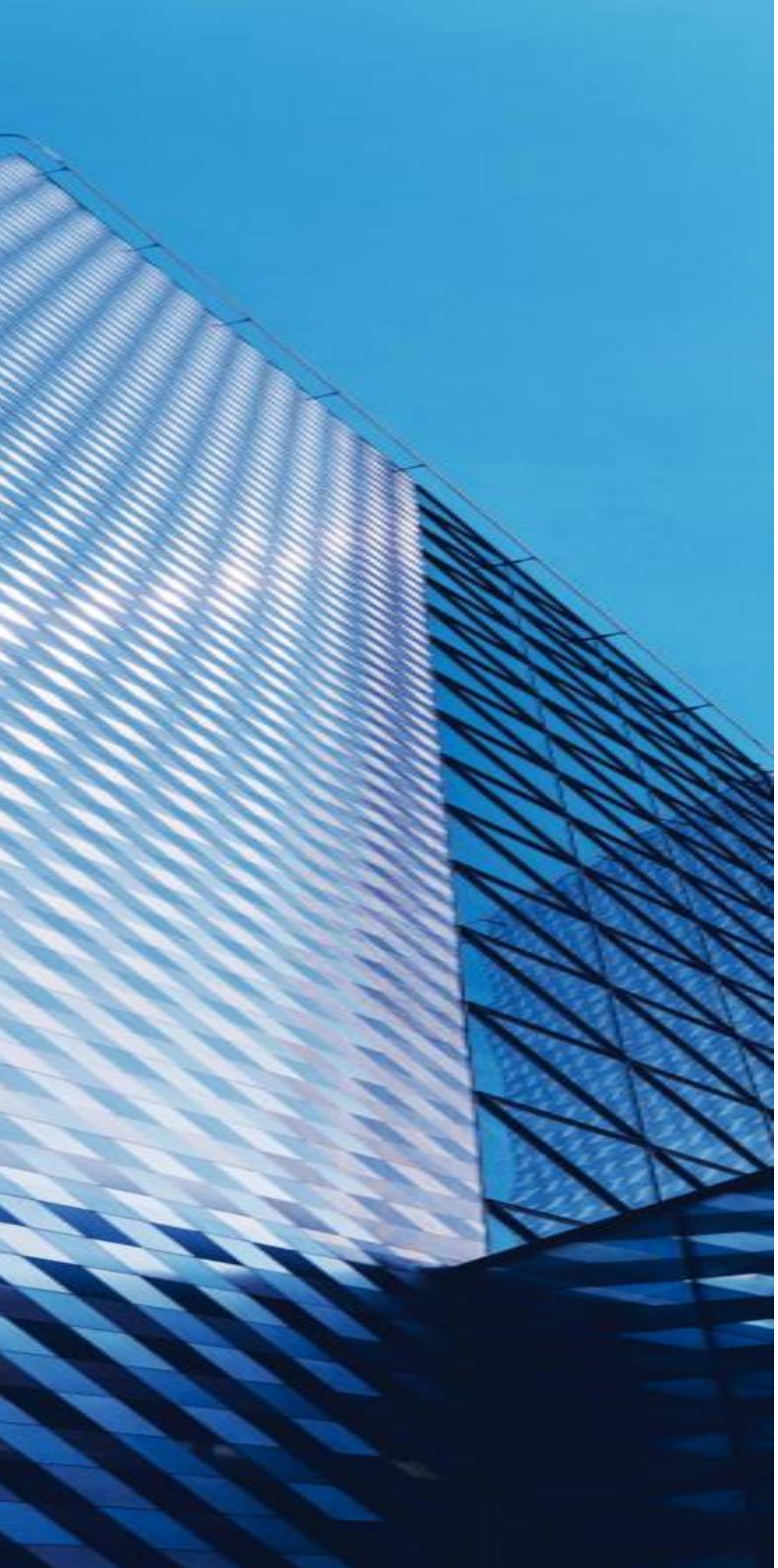


ENVIRONMENTAL PRODUCT DECLARATION

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

Roof trusses
Donaldson Timber Engineering

EPD HUB, HUB-1610
Published on 14.06.2024, last updated on 14.06.2024, valid until 14.06.2029

