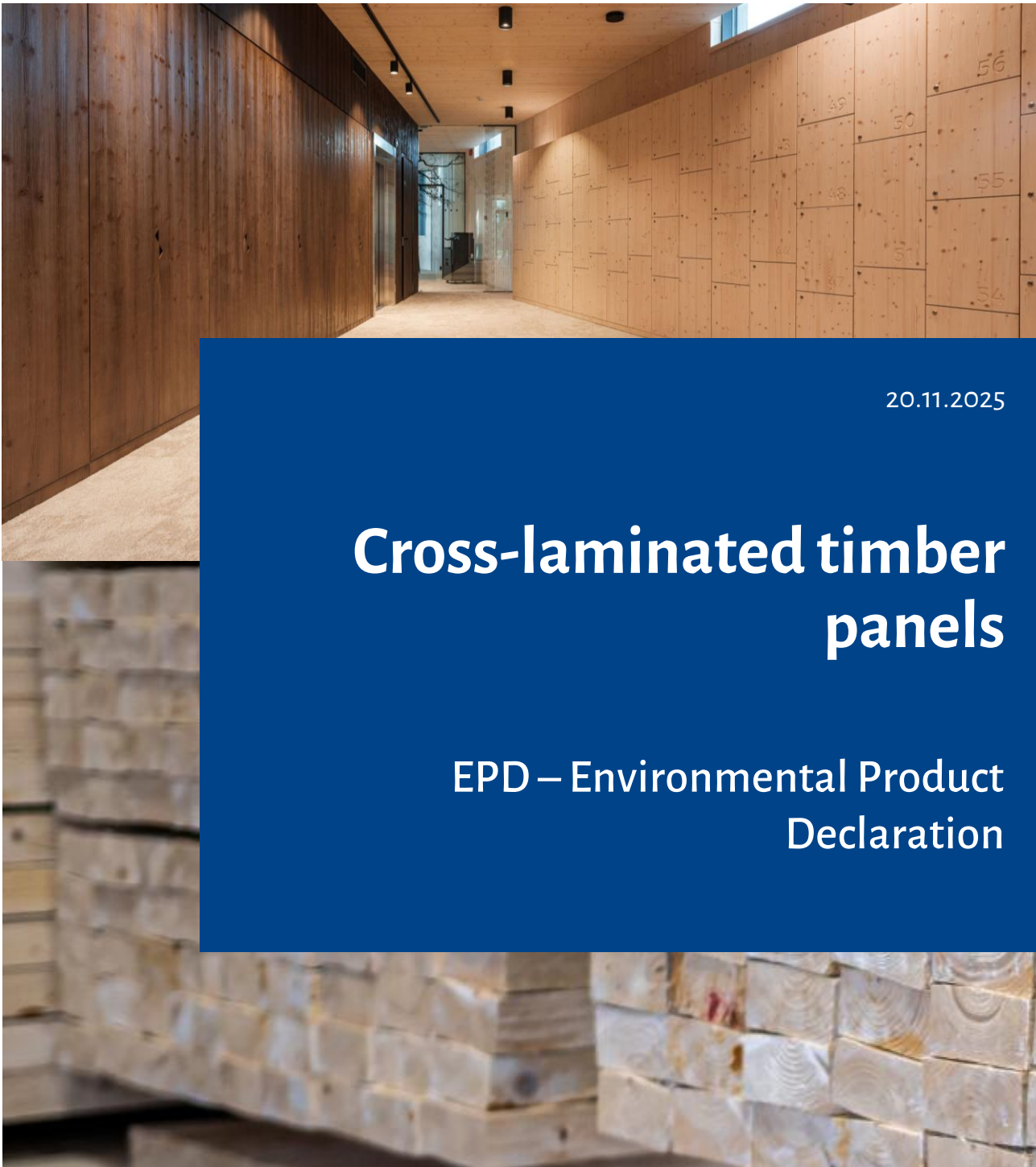




20.11.2025

Cross-laminated timber panels

EPD – Environmental Product Declaration

The declaration has been prepared in accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021



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Technical information

1.1. Owner of the declaration

Dold Puidutööstus OÜ

Riia mnt 56, Viljandi,
Viljandi County, Estonia, 71009
Tel.: +372 43 52500
contact@dold-estonia.com

1.2. Product name

Cross-laminated timber panels, natural
Cross-laminated timber panels, with finishing

1.3. Place of production

Produced in Estonia: Riia mnt 56, Viljandi, Viljandi County, 71009, Estonia

1.4. Additional information

Additional information from: Kert Randla; kert.randla@dold-estonia.com

1.5. Product Category Rules and the scope of the declaration

The declaration has been prepared in accordance with EN 15804:2019 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version, 12.11.2024). EPD of construction products may not be comparable if they do not comply with EN15804 and are seen in a building context.

