Environmental Product Declaration

Schindler 1000, Schindler 1000 Plus
Schindler 3000, Schindler 3000 Plus

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ECO PLATFORM EPD EN 15804 VERIFIED

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

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.

EPD®

Schindler

Program-related information and verification

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Verification:

CEN standard EN15804 serves as the core PCR
Independent verification of the declaration and data, according to EN ISO 14025:2010 **☐ Internal ☒ external**
Third party verifier: **Angela Schindler, Umweltberatung und Ingenieurdienstleistungen** **Approved by The International EPD(R) system**

Revision History:	Revision 2021-05-18: Material allocation to batteries and accumulators corrected (pg12) and GWP_{GHG} added as additional indicator to potential environmental Impact tables (pg13)

Comparability between EPDs based on this c-PCR-008 (to PCR 2019:14) and EPDs based on PCR 2015:05 is not conceivable and shall be avoided.
Any comparability of this kind shall be considered as false and misleading the EPD user.
EPDs of construction products may not be comparable if they do not comply with EN 15804+A2:2019.
EPDs within the same product category but from different programmes may not be comparable.

About Schindler

Founded in Switzerland in 1874, the Schindler Group is a leading global provider of elevators, escalators and related services. Schindler mobility solutions move more than one billion people every day all over the world.

Behind the company's success are over 60,000 employees in more than 1,000 branches in over 100 countries throughout Europe, North & South America, Asia-Pacific, and Africa with manufacturing plants strategically located in Europe, Brazil, USA, China, and India.

Schindler manufactures, installs, services, and modernizes elevators, escalators, and moving walks for almost every type of buildings worldwide. Schindler's offerings range from cost-effective solutions for low-rise residential buildings to sophisticated access and transport management concepts for skyscrapers.

Schindler moves people and materials, and connects vertical and horizontal transport systems through intelligent mobility solutions driven by green and user-friendly technologies. Schindler products can be found in many well-known buildings across the globe, including residential and office buildings, airports, shopping centers / retail establishments, and buildings with special requirements.

A network of more than 1,000 branches in over 100 countries.

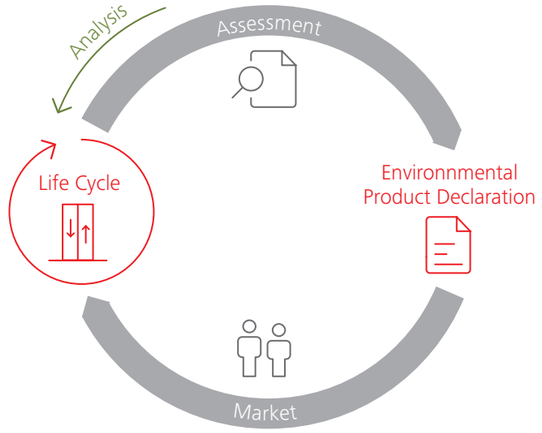
We Elevate... Sustainability

Schindler's commitment to sustainability is enshrined in our Corporate Sustainability Policy, which defines our approach to sustainability based on three pillars – People, Planet, and Performance – and the journey we have embarked on regarding key sustainability challenges.

Sustainability is a dual commitment for Schindler: we want to fulfill our vision of leadership in urban mobility solutions and strive to optimize our environmental impact while investing in people and society. Schindler has demonstrated this committment by achieving the ISO 9001/14001 certification in 2020.

Mobility is essential in the world we live and work. Every day, more than one billion people all over the world place their trust in Schindler. That is why we are committed to continuously improve the environmental impact of our products and services along the whole life-cycle.

With over 145 years of history, Schindler has grown around the world and is recognized as a responsible corporate citizen. We firmly intend to continue evolving along this path with a global perspective on sustainability and a focus on the most relevant key performance indicators.



From design to recycling
From the first sketches in design, right through to disposal and recycling, environmental assessment considerations are an integral part of the Schindler product development process. The assessment rigidly follows the ISO 14040 standard and is embedded in the ISO 14001 Environmental Management System, which is applied at Corporate Research & Development and provides transparency in all phases.

Life-cycle Assessment (LCA)
Schindler conducts Life-cycle Assessments of its products. The objective is to continuously improve the environmental performance of the product assessed. A holistic approach is applied all the way from initial product development through to the continuous product improvement initiatives.

Environmental Product Declaration (EPD)
The EPD provides verified information on the environmental impact of a product. The declaration is based on a comprehensive LCA and follows the ISO 14025 guideline. A complex issue made understandable.

Product Category Rules (PCR)
Product Category Rules define the rules and requirements for EPDs of a certain product category. They are a key part of ISO 14025 as they enable transparency and comparability between EPDs.

Learn more about Schindler's environmental activities at: www.schindler.com

Thinking globally. Acting locally.

Local production
With manufacturing plants strategically located in Europe, Brazil, USA, China, and India, Schindler focuses on local production for the local market. This reduces the environmental impact from shipping and transport around the world.

In Europe, Schindler has manufacturing plants in Switzerland, Slovakia. With over 30% of the components in the Schindler 1000 and Schindler 3000 produced or assembled in Switzerland and an additional 63% of components produced or assembled in the European Union, we can ensure the most effective and efficient transport methods are used to ship material to each jobsite and minimize our carbon footprint.

Modular products
Our modular approach to system development enables us to share components across products, including the Schindler 1000, Schindler 3000 and Schindler 5000. This enables better sourcing management with our suppliers and sub-suppliers and consolidation of shipments to reduce the environmental impact caused by the transport of material to Schindler manufacturing plants.

By optimizing our logistic activities and manufacturing supplier base, the supply chain in Europe has substantially reduced the logistic carbon dioxide footprint for Schindler 1000 and Schindler 3000.

