Statement of Verification

BREG EN EPD No.: 000344 Issue 02

This is to verify that the

Environmental Product Declaration

provided by:

Cupa Pizarras S.A

BRE Global Verified EPD

is in accordance with the requirements of:

EN 15804:2012+A1:2013

and

BRE Global Scheme Document SD207

This declaration is for:

CUPACLAD 201

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CUPA PIZARRAS
The world leader in natural slate

Signed for BRE Global Ltd	Emma Baker Operator	05 October 2023 Date of this Issue
16 September 2021 Date of First Issue		15 September 2026 Expiry Date

BRE Global Verified EPD

ECO PLATFORM EPD VERIFIED

Environmental Product Declaration

EPD Number: 000344

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE Environmental Profiles 2013 Product Category Rules for Type III environmental product declaration of construction products to EN 15804:2012+A1:2013
Commissioner of LCA study	**LCA consultant/Tool**
Cupa Pizarras	María Lago Cupa Innovación SLU Calle Macal nº 32 36213 Vigo
Declared/Functional Unit	**Applicability/Coverage**
1m^2 of ventilated rainscreen cladding with natural slate, CUPACLAD® 201 VANGUARD, installed on an exterior façade, during a temporary period of 60 years in a geographic and technological environment of the United Kingdom.	Product Average.
EPD Type	**Background database**
Cradle to Grave	Ecoinvent

Demonstration of Verification
CEN standard EN 15804 serves as the core PCR [a]
Independent verification of the declaration and data according to EN ISO 14025:2010 ☐Internal ☒ External
(Where appropriate [b])Third party verifier: Pat Hermon
a: Product category rules b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4)
Comparability

Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A1:2013. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See Clause 5.3 of EN 15804:2012+A1:2013 for further guidance

Information modules covered

Product			Construction		Use stage							End-of-life					Benefits and loads beyond the system boundary
					Related to the building fabric					Related to the building							
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
Raw materials supply	Transport	Manufacturing	Transport to site	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal		Reuse, Recovery and/or Recycling potential
☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

Cupa Pizarras
La Medua s/n
32330 Sobradelo de Valdeorras (Ourense)
Spain

Construction Product:

Product Description

CUPACLAD® 201 VANGUARD is a rainscreen cladding with CUPA natural slate. CUPACLAD® offers a horizontal installation of slate, creating a modern, natural, and durable aesthetic. The system adapts to any type of architectural project, both new and renovation.

CUPACLAD® 201 VANGUARD, is a horizontal installation of slate with stainless steel clips. The slate is laid horizontally and is secured with two stainless steel clips that remain slightly visible once the system is installed.

CUPACLAD® ventilated façade systems have been designed to adapt to any type of project, combining different fixing systems and natural slate formats.

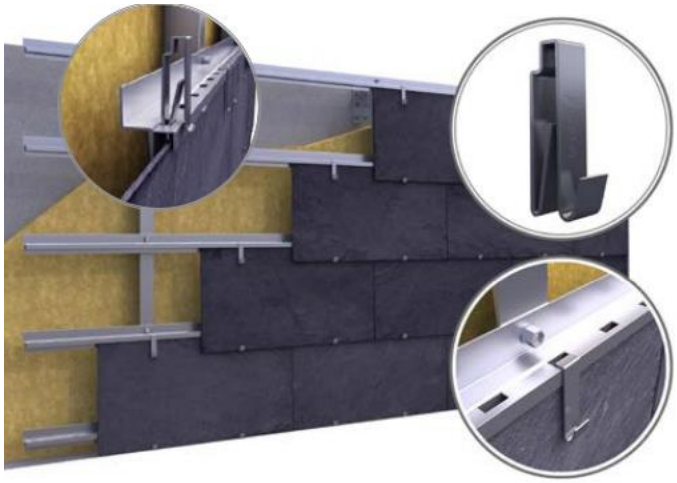


Figure 1. CUPACLAD® 201 VANGUARD.

