# Environmental Product Declaration

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

**OTIS GEN3 PEAK™ ELEVATOR**
**OTIS ELEVATOR COMPANY**

| | |
|---|---|
| Program: | The International EPD® System - www.environdec.com |
| Program operator: | EPD International AB |
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| Revision number: | 0.0 |
| Geographical scope: | North America |

OTIS

# Made to move you™

# About Otis

Otis gives people the freedom to connect and thrive in a taller, faster, smarter world. The global leader in manufacturing, installation and servicing of elevators and escalators, we move 2 billion people a day and maintain approximately 2.1 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 Farmington, Connecticut, Otis is 70,000 plus people strong, including 40,000 field professionals, all committed to meet the diverse needs of our customers and passengers in more than 200 countries and territories.

To learn more, visit www.otis.com and follow us on LinkedIn, Instagram, Facebook, and Twitter @OtisElevatorCo

# Gen3 Peak™ elevator

Our Gen3 elevator blends convenience, style and performance to deliver a new passenger experience that adds value to any residential, commercial, hospitality, medical or industrial building.

The Gen3 Peak elevator combines elegant design and with advanced engineering. Its style, comfort and speed ensure your tenants and visitors experience your building at its best.

Compact Gearless Machine: Combined with ReGen™ Drive, reduces energy consumption up to 75%.

Smooth Coated Steel Belts: Reduce noise from metal-to-metal contact of steel ropes to deliver a smooth, quiet ride.

**Gen3 Peak elevator**

Up to 5000 lbs. (2268 kg)
of duty load
Up to 500 FPM (2.5 m/s)
Up to 300 FT. (91 m)

# 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 but not published in this EPD. The characterization methodology referenced in EN15804+A2 is used for the calculation. Please note that no co-product allocation occurs in the product foreground system. Key assumptions are discussed in the LCA Background Report.

**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] | $m^3$ world eq. deprived | Available WAter REmaining (AWARE) Boulay et al. (2016) |

The results generated from the Gen3 Peak EPD were through indirect data acquisition from correlating data of existing products with similar types and functional use. The pattern of results for the Gen3 Peak elevator is quite comparable to those of the previous product generation of Gen2® elevators.

For impact categories GWP and ADPF, the life cycle performance of the elevator is dominated by the energy consumption from operation of the elevator (module B6).

Second most relevant – and for most of the indicators, the life cycle performance of the elevator is dominated by the materials manufacturing in the upstream section (modules A1-A3).

## In more detail,

### USE STAGE– MODULE B6: OPERATIONAL ENERGY USE

The impacts are driven primarily by the electricity consumption during use stage (25 years), creating approximately 60-70% of GWP and ADP of fossil "ADPF", and approximately 50-60% of AP, EP terrestrial-marine and POCP. There are no known releases of dangerous substances to indoor air, soil, and water during the use stage.

### PRODUCT STAGE – MODULES A1-A3: RAW MATERIAL SUPPLY & OTIS MANUFACTURING

The impacts for the Gen3 Peak elevator are driven primarily by materials manufacturing of ferrous and electronic components, which created approximately 45% of Climate change "GWP total" and of ADP of fossil "ADPF" and around 77% of AP, EP terrestrial-marine and POCP.

In all impact categories, the manufacturing in Otis factories (e.g. Cutting, Drilling, Bending, Punching, etc.) 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.

As well, energy consumption has been dramatically decreased by the use of LED lights and more effective boilers in Otis facilities

### TRANSPORT A3-A5 – MODULE A4

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

# Energy Efficiency Class

## ENERGY EFFICIENCY ISO25745 CLASSIFICATION OF THE GEN3 PEAK™ ELEVATOR

The Use phase is the longest phase in the life cycle of the lift, 25 years for the Gen3 Peak elevator, 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.

