okambuva.coop
bioconstrucción

ENVIRONMENTAL PRODUCT DECLARATION:
Prefabricated straw and wood panel for construction alfaWALL®

DAPcons®.100.237

DECLARACIÓN AMBIENTAL DE PRODUCTO
ENVIRONMENTAL PRODUCT DECLARATION

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

cateb Arquitectura Tècnica Barcelona

ECO PLATFORM EPD VERIFIED

dapcons®

DECLARACIÓN AMBIENTAL DE PRODUCTO
ENVIRONMENTAL PRODUCT DECLARATION

DAPcons®.100.237

According to the standards:

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

GENERAL INFORMATION

Product

alfaWALL®

Company

Product description

Prefabricated structural wood and straw modules

Reference RCP

RCP 100 (version 3.2 - 21/12/2023) Construction products in general

Production plant

Polígono N-89.R, 8646, 46117 Bétera, Valencia

Validity

From: 23/05/2025 Until: 23/05/2030

The validity of DAPcons®.100.237 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.dapcons.com

EXECUTIVE SUMMARY

alfaWALL®

	DAPconstruction® Programme Operator Environmental Product Declarations in the Construction sector www.dapcons.com
	Programme Manager Colegio de la Arquitectura Técnica de Barcelona (Cateb) Bon Pastor, 5 · 08021 Barcelona www.cateb.cat
	Owner of the declaration okambuva, coop. V. Camí de Bonilles 272, aptdo 72, 46500 - SAGUNTO (España) https://www.okambuva.coop/
	Author of the Life cycle assessment: Instituto Valenciano de la Edificación Camí de Vera, s/n, Algirós, 46022 València, Valencia, 46022 - VALENCIA, España https://www.five.es/

Declared product

alfaWALL®

Geographic representation

Production, distribution, installation and end of life: Spain

Variability between different products

This document states the results of the product subject to the study.

Declaration number

DAPcons®.100.237

Issue date

10/12/2024

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: **okambuva, coop. V.**

Programme Administrator Signature

Celestí Ventura Cisternas. President of Cateb

36548201M CELESTINO VENTURA (R: Q0875009C)
36548201M CELESTINO VENTURA (R: Q0875009C) 23.05.2025 10:01:00 +0200

Verifier Signature

HELIOS POMAR BLANCO. HELIOS POMAR BLANCO tlf: 677098569; mail: hpomar@serviciosqma.com. Verifier accredited by the administrator of the DAPcons® Programme

POMAR BLANCO, HELIOS (FIRMA)
POMAR BLANCO, HELIOS (FIRMA) 23.05.2025 10:00:42 +0200

ENVIRONMENTAL PRODUCT DECLARATION

1. PRODUCT DESCRIPTION AND USE

The declared product is a prefabricated panel made of straw and pine wood for construction with the commercial name alfaWall wall (AW35-M) with a 35 cm double wood frame, with dimensions from 0.5-2.5 m high and 0.5 to 1.2 m wide.

These prefabricated wood panels are intended to respond to a latent market demand for innovative products in the sustainability and natural materials sector, offering exceptional mechanical performance, not only structural, but also thermal and acoustic, reaching transmittance values of 0.166W/m2 and acoustic resistance of 49dB with an average surface density of 50kg/m2.

