Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

[Glued Laminated Timber Beams - GLULAM]

from

[Moretti S.p.A.]

Programme:	The International EPD® System, www.environdec.com
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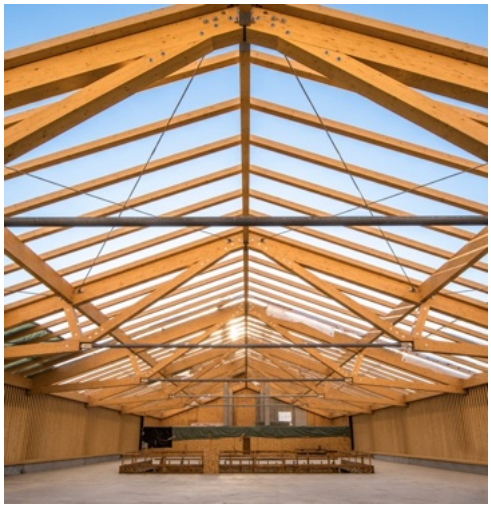
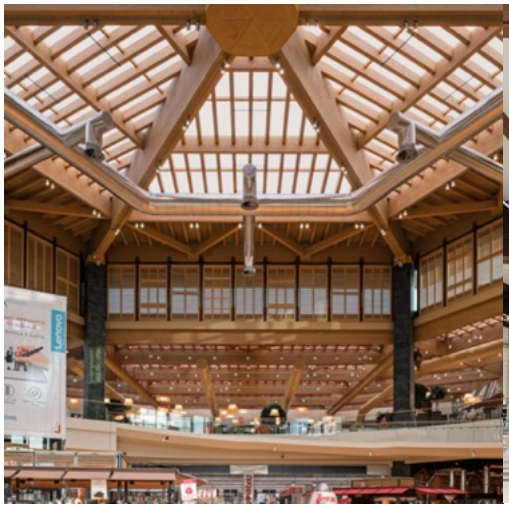


General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): *PCR 2019:14 Construction products, version 1.3.3* *c-PCR-006 Wood and wood-based products for use in construction (EN 16485)*
PCR review was conducted by: *PCR Committee: IVL Swedish Environmental Research Institute, Secretariat of the International EPD® System* *Moderator: Martin Erlandsson, IVL Swedish Environmental Research Institute*
Life Cycle Assessment (LCA)
LCA accountability: *Dott. Agr. Francesco Filocamo – PROGEST Consulting*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: *Marcel Gómez Ferrer (Marcel Gómez Consultoria Ambiental)* Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Moretti S.p.A. – via Ghandi, 9 – 25030 – Erbusco (BS)

Contact: Ing. Mattia Pedrali – *mattia.pedrali@morettispa.it*

Description of the organization: The Moretti S.p.A. operates in the industrial prefabricated concrete sector and is the leading company in industrial prefabrication. In fact, he has created buildings ranging from large shopping centres to sports and leisure facilities, from production plants to office buildings, from residential complexes to villas, from hotels to wineries, from schools to religious buildings.
The company Moretti S.p.A. headquarters located in Erbusco (BS) has an extension of approximately 110,000 square meters of production surface, with an annual capacity of approximately 4,500 cubic meters of Glued Laminated Timber Beams - GLULAM.

Product-related or management system-related certifications: Moretti S.p.A. is e certified company in according at the standards:

- ISO 9001
- ISO 45001
- ISO 14067 – Carbon Footprint SA
- BREEM (Building Research Establishment Environmental Assessment Method for buildings)

Name and location of production sites:

- Moretti S.p.A. – via Ghandi, 9 – 25030 – Erbusco (BS)

The manufacturing activities are carried-out in facility located at Erbusco (BS).

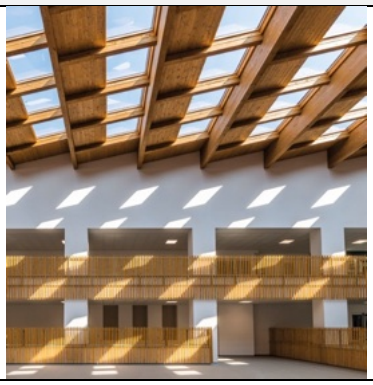
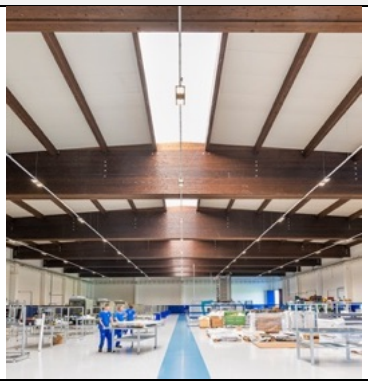
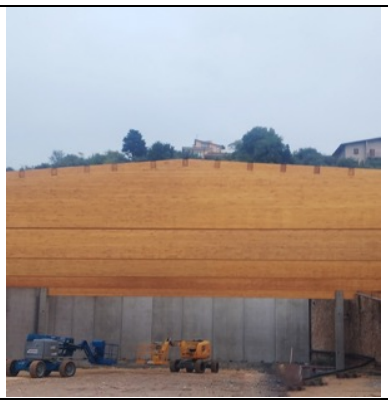
Product information

