ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	Holzwerk Gebr. Schneider GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-HWS-20240043-IBA1-EN
Issue date	04.04.2024
Valid to	03.04.2029

best wood CLT

Holzwerk Gebr. Schneider GmbH

Institut Bauen und Umwelt e.V.

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ECO PLATFORM EPD VERIFIED

1. General Information

Holzwerk Gebr. Schneider GmbH

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-HWS-20240043-IBA1-EN

This declaration is based on the product category rules:

Solid wood products, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

04.04.2024

Valid to

03.04.2029

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

best wood CLT

Owner of the declaration

Holzwerk Gebr. Schneider GmbH
Kappel 28
88436 Eberhardzell
Germany

Declared product / declared unit

1 m³ Brettsperrholz best wood CLT

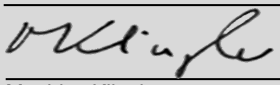
Scope:

Die vorliegende Umwelt-Produktdeklaration bezieht sich auf 1 m³ best wood CLT, welches von der Firma Holzwerk Gebr. Schneider GmbH am Standort Eberhardzell (Deutschland) hergestellt wird.
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR
Independent verification of the declaration and data according to ISO 14025:2011
☐ internally ☒ externally



Matthias Klingler,
(Independent verifier)

2. Product

2.1 Product description/Product definition

Best wood CLT is a solid wood element for load-bearing purposes. It consists of at least three layers of cross-laminated solid wood panels. Due to its physical building properties, it is suitable for any structural requirement
Regulation (EU) No. 305/2011 (CPR) applies to the placing on the market of the product in the EU/EFTA (with the exception of Switzerland). The product requires a declaration of performance in accordance with ETA-21/0568 dated 13/07/2021 based on E*AD 130005-00-0304* Solid wood *element for load-bearing* purposes in buildings and CE marking.

The respective national regulations apply for use.

2.2 Application

The product best wood CLT is used in the structural area of modern timber construction. The areas of application include residential, industrial and bridge construction. It can be used in application classes 1 and 2 according to *EN 1995-1-1.*

2.3 Technical Data

The technical construction data shown below is valid for the product best wood CLT mat as delivered. Depending on the cross-sectional structure (number of layers, layer thickness) and the load position of the best wood CLT, the physical building properties such as component resistance or fire resistance vary. Strength scale according to *EN 1995-1-1* is C24.

Technical construction data

Name	Value	Unit
Wood types by trade names according to EN 1912	Spruce, fir	-
Wood moisture according to EN 13183-1	< 15	%
Use of wood preservatives (the test rating of the wood preservative in accordance with DIN 68800 - 3 must be specified)	not available	-
Compressive strength rectangular according to EN 1995	3	N/mm^2
Tensile strength rectangular according to EN 1995	0.4	N/mm^2
Modulus of elasticity according to EN 1995	12000	N/mm^2
Shear strength according to EN 1995	4	N/mm^2
Shear modulus according to EN 1995	690	N/mm^2
Dimensional deviation (length)	±5	mm
Dimensional deviation (width)	±2	mm
Dimensional deviation (height)	±2	mm
Gross density of load-bearing components according to EN 338 or DIN 1052, non-load-bearing components: according to DIN 68364	430	kg/m^3
Surface quality (possible forms are to be specified)	Visible quality, non-visible quality	-
Thermal conductivity according to EN 12664	0.12	W/(mK)
Specific heat capacity according to EN 12664	1.6	kJ/kgK
Water vapour diffusion resistance factor according to EN ISO 12572	20 (moist) 50 (dry)	-

Performance values of the product in accordance with the declaration of performance in relation to its essential characteristics in accordance with ETA-21/0568 of 13/07/2021 based on *EAD 130005-00-0304 Solid wood element for load-bearing use in structures.*

2.4 Delivery status

Widths from 900 mm to 1200 mm
Heights from 60 mm to 280 mm
Lengths of 2.30-16 m

Delivery is made according to batch size 1. The product must be stored dry and under cover.

2.5 Base materials/Ancillary materials

Composition by mass

Name	Value	Unit
Conferous wood	approx. 90,5	%
Water	approx. 9,0	%
Glue	approx. 0,5	%

The softwood used is predominantly spruce. The adhesives used are based on polyurethane (PUR) and are formaldehyde-free.

The product/at least one part of the product contains substances on the ECHA Candidate List of Substances of Very High Concern (SVHC) (date 14/03/2023) above 0.1 mass %:

no.