1.6. Verification

This EPD has been verified according to the requirements of EN 15804:2012 + A2:2019 and RTS PCR by a third party.

The verification has been carried out by LCA Support – Rangi Maja OÜ, Anni Oviir

Third-party verification on 19.11.2025

1.7. Validity

Environmental product declaration is valid for 5 years

1.8. Author of the life-cycle assessment and declaration

OÜ Hendrikson & Ko, Tartu mnt 16, 10117, Tallinn, Estonia, tel +372 7409 800
<https://dge.ee/>

Compilers:

- Anette Suigusaar, +372 55906476
- Kaari Susi, +372 53432066

2. Description

2.1. Company description

Dold Puidutööstus OÜ was established in Viljandi on October 1, 1994, during the privatization of one of Estonia's woodworking enterprises. The company is part of the Dold Holding GmbH group based in Germany and is located in Viljandi's industrial area, covering 15 hectares of land.

Dold panels are sold throughout Europe. Placing strong emphasis on close cooperation with our customers, aiming for true partnership. Tight collaboration with Dold Holzwerke GmbH in Germany has provided stability and a competitive edge in the European market through a well-developed product portfolio.

2.2. Product description

This study assesses the environmental impacts of cross-laminated timber panels, both natural and with finishing. The panels offer versatile applications, including furniture construction, renovation, interior design, and structural use in buildings. They feature a decorative finish and are ready for direct installation on ceilings or walls. Figure 1 illustrates the usages of the products.



Figure 1. Cross-laminate timber panels in use

Sustainably sourced wood is available for all panel production, though its use depends on the client's selection. In 2024, approximately 56% of both natural products and finished products were sourced from wood harvested in sustainably managed forests (see Appendix A).

TECHNICAL INFORMATION

Properties	Cross-laminate timber panels, natural	Cross-laminate timber panels, with finishing
Wood species	Spruce (<i>Picea abies</i>), Pine (<i>Pinus Sylvestris</i>)	Spruce (<i>Picea abies</i>), Pine (<i>Pinus Sylvestris</i>)
Density of the wood	480 kg/m ³	480 kg/m ³
Moisture content	9 ± 2%	9 ± 2%
Dimensions	500 – 6000 mm x 30 – 2500 mm	500 – 6000 mm x 30 – 1250 mm
Finished weight (kg/DU)	504,4	525,7

2.3. Functional Unit

The declared unit (DU) is 1 m³ of solid wood. DU of 1 m³ of solid wood was selected since this unit directly reflects the physical quantity of the material being assessed, and the company collects data on a cubic meter basis. The reference year for collected data is 2024.

2.4. Composition

PRODUCT RAW MATERIAL MAIN COMPOSITION

Product structure	Quantity, %		Usability						Origin
			Renewable		Non-renewable		Recycled		
	Natural	With finishing	Natural	With finishing	Natural	With finishing	Natural	With finishing	
Wood	95,2%	91,1%	x	x	-	-	-	-	EE, FI, LV, SE
Wood, certified	54%	54%	x	x	-	-	-	-	
Wood, un-certified	46%	46%	x	x	-	-	-	-	
Wooden details	0,05%	0,05%	x	x	-	-	-	-	DE
Chemicals	4,8%	8,8%	-	-	x	x	-	-	EE, NO
TOTAL:	100% 504,4 kg	100% 525,7 kg							

* Order of magnitude, not exact composition

PRODUCT RAW MATERIAL MAIN COMPOSITION - PACKAGING

Product structure	Quantity, %		Usability						Origin
			Renewable		Non-renewable		Recycled		
	Natural	With finishing	Natural	With finishing	Natural	With finishing	Natural	With finishing	
Plastic packaging	14,2%	14,2%	-	-	x	x	-	-	GLO
Wooden packaging	85,8%	85,8%	x	x	-	-	-	-	EE
TOTAL:	100% 6,9kg	100% 6,9kg							

* Order of magnitude, not exact composition

PRODUCT MAIN COMPOSITION

Product composition	Quantity, %		Origin
	Natural product	Painted product	
Metals	-	-	-
Stone-based materials (minerals)	-	-	-
Fossil materials	4,9%	8,9%	Europe/Global
Bio-based materials	95,1%	91,1%	Europe

* Order of magnitude, not exact composition

2.5. Substances under European Chemicals Agency's REACH, SVHC restrictions

Both products (painted and natural) do not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm). Meaning the products fulfill the requirements of the REACH EU Regulation.

