OTIS

Gen2® Stream

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for: OTIS Gen2® Stream

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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.

About OTIS

Otis was founded in 1853 after Elisha Otis invented the elevator safety brake, giving rise to the modern city, transforming how people live and work, and revolutionizing architecture. His invention would give rise to the modern city and forever change how we live.
Our history includes a string of industry firsts that have steadily improved elevator performance, enriched the passenger experience, and allowed architects to design buildings in entirely new ways.

The gearless traction machine overcame previous height limits. The double-deck elevator increased the amount of rentable space in a building. Automatic elevators eliminated the need for a human attendant. Computerized controllers cut travel time. Our flexible steel belts last twice as long as steel ropes. And our remote elevator monitoring technology represented one of the first uses of big data and predictive analytics to improve performance.

We've come a long way since Elisha Otis invented the modern elevator. Our elevators today are equipped with sophisticated dispatching technologies, energy-saving features, and other advanced systems designed to deliver a quiet, comfortable ride for the 2 billion people we move each day.

Our elevators can be found in some of the world's more iconic buildings, as well as apartment buildings, commercial towers, and the busiest retail centers, metros and airports – everywhere people on the move.
It's why we are proud to be able to say that we that give people freedom to connect and thrive in a taller, faster, smarter world.


Luis

ENVIRONMENTAL PRODUCT DECLARATION

Gen2® Stream

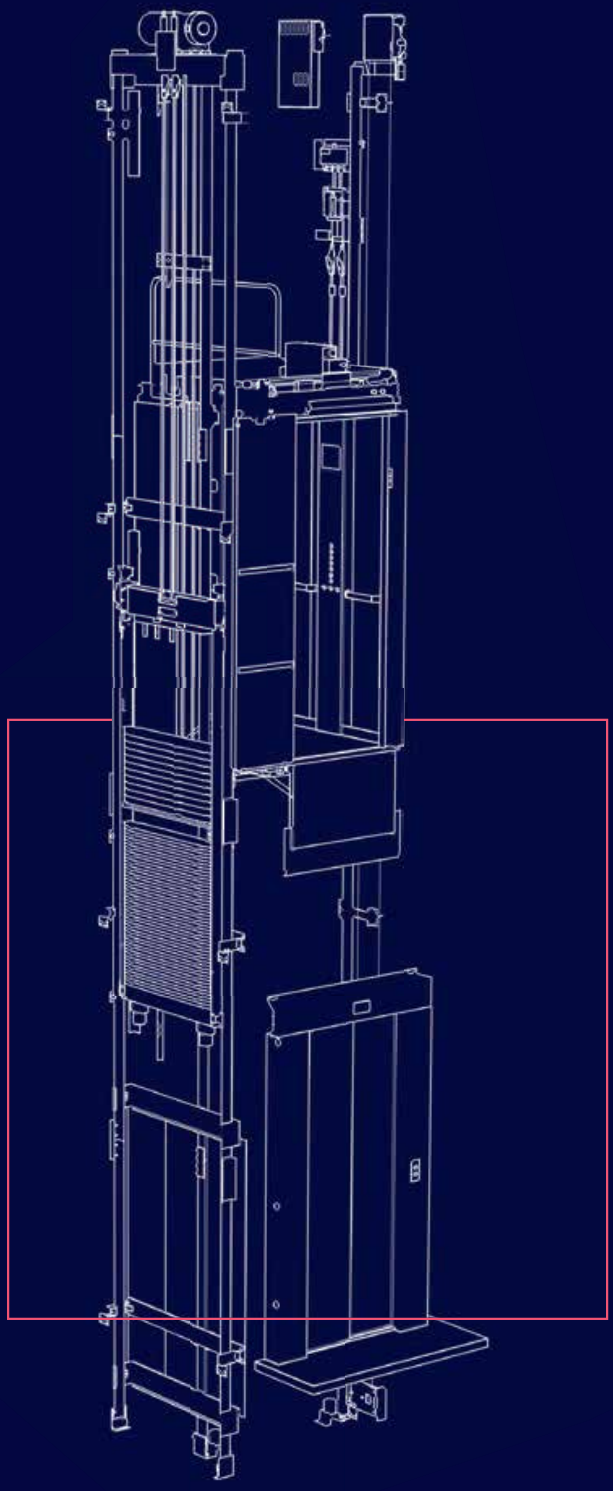
INTRODUCTION

The new Gen2® Stream elevator has the style, comfort and speed needed to ensure passengers experience your building to the fullest. With space-saving architectural features that maximize design freedom and quiet rides that allow passengers to live in the moment, Gen2 helps your building stand out.

The Gen2® Stream is designed to face so two challenges: more robustness and speed to handle the stream of passengers and connected solutions making every passenger unique.

The Gen2® technology replace conventional steel ropes with polyurethane coated flat steel belts that eliminates the noise-creating effects of metal-tometal contact.

The Gen2® Stream elevator can be fully customized (variable dimension, panoramic design, destination dispatch management...) to match the needs of most commercial building and premium residential ones"



MAIN CHARACTERISTICS

UP TO 2 500 KG
UP TO 2,5 M/S
UP TO 120 M / 24 STOPS

PRODUCT INFORMATION

This Environmental Product Declaration for the Gen2® Stream range is developed according to the ISO 14040/44 & ISO 14025 guidelines and to the calculation rules specified in the new C-PCR for Lifts «C-PCR-008 Lifts (to PCR 2019:14), version 2020-10-30", thereby providing full compliance with the CEN standard EN 15804:2012 + A2:2019 (as the core PCR), as well as the PCR 2019:14 Construction products, version 1.3.2. The General Program Instructions of the International EPD System apply for the current EPD development too.

We covered the whole life cycle of the Gen2® Stream lift, manufactured in İstanbul (Türkiye) OTIS facility, from the preparation of raw materials, its transport to manufacturing site and the manufacturing of the lift's components, through its installation, maintenance and use until each component end-of-life treatment. As specified in the C-PCR, the mandatory information of the Gen2® Stream lift is presented in the following table. The figures correspond to a typical configuration, being the representative unit of the complete range of the Gen2® Stream lifts.