The product/at least one sub-product contains other CMR substances of category 1A or 1B that are not on the ECHA candidate list, above 0.1% by mass in at least one sub-product: **no.**

Biocidal products have been added to this construction product or it has been treated with biocidal products (it is therefore a treated product within the meaning of the Biocidal Products Regulation (EU) No. 528/2012): **no.**

2.6 Manufacture

The product best wood CLT is made of spruce or fir. To produce CLT, sawn timber is first dried to 8-15% wood moisture, pre-planned and sorted visually or by machine according to strength. The sorted lamellas are finger-jointed together to form endless lamellas. The finger-jointed lamellas are then levelled with a planer and glued together on the narrow side to form 1-ply boards. A 3-7 layer CLT panel is then pressed from the 1-layer boards using cross and longitudinal layers. Once the bonding has hardened, the final surface treatment is carried out using a profiling planer and the customised joinery and packaging. If required, the surface can
be finished before packaging.

2.7 Environment and health during manufacturing

The legal regulations regarding environmental and health protection during the manufacturing process are complied with. Legal limits are undercut.
In addition, employees are offered numerous health promoting measures also outside of the production process.

The SCHNEIDER Group operates a certified energy management system in accordance with *ISO 50001*.

2.8 Product processing/Installation

The product best wood CLT can be processed with the usual tools suitable for solid wood processing. Instructions on occupational safety must be observed during processing/installation.

2.9 Packaging

The products are wrapped in a polyethylene (PE) film to protect them from moisture and UV radiation. After use, the packaging material can be recycled or used to generate energy.

2.10 Condition of use

If used as intended, no material changes in composition are to be expected during the use phase. During use, around 194.5 kg of carbon is bound in the product. This corresponds to approx. 713.1 kg of CO2 when fully oxidised.

2.11 Environment and health during use

When used as intended, no negative effects on the environment or health are to be expected.

2.12 Reference service life

When installed professionally and used as intended, no premature end to the durability of the CLT is known or to be expected. The average service life of the product is therefore of the same order of magnitude as the service life of the building. Under Central European climatic conditions, a conservatively estimated service life of 100 years can be assumed. Influences on product ageing when used in accordance with the rules of technology are not known or expected.

2.13 Extraordinary effects

Fire

The fire behavior of the declared product is defined as follows:

Fire protection

Name	Value
Building material class	D
Burning droplets	d0
Smoke gas development	s2

Water

In the event of unforeseen exposure of the product to water, e.g. flooding, no substances hazardous to water are washed out.

Mechanical destruction

Best wood CLT has a typical fracture pattern for solid wood. No negative effects on the environment are to be expected in the event of unforeseen mechanical destruction.

2.14 Re-use phase

After selective dismantling, the product can generally be reused or recycled without any problems. Alternatively, the material can also be thermally recycled for energy recovery.

2.15 Disposal

In cases where the CLT is not recycled, it can be disposed of by means of thermal treatment. Landfilling of waste wood is not permitted.

Waste code according to the European Waste Catalogue (EWC waste code number): 170201.

2.16 Further information

Further information and documents such as technical data sheets certificates etc. are available at www.schneider-holz.com.

3. LCA: Calculation rules

3.1 Declared Unit

The declared unit for this Environmental Product Declaration is defined as 1 m³ in accordance with the specifications of the corresponding PCR: Solid wood product. The gross density of the product in question is 430 kg/m³ with a delivery moisture content of 10 %.

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	m^3
Gross density	430	kg/m^3
Wood moisture at delivery	10	%

Specific data was used for the PUR adhesives used in the modelling.

3.2 System boundary

This EPD is a cradle-to-grave analysis and module D, it includes the following life cycle phases:

A1-A3 | Production stage

The production stage includes the manufacture of all components of the declared product (wooden slats and adhesives) as well as the packaging, including the respective upstream chains up to the extraction of raw materials. The transportation of the components and packaging materials to the production site is also taken into account. All expenses for

the production of the CLT elements are taken into account within the factory limits.

A4-A5 | Construction stage
This stage includes the transportation of the CLT elements to the construction site (A4) as well as the expenses for installation in the building (A5). Furthermore the disposal of packaging waste is taken into account here.

B1-B7 | Utilization stage
This stage deals with the utilization phase of the product. However, if used properly, no environmentally relevant processes occur during the period of use.

C1-C4 | Disposal stage
The disposal stage includes dismantling (C1), which in this case was assumed to be a manual process with negligible environmental impacts. Furthermore, the transportation of the dismantled product, which is therefore waste, to the waste treatment plant (C2) and its thermal recovery (C3) are also taken into account. In this case, no environmentally relevant processes are included in C4.