Technical Information

Characteristic (unit)	Standards	CUPACLAD® 201 VANGUAR
Slate size (mm x mm)	BS EN-12326-1	600x300
Nominal thickness (mm)		7.5 ± 35%
Mean Water absorption (%)		0.16
Coefficient of linear thermal expansion ($°C^{-1}$)	EN 14581:2006	$4 \cdot 10^{-6}$
Characteristic Modulus of Rupture (MPa)	BS EN 12326-2:2011.	Longitudinal 52
		Transversal 45

Main Product Contents

CUPACLAD® 201 VANGUARD system utilizes slates fitted horizontally with fixings.

Material/Chemical Input	%
Natural stone, slate	98.4
Stainless steel clips	1.6

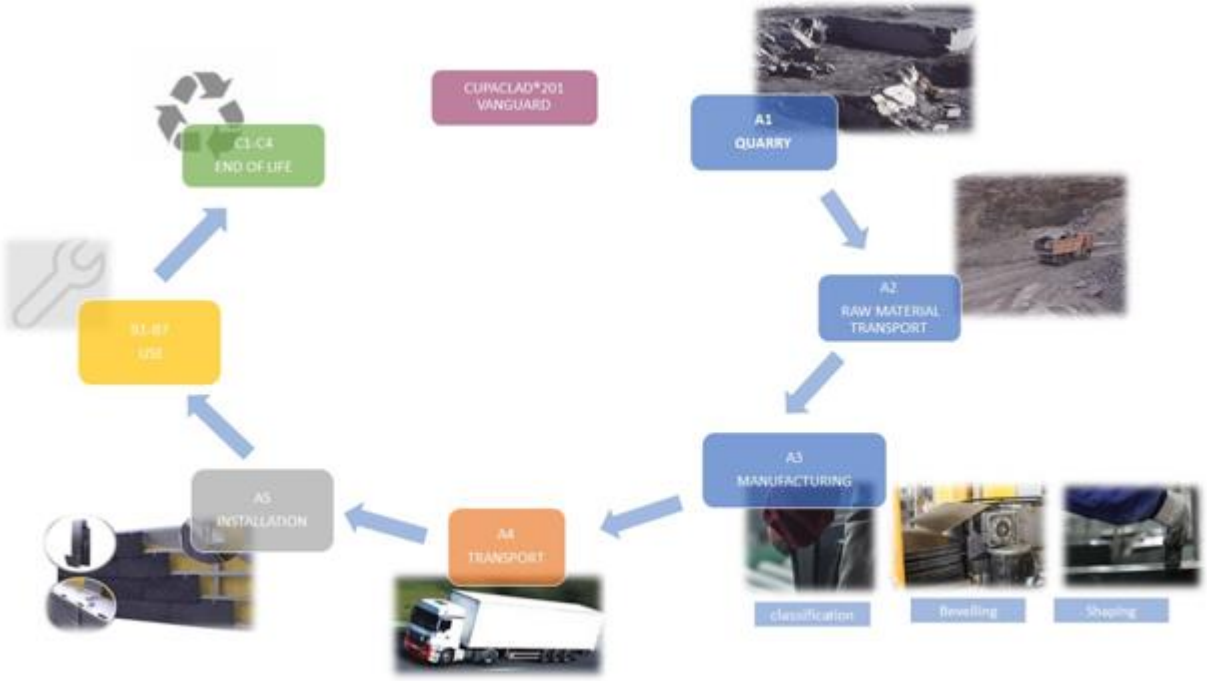
Manufacturing Process

The slate is extracted from the quarry in large blocks that are cut with a diamond blade. The blocks are then transported by truck to the quarry processing plant.
The slate undergoes 3 phases at the processing plant prior to being packaged:

- Sawing: The large blocks of slate extracted from the quarry are sawn into different sizes in accordance with the size of the slate to be produced.
- Shaping: Then, workers cut each block into sheets, treating each item with meticulous care, all of which is done by hand.
- Bevelling: Finally, the corners of each item are bevelled.

After classification, the slates are counted and packaged on wooden pallets for storage and subsequent delivery.

Process flow diagram



Construction Installation

The installation of CUPACLAD® 201 VANGUARD natural slate ventilated rainscreen cladding is carried out by means of two stainless steel clips, which are slightly visible at the bottom.The installation is done manually.
This step includes:

- The production and transport of stainless-steel clips.
- Transport and end of life of site waste.

