

Owner: Annebergs Limtræ A/S
No.: MD-23224-EN
Issued: 05-03-2024
Valid to: 05-03-2029

3rd PARTY VERIFIED

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



Owner of declaration
 Annebergs Limtræ A/S
 Lundtangvej 16
 6830 Nørre Nebel, Denmark.
 VAT: DK19371530



Issued:
05-03-2024

Valid to:
05-03-2029

Programme
 EPD Danmark
www.epddanmark.dk



- Industry EPD
- Product EPD

Basis of calculation
 This EPD is developed in accordance with the European standard EN 15804+A2.

Comparability
 EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity
 This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Use
 The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

Declared product(s)
 Annebergs Limtræ A/S column and beam (glued-laminated spruce timber - glulam spruce)

Number of declared datasets/product variations: 2

- EPD type**
- Cradle-to-gate with modules C1-C4 and D
 - Cradle-to-gate with options, modules C1-C4 and D
 - Cradle-to-grave and module D
 - Cradle-to-gate
 - Cradle-to-gate with options


Production site
 Lundtangvej 16
 6830 Nørre Nebel, Denmark.

Product(s) use
 The column and beam are used in housing constructions (façade, roof etc.).

Declared/ functional unit
 1 m³ column or beam (glulam spruce)

Year of production site data (A3)
 2022

EPD version
 First edition

CEN standard EN 15804 serves as the core PCR
Independent verification of the declaration and data, according to EN ISO 14025
<input type="checkbox"/> internal <input checked="" type="checkbox"/> external
Third party verifier:  <hr/> Guangli Du


 Martha Katrine Sørensen
 EPD Danmark

Life cycle stages and modules (MND = module not declared)

Product			Construction process		Use							End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

Product information

Product description

The main product components are shown in the table below.

Material	Weight-% of declared product
Spruce wood	97,6
Adhesive	1,5
Hardner & other adhesive	<1

There are two variants:

1. Annebergs Limtræ A/S column: Glued-laminated spruce timber column
2. Annebergs Limtræ A/S beam: Glued-laminated spruce timber beam

Product packaging:

The composition of the sales- and transport packaging of the product is shown in the table below.

Material	Weight-% of packaging
Spruce wood	91-92
LDPE film	8-9

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of Annebergs Limtræ A/S column and beam (glulam spruce) in Denmark. Product specific data are based on average values collected in the period 2022, where economic allocation is applied complying with EN 15804 and EN 16485. The EPD is a product specific EPD declaring two different product variants of glulam spruce column and beam. Background data are based on LCA for Experts (formerly known as GaBi) program version 10.7 with Sphera database and Ecoinvent 3.8 and are less than 10 years old. Generally, the

used background datasets are of high quality, and the majority of the datasets are only a couple of years old.

The products are produced and sold in Denmark. Therefore, a Danish EoL scenario is included, and the geographical region covered is Denmark.

Hazardous substances

Annebergs Limtræ A/S column and beam (glulam spruce) does not contain substances listed on the "Candidate List of Substances of Very High Concern for authorisation"

(<http://echa.europa.eu/candidate-list-table>)

Essential characteristics

Annebergs Limtræ A/S column and beam products are covered by harmonised technical specification EN 16485. Declaration of performance according to EU regulation 305/2011 is available for all declared product variations.

The products comply with the requirements of EN 14080:2013 and according to material strength classes of GL24h, GL28h, and GL30h. The used wood is FSC certified.

Further technical information can be obtained by contacting the manufacturer or on the manufacturers website:

<https://www.annebergs-limtrae.dk>

Reference Service Life (RSL)

No RSL is declared. This EPD is based on a cradle to gate with modules C1-4 and D and does not include the use stage.

Picture of product(s)



Figure 1: Annebergs Limtræ A/S column and beam, made of glulam spruce, from left to right.

LCA background

Declared unit

The LCI and LCIA results in this EPD relates to 1 m³ of glulam spruce wood column and beam.