1.1 Content information

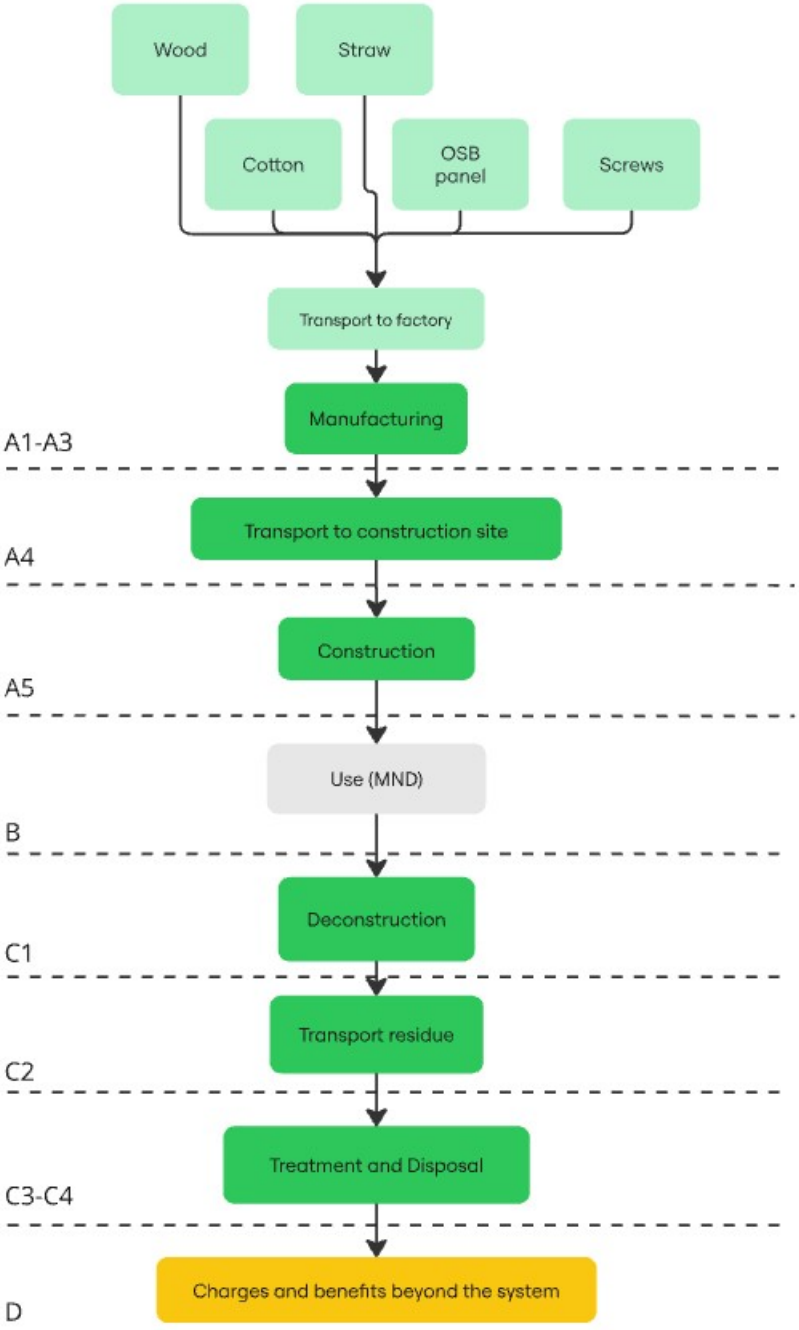
Product components

The components of the AW35-M panel are:

- Pine wood: 29.44%.
- Straw: 69.42%.
- Recycled cotton: 0.95%
- Metal: 0.19%.

Packaging materials

The product is not packaged. The only material used during transportation from the manufacturing facilities to the construction site are wooden pieces as separators.



2. DESCRIPTION OF THE STAGES OF THE LIFE CYCLE

2.1. Manufacturing (A1, A2 y A3)

Raw Materials and transport (A1 y A2)

The wood is Pinus sylvestris (PNSY) qualified as Soria Burgos Pine visually classified for its resistance according to its own and internal standard PSB: 2011. The Soria-burgos pine is C18 for its section, sawing and planing at origin. The sawmill holds the PEFC chain of custody certificate, as well as the OSB wood boards. The straw bales are wheat bales from the cereal farming sector in the Cuenca area. The straw bales are quality controlled according to the protocol for formal properties (density and morphology) and hygrothermal properties (relative density). The rest of the materials that make up the prefabricated panel are processed and manufactured products.

Wood is transported directly from the Soria sawmill with an average distance of 590 km by road (truck 16-32 t). The straw bales are wheat, coming from the cereal agricultural sector in the Cuenca area, with an average distance of 168 km (truck 16-32 t). The wheat straw bales of average size 45x45x110cm are grouped in bundles of 14 by means of polyethylene tying ropes. The OSB panels are purchased from a distributor in Albacete with an average distance of 186 km (truck 16-32 t). The recycled cotton panels are GEOPANEL brand, and are purchased directly from the factory, which is located in Logroño, at an average distance of 479 km (truck 16-32 t). Galvanized screws are purchased from a local distributor at an average distance of 50 km.

