

Owner: Rold Skov Savværk A/S  
No.: MD-23125-EN\_Rev4  
Issued: 29-09-2023  
Revision: 13-09-2024  
Valid to: 29-09-2028

3<sup>rd</sup> PARTY VERIFIED

**EPD**

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



**Owner of declaration**  
 Rold Skov Savværk A/S  
 Vibrogvej 930, 8471 Sabro  
 CVR-No.: 31 25 95 71

**ROLD SKOV SAVVÆRK A/S**  
 Et selskab under Lindenberg Gods A/S

**Issued:**  
 29-09-2023

**Valid to:**  
 29-09-2028

**Programme**  
 EPD Danmark  
[www.epddanmark.dk](http://www.epddanmark.dk)



- Industry EPD
- Product EPD

**Declared product(s)**  
 Danish construction wood products of coniferous wood.

Number of declared datasets/product variations: 2

**Production site**  
 Rold Skov Savværk in Arden and Sabro Denmark

**Product(s) use**  
 The products are used as construction wood in many types of constructions and for a variety of different functions.

**Declared unit**  
 1m<sup>3</sup> Danish construction wood products of either dried and planed softwood or undried and unplanned softwood.

**Year of production site data (A3)**  
 2021/22

**EPD version**  
 Revision no.: 4  
 Publication date: 13-09-2024  
 Updated CO2 results for transport in modul A4 og C2.

**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.

- 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

CEN standard EN 15804 serves as the core PCR

Independent verification of the declaration and data, according to EN ISO 14025

internal  external

Third party verifier:



Kim Christiansen

  
 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
<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	MND	MND	MND	MND	MND	MND	MND	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

# Product information

## Product description

The main product components are shown in the table below.

Material	Weight-% of declared product
Undried & Unplanned	65 ±10Wood 35 ±10 moisture
Dried & Planned	82 ± 6Wood 18 ± 6 moisture

## Product packaging:

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

Material	Weight-% of packaging
Wood Pallets	78
PE-foile	22

## Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of Construction wood on the production site located in Arden and Sabro Denmark. Product specific data are based on average values collected in the period of 1 year in 2021/22. Background data are based on the Ecoinvent database v. 3.9.

## Hazardous substances

Neither undried and unplanned or dried and planned construction wood contain substances listed on the "Candidate List of Substances of Very High Concern for authorization".

## Essential characteristics

The products are covered by DS/EN 14081-1:2016+A1:2019. This European Standard specifies requirements for strength graded structural timber with rectangular cross-sections either visual or machine graded, shaped by sawing, planning or other methods and with cross-sectional dimensions complying with EN 336.

## Reference Service Life (RSL)

No RSL is declared. This EPD is based on a cradle-to-gate with options assessment and does not include the use stage.

## Notation

Numbers are displayed in international notation e.g. 1,000.00

# LCA background

## Declared unit

The LCI and LCIA results in this EPD relates to 1m<sup>3</sup> of Danish construction wood products of coniferous wood of either dried and planed softwood or undried and unplanned softwood.

Name	Value	Unit
Declared unit	1	1m <sup>3</sup>
Density of dried and planned wood	475	kg/m <sup>3</sup>
Conversion factor to 1 kg	0,0021	m <sup>3</sup> /kg
Density of undried and unplanned wood	579	kg/m <sup>3</sup>
Conversion factor to 1 kg	0,0017	m <sup>3</sup> /kg

compared with other EPD's for undried and unplanned, and dried and planed construction wood made with the cPCR and the EN 15804+A1 care must be taken, as modelling by the standards differ.

