

Statement of Verification

BREG EN EPD No.: 000631

Issue 01

This is to verify that the

Environmental Product Declaration provided by:

Axis Entrance Systems Limited

is in accordance with the requirements of:

EN 15804:2012+A2:2019

and

BRE Global Scheme Document SD207

This declaration is for:

1 unit Single door E32 (179 kg), 1 unit Single door F01 (2400 mm) (211 kg), 1 unit Bi Parting door B32 (187 kg)

Company Address

Axis Entrance Systems Limited Unit 7a Queens Park Industrial Estate Studland Road Northampton NN2 6NA







Date of First Issue

Signed for BRE Global Ltd

Emma Baker Operator

19 September 2024

Date of this Issue

19 September 2024

18 September 2029

Expiry Date



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To check the validity of this statement of verification please, visit www.greenbooklive.com/check or contact us.

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Environmental Product Declaration

EPD Number: 000631

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
Axis Entrance Systems Limited	Flavie Lowres/LINA A2
Declared/Functional Unit	Applicability/Coverage
This EPD covers 3 products: 1 unit Single door E32 (179 kg), 1 unit Single door F01 (2400 mm) (211 kg), 1 unit Bi Parting door B32 (187 kg)	Product specific.
EPD Type	Background database
Cradle to Gate with Module C and D	ecoinvent
Demonstra	ation of Verification
CEN standard EN 1	5804 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: Roger Connick

- 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



Information modules covered

	Product		Const	ruction		Use stage						End-of-life				Benefits and loads beyond
	rioduc		Construction		Rel	Related to the building fabric			Relat	ed to uilding	End-of-life				the system boundary	
A 1	A2	А3	A4	A 5	B1	B2	В3	B4	B5	В6	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
$\overline{\mathbf{A}}$	$\overline{\mathbf{Q}}$	V										$\overline{\mathbf{A}}$	$\overline{\checkmark}$	$\overline{\mathbf{A}}$	$\overline{\mathbf{Q}}$	$\overline{\checkmark}$

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

Axis Entrance Systems Limited Unit 7a Queens Park Industrial Estate Studland Road Northampton NN2 6NA

Construction Product:

Product Description

Flo-Motion® door sets are manual aluminium framed sliding internal glazed door system primarily used within the Healthcare sector. They feature recirculating ball guides on a special low resistance linear track with a damper mechanism. The door sets are fabricated using extruded aluminium profiles and includes a 'goalpost' frame.

The aluminium door set to be formed from non-thermal aluminium extruded box section and to include a frame consisting of two jambs (100mm and/or 152mm x 45mm profiles) and a 125mm x 100mm integral transom bar with a 7mm reinforced face. The frame to fit within the structural opening (see dimensions below) with either a single or pair of doors sliding over adjacent walls (E32 & B32) or glazed screens and walls (F01). Where fitted, the fixed glazed screens offer additional support and are secured within the frame structure by two concealed aluminium channels.

The glass panels are made of laminated glass. The doors modelled in this EPD assume that there is no blind fitted.

Further details of the products covered by this EPD can be found here:

Flo-Motion® E32 - Manual door system with the door sliding over an adjacent wall.

Flo-Motion® F01 (2400 mm) - Manual door system with the door sliding over adjacent glazed screen and wall. Flo-Motion® B32 - Manual aluminium framed bi-parting glazed door system with the doors sliding over adjacent walls.



The door schedule is provided below:

Door Type	Width	Height	Total Weight/Door	
Single Door E32	1805 mm	2400 mm	179 kg	
Single Door F01 (2400 mm)	2400 mm	2400 mm	211 kg	
Bi Parting B32	1960 mm	2400 mm	187 kg	

Ref: <u>axisflomotionbrochure_0.pdf (axisentrances.com)</u> – the weight provided above are for a mid-size door for each range.



Technical Information

A typical Flo-Motion® entrance door set (representative of the whole Flo-Motion® door set range) has been independently tested to BS- EN1527:2019 - Digit 9 - Durability Grade 6 for 1,000,000 cycles.