Product name: Glued Laminated Timber Beams with different shapes and thicknesses.

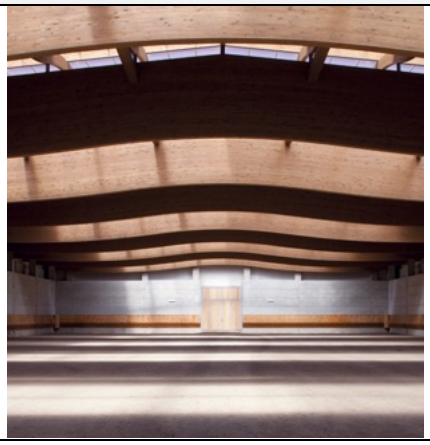
Product identification: The product is covered by the CE certification in according to the harmonized *standard EN 14080*.

Product description: 1 cubic meter of an average beam.

Included products: According to the *General Programme Instruction (GPI) v. 4.0 and the PCR 2019:14 "Construction products" v.1.3.3*, the average of 1 cubic meter product included in the study are represented by load-bearing construction elements in laminated wood - beams - with different shapes and thicknesses used in the construction of wooden structures.
Laminated wood is made up of at least three dried planks or lamellae glued together with parallel fibres. A distinction is made between homogeneous glued laminated wood (all the slats of the profile must belong to the same strength class) and combined glued glulam (the internal and external slats of the profile can belong to different strength classes). In glulam constructions of high strength class, the use of combined laminate is possible: slats with better mechanical properties can be placed in the area of the section with greater stress, and those with lower mechanical properties in the center of the beam.

Beams-family	
	
Joists/Beams at constant height	Beams with variable height
	
Curved Beams with constant height	Curved Beams with variable height

Beams-family



Special Beams

Technical DATA Glue laminated timber (GLULAM)

Wood species

Spruce / Fir
Larch
Pine

Moisture content	12% ±2%

Dry mass

For spruce, and depending on the strength class, approximately
Kg/m³ 466 average

Characteristics (cross section)	Specifications
Heights	mm ≤ 2.520
Widths	mm ≤ 240 (mm 26 on request)
Lenghts	mm ≤ 42.000
Finger-joints	EN 14080

Bonding

Melamine resin adhesive type I according to EN 301 approved for bonding loadbearing and non-loadbearing timber components, both indoors and outdoors

Lamella thickness

Maximum lamella thicknesses: mm 40 (different thickness on request)
Maximum service class 3 lamella thicknesses: mm 35 (also mm 40 to mm² 60,000 of cross sectional area)
For curved/arched special components: Lamella thickness from mm 6 to mm 40
Rod bonding for three-dimensional shaped components

Technical DATA Glue laminated timber (GLULAM)

Mechanical properties - in according at UNI EN 1194

Characteristics		Strenght classes GL28c	GL24h	GL28h
gross density (ρ)	Kg/m^3	380	380	410
Bending strength ($f_{m,k}$)	N/mm^2	28	24	28
Tensile strength parallel ($f_{t,0,k}$)	N/mm^2	16,5	16,5	19,5
Tensile strength rectangular ($f_{t,90,k}$)	N/mm^2	0,40	0,4	0,45
Compressive strength parallel ($f_{c,0,k}$)	N/mm^2	24	24	26,5
Compressive strength rectangular ($f_{c,90,k}$)	N/mm^2	2,7	2,7	3,0
Shear strength ($f_{v,k}$)	N/mm^2	2,7	2,7	3,2
Modulus of elasticity parallel ($E_{0,mean}$)	N/mm^2	12.600	11.600	12.600
Modulus of elasticity rectangular ($E_{90,mean}$)	N/mm^2	390	390	420
Shear modulus (G_{mean})	N/mm^2	720	720	780