3. Life cycle assessment

SCOPE OF LIFE CYCLE ASSESSMENT (Standard 7.2.1-2)

All the covered modules of the EPD with X. Mandatory modules are marked with blue in the table below. This declaration covers “cradle-to-gate with options”.

Product stage			Construction process stage		Use stage							End of life stage				Supplementary information beyond the life cycle		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
☒	☒	☒	☒	☒	ND	ND	ND	ND	ND	ND	ND	☒	☒	☒	☒	☒	☒	☒
Raw material supply	Transport	Manufacturing	Transport	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Mandatory modules

Mandatory as per the RTS PCR section 6.2.1 rules and terms

Optional modules based on scenarios

3.1. System boundary

Since the goal of this LCA is to gain insights about the environmental impact of different life cycle phases of natural and painted planed timber exterior cladding as well as its total environmental impact for a number of different effect categories, this study covers the product system from cradle-to-gate with options, i.e., modules A1-A3, modules A4-A5, modules C1-C4 and module D (A1-A5 + C + D), as defined by the RTS PCR published by the RTS EPD 12.11.2024. It includes the life cycle phases of raw material extraction, transportation from suppliers to the factory in Viljandi county in Estonia, manufacturing, packaging, distribution from the Dold Puidutööstus, and end-of-life. The included scenarios are currently in use and are representative of one of the most likely scenario alternatives. Figure 2 shows an illustration of the life cycle phases included and assessed in this LCA. Scope of the EPD is cradle to gate with options (A4 – A5), modules C1 –C4, module D.