## Guarantee of Origin – certificates

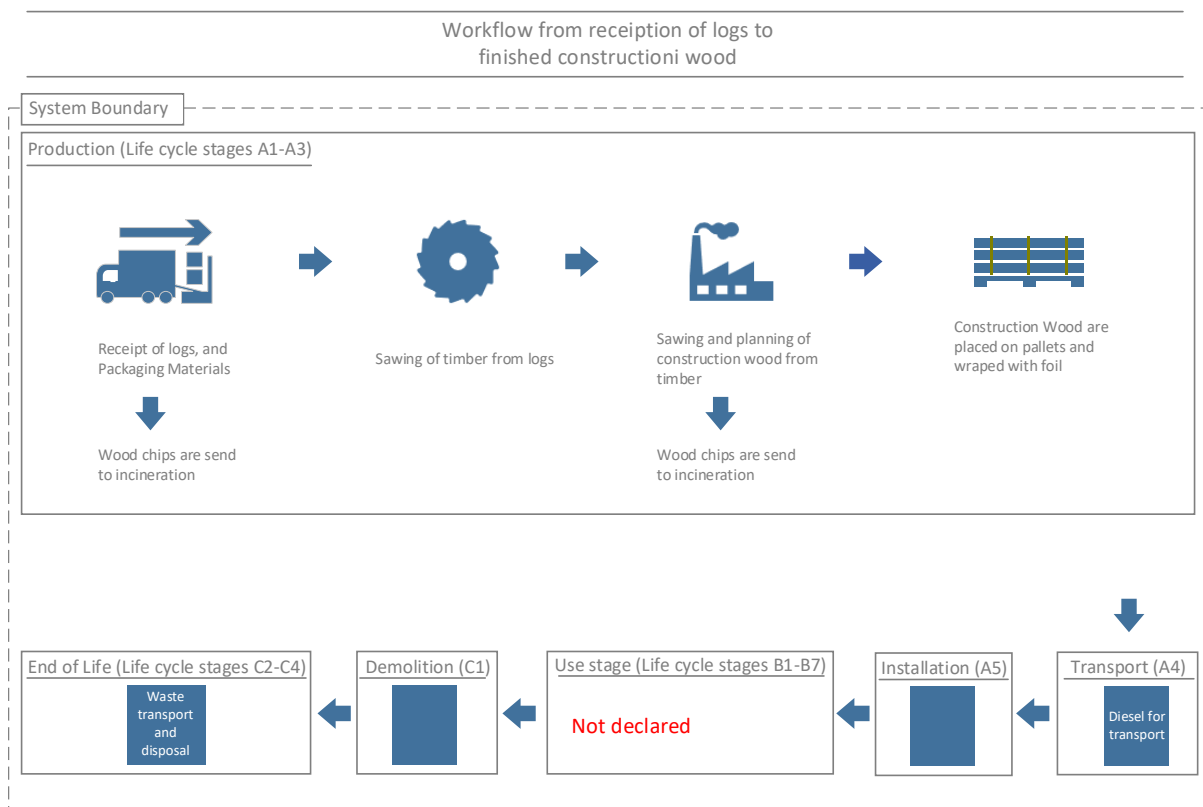
Forestry is done under certified PEFC certification. No. SA-PEFC-COC-014249 and FSC certification no. SA-COC-014249 and SA-CW-014249 documenting sustainability and trackability of sustainable timber.

## PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804+A2 and the cPCR EN16485. If

Modeling of electricity is done using the residual mix in DK using data from IEA.

## Flowdiagram



## System boundary

This EPD is based on a cradle-to-gate with

options, modules C1-C4 and module D cf. EN 15804 + A2, 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 are used, 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. The LCA results are declared in aggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

Rold Skov A/S get their spruce trees primarily from plantations in Jutland and Fyn. Trees for production of construction wood are calculated on a mass basis, as the sum of lugs used plus the amount of wood chips produced. Wood chips are wooden leftovers from the cutting of trees into timber logs.

Production processes include debarking, sawing, sorting and packaging. The product stage comprises forestry and acquisition of wood logs as raw materials.

Rold Skov A/S operates two Sawmills, one in Sabro and one in Arden. Both locations use cutting processes for the fabrication of Construction wood but only Sabro has drying facilities.

After cutting and drying the Construction wood is loaded on wood pallets, strapped with nylon straps and wrapped in PE-foil. The construction wood is at this stage ready for transportation to clients/construction sites.

Carbon bound in wood chips are modeled as released back to the atmosphere in module A1-3. In Denmark electricity and district heating is produced from incineration of wood chips. These benefits are not included, only electricity and heat generated by combustion of the construction wood at it’s end of life.

**Construction process stage (A4 and A5) includes:**

A4 – Transport to the building site:

Transport of Construction wood to building site			
Transport type	Capacity utilization incl. return (%)	Distance (km)	Fuel
Truck 16-32t	61	100	Diesel

Specific CO2 emissions from the logistics company used is taken into account.