INDEX	VALUES	REPRESENTATIVE VALUES CHOSEN IN CASE OF DECLARATION OF RANGES
Commercial Name	Gen2® Stream	
Segment	Commercial	
Type of installation	New generic lift	
Main purpose	Transport of passengers	
Type of lift	Electric	
Type of drive system	Gearless traction	
Capacity rated load (fixed or range)	630 - 2 500 kg	1 060 kg
Rated speed (fixed or range)	1,0 - 2,5 m/s	1,75 m/s
Number of stops (fixed or range)	Up to 40	8
Travelled height (fixed or range)	Up to 120 m	30 m
Number of operating days per year (fixed or range)	365	
Applied Usage Category (UC) according to ISO 25745-2	UC1...UC6	UC3
Designed Reference Service Life (RSL)	25 years	
Geographic region or intended installation region	Global	Europe
Recommended application (main market) Building rise (typical) / Building type	Recommended building type in Table A.1, Annex A, ISO25745-2 Mainly dedicated to residential and small scale commercial buildings	

Table 1. Gen2® Stream lift mandatory information required in the C-PCR.

The LCA was conducted for a lift with a lifetime of 25 years, without considering a modernization, installed in a 8 floors building, having a speed of 1,75 m/s and a travelling distance of 40 m. The number of trips per day for a lift with **Usage Category 3** is 300, which was obtained from ISO 25745-2.

The designed reference service life considered for the LCA study is a typical data. Depending on maintenance and modernization activities, the usage phase of a lift can be up to 20-25 years.

Comparability between EPDs based on this c-PCR-008 (to PCR 2019:14) is only achievable, if the following performance characteristics are equivalent: Functional unit, Reference Service Lifetime, Usage Category, travel height, number of stops, rated load, rated speed and geographic region). A European grid mix average (from Ecoinvent 3.9) was used to model power consumption by the elevator in the use phase.

Results Interpretation

The mandatory environmental impact indicators used and the associated impact methods listed in Annex C of EN 15804+A2 (CEN, 2019) (p. 60ff.) are declared. Optional indicators have been calculated and presented in the LCA background report, they are not published in this EPD.

The characterization methodology referenced in the EN15804+A2 is used for the calculation. Long-term emissions (> 100 years) are not accounted for in the impact assessment. The following table shows the mandatory environmental impact indicators declared:

CORE ENVIRONMENTAL IMPACT INDICATORS	UNIT	REFERENCE
Global Warming Potential total (GWP-total)	kg CO_2 eq.	IPCC 2013 AR5
Global Warming Potential fossil fuels (GWP-fossil)	kg CO_2 eq.	IPCC 2013 AR5
Global Warming Potential biogenic (GWP-biogenic)	kg CO_2 eq.	IPCC 2013 AR5
Global Warming Potential land use and land use change (GWP-luluc)	kg CO_2 eq.	IPCC 2013 AR5
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	WMO (2014) + integrations
Acidification potential, Accumulated Exceedance (AP)	mol H^+ eq.	Seppälä et al. (2006); Posch et al. (2008)
Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater)	kg PO_4 eq.	EUTREND model (Struijs et al, 2009b) as implemented in ReCiPe 2008
Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine)	kg N eq.	EUTREND model (Struijs et al, 2009b) as implemented in ReCiPe 2008
Eutrophication potential, accumulated Exceedance (EP-terrestrial)	mol N eq.	Seppälä et al. (2006); Posch et al. (2008)
Formation potential of tropospheric ozone (POCP)	kg NMVOC eq.	LOTOS-EUROS model (Van Zelm et al, 2008) as implemented in ReCiPe 2008
Abiotic depletion potential for non-fossil resources (ADP minerals&metals)	kg Sb eq.	van Oers et al. (2002) (based on Guinée et al. 2002)
Abiotic depletion for fossil resources potential (ADP-fossil)1	MJ, net calorific value	van Oers et al. (2002)
Water (user) deprivation potential, deprivation-weighted water consumption (WDP)1	m3 world eq. deprived	Available WAter REmaining (AWARE) Boulay et al. (2016)

The pattern of results for the Gen2® Stream is comparable to those of the previous product generation of Gen2 Stream elevators.

For impact category GWP, the life cycle performance of the elevator is dominated **by the materials manufacturing in the upstream section (module A1).**

Second most relevant – and for most of the indicators, the life cycle performance of the elevator is dominated by **the energy consumption from operation of the elevator (module B6).**

ENERGY EFFICIENCY ISO25745 CLASSIFICATION OF THE GEN2® STREAM

The Use phase is the longest phase in the life cycle of the lift, 25 years for the Gen2 Stream®, and the B6 Energy Consumption module is one of the most relevant stage impacting the environment.

It's therefore important for OTIS to continuously improve the energy efficiency of the elevators, and help our customers reduce the amount of the electricity used.

Therefore, our lifts are designed to achieve an A-class energy efficiency classification, according to ISO 25745 standard.

ENERGY EFFICIENCY CLASS (ISO25745)	ENERGY CONSUMPTION	
	DAILY	ANNUAL
A	4,4 kWh	1 606 kWh

Table 2. Energy Efficiency Class of the Gen2® Stream according to table Table 7 - ISO 25745-2

THE ENERGY CONSUMPTION PER DAY OF THE DECLARED GEN2® STREAM IS 4,4KWH, CORRESPONDING TO A CLASS EFFICIENCY FROM ISO 25745-2

IN MORE DETAIL,

PRODUCT STAGE – MODULE A1: RAW MATERIAL SUPPLY

The impacts for the Gen2® Stream are driven primarily by materials manufacturing of ferrous and electronic components, which created approx. 40% of Climate change "GWP total" and 76% of ADP and 29% of fossil "ADPF" and 47% of AP, 48% of EP terrestrial and 49% of POCP.

RODUCT STAGE – MODULE A3: MANUFACTURING AT OTIS FACTORY

In all impact categories, the manufacturing has a minor contribution to the impact categories. This limited impact from the manufacturing part is widely due to the continuous efforts to reduce its environmental footprint over the year through multi- channel initiatives such as: considering reusable and recyclable package for the components, eliminating the painting and welding operations, having a positive impact on greenhouse gas emissions and wastes (1).

