Statement of Verification

BREG EN EPD No.: 000298 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+A1:2013

and

BRE Global Scheme Document SD207

This declaration is for:

SAS System 205 (Aluminum)

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Signed for BRE Global Ltd	Emma Baker Operator	20 February 2020 Date of this Issue
20 February 2020 Date of First Issue		19 February 2025 Expiry Date

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Environmental Product Declaration

EPD Number: 000298

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE Environmental Profiles 2013 Product Category Rules for Type III environmental product declaration of construction products to EN 15804:2012+A1:2013
Commissioner of LCA study	**LCA consultant/Tool**
SAS International 31 Sutton Business Park Reading UK RG6 1AZ	BRE LINA Version 2.0.8
Declared/Functional Unit	**Applicability/Coverage**
1M2 of SAS System 205 (Aluminum)	Manufacturer specific product average
EPD Type	**Background database**
Cradle to Gate with options	ecoinvent v3.2

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: Jane Anderson
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 programs may not be comparable if not compliant with EN 15804:2012+A1:2013. 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+A1:2013 for further guidance

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
Waterton Industrial Estate
Bridgend
South Wales
UK

Construction Product:

Product Description

SAS 205 aluminum system is a development of SAS 200 system, designed specifically for corridor applications. The system is supported at the perimeters, up to a maximum width of 3000mm.

Areas requiring regular maintenance, such as hospitals and hotels are ideal applications. The tiles simply hang in place against the perimeter wall, allowing unrestricted access and reducing damage risk.

Module Sizes: There are no standard tile sizes for SAS 205 system. Tiles can be up to 3000mm in length and no less than 300mm wide. Bespoke module sizes and shapes are available on request

Technical Information

Property
System components are manufactured and tested in accordance with BS EN 13964:2014 including essential characteristics performance: Reaction to Fire: (up to) A2-S1-D0 European Reaction to Fire classification system (Euroclasses) Release of Formaldehyde: CLASS E1 Release of Asbestos: NO CONTENT Sound Absorption: (up to) Single Value α_w = 1.00 class A Durability: CLASS B

