ENVIRONMENTAL PRODUCT DECLARATION

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

Owner of the Declaration	Mosser Leimholz GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-MLG-20250269-IBA1-EN
Issue date	23.07.2025
Valid to	22.07.2030

Glulam

Mosser Leimholz Gesellschaft m. b. H.

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1. General Information

Mosser Leimholz Gesellschaft m. b. H.	**Glulam**
Programme holder IBU – Institut Bauen und Umwelt e.V. Hegelplatz 1 10117 Berlin Germany	**Owner of the declaration** Mosser Leimholz GmbH Fohlenhof 2 3263 Randegg Austria
Declaration number EPD-MLG-20250269-IBA1-EN	**Declared product / declared unit** 1 m³ of glued laminated timber with an average density of 450 kg/m³ (moisture at delivery = app. 12 %)
This declaration is based on the product category rules: Solid wood products, 01.08.2021 (PCR checked and approved by the SVR)	**Scope:** This EPD is based on a declared unit of 1 m³ of average glued laminated timber (moisture of app. 12 % at a raw density of 450 kg/m³), produced at the Mosser Leimholz Gesellschaft m.b.H. plants in Perwarth and Fohlenhof (both site Randegg, Austria). 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*.
Issue date 23.07.2025	
Valid to 22.07.2030	**Verification**

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

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

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

Dr. Stefan Diederichs,
(Independent verifier)

2. Product

2.1 Product description/Product definition

Mosser glulam is a bar-shaped component made of solid wood, with at least two fiber-parallel glued board lamellas made of spruce and fir wood, for load-bearing applications. The production of Mosser glulam is based on in-house and external monitoring in accordance with *EN 14080.*

By visually sorting the boards with subsequent finger-jointing, board lamellas with largely homogeneous mechanical and optical material properties are produced. This guarantees the load-bearing capacity of the component and a high degree of dimensional stability.

Mosser glulam is produced as visual or industrial quality. Both qualities are available as standard and commission goods. With an additional variable joinery, a high degree of prefabrication can be achieved and a fully formed component can be delivered.

For the placing on the market of the product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) Regulation (EU) No. 305/2011 (*CPR*) applies. The product needs a declaration of performance taking into consideration *ÖNORM EN 14080:2013-06, Timber structures – Glued laminated timber and glued solid timber – Requirements*, and the CE-marking.

For the application and use the respective national provisions apply.

Further information and the declarations of performance are available at www.mosser.at.

2.2 Application

Mosser glulam is used in the structural area of modern timber construction, from engineered residential and industrial buildings to bridge construction. The products are permitted for service classes 1 to 3 in accordance with *EN 1995-1-1*.

2.3 Technical Data

The specified structural data is based on the requirements of *EN 14080*. All data correspond to the declaration of performance.

Constructional data

Name	Value	Unit
Wood types by trade names acc. to EN 1912 & EN 13556	PCAB (Norway spruce), ABAL (silver fir)	-
Wood moisture acc. to EN 13183-1 *1	12 ± 2	%
Compressive strength parallel acc. to EN 14080	21.5 - 30.0	N/mm^2
Compressive strength rectangular acc. to EN 14080	2.5	N/mm^2
Tensile strength parallel acc. to EN 14080	17.0 - 24.0	N/mm^2
Tensile strength rectangular acc. to EN 14080	0.5	N/mm^2
Modulus of elasticity Mean value parallelacc. to EN 14080	11 000 - 13 600	N/mm^2
Shear strength acc. to EN 14080	3.5	N/mm^2
Shear modulus Mean value acc. to EN 14080	650	N/mm^2
Length (min. - max.)	± 0.003	m
Width (min. - max.)	± 0.001	m
Height (min. - max.)	± 0.001	m
Gross density acc. to EN 14080	450	kg/m^3
Surface quality	visual quality, industrial quality	-
Thermal conductivity acc. to ISO 10456	0.12	W/(mK)
Specific heat capacity acc. to ISO 10456	1.6	kJ/kgK
Water vapour diffusion resistance factor acc. to ISO 10456	μ = 50 (dry) - 20 (wet)	-

*1) in *EN 14080* there are also other messurement methods permitted

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *ÖNORM EN 14080:2013-06, Timber structures – Glued laminated timber and glued solid timber – Requirements*.