USE STAGE – MODULE B6: OPERATIONAL ENERGY USE

The impacts are driven primarily by the electricity consumption during use stage (25 years), creating approximately 47% of GWP and 61% of ADPF, 42% of AP, 37% of EP terrestrial and 35% of POCP.

TRANSPORT

Last, the importance of the A4 Transport from manufacturing to building site stage is minor, less than 2,2% of impact categories GWP and 1,9% of impact categories ADPF. In terms of waste production, the amount of hazardous waste disposed is negligible and will occur during materials manufacturing.

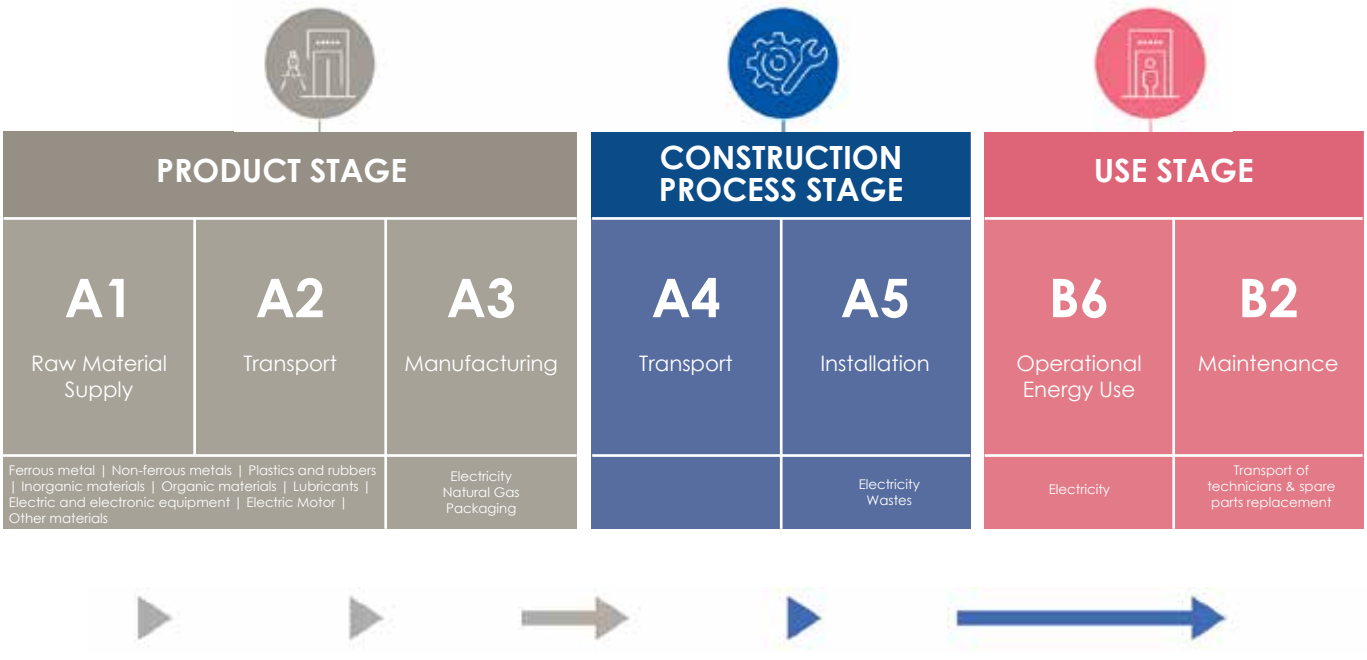
Life Cycle Approach

We design our lifts with a life-cycle approach and ensure continual improvements by reducing their potential environmental impacts at each life cycle stage.

The study scope is a typical "cradle to grave" assessment, from the raw material needed to build up the lift up to its end of life where the lift is removed and disposed. The C-PCR focuses on five main stages:

- **The Product stage (A1-A3)** includes the raw material extraction and production, transport to the manufacturing site, and manufacturing and assembly of components, considering the demand of energy, auxiliary and operational materials and packaging. During manufacturing, sizing, welding and assembly of the supplied parts are carried out.
- **The Construction process stage (A4-A5)** includes the transportation to the installation site by mainly truck and the installation, considering the energy demand and auxiliary material
- **The Use stage (B1-B7)** includes the maintenance, considering the transportation of employees to the installation site and auxiliary materials, including preventive maintenance parts production and energy use during operation and standby. All other modules are not relevant and modernization is not part of this
- The End-of-life stage (C1-C4) includes the deconstruction, considering the energy demand and auxiliary materials, the transportation by mainly 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.

The following picture summarizes the modules covered in the LCA calculation according to c-PCR 008 Lifts requirements. **This is a "cradle-to-grave" assessment plus module D (A+B+C+D),** construction of the production facility, machinery and equipment used in manufacturing, employee commuting and business travels are excluded from the system boundary:



The quality and cut-off criteria were considered, as per the EN 15804:2012+A2:2019. Therefore, the total mass of the Gen2® Stream Lift materials considered equals the total mass of the lift.All inflows and outflows, for which data are mandatory, are included in the LCA calculations.

Elevator components are either manufactured at OTIS owned and operated sites in Türkiye, or purchased from a Tier 1 supplier. The Gen2® Stream is then assembled by OTIS manufacturing sites, packed and sent to installation sites. In Otis sites, it only takes place the manufacturing of components, no pure material production applies.

The Gen2® Stream can be installed in different locations around Europe. In this LCA, Europe has been chosen as the reference location for modeling downstream processes. The european grid mix (Ecoinvent 3.9) has been used to simulate the energy associated to installation and maintenance works as well as for the energy used during the 25 years of service life considered.

In order to consider a general scenario possible for the end-of-life of the lift's components, for the calculation of the results metals have been considered as "recycled" and landfilling or incineration for the rest of the materials.

The Ecoinvent 3.9 LCA database provides the life cycle inventory data for several of the raw and process materials obtained from the background system. SimaPro 9.5. was used for LCA modelling.

