Statement of Verification

BREG EN EPD No.: 000685 Issue 01

This is to verify that the

Environmental Product Declaration

provided by:

SAS International

BRE Global Verified EPD

is in accordance with the requirements of:

EN 15804:2012+A2:2019

and

BRE Global Scheme Document SD207

This declaration is for:

1m² of SAS810 System Tricell (3.766Kg/m²) Aluminium Polyester Powder Coated tile and grid only

Company Address

SAS International
EMAC House,
Unit 28, Sutton Park Ave,
Reading
RG6 1AZ
United Kingdom

Signed for BRE Global Ltd	Hayley Thomson Operator	12 May 2025 Date of this Issue
12 May 2025 Date of First Issue		11 May 2030 Expiry Date

BRE Global Verified EPD

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Environmental Product Declaration

EPD Number: 000685

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE Environmental Profiles 2023 Product Category Rules for Type III environmental product declaration of construction products to EN 15804+A2 PN 514 Rev 3.1
Commissioner of LCA study	**LCA consultant/Tool**
SAS International EMAC House, Unit 28, Sutton Park Ave, Reading RG6 1AZ United Kingdom	LCA Consultant: SAS International Tool: BRE LINA Version A2
Declared/Functional Unit	**Applicability/Coverage**
1m² of SAS810 System Tricell (3.766Kg/m²) Aluminium Polyester Powder Coated tile and grid only	Other (please specify). Product specific
EPD Type	**Background database**
Cradle to Gate with Module C and D	Ecoinvent 3.8

Demonstration of Verification
CEN standard EN 15804 serves as the core PCR [a]
Independent verification of the declaration and data according to EN ISO 14025:2010 ☐Internal ☒ External
(Where appropriate [b])Third party verifier: Pat Hermon
a: Product category rules b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4)

Comparability
Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A2:2019. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See Clause 5.3 of EN 15804:2012+A2:2019 for further guidance

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Information modules covered

Product			Construction		Use stage							End-of-life					Benefits and loads beyond the system boundary
					Related to the building fabric					Related to the building							
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
Raw materials supply	Transport	Manufacturing	Transport to site	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal		Reuse, Recovery and/or Recycling potential
☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	☑	☑		☑

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

SAS International
EMAC House,
Unit 28, Sutton Park Ave,
Reading
RG6 1AZ
United Kingdom

Construction Product:

Product Description

SAS810 Tricell is a decorative open cell ceiling, for airflow and smoke extraction applications. The ceiling tiles can integrate within other metal ceiling systems and plasterboard ceilings. Our open cell ceiling systems are ideal for retail. transport or leisure applications with high human traffic flow. Rapid and safe smoke extraction is critical in such environments.
The standard size available is 876mm x 876mm (overall). Tricell allows fire detection and control system, air conditioning and other services to be located within the ceiling void. Traditional decorative lighting and LED's can be installed within single or multiple adjacent cells. The metal ceiling system comprises a series of open cell modules designed to lay onto a suspension grid.
This EPD represents 1 m² of SAS810 Tricell with a weight of 3.768 kg/m², includes tile and grid only. This is to enable the impacts of sizes to be calculated for the available thickness.

Technical Information

Property	Value, Unit
Systems are manufactured and tested in accordance with BS EN 13964:2014 including essential characteristics performance:	
Reaction to Fire:	(up to) A1 European Reaction to Fire
Release of Formaldehyde:	CLASS E1
Release of Asbestos:	NO CONTENT
Sound Absorption:	NO CONTENT
Durability:	CLASS B