2.4 Delivery status

Mosser glulam is produced in numerous dimensions. In addition to standard production, the joinery system can also be used to produce the desired shapes/processing. The following dimensions are available:

- Width: 60 to 240 mm
- Height: 60 to 1240 mm
- Length: 6 to 18 m

A detailed list of dimensions, strength classes and qualities can be found in the product data sheet on the homepage.

2.5 Base materials/Ancillary materials

Mosser glulam is manufactured from at least two fiber-parallel glued board lamellas.

A duroplastic 2-component melamine-urea-formaldehyde resin (MUF) is used to bond the surface and the finger joints. Gluing is carried out in accordance with *EN 14080:2013*, *EN 301* and *EN 302*.

One m³ of Mosser glulam consists of the listed materials with the respective percentages:

- softwood (mostly spruce): 88.8 %
- water: 10.7 %
- MUF resin: 0.5 %

The average bulk density, at a wood moisture content of 12 %, is approximately 450 kg/m³.

This product/article/at least one partial article contains substances listed in the *candidate list* (07.11.2024) exceeding 0.1 percentage by mass: no.

This product/article/at least one partial article contains other CMR substances in categories 1A or 1B which are not on the *candidate list*, exceeding 0.1 percentage by mass: no.

Biocide products were added to this construction product and it has been treated with biocide products (this then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012): no.

2.6 Manufacture

The sawn timber for Mosser glulam is first kiln dried to a target moisture content of 12 ± 2 %. After drying, the sawn timber is visually sorted according to strength and visual characteristics. Areas of the boards that do not match the strength and visual requirements are cut out. The boards are then finger-jointed into endless board lamellas and cut to the desired length. This production step allows a largely homogeneous component to be created. After finger-jointing, the board lamellas are planed, glued to the desired dimensions with the adhesive described in section 2.5 and pressed. Next, the pressed glulam is planed on four sides, chamfered and packaged. Optionally, the glulam can be further processed on the joinery machine before packaging.

2.7 Environment and health during manufacturing

The waste water produced during production is discharged into the local sewer system as standard. Waste water that has come into contact with glue is discharged into a separate glue pit. If necessary, this pit is pumped out by a specialised company and disposed of properly.
Noise emissions from the various systems are reduced by soundproof cabins. These can only be opened when the machines are not running. Employees are also provided with hearing protection.
All production facilities are designed with an extraction system to minimise dust formation. All exhaust air is cleaned with a filter system so that no environmental pollution can occur.
All waste materials produced, such as planing and sawdust or waste wood, are further processed or thermally utilised in the company. The resulting waste is collected separately in accordance with our own waste management plan and disposed of professionally.
This ensures that there is no environmental impact on soil and water.

2.8 Product processing/Installation

Mosser glulam can be processed using machines, equipment and tools suitable for solid wood processing. The health and safety instructions must also be observed for processing and installation.

2.9 Packaging

For the packaging of Mosser glulam, polyethylene (PE) is used in the form of films. Polyethylene terephthalate (PET) strapping is used to form the packages. In addition, cardboard edge protectors are included to protect the glulam edges. The packaging material can be recycled if it is collected separately.

2.10 Condition of use

The composition of Mosser glulam is described in detail in section 2.5. This composition applies for the entire service life of the product. During use, 200 kg of carbon is bound in one m³ of Mosser glulam. With complete oxidation, this is equivalent to 733 kg of CO_2.

2.11 Environment and health during use

When used as intended, Mosser glulam cannot cause any environmentally hazardous damage to water, soil or air.

Furthermore, no health hazards are to be expected from Mosser glulam. Due to the low adhesive content in the product and the general product composition, Mosser glulam is low in formaldehyde emissions (formaldehyde emission class 1). Glulam glued with MUF resin subsequently emits formaldehyde. With regard to the limit value of the formaldehyde emission class E1, measured test values of < 0.1 ppm HCHO/m³ air according to *EN 717-1* are to be categorized as low.