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Donaldson Timber Engineering
Address	Donaldson House, Pentland Park, Saltire Centre, Glenrothes
Contact details	markm@donaldson-timber.co.uk
Website	https://www.donaldsontimberengineering.co.uk/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR version 1.1, 5 Dec 2023
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	Mark Murphy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ¨ Internal verification þ 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	Roof trusses
Additional labels	
Product reference	
Place of production	Buckhaven, Cramlington, Ilkeston, Warrington, Enstone, Ashford, Andover, Cullompton, Welwyn Garden City, United Kingdom
Period for data	October 2022 - September 2023
Averaging in EPD	Multiple factories
Variation in GWP-fossil for A1-A3	0 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m3 of trusses
Declared unit mass	511.85 kg
GWP-fossil, A1-A3 (kgCO2e)	1.31E+02
GWP-total, A1-A3 (kgCO2e)	-6.41E+02
Secondary material, inputs (%)	1.07
Secondary material, outputs (%)	94.7
Total energy use, A1-A3 (kWh)	3550
Net fresh water use, A1-A3 (m3)	1.26

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Donaldson Timber Engineering Ltd (DTE) is the UKs largest and longest established manufacturer of structural timber components, with ten branches across the UK and over 30 years of experience.

DTE supplies a full range of engineered timber products, including roof trusses, open web joists, site-ready I-joists and panels. As a family owned and run business, DTE has strong traditional and family values. We distribute nationally, providing a local service; and we pride ourselves on providing only the best quality and service.

We pride ourselves on our ability to work with a customer from start to finish, delivering expert customer service and quality of product every time.

PRODUCT DESCRIPTION

Trussed rafters, also known as roof trusses, provide a structural framework to support the roof fabric, ceilings or floors of buildings in both residential and commercial structures. Robust and reliable, roof trusses can be used on a wide range of roofs, both cold and warm, and a wide range of super structures including timber, masonry and steel frame.

Our Timber Roof Trusses provide a flexible, practical, simple-to-erect engineered solution for roofing requirements. As they can use up to 40% less timber than a traditionally formed roof, they're not only more suitable but can be more affordable.

Today, trusses are the most widely used form of roofing solution and the best option to convert an architectural vision into a whole roof structure. Roof trusses are the ideal choice for all roofing projects including extensions, new builds, residential developments and commercial projects.

As the UK's leading supplier, DTE has an outstanding reputation for roof trusses we always deliver on time and at the right price. We handle projects of any size, and we always provide the very best customer service.

Each project that we undertake is fully compliant with health and safety standards. Additionally, we are proud to have been awarded ISO 9001/14001 certification, so you can be sure that all the work we carry out is to the highest standards. Further information can be found at https://www.donaldsontimberengineering.co.uk/.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	4.3	UK
Minerals		
Fossil materials		
Bio-based materials	95.6	Europe

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	220.05
Biogenic carbon content in packaging, kg C	0

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m3 of trusses
Mass per declared unit	511.85 kg
Functional unit	
Reference service life	

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse / Recovery / Recycling

Modules not declared = MND. Modules not relevant = MNR.

MANUFACTURING AND PACKAGING (A1-A3)

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

As a company we maintain efficient relationships with our suppliers to ensure we have leading edge production technology and the right quality of raw materials which allows us to deliver consistent high quality, cost-effective products targeted to meet real construction needs.

We recognise that timber, as a building material, is a truly renewable resource when properly managed. All of our TR26 material purchased is legal and sustainable in accordance with the PEFC management system. The TR26 material for roof trusses is supplied from Sweden and Finland due to the strength properties. Other timber products are also supplied from the UK. Our metal plate supplier, also has ISO 14001 (environmental standard) and the plates are supplied from the UK.

A2, Transport to the manufacturer

Our raw materials are transported to the manufacturing sites across the UK. The manufacturing sites are Buckhaven, Cramlington, Warrington, Ilkeston, Enstone, Welwyn Garden City, Ashford, Andover and Cullompton.

A3, Manufacturing

The attached pictorial representation of our process is shown below. Raw materials are delivered in, then picked, cut to shape, pressed into shape on the jigs before being packed and delivered to the customer specification.

To reduce waste, our saws optimize the raw materials, and the software designs the plates to meet the customer needs without compromising the environment.

