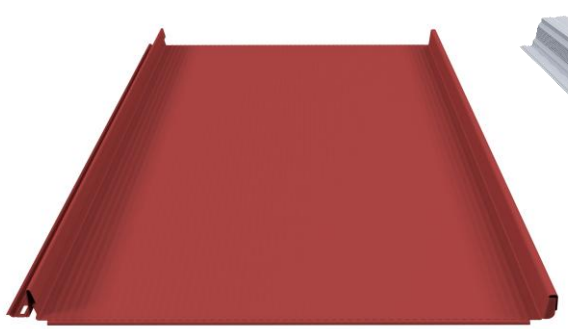


ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Ruukki Colour-Coated Building Products
Ruukki Construction Oy





EPD HUB, HUB-5048
Published on 23.01.2026, last updated on 23.01.2026, valid until 22.01.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Ruukki Construction Oy
Address	Panuntie 11, 00620 Helsinki, FI
Contact details	Mira Laukkanen, mira.laukkanen@ruukki.com
Website	https://www.ruukki.com/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025 EN 17662 Execution of steel structures and aluminium structures
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	Mira Laukkanen, Ruukki Construction
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 for EPD Hub

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	Ruukki Colour-Coated Building Products
Place(s) of raw material origin	EU
Place of production	Vimpeli (Finland), Anderslöv (Sweden), Pärnu (Estonia), Vaidotai (Lithuania), Zyrardow (Poland) and Kopylov (Ukraine)
Place(s) of installation and use	EU
Period for data	Calendar year 2023
Averaging in EPD	Multiple products and multiple factories
Variation in GWP-fossil for A1-A3 (%)	Max. +/- 5 %
A1-A3 Specific data (%)	100 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
Mass of packaging	0,014 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	2,6
GWP-total, A1-A3 ($kgCO_2e$)	2,58
Secondary material, inputs (%)	5,85
Secondary material, outputs (%)	95
Total energy use, A1-A3 (kWh)	10,2
Net freshwater use, A1-A3 (m^3)	0,05



PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Ruukki makes steel-based products for walls and roofs, for both commercial buildings and private homes. Our strong presence in 10 European countries enables us to serve customers locally. We are of Nordic origin, part of SSAB, sharing values, and long experience in steel and construction industry. More information about the manufacturer can be found at https://www.ruukki.com/.

PRODUCT DESCRIPTION

The products covered by this EPD include colour-coated steel building products for roofs and walls, and related structural applications. Roofing products—such as tile sheets, standing seam panels, profiled and flat sheets—are used to form durable, weather-resistant roof surfaces. Soffits and flashings provide finishing details and protection for roof edges and joints. Load-bearing profiles for decking, studs, purlins, and composite sheets serve as structural elements, ensuring mechanical strength and stability. This EPD covers all profiled colour-coated building products produced by Ruukki Construction.

All products are manufactured from colour-coated steel. Typical product thickness ranges from 0,42 mm to 1,5 mm. Zinc-based metal coatings typically range from 100–275 g/m², and organic color coatings are 25–50 µm thick, with thicker coatings applied for special visual or durability requirements. Typical applications are residential buildings, industrial and commercial buildings, sports facilities and warehouses.

The results of environmental indicators stated in this declaration are average values for colour-coated steel building products and covers all Ruukki manufacturing sites. The results have been calculated based on weighted average of yearly production volume.

Further information can be found at: https://www.ruukki.com/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	96,6	EU
Minerals	0	-
Fossil materials	3,4	EU
Bio-based materials	0	-

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	0,004

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 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	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = ND. Modules not relevant = MNR

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

Ruukki's colour-coated building products are manufactured from colour-coated, hot-dip galvanised steel sheet. Steel is an alloy of mainly iron and carbon, with small amounts of alloying elements. These elements improve the chemical and physical properties of steel such as strength, durability and corrosion resistance. The alloying elements of steel are closely linked to its chemical matrix. The steel thickness of the products is from 0,42 to 1,50 mm. Steel density is 7 850 kg/m3. Product weight varies depending on steel thickness, coating and profiling selected on the product. The zinc coating is lead-free and has a zinc content of 92-100%. The product portfolio includes a wide colour range, with many surface gloss and structural options to choose from.