The estimated energy consumption per day of the declared Gen3 Peak elevator is 11.14 kWh, corresponding to a A class efficiency from ISO 25745-2 Table 7.

| ENERGY EFFICIENCY CLASS (ISO25745) | ENERGY CONSUMPTION | |
|---|---|---|
| | DAILY | ANNUAL |
| A | 11.14 kWh | 4,010 kWh |

Energy Efficiency Class of the Gen3 Peak elevator according to table Table 7 - ISO 25745-2

# Product information

**THIS ENVIRONMENTAL PRODUCT DECLARATION IS SPECIFICALLY FOR AN OTIS GEN3 PEAK ELEVATOR AND DEVELOPED ACCORDING TO THE FOLLOWING:**

- 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 1.2.5

**The General Program Instructions of the International EPD System also apply for the Gen3 Peak EPD.**

We covered the whole life cycle of the Gen3 Peak elevator, from the preparation of raw materials, transportion to Otis US manufacturing facility, manufacturing of the lift components, transportation to the installation site, installation, maintenance, and in-use phase until each component's end-of-life treatment

As specified in the c-PCR, the mandatory information of the Gen3 Peak elevator is presented in the following table. The figures correspond to a typical configuration, being the representative unit of the complete range of the Gen3 Peak elevator lifts.

| INDEX | VALUES | REPRESENTATIVE VALUES CHOSEN IN CASE OF DECLARATION OF RANGES |
|---|---|---|
| **COMMERCIAL NAME** | **GEN3 PEAK ELEVATOR** | |
| Segment | Commercial | |
| Type of installation | New generic lift | |
| Main purpose | Transport of passengers | |
| Type of lift | Electric | |
| Type of drive system | Gearless traction | |
| Rated load (fixed or range) | 2100 - 5000 lbs | 3500 lbs [1588 kg] |
| Rated speed (fixed or range) | 200 - 500 fpm | 350 fpm [1.78 m/s] |
| Number of stops (fixed or range) | Up to 30 | 9 Stops |
| Travelled height (fixed or range) | Up to 300 ft | 95 ft [29.0 m] |
| Number of operating days per year (fixed or range) | 260 - 360 | 360 |
| Applied Usage Category (UC) according to ISO 25745-2 | UC1 to UC6 | UC4 |
| Designed Reference Service Life (RSL) | 25 years | |
| Geographic region or intended installation region | North America | |
| **ADDITIONAL INFORMATION** | | |
| Recommended application (main market) | Mid-to-High - rise | |
| Building rise (typical) Building type | More than 10 Floors | |
| Optional equipment | Recommended building type in Table A.1, Annex A, ISO25745-2. Mainly dedicated to medium to large scale commercial buildings | |

Table 1. The Gen3 Peak elevator lifts mandatory information required in the c-PCR

The LCA was conducted for a Gen3 Peak elevator with a lifetime of 25 years, without considering a modernization, installed in a 9-floor building, having a speed of 350 fpm [1.78 m/s], and a traveling distance of 95 ft [29.0 m]. The number of trips per day for a lift with Usage Category 4 is 750, which was obtained from ISO 25745-2. The designed reference service life (RSL) for the LCA study is considered typical and complies with the c-PCR. Depending on maintenance and modernization activities, the usage phase of a lift can be up to 25-30 years.

EPDs based on the c-PCR shall be based on a functional unit (FU). According to ISO 14040:2006, LCA is a relative approach structured around a FU. The FU is defined as the "quantified performance of a product system for use as a reference unit". All subsequent analyses then refer to that FU as all inputs and outputs in the life cycle inventory (LCI) and, consequently, the life cycle impact assessment (LCIA) profile are related to the FU. This reference is necessary to ensure comparability of LCA results. This is particularly critical when different systems are being assessed, to ensure that such comparisons are made on a common basis.

**According to c-PCR-008 (to PCR 2019:14), comparability between environmental product declarations is only achievable if the following performance characteristics are equivalent:**

1. Functional Unit (FU)
2. Reference Service Life (RSL)
3. Usage Category (UC)
4. Travel height
5. Number of stops
6. Rated Load
7. Rated speed
8. Geographic Region

In the case of comparability, the equivalence of the geographic region is important due to the specifics of the energy mix used. 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 false and misleading to the EPD user.

EPDs within the same product category but registered in different EPD programs, 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. For further information about comparability, see EN 15804 and ISO 14025.