We achieved ISO 50001(Energy Management) certification in 2019 as saw us invest in energy saving initiatives. Our stop/start technology within the manufacturing jigs at Donaldson Timber Engineering reduces the energy being wasted whilst having little impact on production.

Our Continuous Improvement campaign has seen us develop our colleagues so that everyone is involved and as a result we have generated over 1600 continuous improvement ideas. We constantly challenge ourselves to improve through 5S, Gemba and waste walks.

We have reduced packaging to safety critical packaging only, and our colour coded banding and slinging process has been adopted as industry standard.

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.

A4 Transportation to the building site

All of our sites are networked and meet twice weekly to discuss workloads, capacities and transportation. This helps to minimise the distance travelled to our customers building site from our manufacturing locations.

On a weekly basis, we work with our customers to optimise the deliveries to ensure that they get the products when they are ready minimising wasted fuel use.

We also work with our haulage partners to record actual distance travelled, litres consumed and average fuel consumption.

PRODUCT USE AND MAINTENANCE (B1-B7)

While This EPD does not cover the use phase and air, soil, and water impacts during the use phase have not been studied, we can comment on the building fabric includes:

B1, Use (or application of the installed product)

Emissions to the environment are not attributable to the roof truss.

B2, Maintenance; B3, Repair; B4, Replacement; B5, Refurbishment

Roof trusses are assumed to have the same working life as the building, namely 60 years. Trusses are designed and manufactured in accordance with relevant standards (EC5 and BS EN 14250).

Once installation is complete, we do not anticipate any actions or technical operations during the use stage until the end-of-life stage as long as the end client doesn't modify, amend or change their roof space. This should only be undertaken with the help and support of the roof designer. Therefore, these products have no impact on these modules.

B6, Operational energy use; B7, Operational water use

Roof trusses, once in situ do not require any energy or water use during the operation of the building. Therefore, no impact derives from these modules. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

C1-C4: End of Life Stage

We have taken into account the life cycle of the product is a minimum 60 years, so our end of life scenario is based on information from government UK statistics on waste and the Royal Institute of Chartered Surveyors Whole life carbon assessment for the built environment.

C1, Deconstruction and demolition

We have assumed that roof trusses will be deconstructed/dismantled at the same time as the rest of the building.

C2, Transport

We have assumed that waste materials will be transported 50km.

