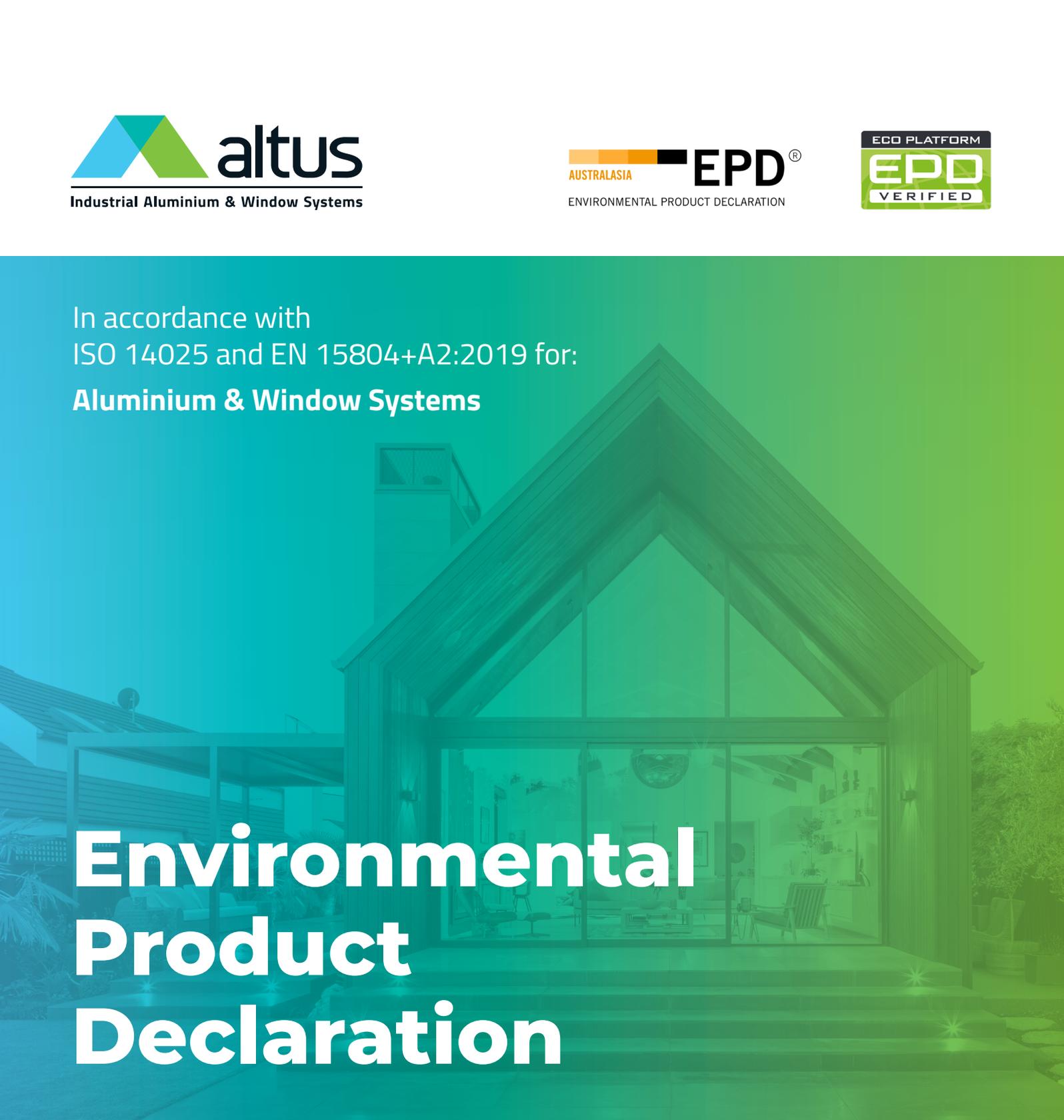


In accordance with  
ISO 14025 and EN 15804+A2:2019 for:  
**Aluminium & Window Systems**



# Environmental Product Declaration

<b>Programme</b>	The International EPD <sup>®</sup> System   <a href="http://www.envirodec.com">www.envirodec.com</a>
<b>Programme operator</b>	EPD Australasia Limited   <a href="http://www.epd-australasia.com">www.epd-australasia.com</a>
<b>EPD registration number</b>	S-P-07443
<b>Valid from</b>	2023-07-30
<b>Valid until</b>	2028-07-30
<b>Geographical scope of EPD</b>	New Zealand

# Contents

**3** About Altus

**4** Product Information

**5 - 7** Industry Classification

**8 - 10** System Boundaries

**11 - 12** Life Cycle Inventory (LCI) Data and Assumptions

**13 - 14** Assessment Indicators

## Environmental Performance

**15 - 17** Commercial - Window

**18 - 20** Commercial - Hinged Door

**21 - 23** Commercial - Sliding Door

**24 - 26** Residential - Window

**27 - 29** Residential - Hinged Door

**30 - 32** Residential - Sliding Door

**33** Additional Environmental Information

**35** Programme-related Information and Verifications

**36** Altus Fabricators

## About Altus

Altus is an award winning and leading New Zealand designer, manufacturer and exporter of aluminium extrusions and extrusion-based building systems. We also import and distribute rolled and specialty extruded product for markets here and overseas.

Altus was formed in 2016 as a joint venture between Fletcher Aluminium and NALCO with the aim of bringing to the industry new benefits of scale, leading edge technologies and product knowledge.

Our strategies for success, our passion and direction enable us to provide our customers, staff, suppliers and stakeholders with ongoing:

- Customer Experience
- Operational Excellence
- Product Leadership

Altus may be a relatively new name, but our history is long and our dedication to the industry is second to none. For over 60 years we've been pioneers and innovators, driving the use of aluminium within New Zealand, while our exclusive national network of fabricator brands has been entwined with the history of this place with names such as Bradnam's™, Fisher Windows™, Nebulite™, Nulook™, Rylock™ and Vistalite™ providing standard and bespoke window and door systems that meet the needs of the country's unique environment and the Kiwi lifestyle.

## Together, Better

At Altus, our purpose can be summed up in four words: "Success is better shared".

We recognise that our contribution is always one part of someone else's whole – and that the whole helps to create better, safer and more productive environments. That's why we work closely with our customers, our suppliers and our team to raise standards. Our partnerships are built on respect and integrity and are demonstrated through transparency, accuracy and reliability across everything we do.

We're proud of our legacy around New Zealand and the relationships we've forged, both as a supplier and a partner.

## Sustainability

We've put in place effective management practices to minimise the impact that our activities may have on the environment.

All of our inputs, outputs and processes are monitored via our accredited Environmental Management System 14001:2015. Practical steps for helping to make our world a better place include:

### Lean Manufacturing

Our lean manufacturing principles are geared towards reducing waste and improving worker safety. They include:

- Avoiding the creation of waste wherever we can;
- Recycling waste products where avoidance isn't possible;
- Showing preference to suppliers who use green policies that are similar to ours;
- Reducing energy use;
- Using zero or low VOC (volatile organic compounds) products;
- Promoting green principles with Altus and to all of our stakeholders;
- Providing a safe and healthy workplace for our team;
- Choosing workplace environments that have been designed with green principles;
- Doing our best to reduce the impact of what we do on the environment.

### Recycling Aluminium

Aluminium is one of the most successfully recycled products in construction. Scrap aluminium from manufacturing, building demolition and market collections is much in demand and fetches high prices.

It's one of the most environmentally friendly recycled construction products on the market. Reprocessing scrap only uses around 5% of the electricity needed to produce the original primary aluminium. The carbon footprint is a lot smaller too.

### Gate to Gate

This initiative was instigated by Altus to reduce the environmental impact of aluminium at every stage of its journey, from the smelter gate to its final destination. This includes transportation, manufacturing, packaging, fabrication and the recycling of any off-cuts.

### Building for Climate Change

Following guidance from MBIE (Ministry of Business, Innovation & Employment), we are working on reducing emissions from buildings both during their construction and when in operation. We're also preparing buildings to withstand the fluctuations caused by changes in the climate.