These products are manufactured at Ruukki's plants in Vimpeli (Finland), Anderslöv (Sweden), Pärnu (Estonia), Vaidotai (Lithuania), Zyrardow (Poland) and Kopylov (Ukraine). Raw materials are transported to production sites primarily by trucks, and by ferries when required. The steel arrives to the plant in coils. Colour-coated steel coils are first processed on slitting lines to achieve the required strip dimensions. These strips are then roll-formed or bent into the desired profiles, followed by edging and cutting to specified lengths. For used grid electricity, a market-based approach is used in modelling the electricity mix utilized in the factory. The use of green energy in manufacturing is demonstrated through contractual instruments (GOs), and its use is ensured throughout the validity period of this EPD. Wind and nuclear electricity with GOs is utilized. Manufacturing that doesn't use green electricity through GOs has been calculated with country level residual mix. Also, electricity from own solar energy production is utilized in Zyrardow plant. The energy profiles (electricity and fuels) are different among the plants. Steel scrap from manufacturing is sold to recycling.

After manufacturing, the products are wrapped to protect them during handling and transport. A typical package consists of a wooden pallet or other wooden packaging, packaging plastic film, cardboard and plastic or metal bands. Plastic and cardboard scrap is typically recycled and wood waste sent to incineration.

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.

Finished products are transported by truck and ship. Ruukki's logistics unit is responsible for most of the transportation of raw materials and products. Logistics aims to optimise transport, maximise payloads and combine transport as efficiently as possible. Environmental impacts for transport of finished product to the building site (A4), have been calculated based on the weighted average of the market shares and yearly production volume of each production unit.

Installation of a product to a building (A5) includes an average of used electricity and diesel that machines consume during installation. It is assumed that installation of 1 kg of product consumes 0,0019 kWh electricity and 0,142 MJ diesel. Waste management of packaging materials is also included in A5. Based on Eurostat, 40 % of packaging plastics is assumed to be recycled, 37 % is incinerated and 23 % is landfilled. Packaging cardboard is assumed to be 83 % recycled, 8 % incinerated and 9 % landfilled (Eurostat). Packaging pallets and other wooden packaging are assumed to be 32 % recycled, 30 % incinerated and 38 % landfilled (Eurostat). Metal bands are assumed to be 95 % recycled and 5 % landfilled (World Steel Association, 2020).

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.

