

Environmental Product Declaration



In accordance with ISO 14025 and EN 15804 for:

Glass building envelope with aluminium facade of Corso Court

Programme:	The International EPD® System www.environdec.com
Programme operator:	EPD International AB
National registration number:	3013EPD-15-0534
EPD registration number:	S-P-00575
Approval date:	2015-11-01
Valid until:	2020-10-31
Revision date:	2015-11-01
Geographical scope:	Europe, Worldwide

SKANSKA



Verified EPD by Independent Third Party Accredited Certification Body
Building Research Institute - Certification Company Ltd.
Czech Republic, Prazska 810/16, 102 21 Praha 10 info@vups.cz www.vups.cz



1. Company

Skanska is a construction and development group operating in the Czech and Slovak republics, it is a part of the global concern Skanska based in Sweden. The company specializes in all areas of construction, including residential and commercial development and sales, property management and the providing of related services.

Skanska Curtain Walling and Facades operates in European markets. Our business model is based on individual approach to customers. We focus on innovative solutions of glass building envelopes, particularly modular aluminium facades. Our products are „tailor-made“ using standardized products as well as individually designed profiles.

Company name	Skanska a.s.
Contact person	Roman Wiczorek, CEO roman.wiczorek@skanska.cz
Address	Křižíkova 682/34a 18600 Prague 8, Karlín Czech republic
Website	www.skanska.cz

2. Product

Skanska Curtain Walling and Façades is the only façade manufacture within the Skanska Group, Their key products are stick and unit facades, nevertheless manufacturing program includes windows, doors, sills, acoustics glass partitions, etc. We are able to integrate photovoltaic and energy systems into our products. We work only with certified profiles (Schüco, Wicona, Hueck, Reynears) and top quality glass products (AGC Glass, Guardian, Pilkington, Saint-Gobain Glass). The quality of the products is guaranteed by EN ISO 9001, OHSAS 18001 BOZP and ISO 14001 – Environmental management.

Declared unit	According to the EN 15804+A1 and PCR 2012:0.1 ver. 2.0 the declared unit is one whole building envelope.
UN CPC	Construction products and CPC 54 construction services

Trade name of product: glass building envelope with aluminium façade of Corso Court, Prague, Czech Republic.

Corso Court is a commercial development in Prague that uses 36 percent less energy than the Czech building code and 30 percent less water than a typical Czech office building. The property is designed to achieve LEED (Leadership in Energy and Environmental Design) Platinum. Corso Court, in every detail, follows the philosophy of Skanska Group’s sensitive approach to development and building construction. Great emphasis has been placed on the high quality of the interior environment. Thanks to this focus the concept for the building’s heating, ventilation, and cooling systems is very sophisticated and energy-efficient and ensures a continuous supply of fresh air. All of the tenants will appreciate the glass façade that provides abundant natural daylight. The overall attractiveness of the space is enhanced by the building’s imposing atrium and terraces.

Facade product content declaration, in weight

%

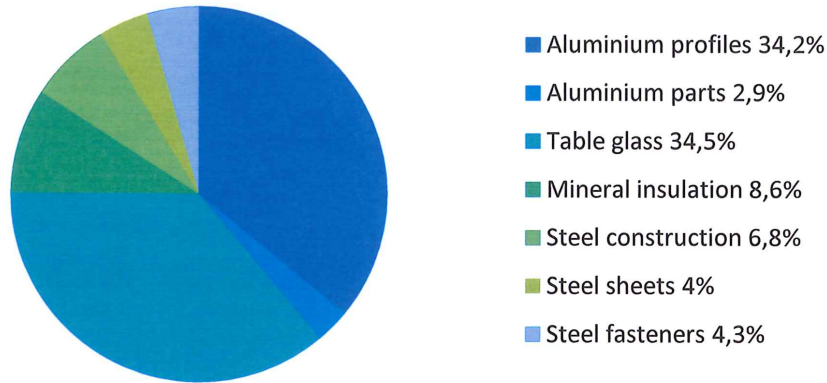


Figure 1. Description of the contents material and components Corso Court facades

Mandatory statements

The LCA for this EPD is conducted according to the guidelines of ISO 14040-44, the requirements given in the Product Category Rules (PCR) document for Construction Products and CPC 54 Construction Services (PCR 2012:01 Version 2.0, 2015-03-03), EN 15804+ A1:2013 Sustainability of Construction Works: Environmental Product Declarations and the general program guidelines by The International EPD System in accordance with ISO 14025 standards.

The inventory for the LCA study is based on the 2014 and 2015 production. For development of this declaration GaBi software with the latest version characterization factors (April 2013) and the Ecoinvent database was used.

EPD of construction products may not be comparable if they do not comply with EN 15804.

This EPD covers the Cradle to Gate with options stage.

The EPD certificate, its background data and the results will be used for business-to-business communications and is expected to be a reliable document for green building designers, architectures, manufacturers of construction products and the other stakeholders in the construction sector to understand the potential environmental impacts caused by Skanska.

