

Environmental Product Declaration



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

WALLS 60

Products Code: **PW6A0S, PW6A2S, PW6A2U**

from

ESTEL GROUP



This EPD covers multiple products: Wall 60 1b (PW6A0S), Wall 60 2b (PW6A2S) and Wall 60 3b (PW6A2U)

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-10620 WALLS 60
Publication date:	2023-11-15
Valid until:	2028-11-14

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): The International EPD® System, Construction Product, 2019:14, 1.2.5, UN CPC 4212 Doors, windows and their frames and thresholds for doors, of iron, steel or aluminium.
PCR review was conducted by: IVL Swedish Environmental Research Institute, Secretariat of the International EPD® System: Martin Erlandsson; contact via: martin.erlandsson@ivl.se
Life Cycle Assessment (LCA)
LCA accountability: CATAS S.P.A.
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification by accredited certification body Third-party verification: SGS Italia S.P.A. is an approved certification body accountable for the third-party verification. The certification body is accredited by: Accredia, accreditation number n 0005VV.
Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical

declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: ESTEL GROUP

Via S. Rosa, 70 – 36016 Thiene (VI)

estel@estel.com

+ 39 0445-389611

Contact: Mattia Sartori

msartori@estel.com

+ 39 0445 808510

Description of the organisation: ESTEL Group S.r.l. is an historic Italian company with headquarters in Thiene (VI) specialized in the production of design furniture for domestic and office purpose. Founded in 1937, among the years is became Italian Leader in Office sector. Its success is due to productive, technological, informational, and organizational investments and to a wide and complete range of products. The company policy, always focused on research and development had fed a continuous process of study, experimentation and innovation in particular on sustainability.

Product-related or management system-related certifications: ISO 14001:2015, FSC-STD-40-004 v3.1, UNI EN ISO 9001:2015, ISO 45001:2018

Name and location of production site(s): Via S. Rosa, 70 – 36016 Thiene (VI)

Product information

Product name: WALL 60 3b

Product identification: PW6A2U

Product description: Wall 60 3b is an internal dividing wall for acoustic insulation with double layers of glass. The technical characteristics of Wall 60 3b are:

- Overall dimensions: 1016mx3mx63mm
- Total weight, including packaging: 200.42kg
- Double layers of acoustic laminated glass with polyvinyl butyral core (glass sheet of 6mm - PVB – glass sheet of 6mm). Total thickness of a single layer 12.76mm
- 4 Aluminum profiles (one on the ceiling, one on the floor and two on side walls)
- Polyurethane gaskets
- Extendable support feet

This EPD also covers the product Wall 60 1b (with less glass and polyvinyl butyral core inside) and Wall 60 2b with less polyvinyl butyral core. The other components and overall dimensions are the same. The total weight including packaging is 167.37kg for Wall 60 1b and 197.96kg for Wall 60 2b. The walls have different acoustic insulation performance due to the quantity of PVB used in the glass sheets.

For each following environmental indicator, the highest results of the included product are declared (Option three of the PCR). The highest results derived from WALL 60 3b.

UN CPC code: UN CPC 4212 Doors, windows and their frames and thresholds for doors, of iron, steel or aluminium.

Geographical scope: The geographical scope is global due to the actual commercialization data used.

Declared unit: A wall (single unit) of 1.016m (L) 3m (H) and 62.5mm (T), with double layer of acoustic laminated glass of surface 1x3m, four aluminium profile as a frame, gaskets and support feet, including its packaging. Weight including packaging 196.86kg.

Reference service life: Not provided because the system boundaries doesn't include the use stage.

Time representativeness: Primary data is based on production of year 2021. Other calculation data is based on the best available data at the time of preparing the LCA.