Manufacturing (A3)

All production processes take place at okambuva.coop's facilities in the Bétera plant (Valencia).

The raw material is received at the warehouse and undergoes a visual quality control in accordance with UNE 56546:2022 – Visual grading of sawn timber for structural use. If the material meets the required standards in terms of defects and section, it is stored near the production area to facilitate workflow and space efficiency according to the work order. The wood used is Scots pine (PNSY), classified as Soria-Burgos Pine, visually graded for strength according to an internal standard PSB:2011. The Soria-Burgos pine is graded as C18 due to its section, sawing, and planing at origin.

The standard sections used for forming all prefabricated modules are uprights, crosspieces, and diagonals of 40x90cm and diaphragms of 170x40cm.

The assembly of the wooden frame follows a protocol in accordance with the standardized work process (PNT). The timber elements, grouped by section type, are taken to the cutting station, where pieces of the same length are cut using an electric miter saw. Waste, offcuts, or defective pieces are placed in the corresponding container for further handling.

The pieces cut according to the cutting breakdown are moved to the assembly table, where using clamps, stops, and squares, the wooden skeleton is assembled with electric screwdrivers and galvanized structural screws. The dimensions and squareness of the wooden frame are checked according to the quality control inspection points program (PPI), and it is then moved to the pressing station.

Straw bales undergo a quality control protocol upon arrival at the facilities, evaluating their formal properties (density and morphology) and hygrothermal properties (relative density). The bales are then stacked near the pressing station according to the storage plan.

After this process, the prefabricated panels are stored for transport to the construction site. It’s important to note that the product does not include any special packaging—only wooden blocks for proper loading onto the transport truck and lifting on-site.

For the pressing process, we use baled straw. The packages are separated into individual bales, which are moved along with the wooden frames to the press. This press is powered by an electric motor that activates a pressing piston, compressing the straw bales to a density of approximately 130 kg/m^3. The straw bales are placed inside the wooden frame, already positioned in the press, and as the piston presses them, more bales are gradually added until the required height is reached. Once all bales are inside the frame, the top cover is screwed on to complete the module assembly. Measurements and squareness are checked to ensure they match the project specifications. If everything is correct, the module is coded and moved to the shaving and planing station.

The wood and straw modules are then transferred to the shaving station. This consists of a polycarbonate cabin housing a wood-toothed cutting disc powered by an electric motor. The disc position, cutting table height, and stops are adjusted to match the dimensions of the module to be planned.

Once the module is in place, the cutting disc shaves off the excess wheat straw fibers that protrude beyond the edges of the wooden uprights and crosspieces, aligning the straw flush with the wooden frame to facilitate transport and installation on-site.

The leftover straw is collected into 1 m^3 sacks for easier handling, and it is later processed according to the appropriate waste management plan. Often, it is donated to associations or companies in the agriculture sector

for use as mulch or compost.

Next, the special components are installed, depending on the specific location of each prefabricated module according to the project.

Installation of Special Components

According to the project, each prefabricated panel will be fitted with the required special components:

- OSB Panels: Using a handheld screwdriver, OSB boards are screwed onto the sides of the prefabricated panels, especially when these are to form an opening in the envelope (windows or doors).
- Geotextile Blanket (GEOPANEL): A recycled cotton blanket is manually placed between all wooden uprights and crosspieces to break the thermal bridge. These strips are manually cut to fill the air space between studs, typically 4–5 cm thick and 17–20 cm wide.

2.2. Construction process stage (A4 y A5)

Transport to the building site (A4)

The okambuva product is marketed nationally. For road transport, a EURO V 27 t truck has been used. For inter-island transport, a ferry has been estimated including the weight of land transport. For both cases, models from the Ecoinvent database have been used.