# Life cycle approach of Otis Gen3 Peak™ elevator

**We design our lifts with a life-cycle approach, assuming a 25-year installation (as defined in the LCA requirements), 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 construct the lift to its end of life when the lift is removed and disposed of.**

## 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, manufacturing and assembly of components, considering the energy, auxiliary and operational materials, and packaging requirements. The data collection is from the year 2021.
- **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 maintenance, considering the transportation of employees to the installation site and auxiliary materials, including preventive maintenance part production and energy use during operation and standby. All other modules are not applicable, and modernization is not part of this stage.
- **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 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), wherein the construction and maintenance of capital equipment and indirect activities are excluded from the system boundary:

Elevator components are manufactured at Otis-owned and operated sites or purchased from a qualified supplier. The Gen3 Peak elevator is assembled at the Otis Florence manufacturing facility, packaged, and sent to installation sites around North America.

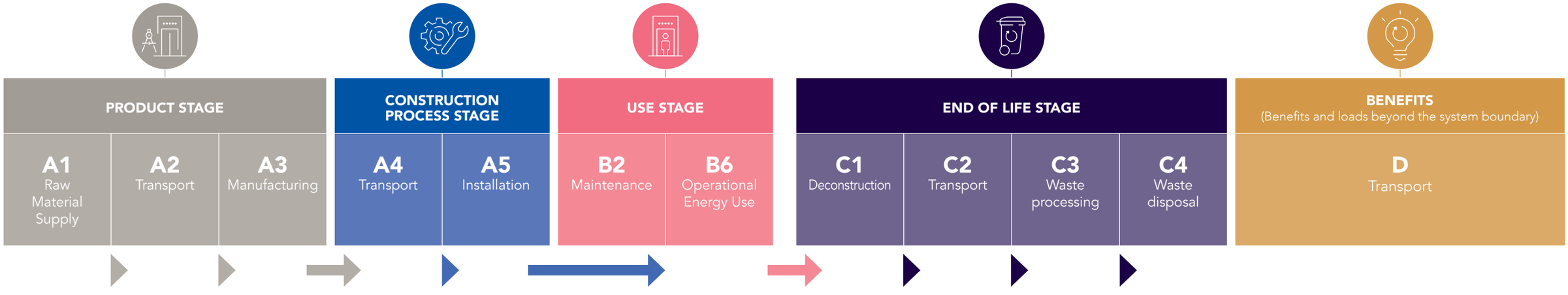
The Gen3 Peak elevator can be installed in different locations around North America. The US grid mix (2018) was used to simulate the energy associated with installation and maintenance work, as well as the energy used during the 25-year service life.

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 GaBi 2022 LCI database (with limited use of GaBi 2021 database) provides the life cycle inventory data for several of the raw and process materials obtained from the background system.

| LIFE CYCLE STAGE | INFORMATION MODULE | | COMMENT |
|---|---|---|---|
| **A1-A3*** Product Stage (USA and Spain) | A1 | Raw material supply | X |
| | A2 | Transport | X |
| | A3 | Manufacturing | X |
| **A4-A5** Construction Process Stage (USA) | A4 | Transport | X |
| | A5 | Installation | X |
| **B1-B7** Use Stage (USA) | B1 | Use | ND |
| | B2 | Maintenance | X |
| | B3 | Repair | ND |
| | B4 | Replacement | ND |
| | B5 | Refurbishment | ND |
| | B6 | Operational energy use | X |
| | B7 | Operational water use | ND |
| **C1-C4** End-of-life Stage (USA) | C1 | Deconstruction | X |
| | C2 | Transport | X |
| | C3 | Waste processing | X |
| | C4 | C4 Waste disposal | X |
| **D** Benefits (USA) | D | Reuse, recovery, recycling, potential | X |

* The share of the GWP-GHG indicator results in A1-A3 (A1-A5 for services) is from product-specific LCI data, ">90%".



# ISO Certified Otis factories

**We constantly strive to reduce the environmental impact of our products, services, and operations, improving the performance of our business as well as our customers.**

In addition to innovating smarter, more sustainable and efficient technologies for our customers, Otis is focused on improving sustainability across our operations. Our goals guide our energy, emissions and waste-reduction initiatives and support our facilities' progress toward certification for best-practice environmental, health and safety standards.

All Otis manufacturing plants and facilities have taken their commitment to continuously improve their environmental performance. They are all certified in ISO 14001 Environmental Management, in its latest version considering the Life Cycle approach; the design for sustainability. The ISO 9001 Quality Management certification is also part of our great achievements contributing to our continuous improvement strategy.

In the case of the Otis Florence (USA) factory, the solar panel field contributes to around 25% of the energy consumed in the factory every day, which helps reduce the environmental footprint of our operations.