LIFE CYCLE STAGE	INFORMATION MODULE		MODULES DECLARED	GEOGRAPHY	SPECIFIC DATA USED	VARIATION PRODUCTS
A1-A3* Product Stage	A1	Raw material supply	X	GLO	>90%	<10%
	A2	Transport	X	GLO	-	-
	A3	Manufacturing	X	TR	-	-
A4-A5 Construction Process	A4	Transport	X	GLO	-	-
	A5	Installation	X	GLO	-	-
B1-B7 Use Stage	B1	Use	ND	-	-	-
	B2	Maintenance	X	EU	-	-
	B3	Repair	ND	-	-	-
	B4	Replacement	ND	-	-	-
	B5	Refurbishment	ND	-	-	-
	B6	Operational energy use	X	EU	-	-
	B7	Operational water use	ND	-	-	-
C1-C4 End-of-life Stage	C1	Deconstruction	X	GLO	-	-
	C2	Transport	X	GLO	-	-
	C3	Waste processing	X	GLO	-	-
	C4	C4 Waste disposal	X	GLO	-	-
D Benefits and loads beyond the system boundary	D	Reuse, recovery, recycling, potential	X	GLO	-	-

About the Electricity Data

The electricity power mix representing Türkiye's grid is selected from Ecoinvent 3.9.1 database which has 0.578 kg CO_2 eq./kWh impact.

END OF LIFE STAGE				BENEFITS (Benefits and loads beyond the system
C1 Deconstruction	**C2** Transport	**C3** Waste processing	**C4** Waste disposal	**D** Transport
Electricity		Incineration with energy recovery & Recycling of metals	Landfill for other materials	Recycling of metals and plastics

Our majour customers and as importantly Governments care about how the lifts are manufactured and are becoming more conscious about the energy performance and the environmental protection. The reduction of energy consumption during in-house manufacturing through ISO 50001 is continuously supporting our energy efficiency during operations.

Within our european facilities we are also certified ISO 45001 Occupational Health and Safety Management Standard, to ensure our employee's health and safety, which is one of our core values at Otis. The implementation of the standard helps us to protect our employees against possible occupational risks and to reduce the likelihood of accidents in the workplace along with improving the safety performance of our products and protect all those that are using our equipment.

The certifications are publicly available on OTIS website.

Therefore, calculation of TP for obtaining of the results per FU is 1810 tkm.

FUNCTIONAL UNIT (FU) AND TRANSPORTATION PERFORMANCE (TP)

The function of a lift is the transportation of persons, freights or both. Based on this, the FU is defined as

the transportation of a load over a distance, expressed as one tonne [t] transported over one kilometre [km], i.e. tonne-kilometre [tkm] over a vertical (or inclined) trajectory.

TP shall be calculated according to the formulas and predetermined parameters shown below. As also indicated in the C-PCR, most of the predetermined parameters used are defined in ISO 25745-2. This standard is selected as the valid reference at international level for both the estimation of the lifts' energy consumption and for the calculation of TP. It gives tables of parameters for average distance travelled and average weight transported.

According to the underlying C-PCR, for the defined representative unit and a lifetime of 25 years, the TP evaluated for this study is calculated as follows: the average car load %Q [tonnes] times the distance travelled by the lift during the service life sRSL [km]

TP=%Q × sRSL

The average car load was calculated for the Gen2®

Stream using table 3 in ISO 25745-2:

%Q=Q/1000 × [Percentage from Table 3 of ISO 25745 − 2]=4,50%

where Q is the lift rated load, 1 060 [kg]
The distance travelled over the designed service life of 20 years (RSL) is:

sRSL=sav/1000 × nd × dop × RSL= 40241 [km]

where sav is the one-way average travel distance, 14,7 [m], nd is the number of trips per day according to the selected usage category (defined in Table 1 of ISO 25745-2) and dop is the number of operating days per year (see Table 1).

Content Declaration

The tables below show a material summary of the Gen2® Stream studied and its packaging, as delivered and installed in a building. Data are provided by OTIS according to the cut-off rules described in Section 4.5 of the C-PCR.

MATERIAL	MASS [kg]	Post-Consumer material, weight %	Biogenic material, weight %
Ferrous metals (zinc coated steel, stainless steel, cast iron)	5 028	0	0
Inorganic materials (concrete, glass)	1 282	0	0
Non-ferrous metals (aluminum, copper)	10	0	0
Plastics & Rubbers	118	0	0
Electric & Electronic Equipment	80	0	0
Lubricants (oils, greases), **paintings, coatings, adhesives and fillers** (glues)	3	0	0
Organic materials (paper, wood, cardboard)	20	0	50%
Other materials	5,0	0	0
Total mass	6 546		
Mass per 1 tkm	**3,61**		

