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 | 2,98E-01 | 2,98E-01 | 0,00E+00 | 5,50E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 8,99E-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 | 5,53E-02 | 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 | 5,94E-01 | 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 | 3,15E+00 | 1,25E-01 | 1,41E-01 | 3,42E+00 | 4,85E-02 | 1,11E-02 | MND | MND | MND | MND | MND | MND | MND | 3,27E-03 | 4,64E-03 | 1,94E-02 | 6,11E-04 | -1,10E+00 |
| Ozone depletion Pot. | kg $CFC_{-11}$e | 1,53E-09 | 1,94E-08 | 1,07E-08 | 3,17E-08 | 8,98E-09 | 3,97E-10 | MND | MND | MND | MND | MND | MND | MND | 5,60E-10 | 8,55E-10 | 1,97E-09 | 1,71E-10 | -5,05E-08 |
| Acidification | kg $SO_2$e | 7,37E-03 | 2,10E-03 | 6,27E-04 | 1,01E-02 | 1,54E-04 | 1,54E-05 | MND | MND | MND | MND | MND | MND | MND | 2,45E-05 | 1,54E-05 | 2,02E-04 | 3,81E-06 | -3,86E-03 |
| Eutrophication | kg $PO_4^3$e | 8,38E-04 | 2,86E-04 | 3,43E-04 | 1,47E-03 | 3,50E-05 | 2,04E-04 | MND | MND | MND | MND | MND | MND | MND | 5,69E-06 | 3,52E-06 | 6,67E-05 | 7,26E-06 | -1,98E-03 |
| POCP (“smog”) | kg $C_2H_4$e | 6,83E-04 | 5,64E-05 | 5,04E-05 | 7,90E-04 | 6,32E-06 | 1,53E-06 | MND | MND | MND | MND | MND | MND | MND | 5,36E-07 | 6,03E-07 | 7,64E-06 | 1,74E-07 | -6,62E-04 |
| ADP-elements | kg Sbe | 2,27E-04 | 2,74E-07 | 2,42E-06 | 2,30E-04 | 1,70E-07 | 8,47E-09 | MND | MND | MND | MND | MND | MND | MND | 1,65E-09 | 1,07E-08 | 2,65E-06 | 1,23E-09 | -2,21E-05 |
| ADP-fossil | MJ | 3,62E+01 | 1,71E+00 | 2,04E+01 | 5,83E+01 | 7,27E-01 | 4,59E-02 | MND | MND | MND | MND | MND | MND | MND | 4,45E-02 | 7,05E-02 | 2,67E-01 | 1,47E-02 | -1,02E+01 |

## 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 | 3,24E+00 | 1,26E-01 | 1,38E-01 | 3,51E+00 | 4,90E-02 | 6,96E-03 | MND | MND | MND | MND | MND | MND | MND | MNR | 0,00E+00 | 0,00E+00 | 0,00E+00 | -1,16E+00 |

*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.*

# 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.

Nemanja Nedic, as an authorized verifier acting for EPD Hub Limited
18.04.2024

## Appendix 1

Roof Cowl models

**The weight is accurate as of the date of publication; any adjustments are detailed in the data sheet.*

| BREA | | DELTA-AH | | DELTA-DA | | BRDJ | | DELTA-DU | | BRSF | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Size øD** | **Weight [kg]** | **Size** | **Weight [kg]** | **Size** | **Weight [kg]** | **Size øD** | **Weight [kg]** | **Size** | **Weight [kg]** | **Size** | **Weight [kg]** |
| **100** | 0,8 | 200 | 14 | 200 | 28 | 100 | 0,8 | 200 | 26 | 200 | 12 |
| **125** | 1,1 | 300 | 22 | 300 | 44 | 125 | 1 | 300 | 38 | 300 | 18 |
| **160** | 1,7 | 400 | 30 | 400 | 60 | 160 | 1,9 | 400 | 54 | 400 | 24 |
| **200** | 2,6 | 500 | 40 | 500 | 80 | 200 | 2,5 | 500 | 70 | 500 | 33 |
| **250** | 4 | 600 | 52 | 600 | 104 | 250 | 4 | 600 | 90 | 600 | 46 |
| **315** | 6,5 | 800 | 80 | 800 | 160 | 315 | 6 | 800 | 138 | 800 | 74 |
| **400** | 19 | 1000 | 113 | 1000 | 226 | 400 | 15 | 1000 | 190 | 1000 | 95 |
| **500** | 25 | 1200 | 162 | 1200 | 324 | 500 | 21 | 1200 | 282 | 1200 | 117 |
| **630** | 45 | 1400 | 209 | 1400 | 418 | 630 | 38 | 1400 | 362 | 1400 | 148 |
| **800** | 75 | 1600 | 262 | 1600 | 524 | 800 | 57 | 1600 | 450 | 1600 | 181 |
| **1000** | 115 | 1800 | 321 | 1800 | 642 | 1000 | 75 | 1800 | 548 | 1800 | 218 |
| **1250** | 270 | 2000 | 386 | 2000 | 772 | 1250 | 92 | 2000 | 656 | 2000 | 260 |