Main Product Contents

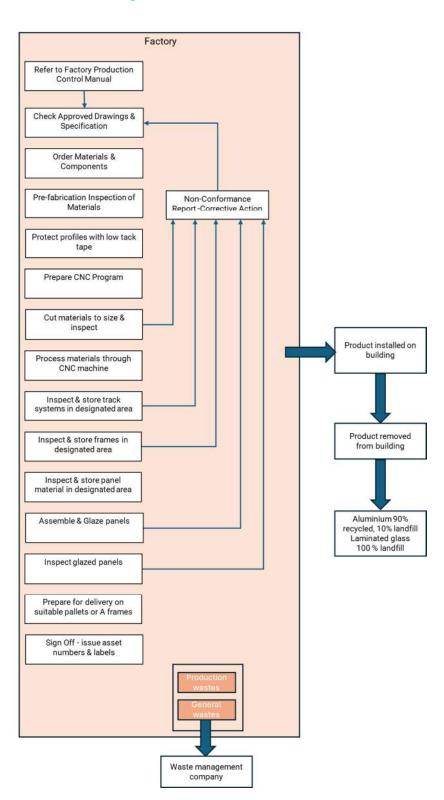
Material/Chemical Input	%
Aluminium extruded	35-39%
Glass	52-61%
Stainless steel	2-6%
Handles	<2%
Plastic	<2%

Manufacturing Process

All components are brought to site. Most components are cut to size on site, apart from the glazed panels which are brought to site to the right size. All components are assembled on site. The door units are packaged and prepared for delivery.



Process flow diagram





End of Life

C1: All components are disassembled using a very small amount of energy and assumed to be zero in this EPD. this assumption is based on actual practice.

C2: all elements of the system can be disassembled and recycled through commonly available waste management processing plant estimated to be 50 km from a typical site C3: no processing is required

C4: It was assumed the following recycling rate, based on and general practice:

-aluminium and stainless steel are widely recycled and based on BRE's PCR for EN15804+A2:2019 (<u>BRE PN514 EN15804+A2 PCR V3.1.pdf (greenbooklive.com</u>)), it was assumed that 95% was recycled and 5% sent to landfill

-laminated glass is typically hard to recycled, so it was assumed that it was 100% sent to landfill



Life Cycle Assessment Calculation Rules

Declared / Functional unit description

1 unit Single door E32 (179 kg), 1 unit Single door F01 (2400 mm) (211 kg), 1 unit Bi Parting door B32 (187 kg)

System boundary

In accordance with the modular approach as defined in EN15804:2012+A2:2019, this cradle-to-gate EPD includes the processes covered in the manufacturing site A1 to A3. It also includes C1 to C4 and module D.

Data sources, quality and allocation

Specific primary data derived from Axis Entrance Systems Ltd have been modelled using LINA v2 software for the period 1st April 2022 to 31st March 2023. In accordance with the requirements of EN15804, the most current available data has been used. Secondary data has been obtained for all remaining upstream and downstream processes that are beyond the control of the manufacturer 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+A2:2019. The Single door E32, Single door F01 (2400 mm) and Bi Parting B32 are not the only products manufactured at the Axis Entrance Systems Ltd factory. An allocation by mass of the data has been carried out for energy, water and office wastes as follow:

Product description as per door schedule above	% allocation
Single Door E32	34%
Single Door F01 (2400 mm)	4%
Bi Parting B32	1%

The raw materials quantities were uplifted to account for the difference in the mass balance results. Production wastes has been allocated specifically for each product based on factory data.

Quality Level Geographical

Datasets representative of UK electricity have been selected from the ecoinvent LCI. The quality level of time and technological representativeness is good as the background LCI datasets are based on ecoinvent v3.8 which was compiled in 2021. Therefore, the most appropriate LCA data have been used.

The GWP of the dataset used for this EPD is: 1 kWh UK electricity = 2E-01 kgCO2eq (Electricity GB (kWh) market for electricity, medium voltage)

Cut-off criteria

This study includes the manufacturing of 1 unit Single door E32, 1 unit Single door F01 (2400 mm), 1 unit Bi Parting B32 and the end of life scenarios of these products (modules C and D). The manufacturing process is mainly an assembly process, so there are no emissions to air, water and soil.



LCA Results – 1 unit Single door E32 (179 kg)

(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 CO₂ eq	kg CO ₂ eq	kg CO ₂ eq	kg CFC11 eq	mol H⁺ eq	kg (PO₄)³- eq		
	Raw material supply	A1	1.30E+03	1.30E+03	-8.86E-01	3.22E+00	6.35E-05	8.81E+00	4.20E-01		
Product stage	Transport	A2	3.01E+00	3.00E+00	3.53E-03	1.34E-03	6.81E-07	1.32E-02	2.51E-04		
	Manufacturing	А3	7.84E+01	7.70E+01	1.31E+00	4.75E-02	6.38E-06	1.29E-01	7.78E-03		
	Total (Consumption grid)	A1 -3	1.38E+03	1.38E+03	4.28E-01	3.27E+00	7.06E-05	8.95E+00	4.28E-01		
	etals 95% recycled a	and									
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
End of life	Transport	C2	1.49E+00	1.49E+00	1.27E-03	5.85E-04	3.45E-07	6.05E-03	9.60E-05		
End of life	Waste processing	СЗ	1.61E-01	1.61E-01	5.69E-05	1.61E-05	3.44E-08	1.67E-03	4.99E-06		
	Disposal	C4	1.19E+01	1.19E+01	1.09E-02	1.45E-03	4.13E-07	1.27E-02	4.13E-04		
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-3.96E+02	-3.97E+02	1.16E+00	-5.26E-01	-1.17E-05	-2.53E+00	-1.19E-01		