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 of 5.795Kg/m2

Material/Chemical Input	%
Aluminum	95%
Steel	4%
Polyester Powder Coating	1%

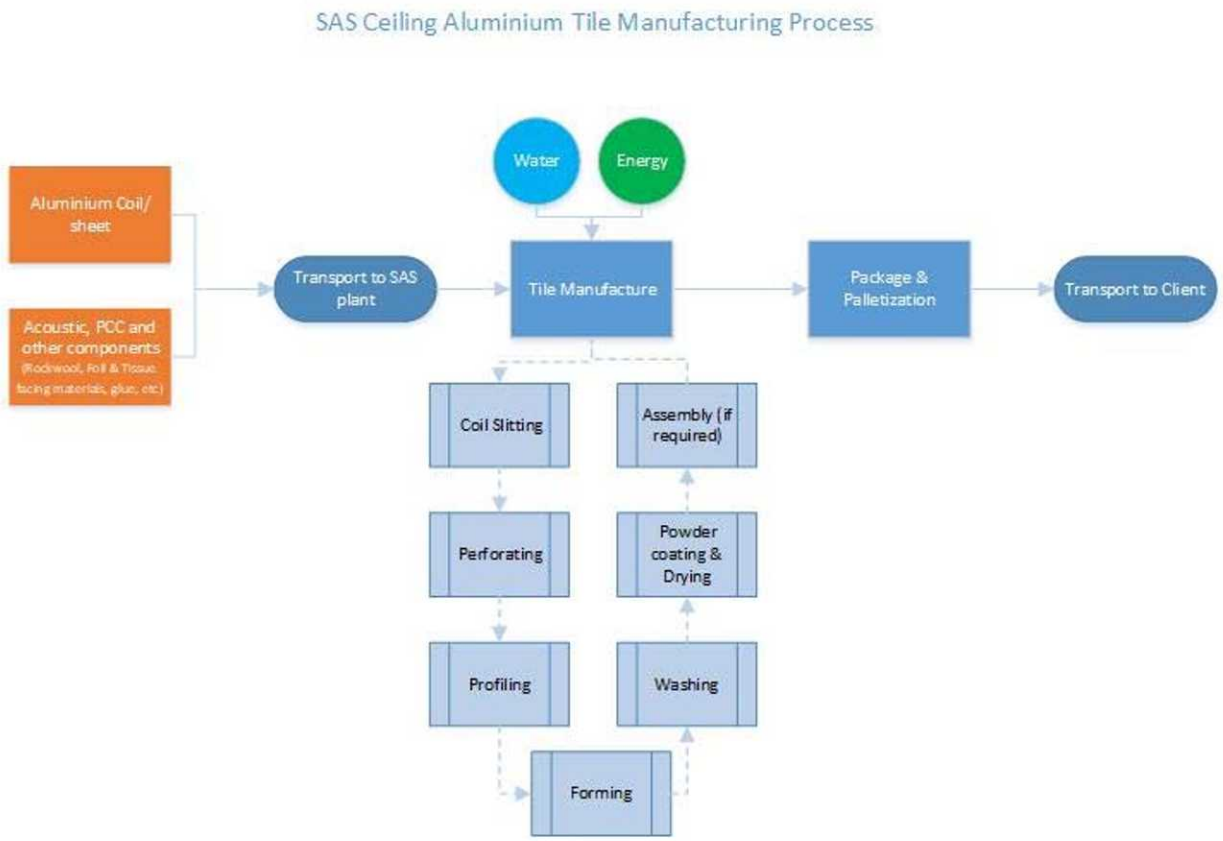
Manufacturing Process

The Bridgend factory is split into two separate units; Unit 1 is where the tile and linear systems are formed, including the addition of the various types of acoustic padding. Key Unit 1 processes include: slitting of the steel/aluminum coils, cutting and 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.

The aluminum used in the production of SAS products consists of approximately 0-75% of prime aluminum billet. The rest of the aluminum used for our products consists of approximately 25% of pre-consumer recycled aluminum. Our suppliers also utilise approximately 1-5% of post-consumer recycled aluminum at any given time.

The recycled content of steel used in with the systems vary from 20% to 25% subject to availability of recycled materials within the global market at time of purchase. The average recycled content can further be broken down into 18% pre-consumer and 6% post-consumer scrap metals.

Process flow diagram



Life Cycle Assessment Calculation Rules

Declared / Functional unit description

1m2 SAS ALUMINIUM 205 SYSTEM (5.795Kg/m2) Polyester powder coated aluminum tile including suspension grid and brackets for use in ceiling applications.

System boundary

This is a cradle-to-gate with options LCA, reporting all production life cycle stages of modules A1 to A3, and C3 waste processing and end of life disposal module C4 in accordance with EN15804:2012+A1:2013.

Data sources, quality and allocation

This is a cradle-to-gate with options LCA, reporting all production life cycle stages of modules A1 to A3, and end of life disposal module C4 in accordance with EN 15804:2012+A1:2013. 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. Upstream extraction and/or processing of inputs are included within the use of the background datasets within LINA.

Raw material quantities have been taken from recorded production/manufacture data and product geometry from the Syteline internal production system, for all variations of the SAS 205 systems made in the 12-month period. Due to the various sizes of System 205 product produced within the period, the raw materials used have been calculated by total weight (KG) in production divided each by total production in M2. Additionally, the calculation includes for carrier rail and brackets, applied to M2 application.

SAS International manufacture other products in addition to the System 205 so some allocation of primary data has been carried out. Since the manufacturing steps responsible for washing, powder coating, drying, cutting and mitering, holes and apertures routed out are the most energy intensive processes of the site, it is assumed that the gas and electricity consumption is the same for every m2 of metal product produced. This same allocation was applied to total site water usage. Production waste has been allocated to individual products by applying a percentage wastage rate (based on historical values and used for stock management) to each quantity of raw material. All packaging and non-production waste (waste packaging) has also been allocated using this methodology with applied percentage based on planned/estimated packaging and waste requirements for each products/systems/component.

Secondary data has been drawn from the BRE LINA databasev2.0.29 and the background LCI datasets are based on ecoinvent v3.2. Upstream extraction and/or processing of inputs are included within the use of the background datasets within LINA. Emissions from fuels used are included within the relevant datasets.

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.