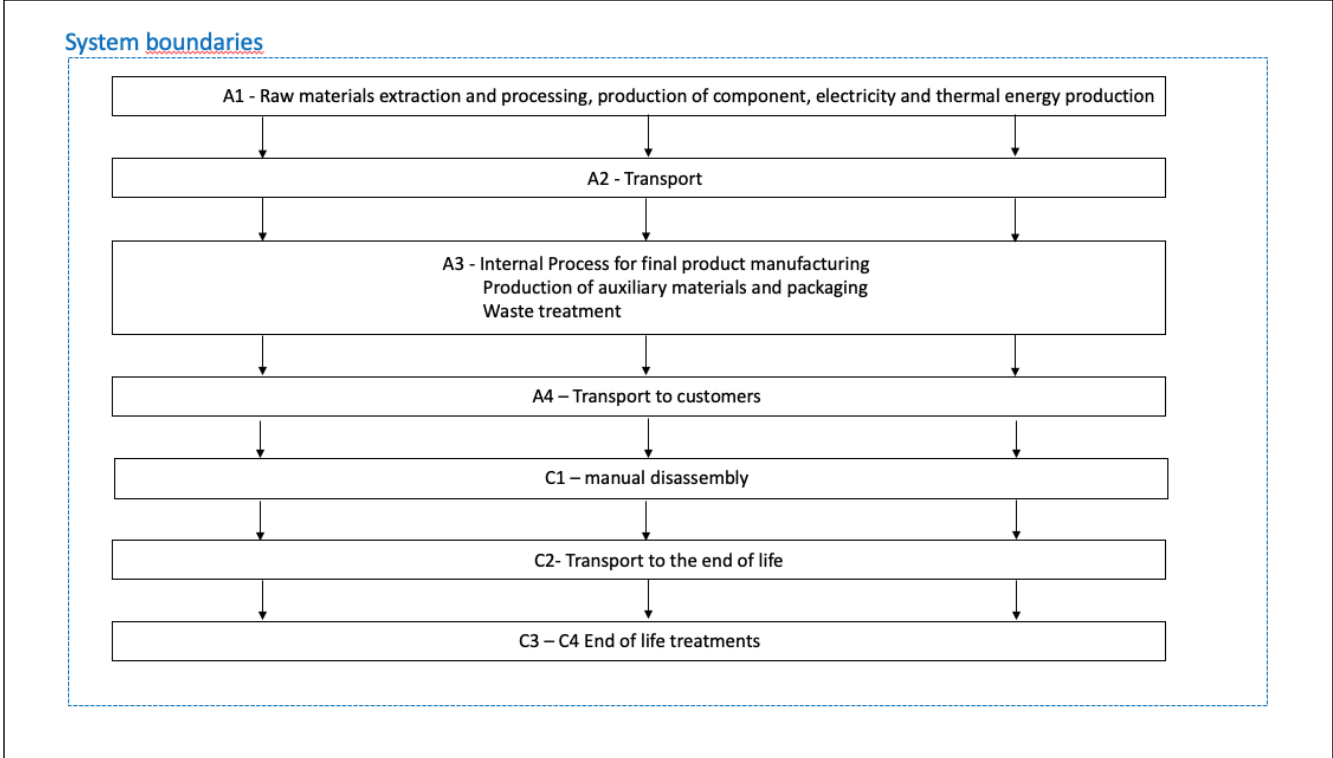
Database(s) and LCA software used: Ecoinvent v3.8, Environmental Footprint v2.0 and SimaPro v9.3 as LCA software.

Description of system boundaries:

Cradle to gate (A1-A3) with modules C1-C4, and module D, and optional module A4.