# Product Information

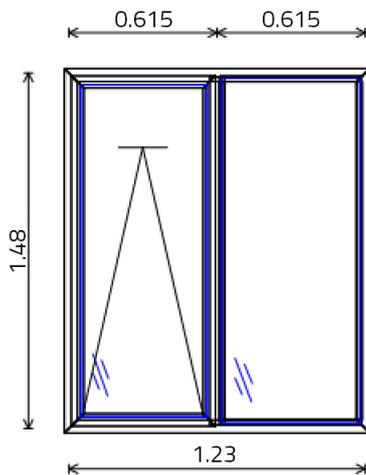
## Product(s) covered by EPD

This EPD cover residential and commercial window and door products manufactured and fabricated by Altus and their franchised window and door fabricators. Product specifications are detailed in Table 1.

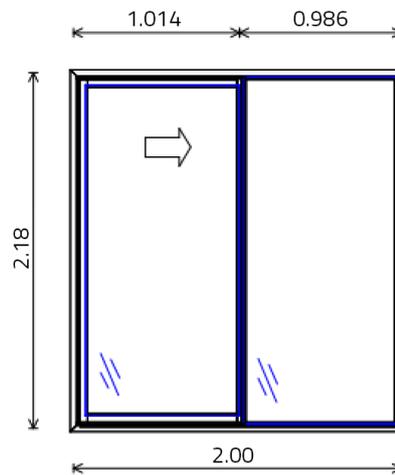
**Table 1 Product specifications**

Product name	Dimensions [m x m]	Mass [kg/m <sup>2</sup> ]	Glazing
Residential window	1.23 x 1.48	25.0	Low emissivity IGU
Residential sliding door	2.0 x 2.18	29.9	Low emissivity IGU
Residential hinged door	2.0 x 2.18	26.3	Low emissivity IGU
Commercial window	1.23 x 1.48	28.0	Low emissivity IGU
Commercial sliding door	2.0 x 2.18	31.6	Low emissivity IGU
Commercial hinged door	2.0 x 2.18	27.7	Low emissivity IGU

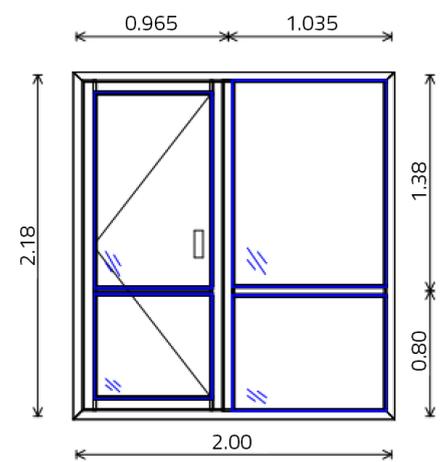
IGU - Insulated Glass Unit



**Window**  
1.23m x 1.48m



**Sliding Door**  
2.0m x 2.18m



**Hinged Door**  
2.0m x 2.18m

# Industry Classification

**Table 2: Industry classification of products included in this EPD**

Product	Classification	Code	Category
Residential and Commercial Windows and Doors	UN CPC Ver.2	42120	Doors, windows and their frames and thresholds for doors, of iron, steel or aluminium
	ANZSIC 2006	2223	Commercial Aluminium Product Manufacturing

## Declared Unit

The declared unit for all products included in this EPD is 1 m<sup>2</sup> of window or door, normalised from standard window sizes required by EN 17213 (EVS, 2020). Standard window and door sizes for each product grouping are provided above in Table 1. The mass to area conversion factors are presented in Table 1.

## Content Declaration

The windows and doors declared in this EPD are made from an aluminium extrusion frame enclosing. A content declaration is provided in Table 3 as per EN15804 requirements. None of the products in this EPD contain hazardous materials identified in the European Chemicals Agency’s Candidate List of Substances of Very High Concern (ECHA, 2022) at a concentration of greater than 0.1% of the mass.

**Table 3: Content declaration, kg per m<sup>2</sup> of window or door**

Materials / chemical substances	Residential window	Residential sliding door	Residential hinged door	Commercial window	Commercial sliding door	Commercial hinged door	CAS number
Aluminium frame	4.4	5.1	6.0	5.5	7.2	7.5	7429-90-5
Insulated Glass Unit	16.9	22.3	17.2	17.4	22.0	17.3	65997-17-3
Timber reveal	3.0	1.9	1.9	3.0	1.4	1.9	NA
Components (steel, PVC seals, EPDM, silicone sealant etc.)	0.7	0.6	1.2	2.1	1.0	1.0	NA
TOTAL	25	29.9	26.3	28	31.6	27.7	

## Packaging

Fabricated window and door unit assemblies are generally transported directly to the customer (building site) from fabrication factory on trucks or trailers towed by utility vehicles. Window and door units are loaded vertically on an inverted "V" pallet (commonly referred to as A-frame) for the journey. Window and door units are separated from each other by expanded polyurethane foam blocks and strips. The window and door units are secured with load retaining straps to the A-frame.

These packaging materials are returned to fabrication facility for reuse until end of their 'fit-for-purpose' life. These materials are included in the scope of this EPD.

**Table 4: Packaging content declaration, kg per m<sup>2</sup> of window and door**

Materials / chemical substances	Residential window	Residential sliding door	Residential hinged door	Commercial window	Commercial sliding door	Commercial hinged door	CAS number
<b>Polyethylene Foam Protector</b>	-	0.033	0.0165	-	0.033	0.0165	9002-88-4
<b>Foam Pads</b>	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058	9002-88-4
<b>TOTAL</b>	0.0058	0.0388	0.0223	0.0058	0.0388	0.0223	

# Life Cycle of Aluminium Windows/Doors (Modules A-C)

Modules A1 and A2

## 1 RAW MATERIAL EXTRACTION AND TRANSPORTATION



Module A3

## 2 PRODUCT DESIGN

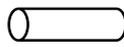


CAD System

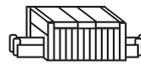


Extrusion Die Design

## 3 EXTRUSION



Billet



Heating Furnace



Extrusion Press with Die



Saw



Stretcher

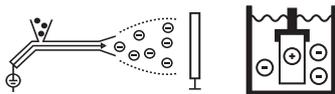


Saw



Aging Oven

## 4 SURFACE FINISHING



Powder Coating / Anodising

## 5 FABRICATION



Cutting, Drilling, Punching



CNC Machining



Assembly

Modules A4-A5 and B1-B7 (excluded in this EPD)

## 6 PRODUCT TRANSPORT, INSTALLATION AND USE



Windows and Doors

Module C

## 7 END USE



House / Building

# System Boundaries

The life cycle of a building product is divided into three process modules according to the General Program Instructions (GPI) of the Australasian EPD Programme (EPD Australasia, 2018) and four information modules according to EN 15804 (CEN, 2021) and supplemented by an optional information module on potential loads and benefits beyond the building life cycle. As shown in the table below, this EPD is of the 'cradle-to-gate with options'; end-of-life (modules C1-C4) and recovery stage (module D) also declared, as required in EN15804 (CEN, 2021). Use phase and installation modules are dependent on particular scenarios and best considered at the building level.

**Table 5: Modules included in the scope of the EPD**

	Product stage			Construction process stage		Use stage							End of life stage				Recovery Stage
	Raw material supply	Transport of raw materials	Manufacturing	Transport to customer	Construction / Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport to waste processing	Waste processing	Disposal	Reuse - Recovery - Recycling - potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	NZ	NZ	-	-	-	-	-	-	-	-	-	NZ	NZ	NZ	NZ	NZ
Specific Data	>90%																
Variation: Products	NA																
Variation: Sites	<10%																

X = included in the EPD; NA = Not applicable; ND = Module not declared

## Production (Modules A1-A3)

Modules A1-A3 represent the manufacturing and packaging of aluminium extrusion profiles (including extraction and processing of raw materials and the transport to manufacturing site), manufacturing of the rest of the components of the window/door (IGUs, hardware fittings, gaskets/seals, and sealants), and transportation of these components and assemblies. Packaging is also included.

### Upstream processes

#### A1) Raw material supply

- Extraction and processing of raw materials and packaging.
- Aluminium ingots are sourced from the Tiwai Point, New Zealand Aluminium smelter.
- Insulated Glass Units (IGUs) are manufactured by Metro Performance Glass Ltd (New Zealand) with materials imported from Europe, Middle East, South Asia, and Southeast Asia.
- Components and materials for finishing are predominantly sourced nationally.
- Generation of electricity from primary energy resources, also including their extraction, refining and transport. This includes energy needed for raw material supply and energy for manufacturing in core process.
- Processing up to the end-of-waste state.