Otis Florence is also in the pursuit of a zero-waste-to-landfill (ZWTL) certification, which diverts waste generated at the factory to recycling instead of to the landfill. Pursuing this certification shows Otis's commitment to continually improving our sustainability practice and working towards our company's environmental, social, and governance (ESG) goals.

Otis has clear and precise operation requirements from product design, production, inspection, and packaging that promotes the quality, stability, and longevity of each of our products. Otis continues to develop efficient, sustainable products that reduce environmental impact and customer cost.


# Functional Unit (FU) and Transportation Performance (TP)

The function of a lift is to provide transportation for people, freight, 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 kilometer [km], i.e. tonne-kilometer [tkm] over a vertical (or inclined) trajectory.

LCA results shall be presented per FU, i.e. per 1 tkm. To do so, first the total amount of tkm (also called transportation performance, TP for short) shall be calculated, followed by division of the respective inputs and outputs by the TP to obtain the LCA results per FU.

TP is calculated according to the formulas and predetermined parameters shown below. Also indicated in the c-PCR, the majority of the predetermined parameters used are defined in ISO 25745-2. This ISO standard is a valid reference at the international level for both the estimation of the lift's energy consumption and for the calculation of TP. It gives tables of parameters for average distance traveled 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 Gen3 Peak elevator using table 3 in ISO 25745-2:
**%Q=Q/1000 × [Percentage from Table 3 of ISO 25745 – 2] = 5.56%**
where Q is the lift rated load, 1588 [kg]

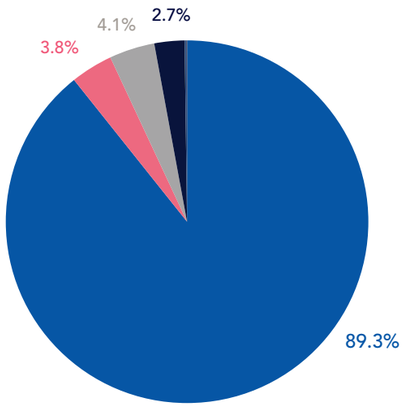
The distance traveled over the designed service life of 25 years (RSL) is:
**sRSL=sav/1000 × nd × dop × RSL = 86,130 km.**

Where sav is the one-way average travel distance, 12.8 [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).

**Therefore, calculation of TP for obtaining of the results per FU is 4,787 tkm**

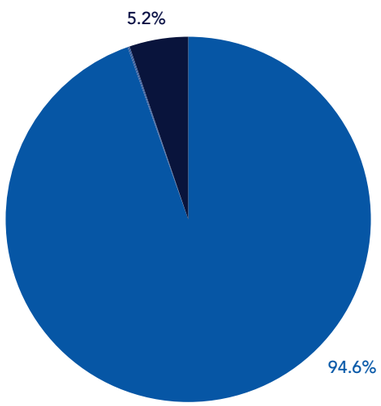
# Content declaration

**The tables below show a material summary of the Gen3 Peak™ elevator 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) | MASS (%) |
|---|---|---|
| Ferrous metals (zinc coated steel, stainless steel, cast iron) | 12351.4 | 89.3 |
| Non-ferrous metals (aluminum, copper) | 520.5 | 3.8 |
| Plastics & rubbers | 560.3 | 4.1 |
| Inorganic materials (concrete, glass) | 0 | 0.0 |
| Organic materials (paper, wood, cardboard) | 371.9 | 2.7 |
| Lubricants (oils, greases), paintings, coatings, adhesives and fillers (glues) | 1,1 | 0.0 |
| Electric & Electronic Equipment | 24.9 | 0.2 |
| Other materials | 3.7 | 0.1 |
| **Total mass** | **13834** | **100** |
| **Mass per 1 tkm** | **2.89** | |

**Table 3.** Gross weight of Gen3 Peak elevator material as one unit of product




| MATERIAL | MASS (kg) | MASS (%) |
|---|---|---|
| Wood | 1500 | 94.6 |
| PVC/PE | 2 | 0.1 |
| Steel (Nails, fixation brackets, bolts and nuts) | 1 | 0.1 |
| Carboard | 80 | 5.2 |
| **Total mass** | **1583** | **100** |
| **Mass per 1 tkm** | **2.89** | |