Name	Value	Unit
Declared unit	1	m ³
Density	461	kg/m ³
Conversion factor to 1 kg.	0,0022	-
Moisture content	12	%

Functional unit

Not defined.

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804, and EN 16485:2014.

Guarantee of Origin – certificates

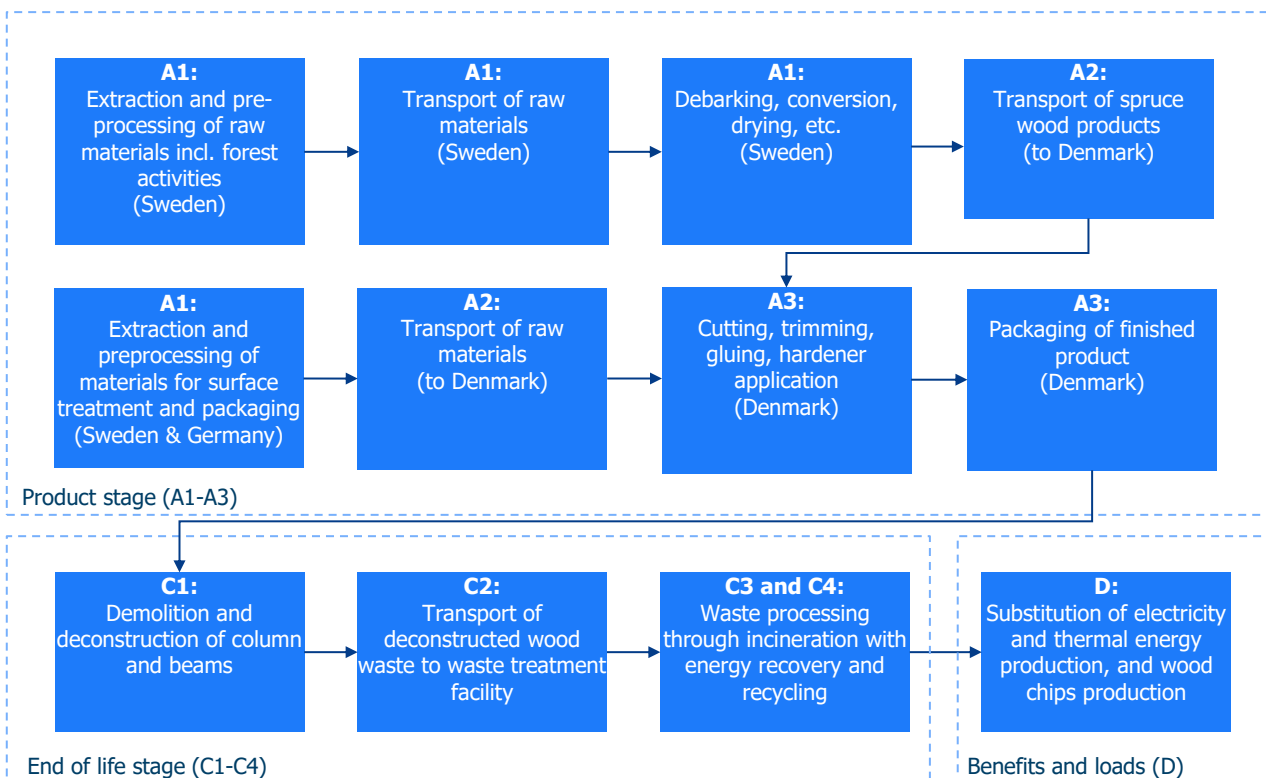
Foreground system:

The product is produced using (modelled) residual grid mix electricity supply in Denmark at the production site in Lunde, Denmark.

Background system:

Upstream processes are modelled using residual grid mix. Downstream processes are modelled using consumption mix.