Use Information

No maintenance or replacement during the working life is considered.
The slates do not require any special maintenance. CUPACLAD® systems do not require any treatment.

End of Life

The deconstruction / demolition of the building site is carried out manually, without consumption of materials or energy.

90% of slate can be recovered from demolition for re-use in new buildings and the remaining 10% is directly sent to landfill as inert disposal.

Thanks to the installation and disassembly method of slate, it is only necessary to clean the slate with water under pressure to recover the product and ensure its performance before being used on another job.

Life Cycle Assessment Calculation Rules

Declared / Functional unit description

The functional unit chosen for the CUPACLAD® 201 VANGUARD system is the amount of material needed to install 1m^2 of natural slate rainscreen cladding, installed on an exterior façade, during a temporary period of 60 years in a geographic and technological environment of the United Kingdom in 2020.

System boundary

In accordance with the modular approach as defined in EN 15804:2012, this cradle-to-grave EPD includes the product stage A1 to C4 and includes module D as well.

Data sources, quality and allocation

Manufacturing data is based on specific consumption data from CUPA PIZARRAS in 2019. Generic data is obtained from Ecoinvent v.3.5. Modelling of CUPACLAD® 201 VANGUARD life cycle was performed using SimaPro v9.0.049. LCA software from PRé consultants.

There are no co-products in the production, no allocation criteria were considered, 100% of all the inputs have been considered. All burdens are assigned to the production of slate.

Cut-off criteria

All raw materials, packaging materials and consumable item inputs, and associated transport to the plant, process energy and water use are included. The production process for raw materials and energy flows that show very small amounts (<1%) are not included.

LCA Results

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts									
			GWP	ODP	AP	EP	POCP	ADPE	ADPF
			kg CO_2 equiv.	kg CFC 11 equiv.	kg SO_2 equiv.	kg $(PO_4)^{3-}$ equiv.	kg C_2H_4 equiv.	kg Sb equiv.	MJ, net calorific value.
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	2.38E+00	9.71E-07	1.65E-02	4.07E-03	8.12E-04	6.85E-06	8.05E+01
Construction process stage	Transport	A4	3.01E+00	5.86E-07	1.12E-02	2.29E-03	5.58E-04	5.61E-06	4.81E+01
	Construction	A5	2.86E+00	1.86E-07	1.45E-02	6.78E-03	9.66E-04	6.07E-05	3.00E+01
Use stage	Use	B1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Maintenance	B2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Repair	B3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Replacement	B4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Refurbishment	B5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational energy use	B6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational water use	B7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Deconstruction. demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	9.75E-01	1.80E-07	3.14E-03	7.32E-04	1.59E-04	2.92E-06	1.48E+01
	Waste processing	C3	2.16E-02	2.82E-09	1.71E-04	4.02E-05	6.17E-06	1.40E-08	2.43E-01
	Disposal	C4	1.04E-02	4.17E-09	7.73E-05	1.70E-05	2.93E-06	1.13E-08	3.41E-01
Potential benefits and loads beyond the system boundaries	Reuse. recovery. recycling potential	D	-2.03E+00	-8.62E-07	-1.43E-02	-3.46E-03	-6.71E-04	-5.79E-06	-7.03E+01

GWP = Global Warming Potential;
ODP = Ozone Depletion Potential;
AP = Acidification Potential for Soil and Water;
EP = Eutrophication Potential;
POCP = Formation potential of tropospheric Ozone;
ADPE = Abiotic Depletion Potential – Elements;
ADPF = Abiotic Depletion Potential – Fossil Fuels;

LCA Results (continued)

Parameters describing resource use, primary energy								
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	1.63E+01	6.18E+00	2.25E+01	0.00E+00	7.59E+01	7.59E+01
Construction process stage	Transport	A4	6.73E-01	0.00E+00	6.73E-01	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	7.61E+00	0.00E+00	7.61E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Maintenance	B2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Repair	B3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Replacement	B4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Refurbishment	B5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational energy use	B6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational water use	B7	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.84E-01	0.00E+00	1.84E-01	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	1.15E-01	1.02E-01	2.17E-01	0.00E+00	1.25E-01	1.25E-01
	Disposal	C4	4.79E-03	0.00E+00	4.79E-03	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-5.51E+00	-5.56E+00	-1.11E+01	0.00E+00	-6.83E+01	-6.83E+01