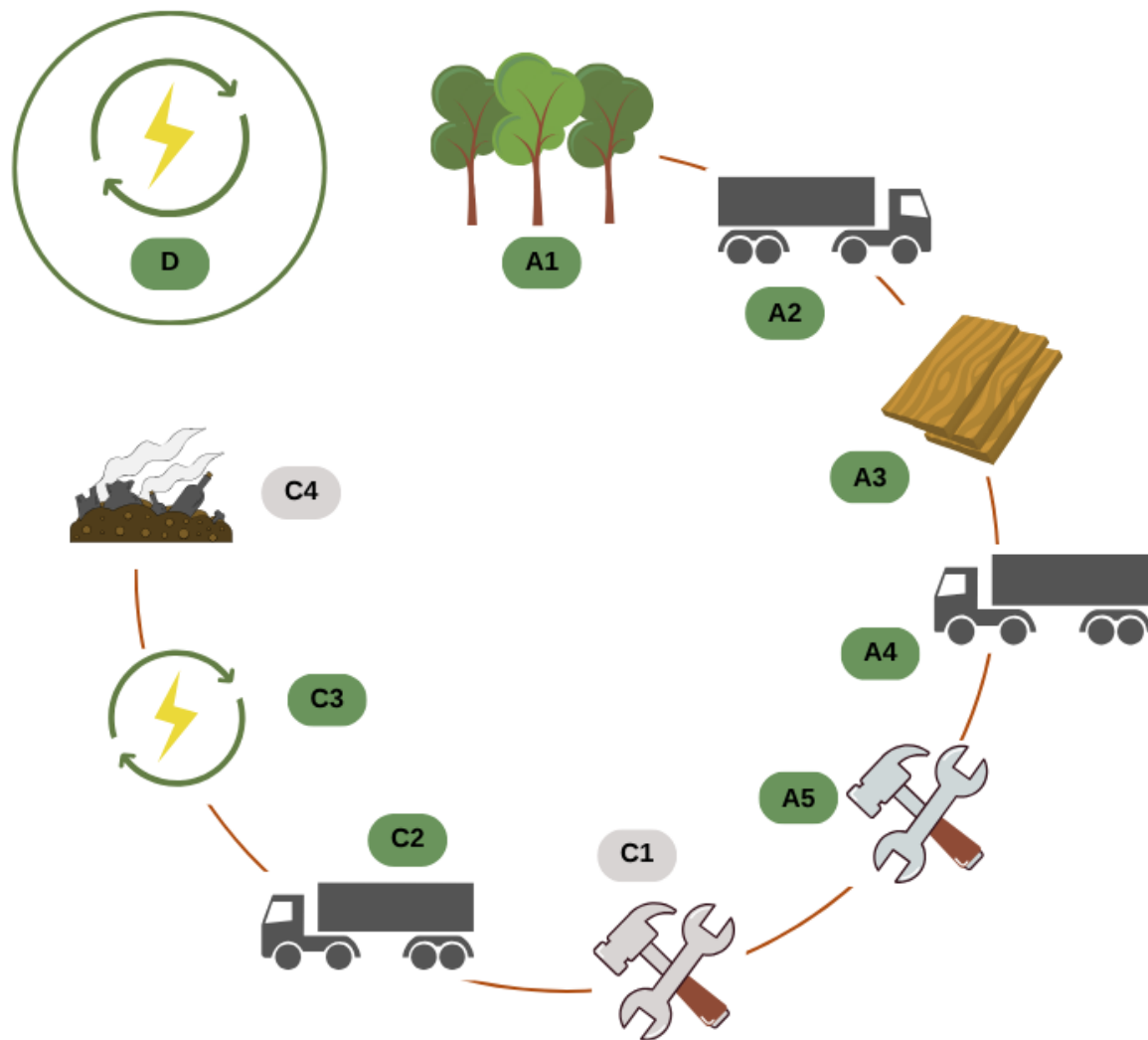


Figure 2. Flow diagram of the assessed life cycle phases of the cross-laminated timber panels

3.2. Allocation and Cut-off criteria

The allocation is performed according to EN 15804, where all by-products must take their environmental responsibility upstream, and inherent properties cannot be allocated away. Shared inputs and outputs (e.g., electricity, heat, water, packaging, and waste) were allocated per produced m³, consistent with the company's 2024 production records. Co-product allocation has not been used.

All materials and processes, input and output data in the life cycle have been included in the assessment to the best of the LCA practitioner's knowledge. The method chosen for the allocation procedure of this LCA is the cut-off method. There is no neglected unit process that accounts for more than 1% of the total mass and energy flows. Some production solvents and packaging materials that constitute less than 1% of the product weight have been excluded (e.g., for the maintenance of the machines at the manufacturing site, oils and cleaning solvents, etc.). This cut-off rule does not apply to hazardous materials and substances.

3.3. Production process

Production A1-A3

The production process begins with unpacking and quality control of the raw materials. After quality control, the materials are stacked for drying. The bought-in wood moisture content is 18%, 60% and 9%. The wood with a moisture content of 18% or 60% is dried in the production site to a moisture content of $9\% \pm 2\%$.

The dried timber is planed and cut. The lamellas are then sorted by quality and used in a suitable CLT product layer. The middle layer is bonded with adhesive. The layers are glued together in a press (the layers are manually and individually stacked) and then sent to the repair station to remove visual defects. The repaired panels are then sent to the format-during and sanding stations. The natural products are then sent to packaging, and products that require profiling or further finishing are profiled as needed. The products are packaged and are ready for transportation. The generated waste is sent to appropriate facilities for recycling, incineration, or disposal.

Transport and Installation A4 – A5

Transport to the client is a scenario-based module; therefore, emission factors are provided in the table below (Table 1) to allow each client to calculate their specific transportation-related emissions.

Table 1. Emission factors for transportation calculations

Type of transport	Database process name	Data type	Data validity	Emission factors per tonne-kilometers (kg CO ₂ eq per tonne-km)
Truck, EURO 6	Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER} transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 Cut-off, U	Ecoinvent 3.11	2009 - 2024	0,187
Ship	Transport, freight, sea, container ship, heavy fuel oil {GLO} transport, freight, sea, container ship, heavy fuel oil Cut-off, U	Ecoinvent 3.11	2007 - 2024	0,19
Train, electric	Transport, freight, train, fleet average {Europe without Switzerland} transport, freight, train, electric Cut-off, U	Ecoinvent 3.11	2000 - 2024	0,037
Train, diesel	Transport, freight, train, fleet average {Europe without Switzerland} transport, freight, train, diesel Cut-off, U	Ecoinvent 3.11	2000 - 2024	0,061
Plane, short haul	Transport, freight, aircraft, short haul {GLO} market for transport, freight, aircraft, short haul Cut-off, U	Ecoinvent 3.11	2016 - 2024	0,877
Plane, medium haul	Transport, freight, aircraft, medium haul {GLO} market for transport, freight, aircraft, medium haul Cut-off, U	Ecoinvent 3.11	2016 - 2024	0,805
Plane, long haul	Transport, freight, aircraft, long haul {GLO} market for transport, freight, aircraft, long haul Cut-off, U	Ecoinvent 3.11	2016 - 2024	0,832

However, the average calculation distance is also calculated. The client base is primarily located in Europe; therefore, the average transportation distance based on typical European delivery routes has been calculated and used in the Life Cycle Assessment.