Flowdiagram



System boundary

This EPD is based on a cradle-to-gate LCA with options, where modules C1-C4 and D are also considered, in which 100 %-weight of the product has been accounted for.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

Product stage (A1-A3) includes:

A1 – Extraction and processing of raw materials

A2 – Transport to the production site

A3 – Manufacturing processes

The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, packaging and waste processing up to the "end-of-waste" state or final disposal.

Annebergs Limtræ A/S receives spruce wood from Sweden. At the production site in Lunde, the spruce wood is treated with adhesive and hardner. This is the case for both column and beam, where it is followed by cutting processing to attain the column and beam shapes.

Residual grid mix electricity supply (DK) is modelled for production.

Construction process stage (A4-A5) includes:

Modules are not included in this study.

Use stage (B1-B7) includes:

Modules are not included in this study.

End of Life (C1-C4) includes:

When the buildings are demolished the columns and beams are transported for recycling (into wood chips) and incineration in Denmark with energy recovery.

Re-use, recovery and recycling potential (D) includes:

During the incineration process, heat and electricity is produced.

LCA results

The LCA results are separated into two sections, one for each variant, namely column and beam, made from glulam spruce.

Annebergs Limtræ column (glulam spruce)

ENVIRONMENTAL IMPACTS PER m ³									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	-6,26E+02	4,64E+01	8,78E+01	3,30E-01	1,05E+01	8,12E+02	0,00E+00	-1,04E+02
GWP-fossil	[kg CO ₂ eq.]	1,05E+02	4,67E+01	2,63E+01	3,28E-01	1,06E+01	9,74E+01	0,00E+00	-1,03E+02
GWP-biogenic	[kg CO ₂ eq.]	-7,32E+02	-6,86E-01	6,15E+01	2,57E-03	-1,55E-01	7,14E+02	0,00E+00	-1,58E+00
GWP-luluc	[kg CO ₂ eq.]	4,09E-01	4,31E-01	6,44E-03	1,44E-04	9,77E-02	1,25E-03	0,00E+00	-5,84E-02
ODP	[kg CFC 11 eq.]	1,71E-06	6,06E-12	1,19E-10	2,70E-13	1,37E-12	7,23E-11	0,00E+00	-9,55E-10
AP	[mol H ⁺ eq.]	5,76E-01	6,60E-02	3,38E-02	1,44E-03	4,23E-02	2,26E-01	0,00E+00	-4,48E-01
EP-freshwater	[kg PO ₄ eq.]	5,78E-03	1,70E-04	5,86E-05	5,54E-07	3,86E-05	2,38E-05	0,00E+00	-2,18E-03
EP-marine	[kg N eq.]	2,11E-01	2,35E-02	1,43E-02	3,48E-04	1,97E-02	1,01E-01	0,00E+00	-1,50E-01
EP-terrestrial	[mol N eq.]	2,31E+00	2,80E-01	1,64E-01	3,83E-03	2,21E-01	1,23E+00	0,00E+00	-1,29E+00
POCP	[kg NMVOC eq.]	6,38E-01	5,77E-02	3,72E-02	1,36E-03	3,83E-02	2,59E-01	0,00E+00	-3,32E-01
ADPm ¹	[kg Sb eq.]	3,08E-04	3,09E-06	2,93E-07	2,83E-08	6,99E-07	1,11E-06	0,00E+00	-3,27E-05
ADPf ¹	[MJ]	4,69E+03	6,34E+02	2,76E+02	3,29E+01	1,44E+02	1,29E+02	0,00E+00	-1,11E+03
WDP ¹	[m ³ world eq. deprived]	3,77E+01	5,62E-01	6,41E-01	5,50E-03	1,27E-01	4,46E+01	0,00E+00	-2,41E+01
Caption	GWP-total = Global Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.								