Module	Processes
A1	Raw materials extraction and processing Production of components Generation of electricity and heat from primary energy resources, also including their extraction, refining and transport
A2	Transport of raw materials and components up to the factory gate
A3	Manufacturing of product Production of packaging Waste treatment
A4	Transport of the product to customers
C1	Disassembly This phase is manual.
C2	Transport of the discarded product to a recycling or final disposal site Since specific data relating to the distance of the discarded product to a waste treatment centre are missing, the average distance included in Simapro for each type of waste has been assumed
C3-C4	Recycling and energy recovery processes (C3) Waste disposal processes (C4) Due to the lack of specific data for the end of waste an average scenario taken from the software is assumed for each group of material. In the module C3 a virtual emission of biogenic CO ₂ has been added so that the uptake related to the cardboard (packaging) recycling and emission of biogenic CO ₂ are balanced.
D	Benefits and impacts related to material recycling

System diagram:



More information:
LCA Practitioner:



CATAS S.P.A.
 Via Antica, 24 – 33048 San Giovanni al Natisone (UD) Italy
 Tel: +39 0432 747211
www.catas.com

Additional information:
<https://www.estel.com/it/>
Assumption:

- The disassembly phases are manual, so its impacts are neglected.
- Distribution to customers was modelled based on actual sales data to different countries using average distance.
- In the manufacturing phase the Italian energy residual mix (year 2021) is assumed.
- At the end-of-life aluminium profiles, glass sheets, steel parts and cardboard packaging are assumed to be recycled, other components disposed or incinerated.
- For Italian customers ESTEL offers the packaging’s take back and disposal service.

Cut-off: The cut-off followed is the one prescribed by the PCR Construction with a minimum of 95% of total flows covered. The cut-off includes the glass fibers, the hot melt adhesive in the gaskets and internal facility transport. The quantity of glass fiber and hot melt adhesive is calculated below the 1% in mass.

Allocation:
 -Emissions and wastes derived from cutting and drilling on the aluminum profiles were allocated on economic value.

- Energy was allocated on physical relationship. The quantity of energy derived from the Aluminum department was allocated on linear meter, the energy derived from offices and other commodities was allocated on m³ of product.

-The transports scenario (A4) is based on the actual market share: 46% Italy, 2% UE (excluding Italy) and 52% Extra UE country. For Italy and Europe the transport is modelled via camion (Euro 4), for Extra European country the transport includes camion (Euro 4), container ship and camion (type non specified).

Module D: for the calculation of this phase the R2 and quality values of materials from PEFCR guidance v.6.3_2 are assumed (CFF_Default_Parameters_March2018).

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

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	-	-	-	-	-	-	-	-	X	X	X	X	X
Geography	GLO	GLO	IT	GLO	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	>60%*			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<10%			n/a	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Specific data was calculated as the share of the GWP-GHG

Content information

WALL 60 3b with laminated acoustic glass

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Safety glass	180	0	0
Aluminium	11.50	0	0
Powder coating	0.16	0	0
Polymers	5.14	0	0
Steel	0.05	0	0
TOTAL	196.86 ¹	0	0
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Polyethylene film	0.24	0.12	0
Polyurethane foam	1.42	0.72	0
Polystyrene	0.72	0.37	0
Corrugated board box	1.18	0.60	0.45
TOTAL	3.56	1.81	0.45

¹The total weight could be not precise due to rounding.

No substance on the “Candidate List of Substances of Very High Concern for authorization” derived under REACH is present either above the limits for the registration with the European Chemicals Agency or in excess of 0.1% by weight of the product.

Results of the environmental performance indicators

For each indicator, the highest results of the included products are declared (worst case scenario, third option of PCR Construction).