The product's installation is estimated to have 0 impact, because it is involved with minimal or no energy and water consumption. Therefore, the results of A5 show the impact with regard to the packaging material. Fixings and fasteners (e.g. screws, nails, brackets, anchors) are excluded as project-specific and expected to have a minor contribution to the declared unit. All the packaging materials that come from packaging used for the final products, at their end-of-life, are assumed to be transported to the closest incineration facilities or recycling centers by truck, and the average transport distance is estimated to be 50 km.

C1-C4 End-of-life stage

After the end-of-life of the cross-laminated timber panels are dismantled from the building and collected separately. It is assumed to be associated with minimal energy consumption because the panels are most commonly dismantled manually using simple hand tools, rather than powered demolition equipment. Therefore the environmental impact is considered negligible (0 impact).

All end-of-life products are assumed to be transported to the closest incineration facilities by truck; the average transport distance is estimated to be 50 km (C2). Products are assumed to be incinerated at the end-of-life, producing electricity and district heating (C3). Module C3 is relevant to the European region. There is no disposal of cross-laminated timber panels because it is incinerated (C4).

D Benefits and loads beyond the system boundary

Module D consists of inputs and outputs that leave the product system and have undergone the final treatment stage. The module provides information about reusable products, recycled materials, and useful energy carriers leaving the product system. For wood the efficiency of the incineration process is 75% (Jensen, Afshari, & Carvalho, 2011), therefore the lower heating value (LHV) was used 13,5 MJ/kg (database phyllis2). The split of energy output, 30% electricity and 70% heat, was used in the analysis (Country Reports, 2024). For plastic, the incineration process efficiency was used 80% (European Commission, 2006) and the lower heating value of plastic was 36 MJ/kg (Saveyn et al., 2016). The split of energy output, 31% electricity and 69% heat, was used in the analysis (Confederation of European Waste-to-Energy Plants, 2022).

In this analysis, a total electricity transmission and distribution loss of 6 % was applied to represent typical grid efficiency in Northern and Western Europe (CEER, 2025) and district-heating network loss of 12 % was assumed to represent average European conditions (Eurostat, 2025).

Because the products are assumed to be incinerated at the end-of-life, producing electricity and district heating (C3), there is no disposal of cross-laminated timber products (C4). The use stage (module B) is omitted because it is not associated with any major energy or material use during its expected lifetime, and therefore, the environmental impact is considered negligible.

Biogenic carbon content in product	kg C	-	4.59E-01	-	-	-	-	-	-	-
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* Compulsory table

USE OF NATURAL RESOURCES

Use of natural resources	Unit	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.64E+04	1.26E+04	1.61E+01	3.79E+03	3.41E+01	8.12E+01	0.00E+00	1.07E+00	6.50E+03	0.00E+00	-8.97E+02
PERM	MJ	6.56E+03	9.32E+03	0.00E+00	-2.76E+03	0.00E+00	-8.10E+01	0.00E+00	0.00E+00	-6.48E+03	0.00E+00	0.00E+00
PERT	MJ	2.30E+04	2.19E+04	1.61E+01	1.03E+03	3.41E+01	2.48E-01	0.00E+00	1.07E+00	1.92E+01	0.00E+00	-8.97E+02
PENRE	MJ	5.15E+03	2.70E+03	1.10E+03	1.35E+03	2.27E+03	3.10E+01	0.00E+00	6.69E+01	1.50E+02	0.00E+00	-7.60E+03
PENRM	MJ	2.79E+01	2.79E+01	0.00E+00	0.00E+00	0.00E+00	-2.79E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	5.17E+03	2.72E+03	1.10E+03	1.35E+03	2.27E+03	3.03E+00	0.00E+00	6.69E+01	1.50E+02	0.00E+00	-7.60E+03
SM	kg	1.79E+02	0.00E+00	0.00E+00	1.79E+02	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	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	0.00E+00	0.00E+00	0.00E+00
FW	m3	1.31E+02	1.08E+02	4.00E+00	1.82E+01	8.44E+00	5.56E-02	0.00E+00	2.63E-01	4.11E+00	0.00E+00	-4.49E+01

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 = Use of net fresh water.