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Main Product Contents

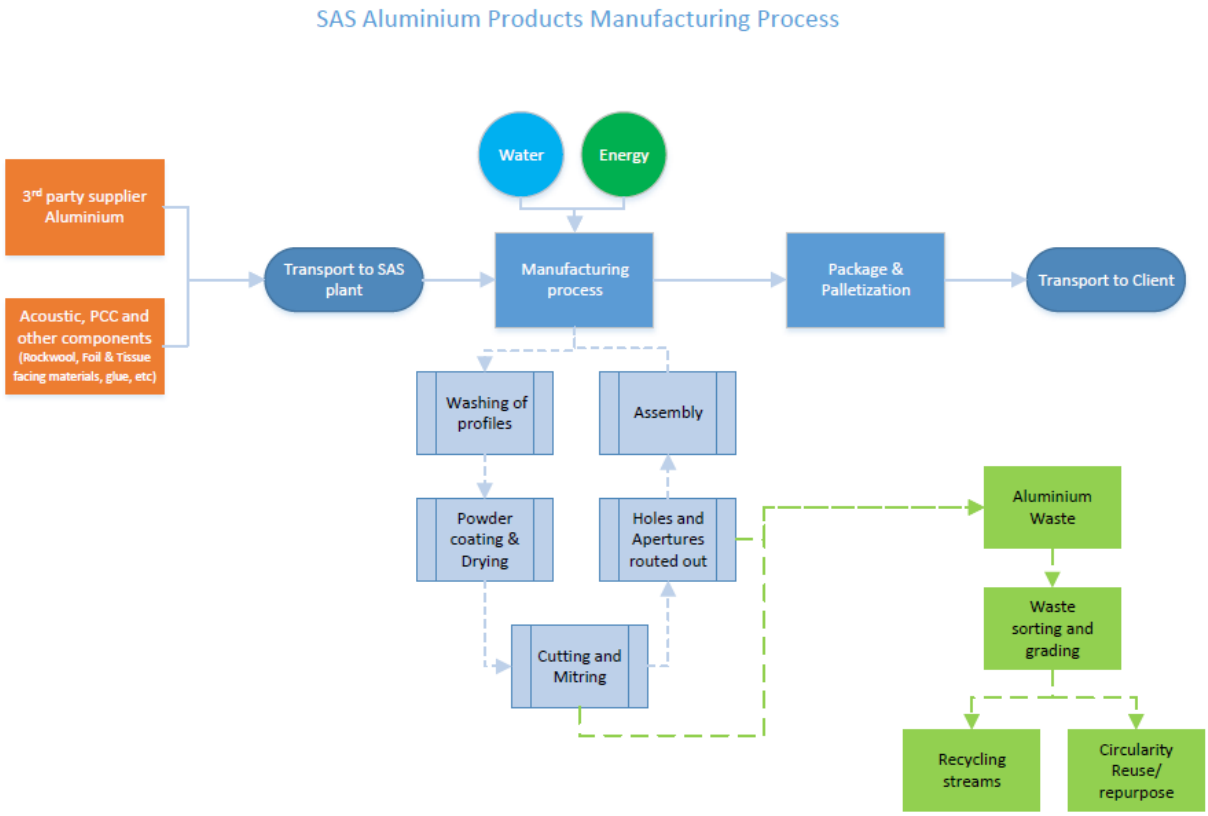
The raw material quantities have been taken for all variations of the system and modelled as a single dataset. The main product contents listed below represent the average values derived from this dataset, with a weight per of 3.766 kg/m²,

Material/Chemical Input	%
Aluminium	>95
PPC	0-5

Manufacturing Process

The Bridgend factory is split into two separate units; Unit 1 is where the tile systems are formed, including the addition of the various types of acoustic padding. Key Unit 1 processes include: slitting of the steel/ aluminium coils, perforating, washing, spray coating and drying. These processes account for the most energy intensive stages of the products life cycle. Unit 2 is where the grid systems are rolled and formed; it houses less energy-intensive processes than Unit 1.

Process flow diagram



Construction Installation

SAS recommend installation by an experienced specialist ceiling contractor under guidance of SAS Design and Technical documentation to ensure install is within all relevant codes, safe and fit for purpose

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Use Information

The frequency of cleaning will depend upon the function and usage of each area and the efficiency of the air conditioning / heating system. This period can only be determined after hand over and occupancy. If the ceiling is heavily soiled; surface dust and dirt should be removed by dry cleaning before any wet cleaning is undertaken. This should be completed using either; a dry clean, soft cloth, a soft brush or a vacuum cleaner with brush attachment. Wet cleaning should then take place using a mild detergent diluted in warm water. This should be applied using a soft, clean cloth and rinsed off. When cleaning perforated tiles, take care to ensure that the acoustic backing does not become wet. Please ensure that all H&S guidelines are followed. For non-standard powder coat applications, such as textured, mirror finish or metallic specialist cleaning is recommended. Due to nature of these surfaces, they are very susceptible to scratching. Our paint finish has been tested with a wide array of cleaning agents however, we are unable to test all products on the market. We therefore recommend any cleaning agent is tested on a small nonvisible area first.

