

Owner: I-Wood Denmark ApS
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3rd PARTY VERIFIED

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



Owner of declaration

I-Wood Denmark ApS
 Fabriksvej 4, 6973 Ørnholm
 VAT no.: DK-38152416



Issued:
24-09-2024

Valid to:
24-11-2028

Programme

EPD Danmark
www.epddanmark.dk



- Industry EPD
- Product EPD

Declared product(s)

I-Wood UniPanel

Number of declared datasets/product variations: 1

Production site

Fabriksvej 4, 6973 Ørnholm, Danmark

Product(s) use

Products are hung on walls or ceilings as interior design.

Declared/ functional unit

1 m²

Year of production site data (A3)

2022

EPD version

Version 1

Basis of calculation

This EPD is developed in accordance with the European standard EN 15804+A2.

Comparability

EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Use

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

EPD type

- Cradle-to-gate with modules C1-C4 and D
- Cradle-to-gate with options, modules C1-C4 and D
- Cradle-to-grave and module D
- Cradle-to-gate
- Cradle-to-gate with options

CEN standard EN 15804 serves as the core PCR
Independent verification of the declaration and data, according to EN ISO 14025
<input type="checkbox"/> internal <input checked="" type="checkbox"/> external
Third party verifier: <hr/> Kim Christiansen

Martha Katrine Sørensen
 EPD Danmark

Life cycle stages and modules (MND = module not declared)

Product			Construction process		Use							End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Product information

Product description

The main product components are shown in the table below. The components sum 100 weight-% of the declared products.

Material	Weight-% of declared product
	UniPanel
MDF	92.2
Veneer	7.5
Oil	0.3

Product packaging:

The composition of the sales- and transport packaging of the product is shown in the table below.

Material	Weight-% of packaging
EUR-pallet	60
Cardboard	12
Chipboard	27
PE Foil	1

Representativity

Results are based off production data from 2022 from the production in Ørnhøj. Background data are from EcoInvent 3.9.1.

Picture of product(s)



Hazardous substances

The products do not contain substances listed on the "Candidate List of Substances of Very High Concern for authorisation"

(<http://echa.europa.eu/candidate-list-table>)

Essential characteristics

Further technical information can be obtained by contacting the manufacturer or on the manufacturer's website:

<https://www.i-wood.dk/>

Reference Service Life (RSL)

In accordance with the c-PCR for acoustic panels, the RSL has been set to match the lifetime of the building. Typically, between 50 and 60 years. This method is in accordance with EN15686 (ISO, 2011)

Comparability

Comparability between EPDs is only achievable if the following performance characteristics are equivalent: declared unit, containment level, level of working width, assumed service life, geographic region and fulfilment of the same requirements of the applicable standard (EN 13964:2014)

LCA background

Declared unit

The LCI and LCIA results in this EPD relates to 1 m².

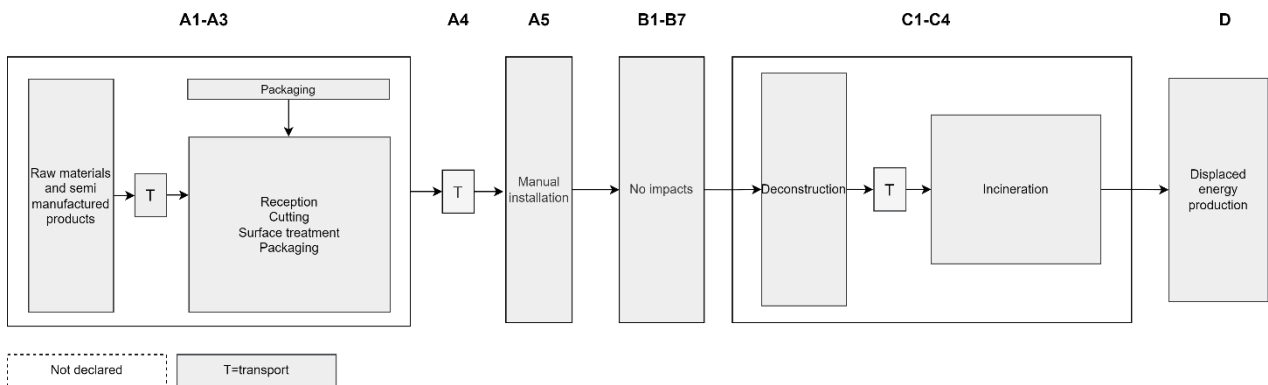
Name	UniPanel	Unit
Declared unit	1	m ²
Density	10.4	kg/m ²
Conversion factor to 1 kg.	0.1	-

Functional unit

Not defined

Flowdiagram

Flowdiagram



System boundary

This EPD is based on a cradle-to-grave LCA, in which all relevant inputs, outputs and processes have been accounted for.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

Product stage (A1-A3) includes:

- A1 – Extraction and processing of raw materials
- A2 – Transport to the production site
- A3 – Manufacturing processes

PCR

This environmental product declaration is based on the requirements in EN 15804:2012 + A2:2019, as well as the Swedish c-PCR ACOUSTICAL CEILING AND WALL SOLUTIONS (Environdec, 2022).