BIOGENIC CARBON CONTENT

Biogenic carbon content	Unit	A3
Biogenic carbon content in product	Kg C	220,3 C (807,7 kg CO ₂)
Biogenic carbon content in packaging	Kg C	2,7 C (9,7 kg CO ₂)

END OF LIFE – WASTE

Waste categories	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	2.81E-02	1.55E-02	1.63E-05	0.00E+00	4.56E-04	6.40E-04	0.00E+00	-2.67E-02
Non-hazardous waste	kg	1.07E+02	9.94E+01	2.01E-01	0.00E+00	3.26E+00	1.06E+01	0.00E+00	-1.12E+01
Radioactive waste	kg	5.77E-03	6.31E-04	7.33E-06	0.00E+00	1.99E-05	5.85E-04	0.00E+00	-2.92E-02

END OF LIFE – OUTPUT FLOWS

Other environmental indicators	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for reuse	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
Materials for recycling	kg	1,03E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	3,80E+02	0,00E+00	6,87E+00	0,00E+00	0,00E+00	5,04E+02	0,00E+00	0,00E+00
Exported energy (heat)	MJ/energy source	5,11E+03	0,00E+00	6,49E+01	0,00E+00	0,00E+00	4,77E+03	0,00E+00	0,00E+00

4.2. WITH FINISHING CROSS-LAMINATED TIMBER PANELS

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804 +2

Indicators	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP - total	kg CO ₂ eq	1,09E+02	1,68E+02	1,30E+01	0,00E+00	4,92E+00	8,20E+02	0,00E+00	-3,74E+01
GWP - fossil	kg CO ₂ eq	4,29E+02	1,68E+02	3,29E+00	0,00E+00	4,92E+00	1,19E+01	0,00E+00	-3,93E+02
GWP - biogenic	kg CO ₂ eq	-4,62E+02	1,03E-01	9,72E+00	0,00E+00	3,42E-03	4,53E+02	0,00E+00	0,00E+00
GWP - luluc	kg CO ₂ eq	1,42E+02	5,87E-02	0,00E+00	0,00E+00	1,65E-03	3,55E+02	0,00E+00	3,55E+02
ODP	kg CFC 11 eq	7.71E-06	3.67E-06	3.85E-09	0.00E+00	1.07E-07	1.53E-07	0.00E+00	-1.28E-05
AP	mol H ⁺ eq	2.95E+00	6.06E-01	1.71E-03	0.00E+00	1.06E-02	1.04E-01	0.00E+00	-1.05E+00
EP - freshwater	kg P eq	1.10E-01	1.09E-02	8.78E-05	0.00E+00	3.41E-04	7.01E-03	0.00E+00	-1.61E-01
EP - marine	kg N eq	8.53E-01	2.11E-01	7.95E-04	0.00E+00	2.54E-03	4.86E-02	0.00E+00	-2.23E-01
EP-terrestrial	kg N eq.	9.28E+00	2.32E+00	7.68E-03	0.00E+00	2.74E-02	4.64E-01	0.00E+00	-2.06E+00
POCP	kg NMVOC eq.	3.16E+00	9.01E-01	2.07E-03	0.00E+00	1.67E-02	1.19E-01	0.00E+00	-8.16E-01
ADP- minerals&metals	kg Sb eq.	2.04E-03	5.30E-04	5.30E-07	0.00E+00	1.69E-05	2.37E-05	0.00E+00	-4.57E-04
ADP-fossil	MJ. Net calorific value	6.40E+03	2.36E+03	3.03E+00	0.00E+00	6.98E+01	1.57E+02	0.00E+00	-7.60E+03
WDP	M3world eq. deprived	1.41E+02	8.80E+00	5.54E-02	0.00E+00	2.75E-01	4.30E+00	0.00E+00	-4.51E+01

GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. 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.

Because the products are made 100% of wood that comes from sustainable forests, the GWP-biogenic was calculated according to the RTS PCR in line with EN 15804+A2.

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT*

Impact category	Unit	A1-A3	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq	2,26E-01	8,44E-01	3,51E-01	2,71E-02	0,00E+00	1,03E-02	1,71E+00	0,00E+00	-7,80E-02
ADP-minerals & metals	kg Sb eq	4,24E-06	5,07E-07	1,10E-06	1,10E-09	0,00E+00	3,52E-08	4,93E-08	0,00E+00	-9,51E-07
ADP-fossil	MJ	1,33E+01	3,47E+00	4,93E+00	6,31E-03	0,00E+00	1,46E-01	3,27E-01	0,00E+00	-1,58E+01
Water use	m3 depriv.	2,93E-01	-2,70E-02	1,83E-02	1,15E-04	0,00E+00	5,72E-04	8,96E-03	0,00E+00	-9,39E-02
Secondary materials	kg	3,73E-01	3,73E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content in product	kg C	-	4.59E-01	-	-	-	-	-	-	-