Additional environmental impacts, as declared in the project report of this EPD:

ADDITIONAL ENVIRONMENTAL IMPACTS PER m ³									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
PM	[Disease incidence]	1,03E-04	4,75E-07	2,39E-07	1,16E-08	2,18E-07	7,35E-07	0,00E+00	-7,30E-06
IRP ²	[kBq U235 eq.]	1,50E+01	1,78E-01	2,28E+00	8,12E-03	4,03E-02	4,49E-01	0,00E+00	-6,51E+00
ETP-fw ¹	[CTUe]	7,89E+02	4,54E+02	3,13E+01	2,37E+01	1,03E+02	2,61E+01	0,00E+00	-4,59E+02
HTP-c ¹	[CTUh]	7,28E-08	9,21E-09	2,06E-09	4,35E-10	2,09E-09	7,04E-09	0,00E+00	-4,36E-08
HTP-nc ¹	[CTUh]	8,76E-07	4,10E-07	9,59E-08	1,40E-08	9,29E-08	4,30E-07	0,00E+00	-9,09E-07
SQP ¹	-	1,37E+05	2,65E+02	2,92E+01	2,06E-01	6,00E+01	6,97E+01	0,00E+00	-1,13E+04
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								
Disclaimers	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.								
	² 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.								

RESOURCE USE PER m ³									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	[MJ]	8,66E+03	4,61E+01	3,11E+01	2,12E-01	1,05E+01	8,96E+01	0,00E+00	-7,81E+03
PERM	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	[MJ]	8,66E+03	4,61E+01	3,11E+01	2,12E-01	1,05E+01	8,96E+01	0,00E+00	-7,81E+03
PENRE	[MJ]	4,69E+03	6,36E+02	2,76E+02	3,30E+01	1,44E+02	1,29E+02	0,00E+00	-1,11E+03
PENRM	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	[MJ]	4,69E+03	6,36E+02	2,76E+02	3,30E+01	1,44E+02	1,29E+02	0,00E+00	-1,11E+03
SM	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	[m ³]	1,05E+00	5,05E-02	1,20E-01	2,47E-04	1,15E-02	1,06E+00	0,00E+00	-9,44E-01
Caption	<p>PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water</p> <p>The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10² or 195, while 1,12E-11 is the same as 1,12*10⁻¹¹ or 0,0000000000112.</p>								

WASTE CATEGORIES AND OUTPUT FLOWS PER m ³									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
HWD	[kg]	-3,52E-08	1,97E-09	1,24E-08	6,08E-11	4,47E-10	-2,06E-08	0,00E+00	4,39E-07
NHWD	[kg]	5,50E-01	9,70E-02	3,40E+00	0,00E+00	2,20E-02	3,04E+00	0,00E+00	-6,71E+00
RWD	[kg]	8,71E-02	1,19E-03	2,06E-02	5,50E-05	2,70E-04	3,99E-03	0,00E+00	-5,67E-02
CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	0,00E+00	0,00E+00	1,95E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,31E+02	0,00E+00	0,00E+00
EET	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,72E+03	0,00E+00	0,00E+00
Caption	<p>HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EE = Exported energy</p> <p>The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10² or 195, while 1,12E-11 is the same as 1,12*10⁻¹¹ or 0,0000000000112.</p>								

BIOGENIC CARBON CONTENT PER m ³		
Parameter	Unit	At the factory gate
Biogenic carbon content in column product (glulam spruce)	[kg C]	198,0
Biogenic carbon content in accompanying packaging for column product*	[kg C]	1,21
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂	

Annebergs Limtræ beam (glulam spruce)