2.12 Reference service life

Mosser glulam has been used since 1988 and glulam in general for over 100 years. When used as intended, no end to its durability is known or to be expected. The service life of Mosser glulam can therefore be assumed to be the same as the service life of the building.

2.13 Extraordinary effects

Fire

Mosser glulam is assigned to fire class D-s2-d0 in *EN 14080*.

Fire protection

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

The burning rate is regulated in Eurocode 5 (*EN 1995-1-2*) and set at 0.7 mm/min.

Water

No ingredients are washed out that could cause environmentally hazardous properties in water.

Mechanical destruction

Mosser glulam is manufactured exclusively from solid wood. The fracture behavior of the product is therefore identical to that of solid wood.

2.14 Re-use phase

Due to its monolithic structure, Mosser glulam can easily be reused or recycled in the event of selective deconstruction after the end of the utilization phase. If Mosser glulam cannot be reused after the primary use, it is thermally recycled to generate heat and electricity due to its high calorific value of approximately 19 MJ/kg, *ÖNORM M 7132*.

2.15 Disposal

Landfilling of waste wood is not permitted. Waste wood must be assigned to waste type SN 17201 'Wood packaging and wood waste, uncontaminated' with the specification 01 in accordance with the *Abfallverzeichnisverordnung (AVVO) BGBl. II Nr. 409/2020*.

2.16 Further information

Further information can be found at www.mosser.at.

3. LCA: Calculation rules

3.1 Declared Unit

This EPD refers to a declared unit of 1 m³ of glued laminated timber produced by Mosser. The declared unit refers to an average density of 450 kg/m³ and a wood moisture at delivery of app. 12 %.

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	m^3
Gross density	450	kg/m^3
Wood moisture at delivery	12	%

Other declared units are allowed if the conversion is shown transparently.

The present study includes a declaration of average products from multiple manufacturer's factories. At the Randegg site, Mosser glued-laminated timber is produced at the plants in Perwarth and in Fohlenhof. Both plants are part of the Randegg production site, and located in a distance of app. 2 km.

The declared average includes all glued-laminated timber products. The therefore calculated average refers to the entire glued-laminated timber production of Mosser at the Randegg site, at the plants in Perwarth and in Fohlenhof (100 %). As a result, all available dimensions and qualities are part of the average. The declared average includes the total annual input of wood in relation to all glued-laminated timber produced in the reference year. In the production process, it is not possible to allocate input and output flows to individual variants. The robustness of the declared LCA values can be categorised as good.

3.2 System boundary

The life cycle assessment of average glued laminated timber produced by Mosser refers to a cradle-to-gate analysis of the environmental impacts with modules C1–C4 and module D (A1–A3 + C + D). The following life cycle phases are part of the analysis:

Module A1–A3 | Production stage
The production stage includes the upstream burdens of raw material supply, their transports, and the manufacturing plants of Mosser in Perwarth and Fohlenhof, both site Randegg (Austria). Main raw material inputs therefore refer to sawn timber and the production of the adhesive system. Within the plant boundaries the sorting, drying, fingerjointing, pressing and planing as well as the packaging of the product are considered. The production sites are supplied with internally produced thermal energy from the company's own biomass power plant. At the moment, green electricity is purchased at site. As there is no longterm contract ensuring the provision of green electricity for the validity period of the EPD, the LCA considers the residual electricity mix (0.5 kg CO_2e/kWh). Direct emissions from drying are based on worst-case assumptions and are included in the study. The packaging of the products is considered in module A1–A3 as well.

Module C1 | Deconstruction and demolition
After the removal of building components overlying the product, the joints can simply be loosened by screwing or sawing and lifted by cranes to the place of removal. Required energy demand can be neglected. The actual energy demand depends on the installation of the products and can therefore vary greatly in the building context.

Module C2 | Transport to disposal
Module C2 includes the transport to waste treatment. In this case, transport by truck over a transport distance of 50 km is assumed.

Module C3 | Waste processing
In Module C3, the chipping after the removal of the products is considered. The wooden products and with them the materialinherent properties leave the product system as secondary combustibles in module C3.

Module C4 | Disposal
The applied scenario declares the energetic recovery of the wooden products, therefore no environmental impacts are to be expected from waste processing of the products in C4.