**Table 4.** Gross weight of the Gen3 Peak elevator packaging material for one unit of product

## GEN3 PEAK™ ELEVATOR ILLUSTRATION:

# Environmental indicators

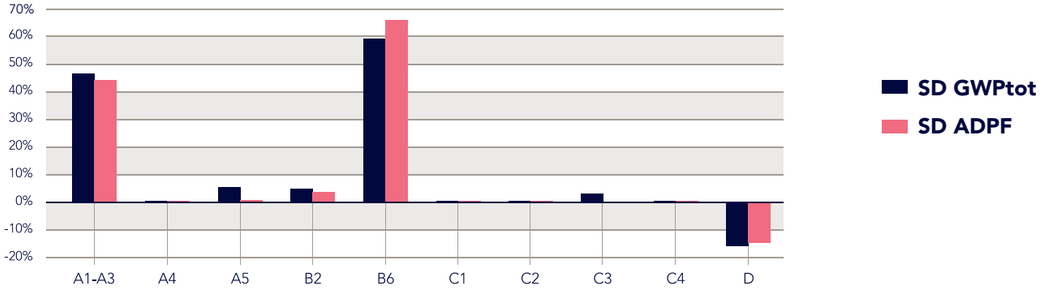
## NORTH AMERICA SCENARIO

### CORE ENVIRONMENTAL IMPACT INDICATORS UC4 PER TKM

| | A1 – A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP - total [kg CO2 eq.] | 7.80E+00 | 3.50E-02 | 6.60E-01 | 5.50E-01 | 1.00E+01 | 8.50E-03 | 3.20E-02 | 4.90E-01 | 3.30E-06 | -2.70E+00 |
| GWP - fossil [kg CO2 eq.] | 8.20E+00 | 3.50E-02 | 9.30E-02 | 5.50E-01 | 1.00E+01 | 8.30E-03 | 3.20E-02 | 4.90E-01 | 3.40E-06 | -2.70E+00 |
| GWP - biogenic [kg CO2 eq.] | -3.60E-01 | 4.40E-05 | 5.70E-01 | 2.00E-03 | 5.30E-03 | 6.50E-05 | 7.20E-05 | -4.20E-05 | -1.00E-07 | 1.30E-02 |
| GWP - luluc [kg CO2 eq.] | 4.60E-03 | 4.10E-05 | 1.60E-05 | 1.80E-04 | 5.30E-04 | 5.80E-05 | 2.20E-05 | 2.70E-06 | 6.30E-09 | -2.80E-03 |
| ODP [kg CFC-11 eq.] | 1.40E-09 | 3.10E-15 | 5.30E-14 | 1.40E-12 | 4.00E-11 | 8.40E-16 | 2.80E-15 | -2.30E-14 | 8.00E-18 | -6.20E-12 |
| AP [Mole of H+ eq.] | 3.40E-02 | 1.30E-04 | 2.30E-04 | 2.40E-03 | 1.40E-02 | 3.80E-05 | 1.10E-04 | 8.10E-05 | 2.40E-08 | -2.30E-02 |
| EP - freshwater [kg P eq.] | 1.10E-05 | 1.70E-07 | 3.00E-07 | 7.10E-07 | 6.40E-06 | 3.10E-08 | 1.60E-07 | 8.30E-10 | 5.80E-12 | -2.00E-06 |
| EP - marine [kg N eq.] | 5.80E-03 | 6.30E-05 | 5.60E-05 | 4.90E-04 | 3.40E-03 | 1.80E-05 | 5.50E-05 | 2.00E-05 | 6.20E-09 | -2.20E-03 |
| EP - terrestrial [Mole of N eq.] | 6.40E-02 | 6.90E-04 | 8.90E-04 | 5.50E-03 | 3.60E-02 | 2.00E-04 | 6.00E-04 | 4.00E-04 | 6.80E-08 | -2.60E-02 |
| POCP [kg NMVOC eq.] | 1.70E-02 | 1.40E-04 | 1.70E-04 | 1.50E-03 | 9.50E-03 | 3.90E-05 | 1.20E-04 | 5.40E-05 | 1.90E-08 | -6.30E-03 |
| ADPF [MJ] | 3.30E-04 | 1.00E-08 | 8.70E-09 | 1.10E-05 | 1.90E-06 | 8.60E-10 | 1.00E-08 | 2.20E-09 | 3.50E-13 | -1.90E-04 |
| ADPE [kg Sb eq.] | 1.10E+02 | 4.50E-01 | 1.20E+00 | 6.40E+00 | 1.60E+02 | 1.10E-01 | 4.10E-01 | 8.70E-02 | 4.50E-05 | -3.70E+01 |
| WDP [m3 world equiv.] | 1.50E+00 | 1.90E-03 | 5.30E-02 | 2.30E-01 | 2.30E+00 | 9.60E-05 | 1.90E-03 | 4.10E-02 | 3.70E-07 | -1.10E+00 |

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.