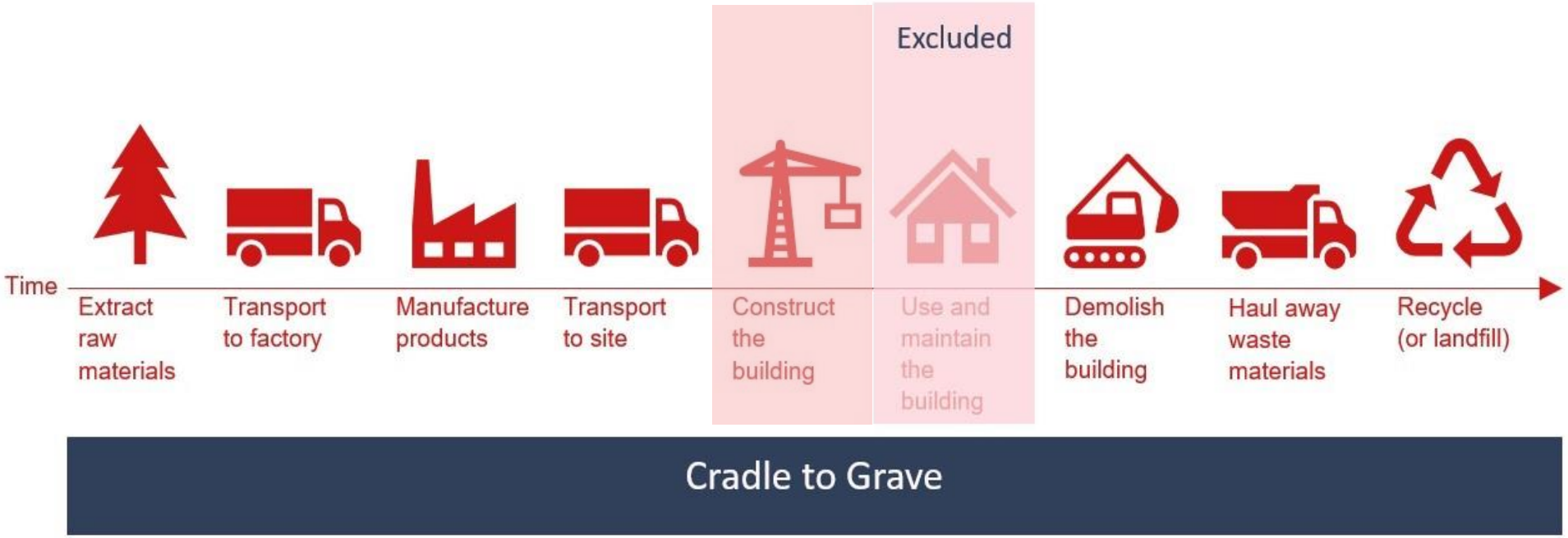
C3, Waste processing

We have used the Royal Institute of Chartered Surveyors Whole life carbon assessment for the built environment to estimate that 93% of steel and 30% of timber will be recycled. 69% of timber will be incinerated with fuel efficiency of the power plant currently estimated at 80% which will improve over the next 60 years. All of the timber incinerated means that we are avoiding the extra energy and heat production from the average grid-mix of Europe, and recycled timber avoids the extraction and beneficiation of virgin wood.

C4, Disposal

1% of timber will be landfilled. which will improve over the next 60 years.

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	Not applicable
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	Multiple factories
Averaging method	Averaged by shares of total mass
Variation in GWP-fossil for A1-A3	0 %

This EPD is calculated by all manufacturing data collated across all Donaldson Timber Engineering locations and apportioned by the total production volume from all locations.

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_2e	-7.23E+02	1.55E+01	6.60E+01	-6.41E+02	1.04E+00	4.05E-01	MND	MND	MND	MND	MND	MND	MND	MNR	4.18E+00	7.70E+02	7.78E+00	-2.85E+02
GWP – fossil	kg CO_2e	9.73E+01	1.55E+01	1.84E+01	1.31E+02	1.04E+00	4.05E-01	MND	MND	MND	MND	MND	MND	MND	MNR	4.18E+00	4.60E+00	4.66E-02	-2.84E+02
GWP – biogenic	kg CO_2e	-8.21E+02	3.00E-04	4.76E+01	-7.73E+02	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MNR	0.00E+00	7.65E+02	7.73E+00	0.00E+00
GWP – LULUC	kg CO_2e	2.43E-01	8.17E-03	1.78E-02	2.69E-01	3.83E-04	3.66E-05	MND	MND	MND	MND	MND	MND	MND	MNR	1.75E-03	4.28E-03	1.79E-05	-4.84E-01
Ozone depletion pot.	kg CFC_{-11}e	1.07E-05	3.42E-06	3.21E-05	4.63E-05	2.39E-07	1.26E-08	MND	MND	MND	MND	MND	MND	MND	MNR	9.02E-07	4.61E-07	1.79E-08	-1.49E-05
Acidification potential	mol H^+e	5.27E-01	2.25E-01	6.34E-02	8.15E-01	4.40E-03	3.33E-04	MND	MND	MND	MND	MND	MND	MND	MNR	1.23E-02	1.12E-01	4.21E-04	-1.79E+00
EP-freshwater[2)]	kg Pe	8.94E-03	1.03E-04	5.42E-04	9.59E-03	8.51E-06	7.61E-07	MND	MND	MND	MND	MND	MND	MND	MNR	3.55E-05	1.97E-04	5.83E-07	-2.63E-02
EP-marine	kg Ne	1.58E-01	5.44E-02	1.38E-02	2.27E-01	1.31E-03	1.11E-04	MND	MND	MND	MND	MND	MND	MND	MNR	2.46E-03	4.91E-02	2.93E-04	-2.23E-01
EP-terrestrial	mol Ne	1.72E+00	6.04E-01	1.40E-01	2.46E+00	1.44E-02	1.22E-03	MND	MND	MND	MND	MND	MND	MND	MNR	2.73E-02	5.63E-01	1.71E-03	-2.57E+00
POCP ("smog")[3)]	kg NMVOCe	9.68E-01	1.66E-01	5.73E-02	1.19E+00	4.62E-03	3.46E-04	MND	MND	MND	MND	MND	MND	MND	MNR	1.03E-02	1.48E-01	6.00E-04	-7.48E-01
ADP-minerals & metals[4)]	kg Sbe	1.10E-03	3.35E-05	1.02E-04	1.23E-03	2.44E-06	5.01E-07	MND	MND	MND	MND	MND	MND	MND	MNR	1.48E-05	7.92E-05	1.57E-07	1.67E-03
ADP-fossil resources	MJ	1.55E+03	2.24E+02	4.09E+02	2.18E+03	1.56E+01	8.06E-01	MND	MND	MND	MND	MND	MND	MND	MNR	6.07E+01	6.06E+01	1.26E+00	-5.17E+03
Water use[5)]	m^3e depr.	4.62E+01	9.01E-01	6.04E+00	5.31E+01	6.99E-02	1.17E-02	MND	MND	MND	MND	MND	MND	MND	MNR	2.68E-01	7.31E+00	1.03E-02	-1.17E+02