A5 – Construction installation process:

For conservation of the mass balance the amount of packaging foil used in A1-A3 is modelled in D as waste. The packaging foil is incinerated with energy recovery used for production of electricity and district heating. Module A5 therefore only includes the transportation of packaging waste

**De-construction C1:**

De-construction is assumed to be done manually.

**End of Life (C2-C4) includes:**

Transport in module C2 is assumed to be done by EURO6 level trucks in the weight class of 16–32-ton. Transport distance for incineration is modelled as an average distance of 50 km.

Module C3 includes waste treatment of the products after the end of their useful life. 100% of the construction wood is assumed to be incinerated with energy recovery in module D.



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A carbon-balance is made for the CO<sub>2</sub> uptake, where the amount of CO<sub>2</sub> uptake in construction wood equals the CO<sub>2</sub> release during incineration. The release of CO<sub>2</sub> is assigned to module C3.

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

No product waste is assumed to be reused or recycled. Heat and electricity gained from incineration of construction wood and packaging materials are assigned to this module.

# LCA results

ENVIRONMENTAL IMPACTS PER 1m <sup>3</sup> of undried and unplanned Danish Construction wood									
Indicator	Unit	A1-3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	-6.70E+02	2.85E+00	2.25E-03	0.00E+00	1.43E+00	6.90E+02	0.00E+00	-2.19E+02
GWP-fossil	kg CO <sub>2</sub> eq.	1.98E+01	2.84E+00	2.25E-03	0.00E+00	1.42E+00	7.59E-02	0.00E+00	-2.15E+02
GWP-biogenic	kg CO <sub>2</sub> eq.	-6.90E+02	8.60E-03	2.05E-06	0.00E+00	4.30E-03	6.90E+02	0.00E+00	-4.17E+00
GWP-luluc	kg CO <sub>2</sub> eq.	1.90E-02	3.77E-03	8.99E-07	0.00E+00	1.89E-03	1.59E-04	0.00E+00	-1.94E-01
ODP	kg CFC 11 eq.	4.29E-06	2.19E-06	5.21E-10	0.00E+00	1.09E-06	1.97E-09	0.00E+00	-9.41E-06
AP	mol H <sup>+</sup> eq.	1.61E-01	2.68E-02	6.39E-06	0.00E+00	1.34E-02	2.75E-04	0.00E+00	-1.42E+00
EP-freshwater	kg P eq.	8.81E-03	6.18E-04	1.47E-07	0.00E+00	3.09E-04	5.71E-05	0.00E+00	-1.05E-01
EP-marine	kg N eq.	1.69E-02	5.44E-03	1.30E-06	0.00E+00	2.73E-03	6.66E-05	0.00E+00	-2.07E-01
EP-terrestrial	mol N eq.	5.56E-01	5.93E-02	1.41E-05	0.00E+00	2.97E-02	7.33E-04	0.00E+00	-2.28E+00
POCP	kg NMVOC eq.	4.97E-02	2.28E-02	5.43E-06	0.00E+00	1.14E-02	1.64E-04	0.00E+00	-5.91E-01
ADPm <sup>1</sup>	kg Sb eq.	5.48E-05	3.34E-05	7.97E-09	0.00E+00	1.67E-05	1.74E-07	0.00E+00	-2.25E-04
ADPf <sup>1</sup>	MJ	3.82E+02	1.43E+02	3.41E-02	0.00E+00	7.16E+01	1.11E+00	0.00E+00	-2.45E+03
WDP <sup>1</sup>	m <sup>3</sup> world eq. deprived	2.46E+00	4.35E-01	1.04E-04	0.00E+00	2.18E-01	1.18E-02	0.00E+00	-2.15E+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								
Disclaimer	<sup>1</sup> 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.								