Note: The Use stage is not a scope of this LCA

End of Life

SAS810 is of aluminium composition, and it is assumed that at "End of Life" the product and its associated metal components can be manually dismantled and sorted into the various waste/recycling routes. As part of dismantling the system and sorting process, powder coated finished materials do not need to be removed from components and will be managed via existing industry recycling routes/methods. It is assumed as 97% of the materials will be recycled; some of the paint waste cannot be recycled and will end up in landfills. The energy and materials used for sorting processes have not been included in Module C3 because they are assumed to be exceedingly small and effectively negligible.

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Life Cycle Assessment Calculation Rules

Declared / Functional unit description

1m^2 SAS 810 System (3.766Kg/m^2) polyester powder coated aluminium tile and sub grid components for use in ceiling applications.

System boundary

This is a cradle-to-gate with modules C & D LCA, reporting all production life cycle stages of modules A1 to A3 and end of life stages C1-C4, and D in accordance with EN 15804:2012+A2:2019 and BRE 2023 Product Category Rules (PN 514 Rev 3.1).

Data sources, quality and allocation

SAS810 Tricell The standard size available is 876mm x 876mm (overall) and is a decorative open cell ceiling, for airflow and smoke extraction applications. In this LCA/EPD modelling the total quantity of Tricell manufactured during the data collection period 03/01/2022 to 03/01/2023.

Allocation by mass has been used to calculate the amount of input energy flow - natural gas, water, and waste flows per selected products according to the provisions of the BRE PCR PN514 and EN 15804. Raw material quantities have been uplifted 5% proportionally to account for production wastes.

Secondary data has been obtained for all other upstream and downstream processes that are beyond the control of the manufacturer (i.e. raw material production) from the ecoinvent 3.8 database. All ecoinvent datasets are complete within the context used and conform to the system boundary and the criteria for the exclusion of inputs and outputs, according to the requirements specified in EN15804 A2.

ISO14044 guidance. Quality Level	Geographical representativeness	Technical representativeness	Time representativeness
Very Good	Data from area under study.	Data from processes and products under study. Same state of technology applied as defined in goal and scope (i.e., identical technology).	n/a
Very Good	n/a	n/a	There is approximately 1-2 years between the Ecoinvent LCI reference year, and the time period for which the LCA was undertaken.

Specific UK and European have been selected from the Ecoinvent LCI for this LCA. Manufacturer uses the on-site solar PV system and national grid electricity for production, so therefore the national grid electricity dataset has been used for the LCA modelling (Ecoinvent 3.8).

The GWP carbon footprint for using 1 kWh of electricity, GB kWh is 0.239 kgCO2e/kWh and for the 1 kWh of solar PV, GB kWh is 0.077 is kgCO2e/kWh. Further, the manufacturer uses Natural gas for office heating, so therefore Natural gas, at industrial furnace (kWh) has been used and the GWP carbon footprint for using 1kWh of the UK natural gas is 0.232 kgCO2eq. The quality level of time representativeness is also Very Good as the background LCI datasets are based on ecoinvent v3.8 which was compiled in 2021. Therefore, there is less than 5 years between the ecoinvent LCI reference year and the time period for which the LCA was undertaken

Cut-off criteria

No inputs or outputs have been excluded and all raw materials, packaging and transport, energy, water use and wastes, are included, except for direct emissions to air, water, and soil, which are not measured