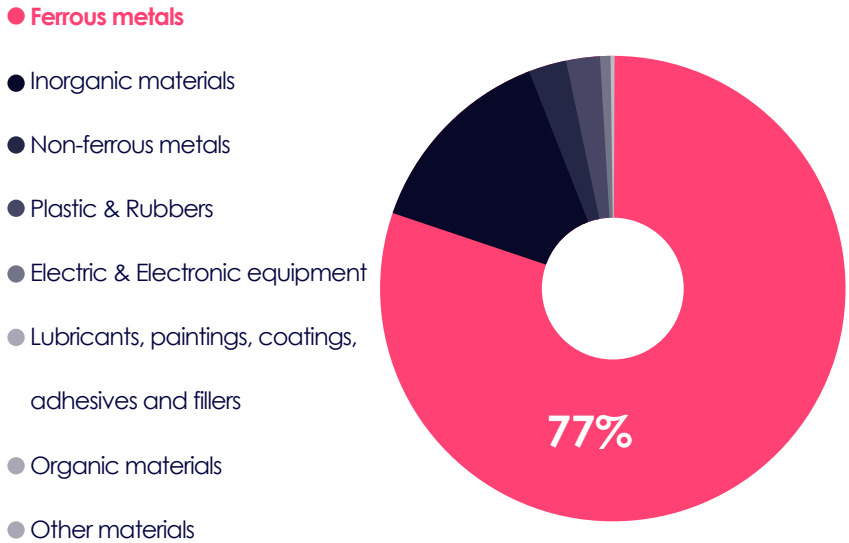
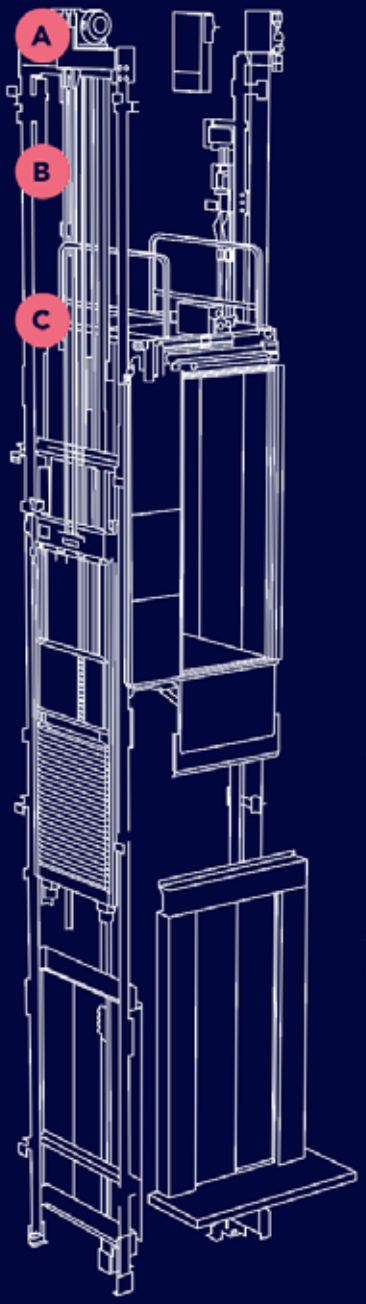


Table 4. Gross weight of the Gen2 Stream® elevator material as one unit of product.

ADVANCED TECHNOLOGY IS A STANDARD AT OTIS



- **A.** Gearless machine (energy efficient, no lubrificant, space-saver)
- **B.** Polyurethane coated flat steel belts (no lubrificant)
- **C.** Regen Drive technology (electricity generation)
- **LED lighting:** Car Operating Panel / Cabine ceiling

The tables below show a packaging summary of the Gen2® Stream studied as delivered and installed in a building.

MATERIAL	Mass, kg	Weight-%	Biogenic Carbon kg C/kg
Wood	155	83	0,5
Cardboard	16	8,5	0
Plastic PE (Low-density)	16	8,5	0
Total mass	187	100	
Mass per 1 tkm	0,10		

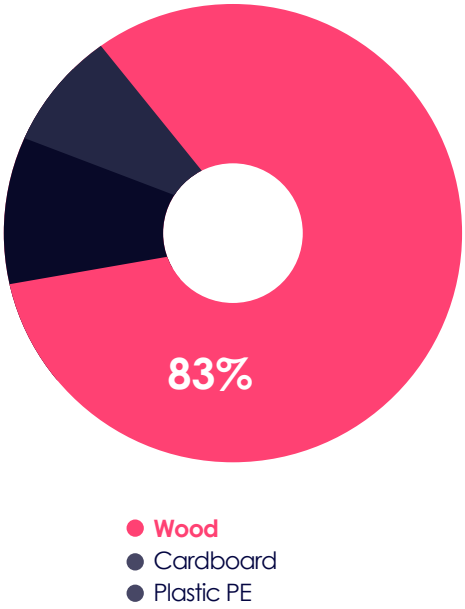


Table 5. Gross weight of the Gen2® Streamelevator packaging material for one unit of product.

Environmental Performance

The results for the complete service lifetime of the Gen2® Stream were calculated according to the C-PCR and presented per functional unit (tkm). Assumptions are presented in the verified LCA Background report. The definition of the listed impact categories is given in the Glossary section of this declaration.

It is discouraging the use of the results of modules A1-A3 (A1-A5 for services) without considering the results of module C. 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.

The EPD has been updated with the following considerations:

EN 15804	PRODUCT STAGE	CONSTRUCTION PROCESS STAGE		USE STAGE			END-OF-LIFE STAGE			NET BENEFITS
IMPACT CATEGORY	**A1-A3**	**A4**	**A5**	**B2**	**B6**	**C1**	**C2**	**C3**	**C4**	**D**
GWP - total (kg CO2 eq.)	**7,29E+0**	**375E-3**	**3,19E-3**	**1,14E+0**	**7,85E+0**	**23,9E-3**	**188E-3**	**17,4E-3**	**3,92E-3**	**-2,34E+0**
GWP - fossil [kg CO2 eq.]	**25,2E-3**	**289E-6**	**999E-6**	**4,05E-3**	**274E-3**	**836E-6**	**144E-6**	**20,1E-3**	**12,2E-3**	**5,44E-3**
GWP - biogenic [kg CO2 eq.]	**12,4E-3**	**177E-6**	**998E-6**	**1,39E-3**	**19,6E-3**	**59,8E-6**	**88,3E-6**	**585E-9**	**2,20E-6**	**-1,07E-3**
GWP - luluc [kg CO2 eq.]	**7,33E+0**	**376E-3**	**5,19E-3**	**1,14E+0**	**8,14E+0**	**24,8E-3**	**188E-3**	**37,5E-3**	**16,2E-3**	**-2,34E+0**
ODP [kg CFC-11 eq.]	**194E-9**	**8,21E-9**	**264E-12**	**32,4E-9**	**150E-9**	**457E-12**	**4,11E-9**	**57,8E-12**	**97,5E-12**	**-51,1E-9**
AP [Mole of H+ eq.]	**53,6E-3**	**1,26E-3**	**25,9E-6**	**6,22E-3**	**45,0E-3**	**137E-6**	**632E-6**	**32,6E-6**	**25,2E-6**	**-28,5E-3**
EP - freshwater [kg P eq.]	**5,33E-3**	**26,7E-6**	**1,58E-6**	**793E-6**	**7,43E-3**	**22,7E-6**	**13,4E-6**	**2,05E-6**	**5,49E-6**	**-2,45E-3**
EP - marine [kg N eq.]	**8,53E-3**	**437E-6**	**15,1E-6**	**1,24E-3**	**7,28E-3**	**22,2E-6**	**219E-6**	**15,7E-6**	**36,5E-6**	**-2,87E-3**
EP - terrestrial [Mole of N eq.]	**92,1E-3**	**4,62E-3**	**61,9E-6**	**12,9E-3**	**65,9E-3**	**201E-6**	**2,31E-3**	**168E-6**	**98,2E-6**	**-33,8E-3**
POCP [kg NMVOC eq.]	**32,0E-3**	**1,97E-3**	**15,8E-6**	**4,84E-3**	**21,2E-3**	**64,6E-6**	**983E-6**	**46,1E-6**	**38,2E-6**	**-14,9E-3**
ADPF [MJ]	**726E-6**	**1,01E-6**	**133E-9**	**129E-6**	**95,2E-6**	**290E-9**	**506E-9**	**3,97E-9**	**5,55E-9**	**-267E-6**
ADPE [kg Sb eq.]	**91,0E+0**	**5,49E+0**	**40,5E-3**	**15,8E+0**	**179E+0**	**545E-3**	**2,74E+0**	**21,9E-3**	**84,7E-3**	**-28,1E+0**
WDP [m³ world equiv.]	**2,71E+0**	**26,2E-3**	**3,83E-3**	**143E-3**	**2,01E+0**	**6,14E-3**	**13,1E-3**	**1,35E-3**	**3,72E-3**	**-599,2E-3**