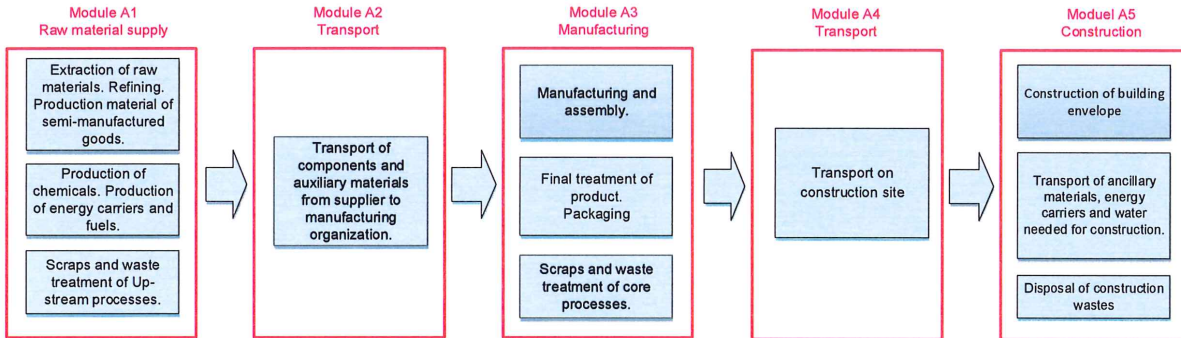
“EPDs within the same product category but from different programmes may not be comparable”

System boundaries of this EPD are cradle to gate with options. Based on EN 15804+A1 and The International EPD® System has adopted an LCA calculations procedure which is separated into different life cycle stages, so called modules A1, A2, A3, A4 and A5:

- Module A1: Upstream processes including energy production
- Module A2: Transport of inputs to producer
- Module A3: Core processes including infrastructure and waste processing
- Module A4: Transport of manufactured envelope to the construction location
- Module A5: On site construction of building envelope

Schematic description of system boundaries consisting of up-stream module processes, core processes and down-stream processes is shown on following figure.

System boundaries



Description of the system boundary (D = Declared, Included in LCA, MND = Module Not Declared)

A1 - A3 Product stage	Raw material supply	A1	D
	Transport	A2	D
	Manufacturing	A3	D
A4 - A5 Construction process	Transport from the gate to the site	A4	D
	Assembly	A5	D
B1 - B7 Use stage	Use	B1	MND
	Maintenance	B2	MND
	Repair	B3	MND
	Replacement	B4	MND
	Refurbishment	B5	MND
	Operational water use	B6	MND
	Operational energy use	B7	MND
C1 - C4 End of life stage	De-construction	C1	MND
	Transport	C2	MND
	Waste processing	C3	MND
	Disposal	C4	MND
D Benefits and loads beyond the system boundaries	Reuse- Recycling - Recovery Potential	D	MND

3. Environmental performance

All environmental performance is reported per declared unit 1 piece of Corso Court building envelope.

Use of resources

Resource consumption (kg) associated with construction of Corso Court building envelope. Data are referred to D.U.

Kg/DU	Total	Module A1	Module A2	Module A3	Module A4	Module A5
Crude oil (resource)	228698	215423	5938	957	769	5611
Hard coal (resource)	398682	397315	28	245	4	1090
Lignite (resource)	144139	142563	40	310	5	1221
Natural gas (resource)	335206	331916	490	824	63	1913
Peat (resource)	1103	1099	0,6	1,4	0,1	1,1
Uranium (resource)	18,8049	18,7656	0,0021	0,0093	0,0003	0,0277
Bauxite	1480862	1480860	0,0617	0,3436	0,0080	1,5686
Iron ore (56,86%)	6817	6817	0	0	0	0
Water	2,59E+10	2,59E+10	1,23E+06	3,74E+06	1,59E+05	1,48E+07

Other parameters describing resource consumption. Data are referred to D.U.

Consumption referred to D.U.	Suma	Module A1	Module A2	Module A3	Module A4	Module A5
Use of renewable primary energy excluding renewable primary energy resources used as raw materials, MJ	11859502	11802096	15214	6662	1982	33548
Use of renewable primary energy resources used as raw materials, MJ	65631	65631	0	0	0	0
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials), MJ	11925133	11867727	15214	6662	1982	33548
Use of non- renewable primary energy excluding nonrenewable primary energy resources used as raw materials, MJ	45086682	44309383	274310	90981	35517	376490
Use of non- renewable primary energy resources used as raw materials, MJ	30	30	0	0	0	0
Total use of non- renewable primary energy resources (primary energy and primary energy resources used as raw materials), MJ	45086712	44309413	274310	90981	35517	376490
Use of secondary material, kg	0	0	0	0	0	0
Use of renewable secondary fuels, MJ	0	0	0	0	0	0
Use of net fresh water, m ³	2,59E+07	2,59E+07	1,22E+03	3,74E+03	1,59E+02	1,48E+04