### Core processes

#### A2) Transportation

- Transport of raw material to Altus manufacturing sites in New Zealand – Te Rapa and Mt Wellington.

#### A3) Manufacturing

- Material handling and assembly- mainly, processing aluminium extrusion profiles from aluminium ingot and surface finishing.
- Transport within the manufacturing site.
- Processing to manufacture the Altus products. Both Altus' Te Rapa and Mt Wellington sites do aluminium extrusions and Te Rapa does powder coating, while Mt Wellington does both powder coating and anodising. Additionally, some extrusions may be mill finished (no additional finishing processes after extrusion).
- Fabrication of the finished windows and doors is then undertaken at fabricator sites across New Zealand.
- Transport and processing of waste outputs up to the end-of-waste state.

## End-of-Life (Modules C1-C4)

#### C1) Deconstruction / demolition

- Deconstruction of doors and windows, the mass allocated impact of full building demolition using diesel powered machinery (100-kW construction excavator).

#### C2) Transport

- Transport of waste to waste processing facilities in New Zealand.

#### C3) Waste processing

- Aluminium and stainless steel are commonly recycled in New Zealand.

#### C4) Disposal

- Landfilling of waste:
  - » Wood-based components: Disposal in a construction and demolition waste landfill with landfill gas utilisation. Landfill gas is used to generate electricity to be supplied to the national grid mix.
  - » Disposal on plastic landfill.
  - » Remaining material: rubber, plastic and glass are disposed of in inert construction waste on landfill.

**Table 6: End-of-life scenarios for products**

Processes	Unit (expressed per declared unit of components products or materials by type of material)
Excavator	100-kW construction excavator
Recovery system specified by type	75% aluminium and stainless-steel are recycled (BRANZ, 2022) Recycled metal is assumed to replace virgin metal in Module D
Disposal specified by type	25% landfilled (BRANZ, 2022)
Assumptions for scenario development	The distance for transporting waste to processing and landfill is assumed to be 50km.

### Recovery and Recycling potential (Module D)

- This module includes recycling credits for recycled aluminium and stainless-steel scraps that are fed into a second life cycle. This module is modelled considering the avoided aluminium and stainless-steel production.
- A credit is given for replaced electricity from landfill gas.

Note that the end-of-life (Modules C and D) scenarios included are currently in use and are representative for one of the most probable alternatives.

# Life Cycle Inventory (LCI) Data and Assumptions

Primary data were used for all manufacturing operations up to the factory gate, including upstream data for aluminium extrusions and glass. Primary data for window and door fabrication operations was sourced from the period 01 January 2020 to 31 December 2020. Background data was used for input materials sourced from other suppliers.

All data in the background system were from the Sphera Life Cycle Inventory Database 2022 (Sphera, 2022). Most datasets have a reference year between 2016 and 2022 and all fall within the 10 year limit allowable for generic data under EN 15804.

## Upstream data

With the exception of steel for energy and glass (which correctly reflect New Zealand conditions), minor upstream (supply chain) data used were European/US due to a lack of consistent LCI data for Australasia/New Zealand at the time this study was conducted - for example, aluminium ingot produced at the Tiwai Smelter in Southland was largely modelled using the background datasets in the Sphera Life Cycle Inventory Database 2022 (Sphera, 2022).

## Electricity

Electricity consumption was modelled using the specific electricity mix in New Zealand. The country-specific electricity data was based on background data from the Sphera Life Cycle Inventory Database 2022 (Sphera, 2022). The consumption mix in New Zealand resulting in GWP of 0.126 kg CO<sub>2</sub> eq. per kWh.

## Recycling

Benefits from recycling the recovered aluminium and stainless steel in Module C4 are considered in Module D. Both metals' credits are modelled as avoided burdens of virgin materials. Both metals are modelled towards fully virgin production, considering recycling efficiency. This leads to recycling credits being slightly lower than the impact of virgin production.

## Transport

- The average distribution distance from the Altus extrusion and surface finishing production facility to the fabricator and then final customer was calculated as an average total delivery distance, from invoice data.
- Any wastes from the production process (A3) are assumed to be transported over a 50 km distance to a treatment or disposal site.
- Where transport data was not available for each production plant, a standard value of 100 km is used.

### Transport modes:

- Truck (diesel), Euro 0 - 6 mix, 34 - 40t gross weight / 27t payload capacity.
- Container ship (heavy fuel oil), 5 000 to 200 000 dwt payload capacity, ocean going.

## Explanation of Average / Representative Products & Variation

The residential and commercial suite of products are chosen as it represents 100 percent of Altus's supply of windows and doors to the construction industry through our licensed fabricator network.

The declared products are:

1. A single sash window with the dimensions 1.23m x 1.48m with insulated glass unit (double glazed with low emissivity glass)
2. A sliding door with dimensions 2.0m x 2.18m with insulated glass unit (double glazed with low emissivity glass)
3. A hinged door with dimensions 2.0m x 2.18m with insulated glass unit (double glazed with low emissivity glass)

The windows and doors consist of aluminium frame profiles with a transparent glass filling. The aluminium frames are powder coated with thermosetting resin in a variety of colours and finishes. The seals are made from plasticised PVC, EPDM (ethylene propylene diene monomers) or TPE (thermoplastic elastomers). It is normally assembled with timber reveals (boxed or no bottom).

Buyers of Altus' products cannot choose which factory the aluminium extrusions it comes from – hence, all results are presented as a weighted average from Altus' Te Rapa and Mt Wellington sites in the calendar year 1 January 2020 to 31 December 2020.

## Cut-off criteria

The system boundary was defined based on relevance to the goal of the study. For the processes within the system boundary, all available energy and material flow data have been included in the model. In cases where no matching life cycle inventories are available to represent a flow, proxy data have been applied based on conservative assumptions regarding environmental impacts. The influence of these proxy data on the results of the assessment has been carefully analysed.

Cut-off criteria was applied for recovered aluminium and stainless steel scraps in Module C4 – impacts associated with transportation and recycling of these metals were not considered in this study, but the credits were given for avoided virgin metals (in Module D).

## Allocation

Multi-output allocation generally follows the requirements of ISO 14044, section 4.3.4.2. Allocation is necessary for Altus, given input/outputs (including aluminium extrusions) are measured only at the site level. Impacts associated with these inputs/outputs have been allocated on a mass basis, with the assumption that all products require the same share.

Where subdivision of processes was not possible, allocation rules listed in PCR chapter 6.7 have been applied. Where economic allocation was required, prices were based on a 2020 calendar year average.

No secondary materials were used in the production processes. Allocation for input materials that contain secondary material occurs in the upstream datasets.

End-of-life allocation follows the requirements of EN 15804:2017+A2:2019 § 6.4.3.3 and generally follows the polluter pays principle.

- In cases where materials are sent to landfills, they are linked to an inventory that accounts for waste composition, regional leakage rates, landfill gas capture as well as utilisation rates (flaring vs. power production). A credit is assigned for power output using the regional grid mix.
- Any open scrap inputs into manufacturing remain unconnected. At the end-of-life of product, scrap is collected for recycling and is thus available to produce a recycling credit within Module D. A credit for net scrap is given in Module D based on the base metal used in the product.

The results tables describe the different environmental indicators for each product per declared unit, for each declared module. The first section of each table contains the environmental impact indicators, describing the potential environmental impacts of the product as shown in Table 7. The second section shows the resource indicators, describing the use of renewable and non-renewable material resources, renewable and non-renewable primary energy and water, as shown in Table 8. The final section of each table displays the waste and other outputs, as shown in Table 9.