Recyclable packaging
Packaging of the Schindler 1000 and Schindler 3000 is now fully recyclable. The packaging is made of cardboard, paper, PE plastic and wood, and is comprised solely of FSC Chain-of-Custody certified materials. This enhanced packaging features a robust and damage-resistant shell to protect our products in transit and on the construction site, while also reducing waste.

The modular packaging concept has been defined in combination with the installation process and has been designed to support the sequence of activities during the elevator installation. This ensures material remains un-damaged since it can remain packaged and protected until it is required for installation.

Digital processes
To improve our installation process and drive sustainability in the field, Schindler has digitized the installation and commissioning manuals for our fitters. By making these documents available on mobile devices, we have reduced our impact on natural resources, saving 250 metric tons of paper annually.

Key figures Schindler 1000 and 3000

Schindler 1000 and Schindler 3000
The Schindler 1000 and 3000 are part of Schindler's new, modular-platform product range for residential and commercial buildings. From low- to mid-rise, and from basic to sophisticated requirements, worldwide, Schindler has the product to fit your needs.

With the Schindler 1000, elevating is made simple. Designed to serve low- to mid-rise residential buildings comfortably, quietly, efficiently and with style. The Schindler 1000 offers excellent value for money, a compact design and simple, stylish interior and fixture options.

The Schindler 3000 offers a large variety of design and dimensional combinations. It has been designed for comfort and offers a full spectrum of styles, colors, options and fixtures to match your building.

The Schindler 1000 Plus and Schindler 3000 Plus are replacement elevators for existing buildings.

These new products, the Schindler 1000 and Schindler 3000, have been built on our new technical elevator systems (ES). The elevator systems are not linked directly to the branding, rather they provide the technical foundation for the elevator and the market-related features and requirements drive the product brand selection. With this strategy, we can cover all customer requirements while also minimizing our product complexity.

Elevator System	ES1 and ES5.0
Capacity	320 to 1350
Travel height	Up to 80 m
Door width	600 to 1200 mm
Door height	2,000 to 2,400 mm
Drive	Schindler Traction Media Technology; Synchronous machine with regenerative drive
Speed	0.63 to 1.6 m/s MRL
Number of stops	Up to 24
Car groups	Up to 8 cars, depending on the system
Fixtures	Mechanical or touch-sensitive buttons dot matrix display or TFT L
Door types	T2L, T2R, C2, C4

Perfectly suited to the environment

Overall System
– Compact, light weight, and durable design that optimizes material usage
– Remote connectivity improves service efficiency and reduces unnecessary trips to the installation

Drive
– Gearless machine for smooth ride quality without requiring oil for lubrication
– Regenerative frequency converter returns energy to the grid for future use in the building or elevator operation
– Stable start without high peak current, quickly reaching a low energy consumption level

Hoistway
– Lighter Schindler Traction Media require less energy to operate than traditional steel ropes
– Updated elevator positioning system eliminates unnecessary trips to reset the system

Control
– System switches car lights and ventilation into stand-by mode when not in use
– Smart operation, down collective and selective collective controls for efficient passenger transportation

Car
– Ceiling lights, car indicator and landing indicators feature energy saving LED lights
– Door drive with stand-by mode for safety and energy conservation
– Light-weight interior materials improve operational efficiency and energy usage

Representative unit
based on an average low-rise residential building in Europe

Elevator System	ES1	**Car W/D/H (mm)**	1200 / 1400 / 2139
Rated Load	675 kg	**Door W/H (mm)**	900 / 2000
Speed	1.0 m/s	**Operation days per year**	365
Travel height	12 m	**Usage category**	2 & 3
Number of floors / entrances	5/1	**Reference service life**	25 years

In case of major deviations to the given configuration, please contact Schindler to anticipate the impact.

Elevator life-cycle insights

System Boundary

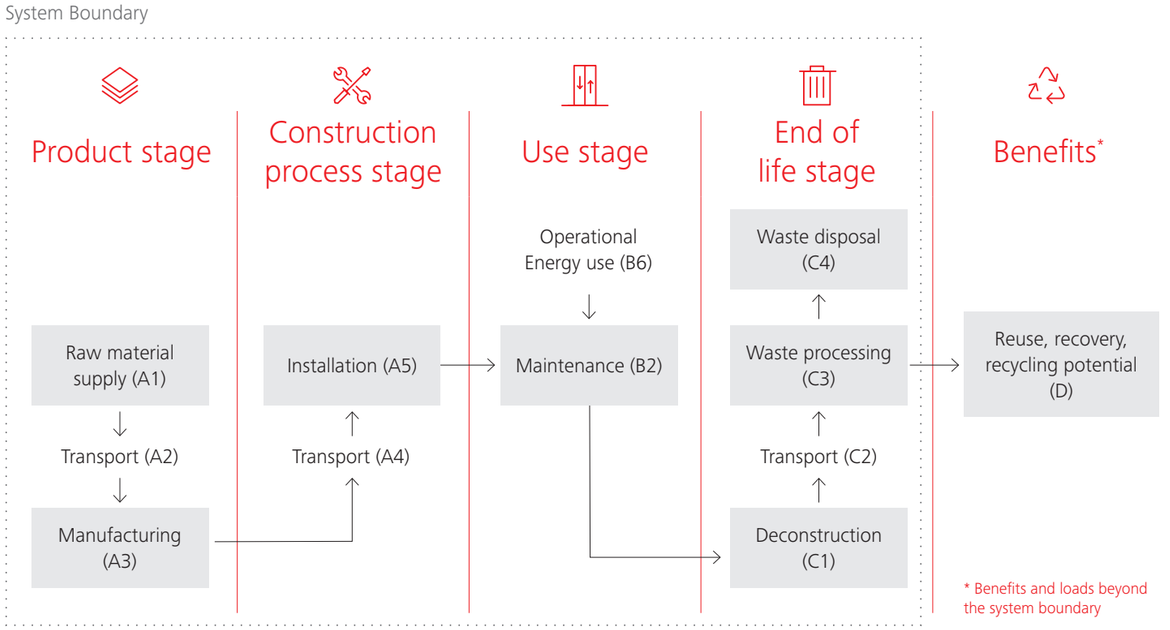
This EPD covers the full-life cycle with a cradle to grave approach. The PCR focuses on four main stages. The Product stage (A1-A3) includes the raw material extraction and production, transport to the manufacturing site (primarily by truck), and manufacturing and assembly of components, considering the demand of energy, auxiliary and operational materials and packaging. The Construction process stage (A4-A5) includes the transportation to the installation site by truck and the installation, considering the energy demand and auxiliary material including related Volatile Organic Compound (VOC) emissions. The Use stage (B1-B7) includes the maintenance, considering the transportation of employees to the installation site and auxiliary materials, including related VOC emissions and preventive maintenance parts production and energy use during operation and standby. All other modules are not relevant and modernization is not foreseen. The End-of-life stage (C1-C4) includes the deconstruction, considering the energy demand and auxiliary materials, the transportation by truck to waste processing facilities, the waste processing, considering sorting, and the waste disposal, considering a scenario with recycling, incineration and landfill. Finally, the benefits and loads beyond the system boundaries stage (D) includes the potential for recycling by substitution of primary material and energy recovery.