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

Destinations	Type of transport	Percentage	Average km
Spain	Camión EURO V 27 t	83	309
Europe	Ferry	17	259

Product installation process and construction (A5)

For the assembly stage, the most common and representative installation process in fiscal year 2023 has been taken into account. The transport truck arrives on site and opens the box at the top to facilitate the lifting of the prefabricated wood and straw panels. By means of a boom truck, they are placed on site minimizing their manual displacement and directly screwed by means of an electric screwdriver.

Type of lifting machinery: Truck crane with 17 m boom: Diesel machine <18,64 KW. The average lifting time from the truck to the installation site is 0.166 h/m2.

Type of mounting hardware: galvanized steel.

The energy required by hand screwdrivers for such installation is presumed to be negligible.

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 useful life, the product will be removed, either as part of a building renovation or during its demolition.
In the context of the demolition of a building, the impacts attributable to the removal of the product are assumed to be equivalent to those of the installation.
Type of lifting equipment: Truck crane with 17 m boom: Diesel engine <18.64 kW.

Transport to waste processing (C2)

The transport of residual materials is carried out with a 7.5 t - 16 t truck, and an average distance from the demolition point to the end-of-life destination of 50 km has been estimated.

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

Since incineration treatments have an energy recovery efficiency of less than 60%, they have been assigned to stage C4 Disposal.

Disposal (C4)

In the case of straw, the waste scenario for phases A3, A5 and C3-4 is the one proposed by NMD Fixed values for the treatment of end-of-life scenarios belonging to: Method for determining the environmental performance of construction works Organic, other ID52: organic matter, other (among other isolates), consisting of the following scenario: 5% landfill and 95% incineration, proposed by the Dutch LCA community in the PCR: Environmental Performance Assessment Method for Construction Works - March 2022 and representing the current flow of

organic waste streams in the Netherlands. For wood, the same document has been used, code ID35: wood, "clean" by residual material, consisting of the following scenario: 10% landfill, 85% incineration and 5% recycling. In the case of metal for fasteners in the FdV, the generic ecoinvent scenario with 100% landfill has been used.

2.5. Reuse/recovery/recycling potential (D)

This module D reports the existence of environmental loads and credits (i.e., avoided environmental impacts) outside the system boundaries due to the reuse, recovery or recycling of some of the system's output streams. The net impacts resulting from accounting for the impacts of the recycling process are reported, and the production impacts of the primary materials or fuels displaced or substituted for recycled ones are subtracted, taking into account the difference in quality between the primary and secondary material.
As indicated in the CPR and UNE-EN 15804, the loads and benefits of waste materials for recycling generated in stages A1-A3 have not been accounted for in this module. Therefore, the environmental loads and benefits generated by the recycling of waste produced in the construction and End-of-Life stages have been accounted for.

3. LIFE CYCLE ASSESSMENT

This study was carried out using PRé Sustainability's LCA tool SimaPro 9.6.0.1., whose development is based on the UNE-EN ISO 14040-14044 standards, and the Ecoinvent v3.10 (2024) database.
Once each of the unit processes described above has been modelled in the SimaPro software, the impact assessment is carried out following the indications of the UNE-EN ISO 14044:2006 standard.

3.1. Declared Unit

1 m2 of prefabricated structural panel of 35 cm thickness.

Additional comments

The system boundaries delimit the unit processes included in the system and what is left out. The present LCA is of the "cradle to gate type with options: modules A1-A3, C, D and additional modules A4, A5". In terms of processes, the production of machinery and industrial equipment is left out of the system analyzed due to the difficulty of inventorying all the goods involved and also because the LCA community considers that the environmental impact per unit of product is low in relation to the rest of the processes that are included.
In addition, the databases used do not include these processes so their inclusion would require an effort beyond the scope of the study.