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



			EP- marine	EP- terrestrial	POCP	ADP- mineral&m etals	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	1.46E+00	1.51E+01	4.32E+00	7.70E-03	1.34E+04	3.84E+02	1.05E-04
	Transport	A2	3.99E-03	4.37E-02	1.36E-02	1.84E-05	4.52E+01	2.32E-01	2.74E-07
	Manufacturing	А3	5.65E-02	4.26E-01	1.21E-01	2.89E-04	1.74E+03	8.93E+00	1.02E-06
	Total (Consumption grid)	A1 -3	1.52E+00	1.56E+01	4.45E+00	8.01E-03	1.52E+04	3.93E+02	1.06E-04
	etals 95% recycled ass 0% recycled	and							
_	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	1.82E-03	1.99E-02	6.10E-03	5.18E-06	2.25E+01	1.01E-01	1.29E-07
End of file	Waste processing	СЗ	7.42E-04	8.13E-03	2.23E-03	8.29E-08	2.21E+00	5.11E-03	4.49E-08
	Disposal	C4	4.73E-03	4.88E-02	1.37E-02	5.54E-06	2.93E+01	1.42E+00	2.14E-07
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-4.24E-01	-4.43E+00	-1.28E+00	-3.42E-04	-3.57E+03	-4.70E+01	-3.27E-0

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

ADP-fossil = Depletion potential of the stratospheric ozone layer; WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and PM = Particulate matter.



Parameters describing environmental impacts											
			IRP	ETP-fw	HTP-c	HTP-nc	SQP				
			kBq U ²³⁵ eq	CTUe	CTUh	CTUh	dimensionless				
	Raw material supply	A1	5.85E+01	3.99E+04	1.85E-06	2.98E-05	3.23E+03				
Product stage	Transport	A2	2.45E-01	3.76E+01	2.00E-09	4.19E-08	2.90E+01				
	Manufacturing	A3	3.76E+01	8.84E+02	2.25E-08	4.80E-07	4.38E+02				
	Total (Consumption grid)	A1- 3	9.63E+01	4.08E+04	1.87E-06	3.03E-05	3.70E+03				
Scenario: metals 95° laminated glass 0%	•										
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00				
End of life	Transport	C2	1.16E-01	1.76E+01	5.69E-10	1.84E-08	1.55E+01				
End of file	Waste processing	C3	9.96E-03	1.29E+00	5.00E-11	9.38E-10	2.82E-01				
	Disposal	C4	1.47E-01	2.22E+03	3.03E-09	3.53E-08	6.36E+01				
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-4.70E+00	-1.02E+04	-4.20E-07	-8.72E-06	-7.40E+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.



Parameters de	scribing reso	urce	use, primary	energy				
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
	Raw material supply	A1	1.41E+03	0.00E+00	1.41E+03	1.32E+04	1.42E+02	1.33E+04
Product stage	Transport	A2	7.73E-01	0.00E+00	7.73E-01	4.44E+01	0.00E+00	4.44E+01
	Manufacturing	A3	2.64E+02	6.02E+00	2.70E+02	2.08E+03	4.73E+01	2.13E+03
	Total (Consumption grid)	A1-3	1.67E+03	6.02E+00	1.68E+03	1.53E+04	1.89E+02	1.55E+04
Scenario: metals 95° laminated glass 0%	•							
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	3.17E-01	0.00E+00	3.17E-01	2.21E+01	0.00E+00	2.21E+01
End of life	Waste processing	С3	1.24E-02	0.00E+00	1.24E-02	2.17E+00	0.00E+00	2.17E+00
	Disposal	C4	5.56E-01	0.00E+00	5.56E-01	2.68E+01	0.00E+00	2.68E+01
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.17E+02	0.00E+00	-2.17E+02	-3.54E+03	0.00E+00	-3.54E+03

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



Parameters des	cribing resour	ce use	e, secondary ma	terials and fuels, (use of water	
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m³
Product stage	Raw material supply	A1	7.03E+00	0.00E+00	0.00E+00	9.72E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	5.77E-03
	Manufacturing	А3	1.46E-01	9.70E-04	0.00E+00	3.94E-01
	Total (Consumption grid)	A1- 3	7.18E+00	9.70E-04	0.00E+00	1.01E+01
Scenario: metals 95 laminated glass 0%						
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	0.00E+00	0.00E+00	0.00E+00	2.51E-03
Elia di ille	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	1.26E-04
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	3.34E-02
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-1.26E+00