ENVIRONMENTAL IMPACTS PER 1m <sup>3</sup> of dried and planned Danish Construction wood									
Indicator	Unit	A1-3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	-6.91E+02	1.84E+00	2.25E-03	0.00E+00	9.20E-01	7.14E+02	0.00E+00	-3.74E+02
GWP-fossil	kg CO <sub>2</sub> eq.	2.26E+01	1.83E+00	2.25E-03	0.00E+00	9.14E-01	7.59E-02	0.00E+00	-3.66E+02
GWP-biogenic	kg CO <sub>2</sub> eq.	-7.14E+02	7.13E-03	2.05E-06	0.00E+00	3.56E-03	7.14E+02	0.00E+00	-7.16E+00
GWP-luluc	kg CO <sub>2</sub> eq.	2.47E-02	3.13E-03	8.99E-07	0.00E+00	1.56E-03	1.59E-04	0.00E+00	-3.32E-01
ODP	kg CFC 11 eq.	4.36E-06	1.81E-06	5.21E-10	0.00E+00	9.06E-07	1.97E-09	0.00E+00	-1.60E-05
AP	mol H <sup>+</sup> eq.	1.71E-01	2.22E-02	6.39E-06	0.00E+00	1.11E-02	2.75E-04	0.00E+00	-2.42E+00
EP-freshwater	kg P eq.	1.09E-02	5.12E-04	1.47E-07	0.00E+00	2.56E-04	5.71E-05	0.00E+00	-1.80E-01
EP-marine	kg N eq.	1.93E-02	4.51E-03	1.30E-06	0.00E+00	2.26E-03	6.66E-05	0.00E+00	-3.53E-01
EP-terrestrial	mol N eq.	5.83E-01	4.92E-02	1.41E-05	0.00E+00	2.46E-02	7.33E-04	0.00E+00	-3.87E+00
POCP	kg NMVOC eq.	5.57E-02	1.89E-02	5.43E-06	0.00E+00	9.45E-03	1.64E-04	0.00E+00	-1.00E+00
ADPm <sup>1</sup>	kg Sb eq.	6.11E-05	2.77E-05	7.97E-09	0.00E+00	1.39E-05	1.74E-07	0.00E+00	-3.85E-04
ADPf <sup>1</sup>	MJ	4.22E+02	1.19E+02	3.41E-02	0.00E+00	5.93E+01	1.11E+00	0.00E+00	-4.18E+03
WDP <sup>1</sup>	m <sup>3</sup> world eq. deprived	2.88E+00	3.61E-01	1.04E-04	0.00E+00	1.80E-01	1.18E-02	0.00E+00	-3.67E+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								
Disclaimer	<sup>1</sup> 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.								



<b>ADDITIONAL ENVIRONMENTAL IMPACTS PER 1m<sup>3</sup> of undried and unplanned Danish Construction wood</b>									
Parameter	Unit	A1-3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	1.71E-06	7.60E-07	1.81E-10	0.00E+00	3.81E-07	1.67E-09	0.00E+00	-1.28E-05
IRP <sup>2</sup>	[kBq U235 eq.]	3.06E+00	7.37E-01	1.76E-04	0.00E+00	3.69E-01	1.95E-02	0.00E+00	-2.40E+01
ETP-fw <sup>1</sup>	[CTUe]	3.30E+02	1.12E+02	2.67E-02	0.00E+00	5.62E+01	1.62E+00	0.00E+00	-4.98E+03
HTP-c <sup>1</sup>	[CTUh]	6.88E-09	3.61E-09	8.60E-13	0.00E+00	1.81E-09	2.76E-11	0.00E+00	-6.82E-08
HTP-nc <sup>1</sup>	[CTUh]	2.06E-07	1.14E-07	2.71E-11	0.00E+00	5.69E-08	7.84E-10	0.00E+00	-2.08E-06
SQP <sup>1</sup>	-	2.40E+02	9.97E+01	2.37E-02	0.00E+00	4.99E+01	1.36E+00	0.00E+00	-2.60E+03
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								
Disclaimers	<p><sup>1</sup> 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.</p> <p><sup>2</sup> 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.</p>								

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1m <sup>3</sup> of dried and planned Danish Construction wood									
Parameter	Unit	A1-3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	1.77E-06	6.30E-07	1.81E-10	0.00E+00	3.15E-07	1.67E-09	0.00E+00	-2.18E-05
IRP <sup>2</sup>	[kBq U235 eq.]	3.77E+00	6.11E-01	1.76E-04	0.00E+00	3.05E-01	1.95E-02	0.00E+00	-4.12E+01
ETP-fw <sup>1</sup>	[CTUe]	3.89E+02	9.30E+01	2.67E-02	0.00E+00	4.65E+01	1.62E+00	0.00E+00	-8.48E+03
HTP-c <sup>1</sup>	[CTUh]	7.88E-09	2.99E-09	8.60E-13	0.00E+00	1.50E-09	2.76E-11	0.00E+00	-1.16E-07
HTP-nc <sup>1</sup>	[CTUh]	2.35E-07	9.42E-08	2.71E-11	0.00E+00	4.71E-08	7.84E-10	0.00E+00	-3.55E-06
SQP <sup>1</sup>	-	2.89E+02	8.26E+01	2.37E-02	0.00E+00	4.13E+01	1.36E+00	0.00E+00	-4.44E+03
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								
Disclaimers	<p><sup>1</sup> 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.</p> <p><sup>2</sup> 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.</p>								