ENVIRONMENTAL IMPACTS PER m ³									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	-6,38E+02	4,80E+01	1,32E+02	3,30E-01	1,05E+01	8,12E+02	0,00E+00	-1,04E+02
GWP-fossil	[kg CO ₂ eq.]	1,18E+02	4,83E+01	1,94E+01	3,28E-01	1,06E+01	9,74E+01	0,00E+00	-1,03E+02
GWP-biogenic	[kg CO ₂ eq.]	-7,57E+02	-7,10E-01	1,12E+02	2,57E-03	-1,55E-01	7,14E+02	0,00E+00	-1,58E+00
GWP-luluc	[kg CO ₂ eq.]	3,22E-01	4,46E-01	7,15E-03	1,44E-04	9,77E-02	1,25E-03	0,00E+00	-5,84E-02
ODP	[kg CFC 11 eq.]	1,80E-06	6,26E-12	2,41E-11	2,70E-13	1,37E-12	7,23E-11	0,00E+00	-9,55E-10
AP	[mol H ⁺ eq.]	5,98E-01	6,83E-02	4,08E-02	1,44E-03	4,23E-02	2,26E-01	0,00E+00	-4,48E-01
EP-freshwater	[kg PO ₄ eq.]	6,15E-03	1,76E-04	5,65E-05	5,54E-07	3,86E-05	2,38E-05	0,00E+00	-2,18E-03
EP-marine	[kg N eq.]	2,25E-01	2,43E-02	1,83E-02	3,48E-04	1,97E-02	1,01E-01	0,00E+00	-1,50E-01
EP-terrestrial	[mol N eq.]	2,45E+00	2,90E-01	2,17E-01	3,83E-03	2,21E-01	1,23E+00	0,00E+00	-1,29E+00
POCP	[kg NMVOC eq.]	6,56E-01	5,97E-02	4,67E-02	1,36E-03	3,83E-02	2,59E-01	0,00E+00	-3,32E-01
ADPm ¹	[kg Sb eq.]	3,27E-04	3,19E-06	1,72E-07	2,83E-08	6,99E-07	1,11E-06	0,00E+00	-3,27E-05
ADPf ¹	[MJ]	4,77E+03	6,56E+02	7,20E+01	3,29E+01	1,44E+02	1,29E+02	0,00E+00	-1,11E+03
WDP ¹	[m ³ world eq. deprived]	3,45E+01	5,82E-01	3,58E+00	5,50E-03	1,27E-01	4,46E+01	0,00E+00	-2,41E+01
Caption	GWP-total = Globale Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water depletion potential								
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ADDITIONAL ENVIRONMENTAL IMPACTS PER m ³									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
PM	[Disease incidence]	1,07E-04	4,91E-07	2,19E-07	1,16E-08	2,18E-07	7,35E-07	0,00E+00	-7,30E-06
IRP ²	[kBq U235 eq.]	5,96E+00	1,84E-01	3,95E-01	8,12E-03	4,03E-02	4,49E-01	0,00E+00	-6,51E+00
ETP-fw ¹	[CTUe]	8,84E+02	4,70E+02	1,74E+01	2,37E+01	1,03E+02	2,61E+01	0,00E+00	-4,59E+02
HTP-c ¹	[CTUh]	7,85E-08	9,53E-09	1,75E-09	4,35E-10	2,09E-09	7,04E-09	0,00E+00	-4,36E-08
HTP-nc ¹	[CTUh]	9,15E-07	4,24E-07	1,04E-07	1,40E-08	9,29E-08	4,30E-07	0,00E+00	-9,09E-07
SQP ¹	-	1,17E+05	2,74E+02	1,37E+01	2,06E-01	6,00E+01	6,97E+01	0,00E+00	-1,13E+04
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)								
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	² 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.								

RESOURCE USE PER m ³									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
PERE	[MJ]	9,04E+03	4,77E+01	1,16E+01	2,12E-01	1,05E+01	8,96E+01	0,00E+00	-7,81E+03
PERM	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	[MJ]	9,04E+03	4,77E+01	1,16E+01	2,12E-01	1,05E+01	8,96E+01	0,00E+00	-7,81E+03
PENRE	[MJ]	4,77E+03	6,58E+02	7,21E+01	3,30E+01	1,44E+02	1,29E+02	0,00E+00	-1,11E+03
PENRM	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	[MJ]	4,77E+03	6,58E+02	7,21E+01	3,30E+01	1,44E+02	1,29E+02	0,00E+00	-1,11E+03
SM	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	[m ³]	9,86E-01	5,23E-02	1,67E-01	2,47E-04	1,15E-02	1,06E+00	0,00E+00	-9,44E-01
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								

