



ENVIRONMENTAL PRODUCT DECLARATIONS

A Key Requirement in External Facade Selection

“The EPD framework serves as a multi-purpose tool in enabling architects and specifiers to understand the environmental impact of building products”

Introduction

In recent years, it has become increasingly important for all industries to consider the impacts they have on the environment and take urgent action to minimise them. As building and construction is responsible for 39% of all carbon emissions in the world,¹ the design and construction industry has been subject to heightened scrutiny.

Efforts have been made to reduce the built environment's overall footprint, including a growing focus on sustainability in building design. This extends to the building products and materials used for the built environment. Architects and building owners are increasingly concerned with aspects such as where the materials used in building projects have come from, how they are manufactured, how they are used and what happens to them at the end of their life.

When choosing a material for facade design, architects and specifiers have a responsibility to ensure that their projects reduce negative impacts on the environment. This has proven to be challenging due to the large variety of building products on the market, many of which are being touted as “sustainable” or “environmentally friendly” without supporting evidence. To keep pace with current trends, design professionals are relying on green building certification schemes to identify eco-friendly products as well as communicate with investors and potential tenants.

When it comes to understanding the environmental impact of a building product or material throughout its life cycle, no tool is more important than an Environmental Product Declaration (EPD). An EPD is an objective, third party verified document that communicates transparent comparable data about the life cycle environmental impact of a product.

In Australia, EPDs are a relatively recent invention with the launch of the Australasian EPD Programme in late 2014. Despite relatively strong uptake in the construction industry, the role and purpose of EPDs are not widely understood. While they can be used to compare the environmental performance of different building products, they are also becoming an important multi-purpose tool in driving sustainability throughout the industry.

In this whitepaper, we take a closer look at EPDs, what they are, how they work, and their benefits. In doing so, we demonstrate the importance of EPDs in design and construction, and their positive impact on sustainable building, particularly in the context of external facade selection.

What is an EPD?

Put simply, an EPD is an independently verified and registered document that transparently communicates the environmental performance or impact of a product. It covers all aspects of the product lifecycle – from sourcing raw material, manufacturing and distribution to its use and end-of-life disposal. It has been developed based on the requirements of ISO 14025 (Environmental labels and declarations – Type III environmental declarations) or EN 15804 (Sustainability of Construction Works) for construction products.

Every EPD is based on a Life Cycle Assessment (LCA), which is described in ISO 14040 (Environmental management – Life cycle assessment – Principles and framework) and ISO 14044 (Environmental management – Life cycle assessment – Requirements and guidelines).

Typically conducted by a third-party provider, an LCA is an essential component of an EPD as it assesses a product's environmental impact throughout its various life stages and provides a complete view of the amount of energy, water and materials consumed in the production and use of a product.

An LCA is based on objective, identifiable product category rules (PCRs) which provide the necessary framework to enable fair comparison between similar products. As they provide instructions on how the LCA should be conducted, PCRs ensure manufacturers are using the same rules and methodology for a specific product category when creating the LCA. For example, they specify which environmental impacts must be shared, and how those impacts are measured.



How is an EPD created?

Companies can demonstrate environmental leadership within their industry by adopting EPDs for their products. To help create an EPD, companies often engage with a trusted organisation such as Good Environmental Choice Australia (GECA). The general process in creating an EPD is outlined below:²

- 1. Choosing the appropriate PCRs.** A compliant EPD is based on the applicable PCR for the specific product, which outlines how to conduct the LCA and other disclosure requirements. If there is no applicable PCR, a new PCR must be developed and approved through the EPD program operator. For building products, the relevant PCR is based on EN 15804.
- 2. Conducting the LCA.** The environmental performance of the product is assessed through an LCA. The LCA covers a range of areas including energy and resource consumption, waste generation, pollutant emissions, impacts during use, and end-of-life considerations. The LCA must be verified by a third party to ensure it has met the requirements of the relevant PCR.
- 3. Putting the EPD together.** The EPD is then compiled with all the relevant environmental data. The EPD document is usually split into different sections covering PCR information, the results of the LCA and any other required documentation or sustainability information.
- 4. Verifying the EPD.** Once compiled, the EPD is submitted to an independent third party for a thorough review and verification.
- 5. Registration and publication.** The final EPD is submitted to the EPD program operator and made publicly available. In Australia, EPDs are registered with EPD Australasia, who are responsible for the development and communication of EPDs in Australia and New Zealand.