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	X	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-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Climate change - total (GWP-total)	kg CO2 eq	-4,77E+01	3,86E+00	1,57E+00	MND	MND	MND	MND	MND	MND	MND	6,68E-01	5,94E-01	0,00E+00	5,65E+01	-5,83E+00
Climate change - fossil (GWP-fossil)	kg CO2 eq	9,93E+00	3,86E+00	1,42E+00	MND	MND	MND	MND	MND	MND	MND	6,68E-01	5,94E-01	0,00E+00	5,44E-01	-7,23E+00
Climate change - biogenic (GWP-biogenic)	kg CO2 eq	-5,76E+01	1,89E-03	1,69E+00	MND	MND	MND	MND	MND	MND	MND	1,34E-04	2,71E-04	0,00E+00	5,60E+01	1,41E+00
Climate change - land use and changes in land use (GWP-luluc)	kg CO2 eq	3,24E-02	1,42E-03	6,84E-04	MND	MND	MND	MND	MND	MND	MND	6,77E-05	1,85E-04	0,00E+00	1,06E-04	-7,07E-03
Ozone layer depletion (ODP)	kg CFC 11 eq	2,59E-07	7,71E-08	1,76E-08	MND	MND	MND	MND	MND	MND	MND	9,83E-09	1,30E-08	0,00E+00	7,49E-09	-2,26E-07
Acidification (AP)	mol H+ eq	5,58E-02	3,68E-02	6,17E-03	MND	MND	MND	MND	MND	MND	MND	3,03E-03	1,82E-03	0,00E+00	6,93E-03	-1,55E-02
Eutrophication of fresh water (EP-freshwater)	kg P eq	1,13E-03	2,48E-05	5,04E-05	MND	MND	MND	MND	MND	MND	MND	2,32E-06	4,28E-06	0,00E+00	5,02E-06	-7,23E-05
Eutrophication of sea water (EP-marine)	kg N eq.	2,33E-02	1,00E-02	2,02E-03	MND	MND	MND	MND	MND	MND	MND	1,33E-03	6,03E-04	0,00E+00	3,47E-03	-3,52E-03
Terrestrial eutrophication (EP-terrestrial)	mol N eq.	2,02E-01	1,11E-01	2,17E-02	MND	MND	MND	MND	MND	MND	MND	1,47E-02	6,64E-03	0,00E+00	3,66E-02	-3,95E-02
Photochemical ozone formation (POCP)	kg NMVOC eq	5,64E-02	3,50E-02	7,29E-03	MND	MND	MND	MND	MND	MND	MND	4,88E-03	2,78E-03	0,00E+00	9,20E-03	-1,68E-02
Depletion of abiotic resources - minerals and metals (ADP-minerals&metals)	kg Sb eq	4,13E-05	1,07E-05	5,63E-06	MND	MND	MND	MND	MND	MND	MND	2,36E-07	2,02E-06	0,00E+00	6,82E-07	-6,79E-06
Depletion of abiotic resources - fossil fuels (ADP-fossil)	MJ, net calorific value	1,51E+02	5,29E+01	1,79E+01	MND	MND	MND	MND	MND	MND	MND	8,62E+00	8,35E+00	0,00E+00	5,22E+00	-1,54E+02
Water consumption (WDP)	m3 worldwide eq. private	1,54E+01	1,85E-01	1,65E-01	MND	MND	MND	MND	MND	MND	MND	1,84E-02	2,96E-02	0,00E+00	-2,83E-01	-1,35E+00
Eco-toxicity - freshwater (ETP-fw)	CTUe	3,42E+01	6,29E+00	5,17E+00	MND	MND	MND	MND	MND	MND	MND	1,21E+00	0,00E+00	4,63E+00	-5,37E+00	-5,37E+00
Human toxicity, cancer effect (HTP-c)	CTUh	4,26E-09	6,88E-10	1,40E-09	MND	MND	MND	MND	MND	MND	MND	9,46E-11	0,00E+00	1,19E-09	-1,35E-09	-1,35E-09
Human toxicity, non-cancer effects (HTP-nc)	CTUh	3,25E-01	2,86E-08	1,42E-08	MND	MND	MND	MND	MND	MND	MND	4,88E-09	0,00E+00	1,44E-03	-9,75E-01	-9,75E-01