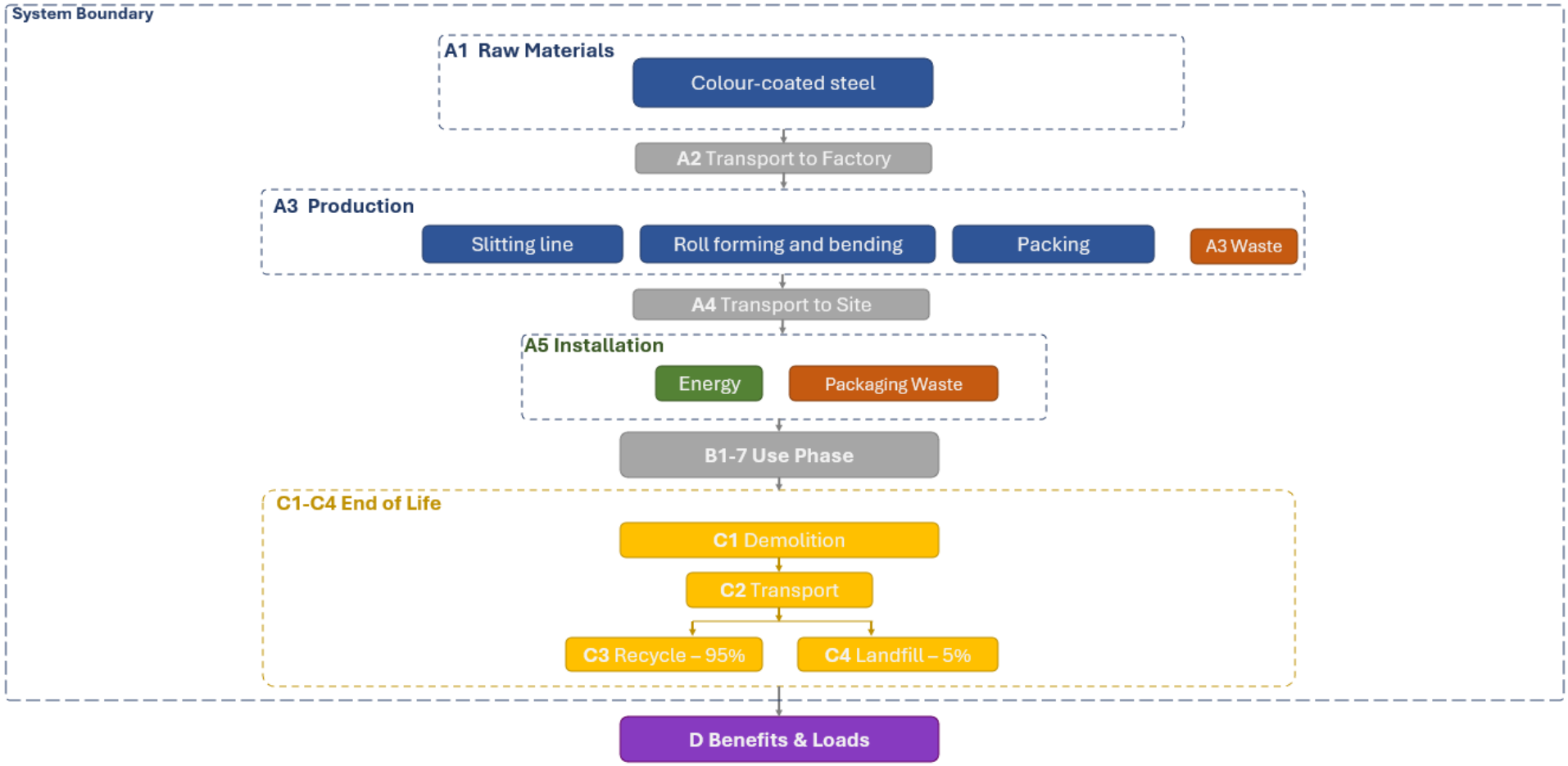
PRODUCT END OF LIFE (C1-C4, D)

It is assumed that energy consumption of demolition process (C1) is 0,01 kWh/kg (Bozdag, Ö & Secer, M. 2007.) It is also assumed that the used energy source in C1 is diesel. After dismantling, the waste is transported to waste processing (C2). Transportation distance to waste processing is assumed to be 50 km by truck.

Waste materials are sorted, and steel is cycled back to the steel industry by scrap trade. In this EPD, it is assumed that 95 % of steel is recycled (C3) and 5 % is landfilled (C4) (World Steel Association, 2020).

The benefits and loads of recycling and incineration of the product and packaging are included in module D.

SYSTEM DIAGRAM



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

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products and multiple factories
Grouping method	Based on average results of product group - by total volume
Variation in GWP-fossil for A1-A3, %	Max. +/- 5 %

The EPD is declared as a group of multiple products and factories. It covers colour-coated Ruukki building products produced in Vimpeli (Finland), Anderslöv (Sweden), Pärnu (Estonia), Vaidotai (Lithuania), Zyrardow (Poland) and Kopylov (Ukraine). The products are produced from colour-coated steel. The results are averaged based on annual production volumes of the factories. Product applications include tile sheets for roofing, standing seam roofs, profiled sheets for roofing and walls, flat sheets for roofing, roof finishing soffits and flashings, load bearing profiles for decking, studs, purlins,

composite sheets and other products made from color-coated steel. The core manufacturing process is similar, using comparable raw materials and production technologies. Differences and causes for GWP variation between plants arise mainly from transportation distances for raw materials and different energy mixes.