WASTE CATEGORIES AND OUTPUT FLOWS PER m ³									
Parameter	Unit	A1	A2	A3	C1	C2	C3	C4	D
HWD	[kg]	-9,08E-08	2,04E-09	8,62E-09	6,08E-11	4,47E-10	-2,06E-08	0,00E+00	4,39E-07
NHWD	[kg]	6,24E-01	1,00E-01	2,45E+00	0,00E+00	2,20E-02	3,04E+00	0,00E+00	-6,71E+00
RWD	[kg]	5,06E-02	1,23E-03	3,53E-03	5,50E-05	2,70E-04	3,99E-03	0,00E+00	-5,67E-02

CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	0,00E+00	0,00E+00	3,56E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,31E+02	0,00E+00	0,00E+00
EET	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,72E+03	0,00E+00	0,00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								

BIOGENIC CARBON CONTENT PER m ³		
Parameter	Unit	At the factory gate
Biogenic carbon content in column product (glulam spruce)	[kg C]	198,0
Biogenic carbon content in accompanying packaging for column product*	[kg C]	1,21
Biogenic carbon content in beam product (glulam spruce)	[kg C]	198,0
Biogenic carbon content in accompanying packaging for beam product*	[kg C]	1,28
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂	

Additional information

LCA interpretation

The raw material which is of most importance is spruce wood, which is most of the column and beam products. The production in Denmark requires considerable amounts of raw materials and energy and leaves behind a share of waste that needs treatment.

Technical information on scenarios

End of life (C1-C4)

Scenario information	Column (glulam spruce)	Beam (glulam spruce)	Unit
Collected separately	461	461	kg
Collected with mixed waste	-	-	kg
For reuse	-	-	kg
For recycling	217	217	kg
For energy recovery	244	244	kg
For final disposal	-	-	kg
Assumptions for scenario development	-	-	As appropriate

Re-use, recovery and recycling potential (D)

Scenario information/Materiel	Column (glulam spruce)	Beam (glulam spruce)	Unit
Electricity from incineration	631	631	MJ
Heat from incineration	2,72E3	2,72E3	MJ
Wood chips (substitution)	217	217	Kg

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.1.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2.

References

Publisher	 www.epddanmark.dk <small>Template version 2023.1</small>
Programme operator	Danish Technological Institute Buildings & Environment Gregersensvej DK-2630 Taastrup www.teknologisk.dk
LCA-practitioner	Mirko Miseljic Gritt Cortnum Andersen FORCE Technology Park Allé 345 2605 Brøndby, Denmark. www.forcetechnology.com 
LCA software /background data	<i>LCA for Experts 10.7 incl. Sphera databases 2023.1 & Ecoinvent 3.8</i> https://sphera.com/product-sustainability-gabi-data-search/
3rd party verifier	Guangli Du BUILD – Institut for Byggeri, By og Miljø, Aalborg Universitet København

General programme instructions

General Programme Instructions, version 2.0, spring 2020
www.epddanmark.dk

EN 15804

DS/EN 15804 + A2:2019 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

EN 16485

DS/EN 16485:2014 – "Wood and wood-based products for use in construction".

EN 15942

DS/EN 15942:2011 – " Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

ISO 14025

DS/EN ISO 14025:2010 – “ Environmental labels and declarations – Type III environmental declarations – Principles and procedures”

ISO 14040

DS/EN ISO 14040:2008 – “ Environmental management – Life cycle assessment – Principles and framework”

ISO 14044

DS/EN ISO 14044:2008 – “ Environmental management – Life cycle assessment – Requirements and guidelines”