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



Other environmental information describing waste categories										
			HWD	NHWD	RWD					
			kg	kg	kg					
	Raw material supply	A1	2.44E+02	1.77E+03	2.78E-02					
Product stage	Transport	A2	6.01E-02	1.13E+00	6.55E+01					
	Manufacturing	A3	1.77E+00	3.28E+01	1.12E-02					
	Total (Consumption grid)	A1- 3	2.46E+02	1.80E+03	6.55E+01					
Scenario: metals 950 laminated glass 0%	% recycled and									
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00					
End of life	Transport	C2	2.48E-02	4.41E-01	1.52E-04					
Elia oi ille	Waste processing	C3	2.91E-03	2.04E-02	1.53E-05					
	Disposal	C4	1.02E-01	1.07E+02	1.59E-04					
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-7.84E+01	-4.93E+02	-4.09E-03					

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



Other enviro	nmental inform	atior	ı describing	output flow	s – at end o	f life		
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	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
Product stage	Manufacturing	A3	0.00E+00	1.65E-02	8.44E-06	8.03E-01	0.00E+00	0.00E+00
	Total (Consumption grid)	A1- 3	0.00E+00	1.65E-02	8.44E-06	8.03E-01	0.00E+00	0.00E+00
Scenario: metals laminated glass	s 95% recycled and 0% recycled	d						
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Waste processing	С3	0.00E+00	2.80E+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



LCA Results - 1 unit Single door F01 (2400 mm) (211 kg)

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

Paramet	ers describin	g en	vironmen	tal impact	S				
			GWP-total	GWP- fossil	GWP- biogenic	GWP- luluc	ODP	AP	EP- freshwate r
			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
	Raw material supply	A1	1.43E+03	1.43E+03	-7.42E-01	3.52E+00	7.28E-05	9.76E+00	4.62E-01
Product	Transport	A2	3.39E+00	3.39E+00	3.86E-03	1.50E-03	7.70E-07	1.48E-02	2.76E-04
stage	Manufacturing	А3	9.18E+01	9.01E+01	1.53E+00	5.56E-02	7.49E-06	1.50E-01	9.02E-03
	Total (Consumption grid)	A1 -3	1.53E+03	1.52E+03	7.92E-01	3.58E+00	8.11E-05	9.92E+00	4.71E-01
	netals 95% recycle ted glass 0% recyc								
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	1.76E+00	1.75E+00	1.49E-03	6.88E-04	4.06E-07	7.12E-03	1.13E-04
End of life	Waste processing	СЗ	1.61E-01	1.61E-01	5.69E-05	1.61E-05	3.44E-08	1.67E-03	4.99E-06
	Disposal	C4	1.22E+01	1.22E+01	1.31E-02	1.74E-03	4.98E-07	1.51E-02	4.96E-04
Potential benefits and loads beyond the system boundarie s	Reuse, recovery, recycling potential	D	-4.28E+02	-4.28E+02	1.26E+00	-5.68E-01	-1.27E-05	2.74E+00	-1.28E- 01

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



LCA Results (continued) - 1 unit Single door F01 (2400 mm) (211 kg)

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	m³ world eq deprived	disease incidence			
	Raw material supply	A1	1.62E+00	1.68E+01	4.79E+00	8.62E-03	1.48E+04	4.23E+02	1.16E-04			
Product	Transport	A2	4.46E-03	4.88E-02	1.52E-02	1.97E-05	5.10E+01	2.59E-01	3.08E-07			
stage	Manufacturing	A3	6.59E-02	4.98E-01	1.39E-01	3.37E-04	2.04E+03	1.02E+01	1.18E-06			
	Total (Consumption grid)	A1- 3	1.69E+00	1.73E+01	4.94E+00	8.98E-03	1.69E+04	4.33E+02	1.17E-04			
	etals 95% recycled ass 0% recycled	and										
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
End of life	Transport	C2	2.14E-03	2.34E-02	7.17E-03	6.10E-06	2.65E+01	1.19E-01	1.51E-07			
End of file	Waste processing	C3	7.42E-04	8.13E-03	2.23E-03	8.29E-08	2.21E+00	5.11E-03	4.49E-08			
	Disposal	C4	5.55E-03	5.77E-02	1.63E-02	6.46E-06	3.58E+01	1.71E+00	2.61E-07			
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-4.57E-01	-4.78E+00	-1.38E+00	-3.69E-04	3.85E+03	5.07E+01	-3.53E-05			

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.