(Classes GL30c / GL32c on request)

Fire reactive properties - in according at 2005/610/EC and EN 14080

Class3	value	
Building material class	D	
Burning droplets	d0	
Smoke gas development	s2	
Structural fire resistance in according at EN 1995-1-2		
Standard fire carbonization (β_0)	mm/min	0,65
Theoretical carbonization rate (β_n)	mm/min	0,7

Thermal conductivity

λ = 0,13 W/mK

Formaldehyde emission - E1 according to EN 717-1

ppm <0,1

The suitability of wood species in glulam construction must agree with the EN 14080 standard: the most commonly used are spruce, fin, pine and larch.
For each of these two configurations, EN 14080 defines seven different types of resistance classes. The EN 14080 standard also applies to glued laminated wood with universal finger joint and to composite components made of glued laminated wood and glued solid wood.

Geographical scope: Italia

LCA information

Declared unit: The Declared unit of the study is the average **1 cubic meter (m^3 1) of the structural element considered**. The element under study is a glued laminated timber beam (glulam) that may used in building construction as structural elements for residential and not-residential projects. The weight of the product per declared unit is **Kg 466/m^3**.
The characteristics are in compliance with the CE marking, as established by *The CE certification of this product according to the harmonized standard EN 14080*.
The product is sold wrapped with LDPE film as packaging.

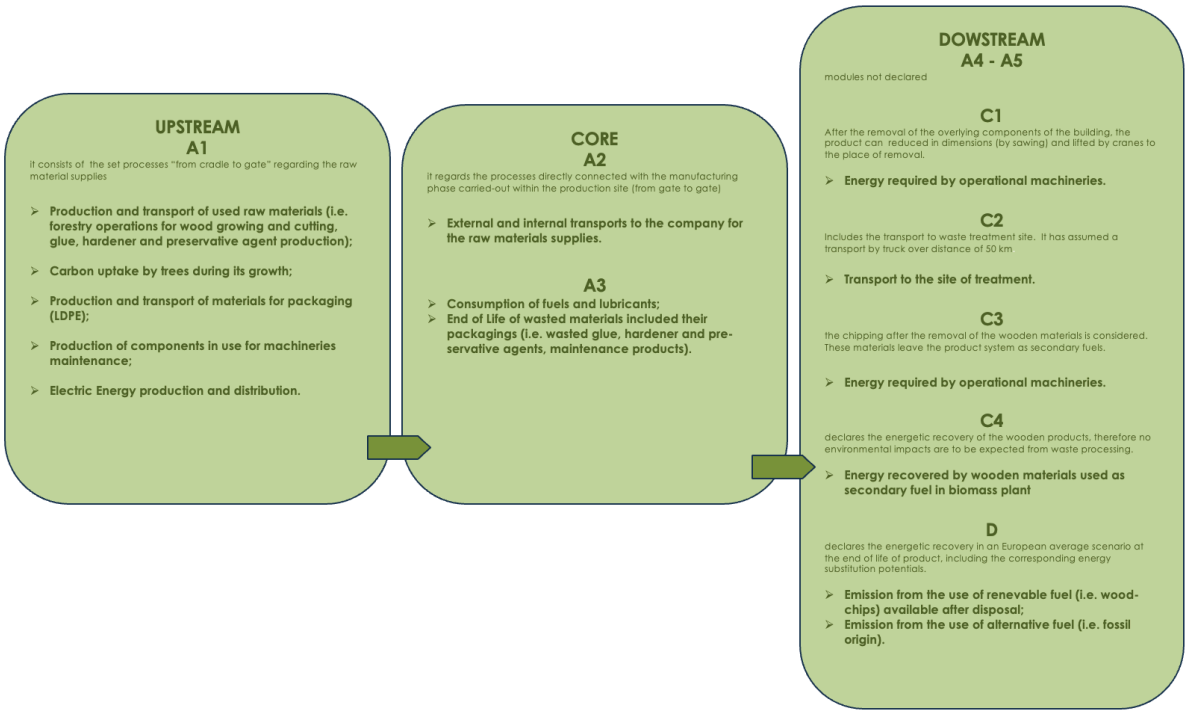
Reference service life: The duration of the products depends mainly on the duration of the building or construction site in which it is applied. Since the use phase is not covered in the EPD, there is no specific information on the reference RSL. It has been generically adopted a “reference life” of 50 years.