# Assessment Indicators

**Table 7: Core environmental indicators in accordance with EN15804+A2**

Impact category	Abbreviation
Climate change – total	GWP-total
Climate change – fossil	GWP-fossil
Climate change – biogenic	GWP-biogenic
Climate change – land use and land use change	GWP-luluc
Ozone depletion	ODP
Acidification	AP
Eutrophication aquatic freshwater	EP-freshwater
Eutrophication aquatic marine	EP-marine
Eutrophication terrestrial	EP-terrestrial
Photochemical ozone formation	POCP
Depletion of abiotic resources – minerals and metals*	ADP-minerals&metals
Depletion of abiotic resources – fossil fuels*	ADP-fossil
Water Depletion Potential*	WDP

**Table 8: Life cycle inventory indicators on use of resources**

Indicator	Abbreviation
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE
Use of renewable primary energy resources used as raw materials	PERM
Total use of renewable primary energy resources	PERT
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE
Use of non-renewable primary energy resources used as raw materials	PENRM
Total use of non-renewable primary energy resources	PENRT
Use of secondary material;	SM
Use of renewable secondary fuels	RSF
Use of non-renewable secondary fuels	NRSF
Total use of net fresh water	FWT

**Table 9: Life cycle inventory indicators on waste categories and output flows**

Indicator	Abbreviation
Hazardous waste disposed	HWD
Non-hazardous waste disposed	NHWD
Radioactive waste disposed	RWD
Components for reuse	CRU
Materials for energy recovery	MER
Materials for recycling	MFR
Exported electrical energy	EEE
Exported thermal energy	EET

**Table 10: Additional Environmental Impact Indicators**

Indicator	Abbreviation
Climate Change, IPCC AR5 GWP**	GWP-GHG <sup>1</sup>
Particulate Matter emissions	PM
Ionising Radiation – human health***	IRP
Eco-toxicity (freshwater)*	ETP-fw
Human Toxicity, cancer*	HTP-c
Human Toxicity, non-cancer*	HTP-nc
Lan use related impacts / soil quality*	SQP

\*The results of this environmental impact indicator should be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

\*\*This indicator is calculated using the characterisation factors from the IPCC AR5 report (IPCC 2013) and has been included in the EPD following the PCR.

\*\*\*This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and some construction materials, is not measured by this indicator.

<sup>1</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product.

**Table 11: Environmental Impact Indicators in accordance with EN15804+A1**

Indicator	Abbreviation
Global warming potential	GWP
Ozone depletion potential	ODP
Acidification potential	AP
Eutrophication potential	EP
Photochemical oxone creation potential	POCP
Abiotic depletion potential for non-fossil resources	ADPE
Abiotic depletion potential for fossil resources	ADPF

# Environmental Performance

## Commercial - Window

Core environmental indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Climate Change - total [kg CO <sub>2</sub> eq.]	89.4	17.6	0.120	0	9.35	-22.6
Climate Change, fossil [kg CO <sub>2</sub> eq.]	90.6	17.6	0.115	0	0.575	-22.5
Climate Change, biogenic [kg CO <sub>2</sub> eq.]	-1.20	-0.00610	0.00507	0	8.77	-0.0156
Climate Change, land use and land use change [kg CO <sub>2</sub> eq.]	0.0158	1.90E-04	1.30E-06	0	7.80E-04	-8.55E-04
Ozone depletion [kg CFC 11 eq.]	3.98E-08	1.77E-12	1.21E-14	0	1.16E-12	-7.88E-12
Acidification [Mole of H <sup>+</sup> eq.]	0.654	0.0887	2.16E-04	0	0.00353	-0.145
Eutrophication, freshwater [kg P eq.]	2.14E-04	2.90E-06	1.98E-08	0	7.71E-07	-4.61E-06
Eutrophication, marine [kg N eq.]	0.122	0.0421	9.05E-05	0	9.74E-04	-0.00951
Eutrophication, terrestrial [Mole of N eq.]	1.37	0.462	9.97E-04	0	0.0107	-0.104
Photochemical ozone formation, human health [kg NMVOC eq.]	0.308	0.118	2.12E-04	0	0.00355	-0.0339
Resource use, mineral and metals [kg Sb eq.]	1.98E-04	3.18E-07	2.17E-09	0	5.69E-08	-8.56E-06
Resource use, fossils [MJ]	1 010	234	1.60	0	7.56	-166
Water use [m <sup>3</sup> world equiv.]	18.6	0.112	7.62E-04	0	0.0467	-7.40

## Commercial - Window

### Resource Use indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Use of renewable primary energy (PERE) [MJ]	750	1.14	0.00780	0	1.04	-271
Primary energy resources used as raw materials (PERM) [MJ]	48.2	0	0	0	0	0
Total use of renewable primary energy resources (PERT) [MJ]	798	1.14	0.00780	0	1.04	-271
Use of non-renewable primary energy (PENRE) [MJ]	991	234	1.60	0	7.56	-166
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	16.2	0	0	0	0	0
Total use of non-renewable primary energy resources (PENRT) [MJ]	1 010	234	1.60	0	7.56	-166
Input of secondary material (SM) [kg]	0	0	0	0	0	0
Use of renewable secondary fuels (RSF) [MJ]	0	0	0	0	0	0
Use of non-renewable secondary fuels (NRSF) [MJ]	0	0	0	0	0	0
Use of net fresh water (FW) [m <sup>3</sup> ]	2.05	0.00223	1.52E-05	0	0.00169	-0.861

### Waste indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD) [kg]	2.29E-07	3.80E-10	2.59E-12	0	4.21E-10	-8.29E-08
Non-hazardous waste disposed (NHWD) [kg]	14.3	0.00568	3.87E-05	0	27.5	-0.330
Radioactive waste disposed (RWD) [kg]	0.0159	4.57E-05	3.12E-07	0	6.94E-05	-0.00164

### Output flow indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Components for re-use (CRU) [kg]	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	0	0	0	7.93	0	0
Material for Energy Recovery (MER) [kg]	0	0	0	0	0	0
Exported electrical energy (EEE) [MJ]	0	0	0	0	0.542	0
Exported thermal energy (EET) [MJ]	0	0	0	0	0	0

## Commercial - Window

### Additional indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Particulate matter [Disease incidences]	9.66E-06	1.02E-06	1.53E-09	0	3.95E-08	-3.01E-06
Ionising radiation, human health [kBq U235 eq.]	2.59	0.00595	4.06E-05	0	0.00751	-0.275
Ecotoxicity, freshwater [CTUe]	1 410	93.9	0.641	0	10.4	-63.8
Human toxicity, cancer [CTUh]	4.33E-07	1.58E-09	1.08E-11	0	5.19E-10	-1.81E-08
Human toxicity, non-cancer [CTUh]	4.27E-06	7.94E-08	3.83E-10	0	5.59E-08	-1.71E-07
Land Use [Pt]	2 020	0.660	0.00450	0	1.18	-5.47
Climate Change-GHG IPCC AR5 [kg CO <sub>2</sub> eq.]	93.4	17.6	0.1151	0	2.76	-22.7

### EN15804+A1 indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Global warming potential (GWP) [kg CO <sub>2</sub> eq.]	87.4	17.4	0.119	0	8.57	-22.5
Ozone Depletion Potential (ODP) [kg R11 eq.]	5.31E-08	2.09E-12	1.42E-14	0	1.37E-12	-9.27E-12
Acidification potential (AP) [kg SO <sub>2</sub> eq.]	0.535	0.0620	1.55E-04	0	0.00278	-0.128
Eutrophication potential (EP) [kg Phosphate eq.]	0.0465	0.0141	3.08E-05	0	3.38E-04	-0.00327
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]	-0.00558	0.00582	-2.49E-05	0	6.08E-04	-0.00609
Abiotic depletion potential for non-fossil resources (ADPE) [kg Sb eq.]	1.98E-04	3.18E-07	2.17E-09	0	5.73E-08	-8.56E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	958	234	1.59	0	7.35	-161

### Carbon content indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3
Biogenic content in product [kg C]	1.29
Biogenic content in packaging [kg C]	1.05

# Commercial - Hinged Door

## Core environmental indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Climate Change - total [kg CO <sub>2</sub> eq.]	106	17.6	0.120	0	6.74	-31.1
Climate Change, fossil [kg CO <sub>2</sub> eq.]	105	17.6	0.115	0	0.549	-31.0
Climate Change, biogenic [kg CO <sub>2</sub> eq.]	0.641	-0.00608	0.00505	0	6.19	-0.0224
Climate Change, land use and land use change [kg CO <sub>2</sub> eq.]	0.0162	1.90E-04	1.29E-06	0	8.16E-04	-0.00108
Ozone depletion [kg CFC 11 eq.]	3.99E-08	1.77E-12	1.21E-14	0	1.16E-12	-1.21E-11
Acidification [Mole of H <sup>+</sup> eq.]	0.736	0.0885	2.15E-04	0	0.00351	-0.201
Eutrophication, freshwater [kg P eq.]	2.28E-04	2.90E-06	1.98E-08	0	7.87E-07	-6.35E-06
Eutrophication, marine [kg N eq.]	0.129	0.0420	9.02E-05	0	9.48E-04	-0.0130
Eutrophication, terrestrial [Mole of N eq.]	1.44	0.461	9.95E-04	0	0.0104	-0.143
Photochemical ozone formation, human health [kg NMVOC eq.]	0.329	0.118	2.11E-04	0	0.00330	-0.0465
Resource use, mineral and metals [kg Sb eq.]	1.26E-04	3.17E-07	2.16E-09	0	5.49E-08	-1.19E-05
Resource use, fossils [MJ]	1 120	234	1.59	0	7.21	-228
Water use [m <sup>3</sup> world equiv.]	22.8	0.111	7.60E-04	0	0.0487	-10.3