Module D | Benefits and loads beyond the system boundary
Applying an European average scenario, module D describes the energetic recovery of the product at the end of life including the corresponding energy substitution potentials.

3.3 Estimates and assumptions

All assumptions are verified through detailed documentation and correspond to the best possible representation of reality based on the available data.

Regional applicability of the used background data refers to average data under European or German conditions taken from the *MLC*-database. German data were used for the Austrian market whenever European or regionalised average data were not available. Emissions from wood drying were included in the calculations according to *Rüter & Diederichs 2012*.

3.4 Cut-off criteria

The LCA model covers all available input and output flows, which can be represented based on robust data and from which a significant contribution can be expected. Data gaps are filled with conservative assumptions of average data or generic data if available and are documented accordingly. Only data with a contribution of less than 1 % were cut off. Thus, no data were neglected, of which a substantial impact is to be expected. All relevant data were collected comprehensively. Cutoff material- and energy flows were chosen carefully based on their expected quantitative contribution as well as potential environmental impacts. Thus, it can be assumed that the sum of all neglected input flows does not account for more than 5 % of the total material, water and energy flows. Environmental impacts of machines, plant and infrastructure were not included.

3.5 Background data

This study uses generic background data for the evaluation of upstream environmental impacts from *MLC* 2024.2 database in the *LCA FE*-software -version 10, as well as recognised literature such as *Rüter & Diederichs 2012*.

3.6 Data quality

Data collection is based on product- specific questionnaires. It follows an iterative process of clarifying questions via e-mail, telephone calls or in personal/web meetings. Intensive discussions between Mosser and Daxner & Merl result in anaccurate mapping of product-related material and energy flows. This leads to a high quality of foreground data collected. Data collection relies on a consistent process according to *ISO 14044*.

The technological, geographical and time--related representativeness of the database was kept in mind when selecting background data. Whenever specific data were missing, either generic datasets or representative average data were used instead. The implemented *MLC*-background datasets refer to the latest versions available and are carefully chosen (not older than ten years, except for the LCIs published by Rüter & Diederichs and the dataset for the forklifter).
The assessment of the robustness of the average can be found in Section 3.1.

3.7 Period under review

Foreground data were collected in the 2023 production year, and the data are based on the volumes produced on an annual basis.

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: Austria

3.9 Allocation

Carbon content and primary energy content of the products were assessed based on their material inherent properties according to underlying physical relationships.
The production of the declared products generates co-products such as briquettes, rejects and saw dust, which are sold externally. The environmental impact of the production is allocated to the main and the co-products based on their market value in line with the recommendations according to *EN 16485*.

Glued laminated timber as well as cross- laminated timber are produced at the Mosser production site in Perwarth. Main energy- and material flows are reported separately for the two products. Packaging, auxiliaries, glue residues, wood chips and wooden briquettes were allocated based on the production quantities (cubic meters).

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.

The *MLC* 2024.2 background database in the *LCA FE*-software-version 10 was used to calculate the LCA.

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

During tree growth, the wood assimilates carbon dioxide and stores biogenic carbon. The carbon stored in the product is declared in the following table.
Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	200	kg C
Biogenic carbon content in accompanying packaging	0.03	kg C

Installation into the building (A5)

The end of life of the product packaging is not declared in module A5.

Name	Value	Unit
Packaging (Polyethylene)	0.626	kg
Packaging (Polyethylene terephthalate)	0.061	kg
Packaging (Cardboard)	0.059	kg

The end--of--life scenario used in this LCA study is based on the following assumptions:

End of life (C1-C4)

Name	Value	Unit
Energy recovery	450	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
Processing rate	100	%
Efficiency of power plant	68	%

The product reaches the end-of-waste status after removal from the building, transport to processing and chipping of the product. For the end of life of the glued laminated timber product, energy recovery as secondary fuel in a biomass powerplant is assumed. As the main sales market for the solid wood products is concentrated in the European region, plant specific characteristic values correspond to a European average scenario (EU). The scenario considers a reprocessing rate of 100 % for the solid wood products after removal from the building. This assumption has to be adjusted accordingly when applying the results in the building context. At the end of life of the product, the equilibrium moisture is comparable to the moisture content at delivery. This value can vary depending on the storage of the product before energy recovery.