Why are EPDs important?

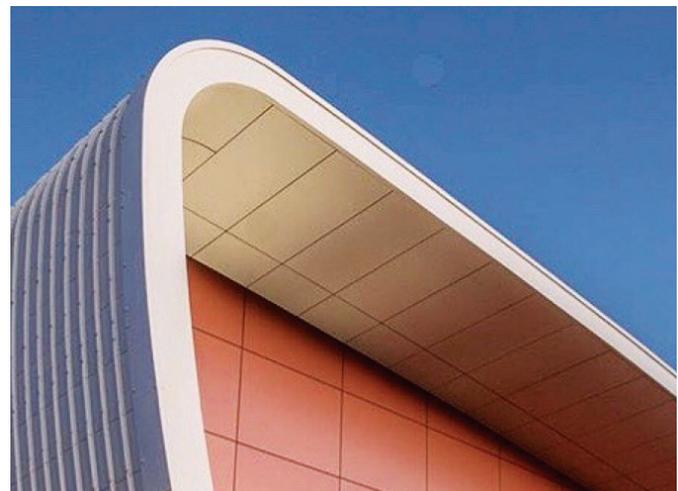
Cladding materials like aluminium facade panels are often touted for their eco-friendliness, but often the focus of such claims is on limited environmental factors such as recyclability or renewability. The fact is not all manufacturers make sustainability a priority across the entire product life cycle, nor are they transparent about how their products are sourced and manufactured. Many claims made about the environmental performance of different products and materials are incomplete and sometimes misleading.

With the plethora of building products on the market, the challenge of specifying eco-friendly products is one faced by all architects and specifiers. What architects and specifiers need is objective and unbiased environmental information that enables comparisons between similar products to assist in product selection.

The EPD program serves as a multi-purpose tool in enabling architects and specifiers to understand the environmental impact of building products. In this way, EPDs are a critical part of the building industry's response to environmentally damaging and emissions-intensive production practices. They allow the industry to monitor environmental data about products, which can be used to improve the sustainability of building projects. They also provide the basis on which to evaluate and assess environmental product information, setting benchmarks and standards that improve product selection decisions.

Beyond product selection, EPDs are important in communicating unbiased environmental information that raises awareness of the environmental impact of building products. This enables the market to raise concerns about specific products that could do more to improve environmental sustainability.

As they are independently verified, EPDs are also an effective way to discuss environmental performance with stakeholders, such as investors and potential tenants, and can be used as evidence to help achieve sustainable building targets or certification.





How do EPDs contribute to sustainable building?

An EPD is a key requirement for specifying external facade products for all projects that are concerned in any way about the environment. The growing use of EPDs is driven partly by shifts in market demand – clients, investors and potential tenants are increasingly concerned about their environmental footprint, and demanding solutions that minimise their impact. There is also a growing sustainability mindset within the building industry as we become more aware of the built environment's contribution to climate change and pollution in general.

Against this backdrop, the use of EPDs will become a necessity to remain competitive and demonstrate commitment to sustainability. Choosing products with a compliant EPD allows architects and specifiers to be better informed as to the environmental impact of their project, and enables them to take specific measures to improve environmental performance. This results in buildings that are more sustainable, efficient and environmentally friendly.

The uptake of EPDs in Australia is being driven by their adoption in internationally-recognised sustainable building certification schemes. In an effort to make environmental information more readily available to the design community, sustainable building certification schemes such as Green Star, Leadership in Energy and Environmental Design (LEED) and Infrastructure Sustainability Council of Australia (ISCA) are offering credits for the use of products with EPDs.