Energy data

Electricity is modelled with the impacts from the Danish residual mix in EcoInvent 3.9.1.

A1 Production of raw materials to manufacture MDF, veneer and oil for surface treatment.

A2 Transport of raw materials and semi manufactured products.

A3 Production of the declared product at I-Wood’s facility, where materials are cut to order, products are assembled, and packaged.

Construction process stage (A4-A5) includes:

A4 Products are transported to the customer, primarily in Denmark.

A5 Products are installed either with nails or glue. Packaging is disposed and displaces energy and material is accounted for in module D.

Use stage (B1-B7) includes:

After installation, there are no emissions associated with the product, during its lifetime.

End of Life (C1-C4) includes:

C1 The product is uninstalled, using power tools.

C2 The product is transported to the nearest incineration plant, assumed 100 km away.

C3 Products are incinerated, and reach the end-of-waste stage in module C3. Displaced energy production is moved to module D.

C4 There are no environmental impacts in C4.

Re-use, recovery and recycling potential (D) includes:

Displaced energy and material production by incineration of product, and recycling of packaging.

LCA results

UNIPANEL

ENVIRONMENTAL IMPACTS PER M ² UNIPANEL												
Parameter	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	-2,76E+00	1,28E+00	1,77E+00	5,69E-01	1,61E+00	0,00E+00	0,00E+00	1,70E-01	1,53E+01	0,00E+00	-3,24E+00
GWP-fossil	[kg CO ₂ eq.]	1,01E+01	1,28E+00	1,08E+00	5,68E-01	7,98E-01	0,00E+00	0,00E+00	1,69E-01	9,57E-02	0,00E+00	-3,19E+00
GWP-biogenic	[kg CO ₂ eq.]	-1,29E+01	1,13E-03	6,93E-01	1,01E-03	8,16E-01	0,00E+00	0,00E+00	3,01E-04	1,52E+01	0,00E+00	-4,93E-02
GWP-luluc	[kg CO ₂ eq.]	1,49E-02	6,30E-04	1,54E-04	2,27E-04	1,98E-04	0,00E+00	0,00E+00	6,78E-05	3,44E-05	0,00E+00	-3,09E-04
ODP	[kg CFC 11 eq.]	1,13E-06	2,78E-08	1,83E-08	1,32E-07	3,28E-08	0,00E+00	0,00E+00	3,92E-08	1,11E-08	0,00E+00	-1,43E-07
AP	[mol H ⁺ eq.]	6,96E-02	2,79E-03	3,90E-03	1,61E-03	1,63E-03	0,00E+00	0,00E+00	4,80E-04	3,22E-03	0,00E+00	-8,30E-03
EP-freshwater	[kg P eq.]	3,85E-03	9,06E-05	4,04E-04	3,75E-05	1,09E-04	0,00E+00	0,00E+00	1,12E-05	6,23E-05	0,00E+00	-9,29E-04
EP-marine	[kg N eq.]	1,75E-02	7,03E-04	9,44E-04	3,29E-04	5,71E-04	0,00E+00	0,00E+00	9,79E-05	1,60E-03	0,00E+00	-1,83E-03
EP-terrestrial	[mol N eq.]	2,09E-01	7,15E-03	9,76E-03	3,57E-03	3,95E-03	0,00E+00	0,00E+00	1,06E-03	1,73E-02	0,00E+00	-1,86E-02
POCP	[kg NMVOC eq.]	6,11E-02	4,33E-03	1,33E-02	1,33E-03	1,19E-03	0,00E+00	0,00E+00	3,98E-04	4,51E-03	0,00E+00	-4,93E-03
ADPm ¹	[kg Sb eq.]	8,54E-05	4,27E-06	2,00E-06	1,93E-06	4,76E-06	0,00E+00	0,00E+00	5,76E-07	4,01E-07	0,00E+00	-3,60E-06
ADPf ¹	[MJ]	6,30E+01	1,82E+01	1,74E+01	6,57E-01	1,31E+00	0,00E+00	0,00E+00	1,96E-01	3,41E-01	0,00E+00	-2,61E+01
WDP ¹	[m ³ world eq. deprived]	1,09E+01	9,06E-02	1,21E-01	4,19E-02	2,62E-01	0,00E+00	0,00E+00	1,25E-02	2,19E-01	0,00E+00	-2,08E+00
Caption	GWP-total = Global Warming Potential - total; 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 = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use											
	The numbers are declared in scientific notation, e.g., 1.95E+02. This number can also be written as: 1.95*10 ² or 195, while 1.12E-11 is the same as 1.12*10 ⁻¹¹ or 0.0000000000112.											
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.											