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5. LCA: Results

The following table contains the LCA results for a declared unit of 1 m³ of glued laminated timber produced by Mosser (450 kg/m³).

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	MND	MND	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m³ glued laminated timber (450 kg/m³)

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO_2 eq	-6.26E+02	0	1.74E+00	7.35E+02	0	-3.6E+02
Global Warming Potential fossil fuels (GWP-fossil)	kg CO_2 eq	1.05E+02	0	1.7E+00	2.69E+00	0	-3.43E+02
Global Warming Potential biogenic (GWP-biogenic)	kg CO_2 eq	-7.3E+02	0	4.07E-03	7.33E+02	0	-1.71E+01
Global Warming Potential luluc (GWP-luluc)	kg CO_2 eq	2.78E-01	0	2.86E-02	4.08E-04	0	-3.36E-02
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	6.92E-10	0	2.51E-13	6.1E-11	0	-3.68E-09
Acidification potential of land and water (AP)	mol H^+ eq	5.98E-01	0	6.04E-03	5.2E-03	0	3.59E-01
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	1.66E-03	0	7.28E-06	1.12E-05	0	-6.83E-04
Eutrophication potential aquatic marine (EP-marine)	kg N eq	2.5E-01	0	2.8E-03	1.3E-03	0	4.55E-02
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	2.44E+00	0	3.14E-02	1.36E-02	0	5.55E-01
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	6.73E-01	0	5.77E-03	3.43E-03	0	2.19E-01
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	1.6E-05	0	1.48E-07	5.03E-07	0	-3.43E-05
Abiotic depletion potential for fossil resources (ADPF)	MJ	1.73E+03	0	2.24E+01	5.65E+01	0	-6.27E+03
Water use (WDP)	m^3 world eq deprived	1.38E+01	0	2.64E-02	7.43E-01	0	-2.01E+01

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m³ glued laminated timber (450 kg/m³)

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	1.63E+03	0	1.93E+00	4.08E+01	0	-2.47E+03
Renewable primary energy resources as material utilization (PERM)	MJ	7.4E+03	0	0	-7.4E+03	0	0
Total use of renewable primary energy resources (PERT)	MJ	9.03E+03	0	1.93E+00	-7.36E+03	0	-2.47E+03
Non renewable primary energy as energy carrier (PENRE)	MJ	1.66E+03	0	2.24E+01	5.65E+01	0	-6.27E+03
Non renewable primary energy as material utilization (PENRM)	MJ	6.9E+01	0	0	-4.05E+01	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	1.73E+03	0	2.24E+01	1.6E+01	0	-6.27E+03
Use of secondary material (SM)	kg	0	0	0	0	0	0
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0	7.4E+03
Use of non renewable secondary fuels (NRSF)	MJ	0	0	0	0	0	4.05E+01
Use of net fresh water (FW)	m^3	5.89E-01	0	2.15E-03	3.12E-02	0	-1.31E+00

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m³ glued laminated timber (450 kg/m³)

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	4.26E-07	0	8.6E-10	8.15E-08	0	-4.98E-06
Non hazardous waste disposed (NHWD)	kg	1.89E+00	0	3.67E-03	4.65E-02	0	6.36E-02
Radioactive waste disposed (RWD)	kg	1.17E-01	0	4.09E-05	9.02E-03	0	-5.45E-01
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	0	0	0	0	0	0
Materials for energy recovery (MER)	kg	0	0	0	4.5E+02	0	0
Exported electrical energy (EEE)	MJ	0	0	0	0	0	0
Exported thermal energy (EET)	MJ	0	0	0	0	0	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 m³ glued laminated timber (450 kg/m³)

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Incidence of disease due to PM emissions (PM)	Disease incidence	ND	ND	ND	ND	ND	ND

Human exposure efficiency relative to U235 (IR)	kBq U235 eq	ND	ND	ND	ND	ND	ND
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	ND	ND	ND	ND	ND	ND
Soil quality index (SQP)	SQP	ND	ND	ND	ND	ND	ND

The additional and optional impact categories according to *EN 15804*+A2 are not declared, as the uncertainty of these indicators is to be classified as high.