D | Advantages and drawbacks outside the system boundary
The advantages of thermal recycling of offcuts and packaging waste (from A5) and of the product itself (from C3) are considered here.

3.3 Estimates and assumptions
The specified density of the declared product corresponds to that of the wood used. The change caused by the adhesive was categorised as very small and therefore not taken into account for the balancing.

3.4 Cut-off criteria
All inputs and outputs for which data is available and which are expected to make a significant contribution are included in the LCA model. Only data with a contribution of less than 1% was cut off. The omission of this data is justified by the insignificance of the expected impact. Thismeans that no processes, materials or emissions were neglected that are expected to make a significant contribution to the environmental impact of the products under consideration. It can be assumed that the data was recorded in full and that the total sum of the neglected input flows does not exceed 5% of the energy and mass input. Expenses for machinery and infrastructure were not taken into account.

3.5 Background data
The modelling was carried out using Umberto LCA+ software on the basis of GaBi databases integrated into it. Background data comes from the GaBi Professional database (2021.2) (*GaBi A*), GaBi Extension database XIIIb: ecoinvent 3.7.1 integrated (2021.2) (*GaBi B*) and GaBi Extension database XIV: Construction materials (2021.2) (*GaBi C)*.

3.6 Data quality
The data collection followed the principles described in *ISO 14044*. The foreground production data for 2021 was collected by Holzwerk Gebr. Schneider GmbH using internal company records.

When selecting the background data, attention was paid to the technological, geographical and time-related representativeness of the data basis.

3.7 Period under review
The foreground production data was collected for the year 2021. All values therefore represent an average over this period.

3.8 Geographic Representativeness
Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Germany

3.9 Allocation
General information
The material-inherent properties of the product (biogenic carbon and the primary energy it contains) are allocated according to the physical criterion of mass.

Module A1-A3
The upstream chains of the respective input materials are mapped using generic data sets. Allocation rules in these datasets can generally be found in the respective dataset documentation. The flows/loads from the forest and sawmill associated with the wood lamellas were modelled as standard using economic allocation.

According to the manufacturer, no other (by-) products are created during the manufacture of the declared product, so an allocation is not necessary at this level.

Modules A5 & C3
The thermal recycling of the packaging waste (A5) and the product itself (C3) takes place in a waste incineration plant (WIP). The associated loads are declared in the respective modules. The waste incineration plant is a multi-input process. The respective allocation takes place via the selected GaBi background datasets – details can be found in the respective dataset documentation.

Module D
Packaging waste as well as the declared product itself are thermally recycled. The breakdown into electrical and thermal energy can be found in the corresponding documentation of the GaBi dataset. The breakdown into electrical and thermal energy can be found in the corresponding documentation of the GaBi dataset

3.10 Comparability
Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account. GaBi background data from GaBi Professional database (2021.2), GaBi Extension database XIIIb: ecoinvent 3.7.1 integrated (2021.2) and GaBi Extension database XIV: Construction materials (2021.2) were used in the modelling.

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon
The biogenic carbon in wood was taken into account in A1-A3 as absorption and derecognised at the end of life (C3).Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO2.

Information on the description f the biogenic carbon content at the site gate

Name	Value	Unit
Biogenic carbon content in product	194.5	kg C
Biogenic carbon content in accompanying packaging	-	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2.

The following technical information is the basis for the declared modules or can be used for the development of specific scenarios in the context of a building assessment if modules are not declared (MND). Unless otherwise defined, the values in the following tables refer to the declared unit of 1 m³(= 430 kg).

Transportation to construction site (A4)

Name	Value	Unit
Litres of fuel	34.2	l/100km
Transport distance	138	km
Capacity utilisation (including empty runs)	65	%
Gross density of products transported	430	kg/m^3
Capacity utilisation volume factor	1	-

Installation in the building (A5)

Name	Value	Unit
Auxiliary	-	kg
Water consumption	-	m^3
Other resources	-	kg
Electricity consumption	0.048	kWh
Other energy carriers	-	MJ
Material loss	-	kg
Plastic packaging for thermal waste treatment	0,43	kg
Dust in the air	-	kg
VOC in the air	-	kg

End of life (C1–C4)

Name	Value	Unit
Collected separately waste type Altholz	430	kg
Energy recovery	430	kg

Reuse, recovery and recycling potential (D), relevant scenario data

Name	Value	Unit
Energy recovery elec. from A5	2,87	MJ
Energy recovery therm. from A5	5,11	MJ
Energy recovery Alec. from C3	1125,03	MJ
Energy recovery therm. from C3	2020,57	MJ