Time representativeness: 2022

Database(s) and LCA software used: The Ecoinvent database v.3.10 (www.ecoinvent.org) provides the life cycle inventory data for the raw and process materials obtained from the background system. LCA software used is SimaPro 9.6.

Description of system boundaries: cradle to the gate *A1-A3 with options* (*C1-C4 + D modules with exception of A4, A5; B1-B7 modules*).

Stages descriptions



UPSTREAM process

Stage:

A1 – Raw material supply: In this phase, the raw material (wood-planks and packaging material) and the ancillary materials (i.e. melamine-adhesives, hardener, impregnating agents) used for the manufacturing phases are purchased by the organization from qualified suppliers.

All purchased wood-planks derive from forests and plantations that are independently certified to one or both of the internationally recognized forest management certification systems: the *Standard recognized under the Program for the Approval of Forestry Certification (PEFC)* and/or one of the *Forest Stewardship Council (FSC) interim forest management standards*.

CORE process

Stages:

A2 - Transport: This stage accounts for the transport activities of raw materials to the facility located in Erbusco (BS). This stage includes road transport by lorry.

A3 - Manufacturing: This stage includes the manufacturing process carried-out at the facility and it is ready for the shipment to customers. Some details regarding the operations are reported forward in the next paragraph.

DOWNSTREAM process

Stages:

A4 – Transport to the construction site – not declared.

A5 – Construction/Installation – not declared.

B1-B7 – Use stage is not accounted

C1 – Deconstruction/Demolition: The end-of-life stage of the glulam starts when it is replaced, dismantled or deconstructed from the building and does not provide any further functionality. During the end-of-life stage, this output leaving the building, is at first considered to be waste.
In the study it has assumed that this output however, reaches the *end-of-waste* state and the recovered materials is commonly used for specific purpose serving as input to the production process of energy.
The impacts associated with the deconstruction phase require energy and this is modelled as working-time requested by the operation machine (i.e. cranes), using as a reference the background process available in Ecoinvent 3.10 for conducting this specific activity. The air emissions deriving from the engines are considered.

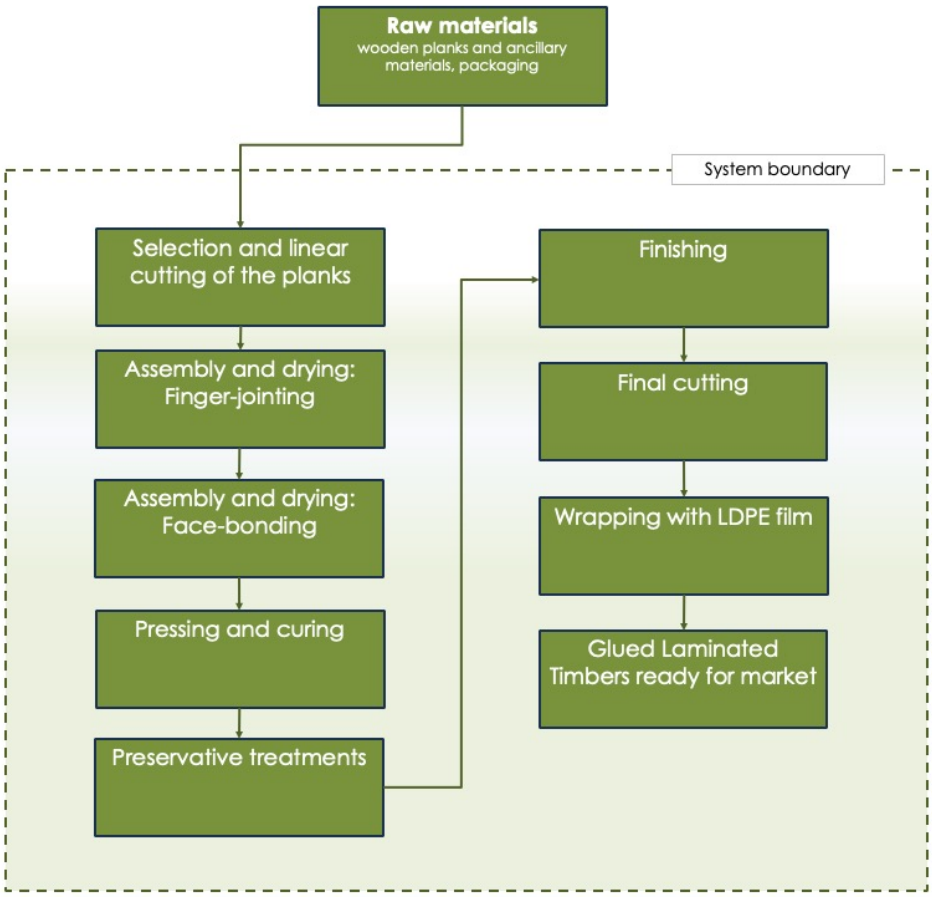
C2 - Transport: The transport of the dismantled materials is considered in this stage. A distance of 50 km is assumed to the recovering facility.