## Commercial - Hinged Door

### Resource Use indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Use of renewable primary energy (PERE) [MJ]	942	1.14	0.00779	0	1.02	-379
Primary energy resources used as raw materials (PERM) [MJ]	31.3	0	0	0	0	0
Total use of renewable primary energy resources (PERT) [MJ]	973	1.14	0.00779	0	1.02	-379
Use of non-renewable primary energy (PENRE) [MJ]	1 110	234	1.59	0	7.22	-228
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	10.0	0	0	0	0	0
Total use of non-renewable primary energy resources (PENRT) [MJ]	1 120	234	1.59	0	7.22	-228
Input of secondary material (SM) [kg]	0	0	0	0	0	0
Use of renewable secondary fuels (RSF) [MJ]	0	0	0	0	0	0
Use of non-renewable secondary fuels (NRSF) [MJ]	0	0	0	0	0	0
Use of net fresh water (FW) [m <sup>3</sup> ]	2.60	0.00223	1.52E-05	0	0.00167	-1.20

### Waste indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD) [kg]	2.93E-07	3.79E-10	2.59E-12	0	3.94E-10	-1.16E-07
Non-hazardous waste disposed (NHWD) [kg]	15.0	0.00567	3.87E-05	0	29.1	-0.455
Radioactive waste disposed (RWD) [kg]	0.0176	4.56E-05	3.11E-07	0	6.99E-05	-0.00234

### Output flow indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Components for re-use (CRU) [kg]	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	0	0	0	25.4	0	0
Material for Energy Recovery (MER) [kg]	0	0	0	0	0	0
Exported electrical energy (EEE) [MJ]	0	0	0	0	0.383	0
Exported thermal energy (EET) [MJ]	0	0	0	0	0	0

## Commercial - Hinged Door

### Additional indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Particulate matter [Disease incidences]	1.13E-05	1.02E-06	1.52E-09	0	4.04E-08	-4.18E-06
Ionising radiation, human health [kBq U235 eq.]	2.93	0.00593	4.05E-05	0	0.00763	-0.388
Ecotoxicity, freshwater [CTUe]	1 480	93.7	0.639	0	13.1	-88.5
Human toxicity, cancer [CTUh]	1.04E-07	1.58E-09	1.08E-11	0	5.27E-10	-2.46E-08
Human toxicity, non-cancer [CTUh]	4.37E-06	7.92E-08	3.83E-10	0	5.73E-08	-2.37E-07
Land Use [Pt]	1 950	0.659	0.00449	0	1.23	-7.86
Climate Change-GHG IPCC AR5 [kg CO <sub>2</sub> eq.]	108	17.6	0.115	0	2.09	-31.2

### EN15804+A1 indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Global warming potential (GWP) [kg CO <sub>2</sub> eq.]	104	17.3	0.119	0	6.19	-30.9
Ozone Depletion Potential (ODP) [kg R11 eq.]	5.31E-08	2.08E-12	1.42E-14	0	1.36E-12	-1.42E-11
Acidification potential (AP) [kg SO <sub>2</sub> eq.]	0.606	0.0618	1.55E-04	0	0.00277	-0.178
Eutrophication potential (EP) [kg Phosphate eq.]	0.0490	0.0141	3.07E-05	0	3.29E-04	-0.00448
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]	-0.00213	0.00580	-2.49E-05	0	4.93E-04	-0.00838
Abiotic depletion potential for non-fossil resources (ADPE) [kg Sb eq.]	1.25E-04	3.18E-07	2.17E-09	0	5.53E-08	-1.19E-05
Abiotic depletion potential for fossil resources (ADPF) [MJ]	1 060	233	1.59	0	7.01	-221

### Carbon content indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3
Biogenic content in product [kg C]	0.84
Biogenic content in packaging [kg C]	1.71

# Commercial - Sliding Door

## Core environmental indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Climate Change - total [kg CO <sub>2</sub> eq.]	117	20.0	0.137	0	4.93	-30.2
Climate Change, fossil [kg CO <sub>2</sub> eq.]	115	20.0	0.131	0	0.581	-30.2
Climate Change, biogenic [kg CO <sub>2</sub> eq.]	1.90	-0.00692	0.00576	0	4.35	-0.0218
Climate Change, land use and land use change [kg CO <sub>2</sub> eq.]	0.0184	2.16E-04	1.47E-06	0	9.33E-04	-0.00105
Ozone depletion [kg CFC 11 eq.]	5.06E-08	2.01E-12	1.37E-14	0	1.27E-12	-1.18E-11
Acidification [Mole of H <sup>+</sup> eq.]	0.829	0.101	2.45E-04	0	0.00385	-0.196
Eutrophication, freshwater [kg P eq.]	2.55E-04	3.30E-06	2.25E-08	0	8.84E-07	-6.18E-06
Eutrophication, marine [kg N eq.]	0.153	0.0479	1.03E-04	0	0.00102	-0.0127
Eutrophication, terrestrial [Mole of N eq.]	1.72	0.524	0.00113	0	0.0112	-0.139
Photochemical ozone formation, human health [kg NMVOC eq.]	0.385	0.134	2.41E-04	0	0.00339	-0.0452
Resource use, mineral and metals [kg Sb eq.]	1.49E-04	3.61E-07	2.46E-09	0	5.85E-08	-1.16E-05
Resource use, fossils [MJ]	1 260	266	1.81	0	7.62	-222
Water use [m <sup>3</sup> world equiv.]	23.8	0.127	8.65E-04	0	0.0556	-10.1

## Commercial - Sliding Door

### Resource Use indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Use of renewable primary energy (PERE) [MJ]	972	1.30	0.00887	0	1.10	-369
Primary energy resources used as raw materials (PERM) [MJ]	23.1	0	0	0	0	0
Total use of renewable primary energy resources (PERT) [MJ]	995	1.30	0.00887	0	1.10	-369
Use of non-renewable primary energy (PENRE) [MJ]	1 250	266	1.81	0	7.63	-222
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	18.1	0	0	0	0	0
Total use of non-renewable primary energy resources (PENRT) [MJ]	1 260	266	1.81	0	7.63	-222
Input of secondary material (SM) [kg]	0	0	0	0	0	0
Use of renewable secondary fuels (RSF) [MJ]	0	0	0	0	0	0
Use of non-renewable secondary fuels (NRSF) [MJ]	0	0	0	0	0	0
Use of net fresh water (FW) [m <sup>3</sup> ]	2.65	0.00253	1.73E-05	0	0.00182	-1.17

### Waste indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD) [kg]	2.98E-07	4.32E-10	2.94E-12	0	4.08E-10	-1.13E-07
Non-hazardous waste disposed (NHWD) [kg]	18.2	0.00645	4.40E-05	0	33.5	-0.442
Radioactive waste disposed (RWD) [kg]	0.0217	5.20E-05	3.54E-07	0	7.75E-05	-0.00228

### Output flow indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Components for re-use (CRU) [kg]	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	0	0	0	24.4	0	0
Material for Energy Recovery (MER) [kg]	0	0	0	0	0	0
Exported electrical energy (EEE) [MJ]	0	0	0	0	0.269	0
Exported thermal energy (EET) [MJ]	0	0	0	0	0	0

## Commercial - Sliding Door

### Additional indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Particulate matter [Disease incidences]	1.18E-05	1.16E-06	1.73E-09	0	4.54E-08	-4.07E-06
Ionising radiation, human health [kBq U235 eq.]	3.67	0.00675	4.61E-05	0	0.00851	-0.378
Ecotoxicity, freshwater [CTUe]	1 750	107	0.728	0	12.7	-86.1
Human toxicity, cancer [CTUh]	1.03E-07	1.80E-09	1.23E-11	0	5.88E-10	-2.39E-08
Human toxicity, non-cancer [CTUh]	5.40E-06	9.02E-08	4.36E-10	0	6.44E-08	-2.30E-07
Land Use [Pt]	1 800	0.750	0.00512	0	1.39	-7.66
Climate Change-GHG IPCC AR5 [kg CO <sub>2</sub> eq.]	118	20.0	0.131	0	1.66	-30.4