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	4.16E-06	1.24E-06	5.51E-07	5.95E-06	1.20E-07	5.67E-09	MND	MND	MND	MND	MND	MND	MND	MNR	3.33E-07	9.07E-07	9.18E-09	-8.58E-06
Ionizing radiation[6)]	kBq U235e	5.21E+00	1.06E+00	7.26E+00	1.35E+01	7.43E-02	4.40E-03	MND	MND	MND	MND	MND	MND	MND	MNR	2.84E-01	8.28E-01	7.45E-03	-1.25E+02
Ecotoxicity (freshwater)	CTUe	2.05E+04	1.80E+02	2.50E+02	2.09E+04	1.40E+01	1.67E+00	MND	MND	MND	MND	MND	MND	MND	MNR	5.56E+01	1.13E+02	1.01E+00	-3.65E+03
Human toxicity, cancer	CTUh	1.67E-06	6.94E-09	8.37E-09	1.68E-06	3.45E-10	9.57E-11	MND	MND	MND	MND	MND	MND	MND	MNR	1.57E-09	9.76E-08	3.41E-11	2.02E-06
Human tox. non-cancer	CTUh	1.31E-06	1.58E-07	1.65E-07	1.64E-06	1.39E-08	1.29E-09	MND	MND	MND	MND	MND	MND	MND	MNR	5.04E-08	3.35E-07	1.08E-09	-2.21E-06
SQP[7)]	-	3.32E+02	1.77E+02	8.68E+01	5.96E+02	1.80E+01	1.36E+00	MND	MND	MND	MND	MND	MND	MND	MNR	4.25E+01	2.56E+01	3.23E+00	-3.76E+03

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	1.06E+04	2.27E+00	3.88E+01	1.06E+04	1.76E-01	2.30E-02	MND	MND	MND	MND	MND	MND	MND	MNR	7.20E-01	6.66E+00	4.88E-02	-1.20E+03
Renew. PER as material	MJ	7.17E+03	0.00E+00	-4.16E+02	6.75E+03	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MNR	0.00E+00	-6.68E+03	-6.75E+01	0.00E+00
Total use of renew. PER	MJ	1.77E+04	2.27E+00	-3.77E+02	1.74E+04	1.76E-01	2.30E-02	MND	MND	MND	MND	MND	MND	MND	MNR	7.20E-01	-6.68E+03	-6.75E+01	-1.20E+03
Non-re. PER as energy	MJ	1.57E+03	2.24E+02	3.68E+02	2.16E+03	1.56E+01	8.06E-01	MND	MND	MND	MND	MND	MND	MND	MNR	6.07E+01	6.06E+01	1.26E+00	-5.16E+03
Non-re. PER as material	MJ	0.00E+00	0.00E+00	3.82E+01	3.82E+01	0.00E+00	-3.82E+01	MND	MND	MND	MND	MND	MND	MND	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-re. PER	MJ	1.57E+03	2.24E+02	4.06E+02	2.20E+03	1.56E+01	-3.74E+01	MND	MND	MND	MND	MND	MND	MND	MNR	6.07E+01	6.06E+01	1.26E+00	-5.16E+03
Secondary materials	kg	5.49E+00	7.74E-02	6.55E-02	5.63E+00	4.33E-03	3.49E-04	MND	MND	MND	MND	MND	MND	MND	MNR	2.03E-02	1.17E-01	4.41E-04	7.15E+00
Renew. secondary fuels	MJ	2.21E-02	5.35E-04	5.34E-04	2.31E-02	4.37E-05	9.77E-06	MND	MND	MND	MND	MND	MND	MND	MNR	2.62E-04	5.09E-04	1.92E-05	2.25E-02
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	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m^3	1.09E+00	2.43E-02	1.52E-01	1.26E+00	2.02E-03	7.15E-04	MND	MND	MND	MND	MND	MND	MND	MNR	7.22E-03	1.81E-01	1.59E-03	-4.10E+00