5. LCA: Results

The results for 1 m³ of best wood CLT with a bulk density of 430 kg/m³ are shown below.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m³ Brettsperrholz CLT (430 kg/m³)

Parameter	Unit	A1-A3	A4	A5	B1	B2	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	-5.05E+02	4.78E+00	1.39E+00	0	0	0	1.91E+01	7.25E+02	0	-2.56E+02
GWP-fossil	kg CO_2 eq	2.07E+02	4.74E+00	1.39E+00	0	0	0	1.9E+01	1.15E+01	0	-2.56E+02
GWP-biogenic	kg CO_2 eq	-7.13E+02	0	0	0	0	0	0	7.13E+02	0	0
GWP-luluc	kg CO_2 eq	6.86E-01	3.88E-02	1.91E-04	0	0	0	1.57E-01	7.38E-03	0	-1.75E-01
ODP	kg CFC11 eq	2.05E-07	9.38E-16	5.66E-16	0	0	0	3.79E-15	1.02E-13	0	-2.88E-12
AP	mol H^+ eq	6.38E-01	5.1E-03	2.76E-04	0	0	0	1.02E-01	1.11E-01	0	-3.31E-01
EP-freshwater	kg P eq	1.2E-03	1.41E-05	1.22E-07	0	0	0	5.7E-05	1.4E-05	0	-3.3E-04
EP-marine	kg N eq	2.66E-01	1.64E-03	8.69E-05	0	0	0	4.92E-02	3.63E-02	0	-9.45E-02
EP-terrestrial	mol N eq	2.87E+00	1.95E-02	1.27E-03	0	0	0	5.45E-01	5.27E-01	0	-1.01E+00
POCP	kg NMVOC eq	7.67E-01	4.44E-03	2.05E-04	0	0	0	9.56E-02	9.87E-02	0	-2.65E-01
ADPE	kg Sb eq	7.68E-05	4.21E-07	8.89E-09	0	0	0	1.7E-06	1.55E-06	0	-4.21E-05
ADPF	MJ	2.89E+03	6.33E+01	7.63E-01	0	0	0	2.55E+02	1.69E+02	0	-4.43E+03
WDP	m^3 world eq deprived	1.46E+01	4.41E-02	1.27E-01	0	0	0	1.78E-01	8.05E+01	0	-1.91E+01

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential)

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m³ Brettsperrholz CLT (430 kg/m³)

Parameter	Unit	A1-A3	A4	A5	B1	B2	C1	C2	C3	C4	D
PERE	MJ	7.3E+02	3.64E+00	2.05E-01	0	0	0	1.47E+01	7.46E+03	0	-9.86E+02
PERM	MJ	7.42E+03	0	0	0	0	0	0	-7.42E+03	0	0
PERT	MJ	8.15E+03	3.64E+00	2.05E-01	0	0	0	1.47E+01	3.28E+01	0	-9.86E+02
PENRE	MJ	2.81E+03	6.35E+01	1.9E+01	0	0	0	2.56E+02	2.23E+02	0	-4.44E+03
PENRM	MJ	7.2E+01	0	-1.83E+01	0	0	0	0	-5.38E+01	0	0
PENRT	MJ	2.89E+03	6.35E+01	7.64E-01	0	0	0	2.56E+02	1.69E+02	0	-4.44E+03
SM	kg	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0
FW	m^3	8.32E-01	4.17E-03	3.08E-03	0	0	0	1.68E-02	1.89E+00	0	-9.6E-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

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m³ Brettsperrholz CLT (430 kg/m³)

Parameter	Unit	A1-A3	A4	A5	B1	B2	C1	C2	C3	C4	D
HWD	kg	8.3E-07	3.35E-09	1.34E-10	0	0	0	1.35E-08	3.05E-08	0	-9.96E-07
NHWD	kg	2.14E+00	9.96E-03	5.62E-03	0	0	0	4.02E-02	5.59E+00	0	-2.07E+00
RWD	kg	1.28E-01	1.15E-04	6.09E-05	0	0	0	4.65E-04	9.39E-03	0	-3.16E-01
CRU	kg	0	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0	0

EEE	MJ	0	0	2.87E+00	0	0	0	0	1.13E+03	0	0
EET	MJ	0	0	5.11E+00	0	0	0	0	2.02E+03	0	0

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

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:
1 m³ Brettsperrholz CLT (430 kg/m³)