| DELTA-KH | | BRSK | | DELTA-UH | | BRSI | | BRLH | | BRKA | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Size** | **Weight [kg]** | **Size** | **Weight [kg]** | **Size** | **Weight [kg]** | **Size** | **Weight [kg]** | **Size øD** | **Weight [kg]** | **Size øD** | **Weight [kg]** |
| **200** | 23 | 200 | 24 | 200 | 13 | 200 | 14 | 125 | 1 | 100 | 0,5 |
| **300** | 34 | 300 | 33 | 300 | 19 | 300 | 20 | 160 | 2 | 125 | 0,5 |
| **400** | 47 | 400 | 43 | 400 | 27 | 400 | 27 | 200 | 3 | 160 | 0,7 |
| **500** | 63 | 500 | 60 | 500 | 35 | 500 | 36 | 250 | 7 | 200 | 0,9 |
| **600** | 81 | 600 | 75 | 600 | 45 | 600 | 46 | 315 | 10 | 250 | 1,3 |
| **800** | 122 | 800 | 136 | 800 | 68 | 800 | 76 | 400 | 17 | 315 | 2 |
| **1000** | 172 | 1000 | 171 | 1000 | 95 | 1000 | 97 | 500 | 28 | 400 | 2,5 |
| **1200** | 346 | 1200 | 210 | 1200 | 141 | 1200 | 120 | 630 | 40 | 500 | 4 |
| **1400** | 316 | 1400 | 262 | 1400 | 181 | 1400 | 151 | 800 | 70 | | |
| **1600** | 395 | 1600 | 320 | 1600 | 225 | 1600 | 186 | 1250 | 150 | | |
| **1800** | 482 | 1800 | 383 | 1800 | 274 | 1800 | 223 | 1500 | 200 | | |
| **2000** | 578 | 2000 | 438 | 2000 | 328 | 2000 | 281 | | | | |

| BRTE | | BRBA | | DELTA-RK | | BRTH | | DELTA-RA | |
|---|---|---|---|---|---|---|---|---|---|
| **Size** | **Weight [kg]** | **Size øD** | **Weight [kg]** | **Size** | **Weight [kg]** | **Size** | **Weight [kg]** | **Size** | **Weight [kg]** |
| **4-1,5** | 9,4 | 315 | 16 | 600 | 96 | 300 | 7 | 600 | 63 |
| **5-1,5** | 12,3 | 400 | 24 | 800 | 143 | 400 | 12 | 800 | 91 |
| **6-1,5** | 14,5 | 500 | 36 | 1000 | 224 | 500 | 19 | 1000 | 131 |
| **6-2** | 17 | 630 | 61 | 1200 | 300 | 700 | 32 | 1200 | 173 |
| **7-2** | 20 | 800 | 97 | 1400 | 383 | 900 | 43 | 1400 | 220 |
| **7-2,5** | 23 | 1000 | 146 | | | | | | |
| **8-2** | 23,5 | 1250 | 239 | | | | | | |
| **8-3** | 30 | 1500 | 350 | | | | | | |
| **9-3** | 34,5 | | | | | | | | |
| **9-4** | 42 | | | | | | | | |
| **10-3** | 39 | | | | | | | | |
| **10-4** | 47 | | | | | | | | |
| **11-3** | 45 | | | | | | | | |
| **11-4** | 54 | | | | | | | | |
| **12-3** | 50 | | | | | | | | |
| **12-4** | 59 | | | | | | | | |
| **12-5** | 69 | | | | | | | | |
| **13-3** | 55 | | | | | | | | |
| **13-4** | 65 | | | | | | | | |
| **13-5** | 75 | | | | | | | | |
| **14-3** | 60 | | | | | | | | |
| **14-4** | 71 | | | | | | | | |
| **14-5** | 82 | | | | | | | | |
| **15-4** | 77 | | | | | | | | |
| **15-5** | 90 | | | | | | | | |
| **15-6** | 102 | | | | | | | | |
| **16-4** | 84 | | | | | | | | |
| **16-5** | 97 | | | | | | | | |
| **16-6** | 110 | | | | | | | | |