Cut-off Criteria

General quality and cut-off criteria were considered, as defined for the evaluation in the PCR and EN 15804. The total mass of the elevator materials considered equals the total mass of the elevator. All inflows and outflows, for which data are mandatory, are included in the calculations. Special emphasis was given to material and energy flows that are known to have a large impact.

Product stage	Raw material supply	A1	✓
	Transport	A2	✓
	Manufacturing	A3	✓
Construction Process stage	Transport	A4	✓
	Installation	A5	✓
Use stage	Use	B1	ND
	Maintenance	B2	✓
	Repair	B3	ND
	Refurbishment	B5	ND
	Operational enegry use	B6	✓
	Operational water use	B7	ND
End of life stage	Deconstruction	C1	✓
	Transport	C2	✓
	Waste processing	C3	✓
	Waste disposal	C4	✓
Benefits	Reuse, recovery, recyling, potential	D	✓

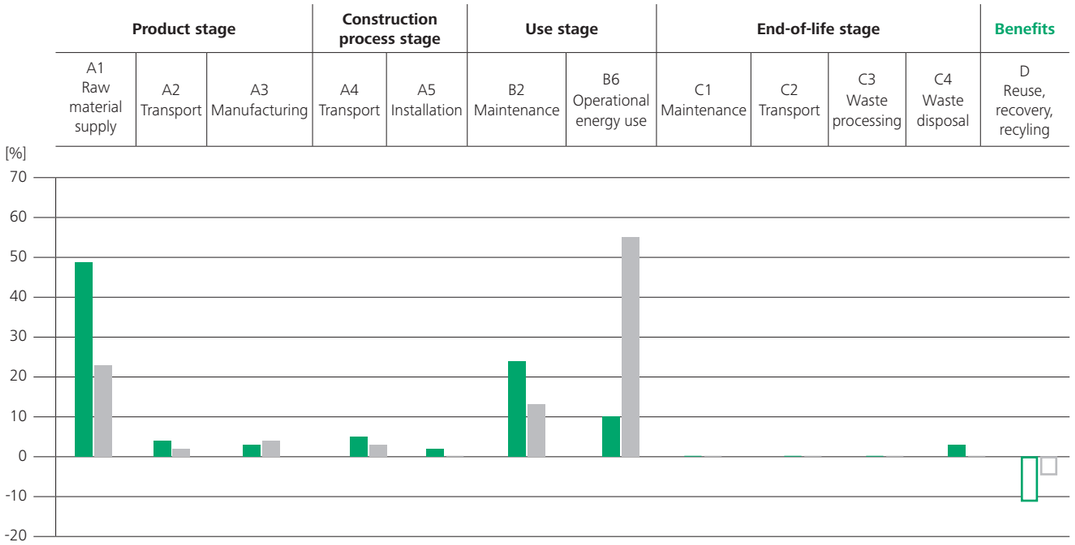
This declaration covers “cradle to grave”. All mandatory modules covered in the EPD are marked with an ✓. For non-relevant fields, ND is marked in the table.



Our mission: reduce emissions

Consolidated impact based on a reference service life of 25 years
Values shown refer to the representative unit of Schindler 3000, as shown on page 7. The most relevant processes, energy and material flows are indicated

- Climate change total (GWP_{tot})
- Resource use - fossil fuels (ADPF)



Data reflects UC2 results

Summary
Energy rating efficiency has been improved dramatically, up to 30% or more, compared to the previous product generation. In the operations stage, we have achieved a Class A energy efficiency rating for the defined representative elevator. The material supply for production, the energy consumption of the elevator during operation, and the maintenance during the life time of the elevator system have the biggest impact on resources. The profile of the impacts of the energy consumption depends on the chosen electricity supply. The French supply mix was considered for the installation in Paris. Further relevant factors are the elevator lifetime and the usage category. With shorter lifetime and lower usage, the portion of materials becomes more important.