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	1.12E+01	3.01E-01	9.60E-01	1.24E+01	2.07E-02	4.79E-04	MND	MND	MND	MND	MND	MND	MND	MNR	8.77E-02	1.42E-01	0.00E+00	5.82E+01
Non-hazardous waste	kg	1.74E+02	4.11E+00	1.63E+01	1.94E+02	3.40E-01	2.03E+00	MND	MND	MND	MND	MND	MND	MND	MNR	1.40E+00	3.30E+02	6.29E+00	-1.38E+03
Radioactive waste	kg	8.60E-03	1.53E-03	2.01E-03	1.21E-02	1.04E-04	1.92E-06	MND	MND	MND	MND	MND	MND	MND	MNR	4.03E-04	2.10E-04	0.00E+00	-3.53E-02

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	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	5.01E+02	2.71E+04	2.90E+01	2.76E+04	0.00E+00	9.34E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0.00E+00	1.62E+02	0.00E+00	0.00E+00
Materials for energy rec	kg	2.10E+00	0.00E+00	6.90E-02	2.17E+00	0.00E+00	1.56E-01	MND	MND	MND	MND	MND	MND	MND	MNR	0.00E+00	3.24E+02	0.00E+00	0.00E+00
Exported energy	MJ	2.71E+01	0.00E+00	1.68E+03	1.70E+03	0.00E+00	2.15E+00	MND	MND	MND	MND	MND	MND	MND	MNR	0.00E+00	3.73E+03	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_2e	6.26E+01	1.58E+01	1.80E+01	9.64E+01	1.03E+00	4.04E-01	MND	MND	MND	MND	MND	MND	MND	MNR	4.14E+00	4.53E+00	3.49E-01	-2.80E+02
Ozone depletion Pot.	kg CFC_{-11}e	4.84E-06	2.80E-06	2.17E-05	2.93E-05	1.89E-07	1.05E-08	MND	MND	MND	MND	MND	MND	MND	MNR	7.15E-07	4.08E-07	1.42E-08	-1.28E-05
Acidification	kg SO_2e	6.38E-01	1.81E-01	5.18E-02	8.71E-01	3.42E-03	2.52E-04	MND	MND	MND	MND	MND	MND	MND	MNR	1.01E-02	7.75E-02	3.14E-04	-1.52E+00
Eutrophication	kg PO_4^3e	2.55E-01	2.30E-02	1.92E-02	2.97E-01	7.79E-04	1.35E-04	MND	MND	MND	MND	MND	MND	MND	MNR	2.23E-03	1.01E-01	1.35E-02	-9.06E-01
POCP (“smog”)	kg C_2H_4e	6.04E-02	5.20E-03	2.88E-03	6.85E-02	1.33E-04	1.01E-05	MND	MND	MND	MND	MND	MND	MND	MNR	5.01E-04	3.14E-03	7.67E-05	-7.59E-02
ADP-elements	kg Sbe	7.55E-03	3.38E-05	1.01E-04	7.68E-03	2.36E-06	4.58E-07	MND	MND	MND	MND	MND	MND	MND	MNR	1.45E-05	7.63E-05	1.51E-07	1.67E-03
ADP-fossil	MJ	9.43E+02	2.31E+02	4.08E+02	1.58E+03	1.56E+01	8.06E-01	MND	MND	MND	MND	MND	MND	MND	MNR	6.07E+01	6.06E+01	1.26E+00	-5.16E+03

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
14.06.2024