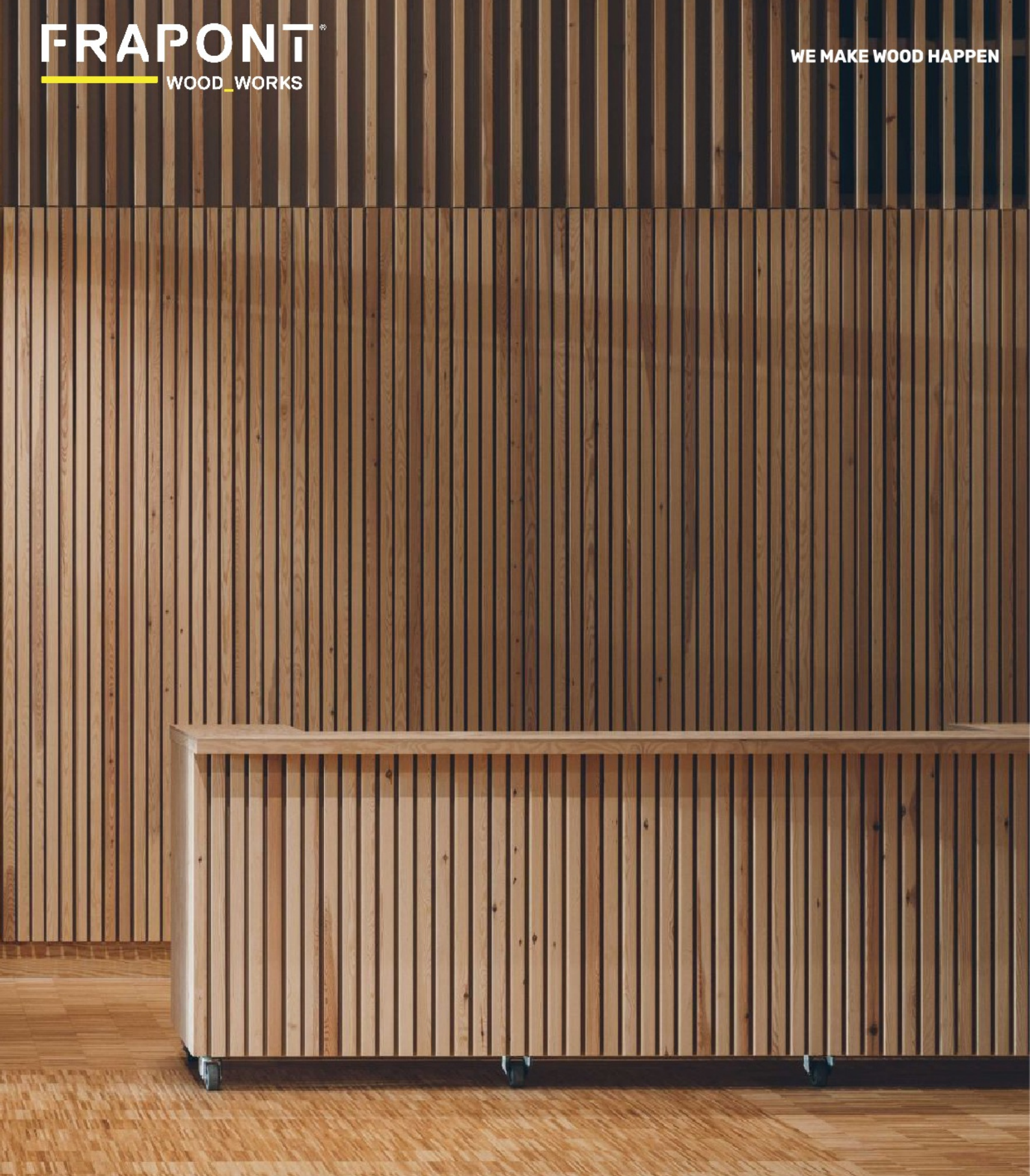




DAPcons[®].NTe.206

DECLARACIÓN AMBIENTAL DE PRODUCTO
ENVIRONMENTAL PRODUCT DECLARATION

According to the standards:
ISO 14025 and UNE-EN 15804:2012+A2:2020/AC:2021

DECLARACIÓN AMBIENTAL DE PRODUCTO ENVIRONMENTAL PRODUCT DECLARATION

DAPcons®.NTe.206

According to the standards:

ISO 14025 and UNE-EN 15804:2012+A2:2020/AC:2021



GENERAL INFORMATION

Product

Timber cladding for walls and ceilings

Company



Product description

Wall and ceiling cladding consisting of wooden slats or boards fixed on frames or battens.