RESOURCE USE PER 1m <sup>3</sup> of undried and unplanned Danish Construction wood									
Parameter	Unit	A1-3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	-5.68E+01	-1.53E+00	-3.64E-04	0.00E+00	-7.65E-01	-6.13E-01	0.00E+00	6.66E+02
PERM	[MJ]	8.44E+01	2.04E+00	4.87E-04	0.00E+00	1.02E+00	9.12E-01	0.00E+00	-1.22E+03
PERT	[MJ]	2.76E+01	5.16E-01	1.23E-04	0.00E+00	2.59E-01	2.98E-01	0.00E+00	-5.55E+02
PENRE	[MJ]	-1.06E-02	-6.02E-03	-1.43E-06	0.00E+00	-3.01E-03	-3.49E-05	0.00E+00	6.20E-02
PENRM	[MJ]	3.82E+02	1.43E+02	3.41E-02	0.00E+00	7.16E+01	1.11E+00	0.00E+00	-2.45E+03
PENRT	[MJ]	3.82E+02	1.43E+02	3.41E-02	0.00E+00	7.16E+01	1.11E+00	0.00E+00	-2.45E+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 <sup>3</sup> ]	3.00E-01	1.62E-02	3.86E-06	0.00E+00	8.10E-03	2.92E-03	0.00E+00	-4.05E+00
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								

RESOURCE USE PER 1m <sup>3</sup> of dried and planned Danish Construction wood									
Parameter	Unit	A1-3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	-7.91E+01	-1.27E+00	-3.64E-04	0.00E+00	-6.33E-01	-6.13E-01	0.00E+00	1.14E+03
PERM	[MJ]	1.17E+02	1.69E+00	4.87E-04	0.00E+00	8.47E-01	9.12E-01	0.00E+00	-2.09E+03
PERT	[MJ]	3.84E+01	4.28E-01	1.23E-04	0.00E+00	2.14E-01	2.98E-01	0.00E+00	-9.47E+02
PENRE	[MJ]	-1.18E-02	-4.99E-03	-1.43E-06	0.00E+00	-2.50E-03	-3.49E-05	0.00E+00	1.06E-01
PENRM	[MJ]	4.22E+02	1.19E+02	3.41E-02	0.00E+00	5.93E+01	1.11E+00	0.00E+00	-4.18E+03
PENRT	[MJ]	4.22E+02	1.19E+02	3.41E-02	0.00E+00	5.93E+01	1.11E+00	0.00E+00	-4.18E+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 <sup>3</sup> ]	4.06E-01	1.34E-02	3.86E-06	0.00E+00	6.71E-03	2.92E-03	0.00E+00	-6.93E+00
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								

WASTE CATEGORIES AND OUTPUT FLOWS PER 1m <sup>3</sup> of undried and unplanned Danish Construction wood									
Parameter	Unit	A1-3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	7.27E-04	3.73E-04	8.89E-08	0.00E+00	1.87E-04	5.46E-07	0.00E+00	-9.87E-04
NHWD	[kg]	8.22E+00	7.48E+00	1.78E-03	0.00E+00	3.75E+00	6.97E-03	0.00E+00	-1.17E+01
RWD	[kg]	2.24E-03	9.66E-04	2.30E-07	0.00E+00	4.84E-04	4.89E-06	0.00E+00	-8.55E-03
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	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00
EET	[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
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								

WASTE CATEGORIES AND OUTPUT FLOWS PER 1m <sup>3</sup> of dried and planned Danish Construction wood									
Parameter	Unit	A1-3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	7.47E-04	3.09E-04	8.89E-08	0.00E+00	1.55E-04	5.46E-07	0.00E+00	-1.69E-03
NHWD	[kg]	8.47E+00	6.20E+00	1.78E-03	0.00E+00	3.10E+00	6.97E-03	0.00E+00	-2.00E+01
RWD	[kg]	2.42E-03	8.01E-04	2.30E-07	0.00E+00	4.00E-04	4.89E-06	0.00E+00	-1.46E-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	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00
EET	[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
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								