LCA Results (continued) – 1 unit Single door F01 (2400 mm) (211 kg)

Parameters de	Parameters describing environmental impacts										
			IRP	ETP-fw	HTP-c	HTP-nc	SQP				
			kBq U ²³⁵ eq	CTUe	CTUh	CTUh	dimensionless				
	Raw material supply	A1	6.63E+01	4.51E+04	2.00E-06	3.26E-05	3.64E+03				
	Transport	A2	2.75E-01	4.21E+01	2.14E-09	4.66E-08	3.30E+01				
Product stage	Manufacturing	A3	4.42E+01	1.03E+03	2.62E-08	5.60E-07	5.14E+02				
	Total (Consumption grid)	A1- 3	1.11E+02	4.62E+04	2.03E-06	3.32E-05	4.19E+03				
Scenario: metals 950 laminated glass 0%	•										
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00				
End of life	Transport	C2	1.36E-01	2.07E+01	6.70E-10	2.17E-08	1.82E+01				
End of file	Waste processing	C3	9.96E-03	1.29E+00	5.00E-11	9.38E-10	2.82E-01				
	Disposal	C4	1.78E-01	2.41E+03	3.24E-09	3.87E-08	7.92E+01				
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-5.08E+00	-1.10E+04	-4.53E-07	-9.41E-06	-7.98E+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.



LCA Results (continued) - 1 unit Single door F01 (2400 mm) (211 kg)

Parameters de	Parameters describing resource use, primary energy											
			PERE	PERM	PERT	PENRE	PENRM	PENRT				
			MJ	MJ	MJ	MJ	MJ	MJ				
	Raw material supply	A1	1.55E+03	0.00E+00	1.55E+03	1.45E+04	1.42E+02	1.47E+04				
	Transport	A2	8.54E-01	0.00E+00	8.54E-01	5.01E+01	0.00E+00	5.01E+01				
Product stage	Manufacturing	A3	3.10E+02	7.09E+00	3.17E+02	2.44E+03	4.81E+01	2.49E+03				
	Total (Consumption grid)	A1-3	1.86E+03	7.09E+00	1.87E+03	1.70E+04	1.90E+02	1.72E+04				
Scenario: metals 95° laminated glass 0%	•											
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00				
End of life	Transport	C2	3.73E-01	0.00E+00	3.73E-01	2.60E+01	0.00E+00	2.60E+01				
End of file	Waste processing	С3	1.24E-02	0.00E+00	1.24E-02	2.17E+00	0.00E+00	2.17E+00				
Disposal C4		6.77E-01	0.00E+00	6.77E-01	3.32E+01	0.00E+00	3.32E+01					
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.34E+02	0.00E+00	- 2.34E+02	3.83E+03	0.00E+00	-3.83E+03				

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) - 1 unit Single door F01 (2400 mm) (211 kg)

Parameters describing resource use, secondary materials and fuels, use of water										
			SM	RSF	NRSF	FW				
			kg	MJ net calorific value	MJ net calorific value	m³				
	Raw material supply	A1	7.46E+00	0.00E+00	0.00E+00	1.07E+01				
Transport A2		A2	0.00E+00	0.00E+00	0.00E+00	6.42E-03				
Product stage	Product stage Manufacturing A3		1.72E-01	1.14E-03	0.00E+00	4.55E-01				
	Total (Consumption grid)	A1- 3	7.63E+00	1.14E-03	0.00E+00	1.12E+01				
Scenario: metals 95° laminated glass 0%										
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00				
End of life	Transport	C2	0.00E+00	0.00E+00	0.00E+00	2.95E-03				
Elia di ille	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	1.26E-04				
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	4.03E-02				
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-1.36E+00				

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) – 1 unit Single door F01 (2400 mm) (211 kg)

Other environmental information describing waste categories									
			HWD	NHWD	RWD				
			kg	kg	kg				
	Raw material supply	A1	2.65E+02	1.95E+03	3.15E-02				
	Transport	A2	6.65E-02	1.24E+00	6.53E+01				
Product stage	Manufacturing	А3	2.06E+00	3.80E+01	1.31E-02				
	Total (Consumption grid)	A1- 3	2.67E+02	1.99E+03	6.53E+01				
Scenario: metals 95 laminated glass 0%	% recycled and								
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00				
End of life	Transport	C2	2.92E-02	5.19E-01	1.79E-04				
Elia ol Ille	Waste processing	C3	2.91E-03	2.04E-02	1.53E-05				
	Disposal	C4	1.19E-01	1.33E+02	1.98E-04				
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-8.46E+01	-5.32E+02	-4.41E-03				