Environmental Impact
In the LCA, impact assessment methods and characterization factors were used at the midpoint level as requested in the PCR (i.e. without normalization and weighting). Selected core environmental impact categories for this study were global warming (IPCC 2013 100 year horizon), effects on the stratospheric ozone layer (WMO, 2014), acidification (Seppälä et al., 2006), eutrophication (Struijs et. Al 2009b), photochemical ozone creation (Van Zelm et al.), abiotic depletion of elements (CML 2001, baseline, August 2016 version), and abiotic depletion of fossil fuels (Guinée et al.), water deprivation potential (Boulay et al., 2016).

Impacts per functional unit
Contribution by life-cycle phases
The PCR defines the following functional unit for product comparison.

The primary purpose of an elevator is to transport goods and passengers vertically. Therefore, for the purpose of this EPD, the functional unit is the result of a load transported over a distance, expressed in ton - kilometer [tkm].

The Transportation Performance (TP) indicates the total amount of tkm performed by the elevator over the defined service life with an average load according to ISO 25745-2.

For the defined representative unit and a lifetime of 25 years, the TP per applied usage category is:

Usage Category	Transportation Performance (TP)
2	339.5 tkm
3	814.9 tkm

Minimizing material, maximizing space

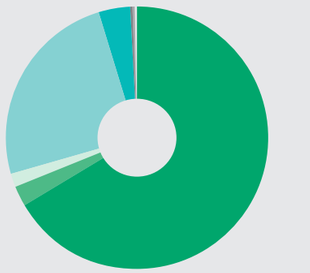
Material that matters
The table and graph below show the resulting material composition of the installed elevator with a total weight of 2556.5 kg, without packaging. It is mainly composed of ferrous metals and concrete. The biogenic carbon content in the product is below 5%

At the end of usage almost all material is suitable for recycling. An average material loss of 5% in production was assumed additionally for the consumption of raw material. The Schindler 1000/3000 elevators emit no VOCs or other harmful substances once installed. The elevator can optionally be ordered halogen free – which includes the cabling and wiring. Hazardous substances are avoided as much as possible, in accordance with REACH, its candidate list and other regulations. However, the following substances may still exist above 0.1% weight by weight in articles used in our products (see table below).

Substance	CAS-No.	Present in
Lead	7439-92-1	Batteries, Metal alloys
Diboron Trioxide	1303-86-2	Electronic articles
Boric Acid	10043-35-3	Electronic articles

Used material – an overview
The average recycled content of the European metal supply was considered in the calculations of the environmental impact from materials according to the PCR. A cut-off was applied for recycling at the end of life.

Product components	Weight (kg)	Weight (%)
Ferrous metal	1705.59	66.70%
Non-ferrous metals	60.85	2.40%
Plastics and rubbers	44.94	1.80%
Inorganic materials	631.36	24.70%
Organic materials	97.20	3.80%
Lubricants	0.01	0.00%
Electric and electronic equipment	10.16	0.40%
Batteries and accumulators	6.41	0.30%
Other materials	0.00	0.00%
Total	**2556.53**	**100%**



Packaging material
The table shows the typical composition of material used for packaging in relation to the total weight of the elevator system – once the elevator arrives on the construction site.

Schindler seeks to maximize the transport capacity per pallet for each delivery. Furthermore, almost all materials are suitable for recycling, e.g. paperboard and wood.

Composition of packaging material

Product components	Weight (kg)	weight-% packaging	weight-% packaging vs product	Biogenic carbon content, kg C
Wood	129.9	84.2%	5.1%	6.50E+01
Cardboard	20.7	13.4%	0.8%	9.52E+00
Plastic	2.4	1.6%	0.1%	0.00E+00
Steel	1.2	0.8%	0%	0.00E+00
Total	**154.2**	**100**	**6**	**7.45E+01**