<b>BIOGENIC CARBON CONTENT PER 1m<sup>3</sup> of undried and unplanned Danish Construction wood</b>		
<b>Parameter</b>	<b>Unit</b>	<b>At the factory gate</b>
Biogenic carbon content in product	kg C	188
Biogenic carbon content in accompanying packaging	kg C	11.9

<b>BIOGENIC CARBON CONTENT PER 1m<sup>3</sup> of dried and planned Danish Construction wood</b>		
<b>Parameter</b>	<b>Unit</b>	<b>At the factory gate</b>
Biogenic carbon content in product	kg C	237
Biogenic carbon content in accompanying packaging	kg C	11.9

# Additional information

## LCA interpretation

A contribution analysis shows that the aggregated modules A1-3, are fare the most contribution modules to any of the impact categories. This aligns well with the expectation that the larges flows entering and leaving the system are associated with the larges emissions.

As CO<sub>2</sub> is often used as a single point of impact indicator, this topic deserves special attention. If benefits from incineration for electricity production are not possible the CO<sub>2</sub> impact would increase. It is therefore important to understand that this declaration is based on incineration conditions found in the northern part of Europe. If the product is to be exported further south, or outside of Europe, the assumptions this declaration is based on would no longer be valid.

## Technical information on scenarios

### Transport to the building site (A4)

Scenario information	Value	Unit
Fuel type	Diesel	-
Vehicle type	Truck 16-32t	-
Transport distance	Forrest to Sawmill = 100 Transport to recycling = 50 Transport to incineration = 50	km
Capacity utilisation (including empty runs)	61	%
Gross density of products transported	Moist Wood = 579 Dry Wood = 475	kg/m <sup>3</sup>

### Construction (A5)

Scenario information	Undried and unplanned	Dried and planned	Unit
auxiliary materials for installation	0	0	kg
Water consumption	0	0	M <sup>3</sup>
Other resources	0	0	kg
Energy consumption	0	0	kWh
Waste materials	0,3	0,3	kg
Output materials in connection with waste management on site	0	0	kg
Direct emissions to air, soil and water	0	0	kg

### End of life (C1-C4)

Scenario information	Value	Unit
Collected separately	Dried and planned Construction wood = 612,8 Undried and unplanned Construction wood = 475	kg
Collected with mixed waste	0	kg
For reuse	0	kg
For recycling	0	kg
For energy recovery	0	kg
For final disposal	Dried and planned Construction wood = 475 Undried and unplanned Construction wood = 579	kg
Assumptions for scenario development	-	As appropriate

**Re-use, recovery and recycling potential (D)**

Scenario information/Materiel	Value	Unit
Energy recovery from waste incineration	Wood chips origination from undried and unplanned Construction wood = 6,129 Wood chips origination from dried and planned Construction wood = 6,739	MJ

**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

<p><b>Publisher</b></p>	<p>  <a href="http://www.epddanmark.dk">www.epddanmark.dk</a>  <small>Template version 2023.1</small></p>
<p><b>Programme operator</b></p>	<p>Danish Technological Institute          Buildings &amp; Environment          Gregersensvej          DK-2630 Taastrup  <a href="http://www.teknologisk.dk">www.teknologisk.dk</a></p>
<p><b>LCA-practitioner</b></p>	<p>          Michael Haarup Hansen          CO<sub>2</sub>Solutions          Hindkjærvej 3          Mejrup          7500 Holstebro</p>
<p><b>LCA software /background data</b></p>	<p>SimaPro, version 9.4.0.3          Ecoinvent, version 3,9</p>
<p><b>3<sup>rd</sup> party verifier</b></p>	<p>Kim Christiansen, <a href="http://kimconsult.dk">kimconsult.dk</a></p>

## General programme instructions

General Programme Instructions, version 2.0, spring 2020

[www.epddanmark.dk](http://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 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

### EN 16485

DS/EN 16485:2014 Round and sawn timber - Environmental Product Declarations – Product category rules for wood and wood-based products for use in construction