

Environmental Product Declaration

Specific EPD

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

Arch skylights Arch Sky

CIPI s.r.o.



Programme

EPD Square | www.epdsquare.com

Programme operator

EPD Square, s.r.o.

EPD Registration number

SQ 00-040

Publication date

30.09.2025

Valid until

29.09.2030

General information

Product

Arch skylights Arch Sky

Program operator

EPD Square, s.r.o.

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Registration number

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Owner of the declaration

CIPi s.r.o.

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Manufacturer

CIPi s.r.o.

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Place of production

Ružomberok, Slovakia

Product Category Rules (PCR)

EPD Square PCR v1.0, 2024

Declared unit

1 m²

Mass per DU

12 kg

UN CPC code

42120

Geographical scope

Europe

Year of study

2024

Comparability

EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in the context of the building.

EPD author

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Verification type

Independent verification of the declaration and data, according to ISO14025:2006

Internal: ☐

External: ☒

Verified by

Mari Kirss



The owner of the declaration shall be liable for the underlying information and evidence.

EPD Square shall not be liable with respect to manufacturer, life cycle assessment data and evidence.

System boundaries

This EPD is based on system boundary cradle to gate with options, modules A4 - A5, modules C1 - C4, and module D.

Modules declared and geographical scope

	Product stage			Constructi on 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	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x
Geography	EU	EU	SK	EU	EU	MND	MND	MND	MND	MND	MND	MND	EU	EU	EU	EU	EU

Modules not declared = MND

Description of organization

CIPi, s.r.o. operates in the field of supply and assembly of metal structures. It serves both the Slovak and international markets and has developed into two separate production and assembly divisions:

The Aluminum Processing Division is dominant in the following segments:

- Supply and installation of skylights
- Supply and installation of polycarbonate glazing systems for roofs and facades
- Supply and installation of edged/bent profiles made of aluminum and FeZn sheet metal
- Supply of smoke and heat extraction equipment for fire protection

The Steel Processing Division is dominant in the following segments:

- Supply and assembly of steel structures for industry and construction
- Supply and assembly of noise barriers and accessories for transport routes
- Supply and assembly of custom steel structures
- Surface treatment of steel structures
- Sheet metal processing, punching, cutting, bending, and resistance welding

Product information

Product name

Arch skylights Arch Sky

Product description

The arched roof strip skylight consists of an aluminium ribbed structure on which polycarbonate sheets are ingeniously placed and secured with aluminium strips to achieve a watertight joint.

Technical data

Parameter	Value
Snow load	0 - 3000 N/m ² - depending on the width of the skylight
Wind load	1500 N/m ²
Reaction to fire	- A1 - Metal, mineral wool, glass - B-s1,d0 / B-s2,d0 - Polycarbonate - E - all unmarked materials
Shock resistance	SB 300
Heat transmittance according to selected glazing	U = 0,91 - 2,5 W/m ² K
Light transmission	36 - 57%

Product parameters

Parameter	Value
Clear width	1,0 - 6,0 m
Length	0,5 m - unlimited
Skylight glazing	polycarbonate from 10 mm thick to a total thickness of 46 mm
Possible use of panels with co-extruded infrared protection or reinforced edge for higher hail resistance.	
Natural and forced ventilation elements can be integrated into ArchSky skylights, as well as fall protection.	

Product application

The purpose of arched skylights is to allow daylight to enter the building. These skylights can be equipped with opening sections for daytime ventilation (ventilation wings), which help ventilate the spaces below them. Skylights are fixed to the roof cladding using skylight frames of various heights above the level of the roof. Thermal insulation is placed into the frames, and everything is sealed with waterproofing strips or flashing elements to ensure watertightness. These skylights are designed for use in industrial and commercial buildings.

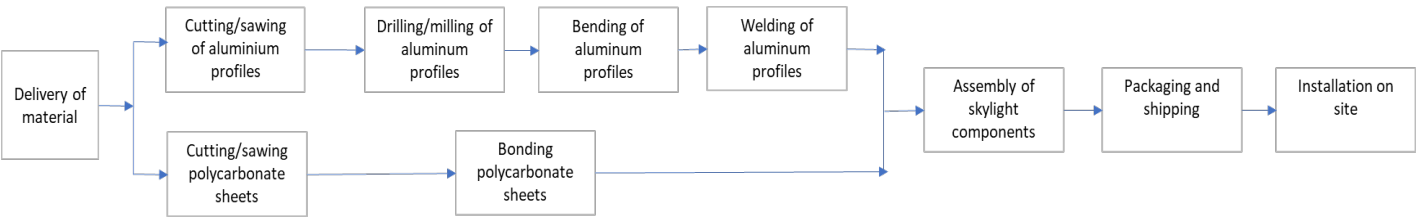
Geographical scope

Slovakia, Europe

Product contents information

Product components	Weight, %	Post-consumer material, weight-%	Renewable material, weight-%
Aluminium profiles	44,6 %	0	0
Aluminium sheets	7,7 %	0	0
Polycarbonate sheets	47,6	0	0
Auxiliary materials	< 1 %	0	0
TOTAL	100	0	0
Packaging materials	Weight, kg	Weight-% (versus the product)	
LDPE foil	0,055	0,46	
Steel strips	0,007	0,06	
Plastic strips	0,015	0,13	
Wooden pallet	6,083	50,70	
TOTAL	6,160	51,35	