### EN15804+A1 indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Global warming potential (GWP) [kg CO <sub>2</sub> eq.]	114	19.7	0.135	0	4.54	-30.1
Ozone Depletion Potential (ODP) [kg R11 eq.]	6.75E-08	2.37E-12	1.62E-14	0	1.50E-12	-1.39E-11
Acidification potential (AP) [kg SO <sub>2</sub> eq.]	0.677	0.0704	1.76E-04	0	0.00305	-0.173
Eutrophication potential (EP) [kg Phosphate eq.]	0.0581	0.0161	3.50E-05	0	3.54E-04	-0.00436
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]	-0.00709	0.00661	-2.83E-05	0	4.33E-04	-0.00815
Abiotic depletion potential for non-fossil resources (ADPE) [kg Sb eq.]	1.49E-04	3.62E-07	2.47E-09	0	5.90E-08	-1.16E-05
Abiotic depletion potential for fossil resources (ADPF) [MJ]	1 200	265	1.81	0	7.39	-215

### Carbon content indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3
Biogenic content in product [kg C]	0.62
Biogenic content in packaging [kg C]	1.64

# Residential - Window

## Core environmental indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Climate Change - total [kg CO <sub>2</sub> eq.]	78.1	15.8	0.108	0	9.13	-18.3
Climate Change, fossil [kg CO <sub>2</sub> eq.]	79.7	15.8	0.103	0	0.546	-18.2
Climate Change, biogenic [kg CO <sub>2</sub> eq.]	-1.62	-0.00545	0.00453	0	8.59	-0.0126
Climate Change, land use and land use change [kg CO <sub>2</sub> eq.]	0.0143	1.70E-04	1.16E-06	0	7.32E-04	-6.95E-04
Ozone depletion [kg CFC 11 eq.]	3.87E-08	1.58E-12	1.08E-14	0	1.10E-12	-6.34E-12
Acidification [Mole of H <sup>+</sup> eq.]	0.592	0.0792	1.93E-04	0	0.00333	-0.117
Eutrophication, freshwater [kg P eq.]	1.90E-04	2.59E-06	1.77E-08	0	7.26E-07	-3.73E-06
Eutrophication, marine [kg N eq.]	0.114	0.0377	8.08E-05	0	9.23E-04	-0.00770
Eutrophication, terrestrial [Mole of N eq.]	1.28	0.412	8.91E-04	0	0.0101	-0.0844
Photochemical ozone formation, human health [kg NMVOC eq.]	0.284	0.105	1.89E-04	0	0.00338	-0.0274
Resource use, mineral and metals [kg Sb eq.]	1.80E-04	2.84E-07	1.94E-09	0	5.39E-08	-6.92E-06
Resource use, fossils [MJ]	894	209	1.43	0	7.17	-134
Water use [m <sup>3</sup> world equiv.]	16.0	0.0998	6.81E-04	0	0.0438	-5.99

## Residential - Window

### Resource Use indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Use of renewable primary energy (PERE) [MJ]	637	1.02	0.00697	0	0.988	-220
Primary energy resources used as raw materials (PERM) [MJ]	48.1	0	0	0	0	0
Total use of renewable primary energy resources (PERT) [MJ]	685	1.02	0.00697	0	0.988	-220
Use of non-renewable primary energy (PENRE) [MJ]	883	209	1.43	0	7.18	-134
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	12.2	0	0	0	0	0
Total use of non-renewable primary energy resources (PENRT) [MJ]	895	209	1.43	0	7.18	-134
Input of secondary material (SM) [kg]	0	0	0	0	0	0
Use of renewable secondary fuels (RSF) [MJ]	0	0	0	0	0	0
Use of non-renewable secondary fuels (NRSF) [MJ]	0	0	0	0	0	0
Use of net fresh water (FW) [m <sup>3</sup> ]	1.73	0.00199	1.36E-05	0	0.00159	-0.697

### Waste indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD) [kg]	1.93E-07	3.40E-10	2.32E-12	0	4.01E-10	-6.71E-08
Non-hazardous waste disposed (NHWD) [kg]	13.4	0.00508	3.46E-05	0	25.8	-0.267
Radioactive waste disposed (RWD) [kg]	0.0145	4.09E-05	2.79E-07	0	6.54E-05	-0.00133

### Output flow indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Components for re-use (CRU) [kg]	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	0	0	0	6.43	0	0
Material for Energy Recovery (MER) [kg]	0	0	0	0	0	0
Exported electrical energy (EEE) [MJ]	0	0	0	0	0.531	0
Exported thermal energy (EET) [MJ]	0	0	0	0	0	0

## Residential - Window

### Additional indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Particulate matter [Disease incidences]	8.50E-06	9.09E-07	1.36E-09	0	3.72E-08	-2.43E-06
Ionising radiation, human health [kBq U235 eq.]	2.38	0.00531	3.62E-05	0	0.00708	-0.222
Ecotoxicity, freshwater [CTUe]	1 300	83.9	0.572	0	8.90	-51.7
Human toxicity, cancer [CTUh]	3.71E-07	1.42E-09	9.66E-12	0	4.89E-10	-1.47E-08
Human toxicity, non-cancer [CTUh]	4.08E-06	7.10E-08	3.43E-10	0	5.26E-08	-1.39E-07
Land Use [Pt]	1 860	0.590	0.00403	0	1.11	-4.42
Climate Change-GHG IPCC AR5 [kg CO <sub>2</sub> eq.]	82.2	15.7	0.103	0	2.68	-18.4

### EN15804+A1 indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Global warming potential (GWP) [kg CO <sub>2</sub> eq.]	76.3	15.5	0.106	0	8.37	-18.2
Ozone Depletion Potential (ODP) [kg R11 eq.]	5.16E-08	1.86E-12	1.27E-14	0	1.29E-12	-7.46E-12
Acidification potential (AP) [kg SO <sub>2</sub> eq.]	0.481	0.0554	1.38E-04	0	0.00262	-0.104
Eutrophication potential (EP) [kg Phosphate eq.]	0.0434	0.0126	2.75E-05	0	3.20E-04	-0.00265
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]	-0.00723	0.00520	-2.23E-05	0	5.87E-04	-0.00493
Abiotic depletion potential for non-fossil resources (ADPE) [kg Sb eq.]	1.80E-04	2.84E-07	1.94E-09	0	5.43E-08	-6.93E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	850	209	1.42	0	6.98	-130

### Carbon content indicators per Declared unit (1 m<sup>2</sup> of window installed into a building)

Indicators	A1-A3
Biogenic content in product [kg C]	1.29
Biogenic content in packaging [kg C]	0.85

# Residential - Hinged Door

## Core environmental indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Climate Change - total [kg CO <sub>2</sub> eq.]	93.3	16.7	0.114	0	6.43	-25.0
Climate Change, fossil [kg CO <sub>2</sub> eq.]	92.9	16.7	0.109	0	0.515	-25.0
Climate Change, biogenic [kg CO <sub>2</sub> eq.]	0.354	-0.00577	0.00480	0	5.91	-0.0180
Climate Change, land use and land use change [kg CO <sub>2</sub> eq.]	0.0149	1.80E-04	1.23E-06	0	7.62E-04	-8.75E-04
Ozone depletion [kg CFC 11 eq.]	3.96E-08	1.68E-12	1.14E-14	0	1.08E-12	-9.71E-12
Acidification [Mole of H <sup>+</sup> eq.]	0.665	0.0840	2.04E-04	0	0.00328	-0.162
Eutrophication, freshwater [kg P eq.]	2.09E-04	2.75E-06	1.88E-08	0	7.36E-07	-5.11E-06
Eutrophication, marine [kg N eq.]	0.122	0.0399	8.57E-05	0	8.88E-04	-0.0105
Eutrophication, terrestrial [Mole of N eq.]	1.37	0.437	9.44E-04	0	0.00976	-0.115
Photochemical ozone formation, human health [kg NMVOC eq.]	0.308	0.112	2.00E-04	0	0.00310	-0.0374
Resource use, mineral and metals [kg Sb eq.]	1.21E-04	3.01E-07	2.05E-09	0	5.14E-08	-9.61E-06
Resource use, fossils [MJ]	1 010	222	1.51	0	6.77	-184
Water use [m <sup>3</sup> world equiv.]	19.2	0.106	7.21E-04	0	0.0455	-8.31