Caption: GWP - total = global warming potential; GWP - fossil = global warming potential (fossil fuel only); GWP - biogenic = global warming potential (biogenic); GWP - luluc = global warmng potential (land use only); ODP = ozone depletion; AP = acidification terrestrial and freshwater; EP - freshwater = eutrophication potential (freshwater); EP - marine = eutrophication potential (marine); EP-terrestric = eutrophication potential (terrestrial); POCP = photochemical ozone formation; ADPE = abiotic depletion potential (element), ADPF = abiotic depletion potential (fossil) WDP = water scarcity. Regarding the indicators ADP-minerals&metals, ADP-fossil, WDP : The results of this environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicators.

RESOURCE USE

EN 15804	PRODUCT STAGE	CONSTRUCTION PROCESS STAGE		USE STAGE			END-OF-LIFE STAGE			NET BENEFITS
IMPACT CATEGORY	A1-A3	A4	A5	B2	B6	C1	C2	C3	C4	D
PERE [MJ]	13,9E+0	80,3E-3	117E-3	1,65E+0	40,0E+0	122E-3	40,2E-3	719E-6	1,11E-3	-1,41E+0
PERM [MJ]	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0
PERT [MJ]	13,9E+0	80,3E-3	117E-3	1,65E+0	40,0E+0	122E-3	40,2E-3	719E-6	1,11E-3	-1,41E+0
PENRE [MJ]	91,0E+0	5,49E+0	41,9E-3	15,8E+0	179E+0	545E-3	2,74E+0	21,9E-3	84,7E-3	-28,1E+0
PENRM [MJ]	000E+0	000E+0	000E+0	000,0E+0	000,0E+0	000E+0	000E+0	000E+0	000E+0	000E+0
PENRT [MJ]	91,0E+0	5,49E+0	41,9E-3	15,8E+0	179E+0	545E-3	2,74E+0	21,9E-3	84,7E-3	-28,1E+0
SM [kg]	1,31E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0
RSF [MJ]	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0
NRSF [MJ]	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0
FW [m3]	62,2E-3	1,09E-3	213E-6	10,6E-3	54,6E-3	167E-6	546E-6	139E-6	91,5E-6	-13,6E-3

Caption: 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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

WASTE CATEGORIES AND OUTPUT FLOWS

EN 15804	PRODUCT STAGE	CONSTRUCTION PROCESS STAGE		USE STAGE			END-OF-LIFE STAGE			NET BENEFITS
IMPACT CATEGORY	A1-A3	A4	A5	B2	B6	C1	C2	C3	C4	D
HWD [kg]	783E-3	000E+0	000E+0	000E+0	000E+0	3,62E+0	000E+0	000E+0	000E+0	000E+0
NHWD [kg]	2,16E-3	000E+0	103E-3	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0
RWD [kg]	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0
CRU [kg]	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0
MFR [kg]	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	3,02E+0	000E+0	000E+0
MER [kg]	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0
EEE [MJ]	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0
EET [MJ]	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0

Caption: HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

BIOGENIC CARBON CONTENT OF PRODUCT AND PACKAGING

EN 15804	PRODUCT STAGE	CONSTRUCTION PROCESS STAGE		USE STAGE			END-OF-LIFE STAGE			NET BENEFITS
IMPACT CATEGORY	**A1-A3**	**A4**	**A5**	**B2**	**B6**	**C1**	**C2**	**C3**	**C4**	**D**
BIOG. C IN PACKAGING [KG]	29,8E-3	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
BIOG. C IN PRODUCT [KG]	2,76E-3	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

ADDITIONAL GWP INDICATOR ACCORDING TO PCR FOR CONSTRUCTION PRODUCTS

EN 15804	PRODUCT STAGE	CONSTRUCTION PROCESS STAGE		USE STAGE			END-OF-LIFE STAGE			NET BENEFITS
IMPACT CATEGORY	**A1-A3**	**A4**	**A5**	**B2**	**B6**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG*	**7,33E+0**	**376E-3**	**6,19E-3**	**1,14E+0**	**7,91E+0**	**24,1E-3**	**188E-3**	**17,4E-3**	**13,3E-3**	**-2,35E+0**

*GWP-GHG = Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology. 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. This indicator is thus equal to the GWP indicator originally defined in EN15804:2012+A1:2013.

And Figure 1 show the graphic results FOR GWP INDICATOR

● GWP (kg CO2 eq.)