The Indicador includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This Indicador is thus equal to the GWP Indicador originally defined in EN 15804:2012+A1:2013. Can be obtained from IPCC characterization factors.																
Global Warming Potential (GHG)	kg CO2 eq	8,83E+00	3,86E+00	1,43E+00	MND	MND	MND	MND	MND	MND	MND	6,68E-01	5,94E-01	0,00E+00	7,21E-01	-7,24E+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 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-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	3,38E+02	7,56E-01	1,56E+01	MND	MND	MND	MND	MND	MND	MND	5,43E-02	1,52E-01	9,69E+01	2,86E+02	-1,21E+01
Use of renewable primary energy used as raw material	MJ, net calorific value	4,12E+02	0,00E+00	-1,44E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-9,69E+01	-2,86E+02	0,00E+00
Total use of renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	7,50E+02	7,56E-01	1,19E+00	MND	MND	MND	MND	MND	MND	MND	5,43E-02	1,52E-01	0,00E+00	7,83E-02	-1,21E+01
Non-renewable primary energy use, excluding non-renewable primary energy resources used as feedstock	MJ, net calorific value	1,09E+02	5,63E+01	1,91E+01	MND	MND	MND	MND	MND	MND	MND	9,17E+00	8,88E+00	0,00E+00	5,41E+00	-1,66E+02
Use of non-renewable primary energy used as raw material	MJ, net calorific value	2,57E+01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	1,47E-01	0,00E+00
Total use of non-renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	1,35E+02	5,63E+01	1,91E+01	MND	MND	MND	MND	MND	MND	MND	9,17E+00	8,88E+00	0,00E+00	5,55E+00	-1,66E+02
Use of secondary materials	kg	7,31E-01	0,00E+00	0,00E+00	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	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	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	4,95E-01	6,43E-03	6,78E-03	MND	MND	MND	MND	MND	MND	MND	1,08E-03	1,48E-03	4,69E-04	-3,95E-03	-2,09E-02
Hazardous waste removed	kg	1,61E-01	3,42E-04	1,19E-04	MND	MND	MND	MND	MND	MND	MND	6,00E-05	5,66E-05	0,00E+00	3,17E-05	-5,80E-04
Non-hazardous waste eliminated	kg	4,02E+00	2,01E+00	2,03E-01	MND	MND	MND	MND	MND	MND	MND	5,84E-03	3,38E-01	0,00E+00	4,23E+00	-1,07E-01
Radioactive waste disposed of	kg	2,81E-04	1,33E-05	1,97E-05	MND	MND	MND	MND	MND	MND	MND	9,02E-07	3,02E-06	0,00E+00	9,45E-07	-6,18E-04
Components for reuse	kg	1,28E+01	0,00E+00	0,00E+00	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	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery (energy recovery)	kg	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	3,50E+01	0,00E+00	0,00E+00
Exported energy	MJ by energy vector	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,25E+02
Exported electrical energy (AEE)	MJ	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET)	MJ	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,25E+02