Reference RCP

UNE EN 16485

Production plant

Carrer de la Ciutat d'Asuncion, 32, Sant Andreu, 08030 Barcelona

Validity

From: 12/12/2024 Until: 12/12/2029

The validity of DAPcons®.NTe.206 is subject to the conditions of the regulation DAPcons®. The current edition of this DAPcons® is the one that appears in the registry maintained by Cateb; for informational purposes, it is included on the Program website www.csostenible.net

EXECUTIVE SUMMARY

Timber cladding for walls and ceilings

**DAPconstruction[®] Programme Operator**

Environmental Product Declarations in the Construction sector
www.csostenible.net

**Programme Manager**

Colegio de la Arquitectura Técnica de Barcelona (Cateb)
Bon Pastor, 5 · 08021 Barcelona www.apabcn.cat

**Owner of the declaration**

FRAPONT S.A.
C/ CARACAS, 6 08030 - BARCELONA (España)
www.frapont.com

**Author of the Life cycle assessment:**

ECOPENTA SL
C/Muntaner 48-50, 2-3a, 08009 - BARCELONA, España

Declared product

Timber cladding for walls and ceilings

Geographic representation

The raw materials of the product are sourced in Europe. The product is manufactured in Barcelona and distributed in Europe.

Variability between different products

>10%. The worst case based on design and weight is declared.

Maximum variability of 71% for all different assessment methods such as: EF 3.1, CML V3.10, IPCC 2021 GWP100 V1.03, CED V1.12, and AWARE V1.06.

Declaration number

DAPcons[®].NTe.206

Issue date

11/06/2024

Validity

This verified declaration authorizes its holder to carry the logo of the operator of the ecolabelling program DAPconstruction[®]. The declaration is applicable exclusively to the mentioned product and for five years from the date of registration. The information contained in this statement was provided under the responsibility of:
FRAPONT S.A.

Programme Administrator Signature

Celestí Ventura Cisternas. President of Cateb

Verifier Signature

HELIOS POMAR BLANCO. ReMa-INGENIERÍA, S.L.
Verifier accredited by the administrator of the
DAPcons[®] Programme

ENVIRONMENTAL PRODUCT DECLARATION

1. PRODUCT DESCRIPTION AND USE

Timber cladding for walls and ceilings; these are panels specifically designed to cover and decorate vertical and horizontal surfaces in interior spaces. These panels are made from different types of wood and its derivatives, offering a wide variety of options in terms of styles and textures. Their main function is to provide an attractive appearance. In addition to their aesthetic value, these kinds of cladding may also have additional properties such as improving the thermal insulation or acoustic or fire performance of a room. They are used in a variety of settings, from residential homes to commercial venues, as a stylish alternative to decorate and personalize different areas. They can be installed in a versatile way, adapting to different methods and systems based on the user's preferences and the features of the project.

This declaration presents the worst case by weight for wall and ceiling cladding products consisting of wood slats or boards fixed to frames or battens of the following three cladding families:

- Smooth or molded MDF/Ply cladding: Cladding formed by smooth board of thicknesses varying between 12 mm and 22 mm of different types of wood, fixed to the wall or ceiling by means of pine or spruce battens of the described sections or installed directly on the wall. Finished with natural wood veneer and varnished, HPL veneer or lacquered, with a weight varying from 7.20 to 28.8 kg/m² between the best and the worst case. Optionally with decorative moldings glued on its surface.
- Machined MDF/Ply cladding (acoustic): Cladding formed by smooth board of thicknesses varying between 12mm and 22mm of different types of wood, fixed to the wall or ceiling by means of pine or spruce battens of the described sections and a layer of rock wool or mineral wool of the described thicknesses to provide an acoustic absorption property. Perforated, slotted or micro-perforated machining, removing part of the material to allow its permeability for sound absorption. Finished with natural wood veneer and varnished, HPL veneer or lacquered, with a weight varying from 10.51 to 24.3 kg/m².
- Frame cladding (with fabric) and with slats: Cladding formed by a frame of pine or spruce slats, measuring 20x20, 40x40 and 50x40, fixed to the wall or ceiling by means of pine or spruce battens of the sections described and optionally upholstered in fabric or acoustic fleece. Decorative slats or moldings are fixed on this frame, which can be made of solid hardwood, pine wood or MDF covered with veneer or plywood boards cut into slats with a weight ranging from 10.03 to 31.70 kg/m². Finished with natural wood veneer and varnished or lacquered. In these kinds of cladding some components are omitted in some cases, either omitting the upholstery or leaving the upholstered frame without slats. Also, the moldings or slats fixed simply on a primary base.

1.1 Content information

Product components

It is made up of a 50 x 40 pine wood batten, a 19 mm thick MDF board that will then be transported for machining where it will be grooved, thus losing 1.9% of its mass. The board will also be treated with a water-repellent product and will be equipped with 60 mm thick rock wool for a final finishing with a 1.2 mm thick HPL veneer. The declaration is for the worst case composition of the three families included.

Packaging materials

Base measuring 2362x762 mm; Standard chipboard 30 mm. 1 unit.

Longitudinal side panel measuring 2400x781 mm; Standard chipboard 19 mm. 2 units.

Transversal side panel measuring 762x781 mm; Standard chipboard 19 mm. 2 units.

Roof measuring 2400x800 mm; Chipboard 19 mm. 1 unit.

Legs formed by three glued blocks of 30 mm standard chipboard and 19 mm standard chipboard box width slat.

Joined using 45x5 mm bichromated screws.