Potential environmental impact

Table of results – core environmental impact UC 2 per tkm

	EN15804	Product stage				Construction process stage		Use stage		End-of-life stage					Net Benefits
Impact category	Unit	A1	A2	A3	Sum A1–A3	A4	A5	B2	B6	C1	C2	C3	C4	Total	D
GWP_{tot}	kg CO2 eq.	1.64E+01	1.33E+00	1.06E+00	1.88E+01	1.85E+00	8.36E-01	8.23E+00	3.62E+00	5.56E-03	1.15E-01	1.19E-01	9.07E-01	3.45E+01	-3.91E+00
GWP_{fos}	kg CO2 eq.	1.69E+01	1.33E+00	1.85E+00	2.01E+01	1.85E+00	3.20E-02	8.21E+00	3.60E+00	5.53E-03	1.15E-01	1.18E-01	3.50E-01	3.44E+01	-3.91E+00
GWP_{bio}	kg CO2 eq.	-5.09E-01	4.87E-04	-7.92E-01	-1.30E+00	6.79E-04	8.04E-01	1.31E-02	1.22E-02	1.88E-05	5.64E-05	1.66E-04	5.56E-01	8.64E-02	8.64E-02
GWP_{luluc}	kg CO2 eq.	2.52E-02	4.77E-04	5.54E-03	3.12E-02	6.54E-04	1.40E-05	7.32E-03	2.97E-03	4.55E-06	6.43E-05	3.72E-05	3.51E-05	4.23E-02	2.02E-04
ODP	kg CFC 11 eq.	1.09E-06	3.02E-07	1.70E-07	1.56E-06	4.23E-07	5.36E-09	1.17E-06	2.07E-06	3.17E-09	2.47E-08	2.79E-09	1.59E-08	5.27E-06	-1.51E-07
AP	mol H^+ eq.	1.74E-01	6.86E-03	8.74E-03	1.90E-01	9.39E-03	1.73E-04	5.03E-02	1.87E-02	2.87E-05	5.54E-04	1.38E-04	4.07E-04	2.69E-01	-3.33E-02
EP_{fw}	kg P eq.	1.60E-03	1.05E-05	1.34E-04	1.74E-03	1.47E-05	1.79E-06	6.18E-04	1.44E-04	2.21E-07	1.29E-06	1.17E-06	1.64E-06	2.52E-03	-3.34E-04
EP_{fw}	kg PO4 eq.	4.80E-03	3.17E-05	4.04E-04	5.24E-03	4.42E-05	5.39E-06	1.86E-03	4.33E-04	6.65E-07	3.90E-06	3.53E-06	4.95E-06	7.60E-03	-1.00E-03
EP_{mar}	kg N eq.	2.08E-02	2.24E-03	1.40E-03	2.44E-02	3.19E-03	3.33E-05	8.78E-03	3.04E-03	4.67E-06	1.74E-04	2.85E-05	1.88E-04	3.99E-02	-3.66E-03
EP_{ter}	mol N eq.	3.65E-01	2.47E-02	1.54E-02	4.05E-01	3.52E-02	2.85E-04	1.04E-01	3.33E-02	5.11E-05	1.93E-03	3.18E-04	1.49E-03	5.81E-01	-4.43E-02
POCP	kg NMVOC eq.	8.43E-02	7.10E-03	4.85E-03	9.62E-02	1.00E-02	1.16E-04	3.19E-02	9.15E-03	1.41E-05	5.57E-04	8.53E-05	4.00E-04	1.48E-01	-2.20E-02
ADPE*	kg Sb eq.	7.38E-03	3.64E-05	1.92E-05	7.44E-03	5.08E-05	3.96E-07	3.56E-03	8.75E-05	1.34E-07	5.68E-06	3.84E-07	6.90E-07	1.11E-02	-1.01E-04
ADPF*	MJ	1.95E+02	2.01E+01	3.57E+01	2.51E+02	2.81E+01	1.30E+00	1.08E+02	4.71E+02	7.24E-01	1.71E+00	3.22E-01	7.21E-01	8.64E+02	-3.52E+01
WDP*	m^3 depriv.	5.60E+00	5.61E-02	6.14E-01	6.27E+00	7.83E-02	2.05E-02	1.39E+00	1.24E+00	1.90E-03	6.11E-03	8.91E-02	1.33E-01	9.23E+00	-5.04E-01
Additional impact															
GWP_{GHG}**	kg CO2 eq.	1.64E+01	1.32E+00	1.83E+00	1.95E+01	1.83E+00	3.07E-02	8.09E+00	3.55E+00	5.45E-03	1.14E-01	1.18E-01	3.52E-01	3.36E+01	-3.70E+00

Table of results – core environmental impact UC 3 per tkm

	EN15804	Product stage				Construction process stage		Use stage		End-of-life stage					Net Benefits
Impact category	Unit	A1	A2	A3	Sum A1–A3	A4	A5	B2	B6	C1	C2	C3	C4	Total	D
GWP_{tot}	kg CO2 eq.	6.85E+00	5.53E-01	4.42E-01	7.84E+00	7.70E-01	3.48E-01	3.43E+00	2.05E+00	2.32E-03	4.78E-02	4.94E-02	3.78E-01	1.49E+01	-1.63E+00
GWP_{fos}	kg CO2 eq.	7.05E+00	5.52E-01	7.70E-01	8.37E+00	7.69E-01	1.33E-02	3.42E+00	2.05E+00	2.31E-03	4.78E-02	4.93E-02	1.46E-01	1.49E+01	-1.63E+00
GWP_{bio}	kg CO2 eq.	-2.12E-01	2.03E-04	-3.30E-01	-5.42E-01	2.83E-04	3.35E-01	5.46E-03	6.95E-03	7.83E-06	2.35E-05	6.92E-05	2.32E-01	3.79E-02	3.60E-02
GWP_{luluc}	kg CO2 eq.	1.05E-02	1.99E-04	2.31E-03	1.30E-02	2.73E-04	5.85E-06	3.05E-03	1.68E-03	1.90E-06	2.68E-05	1.55E-05	1.46E-05	1.81E-02	8.40E-05
ODP	kg CFC 11 eq.	4.54E-07	1.26E-07	7.08E-08	6.50E-07	1.76E-07	2.24E-09	4.88E-07	1.17E-06	1.32E-09	1.03E-08	1.16E-09	6.63E-09	2.51E-06	-6.28E-08
AP	mol H^+ eq.	7.26E-02	2.86E-03	3.64E-03	7.91E-02	3.91E-03	7.22E-05	2.10E-02	1.06E-02	1.20E-05	2.31E-04	5.76E-05	1.70E-04	1.15E-01	-1.39E-02
EP_{fw}	kg P eq.	6.65E-04	4.39E-06	5.59E-05	7.25E-04	6.11E-06	7.47E-07	2.58E-04	8.17E-05	9.20E-08	5.39E-07	4.88E-07	6.85E-07	1.07E-03	-1.39E-04
EP_{fw}	kg PO4 eq.	2.00E-03	1.32E-05	1.68E-04	2.18E-03	1.84E-05	2.25E-06	7.75E-04	2.46E-04	2.77E-07	1.62E-06	1.47E-06	2.06E-06	3.23E-03	-4.18E-04
EP_{mar}	kg N eq.	8.66E-03	9.33E-04	5.85E-04	1.02E-02	1.33E-03	1.39E-05	3.66E-03	1.73E-03	1.94E-06	7.25E-05	1.19E-05	7.82E-05	1.71E-02	-1.52E-03
EP_{ter}	mol N eq.	1.52E-01	1.03E-02	6.42E-03	1.69E-01	1.47E-02	1.19E-04	4.33E-02	1.89E-02	2.13E-05	8.02E-04	1.33E-04	6.21E-04	2.47E-01	-1.85E-02
POCP	kg NMVOC eq.	3.51E-02	2.96E-03	2.02E-03	4.01E-02	4.19E-03	4.85E-05	1.33E-02	5.20E-03	5.86E-06	2.32E-04	3.55E-05	1.67E-04	6.32E-02	-9.15E-03
ADPE*	kg Sb eq.	3.07E-03	1.52E-05	7.99E-06	3.10E-03	2.12E-05	1.65E-07	1.48E-03	4.97E-05	5.60E-08	2.37E-06	1.60E-07	2.87E-07	4.65E-03	-4.22E-05
ADPF*	MJ	8.14E+01	8.37E+00	1.49E+01	1.05E+02	1.17E+01	5.41E-01	4.51E+01	2.68E+02	3.01E-01	7.12E-01	1.34E-01	3.00E-01	4.31E+02	-1.47E+01
WDP*	m^3 depriv.	2.33E+00	2.34E-02	2.56E-01	2.61E+00	3.26E-02	8.53E-03	5.81E-01	7.04E-01	7.93E-04	2.54E-03	3.71E-02	5.54E-02	4.03E+00	-2.10E-01
Additional impact															
GWP_{GHG}**	kg CO2 eq.	6.83E+00	5.48E-01	7.62E-01	7.62E-01	7.64E-01	1.28E-02	3.37E+00	2.02E+00	2.27E-03	4.74E-02	4.91E-02	1.47E-01	1.45E+01	-1.54E+00