C3 – Waste processing: collection and preparation of waste fractions from the deconstruction and waste processing of material flows, intended for future energy recovery (assumption based on the efficiency of energy recovery with a rate higher than 60%).

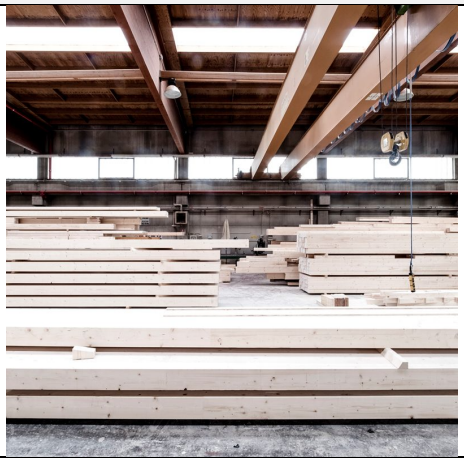
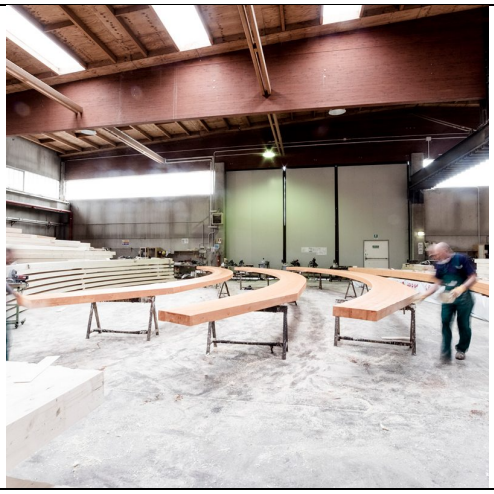
C4 - Disposal: waste disposal module, including physical pre-treatment and management of the disposal site, in according at EN-16485:2014 are considered part of the product system under study, according to the "*polluter pays principle*". This process generates energy such as heat and power from waste incineration: the potential benefits from utilisation of such energy in the next product system are assigned to module D and are calculated using current average substitution processes.

Benefits and loads beyond the system boundaries:
D – Benefits or recovery: Module D aims to measure specific loads and benefits of energy recovery per analysis unit, related to the export of secondary fuels products/materials.

Processing diagram:



Production description for Glued Laminated Beams:
The manufacturing process starts using the dried wooden planks, often rough sawn. All timber is accurately dressed to exact and uniform thickness. The dressed timber is then typically finger-jointed with adhesive into continuous lengths.
The sides of the dressed timber that will come into contact with each other are then spread with adhesive. A series of assembly and drying processes follow, where the lamellas are glued one to the other to form the individual layers of boards (1 layer) and dried. The prepared layers of boards are glued together.
The laminate is then clamped together under constant pressure until the glue has cured.
The beams may be subjected to a preservative-type impregnating treatment to improve their resistance to atmospheric agents and parasites.

Representation of some manufacturing processes	
	
Selection and linear cutting	Glueing for face-bonding
	
Assembling and drying	Clamping and pressing
	
Finishing	

Cut-off rules: 1% cut-off is applied. The following were excluded from the study: Manufacture of equipment used in production, buildings or any other capital goods; The transportation of personnel to the plant; Transportation of personnel within the plant; Research and development activities; Long-term emissions.

Quality data: The foreground data was collected internally, considering the latest available average production amounts and measures during the last year. Data regarding waste processes and scenarios were taken from waste scenarios for Europe contained in Ecoinvent 3.10.
Specific data are used for raw materials, electricity, fuel data, emissions, waste data, average distances and means of transport in modules A2.

Electricity mix: The electricity used in the production process (phase A1-A3). The electric energy was modelled considering the mix declared by the supply company for the period considered.
The GWP-GHG of the electricity mix is equal to kgCO2e 0.571/kWh.

Allocation rules: In A1-A3 modules the mass-allocation was used, based on the quantity and type of products in the reference year.