* Compulsory table

USE OF NATURAL RESOURCES

Use of natural resources	Unit	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.67E+04	1.27E+04	1.62E+01	3.97E+03	3.56E+01	8.45E+01	0.00E+00	1.12E+00	6.50E+03	0.00E+00	-8.97E+02
PERM	MJ	6.56E+03	9.32E+03	0.00E+00	-2.76E+03	0.00E+00	-8.42E+01	0.00E+00	0.00E+00	-6.48E+03	0.00E+00	0.00E+00
PERT	MJ	2.32E+04	2.20E+04	1.62E+01	1.21E+03	3.56E+01	2.48E-01	0.00E+00	1.12E+00	2.00E+01	0.00E+00	-8.97E+02
PENRE	MJ	6.38E+03	3.60E+03	1.11E+03	1.67E+03	2.36E+03	3.10E+01	0.00E+00	6.98E+01	1.57E+02	0.00E+00	-7.60E+03
PENRM	MJ	2.79E+01	2.79E+01	0.00E+00	0.00E+00	0.00E+00	-2.79E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	6.40E+03	3.62E+03	1.11E+03	1.67E+03	2.36E+03	3.03E+00	0.00E+00	6.98E+01	1.57E+02	0.00E+00	-7.60E+03
SM	kg	1.79E+02	0.00E+00	0.00E+00	1.79E+02	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	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	0.00E+00	0.00E+00	0.00E+00
FW	m3	1.47E+02	1.47E+02	4.03E+00	-4.00E+00	8.81E+00	5.56E-02	0.00E+00	2.75E-01	4.29E+00	0.00E+00	-4.49E+01

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 = Use of net fresh water

BIOGENIC CARBON CONTENT

Biogenic carbon content	Unit	A3
Biogenic carbon content in product	Kg C	220,3 C (807,7 kg CO ₂)
Biogenic carbon content in packaging	Kg C	2,7 C (9,7 kg CO ₂)

END OF LIFE – WASTE

Waste categories	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	2.81E-02	1.55E-02	1.63E-05	0.00E+00	4.56E-04	6.40E-04	0.00E+00	-2.67E-02
Non-hazardous waste	kg	1.07E+02	9.94E+01	2.01E-01	0.00E+00	3.26E+00	1.06E+01	0.00E+00	-1.12E+01
Radioactive waste	kg	5.77E-03	6.31E-04	7.33E-06	0.00E+00	1.99E-05	5.85E-04	0.00E+00	-2.92E-02

END OF LIFE – OUTPUT FLOWS

Other environmental indicators	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for reuse	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
Materials for recycling	kg	1.03E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	3.80E+02	0.00E+00	6.87E+00	0.00E+00	0.00E+00	5.27E+02	0.00E+00	0.00E+00
Exported energy (heat)	MJ/energy source	5.11E+03	0.00E+00	6.49E+01	0.00E+00	0.00E+00	4.98E+03	0.00E+00	0.00E+00

5. Scenarios and additional technical information

MANUFACTURING ENERGY SCENARIO DOCUMENTATION

Scenario parameter	Value
Electricity data source and quality	Ecoinvent 3.11, Estonia residual mix
Electricity CO ₂ e / kwh	0,69

TRANSPORT SCENARIO DOCUMENTATION (A4)

Scenario parameter	Value
Specific transport CO ₂ e emissions, kg CO ₂ e / tkm	Lorry: 0,187 Ship: 0,126
Average transport distance for natural planed timber products, km	1500 km by lorry 280 km by ship
Average transport distance for painted planed timber products, km	1500 km by lorry 280 km by ship
Capacity utilization, %	100
Volume capacity utilization factor	1
Bulk density of transported products (including packaging, kg/m ³)	Cross-laminated timber panels, natural product: 511,4 Cross-laminated timber panels, finished product: 532,7

PRODUCT INSTALLATION SCENARIO DOCUMENTATION

Scenario parameter	Value	
	Natural cross-laminated timber panels	With finishing cross-laminated timber panels
Auxiliary materials used during installation, kg	0	0
Water consumption, kg	0	0
Other used resources, kg	0	0
Energy consumption, kWh	0	0
Waste generated during the installation of the product, kg	6,9	6,9
Output materials, which have been generated during the handling of waste on the construction site, kg	0	0