Manufacturing process



Life cycle assessment

Cut-off criteria

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

Allocation, estimations, and assumptions

Allocation is based on the annual production rate and made with high accuracy and precision. The values for 1 m² of the product which are used within this study are calculated by considering the total product weight per annual production. In the production plant, several kinds of products are produced; since the production processes of these products are similar, the annual production percentages are taken into consideration for allocation. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total energy consumption, packaging materials and the generated waste per the declared product are allocated. Subsequently, the produced products' output is fixed to 1 m² and the corresponding amount of product is used in the calculations.

Database(s) and LCA software

This EPD has been created using One Click LCA Pre-Verified EPD Generator. Ecoinvent 3.10.1 and One Click LCA databases were used as sources of environmental data. Characterization factors are based on Environmental Footprint 3.1. (EF 3.1).

Data quality

The data quality information has been provided according to the requirements of EN 15941. The data assessment was done using the Product Environmental Footprint Category Rules. The data has been collected internally, considering the latest available average production amounts and measurements during the time period of 2024. The quality level in this study is qualified as Good. Data quality rating procedure has been performed using a rating system where "1" means Very good quality, and "5" means Very poor quality. No fair, poor or very poor data was found during the assessment of relevant data.

Geographical rating	Technology rating	Time-related rating	Average rating
1,9	1,9	1,3	1,7

LCA Scenarios and additional technical information

A1 Raw material extraction

This module includes the extraction and processing of all raw materials and packaging which occur upstream to the manufacturing site. Specifically, the input materials include aluminum profiles, aluminum sheets, polycarbonate boards and auxiliary materials.

A2 Transport

The transportation impacts considered include exhaust emissions resulting from transportation of all raw materials from suppliers to production plant as well as the environmental impacts of production of the used fuel. The transportation distances and methods were provided by manufacturer. Module includes road transport (truck EURO6, 16-32 t, consumption 35 l / 100 km).

A3 Manufacturing

The environmental impacts considered for the production stage cover the manufacturing of the production materials and fuels used by machines. The environmental impacts of this stage have been calculated using the most recent data in regard to what applied in the factory. The data is from the year 2024. The study considers the losses of main raw materials occurring during the manufacturing process.

Manufacturing energy scenario

Electricity data source and quality	Electricity, Slovakia, residual mix
Electricity CO2e / kWh	0,45
Energy data source and quality	Heat production, natural gas, at industrial furnace >100kW
Natural gas CO2e / m3	0,0773
Energy data source and quality	Market for propane, burned in building machine
Propane CO2e / MJ	0,0944
Energy data source and quality	Diesel, burned in building machine
Diesel CO2e / MJ	0,1

A4 Transport

Transportation impacts occurred from final products delivery to construction site cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions. Transportation doesn't cause losses as products are packaged properly. Vehicle capacity utilization volume factor is assumed to be 1 which means full load. It may vary but as the role of transportation emission in total results is small and so the variety in load is assumed to be negligible. Average distance of transportation from production plant to building site is assumed as 196 km and the transportation method is assumed to be lorry with a capacity of 16-32t. Empty returns are considered.

Transportation scenario (A4)

Vehicle type used for transport	Transport, freight, lorry 16-32 metric ton, EURO6
Distance to the construction site	196
Capacity utilization factor	1

A5 Assembly

Installation processes and end of life of the packaging materials are considered in the study. Products are installed manually on the construction site, therefore energy consumption is negligible. The losses associated with the installation are less than 1% and therefore not included in the overall assessment. Transportation of waste packaging is accounted in A5. It is assumed that 32% of the wooden pallets are recycled, 30% are incinerated at the nearest municipal incineration plant and 38% are landfilled. Plastic packaging is recycled (40%), incinerated (37%) and landfilled (23%). 81% of the steel packaging is recycled and 19 % is landfilled. The distance is assumed to be 50 km and the transportation method assumed to be lorry.

C1 Disassembly, demolition

The impacts of the disassembly stage are assumed to be zero, since the consumption of energy and natural resources for disassembling the end-of-life product is negligible. It is assumed that 100% of waste is collected.

C2 Transport

Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumed as lorry (16-32 tonne; EURO 6) which is the most common.