Potential environmental impacts

CML2001 – Apr. 2013	Suma	Module A1	Module A2	Module A3	Module A4	Module A5
Abiotic Depletion (ADP elements) [kg Sb-Equiv.]	2,638	2,625	0,001	0,003	0,000	0,008
Abiotic Depletion (ADP fossil) [MJ]	3,65E+07	3,58E+07	2,73E+05	8,68E+04	3,54E+04	3,64E+05
Acidification Potential (AP) [kg SO2-Equiv.]	12884	12583	92	31	13	164
Eutrophication Potential (EP) [kg Phosphate-Equiv.]	950,4	882,4	22,8	8,2	3,4	33,6
Global Warming Potential (GWP 100 years) [kg CO2-Equiv.]	3146008	3072765	19864	15934	2576	34869
Ozone Layer Depletion Potential (ODP, steady state) [kg R11-Equiv.]	9,54E-03	9,53E-03	8,16E-08	1,69E-05	1,06E-08	4,19E-07
Photochem. Ozone Creation Potential (POCP) [kg Ethene-Equiv.]	1032	1057	-29	3	-5	7

The environmental indicators used for these calculations are based on CML Baseline V4.2 April 2013.

Other indicators describing waste categories

	Unit	Suma	Module A1	Module A2	Module A3	Module A4	Module A5
Non-hazardous waste	kg	2192565	611885	39	222911	5	1357726
Hazardous waste	kg	238,77	104,47	0,13	134,02	0,02	0,13
Radioactive waste	kg	3346	3339	0	2	0	5

Release of dangerous substances during the use stage

No health and environmental impacts during use is observed.

4. Additional information

We strive to improve our projects, products and services from the perspective of protection of the environment by actively seeking out new ways with which can minimize any negative impact on the environment throughout the entire life cycle of a given project, product or service. Protection of the environment and the reduction of any possible negative impact on the environment as a result of our construction activities form an integral part of Skanska’s global corporate strategy mission and make up one of our five core corporate values. We emphasize energy efficiency and the efficient use of resources, reducing waste and the protection of the environment.

Skanska makes use of an Environmental Management System (EMS) in accordance with the requirements set out in the ISO 14001 standard. In all of our projects we use the "green building" concept to consider the environment impact of the project throughout its lifecycle. Our goal is to become a leading builder and developer known for its environmental consciousness and environmental awareness. Apart from the certifications, we concentrate the best experience from our projects focused on the sustainability aspects



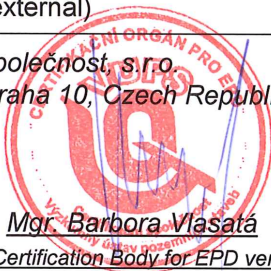
(social, economic and environmental) and on unique technologies and innovations used in Skanska Group in the form of the so-called Sustainability Case Studies available on web pages.

Information on where explanatory material may be obtained: <http://www.skanska.cz>

5. Program - related information and verification

See PCR for detailed requirements.

Program:	The International EPD [®] System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com
National registration number	3013EPD-15-0534
EPD registration number:	S-P-00575
Published:	2015-11-01
Valid until:	2020-10-31
Revision date:	2015-11-01
Product Category Rules:	PCR 2012:01. Product group classification: Multiple UN CPC Codes, Construction products and construction services. Version 2.0
Product group classification:	Construction products and CPC 54 construction services
Reference year for data:	2014
Geographical scope:	Europe, Worldwide

PCR:	PCR 2012:01 Construction products and Construction services, Version 2.0, 2015-03-03
PCR review was conducted by:	<i>The Technical Committee of the International EPD[®] System.</i> Chair: <i>Massimo Marino</i> Contact via info@environdec.com
Independent verification of the declaration and data, according to ISO 14025:	<input type="checkbox"/> EPD Process Certification (internal) <input checked="" type="checkbox"/> EPD Verification (external)
Third party verifier:	VÚPS – Certifikační společnost, s.r.o. Pražská 16, 102 21 Praha 10, Czech Republic www.vups.cz  <i>Mgr. Barbora Vlasatá</i> <i>Head of Certification Body for EPD verification</i>
Accredited by:	Czech Accreditation Institute www.cia.cz

Contact information:

<p>EPD owner:</p>	<p style="text-align: center;">SKANSKA</p> <p>Skanska, a.s. Křižíkova 682/34a 18600 Prague 8, Karlín Czech republic www.skanska.cz Contact person: Ing. Karel Fronk, Sustainable Development Manager Phone: +420 737 256 708 E-mail: karel.fronk@skanska.cz</p>
<p>LCA author:</p>	<p style="text-align: center;"></p> <p>Vladimír Kočí, PhD. Šárecká 5, 16000 Prague 6, Czech Republic www.lcastudio.cz</p>
<p>Program operator:</p>	<p style="text-align: center;"></p> <p>EPD International AB info@environdec.com</p>

References

EN 15804+A1:2013 European Committee for Standardization: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products, 2013.

General Programme Instructions of the International EPD® System. Version 2.5.

PCR 2012:01. Product group classification: Multiple UN CPC Codes, Construction products and construction services. Version 2.0