GWP_{tot} Climate change total
GWP_{fos} Climate change – fossil
GWP_{bio} Climate change – biogenic
GWP_{luluc} Climate change – land use and land use change
ODP Ozone Depletion
AP Acidification
EP_{fw} Eutrophication aquatic freshwater
EP_{mar} Eutrophication aquatic marine
EP_{ter} Eutrophication terrestrial
POCP Photochemical ozone formation
ADPE Depletion of abiotic resources – minerals and metals
ADPF Depletion of abiotic resources – fossil fuels
WDP Water use
GWP_{GHG} Climate change - greenhouse gas

* The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.
**The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. Thus, this indicator is almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Impact on natural resources

Use of resources

Material resources are based on specific data of the product, i.e. new and replacement material, packaging, and auxiliary materials used in the manufacturing.

Energy resources are calculated based on measurements or LCI-data. All data has been extended to their life cycle scope.

Table of results – use of resources UC 2 per tkm

	EN15804	Product stage				Construction process stage		Use stage		End-of-life stage					Net Benefits
Impact category	Unit	A1	A2	A3	Sum A1–A3	A4	A5	B2	B6	C1	C2	C3	C4	Total	D
PERE	MJ	1.69E+01	2.85E-01	6.19E+00	2.34E+01	3.98E-01	7.16E-02	5.29E+00	3.45E+01	5.30E-02	3.66E-02	3.32E-02	3.74E-02	6.38E+01	-2.68E+00
PERM	MJ	6.01E+00	0.00E+00	4.40E+00	1.04E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E+01	0.00E+00
PERT	MJ	2.29E+01	2.85E-01	1.06E+01	3.38E+01	3.98E-01	7.16E-02	5.29E+00	3.45E+01	5.30E-02	3.66E-02	3.32E-02	3.74E-02	7.42E+01	-2.68E+00
PENRE	MJ	1.91E+02	2.01E+01	3.57E+01	2.47E+02	2.81E+01	1.30E+00	1.07E+02	4.71E+02	7.24E-01	1.71E+00	3.22E-01	7.21E-01	8.58E+02	-3.52E+01
PENRM	MJ	4.17E+00	0.00E+00	0.00E+00	4.17E+00	0.00E+00	0.00E+00	1.11E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.28E+00	0.00E+00
PENRT	MJ	1.95E+02	2.01E+01	3.57E+01	2.51E+02	2.81E+01	1.30E+00	1.08E+02	4.71E+02	7.24E-01	1.71E+00	3.22E-01	7.21E-01	8.64E+02	-3.52E+01
SM	MJ	1.63E+00	0.00E+00	3.02E-03	1.63E+00	0.00E+00	0.00E+00	3.30E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	7.07E-02	7.07E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.07E-02	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	7.07E-02	7.07E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.07E-02	0.00E+00
FW	m³	1.60E-01	2.00E-03	3.34E-02	1.95E-01	2.80E-03	6.74E-04	4.59E-02	1.35E-01	2.08E-04	2.31E-04	2.77E-03	3.22E-03	3.86E-01	-1.19E-02