C3 Waste processing

According to EN 17213, 95% of aluminum material is assumed to be recycled and 95% of polycarbonate is assumed to be used for energy recovery.

C4 Disposal

According to EN 17213, it is assumed that 10% of waste is taken to landfill for final disposal.

End of Life (C1, C3, C4)

	Value	Unit
Collected separately	12	kg
Recycling	6,02	kg
Energy recovery	5,38	kg
To landfill	0,60	kg

Module D

Module considers the benefits of recycling and energy recovery which replace district heat and electricity.

Additional environmental information

Declared unit is 1 m² of the Arch skylights Arch Sky. If it is necessary to quantify the results to a product weight of 1 kg, the conversion factor is 0,0833.

LCA results

Core environmental impact indicators – EN 15804+A2

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	5,49E+01	6,76E-01	1,35E+00	0,00E+00	6,07E-02	1,29E+01	1,09E-02	-4,34E+01
GWP-fossil	kg CO2 eq.	5,59E+01	6,76E-01	2,96E-01	0,00E+00	6,07E-02	1,29E+01	1,09E-02	-4,25E+01
GWP-biogenic	kg CO2 eq.	-1,05E+00	0,00E+00	1,05E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,42E-02
GWP-LULUC	kg CO2 eq.	7,77E-02	2,43E-04	3,19E-04	0,00E+00	2,37E-05	2,06E-04	1,20E-05	-9,98E-01
ODP	kg CFC11 eq.	3,83E-06	1,34E-08	3,47E-09	0,00E+00	1,26E-09	5,52E-09	2,41E-10	-7,20E-07
AP	mol H ⁺ eq.	2,36E-01	1,41E-03	1,17E-03	0,00E+00	1,45E-04	3,46E-03	7,80E-05	-2,78E-01
EP-freshwater	kg P eq.	1,38E-03	4,55E-05	5,58E-05	0,00E+00	4,25E-06	8,42E-05	6,02E-06	-2,29E-02
EP-marine	kg N eq.	4,08E-02	3,38E-04	1,25E-03	0,00E+00	3,84E-05	1,85E-03	2,78E-05	-3,72E-02
EP-terrestrial	mol N eq.	4,71E-01	3,64E-03	4,77E-03	0,00E+00	4,16E-04	1,55E-02	2,61E-04	-3,41E-01
POCP	kg NMVOC eq.	1,37E-01	2,34E-03	1,57E-03	0,00E+00	2,51E-04	3,94E-03	8,59E-05	-1,50E-01
ADP-M&M	kg Sb eq.	1,28E-04	2,25E-06	5,83E-07	0,00E+00	1,73E-07	3,28E-06	2,65E-08	-8,30E-05
ADP-fossil	MJ	8,69E+02	9,50E+00	3,00E+00	0,00E+00	9,10E-01	3,42E+00	2,03E-01	-6,51E+02
WDP	m ³	4,06E+01	4,72E-02	8,18E-02	0,00E+00	4,66E-03	8,69E-01	6,41E-03	-9,01E+01

GWP-total: Global Warming Potential; **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; See "additional requirements" for indicator given as PO4 eq. **EP-marine:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-terrestrial:** Eutrophication potential, Accumulated Exceedance; **POCP:** Formation potential of tropospheric ozone; **ADP-M&M:** Abiotic depletion potential for non-fossil resources (minerals and metals); **ADP-fossil:** Abiotic depletion potential for fossil resources; **WDP:** Water deprivation potential, deprivation weighted water consumption

Additional (optional) environmental impact indicators – EN 15804+A2

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	2,81E-06	4,98E-08	2,07E-08	0,00E+00	5,92E-09	2,34E-08	1,34E-09	-3,14E-06
IRP	kBq U235 eq.	3,76E+00	1,23E-02	7,85E-03	0,00E+00	1,09E-03	1,85E-02	3,80E-04	-1,08E+01
ETP-fw	CTUe	1,10E+03	1,26E+00	1,02E+00	0,00E+00	1,08E-01	2,61E+01	5,99E+01	-9,32E+01
HTP-c	CTUh	5,09E-07	1,13E-10	1,06E-10	0,00E+00	1,01E-11	1,19E-09	7,15E-12	-7,29E-08
HTP-nc	CTUh	1,72E-06	6,01E-09	5,72E-09	0,00E+00	5,88E-10	4,12E-08	1,36E-09	-5,31E-07
SQP	Dimensionless	5,24E+02	5,74E+00	2,81E+00	0,00E+00	9,16E-01	5,77E+00	3,72E-01	-5,40E+01

PM Particulate matter emissions; *IRP* Ionising radiation, human health; *ETP-fw* Ecotoxicity (freshwater); *ETP-c* Human toxicity, cancer effects; *HTP-nc* Human toxicity, non-cancer effects; *SQP* Land use related impacts / soil quality