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



LCA Results (continued) – 1 unit Single door F01 (2400 mm) (211 kg)

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			
	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	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			
Product stage	Product stage Manufacturing A3 Total (Consumption grid) A1-3		0.00E+00	1.94E-02	9.93E-06	9.44E-01	0.00E+00	0.00E+00			
			0.00E+00	1.94E-02	9.93E-06	9.44E-01	0.00E+00	0.00E+00			
Scenario: metals laminated glass 0	•										
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
F., J 6 115.	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
End of life	Waste processing	С3	0.00E+00	2.80E+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



LCA Results – 1 unit Bi Parting door B32 (187 kg)

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

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Parameters	s describing e	nviro	nmental i	mpacts					
			GWP-total	GWP- fossil	GWP- biogenic	GWP- luluc	ODP	AP	EP- freshwater
			kg CO₂ eq	kg CO₂ eq	kg CO₂ eq	kg CO ₂ eq	kg CFC11 eq	mol H⁺ eq	kg (PO ₄) ³⁻ eq
	Raw material supply	A1	1.38E+03	1.38E+03	-7.08E-01	3.37E+00	6.62E-05	9.29E+00	4.48E-01
	Transport	A2	4.22E+00	4.21E+00	6.36E-03	2.12E-03	9.34E-07	2.00E-02	4.35E-04
Product stage	Manufacturing	A3	8.16E+01	8.01E+01	1.37E+00	4.95E-02	6.65E-06	1.34E-01	8.08E-03
	Total (Consumption A1-3 grid)		1.47E+03	1.46E+03	6.68E-01	3.42E+00	7.38E-05	9.44E+00	4.57E-01
Scenario: meta laminated glass	ils 95% recycled ar s 0% recycled	nd							
_	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	1.56E+00	1.55E+00	1.32E-03	6.10E-04	3.60E-07	6.31E-03	1.00E-04
End of life	Waste processing	C3	6.39E-01	6.39E-01	2.26E-04	6.38E-05	1.37E-07	6.64E-03	1.98E-05
	Disposal	C4	1.25E+01	1.24E+01	1.07E-02	1.43E-03	4.06E-07	1.25E-02	4.06E-04
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-4.17E+02	-4.18E+02	1.23E+00	-5.46E-01	-1.24E-05	2.65E+00	-1.26E-01

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



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	m³ world eq deprived	disease incidence		
	Raw material supply	A1	1.55E+00	1.60E+01	4.59E+00	9.08E-03	1.42E+04	4.11E+02	1.11E-04		
Product	Transport	A2	6.05E-03	6.64E-02	2.10E-02	3.71E-05	6.31E+01	3.66E-01	4.07E-07		
stage	Manufacturing	А3	5.88E-02	4.43E-01	1.25E-01	3.01E-04	1.82E+03	9.34E+00	1.06E-06		
	Total (Consumption grid)	A1- 3	1.61E+00	1.65E+01	4.74E+00	9.42E-03	1.61E+04	4.21E+02	1.12E-04		
	etals 95% recycled a ass 0% recycled	and									
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
End of life	Transport	C2	1.90E-03	2.08E-02	6.36E-03	5.40E-06	2.35E+01	1.06E-01	1.34E-07		
End of life	Waste processing	C3	2.94E-03	3.22E-02	8.86E-03	3.29E-07	8.76E+00	2.03E-02	1.78E-07		
	Disposal	C4	4.70E-03	4.83E-02	1.35E-02	5.51E-06	2.85E+01	1.39E+00	2.09E-07		
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-4.45E-01	-4.65E+00	-1.36E+00	-3.59E-04	3.77E+03	- 4.91E+01	-3.43E- 05		

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.



Parameters describing environmental impacts											
			IRP	ETP-fw	HTP-c	HTP-nc	SQP				
			kBq U ²³⁵ eq	CTUe	CTUh	CTUh	dimensionless				
	Raw material supply	A1	6.26E+01	4.20E+04	2.93E-06	3.18E-05	3.54E+03				
	Transport	A2	3.59E-01	5.58E+01	4.03E-09	6.54E-08	3.74E+01				
Product stage	Manufacturing	A3	3.92E+01	9.20E+02	2.34E-08	4.99E-07	4.56E+02				
	Total (Consumption grid)	A1- 3	1.02E+02	4.30E+04	2.96E-06	3.24E-05	4.03E+03				
Scenario: metals 95° laminated glass 0%	-										
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00				
End of life	Transport	C2	1.21E-01	1.83E+01	5.94E-10	1.92E-08	1.61E+01				
End of life	Waste processing	C3	3.95E-02	5.13E+00	1.98E-10	3.72E-09	1.12E+00				
	Disposal	C4	1.44E-01	2.28E+03	3.12E-09	3.61E-08	6.14E+01				
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-5.00E+00	-1.08E+04	-4.74E-07	-9.17E-06	-7.80E+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.