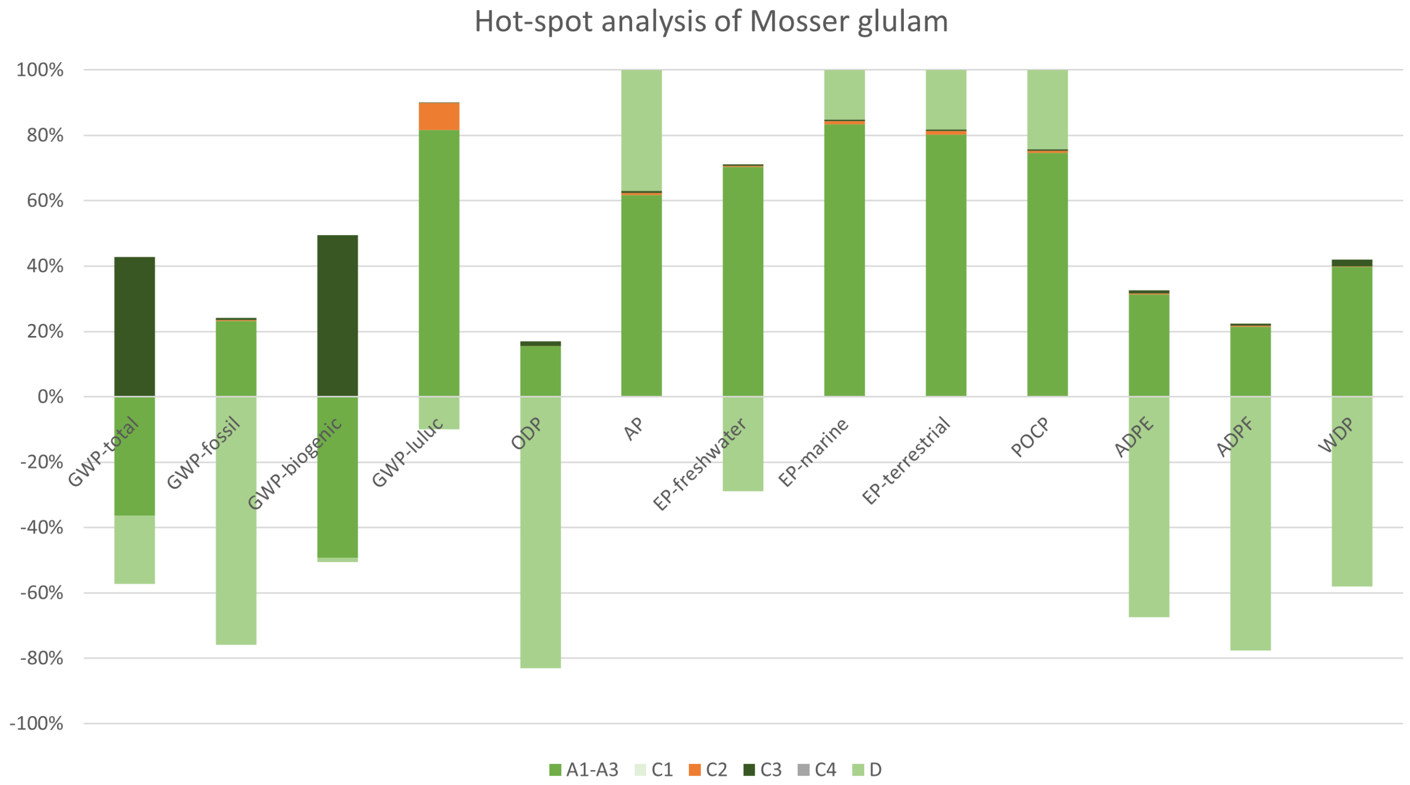
Disclaimer 1 – for the indicators 'abiotic depletion potential for non--fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential, deprivation- weighted water consumption'. The results of this environmental impact indicators shall be used with care as the uncertainties on these results are high as there is limited experience with the indicators.

6. LCA: Interpretation

The following interpretation contains a summary of the LCA results referenced to a declared unit of 1 m³ of Mosser glued laminated timber.