- An additional quantity of 18% has been accounted for the planks used in the manufacturing process in according at the "*modularity principle*", balancing a wood wastage of 18% considered for the planks dressing and preparation processes.
- Consumption of auxiliary materials (i.e. melamine-adhesive and hardener, wood-scrollers for operation-machines etc.) allocated to declared unit;
- Consumption of energy carriers for processing (electricity and other energy resources used by the plants for the production) allocated on the total production;
- In the study has followed the modular approach where the biogenic CO2 emissions are balanced-out in each module;
- Processing waste flows (processing scraps, lubricants, packaging materials etc.) allocated to total production;
- The generated wastes that go to energy recovery are considered out of the system in according at the "*polluter-pay-principle*".

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END-OF-LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
	Raw material supply	Transport of raw materials	Manufacturing	Transport to customer	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport to waste processing	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
MODULES	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Declared Modules	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	IT	IT	IT										IT	IT	IT	IT	IT
Share of specific data		>90%															
Variation – products		N. A.															
Variation – sites		N. A.															

Content information – m^3 1 of average Beam

Product's components per m^3 of an average beam (1 m^3 = Kg 466)	Weight (Kg)	Post consumer recycled materials weight- % of product	Biogenic material weight-% of product	Biogenic material Kg C/product or declared unit
Wooden planks (wet 12% +/-2%)	455	0%	49,74%	226
Melaminic glue + Hardner	11	0%	0%	0
Impregnating agents	0,47	0%	0%	0
TOTAL	466	0%	49,74%	226

Packaging materials per m^3 of an average beam	Weight (Kg)	Weight-% (versus the product)	Weight biogenic carbon, Kg C/Kg
Polyethylene low density	1,40	0,30%	0
TOTAL	1,40	0,30%	

The product is sold wrapped with LDPE film as packaging.

The following types of adhesive systems are used for bonding the individual components (finger jointing and plank-surface bonding):
- Melamine-urea-formaldehyde adhesives + hardner
- Melamine adhesives.

In addition, about 101 g/m^2 of water-based wood preservative impregnant is applied.
This corresponds to about 0,1% of the declared product weight.
This material contain biocide products (this then concerns a treated product as defined by the EU Reg. No. 528/2012 on Biocide Products).
These products contain substances listed in the *Candidate List of Substances of Very High Concern* (SVHC), not exceeding 0,1% (w/w). The List of SVHC (update 14.06.2023) is available via web (*echa.europa.eu/it/candidate-list-table*) at the European Chemicals Agency (ECHA) website.

There are no additional ingredients present which, to the supplier's current knowledge and applicable concentrations, are classified as harmful to health or the environment, meet PBT or vPvB criteria as defined by the EU Reg. No. 1907/2006, or to which an occupational exposure limit has been assigned and which therefore must be declared.

Results of the environmental performance indicators for m^3 1 of average beam

Mandatory impact category indicators according to EN 15804

Results per functional or declared unit = m^3 1							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	Kg CO_2eq	**2,85E+02**	3,34E+01	4,51E+00	8,60E+00	0,00E+00	-1,85E+03
GWP-biogenic	Kg CO_2eq	**-5,03E+02**	5,52E-02	3,27E-02	8,30E+02	0,00E+00	8,22E+02
GWP- luluc	Kg CO_2eq	**1,11E+00**	2,87E-03	1,47E-03	1,24E-03	0,00E+00	8,59E-02
GWP- total	Kg CO_2eq	**-2,17E+02**	**3,34E+01**	**4,54E+00**	**8,38E+02**	**0,00E+00**	**-1,03E+03**
ODP	Kg CFC 11eq	**6,01E-06**	5,06E-07	8,97E-08	1,64E-07	0,00E+00	-3,20E-05
AP	mol H^+eq	**1,03E+00**	1,13E-01	1,41E-02	2,09E-02	0,00E+00	-2,29E+00
EP-freshwater	kg P eq	**5,92E-02**	9,66E-04	3,01E-04	4,70E-04	0,00E+00	-3,11E-02
EP-marine	Kg N eq	**3,33E-01**	4,61E-02	4,76E-03	6,86E-03	0,00E+00	-1,85E-01
EP-terrestrial	mol N eq	**3,25E+00**	5,05E-01	5,17E-02	7,46E-02	0,00E+00	-6,72E-02
POCP	Kg NMVOC eq	**1,49E+00**	1,87E-01	2,21E-02	3,51E-02	0,00E+00	-3,65E+00
ADP-fossil*	MJ	**8,50E+02**	1,75E+01	5,20E+00	8,22E+00	0,00E+00	-5,78E+02
ADP-minerals&metals*	Kg Sb eq	**7,80E-04**	1,18E-05	1,44E-05	1,35E-05	0,00E+00	-1,18E-03
WDP*	m^3	**8,65E+01**	9,38E-01	2,60E-01	2,94E-01	0,00E+00	-1,66E+01