### GRAPHIC RESULTS FOR GWP AND ADPF INDICATORS




| | A1 - A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWPTOT | 46% | 0% | 4% | 3% | 59% | 0% | 0% | 3% | 0% | -16% |
| ADPF | 45% | 0% | 1% | 3% | 67% | 0% | 0% | 0% | 0% | -15% |

### INDICATORS DESCRIBING RESOURCE USE UC4 PER TKM

| | A1 -A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PERE [MJ] | 1.30E+01 | 2.00E-02 | 8.60E-02 | 9.90E-01 | 3.80E+01 | 7.80E-03 | 1.70E-02 | -1.80E-02 | 6.70E-06 | -1.30E+01 |
| PERM [MJ] | 5.40E+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 |
| PERT [MJ] | 1.80E+01 | 2.00E-02 | 8.60E-02 | 9.90E-01 | 3.80E+01 | 7.80E-03 | 1.70E-02 | -1.80E-02 | 6.70E-06 | -1.30E+01 |
| PENRE [MJ] | 1.10E+02 | 4.80E-01 | 1.30E+00 | 5.90E+00 | 1.70E+02 | 1.10E-01 | 4.40E-01 | 8.80E-02 | 4.50E-05 | -3.70E+01 |
| PENRM [MJ] | 5.80E+00 | 0.00E+00 | 0.00E+00 | 4.60E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT [MJ] | 1.10E+02 | 4.80E-01 | 1.30E+00 | 6.40E+00 | 1.70E+02 | 1.10E-01 | 4.40E-01 | 8.80E-02 | 4.50E-05 | -3.70E+01 |
| SM [KG] | 1.10E+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 | 0.00E+00 |
| RSF [MJ] | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRSF [MJ] | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW [m3] | 4.80E-02 | 6.50E-05 | 1.30E-03 | 5.70E-03 | 6.80E-02 | 9.00E-06 | 6.20E-05 | 9.50E-04 | 1.10E-08 | -4.60E-02 |

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

### ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES AND OUTPUT FLOWS

| | A1 - A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| HWD [KG] | 5.05E-06 | 2.03E-12 | 2.93E-11 | 3.33E-09 | 6.40E-09 | 5.96E-13 | 1.83E-12 | -8.29E-12 | 2.29E-15 | -7.50E-07 |
| NHWD [KG] | 4.66E-01 | 4.41E-05 | 1.62E-02 | 2.29E-02 | 5.27E-02 | 1.84E-05 | 3.79E-05 | 4.67E-02 | 2.29E-04 | -8.09E-01 |
| RWD [KG] | 3.82E-03 | 1.29E-06 | 1.43E-05 | 1.07E-04 | 1.72E-02 | 2.09E-07 | 1.22E-06 | -5.64E-06 | 4.97E-10 | -9.07E-04 |
| 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 |
| MFR [KG] | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.13E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.86E+00 | 0.00E+00 | 0.00E+00 |
| MER [KG] | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.28E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EEE [MJ] | 0.00E+00 | 0.00E+00 | 1.92E+00 | 9.88E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.09E+00 | 0.00E+00 | 2.92E-01 |
| EET [MJ] | 0.00E+00 | 0.00E+00 | 8.47E-01 | 9.57E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.09E-01 | 0.00E+00 | 5.30E-01 |

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

| | A1 - A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| BIOG. C IN PACKAGING [KG] | 1.50E-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 | 0.00E+00 |
| BIOG. C IN PRODUCT [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 |

Caption: Biog. C in packaging = Biogenic carbon content in packaging; Biog. C in product = Biogenic carbon content in product