Table of results – use of resources UC 3 per tkm

	EN15804	Product stage				Construction process stage		Use stage		End-of-life stage					Net Benefits
Impact category	Unit	A1	A2	A3	Sum A1–A3	A4	A5	B2	B6	C1	C2	C3	C4	Total	D
PERE	MJ	7.04E+00	1.19E-01	2.58E+00	9.74E+00	1.66E-01	2.98E-02	2.20E+00	1.96E+01	2.21E-02	1.53E-02	1.38E-02	1.56E-02	3.18E+01	-1.12E+00
PERM	MJ	2.50E+00	0.00E+00	1.83E+00	4.34E+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	4.34E+00	0.00E+00
PERT	MJ	9.54E+00	1.19E-01	4.41E+00	1.41E+01	1.66E-01	2.98E-02	2.20E+00	1.96E+01	2.21E-02	1.53E-02	1.38E-02	1.56E-02	3.61E+01	-1.12E+00
PENRE	MJ	7.97E+01	8.37E+00	1.49E+01	1.03E+02	1.17E+01	5.41E-01	4.47E+01	2.68E+02	3.01E-01	7.12E-01	1.34E-01	3.00E-01	4.29E+02	-1.47E+01
PENRM	MJ	1.74E+00	0.00E+00	0.00E+00	1.74E+00	0.00E+00	0.00E+00	4.62E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E+00	0.00E+00
PENRT	MJ	8.14E+01	8.37E+00	1.49E+01	1.05E+02	1.17E+01	5.41E-01	4.51E+01	2.68E+02	3.01E-01	7.12E-01	1.34E-01	3.00E-01	4.31E+02	-1.47E+01
SM	MJ	6.78E-01	0.00E+00	1.26E-03	6.79E-01	0.00E+00	0.00E+00	1.38E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.93E-01	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	2.95E-02	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-02	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	2.95E-02	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-02	0.00E+00
FW	m³	6.66E-02	8.33E-04	1.39E-02	8.13E-02	1.16E-03	2.81E-04	1.91E-02	7.68E-02	8.66E-05	9.64E-05	1.15E-03	1.34E-03	1.81E-01	-4.97E-03

PERE Use of renewable primary energy excluding renewable energy resources used as raw material
PERM Use of renewable primary energy resources used as raw material
PERT Total use of renewable primary energy resources (primary energy and primary energy resources used as raw material)
PENRE Use of non-renewable primary energy excluding non-renewable energy resources used as raw material
PENRM Use of non-renewable primary energy resources used as raw material
PENRT Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw material)
SM Use of secondary material
RSF Use of renewable secondary fuels
NRSF Use of non-renewable secondary fuels
FW Net use of fresh water

Recognizing value at the end-of-life

Waste – Categories

Information on waste is given in three categories, considering potential risks from deposition of materials. The highest amount of waste is related to categories with low risk „non-hazardous waste“. Relevant contributions result from raw material extraction and transformation including mining and processing of metals and from manufacturing.

Table of results – waste categories UC 2 per tkm

	EN15804	Product stage				Construction process stage		Use stage		End-of-life stage					Net Benefits
Impact category	Unit	A1	A2	A3	Sum A1–A3	A4	A5	B2	B6	C1	C2	C3	C4	Total	D
HWD	kg	3.36E-03	5.24E-05	1.19E-04	3.53E-03	7.36E-05	3.42E-07	6.25E-04	1.31E-04	2.02E-07	4.74E-06	3.01E-07	1.58E-06	4.36E-03	-2.82E-04
NHWD	kg	4.14E+00	9.48E-01	1.72E-01	5.26E+00	1.34E+00	3.80E-01	2.14E+00	6.43E-01	9.88E-04	5.20E-02	2.09E-02	1.89E+00	1.17E+01	-1.39E+00
RWD	kg	4.42E-04	1.37E-04	1.67E-04	7.46E-04	1.91E-04	9.90E-06	5.13E-04	6.14E-03	9.42E-06	1.13E-05	1.17E-06	3.35E-06	7.62E-03	-6.94E-05

Table of results – waste categories UC 3 per tkm

	EN15804	Product stage				Construction process stage		Use stage		End-of-life stage					Net Benefits
Impact category	Unit	A1	A2	A3	Sum A1–A3	A4	A5	B2	B6	C1	C2	C3	C4	Total	D
HWD	kg	1.40E-03	2.18E-05	4.94E-05	1.47E-03	3.07E-05	1.42E-07	2.60E-04	7.47E-05	8.41E-08	1.97E-06	1.26E-07	6.59E-07	1.84E-03	-1.17E-04
NHWD	kg	3.38E+00	7.89E-01	1.38E-01	4.30E+00	5.57E-01	4.86E-04	8.92E-01	3.65E-01	4.12E-04	2.17E-02	8.69E-03	7.89E-01	6.94E+00	-5.79E-01
RWD	kg	1.84E-04	5.70E-05	6.97E-05	3.11E-04	7.97E-05	4.13E-06	2.14E-04	3.48E-03	3.93E-06	4.72E-06	4.89E-07	1.40E-06	4.10E-03	-2.89E-05

HWD Hazardous waste disposal
NHWD Non-hazardous waste disposal
RWD Radioactive waste disposal

Waste – Output Flow

The elevator consists of a high amount of materials with recycling potential. Plastic and organic material delivered to municipal incineration were considered for energy recovery. No parts are considered for re-use.

Table of results – environmental output flow UC2 per tkm

	EN15804	Product stage				Construction process stage		Use stage		End-of-life stage				
Impact category	Unit	A1	A2	A3	Sum A1–A3	A4	A5	B2	B6	C1	C2	C3	C4	Total
CRU	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	0.00E+00	0.00E+00	5.84E-01	5.84E-01	0.00E+00	4.54E-01	1.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.26E+00	6.50E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-01	3.59E-01
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.71E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.09E-01	1.08E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.05E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E+00	2.01E+00

Table of results – environmental output flow UC3 per tkm

	EN15804	Product stage				Construction process stage		Use stage		End-of-life stage				
Impact category	Unit	A1	A2	A3	Sum A1–A3	A4	A5	B2	B6	C1	C2	C3	C4	Total
CRU	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	0.00E+00	0.00E+00	2.43E-01	2.43E-01	0.00E+00	1.89E-01	8.23E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.19E+00	2.71E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-01	1.50E-01
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.37E-01	4.50E-01
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.29E-01	8.39E-01

CRU Components for re-use
MFR Materials for recycling
MER Materials for energy recovery
EEE Exported Energy Electrical
EET Exported Energy Thermal

Scenarios

Electricity and district heat in manufacturing (A3) und operation (B6) phase
Electricity and district heat are used during the manufacturing stage from suppliers in different countries. Each country has its own electricity and district heat mix with its own composition and environmental impact (kg CO^2 eq. /kWh). The following table shows the emission factors of kg CO^2 eq of the country specific supply mix.