Acronyms	**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** = Depletion potential of the stratospheric ozone layer; **AP** = Acidification potential, Accumulated Exceedance; **EP- freshwater** = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-marine** = Eutrophication potential, fraction of nutrients reaching marine end compartment; **EP-terrestrial** = Eutrophication potential, Accumulated Exceedance; **POCP** = Formation potential of tropospheric ozone; **ADP-minerals&metals** = Abiotic depletion potential for non-fossil resources; **ADP-fossil** = Abiotic depletion for fossil resources potential; **WDP** = Water (user) deprivation potential, deprivation-weighted water consumption

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit = m^3 1							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [1]	Kg CO_{2eq}	**2,92E+02**	3,34E+01	4,51E+00	8,61E+00	0,00E+00	-1,85E+03
PM	Disease incidence	**2,62E-05**	3,04E-06	3,54E-07	1,91E-07	0,00E+00	-1,10E-05
IRP	Kg U_{235} eq	**1,87E+01**	1,94E-01	8,12E-02	1,03E-01	0,00E+00	-1,59E+01
ETP-fw	CTUeq	**1,16E+03**	4,78E+01	1,36E+01	2,18E+01	0,00E+00	-7,23E+02
HTP-c	CTUh	**1,65E-06**	1,48E-07	3,15E-08	6,23E-08	0,00E+00	-1,93E-06
HTP-nc	CTUh	**4,17E-06**	7,88E-08	3,95E-08	2,81E-08	0,00E+00	-1,41E-06
SQP	Pt	**8,29E+04**	3,04E+01	3,77E+01	1,48E+01	0,00E+00	2,13E+04

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Acronyms	**PM** = Particulate matter emissions; **IRP** = Ionizing radiation, human health; **ETP-fw** = Eco-toxicity - freshwater; **HTP-c** = Human toxicity, cancer effect; **HTP-nc** = Human toxicity, non-cancer effects; **SQP** = Land use related impacts/Soil quality. ———————————— 1 - This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO2 is set to zero.

Resource use indicators

Results per functional or declared unit = m^3 1

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	**4,08E+03**	2,27E+00	8,89E-01	1,29E+00	0,00E+00	9,39E+02
PERM	MJ	**1,24E+04**	3,79E-01	1,79E-01	2,13E-01	0,00E+00	4,30E+03
PERT	MJ	**1,64E+04**	2,65E+00	1,07E+00	1,51E+00	0,00E+00	5,23E+03
PENRE	MJ	**7,90E+02**	1,75E+01	5,20E+00	8,22E+00	0,00E+00	-5,77E+02
PENRM	MJ	**5,93E+01**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	**8,50E+02**	1,75E+01	5,20E+00	8,22E+00	0,00E+00	-5,77E+02
SM	kg	**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
NRSF	MJ	**0,00E+00**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	**2,34E+00**	3,09E-02	8,67E-03	1,10E-02	0,00E+00	-8,12E-01

Acronyms	**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 re-sources; **SM** = Use of secondary material; **RSF** = Use of renewable secondary fuels; **NRSF** = Use of non-renewable secondary fuels; **FW** = Use of net fresh water