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, and PCR EN 17662 Execution of steel structures and aluminium structures. The EPD Generator uses Ecoinvent v3.10.1/3.11 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	2,48E+00	7,42E-02	2,23E-02	2,58E+00	6,40E-02	3,91E-02	ND	ND	ND	ND	ND	ND	ND	3,61E-03	5,39E-03	2,58E-02	3,12E-04	-1,46E+00
GWP – fossil	kg CO_2e	2,48E+00	7,41E-02	4,17E-02	2,60E+00	6,40E-02	1,68E-02	ND	ND	ND	ND	ND	ND	ND	3,60E-03	5,38E-03	2,58E-02	3,12E-04	-1,46E+00
GWP – biogenic	kg CO_2e	6,64E-04	1,64E-05	-1,95E-02	-1,88E-02	1,41E-05	2,23E-02	ND	ND	ND	ND	ND	ND	ND	3,68E-07	1,22E-06	-7,71E-05	-9,93E-08	4,93E-03
GWP – LULUC	kg CO_2e	2,54E-03	3,33E-05	7,89E-05	2,65E-03	2,88E-05	3,86E-06	ND	ND	ND	ND	ND	ND	ND	3,69E-07	2,41E-06	3,04E-05	1,78E-07	-7,31E-04
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	1,22E-08	1,09E-09	1,04E-09	1,43E-08	9,43E-10	2,34E-10	ND	ND	ND	ND	ND	ND	ND	5,52E-11	7,95E-11	2,78E-10	9,04E-12	-6,21E-09
Acidification potential	mol H^+e	5,92E-03	3,76E-04	1,90E-04	6,48E-03	3,29E-04	1,34E-04	ND	ND	ND	ND	ND	ND	ND	3,25E-05	1,84E-05	2,76E-04	2,21E-06	-6,62E-03
EP-freshwater[2)]	kg Pe	2,10E-05	5,54E-06	1,00E-05	3,65E-05	4,77E-06	1,05E-06	ND	ND	ND	ND	ND	ND	ND	1,04E-07	4,19E-07	1,40E-05	2,57E-08	-7,19E-04
EP-marine	kg Ne	1,62E-03	1,13E-04	4,95E-05	1,78E-03	9,86E-05	6,21E-05	ND	ND	ND	ND	ND	ND	ND	1,51E-05	6,03E-06	6,14E-05	8,44E-07	-1,50E-03
EP-terrestrial	mol Ne	1,72E-02	1,24E-03	6,24E-04	1,91E-02	1,08E-03	6,65E-04	ND	ND	ND	ND	ND	ND	ND	1,65E-04	6,56E-05	6,92E-04	9,21E-06	-1,63E-02
POCP ("smog")[3)]	kg NMVOCe	4,59E-03	4,54E-04	1,88E-04	5,23E-03	3,95E-04	1,99E-04	ND	ND	ND	ND	ND	ND	ND	4,93E-05	2,70E-05	2,04E-04	3,30E-06	-5,33E-03
ADP-minerals & metals[4)]	kg Sbe	1,07E-04	1,98E-07	3,70E-06	1,11E-04	1,70E-07	8,08E-09	ND	ND	ND	ND	ND	ND	ND	1,29E-09	1,50E-08	1,52E-06	4,96E-10	-9,77E-05
ADP-fossil resources	MJ	3,32E+01	1,06E+00	8,30E-01	3,51E+01	9,19E-01	2,05E-01	ND	ND	ND	ND	ND	ND	ND	4,72E-02	7,81E-02	3,05E-01	7,66E-03	-1,40E+01
Water use[5)]	m^3e depr.	1,82E+00	5,12E-03	1,13E-02	1,83E+00	4,42E-03	1,00E-03	ND	ND	ND	ND	ND	ND	ND	1,18E-04	3,86E-04	4,82E-03	2,21E-05	-4,06E-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.