The global warming potential (GWP) of Mosser glued laminated timber shows negative values in the production phase (**modules A1–A3**). These negative impacts results from the use of wood as raw material. Wood sequesters biogenic carbon during tree growth. The sequestered carbon does not contribute to global warming as long as it is stored in the biomass. After its use in the building, the product is assumed to be incinerated in a biomass power plant. As a result, the incorporated carbon is emitted again to the atmosphere representing biogenic carbon dioxide emissions (**module C3**).

The negative values in the end-of-life (**module D**) result from the energetic treatment of the product. As the energy produced at the biomass power plant can substitute (mainly fossil) fuels, an environmental net benefit is generated.



Potential global warming (**GWP**) from the production of Mosser glulam (module A1–A3) mainly results from the upstream supply chain of the wood processed in Randegg. In addition, the environmental backpack of the electricity consumption and adhesives used for production represent an important driver in the environmental profile of the products.

For all indicators considered, with the exception of depletion potential of the stratospheric ozone layer (ODP), the upstream chain of purchased wood can be identified as the major driver. ODP is mainly influenced by the electrical energy used.

Total use of renewable primary energy resources (PERT) is mainly influenced by the wood used as a material. Total use of non-renewable primary energy resources (PENRT) is mainly influenced by the electrical energy used.

The environmental impacts of products manufactured in Perwarth and Fohlenhof lie in a comparable range (+20 % / -5 % result deviation). Fohlenhof shows lower environmental impacts in all categories considered. Comparably higher environmental impact of the products manufactured in Perwarth mainly stem from the higher specific electricity input. Acidification potential of land and water (AP) is additionally influenced by the higher specific thermal energy input.

The calculated average refers to the entire production of Mosser (100 %). The underlying weighting is based on the actual production volume of the individual sites. The declared average can therefore be considered as representative.

7. Requisite evidence

7.1 Formaldehyde
Measuring point
Entwicklung- und Prüflabor Holztechnologie GmbH (EPH)
Zellescher Weg 24, 01217 Dresden, Germany

Test report and test period
Test report 2521403
Test period from 16.08.-13.09.2021

Measurement methodology and result
Determination of the formaldehyde release following the test chamber method *EN 717-1* in connection with test Parameters of the *EN 14080.*

Test result
The formaldehyde emission of Mosser glulam is 0.032 ppm and therefore corresponds to formaldehyde class E1 (< 0.1 ppm).

7.2 Fire gas toxicity
The toxicity of the combustion gases produced when glulam burns, is the same as those produced when untreated wood burns.

7.3 VOC emissions
Measuring point
Holzforschung Austria – Austrian Society for Wood Research
Franz-Grill-Straße 7, A1030 Vienna

Test report and test period
Test report 11335/2023 – HC
Test period 08.01-20.02.24

Measurement methodology and result
Measurement of the emissions of a sample with regard to VOC, formaldehyde and short-chain carbonyl compounds according to *EN 16516*.

AgBB overview of results (28 days)

Name	Value	Unit
TVOCspec (incl. SVOC with LCI)	74	µg/m^3
TSVOC (SVOC without LCI)	n.d.	µg/m^3
Carcinogenic Substances	n.d.	µg/m^3
R (dimensionless)	1	-
Sum VOC without LCI	n.d.	µg/m^3

n.d. ... not detected

AgBB overview of results (3 days)

Name	Value	Unit
TVOCspec (incl. SVOC with LCI)	149	µg/m^3
TSVOC (SVOC without LCI)	n.d.	µg/m^3
Carcinogenic Substances	n.d.	µg/m^3
R (dimensionless)	-	-
Sum VOC without LCI	n.d.	µg/m^3

n.d. ... not detected

8. References

Standards

EN 301
ÖNORM EN 301:2023-02, Adhesives, phenolic and aminoplastic, for load-bearing timber structures – Classification and performance requirements.

EN 302-1
ÖNORM EN 302-1:2023-02, Adhesives for load-bearing timber structures – Test methodes, Part 1: Determination of longitudinal tensile shear strength.

EN 717-1
EN 717-1:2004, Wood-based panels – Determination of formaldehyde release – Part 1: Formaldehyde emission by the chamber method.