Parameters de	scribing reso	urce	use, primary	energy				
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
	Raw material supply	A1	1.56E+03	0.00E+00	1.56E+03	1.40E+04	1.50E+02	1.42E+04
	Transport	A2	1.27E+00	0.00E+00	1.27E+00	6.21E+01	0.00E+00	6.21E+01
Product stage	Manufacturing	А3	2.75E+02	6.38E+00	2.81E+02	2.17E+03	4.75E+01	2.22E+03
	Total (Consumption grid)	A1-3	1.84E+03	6.38E+00	1.84E+03	1.62E+04	1.98E+02	1.65E+04
Scenario: metals 95° laminated glass 0%								
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	3.31E-01	0.00E+00	3.31E-01	2.31E+01	0.00E+00	2.31E+01
End of file	Waste processing	С3	4.91E-02	0.00E+00	4.91E-02	8.59E+00	0.00E+00	8.59E+00
Disposal C4		5.44E-01	0.00E+00	5.44E-01	2.59E+01	0.00E+00	2.59E+01	
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.27E+02	0.00E+00	- 2.27E+02	3.74E+03	0.00E+00	-3.74E+03

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



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				
	Raw material supply	A1	1.24E+01	0.00E+00	0.00E+00	1.05E+01				
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	9.11E-03				
Product stage	Manufacturing	А3	1.53E-01	1.01E-03	0.00E+00	4.11E-01				
	Total (Consumption grid)		1.26E+01	1.01E-03	0.00E+00	1.09E+01				
Scenario: metals 95° laminated glass 0%	% recycled and									
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00				
End of life	Transport	C2	0.00E+00	0.00E+00	0.00E+00	2.62E-03				
End of file	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	5.00E-04				
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	3.28E-02				
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-1.32E+00				

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



Other environmental information describing waste categories							
			HWD	NHWD	RWD		
			kg	kg	kg		
Product stage	Raw material supply	A1	2.96E+02	1.90E+03	2.94E-02		
	Transport	A2	9.87E-02	1.92E+00	1.86E+02		
	Manufacturing	А3	1.84E+00	3.41E+01	1.17E-02		
	Total (Consumption grid)	A1- 3	2.98E+02	1.94E+03	1.86E+02		
Scenario: metals 95 ^o laminated glass 0%							
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00		
	Transport	C2	2.59E-02	4.60E-01	1.59E-04		
	Waste processing	C3	1.15E-02	8.08E-02	6.05E-05		
	Disposal	C4	1.02E-01	1.03E+02	1.54E-04		
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-8.25E+01	-5.23E+02	-4.36E-03		

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



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	0.00E+00	0.00E+00	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	1.72E-02	8.80E-06	8.36E-01	0.00E+00	0.00E+00	
	Total (Consumption grid)	A1- 3	0.00E+00	1.72E-02	8.80E-06	8.36E-01	0.00E+00	0.00E+00	
Scenario: metals laminated glass 0	95% recycled and % recycled								
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	С3	0.00E+00	1.11E+01	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	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



Scenarios and additional technical information

Scenario	Parameter					Units	Results
C1 to C4 End of life,							
C1 - Deconstruction	All components amount of ener this assumption	gy and a	N/A	0			
C2 - Transport from site to pre-processing facility or landfill	All elements of the system can be disassembled and recycled through commonly available waste management processing plant estimated to be 50 km from a typical site					km	50
C3 - Pre-processing of uninstalled product (if relevant)	According to BRE's Proceed Recycling quantities in Single door E32 Single door F01 (2400 mm) Bi-parting B32			4 2.8 7 2.8		%	95
C4 – Disposal	According to BI metals are land Laminated glas assumed that it Landfill quantiti Single door E32 Single door F01 (2400 mm) Bi-parting B32	Ifilled s is typic was 100	cally hard to re 0% sent to lan	ecycled, s		%	5 100
Module D	Single door E32 Single door F01 (2400 mm) Bi-parting B32		Aluminium Steel 17.5 1.5 18.9 1.5 18.1 5.9 Is primary content of aluminium was 3 seconvent 3.8.			·	



Interpretation of results

Figures 1 below show the results in $kgCO_2eq$ per stage for 1 unit single door E32 (179 kg). It shows that 94% of the impact of this product is associated with the impact of the raw materials.