Country	Electricity CO2 eq. / kWh	District Heat CO2 eq. / kWh
Austria	0.35	0.08
China	1.07	
Czech Republic	0.94	
France	0.09	
Italy	0.42	
Switzerland	0.11	
Slovakia	0.51	0.15
Spain	0.33	
Liechtenstein	0.11	0.06

Transport to installation site (A4)
Transport from Schindler hub to the installation site in Paris. A load factor based on EcoInvent 3.6 including empty returns has been considered.

Means of transport	Distance	Load factor
Truck 16 – 32 metric tons, EURO 4, Diesel	1360 km	5.79 t
Truck 7.5 - 16 metric tons, EURO 4, Diesel	24 km	3.29 t

Maintenance (B2)
Proper maintenance assures good operation over the entire service life. This includes preventive replacement of worn parts. For the commuting of the maintenance personnel, an annual average per installation was applied based on the fleet milage of the region.

Scenario	Amount	
Preventive maintenance interval	As per component individual plan	
Commuting to installation	202 km/year	Passenger car diesel with particle filter

Preventive maintenance replacement materials	Weight, kg	weight-%
Ferrous metal	31.99	36%
Non-ferrous metals	6.26	7%
Plastics and rubbers	12.56	14%
Inorganic materials	5.10	6%
Lubricants	0.01	0%
Electric and electronic equipment	7.04	8%
Batteries and accumulators	25.60	29%
Total	**88.56**	**100%**

Energy Consumption in operation phase (B6) and Energy Efficiency Classification
Increasing energy efficiency is essential in order to reduce the environmental impact of the elevator and the building. The longest phase in the life cycle is the usage phase, which is up to 25 years or longer, depending on maintenance and modernization.

Schindler energy efficiency calculation and classification is performed according to ISO 25745-2. The typical usage expectation for a Schindler 1000/3000 is between 75 to 500 trips per day. The classification and estimated annual energy consumption always refers to a specific configuration. Usage, load capacity, energy saving options and site conditions also influence the final rating.

Usage category	Assumption	Estimated annual energy consumption	Energy efficiency classification
UC2	125 trips per day	521 kWh	Class A
UC3	300 trips per day	710 kWh	Class A

According to the representative elevator, as defined for the Life Cycle Assessment, see page 7.

End of Life (C2 – C4)
Most materials are suitable for recycling, for example metal and glass, where a recycling rate of 74% is assumed. Plastic and wood are assumed to be disposed of using waste incineration. Energy recovery is assumed standard for municipal waste incineration facilities.

The amount of material delivered to recovery systems is used for the calculations of net benefits in module D. A net flow calculation is used according to EN 15804. Input and outflows of recycled materials are considered.

Processes	Unit*	Amount kg/kg
Collection process	kg collected separately	1
	kg collected with mixed construction waste	0
Recovery system	kg for re-use	0
	kg for recycling	0.74
	kg for energy recovery	0.04
Disposal specified by type	kg product or material for final deposition	0.22
Distance for end of life treatment	km	30

* Expressed per functional unit or per declared unit of components products or materials and by type of material

References

References

ISO 14025:2006 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 declarations - Core rules for the product category of construction products

PCR 2019:14 Construction Products

C-PCR-008 (TO PCR 2019 :14) Lifts (Elevators)

ISO 25745-2:2015 Energy performance of lifts, escalators and moving walks - Part 2: Energy calculation and classification for lifts (elevators)

Ecoinvent database v3.6, SimaPro V9

Glossary

LCA – Life-Cycle Assessment: Assessment methodology of the environmental impact of all relevant material and energy flows throughout the entire life cycle of a product, according to ISO 14040.

LCI – Life-Cycle Inventory: Creation of inventory of input and output flows for a product system. These flows include inputs such as water, energy, and raw materials. Outputs are releases to air, land, and water. Inventories are based on literature analysis or process simulation.

EPD – Environmental Product Declaration: A declaration that provides quantified environmental data using predetermined parameters defined in a Product Category Rule according to ISO 14025.

PCR – Product Category Rule: A set of specific rules, requirements and guidelines for developing environmental declarations for one or more product categories.

REACH – Registration, Evaluation, Authorisation and Restriction of Chemicals: EU regulation (EC 1907/2006) that addresses the production and use of chemical substances, and their potential impacts on both human health and the environment.

RSL – Reference Service Life: The reference service life considered for the LCA corresponds to the designed lifetime of the product.

FU – Functional Unit: For lifts it is defined as the transportation of a load over a distance, expressed as one tonne [t] transported over one kilometre [km], i.e. tonne-kilometer [tkm] over a vertical (or inclined) trajectory.

UC – Usage Category: Defines the intensity of the lift usage by categories, based on average number of trips per day according to ISO 25745-2.

Sustainability
We Elevate... Our World

Sustainability at Schindler is more than striving to minimize the use of natural resources. We facilitate sustainable, smart urban mobility, while committing to a sustainable supply chain for all our products and driving innovation for green building management.

Sustainability at Schindler also means enabling an inclusive work environment where our workforce, which is as diverse as our customers and passengers, can thrive. It also means creating value in the communities where we operate, by helping develop young talent through education and training, by fostering lifelong learning for our technicians and by designing products and systems that make it easy and safe for people to move about in cities.

We Elevate

Schindler