PERE = Use of renewable primary energy excluding renewable primary energy 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 resource

LCA Results (continued)

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m^3
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	2.75E-02
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	9.25E-03
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	1.21E-02
Use stage	Use	B1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Maintenance	B2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Repair	B3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Replacement	B4	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Refurbishment	B5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational energy use	B6	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational water use	B7	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	2.43E-03
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	1.64E-02
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	4.08E-04
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	MND	MND	MND	-2.36E-02

SM = Use of secondary material;
RSF = Use of renewable secondary fuels;
NRSF = Use of non-renewable secondary fuels;
FW = Net use of fresh water

LCA Results (continued)

Other environmental information describing waste categories					
			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG
	Total (of product stage)	A1-3	7.00E-01	7.26E-01	6.32E-04
Construction process stage	Transport	A4	3.00E-01	4.26E+00	3.33E-04
	Construction	A5	4.31E+00	4.37E+00	1.11E-04
Use stage	Use	B1	0.00E+00	0.00E+00	0.00E+00
	Maintenance	B2	0.00E+00	0.00E+00	0.00E+00
	Repair	B3	0.00E+00	0.00E+00	0.00E+00
	Replacement	B4	0.00E+00	0.00E+00	0.00E+00
	Refurbishment	B5	0.00E+00	0.00E+00	0.00E+00
	Operational energy use	B6	0.00E+00	0.00E+00	0.00E+00
	Operational water use	B7	0.00E+00	0.00E+00	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	9.14E-02	7.79E-01	1.01E-04
	Waste processing	C3	8.08E-03	8.30E-03	3.49E-06
	Disposal	C4	8.56E-04	2.45E+00	2.39E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-5.83E-01	-5.88E-01	-5.62E-04

HWD = Hazardous waste disposed;
NHWD = Non-hazardous waste disposed;
RWD = Radioactive waste disposed

LCA Results (continued)

Other environmental information describing output flows – at end of life						
			CRU	MFR	MER	EE
			kg	kg	kg	MJ per energy carrier
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Maintenance	B2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Repair	B3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Replacement	B4	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Refurbishment	B5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational energy use	B6	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Operational water use	B7	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	2.10E+01	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for reuse;
MFR = Materials for recycling

MER = Materials for energy recovery;
EE = Exported Energy

Scenarios and additional technical information

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
A4 – Transport to the building site	CUPACLAD® 201 VANGUARD systems are transported from the factory to the building site by lorry and by boat. CUPACLAD@201 VANGUARD is transported from the factory gate to the building site. Transport from the factory to the various sites in UK is carried out by heavy goods vehicle and by boat: • 52% of the material is transported from the factory to the various sites in UK by lorry and train. • 48% of the material is transported from the O Barco plant (Spain) to Vigo (Spain) by heavy truck. The material is then transported from Vigo (Spain) to United Kingdom by boat. Finally, the material is transported to the different sites in the United Kingdom by truck		
	Fuel type/ Vehicle type	Transport, freight, lorry >32 metric ton, EURO MIX	Diesel
	Distance:	km	2561 km
	Capacity utilisation (incl. empty returns)	%	50
	Bulk density of transported products	kg/m^3	2800
	Fuel type/ Vehicle type	Transport, freight, sea, transoceanic	38 % Diesel 62 % steam turbine
	Distance:	km	1464 km
	Capacity utilisation (incl. empty returns)	%	65%
	Bulk density of transported products	kg/m^3	2800
A5 – Installation in the building	The installation of the CUPACLAD®201 VANGUARD natural slate rainscreen cladding system is carried out by means of two stainless steel clips. The installation is done manually. The waste from this stage consists of the slates broken during installation (5 %) and the packaging products of the slates (polypropylene labels and wood pallet) These residues are landfilled.		
	clips needed to install 1 m2 façade	kg/m^2	0.39
	packaging residues: Wood	kg/m^2	0.44
	packaging residues: Polypropylene label	kg/m^2	0.0040
	Installation Wastage Rate	%	5
B2 – Maintenance	No maintenance required		
B3 – Repair	No repair process required		
B4 – Replacement	No replacement considerations required		