Parameter	Unit	A1-A3	A4	A5	B1	B2	C1	C2	C3	C4	D
PM	Disease incidence	1.17E-04	3.47E-08	1.53E-09	0	0	0	4E-07	5.55E-07	0	-2.85E-06
IR	kBq U235 eq	1.18E+01	1.68E-02	9.93E-03	0	0	0	6.8E-02	1.49E+00	0	-5.17E+01
ETP-fw	CTUe	1.48E+03	4.69E+01	4.08E-01	0	0	0	1.9E+02	7.31E+01	0	-9.12E+02
HTP-c	CTUh	1.16E-07	9.49E-10	1.66E-11	0	0	0	3.84E-09	4.91E-09	0	-4.21E-08
HTP-nc	CTUh	8.22E-06	4.93E-08	6.37E-10	0	0	0	2.11E-07	1.75E-07	0	-1.66E-06
SQP	SQP	1.29E+05	2.17E+01	2.42E-01	0	0	0	8.78E+01	4.63E+01	0	-6.77E+02

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Restriction notice 1 – applies to the indicator 'Potential effect of human exposure to U235".
This impact category mainly addresses the potential effect of low dose ionizing radiation on human health in the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents and occupational exposure, nor to the disposal of radioactive waste in underground facilities. Potential ionizing radiation from soil, radon and some building materials is also not measured by this indicator.

Restriction notice 2 – applies to the indicators: 'Potential for depletion of abiotic resources - non-fossil resources', 'Potential for depletion of abiotic resources - fossil fuels', 'Water depletion potential (user)', 'Potential toxicity comparison unit for ecosystems', 'Potential toxicity comparison unit for humans - carcinogenic effect', 'Potential toxicity comparison unit for humans - non-carcinogenic effect', 'Potential soil quality index'.
The results of this environmental impact indicator must be used with caution, as the uncertainties in these results are high or because there is only limited experience with the indicator.

6. LCA: Interpretation

A closer look at the results presented in Chapter 5 shows that the manufacturing phase (A1-A3) has by far the greatest impact in almost all cases. One exception is the GWP- biogenic impact indicator, which is zero over the entire life cycle of the product under consideration. The credits caused in A1–A3 (due to the carbon absorption in the wood fibers used) are offset during disposal (module C3). As these values exceed those of the GWP-fossile, this effect is also visible in the GWP-total, where module C3 therefore also plays a significant role.

A detailed analysis of modules A1-A3 shows that the wood used (including upstream chain) is the central influencing factor for most indicators. Exceptions to this are EPfreshwater, ADPE, ADPF and WDP, which are also significantly influenced by the production of the adhesive and the electrical energy required in the process.

Most of the life cycle inventory indicators for the product under consideration are also primarily influenced by module A1-A3. Module C3 plays the largest role for renewable energy consumption (PERE), non-hazardous waste (NHWD) and fresh water consumption (FW). As expected, this module is also the most significant for exported energy (EEE and EET). All other modules consistently play a subordinate role.

7. Requisite evidence

7.1 Formaldehyd

The adhesive system used does not contain formaldehyde. The corresponding verification is therefore not required.

7.2 MDI

The declared product is a cold-bonded load-bearing solid wood product containing moisture-crosslinked single-component polyurethane adhesives. The verification is therefore not required.

7.3 Toxicity of combustion gases

The toxicity of the combustion gases produced when cross laminated timber burns correspond to those produced when untreated wood burns.

7.4 VOC emissions

The following VOC emissions were determined by the Bremer Umweltinstitut [Bremen Environment Institute] - analysis report number: L 6605 FM - 1 dated 25/11/2022. The indication 'n.n.' stands for not detectable, the measured value is therefore below the detection limit of 1 µg/m³.

AgBB results overview (28 days [µg/m³])

Name	Value	Unit
TVOC (C6 - C16)	47	µg/m³
Sum SVOC (C16 - C22)	n.n.	µg/m³
R (dimensionless)	0.059	-
VOC without NIK	n.n.	µg/m³
Carcinogenic Substances	n.n.	µg/m³

AgBB results overview (3 days [µg/m³])

Name	Value	Unit
TVOC (C6 - C16)	206	µg/m³
Sum SVOC (C16 - C22)	n.n.	µg/m³
R (dimensionless)	0.214	-
VOC without NIK	2	µg/m³
Carcinogenic Substances	n.n.	µg/m³

8. References

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Product category rules for building-related products and services - Part A: Calculation rules for the life cycle assessment and requirements for the project report according to EN 15804+A2:2019, Version 1.3, dated 28/08/2022.

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