Smooth Cladding – Type 1

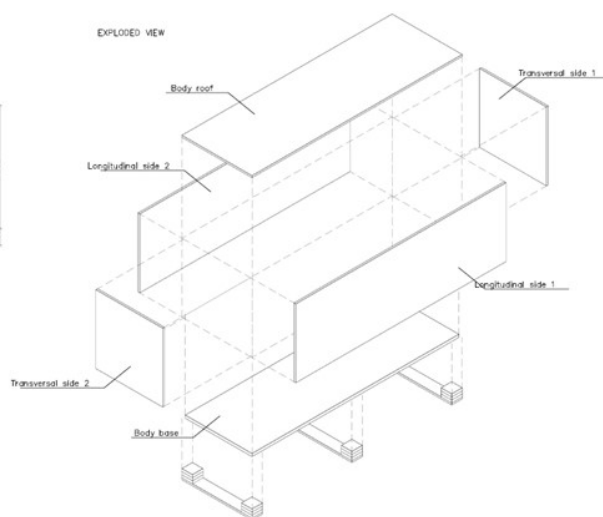
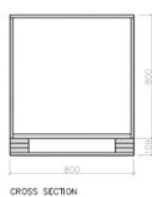
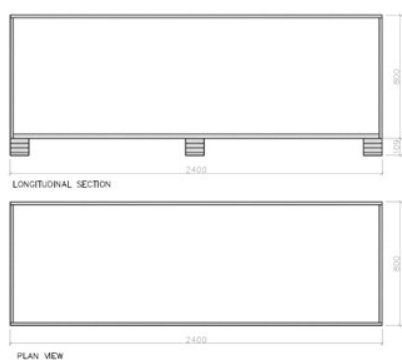
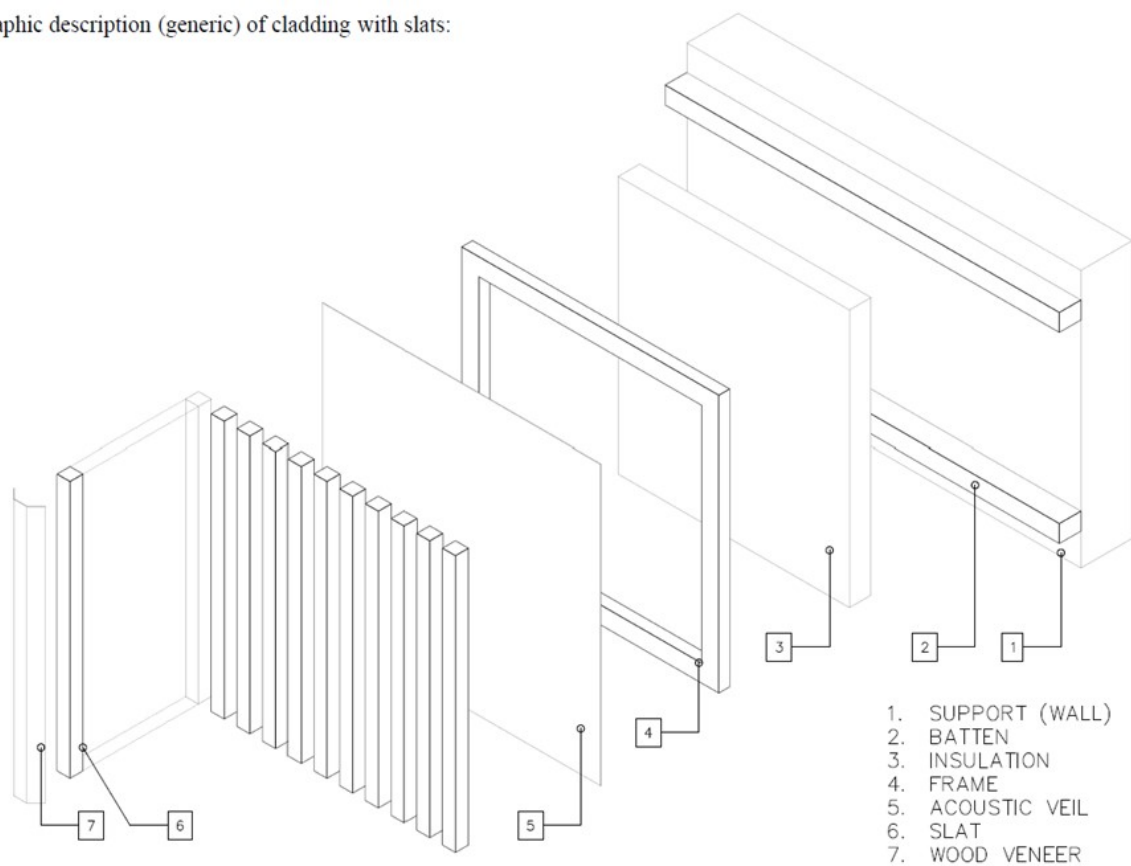


Acoustic Machined Cladding – Type 2



Frame and Slat Cladding – Type 3

Graphic description (generic) of cladding with slats:



2. DESCRIPTION OF THE STAGES OF THE LIFE CYCLE

2.1. Manufacturing (A1, A2 y A3)

Raw Materials and transport (A1 y A2)

Module A1 includes the supply of raw materials for the product and packaging. The product is mainly made of wood.

Module A2 includes the transport of raw materials and packaging to the factory in Barcelona. The distance and type of transport has been entered for each raw material and packaging, the average calculated based on the distances to the various suppliers.

Manufacturing (A3)

Stage A3 considers the energy use of the production process, the production and transport of auxiliary materials, and the treatment of waste generated during production.

The manufacturing process is as follows:

Once the components get to the workshop in Barcelona, the pieces are cut according to the measurements required for the cladding using precision saws and tools. Subsequently, the cut pieces are sanded to eliminate roughness and achieve a smooth surface. Once ready, the pieces are assembled and fastened to the workshop frame using nails or screws, making sure to maintain uniform alignment. Finally, a finishing treatment, such as varnish or paint, is applied to protect the wood and give it the desired appearance, allowing the necessary drying time before using the paneled area from the workshop. We found that there is no waste sorting process within the workshop and that the waste management company which comes to collect the waste is responsible for managing it.

All the wood used for the various types of cladding is FSC or PEFC certified, thus certifying a wood origin that complies with the Kyoto protocol.

2.2. Construction process stage (A4 y A5)

Transport to the building site (A4)

The transport to the installation site stage has been calculated based on the weighting of 2022 sales (of all the types of cladding covered by this EPD) by country, combining transport by road in a 16-32 ton EURO 6 truck and by train.