### ADDITIONAL GWP INDICATOR ACCORDING TO PCR FOR CONSTRUCTION PRODUCTS

| | A1 - A3 | A4 | A5 | B2 | B6 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-GHG [KG CO2 EQ.] | 7.60E+00 | 3.40E-02 | 6.60E-01 | 5.40E-01 | 5.40E-01 | 9.80E+00 | 8.30E-03 | 3.10E-02 | 4.90E-01 | 3.20E-06 |

# Environmental indicators

## RECYCLING AND WASTE TREATMENT DECLARATION

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

- The main materials used in the Gen3 Peak elevator are metals (mainly steel) and inert materials (mainly concrete).
- Due to this composition, there is a high potential of recyclability at the lift's end-of life for approximately 93% of recyclable materials (steel and metals). Steel and non-ferrous metals as well as the electronic equipment - contributing approximately to 93% of the lift's composition - can all be recycled.
- For the inert materials fraction (less than 1%) landfilling is assumed in this EPD as a realistic and conservative approach.
- Incineration is considered for the minor proportion (6%) of combustible materials (e.g., plastic parts).


# Program related information & verification

| | |
|---|---|
| Program | The International EPD® System<br>EPD International AB<br>Box 210 60, SE-100 31 Stockholm, Sweden<br>www.environdec.com |
| EPD registration number | S-P-07343 |
| Published | 11/14/2022 |
| Valid until | 11/14/2027 |
| Revision number | 0.0 |
| Product Category Rules | EN15804 :2012 + A2:2019 as Core PCR<br>PCR 2019 :14 Construction Products, version 1.2.5<br>C-PCR-008 Lifts (to PCR 2019:14), version 2020-10-30 |
| Product group classification | Lifts - UN CPC 4354 |
| Product standard | ASME A17.1/CSA B44-2019 |
| Reference year for data | 2021 |
| Geographical scope | North America |

The EPD owner has the sole ownership, liability and responsibility of the EPD.
EPDs of construction products may not be comparable if they do not comply with EN 15804+A2:2019

**Product category rules (PCR):**
PCR 2019:14 Construction Products, version 1.2.5
c-PCR-008 Lifts (to PCR 2019:14), version 2020-10-30

**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 EN ISO 14025:2010:**
■ External ☐ Internal
covering
☐ EPD process certification (internal) ■ EPD verificaction (external)

**Third party verifier:**
Thomas P. Gloria - Industrial Ecology Consultants

In case of individual verifiers:
Approved by: The International EPD® System Technical Committee, supported by the Secretariat

**Procedure for follow-up during EPD validity involves third party verifier:**
■ Yes ☐ No

**CONTACT INFORMATION**

| EPD owner: | LCA author: | Programme operator: |
|---|---|---|
| **Otis Lift Company**<br>1500 Otis Way<br>Florence, SC 29501<br>**www.otis.com** | **Sphera Solutions, Inc**<br>130 E. Randolph St., Suite 2900<br>Chicago, Illinois 60601<br>**www.sphera.com** | **EPD** International AB<br>Valhallavägen 81<br>114 27 Stockholm, Sweden<br>**www.environdec.com** |

Results presented in this document do not constitute comparative assertions. EPDs within the same product category, but from different programmes may not be comparable.

However, these results can be used to compare with similar products presented in other EPDs that follow the same PCR and are according to the same functional unit and have equivalent performance characteristics (UC, travelled height, stops, load, speed and geographical region).

# References

- EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- c-PCR-008 (TO PCR 2019 :14) Lifts (Elevators)
- General Programme Instructions of the International EPD® System. Version 4.0
- PCR 2019:14 Construction Products. Version 1.2.5

**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 (2014) ISO 25745-2**
Energy performance of lifts, escalators, and moving walks – Part 2: Energy calculation and classification for lifts (lifts).

**ISO 9001:2015**
Quality management systems – Requirements.

**ISO 14001:2004**
Environmental management systems - Requirements with guidance for use.

# 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]

### 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.

### 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 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 enable transparency and comparability between EPDs.

### 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.

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 2.1 billion people a day and maintain more than 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 70,000 people strong, including 40,000 field professionals, all committed to meeting the diverse needs of our customers and passengers in more than 200 countries and territories. To learn more, visit www.otis.com and follow us on LinkedIn, Instagram, Facebook and Twitter @OtisElevatorCo.



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