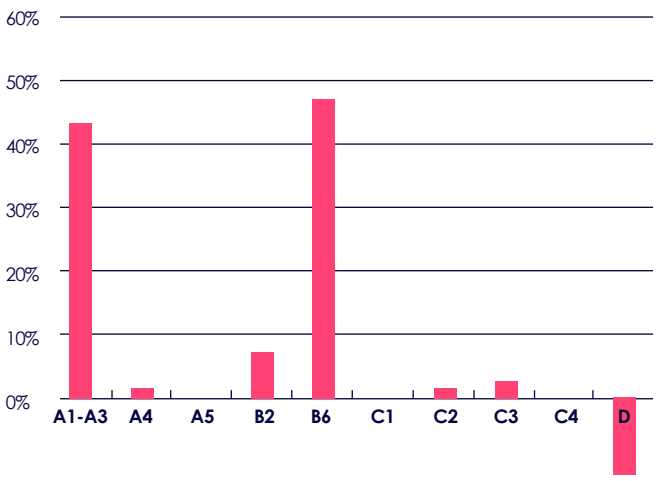


Figure 1. GWPtotal results for the Gen2® Stream lift per functional unit

SCENARIOS

The following scenarios have been considered in this EPD.
The EN 15804:2012+A2:2019 standard requires to present this information.

TRANSPORT TO BUILDING SITE

SCENARIO INFORMATION	UNIT (PER FU)
FUEL TYPE AND CONSUMPTION OF VEHICLE OR VEHICLE TYPE USED FOR TRANSPORT E.G. LONG DISTANCE TRUCK, BOAT ETC	Fuel type: Diesel, Type: Sea, container ship Fuel type: Diesel, Type: Lorry >32 metric
DISTANCE (A2 Transport)	1748 tkm road and 5220 tkm sea. Specifically calculated.
DISTANCE (A4 Transport)	1000 km was assumed.

INSTALLATION OF THE PRODUCT IN THE BUILDING

SCENARIO INFORMATION	UNIT (PER FU)
FUEL TYPE AND CONSUMPTION OF VEHICLE OR ANCILLARY MATERIALS FOR	0,000094 kg of glue/FU 0,0007 kg of cleaning agent /FU DIRECT EMISSIONS TO AMBIENT AIR, SOIL AND WATER
WATER USE	Non applicable
OTHER RESOURCE USE	Non applicable
QUANTITATIVE DESCRIPTION OF ENERGY TYPE (REGIONAL MIX AND CONSUMPTION DURING THE INSTALLATION PROCESS	0,0677 MJ of electricity/FU
WASTE MATERIALS ON THE BUILDING SITE BEFORE WASTE PROCESSING, GENERATED BY THE PRODUCT'S INSTALLATION (SPECIFIED BY TYPE)	0,011 kg carboards/FU 0,107 kg wood/FU 0,011 kg plastics/FU
OUTPUT MATERIALS (SPECIFIED BY TYPE) AS RESULT OF WASTE PROCESSING AT THE BUILDING SITE E.G. OF COLLECTION FOR RECYCLING, FOR ENERGY RECOVERY, DISPOSAL (SPECIFIED BY ROUTE)	Non applicable
DIRECT EMISSIONS TO AMBIENT AIR, SOIL AND WATER	Non applicable

USE STAGE RELATED TO THE BUILDING FABRIC

SCENARIO INFORMATION	UNIT (PER FU)
MAINTENANCE PROCESS	Various parts are replaced within the planned maintenance of thel ifts. Transportation of the maintenance team is included in module B2.
MAINTENANCE CYCLE	Some parts are replaced every 5 years, 10 years or 20 years.
ANCILLARY MATERIALS FOR MAINTENANCE, E.G. CLEANING AGENT, SPECIFY MATERIALS	0,175 kg metals parts/FU/ RSL 0,017 kg plastic parts/FU/ RSL 0,011 kg electronic parts/FU/ RSL 0,0045 kg cardboard /FU/ RSL
NET FRESH WATER CONSUMPTION DURING MAINTENANCE	Non applicable
ENERGY INPUT DURING MAINTENANCE, E.G. VACUUM CLEANING, ENERGY CARRIER TYPE, E.G. ELECTRICITY, AND AMOUNT, IF APPLICABLE AND RELEVANT	1,27 MJ of electricity /FU

SYSTAINABLE LIFE CYCLE OF THE ELEVATOR

As essential mobility enabler the elevator plays a critical role in our society. The table below showcases the running supply of energy and water according to the EPD's requirements.

USE OF ENERGY AND USE OF WATER

SCENARIO INFORMATION	UNIT (PER FU)
ANCILLARY MATERIALS SPECIFIED BY MATERIAL DISTANCE	Non applicable
NET FRESH WATER CONSUMPTION	Non applicable
TYPE OF ENERGY CARRIER (E.G. ELECTRICITY, NATURAL GAS, DISTRICT HEATING)	4403 Wh per day European grid mix considered
CHARACTERISTIC PERFORMANCE, E.G. ENERGY EFFICIENCY, EMISSIONS, VARIATION OF PERFORMANCE WITH CAPACITY UTILISATION ETC	Assumptions according to ISO 25745
FURTHER ASSUMPTIONS FOR SCENARIO DEVELOPMENT, E.G. FREQUENCY AND PERIOD OF USE, NUMBER OF OCCUPANTS	Assumptions according to ISO 25745

After running throughout many years and being maintained over decades the elevator might be dismantled and substituted with a new elevator or modernization product. Below's table showcases the consequences.