Table 1. Basic of a scenario with the parameters described in the following table

Destinations	Type of transport	Percentage	Average km
Spain	Truck	16.21	659
Europe	Ship	69.10	180
	Truck	8.94	1404
Rest of the world	Truck	0.03	20
	Ship	5.72	3189

Product installation process and construction (A5)

Undeclared

2.3. Product use (B1-B7)

Use (B1)

Undeclared

Maintenance (B2)

Undeclared

Repair (B3)

Undeclared

Replacement (B4)

Undeclared

Refurbishment (B5)

Undeclared

Operational energy use (B6)

Undeclared

Operational water use (B7)

Undeclared

2.4. End of life (C1-C4)

Deconstruction and demolition (C1)

At the end of its service life, the product will be removed manually during its demolition.

Transport to waste processing (C2)

The product's waste is shipped by 16-32 ton truck complying with the Euro VI standard over a distance of 50 km to the treatment plant.

Waste processing for reuse, recovery and/or recycling (C3)

According to EUROSTAT>Waste for building products, 2020, a recycling and recovery for reuse scenario of 87,49% and incineration of 9,16% is considered.

Disposal (C4)

Following the EUROSTAT>Waste for building products, 2020 database, the remaining % not included in module C3 is expected to go to landfill: 3,34%.

2.5. Reuse/recovery/recycling potential (D)

The net impacts of recycling the cladding have been considered as follows:

- Wood waste: 87,49% recycling
- Energy released from incineration: 9,16% incineration

3. LIFE CYCLE ASSESSMENT

Carrying out a “cradle to grave” Life Cycle Assessment with modules C1-C4 and D (A1-A3, A4, C, D), covering the stages of product manufacture, construction, and end-of-life according to ISO 14040:2006 and ISO 14044:2006 of the products, taking into account the environmental impacts (UNE-EN 15804+A2:2019) according to UNE-EN_16485:2014, Product category rules for wood and wood-based products for use in construction.

The application used is Simapro version 9.6.0.1, 2024.

Specific data from the manufacturing plant at Barcelona for 2022 have been used to inventory the manufacturing stage (provided by the manufacturer). Generic data from the Ecoinvent v3.10 database have been used for the rest of the stages.

3.1. Declared Unit

The unit declared in this study, which will involve all the types of treatment, is defined as one square meter of the worst case type of cladding, in this case with a weight of 31,699 kg, a density of about 700 kg/m³ and a humidity of between 10 and 12% and a fireproof and waterproof treatment, which means we are looking at the frame cladding (with fabric) and with slats.

For the suppliers, in this case we will take into account the ones in the following places: Sabadell, Valencia, Jaén, and Belgium.

For a time period of 30 years in a global geographical and technological environment in the year of production for 2022.

Additional comments

-

3.2. Scope and modules that are declared

Table 2. Declared modules

Product stage			Construction Process Stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw materials supply	Transport	Manufacturing	Transport	Construction - Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	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	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