Mandatory impact category indicators according to EN 15804

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	7.61E+02	1.97E+01	0.00E+00	2.73E+01	0.00E+00	8.50E+00	-1.79E+02
GWP-biogenic	kg CO ₂ eq.	3.40E+00	6.92E-03	0.00E+00	9.80E-03	1.95E+00	1.21E-03	3.16E-01
GWP-luluc	kg CO ₂ eq.	2.58E+00	1.21E-01	0.00E+00	1.29E-02	0.00E+00	3.13E-03	-4.29E-02
GWP-total	kg CO ₂ eq.	7.67E+02	1.98E+01	0.00E+00	2.73E+01	1.95E+00	8.51E+00	-1.79E+02
ODP	kg CFC 11 eq.	6.90E-05	4.13E-06	0.00E+00	6.34E-06	0.00E+00	3.49E-07	-4.90E-06
AP	mol H ⁺ eq.	5.46E+00	1.88E-01	0.00E+00	1.39E-01	0.00E+00	1.31E-02	-1.61E+00
EP-freshwater	kg P eq.	1.81E-01	1.48E-03	0.00E+00	1.80E-03	0.00E+00	1.33E-04	-9.62E-02
EP-marine	kg N eq.	1.01E+00	5.65E-02	0.00E+00	4.79E-02	0.00E+00	1.45E-02	-2.15E-01
EP-terrestrial	mol N eq.	1.13E+01	6.17E-01	0.00E+00	5.23E-01	0.00E+00	5.69E-02	-2.22E+00
POCP	kg NMVOC eq.	2.96E+00	1.70E-01	0.00E+00	1.49E-01	0.00E+00	1.67E-02	-5.78E-01
ADP-minerals&metals*	kg Sb eq.	5.49E-03	6.12E-05	0.00E+00	9.57E-05	0.00E+00	3.38E-06	1.26E-03
ADP-fossil*	MJ	8.47E+03	2.90E+02	0.00E+00	4.15E+02	0.00E+00	2.53E+01	-1.74E+03
WDP*	m ³	1.89E+02	1.06E+00	0.00E+00	1.26E+00	0.00E+00	1.10E+00	-1.47E+01
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption							

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

Additional mandatory and voluntary impact category indicators

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP-GHG ¹	kg CO ₂ eq.	7.69E+02	1.98E+01	0.00E+00	2.73E+01	0.00E+00	8.51E+00	- 1.78E+02
<i>Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017</i>								

Resource use indicators

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
PERE	MJ	1.06E+03	4.59E+00	0.00E+00	5.94E+00	0.00E+00	4.39E-01	-3.75E+01
PERM	MJ	1.55E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.07E+03	4.59E+00	0.00E+00	5.94E+00	0.00E+00	4.39E-01	-3.75E+01
PENRE	MJ	9.08E+03	3.08E+02	0.00E+00	4.41E+02	0.00E+00	2.69E+01	-1.84E+03
PENRM	MJ	1.13E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	9.19E+03	3.08E+02	0.00E+00	4.41E+02	0.00E+00	2.69E+01	-1.84E+03
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m ³	8.83E+00	2.85E-02	0.00E+00	4.29E-02	0.00E+00	2.85E-02	-1.00E-01
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water							

¹ This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO₂ is set to zero.

Waste indicators

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.37E-01	6.94E-04	0.00E+00	1.08E-03	0.00E+00	4.56E-05	6.95E-02
Non-hazardous waste disposed	kg	1.60E+02	1.76E+01	0.00E+00	2.15E+01	0.00E+00	1.21E+02	- 3.93E+01
Radioactive waste disposed	kg	3.28E-02	1.92E-03	0.00E+00	2.81E-03	0.00E+00	1.58E-04	-3.99E- 03

Output flow indicators

Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.31E+01	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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

References

- General Programme Instructions of the International EPD® System. Version 4.0.
- PCR 2019:14. Construction Product, v.1.2.5
- CFF Default Parameters march2018. Default parameters for R2 and quality. eplca.jrc.ec.europa.eu.
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- EN 15804:2012 + A2 2019. Sustainability of construction works- Environmental product declaration - Core rules for the product category of construction products.
- Environmental Footprint (EF) Version 2.0. eplca.jrc.ec.europa.eu.
- European Residual Mixes, version 1.0, 2022-05-31. Results of the calculation of Residual Mixes for the calendar year 2021.

ISO 14025:2006. Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

ISO 14040:2006/AMD 1:2020. Environmental management — Life cycle assessment — Principles and framework.

ISO 14044:2006/AMD 2:2020. Environmental management — Life cycle assessment — Requirements and guidelines.

Guidelines for calculating Carbon footprint for paper-based packaging. Guidelines for calculating Carbon footprint for paper-based packaging - CITPA Europe. www.citpa-europe.org.