ADDITIONAL ENVIRONMENTAL IMPACTS PER M ² UNIPANEL												
Parameter	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PM	[Disease incidence]	1,14E-06	9,50E-08	2,61E-08	0,00E+00	1,99E-08	0,00E+00	0,00E+00	1,07E-08	2,52E-08	0,00E+00	-2,80E-08
IRP ²	[kBq U235 eq.]	1,05E+00	2,45E-02	2,44E-01	4,44E-02	1,64E-02	0,00E+00	0,00E+00	1,32E-02	3,73E-03	0,00E+00	-5,18E-01
ETP-fw ¹	[CTUe]	4,98E+01	8,95E+00	2,57E+00	2,88E-01	2,49E+00	0,00E+00	0,00E+00	8,59E-02	1,59E-02	0,00E+00	-1,07E-01
HTP-c ¹	[CTUh]	7,61E-08	5,83E-10	3,48E-09	1,83E-10	2,36E-09	0,00E+00	0,00E+00	5,46E-11	3,01E-09	0,00E+00	-4,32E-10
HTP-nc ¹	[CTUh]	1,34E-07	1,30E-08	1,67E-08	1,07E-08	3,85E-08	0,00E+00	0,00E+00	3,18E-09	5,84E-08	0,00E+00	-1,25E-07
SQP ¹	-	8,56E+02	1,09E+01	2,93E+00	7,31E+00	5,37E-01	0,00E+00	0,00E+00	2,18E+00	2,02E-01	0,00E+00	-2,19E+00
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)											
	The numbers are declared in scientific notation, e.g., 1.95E+02. This number can also be written as: 1.95*10 ² or 195, while 1.12E-11 is the same as 1.12*10 ⁻¹¹ or 0.0000000000112.											
Disclaimers	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.											
	² This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.											

RESOURCE USE PER M ² UNIPANEL												
Parameter	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PERE	[MJ]	1,36E+01	2,85E-01	7,20E-01	9,26E-02	1,45E-01	0,00E+00	0,00E+00	2,76E-02	3,57E-02	0,00E+00	-5,12E-01
PERM	[MJ]	0,00E+00	0,00E+00	0,00E+00	3,04E-02	1,13E-01	0,00E+00	0,00E+00	9,06E-03	7,89E-03	0,00E+00	-9,64E-01
PERT	[MJ]	1,36E+01	2,85E-01	7,20E-01	1,23E-01	2,58E-01	0,00E+00	0,00E+00	3,67E-02	4,36E-02	0,00E+00	-1,48E+00
PENRE	[MJ]	6,25E+01	1,67E+01	1,71E+01	8,39E-01	1,76E+00	0,00E+00	0,00E+00	2,50E-01	3,85E-01	0,00E+00	-3,55E+01
PENRM	[MJ]	4,65E-01	1,58E+00	3,38E-01	7,83E+00	3,52E+00	0,00E+00	0,00E+00	2,33E+00	7,65E-01	0,00E+00	-2,91E+01
PENRT	[MJ]	6,30E+01	1,82E+01	1,74E+01	8,67E+00	5,28E+00	0,00E+00	0,00E+00	2,58E+00	1,15E+00	0,00E+00	-6,45E+01
SM	[kg]	2,91E-01	2,00E-02	1,49E-02	8,83E-03	3,94E-02	0,00E+00	0,00E+00	2,63E-03	2,02E-02	0,00E+00	-1,27E-02
RSF	[MJ]	1,40E-02	5,39E-03	7,23E-03	2,63E-03	2,81E-03	0,00E+00	0,00E+00	7,84E-04	6,87E-04	0,00E+00	-3,12E-03
NRSF	[MJ]	3,48E-02	4,40E-03	3,52E-01	1,07E-02	3,54E-03	0,00E+00	0,00E+00	3,18E-03	1,20E-03	0,00E+00	-8,27E-02
FW	[m ³]	4,06E-01	2,20E-03	2,10E-02	9,97E-04	6,13E-03	0,00E+00	0,00E+00	2,97E-04	5,10E-03	0,00E+00	-4,86E-02
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water											
	The numbers are declared in scientific notation, e.g., 1.95E+02. This number can also be written as: 1.95*10 ² or 195, while 1.12E-11 is the same as 1.12*10 ⁻¹¹ or 0.000000000112.											