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LCA Results

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts									
			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO_2 eq	kg CO_2 eq	kg CO_2 eq	kg CO_2 eq	kg CFC11 eq	mol H^+ eq	kg $(PO_4)^{3-}$ eq
Product stage	Raw material supply	A1	2.82E+01	2.81E+01	7.96E-02	6.69E-02	1.22E-06	1.73E-01	1.09E-02
	Transport	A2	1.94E-02	1.93E-02	1.88E-05	6.95E-06	4.62E-09	8.07E-05	1.20E-06
	Manufacturing	A3	1.06E+00	1.16E+00	-1.02E-01	1.02E-03	9.33E-08	2.74E-03	2.06E-04
	Total (Consumption grid)	A1-3	2.93E+01	2.92E+01	-2.20E-02	6.79E-02	1.31E-06	1.76E-01	1.11E-02
Construction process stage	Transport	A4	MND	MND	MND	MND	MND	MND	MND
	Construction	A5	MND	MND	MND	MND	MND	MND	MND
Use stage	Use	B1	MND	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND	MND
95% recycling and 5% landfill									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	3.13E-02	3.13E-02	2.67E-05	1.23E-05	7.24E-09	1.27E-04	2.02E-06
	Waste processing	C3	1.07E+00	1.06E+00	6.40E-03	1.34E-03	6.81E-08	4.50E-03	2.82E-04
	Disposal	C4	7.43E-03	7.35E-03	6.64E-05	8.21E-06	8.02E-10	4.88E-05	2.17E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-7.47E+01	-7.48E+01	2.19E-01	-9.97E-02	-2.20E-06	-4.79E-01	-2.23E-02

GWP-total = Global warming potential, total;
GWP-fossil = Global warming potential, fossil;
GWP-biogenic = Global warming potential, biogenic;
GWP-luluc = Global warming potential, land use and land use change;

ODP = Depletion potential of the stratospheric ozone layer;
AP = Acidification potential, accumulated exceedance; and
EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

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LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts									
			EP-marine	EP-terrestrial	POCP	ADP-mineral &metals	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m^3 world eq deprived	disease incidence
Product stage	Raw material supply	A1	2.96E-02	3.05E-01	9.51E-02	3.65E-04	3.10E+02	9.46E+00	4.25E-06
	Transport	A2	2.46E-05	2.69E-04	8.66E-05	4.43E-08	3.01E-01	1.46E-03	2.27E-09
	Manufacturing	A3	1.77E-03	7.33E-03	1.91E-03	7.63E-06	2.32E+01	5.06E-01	2.56E-08
	Total (Consumption grid)	A1-3	3.14E-02	3.13E-01	9.71E-02	3.72E-04	3.34E+02	9.96E+00	4.28E-06
Construction process stage	Transport	A4	MND	MND	MND	MND	MND	MND	MND
	Construction	A5	MND	MND	MND	MND	MND	MND	MND
Use stage	Use	B1	MND	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND	MND
95% recycling and 5% landfill									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	3.83E-05	4.18E-04	1.28E-04	1.09E-07	4.73E-01	2.13E-03	2.70E-09
	Waste processing	C3	7.92E-04	8.69E-03	2.48E-03	4.41E-05	7.92E+00	1.80E-01	7.02E-08
	Disposal	C4	1.21E-05	1.30E-04	3.86E-05	1.63E-08	1.05E-01	3.31E-03	7.30E-10
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-8.00E-02	-8.35E-01	-2.40E-01	-6.45E-05	-6.72E+02	-8.88E+00	-6.17E-06

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;
EP-terrestrial = Eutrophication potential, accumulated exceedance;
POCP = Formation potential of tropospheric ozone;
ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;
ADP-fossil = Depletion potential of the stratospheric ozone layer;
WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and
PM = Particulate matter.

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LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts							
			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U^{235} eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	2.18E+00	7.67E+02	5.62E-08	6.69E-07	7.10E+01
	Transport	A2	1.52E-03	2.35E-01	6.51E-12	2.58E-10	3.45E-01
	Manufacturing	A3	3.78E-01	3.20E+01	6.98E-10	1.43E-08	1.68E+01
	Total (Consumption grid)	A1-3	2.56E+00	8.00E+02	5.69E-08	6.84E-07	8.81E+01
Construction process stage	Transport	A4	MND	MND	MND	MND	MND
	Construction	A5	MND	MND	MND	MND	MND
Use stage	Use	B1	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND
95% recycling and 5% landfill							
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.43E-03	3.69E-01	1.20E-11	3.87E-10	3.25E-01
	Waste processing	C3	7.52E-02	2.27E+01	7.02E-10	2.91E-08	7.34E+00
	Disposal	C4	6.10E-04	1.17E+02	6.83E-12	1.80E-10	1.34E-01
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-8.84E-01	-1.92E+03	-7.72E-08	-1.64E-06	-1.39E+02

IRP = Potential human exposure efficiency relative to U235;
ETP-fw = Potential comparative toxic unit for ecosystems;
HTP-c = Potential comparative toxic unit for humans;
HTP-nc = Potential comparative toxic unit for humans; and
SQP = Potential soil quality index.