PRODUCT INSTALLATION SCENARIO DOCUMENTATION

Scenario parameter	Natural cross-laminated timber panels	With finishing cross-laminated timber panels
Collection process – kg collected separately	504,4	525,7
Collection process – kg collected with mixed waste	-	-
Recovery process – kg for re-use	-	-
Recovery process – kg for recycling	-	-
Recovery process – kg for energy recovery	504,4	525,7
Disposal – kg for final deposition	-	-
Scenario assumptions, e.g. transportation	End-of-life products are assumed to be transported 50 km with an average lorry	

6. Reference

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European Commission. Integrated Pollution Prevention and Control. [Reference Document on the Best Available Techniques for Waste incineration](#). August 2006

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CEER (Council of European Energy Regulators), 3rd CEER Report on Power Losses. 11.02.2025

Eurostat, Capacities, productions and losses in district networks by type of network and type of plant. 09.01.2025

CEER (Council of European Energy Regulators), 3rd CEER Report on Power Losses. 11.02.2025
Eurostat, Capacities, productions and losses in district networks by type of network and type of plant. 09.01.2025

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Appendix A

FSC Wood certificate for Dold Puidutööstus OÜ: Certificate Code: SCS-COC-0079296,
Validity 22 June 2021 – 21 June 2026

SCS Global Services does hereby certify that an independent audit has been completed and conformity to the applicable standard(s) has been confirmed for:

Dold Puidutööstus OÜ

Riia mnt 56, Viljandi, 71009, Estonia

This single certificate covers the production of edge-glued panels using the transfer system.

The facility(s) are hereby Chain of Custody certified to sell products as:

FSC 100%; FSC Mix

The assessment has been conducted by SCS Global Services in accordance with the protocols of the Forest Stewardship Council® A.C. (FSC®).

FSC Standard: FSC-STD-40-004

Certificate Code: SCS-COC-007926 Trademark License Code: FSC-C099973

Valid from: 22 June 2021 Expiry date: 21 June 2026

This certificate itself does not constitute evidence that a particular product supplied by the certificate holder is FSC-certified (or FSC Controlled Wood where applicable). Products offered, shipped or sold by the certificate holder can only be considered covered by the scope of this certificate when the required FSC claim is clearly stated on sales and delivery documents. The scope of this certificate is considered accurate on the date of issuance. The current validity and scope, including the full list of products, shall be verified on <http://info.fsc.org>. The certificate shall remain the property of SCS, and this certificate and all copies or reproductions of this certificate shall be returned to SCS immediately upon request. Where a certificate covers more than one site, the covered products and processes/activities are performed by the network of Participating Sites, and not necessarily by each of them.



The mark of
responsible forestry



SCSglobal
SERVICES

Maggie Schwartz, Director, Chain of Custody
SCS Global Services
2000 Powell Street, Ste. 600, Emeryville, CA 94608 USA

PEFC certificate for Dold Puidutööstus OÜ: Certificate number BMCERT-PEFC-COC-00038,
Validity 15 APRIL 2024 – 24 June 2027



CERTIFICATE

This is to certify that single-site company

Dold Puidutööstus OÜ

Riia mnt 56
Viljandi 71009
Estonia

meet the requirements of standards
Chain of Custody of Forest and Trees Based Products - Requirements PEFC ST 2002:2020
& PEFC Trademark Rules - Requirements PEFC ST 2001:2020

Scope of certification

Production and sales of edge glued panels and cross laminated timber.

Products:
040100 Cross Laminated Timber
040300 Glue Laminated Timber

Raw material origin: 100% PEFC Origin & PEFC Certified Material
Chain of Custody Method: PEFC Physical Separation Method



Certificate number:
BMCERT-PEFC-COC-00038

Issue number:
2023-01

Certificate effective date:
15 April 2024

Certificate expiry date:
24 June 2027

Date of initial certification:
25 June 2012

Jānis Švirksts
Member of The Board
BM Certification

BM Certification Ltd., Jurkalnes street 15, Riga, LV-1046, Latvia

This certificate remains the property of BM Certification Ltd. This certificate and all copies or reproductions of the certificate shall be returned to BM Certification Ltd or destroyed if requested. Further clarification regarding the scope of this certificate and verification of the certificate is available through PEFC International data base www.pefc.org

This certificate itself does not constitute evidence that a particular product supplied by the certificate holder is PEFC certified. Products offered, shipped or sold by the certificate holder can only be considered to be covered by the scope of this certificate when the required PEFC claim is stated on invoices and shipping documents. PEFC logo on the issued certificate only refers to the client compliance with the PEFC certification scheme and does not provide the client with the right to use PEFC trademarks.

Multisite clients – The scope of certification shown above includes the participating sites shown in appendix A.