END OF LIFE

SCENARIO INFORMATION	UNIT (PER FU)
End of Life Treatmen Distrubution	83-85% recyling, 13-15% landill, ~1,5 incineration
ASSUMPTIONS FOR SCENARIO DEVELOPMENT (E.G. TRANSPORTATION)	500 km assumed for transportation to end of life

PROGRAMME-RELATED INFORMATION AND VERIFICATION

Programme	The International EPD® System EPD International AB Box 210 60, SE-100 31 Stockholm, Sweden www.environdec.com
Programme Operator	EPD Türkiye www.epdturkey.org info@epdturkey.org managed and run by SÜRATAM www.suratam.org Nef 09 B Blok No:7/15 34415 Kagıthane/Istanbul, Türkiye
Product Category Rules	EN15804 :2012 + A2:2019 as Core PCR; PCR 2019 :14 Construction Products, version 1.3.2; C-PCR-008 Lifts (to PCR 2019:14)
Product group classification	Lifts
Reference year for data	2022
Geographical scope	Europe
Product category rules (PCR)	PCR 2019:14 Construction Products, version 1.3.2. ; C-PCR-008 Lifts (to PCR 2019:14), version 2020-10-30
Product Classification	UN CPC 4354. 2015:05. Version 1.0
PCR review was conducted by	The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members.
Review chair	Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Independent verification of the declaration and data, according to ISO 14025:2006	☐ EPD Process Certification (internal) ■ EPD Verification (external)
Third party verifier	Dr. Nasser Ayoub, Accredited or approved by: The International EPD® System
Accredited by	The International EPD® System Technical Committee, supported by the Secretariat

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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.

RECYCLING AND WASTE

The modules considered for the end-of-life scenario includes waste processing (C3) and disposal (C4).

The main materials used in the Gen2 Stream® aremetals (mainly steel) and inert materials (mainly concrete).

Due to this composition, there is a high potential ofrecyclability at the lift's end-of life for approximately **85%** of the components. Steel and non-ferrous metals as well as the electronic equipment - contributing approximately to **85%** of the lift's composition - can all be recycled.

For the inert materials fraction (approx. **15%**) landfilling is assumed in this EPD as a realistic and conservative approach.

Incineration is considered for the minor proportion (3%) of combustible materials (e.g., plastic parts).

For any of these waste treatment plants European average technologies are considered.

The Gen2 Stream® is made possible as halogen free thanks to the use of specific cables and wiring.

Hazardous substances are avoided during the design stage, to be in accordance with EU REACH (candidate list) and ROHS requirements. Upon request Otis can provide the information about substances identified by the European Chemical Agency as candidates for Annex XIV of REACH, in a concentration above 0.1% weight by weight in articles

GLOSSARY

ENVIRONMENTAL PRODUCT DECLARATION (EPD)

An EPD is a type III declaration, complying with ISO14025, which provides results about a product's environmental performance and facilitates comparison between different products with the same function (Functional Unit and Lift's characteristics). The results are based on the Life Cycle Analysis done in accordance with ISO 14040.

FUNCTIONAL UNIT (FU)
The quantified performance of a product system for use, as a reference unit. For Lifts the FU corresponds to the transportation of 1 tonne of load over a distance of 1 kilometer, expressed in [tkm]

ISO 25745
ISO 25745-2:2015 specifies a method of estimating energy consumption based on measured values, calculation, or simulation on an annual basis for traction, hydraulic and positive drive lifts on a single-unit basis, and an energy classification system for new, existing, and modernized traction, hydraulic, and positive drive lifts on a single-unit basis.

LIFE CYCLE ASSESSMENT (LCA)
LCA is a method that quantifies the total environment impact of products or activities over their entire life cycle and life cycle thinking. Life cycle assessment is based on ISO 14040 and ISO 14044 standards and comprises four phases: goal and scope definition, inventory data collection and analysis, environmental impact assessment, and interpretation of results. The results of LCA are used in communication and product development purposes, for example.

LIFE CYCLE INVENTORY (LCI)
The phase of life cycle assessment involving the compilation and quantification of inputs and outputs for a product system throughout its life cycle.

LIFE CYCLE IMPACT ASSESSMENT
(LCIA) The phase of life cycle assessment aimed at understanding and evaluating the magnitude and significance of the potential environmental impacts of a product system throughout the life cycle of the product.

PRODUCT CATEGORY RULES (PCR)
Product Category Rules (PCR) defines the rules and requirements for EPDs of a certain product category. They are a key part of ISO 14025 as they enabletransparency and comparability between EPDs.

FOREST STEWARDSHIP COUNCIL (FSC)
International not for-profit, multistakeholder organization established in 1993 to promote responsible management of the world's forests

PROGRAM FOR THE ENDORSEMENT
OF FOREST CERTIFICATION (PEFC) International, non-profit, non-governmental organization which promotes sustainable forest management through independent third-party certification

REACH
Registration, Evaluation, Authorisation and restriction of Chemicals – European Union Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 that addresses the production and use of chemical substances, and their potential impacts on both human health and the environment.

ROHS
Restriction of Hazardous Substances Directive - RoHS 1 Directive 2002/95/EC and RoHS 2 Directive 2011/65/EU.

WEEE
Waste Electrical and Electronic Equipment Directive - European Community Directive 2012/19/EU

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.

General Programme Instructions of the International EPD® System. Version 4.0.

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, Version 1.3.2. and C-PCR-008 Lifts (to PCR 2019:14), version 2020-10-30

ISO 14025:2006:
Sustainability of construction works – Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

ISO (2006) ISO 14040:
Environmental management

– Life cycle assessment – Principles and framework.
ISO (2006) ISO 14044: Environmental management – Life cycle assessment – Requirements and guidelines.

ISO (2012) ISO 25745-1:
Energy performance of lifts, escalators, and moving walks – Part 1: Energy measurement and verification.

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

ISO 14001:2015:
Environmental management systems - Requirements with guidance for use.

ISO 9001:2015: Quality management systems – Requirements.

ISO 45001:2018
Occupational Health and Safety management systems - Requirements.

ISO 27001
Standard – Information Security Management Systems

Otis gives people freedom to connect and thrive in a taller, faster, smarter world. The global leader in the manufacture, installation and servicing of elevators and escalators, we move 2 billion people a day and maintain approximately 2.2 million customer units worldwide – the industry's largest Service portfolio. You'll find us in the world's most iconic structures, as well as residential and commercial buildings, transportation hubs and everywhere people are on the move. Headquartered in Connecticut, USA, Otis is 69,000 people strong, including 41,000 field professionals, all committed to meeting the diverse needs of our customers and passengers in more than 200 countries and territories.

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