## Residential - Hinged Door

### Resource Use indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Use of renewable primary energy (PERE) [MJ]	794	1.08	0.00739	0	0.955	-305
Primary energy resources used as raw materials (PERM) [MJ]	31.4	0	0	0	0	0
Total use of renewable primary energy resources (PERT) [MJ]	825	1.08	0.00739	0	0.955	-305
Use of non-renewable primary energy (PENRE) [MJ]	1 000	222	1.51	0	6.77	-184
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	8.77	0	0	0	0	0
Total use of non-renewable primary energy resources (PENRT) [MJ]	1 010	222	1.51	0	6.77	-184
Input of secondary material (SM) [kg]	0	0	0	0	0	0
Use of renewable secondary fuels (RSF) [MJ]	0	0	0	0	0	0
Use of non-renewable secondary fuels (NRSF) [MJ]	0	0	0	0	0	0
Use of net fresh water (FW) [m <sup>3</sup> ]	2.17	0.00211	1.44E-05	0	0.00156	-0.966

### Waste indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD) [kg]	2.44E-07	3.60E-10	2.45E-12	0	3.70E-10	-9.32E-08
Non-hazardous waste disposed (NHWD) [kg]	14.4	0.00538	3.67E-05	0	27.1	-0.366
Radioactive waste disposed (RWD) [kg]	0.0170	4.33E-05	2.95E-07	0	6.54E-05	-0.00188

### Output flow indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Components for re-use (CRU) [kg]	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	0	0	0	20.5	0	0
Material for Energy Recovery (MER) [kg]	0	0	0	0	0	0
Exported electrical energy (EEE) [MJ]	0	0	0	0	0.366	0
Exported thermal energy (EET) [MJ]	0	0	0	0	0	0

## Residential - Hinged Door

### Additional indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Particulate matter [Disease incidences]	9.76E-06	9.64E-07	1.45E-09	0	3.78E-08	-3.36E-06
Ionising radiation, human health [kBq U235 eq.]	2.87	0.00563	3.84E-05	0	0.00713	-0.312
Ecotoxicity, freshwater [CTUe]	1 400	89.0	0.607	0	10.8	-71.2
Human toxicity, cancer [CTUh]	9.88E-08	1.50E-09	1.02E-11	0	4.93E-10	-1.98E-08
Human toxicity, non-cancer [CTUh]	4.25E-06	7.52E-08	3.63E-10	0	5.35E-08	-1.91E-07
Land Use [Pt]	1 730	0.625	0.00427	0	1.15	-6.32
Climate Change-GHG IPCC AR5 [kg CO <sub>2</sub> eq.]	95.7	16.7	0.109	0	1.99	-25.1

### EN15804+A1 indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Global warming potential (GWP) [kg CO <sub>2</sub> eq.]	91.2	16.5	0.113	0	5.90	-24.9
Ozone Depletion Potential (ODP) [kg R11 eq.]	5.28E-08	1.98E-12	1.35E-14	0	1.28E-12	-1.14E-11
Acidification potential (AP) [kg SO <sub>2</sub> eq.]	0.545	0.0587	1.47E-04	0	0.00260	-0.143
Eutrophication potential (EP) [kg Phosphate eq.]	0.0464	0.0134	2.92E-05	0	3.08E-04	-0.00361
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]	-0.00491	0.00551	-2.36E-05	0	4.67E-04	-0.00675
Abiotic depletion potential for non-fossil resources (ADPE) [kg Sb eq.]	1.21E-04	3.01E-07	2.06E-09	0	5.18E-08	-9.62E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	959	221	1.51	0	6.57	-178

### Carbon content indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3
Biogenic content in product [kg C]	0.84
Biogenic content in packaging [kg C]	1.36

# Residential - Sliding Door

## Core environmental indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Climate Change - total [kg CO <sub>2</sub> eq.]	99.5	19.0	0.130	0	6.12	-22.1
Climate Change, fossil [kg CO <sub>2</sub> eq.]	98.8	19.0	0.124	0	0.569	-22.1
Climate Change, biogenic [kg CO <sub>2</sub> eq.]	0.719	-0.00657	0.00546	0	5.55	-0.0160
Climate Change, land use and land use change [kg CO <sub>2</sub> eq.]	0.0169	2.05E-04	1.40E-06	0	8.73E-04	-7.74E-04
Ozone depletion [kg CFC 11 eq.]	5.14E-08	1.91E-12	1.30E-14	0	1.22E-12	-8.62E-12
Acidification [Mole of H <sup>+</sup> eq.]	0.743	0.0956	2.32E-04	0	0.00369	-0.143
Eutrophication, freshwater [kg P eq.]	2.30E-04	3.13E-06	2.14E-08	0	8.36E-07	-4.53E-06
Eutrophication, marine [kg N eq.]	0.146	0.0454	9.75E-05	0	9.89E-04	-0.00930
Eutrophication, terrestrial [Mole of N eq.]	1.64	0.498	0.00107	0	0.0109	-0.102
Photochemical ozone formation, human health [kg NMVOC eq.]	0.362	0.127	2.28E-04	0	0.00338	-0.0331
Resource use, mineral and metals [kg Sb eq.]	1.46E-04	3.43E-07	2.34E-09	0	5.70E-08	-8.52E-06
Resource use, fossils [MJ]	1 110	252	1.72	0	7.47	-163
Water use [m <sup>3</sup> world equiv.]	19.0	0.120	8.21E-04	0	0.0521	-7.37

## Residential - Sliding Door

### Resource Use indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Use of renewable primary energy (PERE) [MJ]	773	1.23	0.00841	0	1.06	-270
Primary energy resources used as raw materials (PERM) [MJ]	31.4	0	0	0	0	0
Total use of renewable primary energy resources (PERT) [MJ]	804	1.23	0.00841	0	1.06	-270
Use of non-renewable primary energy (PENRE) [MJ]	1 110	252	1.72	0	7.48	-163
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	4.50	0	0	0	0	0
Total use of non-renewable primary energy resources (PENRT) [MJ]	1 110	252	1.72	0	7.48	-163
Input of secondary material (SM) [kg]	0	0	0	0	0	0
Use of renewable secondary fuels (RSF) [MJ]	0	0	0	0	0	0
Use of non-renewable secondary fuels (NRSF) [MJ]	0	0	0	0	0	0
Use of net fresh water (FW) [m <sup>3</sup> ]	2.07	0.00240	1.64E-05	0	0.00175	-0.856

### Waste indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD) [kg]	2.30E-07	4.10E-10	2.79E-12	0	4.05E-10	-8.26E-08
Non-hazardous waste disposed (NHWD) [kg]	17.9	0.00612	4.18E-05	0	31.2	-0.324
Radioactive waste disposed (RWD) [kg]	0.0210	4.93E-05	3.36E-07	0	7.38E-05	-0.00167

### Output flow indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Components for re-use (CRU) [kg]	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	0	0	0	18.1	0	0
Material for Energy Recovery (MER) [kg]	0	0	0	0	0	0
Exported electrical energy (EEE) [MJ]	0	0	0	0	0.343	0
Exported thermal energy (EET) [MJ]	0	0	0	0	0	0

## Residential - Sliding Door

### Additional indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Particulate matter [Disease incidences]	9.97E-06	1.10E-06	1.65E-09	0	4.29E-08	-2.98E-06
Ionising radiation, human health [kBq U235 eq.]	3.65	0.00641	4.37E-05	0	0.00807	-0.277
Ecotoxicity, freshwater [CTUe]	1 650	101	0.690	0	9.98	-63.1
Human toxicity, cancer [CTUh]	9.66E-08	1.71E-09	1.17E-11	0	5.58E-10	-1.76E-08
Human toxicity, non-cancer [CTUh]	5.34E-06	8.56E-08	4.13E-10	0	6.08E-08	-1.69E-07
Land Use [Pt]	1 670	0.712	0.00486	0	1.31	-5.60
Climate Change-GHG IPCC AR5 [kg CO <sub>2</sub> eq.]	102	19.0	0.124	0	1.95	-22.28