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
B5 – Refurbishment	No refurbishment process required		
Reference service life	The reference service life is the same as that of buildings and is normally set to 60 years[1]. Slate has almost unlimited lifetime and therefore is not normally replaced during the service life.		
B6 – Use of energy; B7 – Use of water	No use phase requirements of either water or energy required		
C1 to C4 End of life,	The deconstruction / demolition of the building site is carried out manually, without consumption of materials or energy. Thanks to the installation and disassembly method of slate, it is only necessary to clean the slate with water under pressure to recover the product and ensure its performance before being used on another job (C3)		
	Distance of transport to the end of life (C2)	km	250
	Quantity of water used (C3)	l/m^2	16.2
	Electricity consummation (C3)	kWh/m2	0.063
	Slate from demolition to landfill	%	90
	Slate from demolition for re-use	%	10

Summary, comments, and additional information

Interpretation

The Figure below represents the complete life cycle assessment of the CUPACLAD® 201 VANGUARD system. The production, distribution and installation phases are the major contributors. The environmental burdens for the impact categories (GWP, ODP, AP, EP and POCP) result from the associated emissions directly linked to fossil fuel and electricity consumption in the production process as well as the energy for the manufacturing of the clips for the slate installation.

[1] Dr Jo Mundy. The Green Guide Explained. BRE Centre for sustainable Products. March 2015

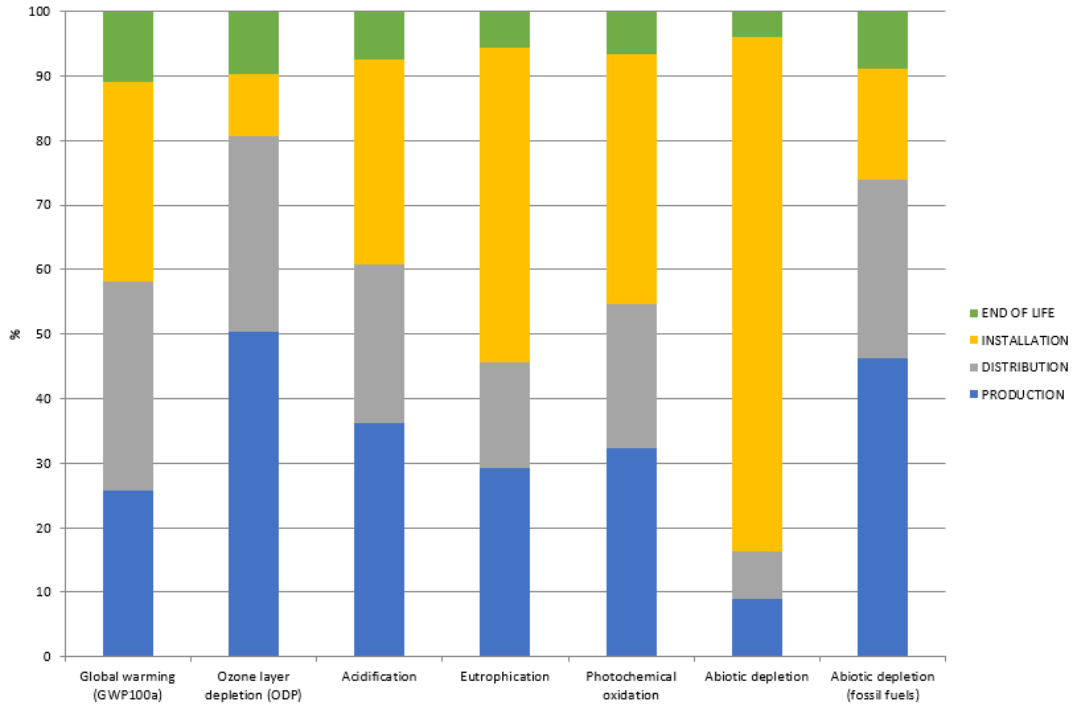


Figure 4. CUPACLAD® 201 VANGUARD System Life Cycle Assessment Results.

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