X = Declared module

MND = Undeclared module

3.3. LCA results of potential environmental impact referred to the declared unit (ACV)

Table 3. Parameters of environmental impact

Parameter	Unit	Life cycle stage																Module D
		Product stage			Construction Process Stage		Use stage							End of life stage				
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Climate change - total (GWP-total)	kg CO2 eq	7,63E+00	6,27E+00	2,59E+01	5,91E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,04E-01	1,37E+01	4,49E-01	-8,42E-01
Climate change - fossil (GWP-fossil)	kg CO2 eq	2,05E+01	6,27E+00	2,59E+01	5,91E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,04E-01	1,04E+00	1,20E-02	-8,36E-01
Climate change - biogenic (GWP-biogenic)	kg CO2 eq	-1,31E+01	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,27E+01	4,37E-01	0,00E+00
Climate change - land use and changes in land use (GWP-luluc)	kg CO2 eq	1,83E-01	2,09E-03	5,22E-04	3,94E-03	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,23E-04	1,37E-03	6,68E-06	-5,45E-03
Ozone layer depletion (ODP)	kg CFC 11 eq	4,14E-07	1,25E-07	4,15E-08	1,01E-07	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,50E-09	1,95E-08	3,06E-10	-8,07E-09
Acidification (AP)	mol H+ eq	1,46E-01	1,30E-02	1,96E-02	2,73E-02	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,96E-04	4,97E-03	8,39E-05	-4,34E-03
Eutrophication of fresh water (EP-freshwater)	kg P eq	7,18E-03	4,27E-04	2,18E-03	9,12E-04	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,40E-05	7,61E-04	9,19E-06	-3,12E-04
Eutrophication of sea water (EP-marine)	kg N eq.	6,57E-02	3,13E-03	1,03E-02	9,18E-03	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,62E-04	1,52E-03	3,89E-04	-1,23E-03
Terrestrial eutrophication (EP-terrestrial)	mol N eq.	4,39E-01	3,37E-02	9,41E-02	9,92E-02	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,75E-03	1,58E-02	3,45E-04	-1,27E-02
Photochemical ozone formation (POCP)	kg NMVOC eq	1,16E-01	2,16E-02	2,58E-02	3,53E-02	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,75E-04	5,59E-03	1,40E-04	-4,80E-03
Depletion of abiotic resources - minerals and metals (ADP-minerals&metals)	kg Sb eq	1,19E-04	2,06E-05	3,84E-06	1,83E-05	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,92E-07	2,98E-06	2,59E-08	-1,28E-06
Depletion of abiotic resources - fossil fuels (ADP-fossil)	MJ, net calorific value	3,21E+02	8,81E+01	2,57E+01	8,39E+01	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,27E+00	1,83E+01	2,63E-01	-1,07E+01
Water consumption (WDP)	m3 worldwide eq. private	4,60E+01	3,66E-01	3,78E+00	5,25E-01	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,94E-02	1,27E-01	-1,69E-01	-1,12E-01
The Indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This Indicator is thus equal to the GWP Indicator originally defined in EN 15804:2012+A1:2013. Can be obtained from IPCC characterization factors.																		
Global Warming Potential (GHG)	kg CO2 eq	2,08E+01	6,27E+00	2,59E+01	5,92E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,04E-01	1,04E+00	7,08E-02	-8,42E-01

A1 Supply of raw materials. A2 Transport to waste processing. A3 Manufacturing. A4 Transport to waste processing. A5 Installation and construction processes. B1 Use. B2 Maintenance. B3 Repair. B4 Replacement. B5 Refurbishment. B6 Operational energy use. B7 Operational water use. C1 Deconstruction and demolition. C2 Transport to waste processing. C3 Waste management for reuse, recovery and recycling. C4 Fine removal. D Environmental benefits and burdens beyond the system boundary. MND Undeclared module.

Table 4. Parameters for the use of resources, waste and output material flows

Parameter	Unit	Life cycle stage																Module D
		Product stage			Construction Process Stage		Use stage							End of life stage				
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ, net calorific value	3,70E+01	3,45E-01	1,66E-01	8,12E-01	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,51E-02	3,33E-01	1,01E-03	-1,33E+02
Use of renewable primary energy used as raw material	MJ, net calorific value	4,15E+02	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	4,52E+02	3,45E-01	1,66E-01	8,12E-01	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,51E-02	3,33E-01	1,01E-03	-1,33E+02
Non-renewable primary energy use, excluding non-renewable primary energy resources used as feedstock	MJ, net calorific value	3,46E+02	9,37E+01	2,76E+01	8,90E+01	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,54E+00	1,93E+01	2,80E-01	-1,14E+01
Use of non-renewable primary energy used as raw material	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	3,46E+02	9,37E+01	2,76E+01	8,90E+01	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,54E+00	1,93E+01	2,80E-01	-1,14E+01
Use of secondary materials	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of freshwater resources	m3	4,04E+01	3,66E-01	3,85E+00	5,28E-01	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,95E-02	1,28E-01	-1,69E-01	-1,13E-01
Hazardous waste removed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste eliminated	kg	0,00E+00	0,00E+00	4,86E+01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	1,06E+00	0,00E+00
Radioactive waste disposed of	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	4,06E+05	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,06E+00	0,00E+00	0,00E+00
Materials for energy recovery (energy recovery)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ by energy vector	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

A1 Supply of raw materials. A2 Transport to waste processing. A3 Manufacturing. A4 Transport to waste processing. A5 Installation and construction processes. B1 Use. B2 Maintenance. B3 Repair. B4 Replacement. B5 Refurbishment. B6 Operational energy use. B7 Operational water use. C1 Deconstruction and demolition. C2 Transport to waste processing. C3 Waste management for reuse, recovery and recycling. C4 Fine removal. D Environmental benefits and burdens beyond the system boundary. MND Undeclared module.