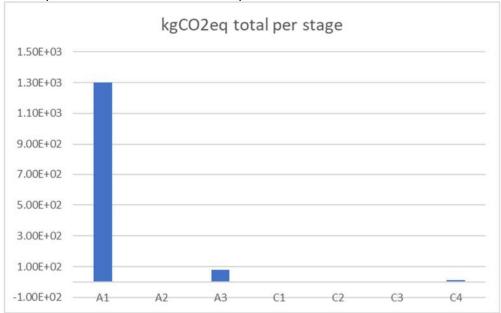


Figure 1: kgCO₂eq per stage for 1 unit single door E32

Further analysis of stage A1 shows that 82% of the kgCO₂eq of 1 unit single door E32 are associated with the aluminium and 14% is associated with the glass – see figure 2:

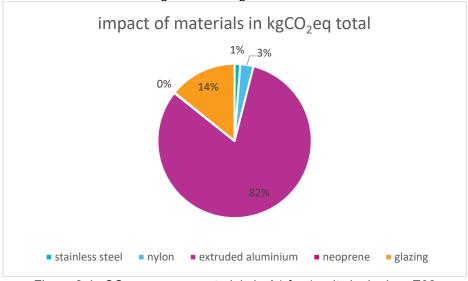


Figure 2: kgCO₂eq per raw materials in A1 for 1 unit single door E32



Figures 3 below show the results in kgCO₂eq per stage for 1 unit single door F01 (2400 mm) (211 kg). It shows that 94% of the impact of this product is associated with the impact of the raw materials.

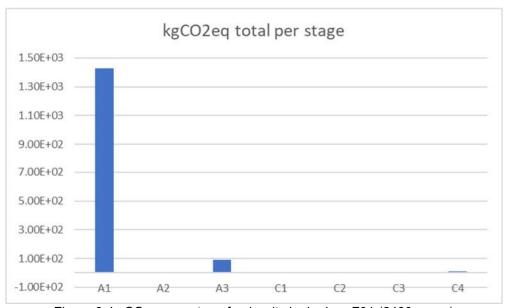


Figure 3: kgCO₂eq per stage for 1 unit single door F01 (2400 mmm)

Further analysis of stage A1 shows that 80% of the kgCO₂eq of 1 unit single door F01 (2400 mmm) are associated with the aluminium and 16% is associated with the glass – see figure 4:

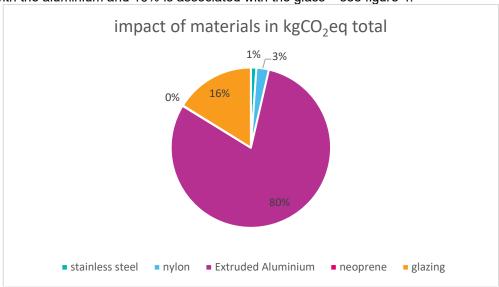


Figure 4: kgCO₂eq per raw materials in A1 for 1 unit single door F01 (2400 mm)



Figures 5 below show the results in kgCO₂eq per stage for 1 unit bi-parting door B32 (187 kg). It shows that 94% of the impact of this product is associated with the impact of the raw materials.

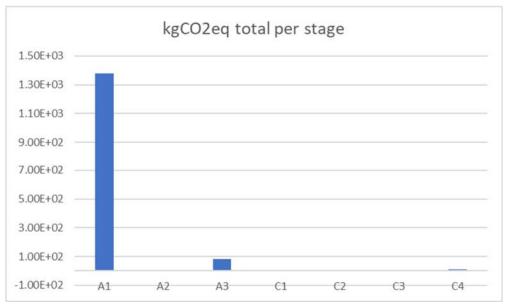


Figure 5: kgCO₂eq per stage for 1 unit bi-parting door B32

Further analysis of stage A1 shows that 80% of the kgCO2eq of 1 unit bi-parting door B32 are associated with the aluminium and 13% is associated with the glass – see figure 6:

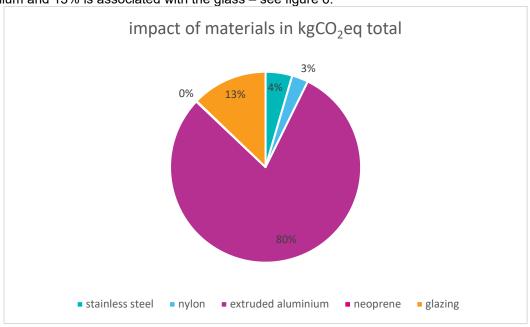


Figure 6: kgCO₂eq per raw materials in A1 for 1 unit bi-parting door B32



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.

BSI Building hardware. Hardware for sliding doors and folding doors. Requirements and test methods BS EN 1527:2019 - TC