LCA Results

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

Parameters describing environmental impacts									
			GWP	ODP	AP	EP	POCP	ADPE	ADPF
			kg CO_2 equiv.	kg CFC 11 equiv.	kg SO_2 equiv.	kg $(PO_4)^{3-}$ equiv.	kg C_2H_4 equiv.	kg Sb equiv.	MJ, net calorific value.
Product stage	Raw material supply	A1	1.10e+2	3.70e-6	7.57e-1	1.70e-1	5.84e-2	1.01e-4	1.38e+3
	Transport	A2	1.04e-1	1.96e-8	3.55e-4	9.38e-5	7.08e-5	2.15e-7	1.61
	Manufacturing	A3	5.59	5.25e-7	2.89e-2	6.92e-3	2.09e-3	8.48e-6	9.98e+1
	Total (of product stage)	A1-3	1.16e+2	4.24e-6	7.87e-1	1.77e-1	6.06e-2	1.10e-4	1.48e+3
End of life	Waste processing	C3	0	0	0	0	0	0	0
	Disposal	C4	0	0	0	0	0	0	0

GWP = Global Warming Potential;
ODP = Ozone Depletion Potential;
AP = Acidification Potential for Soil and Water;
EP = Eutrophication Potential;
POCP = Formation potential of tropospheric Ozone;
ADPE = Abiotic Depletion Potential – Elements;
ADPF = Abiotic Depletion Potential – Fossil Fuels;

LCA Results (continued)

Parameters describing resource use, primary energy								
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	1.45e+2	3.55e-4	1.45e+2	1.42e+3	0	1.42e+3
	Transport	A2	2.41e-2	6.89e-8	2.41e-2	1.60	0	1.60
	Manufacturing	A3	1.55e+1	1.95e-5	1.55e+1	1.23e+2	0	1.23e+2
	Total (of product stage)	A1-3	1.60e+2	3.74e-4	1.60e+2	1.54e+3	0	1.54e+3
End of life	Waste processing	C3	0	0	0	0	0	0
	Disposal	C4	0	0	0	0	0	0

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

LCA Results (continued)

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	0	0	0	8.35e-1
	Transport	A2	0	0	0	3.73e-4
	Manufacturing	A3	0	0	0	2.91e-2
	Total (of product stage)	A1-3	0	0	0	8.64e-1
End of life	Waste processing	C3	0	0	0	0
	Disposal	C4	0	0	0	0

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

LCA Results (continued)

Other environmental information describing waste categories					
			HWD	NHWD	RWD
			kg	Kg	kg
Product stage	Raw material supply	A1	1.01e+1	2.67	1.63e-3
	Transport	A2	6.45e-4	1.23e-1	1.11e-5
	Manufacturing	A3	1.90e-2	1.59e-1	5.77e-4
	Total (of product stage)	A1-3	1.01e+1	2.96	2.21e-3
End of life	Waste processing	C3	0	0	0
	Disposal	C4	0	0	0

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

LCA Results (continued)

Other environmental information describing output flows – at end of life						
			CRU	MFR	MER	EE
			kg	kg	Kg	MJ per energy carrier
Product stage	Raw material supply	A1	0	0	0	0
	Transport	A2	0	0	0	0
	Manufacturing	A3	0	4.32e-1	0	0
	Total (of product stage)	A1-3	0	4.32e-1	0	0
End of life	Waste processing	C3	0	0	0	0
	Disposal	C4	0	5.80	0	0

CRU = Components for reuse;
MFR = Materials for recycling

MER = Materials for energy recovery;
EE = Exported Energy

Scenarios and additional technical information

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
C3 Waste Processing	System 205 is aluminum and steel composition and it is assumed that at 'End of Life' or service the product and 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.		
C4 End of life	It is assumed that as the main element of the System 205 is aluminum and steel and is valuable material, 100% of the product is recycled at end of life. Powder coat finish will remain and be processed as part of the steel recycling process.		

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. Module A4 and A5 have not been modelled within the LCA, however the following breakdown of product and packaging can be applied to each m2 of system 205.

Product: 94.5%
Softwood - 1.9%
Plywood - 0.75%
OSB - 1.6%
Cardboard - 0.8%
Paper - 0.1%
Plastic firm wrapping - 0.1%
Plastic strapping - 0.1%

No emissions to air, water and soil have been included in A3 as they 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

References

BSI. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. BS EN 15804:2012+A1:2013. London, BSI, 2013.

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.