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	2,49E+00	1,42E-02	3,23E-01	2,82E+00	1,22E-02	-1,23E-01	ND	ND	ND	ND	ND	ND	ND	2,99E-04	1,07E-03	4,74E-02	7,39E-05	-1,17E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	1,96E-01	1,96E-01	0,00E+00	-1,96E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,06E-02
Total use of renew. PER	MJ	2,49E+00	1,42E-02	5,19E-01	3,02E+00	1,22E-02	-3,19E-01	ND	ND	ND	ND	ND	ND	ND	2,99E-04	1,07E-03	4,74E-02	7,39E-05	-1,16E+00
Non-re. PER as energy	MJ	3,22E+01	1,06E+00	6,98E-01	3,39E+01	9,19E-01	1,53E-01	ND	ND	ND	ND	ND	ND	ND	4,72E-02	7,81E-02	3,05E-01	7,66E-03	-1,40E+01
Non-re. PER as material	MJ	0,00E+00	0,00E+00	1,17E-01	1,17E-01	0,00E+00	-1,17E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,43E-02
Total use of non-re. PER	MJ	3,22E+01	1,06E+00	8,15E-01	3,41E+01	9,19E-01	3,57E-02	ND	ND	ND	ND	ND	ND	ND	4,72E-02	7,81E-02	3,05E-01	7,66E-03	-1,40E+01
Secondary materials	kg	5,85E-02	4,54E-04	1,79E-03	6,07E-02	3,92E-04	8,39E-05	ND	ND	ND	ND	ND	ND	ND	1,96E-05	3,32E-05	3,53E-04	1,93E-06	8,11E-01
Renew. secondary fuels	MJ	6,69E-26	5,50E-06	3,71E-03	3,72E-03	4,74E-06	2,57E-07	ND	ND	ND	ND	ND	ND	ND	5,12E-08	4,22E-07	1,60E-05	3,99E-08	-1,10E-04
Non-ren. secondary fuels	MJ	7,87E-25	0,00E+00	0,00E+00	7,87E-25	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	4,68E-02	1,53E-04	4,97E-04	4,75E-02	1,31E-04	1,37E-05	ND	ND	ND	ND	ND	ND	ND	3,12E-06	1,15E-05	1,33E-04	7,97E-06	-8,18E-03

6) 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	7,20E-06	1,78E-03	2,86E-03	4,64E-03	1,53E-03	2,87E-04	ND	ND	ND	ND	ND	ND	ND	5,25E-05	1,32E-04	2,38E-03	8,46E-06	-4,33E-01
Non-hazardous waste	kg	1,23E-01	3,25E-02	9,82E-02	2,53E-01	2,80E-02	2,57E-02	ND	ND	ND	ND	ND	ND	ND	7,15E-04	2,45E-03	6,69E-02	5,00E-02	-3,85E+00
Radioactive waste	kg	8,79E-04	2,21E-07	3,57E-06	8,83E-04	1,90E-07	1,28E-07	ND	ND	ND	ND	ND	ND	ND	5,12E-09	1,67E-08	2,69E-07	1,17E-09	6,74E-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	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	1,52E-05	0,00E+00	6,90E-04	7,05E-04	0,00E+00	3,89E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	9,50E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	1,92E-06	0,00E+00	5,23E-04	5,25E-04	0,00E+00	2,94E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	2,69E-04	2,69E-04	0,00E+00	2,09E-02	ND	ND	ND	ND	ND	ND	ND	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	8,82E-03	ND	ND	ND	ND	ND	ND	ND	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	1,21E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[7)]	kg CO_2e	2,48E+00	7,41E-02	4,17E-02	2,60E+00	6,40E-02	1,68E-02	ND	ND	ND	ND	ND	ND	ND	3,61E-03	5,38E-03	2,58E-02	3,12E-04	-1,46E+00

7) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zero.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	GO electricity with nuclear, supplied by Elering, included transmission losses from high to medium voltage, modelled with: *Electricity production, nuclear, boiling water reactor, Ecoinvent 3.10.1* GO electricity with wind, supplied by E.ON, included transmission losses from high to medium voltage, modelled with: *Electricity production, wind, 1-3MW turbine, onshore, Ecoinvent 3.10.1* GO electricity with wind, supplied by RGP, included transmission losses from high to medium voltage, modelled with: *Electricity production, wind, 1-3MW turbine, onshore, Ecoinvent 3.10.1* Own solar electricity production in Poland modelled with: *Electricity production, photovoltaic, 3kWp slanted-roof installation, single-Si, panel, mounted, Ecoinvent 3.10.1* Grid electricity modelled with: *Electricity, medium voltage, residual mix, Ecoinvent 3.10.1, Estonia, (transmission losses included in dataset)* *Electricity, medium voltage, residual mix, Ecoinvent 3.10.1, Finland, (transmission losses included in dataset)* Transmission losses in Estonia are 4,1% (Elering). Transmission losses in Poland are 5% (IEA). Transmission losses in Sweden are 7,4% (SKGS).
Electricity CO2e / kWh	0,368
District heating data source and quality	Used heating sources, modelled with: *Biogas, One Click LCA, 2023* *Heat and power co-generation, wood chips, 6667 kW, Ecoinvent 3.10.1* *Propane, burned in building machine, Ecoinvent 3.10.1* *Heat production, light fuel oil, at boiler 10kW, non-modulating, Ecoinvent 3.10.1* *Natural gas, burned in gas turbine, Ecoinvent 3.10.1*
District heating CO2e / kWh	0,022 (all heating sources)

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	• EURO5 truck >32 ton (94%), diesel, Ecoinvent 3.10.1 • Freight, sea, ferry (6%), heavy fuel oil, Ecoinvent 3.10.1
Average transport distance, km	536 (truck) + 35 (ship)
Capacity utilization (including empty return) %	50
Bulk density of transported products	7850 kg /m3
Volume capacity utilization factor	1

Installation scenario documentation A5

Scenario parameter	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	-
Water use / m^3	-
Other resource use / kg	-
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	Electricity used in installation (e.g. electric impact wrenches), medium voltage, 0,0019 kWh/DU. Diesel used in installation (e.g. cranes, telehandlers), 0,142 MJ/DU.
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	• Steel 0,002 • Plastic 0.0013 • Wood 0,008 • Cardboard 0,0003 • Paper 0,0004
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	• Steel to recycling 0,00019 • Steel to landfill 0,00001 • Plastic to recycling 0,00052 • Plastic to incineration 0,00048 • Plastic to landfill 0,0003 • Wood to recycling 0,0026 • Wood to incineration 0,0024 • Wood to landfill 0,003 • Cardboard to recycling 0,00025 • Cardboard to incineration 0,000024 • Cardboard to landfill 0,000027 • Paper to recycling 0,00033 • Paper to incineration 0,000032 • Paper to landfill 0,000036
Direct emissions to ambient air, soil and water / kg	-

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	1
Collection process – kg collected with mixed construction waste	-
Recovery process – kg for re-use	-
Recovery process – kg for recycling	0,95
Recovery process – kg for energy recovery	-
Disposal (total) – kg for final deposition	0,05
Scenario assumptions e.g. transportation	Transported 50 km by truck

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Haiha Nguyen as an authorized verifier for EPD Hub Limited 23.01.2026