WASTE CATEGORIES AND OUTPUT FLOWS PER M ² UNIPANEL												
Parameter	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HWD	[kg]	2,16E-02	1,71E-02	1,20E-02	1,93E-01	3,68E-01	0,00E+00	0,00E+00	5,76E-02	1,05E-01	0,00E+00	-4,70E+00
NHWD	[kg]	1,98E+00	8,84E-01	1,93E-02	4,47E-01	1,11E+00	0,00E+00	0,00E+00	1,33E-01	1,04E+01	0,00E+00	-7,82E-02
RWD	[kg]	4,34E-04	5,95E-06	6,11E-05	1,73E-04	1,48E-04	0,00E+00	0,00E+00	5,15E-05	2,90E-05	0,00E+00	-5,84E-03
CRU	[kg]	0,00E+00	0,00E+00	2,73E-21	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	4,80E-02	1,81E-02	1,40E-02	7,33E-03	1,79E-02	0,00E+00	0,00E+00	2,19E-03	4,26E-03	0,00E+00	-7,76E-03
MER	[kg]	0,00E+00	0,00E+00	0,00E+00	2,02E-03	6,93E-04	0,00E+00	0,00E+00	6,02E-04	2,86E-03	0,00E+00	-2,38E-03
EEE	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy											
	The numbers are declared in scientific notation, e.g., 1.95E+02. This number can also be written as: 1.95*10 ² or 195, while 1.12E-11 is the same as 1.12*10 ⁻¹¹ or 0.000000000112.											

BIOGENIC CARBON CONTENT PER M ² – AT FACTORY GATE		
Parameter	Enhed	UNIPANEL
Biogenic carbon content in product	[kg C]	4.00
Biogenic carbon content in accompanying packaging	[kg C]	0.48
Note	1 kg biogenic carbon is equivalent to 3.67 kg of CO ₂	

Additional information

LCA interpretation

Especially the production of MDF and the incineration of the product at EoL, influences the products' environmental performance.

Technical information on scenarios

Transport to the building site (A4)

Scenario information	Value	Unit
Fuel and vehicle type	Diesel – EURO6 16-32 t	-
Transport distance	300	km
Capacity utilization (including empty runs)	37	%

Installation of the product in the building (A5)

Scenario information	Value	Unit
Ancillary materials (nails)	0.008	kg
Ancillary materials (glue)	0.040	L
Electricity consumption	0.004	kWh
Waste materials	Packaging	

Reference service life

RSL information	Value	Unit
Reference service Life	50	Years
Sound absorption coefficient – as per c-PCR	0.85	-
Sound absorption class	E	-
Declared product properties	Information regarding use, installation and assisting documents can be found on the supplier's website: https://www.i-wood.dk/teknik/montering	
Design application parameters		
Assumed quality of work		
Outdoor environment		
Indoor environment		
Usage conditions		
Maintenance		

End of life (C1-C4)

Scenario information	UniPanel	Unit
Collected separately	10.4	kg
For energy recovery	10.4	kg
Assumptions for scenario development	The product is assumed incinerated.	

Re-use, recovery and recycling potential (D)

Scenario information/Materiel	UniPanel	Unit
Displaced electricity from incinerated packaging in A5	1.87	kWh
Displaced heating from incinerated packaging in A5	3.77	kWh
Recycled cardboard from A5	0.15	Kg
Recycled plastic foil from A5	0.02	Kg
Displaced electricity from incinerated product in C3	18.1	MJ
Displaced heating from incinerated product in C3	36.4	MJ

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.1.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2.

References

Publisher	 www.epddanmark.dk Template version 2023.1
Programme operator	Danish Technological Institute Buildings & Environment Gregersensvej 2 DK-2630 Taastrup www.teknologisk.dk
LCA-practitioner	<i>Tomas Sander Poulsen Matias Lund Pedersen Provice ApS Havnevej 45A 4000 Roskilde www.provice.dk</i>
LCA software / background data	OpenLCA 2.1 EcoInvent 3.9.1 EN15804 add-on for EcoInvent EN15804 reference package 3.1
3rd party verifier	<i>Kim Christiansen kimconsult.dk Marienborg Alle 91C 2860 Søborg</i>

General programme instructions

General Programme Instructions, version 2.0, spring 2020
www.epddanmark.dk

EN 15804

DS/EN 15804 + A2:2019 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

EN 15804

DS/EN 15804:2012+A2/AC:2021 – Corrigendum for DS/EN 15804 + A2:2019

C-PCR-014

Environdec – The International EPD System (2022-01-28) ACOUSTICAL CEILING AND WALL SOLUTIONS

EN 15942

DS/EN 15942:2011 – "Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

ISO 14025

DS/EN ISO 14025:2010 – "Environmental labels and declarations – Type III environmental declarations – Principles and procedures"

ISO 14040

DS/EN ISO 14040:2008 – “ Environmental management – Life cycle assessment – Principles and framework”

ISO 14044

DS/EN ISO 14044:2008 – “ Environmental management – Life cycle assessment – Requirements and guidelines”

ISO 15686

ISO 15686-1:2011 – “Buildings and constructed assets - Service life planning- Part 1: General principles and framework”