Table 5. Kg of biogenic carbon

Carbon content (biogenic) - packaging	1,6706
Carbon content (biogenic) - product	13,0905

3.4. Recommendations of this EPD

Construction products should be compared on the basis of the same functional unit and at building level, i.e. including the performance of the product over its entire life cycle.

Environmental product declarations of different type III eco-labeling schemes are not directly comparable as the calculation rules may be different. Product included in this EPD, worst case and best case products for the cladding types of: Smooth or molded MDF/Ply cladding, machined MDF/Ply cladding and frame cladding (with fabric) and with slats.

3.5. Cut-off rules

General cut-off criteria are given in EN 15804, clause 6.3.5. This clause states that a maximum of 1% of the energy and raw material use per process unit can be excluded. This is provided that the total amount excluded does not exceed 5% of the total energy or material use for a module (A1, A2, A3, etc.).

More than 95% of all mass and energy inputs and outputs of the system have been included, leaving out auxiliary materials that account for less than 1% of the total material use in module A3. Also, infrastructure for machinery, production facilities, and offices are estimated to contribute less than 1% and are therefore not included.

3.6. Additional environmental information

All the wood used for the different types of cladding is FSC or PEFC certified, thus certifying a wood origin that complies with the Kyoto protocol.

3.7. Other data

-

4. ADDITIONAL TECHNICAL INFORMATION AND SCENARIOS

4.1. Transport to the building site (A4)

Parameter	Parameter expressed per functional unit
Type and fuel consumption, type of vehicle used for transportation	Road: Truck between 16 and 32 tons. Euro VI, uses 0,047 kg/ton/km diesel.
Distance	Transport by truck to the south of France to take the train to sales in each country.
Capacity utilization (including empty return)	Road transport: 100% Ecoinvent 3.10 database-driven.
Apparent density of transported product	700 kg/m ³
Useful capacity factor (1, <1 or >1 for products that are packed compressed or nested)	1

4.2. Installation processes (A5)

Undeclared

4.3. Reference life (B1)

Undeclared

4.4. Maintenance (B2), Repair (B3), Replacement (B4), or Refurbishment (B5)

Maintenance (B2)

Undeclared

Repair (B3)

Undeclared

Replacement (B4)

Undeclared

Refurbishment (B5)

Undeclared

4.6. Operational energy use (B6) and operational water use (B7)

Undeclared

4.7. End of life (C1-C4)

	Process		
	Collection processes (specified by types)	Recovery systems (specified by type)	Elimination
	kg collected with mixed construction waste	kg	kg for final disposal
	31.699	30.637	1.059
Assumptions for scenario development	Wood waste: 87,49% recycling, 3,34% landfill, and 9,16% incinerated		

5. ADDITIONAL INFORMATION

FRAPONT, S.A. FSCTM Chain-of-Custody Certificate SGSCH-COC-060283

FRAPONT, S.A. PEFC Chain-of-Custody Certificate SGSCH-PEFC-COC-060092

6. PCR AND VERIFICATION

This statement is based on Document

UNE EN 16485

Independent verification of the declaration and data, in accordance with ISO 14025 and IN UNE EN 16485



External

Third party Verifier

HELIOS POMAR BLANCO

Accredited by the administrator of the DAPcons®
Programme



Verification date:

12/12/2024

References

PRODUCT LIFE CYCLE ANALYSIS: Timber cladding for walls and ceilings

By: ECOPENTA SL. July 2024 (unpublished)

Programme Manager

Colegio de la Arquitectura Técnica de Barcelona
(Cateb)

Bon Pastor, 5 · 08021 Barcelona www.apabcn.cat