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LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, primary energy								
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	3.45E+01	0.00E+00	3.45E+01	3.05E+02	2.38E+00	3.07E+02
	Transport	A2	3.83E-03	0.00E+00	3.83E-03	2.96E-01	0.00E+00	2.96E-01
	Manufacturing	A3	4.40E+00	1.82E+00	6.22E+00	2.28E+01	7.34E-01	2.35E+01
	Total (Consumption grid)	A1-3	3.89E+01	1.82E+00	4.07E+01	3.28E+02	3.12E+00	3.31E+02
Construction process stage	Transport	A4	MND	MND	MND	MND	MND	MND
	Construction	A5	MND	MND	MND	MND	MND	MND
Use stage	Use	B1	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND
95% recycling and 5% landfill								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	6.67E-03	0.00E+00	6.67E-03	4.65E-01	0.00E+00	4.65E-01
	Waste processing	C3	6.71E-01	0.00E+00	6.71E-01	4.61E+00	0.00E+00	4.61E+00
	Disposal	C4	6.76E-03	0.00E+00	6.76E-03	1.04E-01	0.00E+00	1.04E-01
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-4.10E+01	0.00E+00	-4.10E+01	-6.68E+02	0.00E+00	-6.68E+02

PERE = Use of renewable primary energy excluding renewable primary energy 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 resource

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LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m^3
Product stage	Raw material supply	A1	9.91E-01	0.00E+00	0.00E+00	2.39E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	3.58E-05
	Manufacturing	A3	3.61E-02	4.47E-07	0.00E+00	1.22E-02
	Total (Consumption grid)	A1-3	1.03E+00	4.47E-07	0.00E+00	2.51E-01
Construction process stage	Transport	A4	MND	MND	MND	MND
	Construction	A5	MND	MND	MND	MND
Use stage	Use	B1	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND
95% recycling and 5% landfill						
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	5.27E-05
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	4.45E-03
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	8.01E-05
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-2.39E-01

SM = Use of secondary material;
RSF = Use of renewable secondary fuels;
NRSF = Use of non-renewable secondary fuels;
FW = Net use of fresh water

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LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing waste categories					
			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	4.92E+00	4.82E+01	8.04E-04
	Transport	A2	3.17E-04	5.52E-03	2.02E+00
	Manufacturing	A3	3.90E-02	6.96E-01	1.22E-04
	Total (Consumption grid)	A1-3	4.96E+00	4.89E+01	2.02E+00
Construction process stage	Transport	A4	MND	MND	MND
	Construction	A5	MND	MND	MND
Use stage	Use	B1	MND	MND	MND
	Maintenance	B2	MND	MND	MND
	Repair	B3	MND	MND	MND
	Replacement	B4	MND	MND	MND
	Refurbishment	B5	MND	MND	MND
	Operational energy use	B6	MND	MND	MND
	Operational water use	B7	MND	MND	MND
95% recycling and 5% landfill					
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	5.22E-04	9.26E-03	3.20E-06
	Waste processing	C3	7.23E-02	1.66E+00	1.84E-05
	Disposal	C4	2.86E-03	2.05E-01	4.14E-07
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.48E+01	-9.26E+01	-7.67E-04

HWD = Hazardous waste disposed;
NHWD = Non-hazardous waste disposed;
RWD = Radioactive waste disposed

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LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing output flows – at end of life								
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	6.36E-03	1.19E-05	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	1.18E-03	2.72E-08	8.81E-04	0.00E+00	-4.22E-02
	Total (Consumption grid)	A1-3	0.00E+00	7.54E-03	1.19E-05	8.81E-04	0.00E+00	-4.22E-02
Construction process stage	Transport	A4	MND	MND	MND	MND	MND	MND
	Construction	A5	MND	MND	MND	MND	MND	MND
Use stage	Use	B1	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND
95% recycling and 5% landfill								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for reuse;
MFR = Materials for recycling

MER = Materials for energy recovery;
EE = Exported Energy

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Scenarios and additional technical information