### EN15804+A1 indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3	C1	C2	C3	C4	D
Global warming potential (GWP) [kg CO <sub>2</sub> eq.]	97.3	18.7	0.128	0	5.62	-22.1
Ozone Depletion Potential (ODP) [kg R11 eq.]	6.86E-08	2.25E-12	1.53E-14	0	1.43E-12	-1.01E-11
Acidification potential (AP) [kg SO <sub>2</sub> eq.]	0.602	0.0668	1.67E-04	0	0.00292	-0.127
Eutrophication potential (EP) [kg Phosphate eq.]	0.0554	0.0152	3.32E-05	0	3.43E-04	-0.00320
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]	-0.0115	0.00627	-2.69E-05	0	4.76E-04	-0.00598
Abiotic depletion potential for non-fossil resources (ADPE) [kg Sb eq.]	1.46E-04	3.43E-07	2.34E-09	0	5.75E-08	-8.52E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	1 050	252	1.72	0	7.25	-157

### Carbon content indicators per Declared unit (1 m<sup>2</sup> of door installed into a building)

Indicators	A1-A3
Biogenic content in product [kg C]	0.84
Biogenic content in packaging [kg C]	1.16

## Additional Environmental Information

### Certifications

ISO 9001:2015 Quality Management System – Telarc Registered No. 14 (Please see page 40 for the certificate)

### Standards

Windows and Doors are tested in an internationally accredited New Zealand laboratory, using an independent testing engineer, and comply with the New Zealand Standards – NZS4211:2008 Specification for Performance of Windows and NZS3504:1979 Specification for Aluminium Windows.

### References

- BRANZ. (2022). Building end-of-life (module C1). Retrieved from Environment and zero-carbon research: <https://www.branz.co.nz/environment-zero-carbon-research/framework/data/>
- CEN. (2013). EN 15804:2012+A1:2013: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products. Brussels: European Committee for Standardization.
- CEN. (2019). EN 15804:2012+A2:2019: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products. Brussels: European Committee for Standardization.
- CEN. (2020). Windows and doors - Environmental Product Declarations - Product category rules for windows and pedestrian doorsets. Brussels: European Committee for Standardization.
- EPD Australasia. (2019). Instructions of the Australasian EPD Programme v3.0. EPD Australasia.
- EPD International. (2020). Complementary Product Category Rules (c-PCR) to PCR 2019:14. EPD International.
- EPD International. (2021). PCR 2019:14, version 1.11 Construction Products. EPD International.
- IPCC. (2013). Climate Change 2013: The Physical Science Basis. Geneva, Switzerland: IPCC.
- ISO. (2006). ISO 14025: Environmental labels and declarations – Type III environmental declarations – Principles and procedures. Geneva: International Organization for Standardization.
- ISO. (2006a). ISO 14040: Environmental management – Life cycle assessment – Principles and framework. Geneva: International Organization for Standardization.
- ISO. (2006b). ISO 14044: Environmental management – Life cycle assessment – Requirements and guidelines. Geneva: International Organization for Standardization.
- Sphera. (2022). Sphera Life Cycle Inventory Database 2022 Documentation. LCA for Experts Software: <https://gabi.sphera.com/support/gabi/gabi-database-2022-lci-documentation/>

### General information

An Environmental Product Declaration, or EPD, is a standardised and verified way of quantifying the environmental impacts of a product based on a consistent set of rules known as a PCR (Product Category Rules).

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

The results for EN15804+A1 compliant EPDs are not comparable with EN15804+A2 compliant studies as the methodologies are different. Results that are A1 compliant are given in an annex to this document to assist comparability across EPDs.



**Telarc.**  
*The Mark of Success*

*This is to certify that*

**Altus NZ Limited**

30-32 Bowden Road Mt Wellington Auckland New Zealand

*having been assessed by Telarc Limited and having been found to operate a quality management system conforming to*

**ISO 9001:2015**

*is hereby designated*

**Telarc Registered**

*for the following goods and services*

**No. 14**

The design, extrusion, anodising, powder coating, fabrication, and supply of aluminium profiles and joinery from Auckland and Hamilton

Certificate Issued: 1 March 2021

Original Registration: 19 December 1989

Current Registration: 22 February 2021

Expiry Date: 8 March 2024

Chairperson  
David Bone

Chief Executive  
Philip Cryer



Registered by Telarc Limited 626 Great South Road, Ellerslie, Auckland 1051, Private Bag 20901, Remuera, Auckland 1541, Telephone: 64 9 525 0100 Facsimile: 64 9 525 1900 and subject to the Telarc Limited Terms and Conditions for Certification. While all due care and skill was exercised in carrying out this assessment, Telarc Limited accepts responsibility only for proven negligence. To verify that this certificate is current please refer to the JAS-ANZ register at [www.jas-anz.org/register](http://www.jas-anz.org/register) This certificate and its associated schedules remain the property of Telarc Limited and must be returned if registration is withdrawn.

## Programme-related Information and Verifications

Declaration owner:		
 altus Industrial Aluminium & Window Systems	<b>Name</b>	Sen Chen
	<b>Company Name</b>	Altus NZ Limited
	<b>Web</b>	<a href="https://altus.co.nz/contact-us/">https://altus.co.nz/contact-us/</a>
	<b>Email</b>	<a href="mailto:Sen.chen@altus.co.nz">Sen.chen@altus.co.nz</a>
	<b>Post</b>	49, Business Parade North, East Tamaki PO Box 204123, Highbrook, Auckland 2161
	<b>Geographical Scope</b>	New Zealand
	<b>Reference Year for Data</b>	1 January 2020 - 31 December 2020
EPD produced by:		
 thinkstep anz	<b>Name</b>	thinkstep Ltd
	<b>Web</b>	<a href="http://www.thinkstep-anz.com">http://www.thinkstep-anz.com</a>
	<b>Email</b>	<a href="mailto:anz@thinkstep-anz.com">anz@thinkstep-anz.com</a>
	<b>Post</b>	11 Rawhiti Road, Pukerua Bay, Wellington 5026, New Zealand
EPD programme operator:		
 EPD® ENVIRONMENTAL PRODUCT DECLARATION	<b>Name</b>	EPD Australasia Limited
	<b>Web</b>	<a href="http://www.epd-australasia.com">http://www.epd-australasia.com</a>
	<b>Email</b>	<a href="mailto:info@epd-australasia.com">info@epd-australasia.com</a>
	<b>Post</b>	EPD Australasia Limited, 315a Hardy Street, Nelson 7010, New Zealand
CEN standard EN 15804+A2 served as the core PCR		
	<b>PCR</b>	PCR 2019:14 Construction Products v1.11 and C-PCR-007 (to PCR 2019:14) Windows and Doors (EN 17213:2020)
	<b>PCR review was conducted by</b>	The Technical Committee of the International EPD® System
	<b>Chair</b>	Claudia A. Peña. Contact via <a href="mailto:info@environdec.com">info@environdec.com</a>
	<b>Independent verification of the declaration and data, according to ISO 14025</b>	<input type="checkbox"/> EPD process certification (Internal) <input checked="" type="checkbox"/> EPD verification (External)
Third party verifier:		
	<b>Name</b>	Claudia A. Peña
	<b>Web</b>	<a href="http://www.epd-americalatina.com">www.epd-americalatina.com</a>
	<b>Email</b>	<a href="mailto:cpena@addere.cl">cpena@addere.cl</a>
	<b>Post</b>	Alonso de Ercilla 2996, Ñuñoa, Santiago, Chile
	<b>Verifier approved by</b>	EPD Australasia Limited
	<b>Procedure for follow-up of data during EPD validity involved third-party verifier</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Version History 1.0

# Altus Fabricators



**See our locations**

[bradnams.co.nz/contact-us](http://bradnams.co.nz/contact-us)



**See our locations**

[fisherwindows.co.nz/contact-us](http://fisherwindows.co.nz/contact-us)



**See our locations**

[nebulite.co.nz/contact-us](http://nebulite.co.nz/contact-us)



**See our locations**

[nulook.co.nz/contact-us](http://nulook.co.nz/contact-us)



**See our locations**

[rylock.co.nz/contact-us](http://rylock.co.nz/contact-us)



**See our locations**

[vitalite.co.nz/contact-us](http://vitalite.co.nz/contact-us)



**For more information**

[stellardoors.co.nz](http://stellardoors.co.nz)



**For more information**

[dualglaze.co.nz](http://dualglaze.co.nz)