EN 1912
ÖNORM EN 1912:2024-07, Structural Timber – Strength classes – Assignment of visual grades and species.

EN 1995-1-1
ÖNORM EN 1995-1-1:2023-08, Eurocode 5: Design of timber structures- Part 1-1: General – Common rules and rules for buildings.

EN 1995-1-2
ÖNORM EN 1995-1-2:2011-09, Eurocode 5: Design of timber structures- Part 1-2: General – Structural fire design.

EN 13183-1
ÖNORM EN 13183-1:2002 + AC:2003, Moisture content of a piece of sawn timber, Part 1: Determination by oven dry method.

EN 13556
ÖNORM EN 13556:2003, Round and sawn timber – Nomenclature of timbers used in Europe.

EN 14080
EN 14080:2013-06, Timber structures – Glued laminated timber and glued solid timber – Requirements.

EN 15804
DIN EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works -Environmental product declarations - Core rules for the product category of construction products.

EN 16485
DIN EN 16485:2014-07, Round and sawn timber - Environmental Product Declarations - Product category rules for wood and wood-based products for use in construction.

EN 16516
ÖNORM EN 16516:2017 + A1:2020-07, Construction products: Assessment of release of dangerous substances – Determination of emissions into indoor air.

ISO 10456
EN ISO 10456:2007-12 + AC:2009-12, Building materials and products – Hygrothermal properties – Tabulated design values and procedures for determining declared and design thermal values – Technical Corrigendum 1

ISO 14025
DIN EN ISO 14025:2011-10, Environmental labels and

declarations – Type III environmental declarations – Principlesand procedures.

ISO 14044
DIN EN ISO 14044:2006-10, Environmental management –Life cycle assessment – Requirements and guidelines.

ÖNORM M 7132
ÖNORM M 7132:2016, Energy-economical utilization of wood and bark as fuel – Terms, definitions ad properties

Further literature

AVVO
Abfallverzeichnisverordnung (AVVO) BGBl. II Nr. 409/2020. Verordnung der Bundesministerin für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie über ein Abfallverzeichnis (Abfallverzeichnisverordnung 2020).

ECHA-Candidate List
Candidate List of substances of very high concern for Authorisation (published in accordance with Article 59(10) of the REACH Regulation).

EPH-test report
Entwicklungs- und Prüflabor Holztechnologie GmbH (EPH), Determination of the formaldehyde release following the test chamber method DIN EN 717-1 in connection with test parameters of DIN EN 14080, Order 2521403 dated 06.10.2022.

EU-Construction Products Regulation
Regulation (EU) No. 305/2011 of the european parliament and of the council laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC dated 09.03.2011.

Holzforschung Austria
Holzforschung Austria, Emissionsmessung einer Probe gemäß EN 16516 (16.11.2023), Nr. 11335/2023 - HC.

IBU 2021
General instructions for the EPD program of Institut Bauen und Umwelt e.V. (IBU). Version 2.0, Berlin: Institut Bauen undUmwelt e.V., 2021. www.ibu-epd.com

LCA FE
LCA FE 10, LCA for Experts Software System and Database for Life Cycle Engineering. Version 10.7.1.28. Sphera, 1992--2024.

MLC
MLC 2024.2, Database for Life Cycle Engineering implemented in LCA for Experts software system. DB 2024.2. Sphera, 1992-2024. Available at: https://lcadatabase.sphera.com/

PCR Part A
Product category rules for building-related products and services. Part A: Calculation rules for the life cycle assessment and requirements for the project report in accordance with EN 15804+A2:2019. Version 1.4. Berlin: Institut Bauen und Umwelte.V. (eds.), 2024.

PCR: Solid wood products
Product category rules for building-related products and services. Part B: EPD requirements for solid wood products. Berlin: Institut Bauen und Umwelt e.V., 01.08.2021.

REACH-Regulation
Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Last changes on 10.10.2024.

Rüter & Diederichs 2012
Rüter, S.; Diederichs, S.: Basic life cycle assessment data for construction products made of wood. Working report from the Institut für Holztechnologie und Holzbiologie No. 2012/1. Hamburg: Johann Heinrich von Thünen -Institut.

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