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
Reference service life	1m² of SAS810 System Tricell (3.766Kg/m²) Aluminium Polyester Powder Coated tile and grid only		
	Service Life	Service Life	60 years
C1 to C4 End of life	At the end of its service life, SAS international ceiling product will be removed manually from the building without the use of power tools. As the product is made up of Steel which has a valuable recycling or repurposing percentage, it will therefore be either recovered via SAS or sent to a processing unit for recycling. It is assumed as 100% recovery rate from the deconstruction unit		
C2 Transportation	50km by road has been modelled for module C2 as a typical distance from the demolition site to the pre-processing unit. However, end-users of the EPD can use this information to calculate the impacts of a bespoke transport distance for module C2 if required	Road Transport	16-32 Ton Lorry
	Distance: Deconstruction unit to pre-processing Unit	km	50
C3 Waste Processing	SAS810 is of aluminium composition, and it is assumed that at “end of life” the product and its associated metal components can be dismantled and sorted into the various waste/recycling routes. As part of dismantling the system and sorting process, powder coated finished materials do not need to be removed from components and will be managed via existing industry recycling routes/methods. 95% of the metal materials will be recycled; some of the paint waste cannot be recycled 5% will end up in landfills as the product is made of Aluminium “BRE 2023 PCR PN514 Rev 3.1.		
	Aluminium waste to recycling	kg	3.5778 kg
dfill.C4 Disposal	It is assumed that as the main elements of System 810 is aluminium and is a valuable material, 95% of the product is recycled at end of life. Some of the paint bonded to the aluminium will be discarded as waste during the pre-processing; as this waste is unable to be recycled, 5% will end up in landfills..		
	Aluminium waste to landfill	Kg	0.1883
Module D	"Benefits and loads beyond the system boundary” (module D) accounts for the environmental benefits and loads resulting from waste aluminium which is collected for recycling at end of life. These benefits and loads are calculated by excluding the pre-existing recycled aluminium that is used in the primary process. At the end of its working life, 3.766 kg/m2 of the product contains aluminium+PPC with 3.766 kg/m2 in total of scrap aluminium, as a small percentage will have been lost due to wear; 95% of the product will be recycled. SAS810 Trucell made up of 100% aluminium including PPC. The given SAS steel (This should be Alum supplier)supplier has 25% of the post-consumer waste. Therefore, the benefits of recycling aluminium should be calculated by avoiding the pre-existing recycled content. In the 100% of Aluminium + PPC, 3.577 kg of aluminium recovered from C3, the pre-existing content of 0.26 kg scrap aluminium should be avoided. The benefits have been calculated for virgin aluminium 1.30 kg. In line with this, 1.30 kg of steel recovered from the demolition sites can be used to offset the impacts of 3.32 kg of virgin aluminium material in A1. It is assumed that there is a 100% recycling yield from the recycling process.		
	Benefits due to recycling of virgin aluminium 3.32 kg		

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Summary, comments and additional information

Explanation of non-entries

Each SAS system is developed as a finished product, ready for installation without further preparation or finishes, the amount of packaging (manufacture of which has been included in Module A3) is a significant part of the overall mass of each m² to provide suitable protection to the products during transport and storage.

No emissions to air, water and soil have been included in A3 as are not required to be measured on site by local/ national enforcement agencies as any emissions are below reportable levels. SAS carries out annual inspection and testing of curing ovens and effluent wastewater as part of internal environmental management system and ISO 14001 record management process. Emissions from fuels used are included within the relevant datasets. No ancillary materials are required in association with the production of the system and therefore not included within the LCA.

Interpretation of Results

The bulk of the environmental impacts are attributed to the manufacturing of SAS800 Trucell covered by information modules A1-A3 of EN15804:2012+A2:2019

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References

BSI. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. BS EN 15804:2012+A2:2019. London, BSI, 2019.

BSI. Environmental labels and declarations – Type III Environmental declarations – Principles and procedures. BS EN ISO 14025:2010 (exactly identical to ISO 14025:2006). London, BSI, 2010.

BSI. Environmental management – Life cycle assessment – Principles and framework. BS EN ISO 14040:2006. London, BSI, 2006.

BSI. Environmental management – Life cycle assessment – requirements and guidelines. BS EN ISO 14044:2006. London, BSI, 2006.

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