Waste indicators

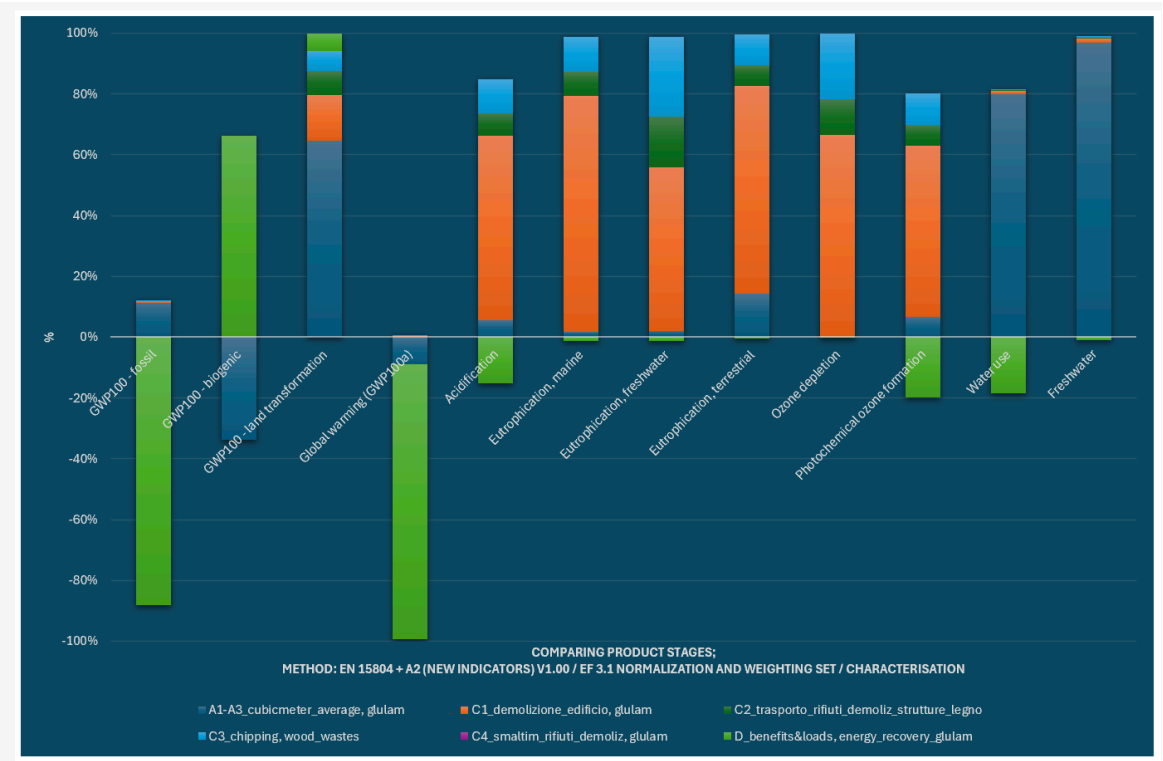
Results per functional or declared unit = m^3 1							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD)	Kg	**3,88E-02**	2,99E-03	4,27E-04	7,54E-04	0,00E+00	-1,60E-01
Non-hazardous waste disposed (NHWD)	Kg	**1,34E+02**	2,65E-01	3,01E+00	4,55E+02	0,00E+00	-1,10E-01
Radioactive waste disposed (RWD)	Kg	**4,90E-03**	4,76E-05	2,02E-05	2,54E-05	0,00E+00	-3,99E-03

Output flow indicators

Results per functional or declared unit = m^3 1							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use (CRU)	Kg	**0,00E+00**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling (MFR)	Kg	**2,58E+02**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery (MER)	Kg	**0,00E+00**	0,00E+00	0,00E+00	4,55E+02	0,00E+00	0,00E+00
Exported electrical energy (EEE)	MJ	**1,68E+01**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET)	MJ	**2,24E+02**	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

LCA interpretation

The following graph highlights the contributions of the impacts due by the life cycle of the studied product, distinguished by impact categories. From the results we can see that for each individual impact category the most significant contribution is given by phase A1, i.e. the supply of raw materials. Specifically, it is observed that the global warming potential (GWP) of glued laminated timber shows negative values in the manufacturing processes (modules A1– A3). The negative impacts arrive from the use of wood as raw material. During tree growth, the wood assimilates carbon dioxide and stores biogenic carbon. 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 (C3- module). The negative values at the end-of-life step (D-module) result from the energetic treatment of the product. As the energy produced via burning in a co-generation plant can substitute fossil fuels, this reflects the "potential savings" obtained through recovered energy materials: an environmental net benefit is generated.



Information related to the EPD sector

This EPD is not sectorial.

Differences from previous version

This document is the first version of EPD.

References

- General Programme Instructions of the International EPD® System. Version 4.0
- PCR 2019:14 Construction products, version 1.3.3
- EN 16485:2014 - *PCR for wood and wood-based products for use in construction*
- EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- EN-16449:2014 (*Wood and Wood-based products: Calculation of the biogenic carbon content of wood and conversion to carbon dioxide*)
- ISO 14025/ DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental
- ISO 14040-44/ DIN EN ISO 14040:2006-10, Environmental management - Life cycle assessment-Principles
- ISO 14021:1999, “Environmental labels and declarations – Self-declared environmental claims (Type II environmental labelling)”

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