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	2,87E-01
Carbon content (biogenic) - product	2,58E+01

3.4. Recommendations of this EPD

The comparison of building products must be made on the same functional unit and at the 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, since the calculation rules may be different.
This declaration represents the average performance of the product alfaWall wall (AW35-M) manufactured by Okambuva.

3.5. Cut-off rules

In this LCA study, more than 95% of all material and energy inputs and outputs of the system have been included, excluding those data not available or not quantified. The excluded data are the following:
- The production of machinery and industrial equipment due to the difficulty of inventorying all the goods involved, and also because the LCA community considers that the environmental impact per unit of product is low concerning the rest of the processes that are included. In addition, the databases used do not include these processes, so their inclusion would require an additional effort beyond the scope of the study.

3.6. Additional environmental information

No hazardous substances listed in the “Candidate List of Substances of Very High Concern (SVHC) for authorization” are used during the product life cycle.

3.7. Other data

Okambuva's alfaWALL panel waste is included as hazardous and non-hazardous waste in the European waste list with codes: LER 17 02 01 Wood, LER 17 04 05 Iron and steel and LER 02 01 03 Waste vegetable tissue.

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	EURO V Truck 16-32 t Ferry
Distance	Road transport: 1243 km Transport by sea: 259 km
Capacity utilization (including empty return)	Road and sea transport: 100% (assimilated to the Ecoinvent 3.10 database)
Apparent density of transported product	119,45 kg/m3
Useful capacity factor (1, <1 or >1 for products that are packed compressed or nested)	1

4.2. Installation processes (A5)

Parameter	Parameter expressed per functional unit
Auxiliary materials for construction (specifying each material)	Galvanized steel screws: 0,127 kg/m2
Water use	0,00
Use of other resources	0,00
Quantitative description of the type of energy (regional mix) and consumption during the installation process	Truck crane: 0,166 hr/m2
Waste of materials in the work before the treatment of waste, generated by the installation of the product (specify by type)	0,00
Material outputs (specified by type) as a result of waste treatment on the building site. For example: collection for recycling, energy recovery, disposal (specified by route)	Wood to landfill = 9.53E-02 kg/m2 Wood to incineration = 1.02E-01 kg/m2 Wood to recycling: 4.38E-01 kg/m2
Direct emissions to air, soil and water	0,00

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 for reuse	kg for recycling	kg for energy recovery	kg for final disposal
	0	0	0.80	45.43	2.85
Assumptions for scenario development	The default scenarios established in ecoinvent v3.10 by type of material have been used as the basis for the End-of-Life scenarios. In the case of straw, the waste scenario is the one proposed by NMD Fixed values for the treatment of end-of-life scenarios belonging to: Method for determining the environmental performance of construction works Organic, other ID52: organic matter, other (among other isolates), consisting of the following scenario: 5% landfill and 95% incineration, proposed by the Dutch LCA community in the PCR: Environmental Performance Assessment Method for Construction Works - March 2022 and representing the current flow of organic waste streams in the Netherlands. For wood, the same document has been used, code ID35: wood, “clean” by residual material, consisting of the following scenario: 10% landfill, 85% incineration and 5% recycling. In the case of metal for fasteners, the generic ecoinvent scenario with 100% landfill has been used.				

5. ADDITIONAL INFORMATION

Straw density: 120 Kg/ m3 and relative humidity < 15%
Thermal transmittance (U): AW35 - U 0.166 W/m2 C
Thermal conductivity (λ): 0.067 W/m/m
Sound insulation: 49 dB
(These values for AW25-M have been supplied by Okambuva for the prefabricated panel with 3,5 cm inner lining of clay mortar and 2,5 cm outer lime mortar).

6. PCR AND VERIFICATION

This statement is based on Document

RCP 100 (version 3.2 - 21/12/2023) Construction products in general

Independent verification of the declaration and data, in accordance with ISO 14025 and IN RCP 100 (version 3.2 - 21/12/2023)

☑ External

Third party Verifier

HELIOS POMAR BLANCO
Accredited by the administrator of the DAPcons® Programme

Verification date:

22/05/2025

References

- Annex_C_Annex C to the PEF-OEF Methods V2.1_May2020.
- Debacker W. et al.,Waste – State & Impacts, OVAM, 2012.
- NMD Environmental Performance Assessment Method for Construction Works - March 2022
- Panel de algodón reciclado Geopannel: ACV 2025 PLY 2.0 de Marcel Gómez Consultoria Ambiental

Standards:
- ISO 14020:2000 Environmental labels and declarations – General principles
- ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and procedures
- ISO 14040:2006 Environmental management – Life cycle assessment – Principles and framework
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
- ISO 21930:2007 Sustainability in building construction – Environmental declaration of building products
- UNE-EN 15804:2012+A2:2020, Sustainability of construction works - Environmental product declarations - Product category rules
- UNE-EN 16449:2014 “Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide”
- UNE-EN 16485:2014 “Round and sawn timber - Environmental Product Declarations - Product category rules for

wood and wood-based products for use in construction"
- UNE-EN ISO 14067:2019 "Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quantification (ISO 14067:2018)"
- RCP 100 Versión 3.2 – 21.12.2023
- Informe de ACV: Análisis del ciclo de vida de panel prefabricado de paja y madera para la construcción – okambuva. IVE. 2025 (no publicado

Databases and characterization factors:
- Ecoinvent v3.10 (2023) Desarrollada por Ecoinvent Centre, Más información: http://www.ecoinvent.ch
- Factores de caracterización de la EC-JRC, disponibles en el siguiente enlace web: https://eplca.jrc.ec.europa.eu/LCDN/EN15804.xhtml
- El Instituto Nacional de Estadística, INE: http://www.ine.es

Programme Manager

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