Use of Natural Resources

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
RPEE	MJ	3,74E+02	1,66E-01	-8,93E+01	0,00E+00	1,48E-02	2,86E-01	5,55E-03	-2,85E+02
RPEM	MJ	1,78E+01	0,00E+00	-9,39E+00	0,00E+00	0,00E+00	-8,42E+00	0,00E+00	1,66E+00
TPE	MJ	3,92E+02	1,66E-01	-9,87E+01	0,00E+00	1,48E-02	-8,13E+00	5,55E-03	-2,83E+02
NRPE	MJ	8,87E+02	9,51E+00	1,64E-01	0,00E+00	9,10E-01	-1,92E+02	2,03E-01	-6,51E+02
NRPM	MJ	1,07E+01	0,00E+00	-3,15E+00	0,00E+00	0,00E+00	-7,56E+00	0,00E+00	1,01E+00
TRPE	MJ	8,97E+02	9,51E+00	-2,99E+00	0,00E+00	9,10E-01	-2,00E+02	2,03E-01	-6,50E+02
SM	kg	1,88E-01	4,41E-03	2,08E-03	0,00E+00	3,93E-04	4,11E-03	7,56E-05	6,72E+00
RSF	MJ	3,13E-01	5,58E-05	2,09E-05	0,00E+00	4,96E-06	2,20E-04	1,15E-06	-1,32E-03
NRSF	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
W	m ³	3,26E+00	1,29E-03	-7,74E-03	0,00E+00	1,34E-04	1,50E-02	-2,00E-03	-1,99E+00

RPEE Renewable primary energy resources used as energy carrier; *RPEM* Renewable primary energy resources used as raw materials; *TPE* Total use of renewable primary energy resources; *NRPE* Non-renewable primary energy resources used as energy carrier; *NRPM* Non-renewable primary energy resources used as materials; *TRPE* Total use of non-renewable primary energy resources; *SM* Use of secondary materials; *RSF* Use of renewable secondary fuels; *NRSF* Use of non-renewable secondary fuels; *W* Use of net fresh water

End of life – Waste

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HW	KG	2,26E-01	1,38E-02	1,96E-02	0,00E+00	1,32E-03	2,30E-01	1,14E-03	-8,95E+00
NHW	KG	2,60E+01	2,92E-01	1,36E+01	0,00E+00	2,64E-02	6,44E+00	2,67E+00	-1,06E+02
RW	KG	2,67E-04	3,05E-06	1,96E-06	0,00E+00	2,69E-07	4,73E-06	9,26E-08	-2,86E-03

HW Hazardous waste disposed; *NHW* Non-hazardous waste disposed; *RW* Radioactive waste disposed

End of life – Output flows

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	0,00E+00	0,00E+00	1,98E+00	0,00E+00	0,00E+00	6,02E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	4,26E+00	0,00E+00	0,00E+00	2,65E+01	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	5,84E+00	0,00E+00	0,00E+00	3,64E+01	0,00E+00	0,00E+00

CR Components for reuse; *MR* Materials for recycling; *MER* Materials for energy recovery; *EEE* Exported electric energy; *ETE* Exported thermal energy

Information describing biogenic carbon content at factory gate

Biogenic carbon content	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in the accompanying packaging	2,74	kg C

*Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂

Specific data (GWP-GHG) and data variation for A1-A3

Specific data and data variation	Value-%
Specific data	51,2
Variation - product	Not relevant
Variation - site	Not relevant

Hazardous substances

☒ The product does not contain any REACH SVHC substances in amounts greater than 0.1 %.

Contact information

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Bibliography

ISO 14020:2000

Environmental labels and declarations – General principles

ISO 14025:2010

Environmental labels and declarations - Type III environmental declarations - Principles and procedures

ISO 14040:2006

Environmental management – Life cycle assessment – Principles and frameworks

ISO 14044:2006

Environmental management - Life cycle assessment - Requirements and guidelines

EN 15804:2012+A2:2019

Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products

ISO 21930:2017

Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services

EN 17213:2020

Windows and doors - Environmental Product Declarations - Product category rules for windows and pedestrian doorsets

EN 15941:2024

Sustainability of construction works – Data quality for environmental assessment of products and construction work – Selection and use of data

EPD Square PCR v.1.0, 2024

EPD Square, General Programme Instructions v.1, 2024

Ecoinvent database v3.10.1 (2024) and One Click LCA database

Annex

Environmental impacts – GWP-GHG

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP - GHG	kg CO2e	5,60E+01	6,76E-01	2,96E-01	0,00E+00	6,07E-02	1,29E+01	1,09E-02	-4,35E+01

***GWP- GHG** Global Warming Potential, greenhouse gases - This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product.*