A closer look at Green Star

Green Star is an internationally-recognised rating system for buildings in Australia that assesses the sustainability of projects at all stages of the built environment life cycle. The Green Star program is administered by the Green Building Council of Australia (GBCA). The GBCA has incorporated the use of EPDs in its Green Star rating tools to encourage manufacturers to produce and make available EPDs for all their products.

The four Green Star rating tools – Communities, Design & As Built, Interiors and Performance – provide the means of certification for building design and construction, operation, fit outs and communities.³ Building products and materials in Green Star rating tools are addressed by credits that target the consumption of resources through selection, use, reuse and efficient management practices of building and fit out materials.⁴

Green Star offers credits for the use of products that are covered by an EPD under the Sustainable Products category in the Design & As Built and Interior rating tools. EPDs are an effective way to demonstrate material selection improvements under the Green Star ratings criteria. There are also points available for the use of LCAs during the building design process, for improving material selection and for improving the construction process under the Life Cycle Impacts category.

Specifying sustainable facades

Mitsubishi ALPOLIC™ NC Mineral Core Aluminium Cladding

Exclusive to Network Architectural, ALPOLIC™ NC is a fire-safe aluminium facade material with a non-combustible mineral core that contains zero polyethylene. ALPOLIC™ NC can be used as exterior or interior cladding and roof coverings in both new buildings and re-clad applications wherever a non-combustible material is required. This product is fully compliant to the NCC.

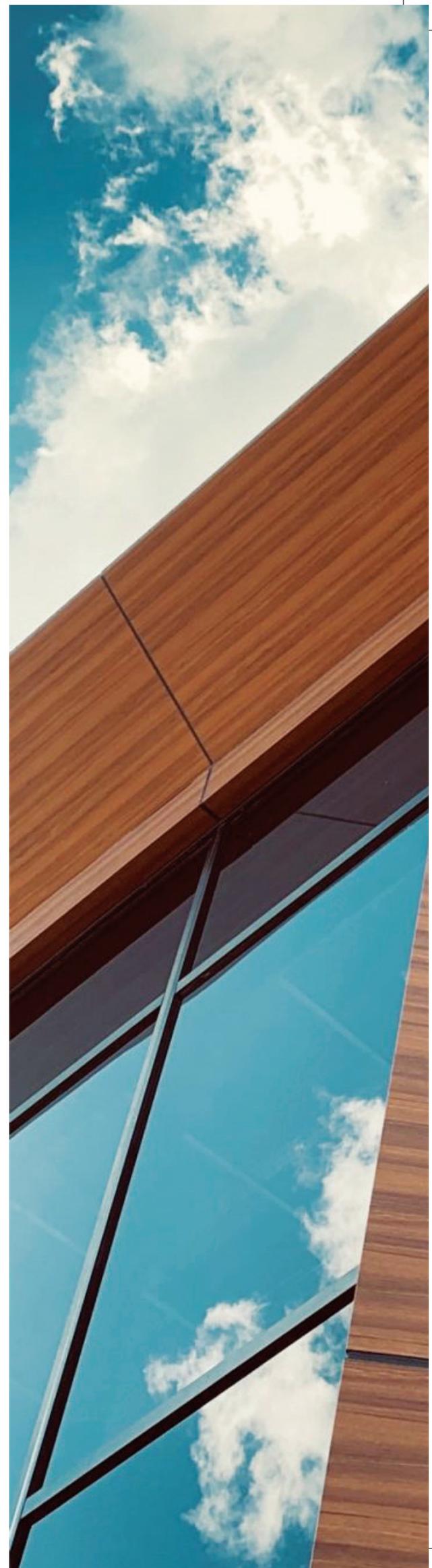
Manufactured in Japan, ALPOLIC™ NC is characterised by high rigidity, lightweight, excellent flatness, easy to cut and fabricate, and unique coating technology that has been proven in Australian conditions for over 30 years. It is fully compliant and backed by a 20-year full replacement warranty from the globally trusted manufacturer, Mitsubishi.

ALPOLIC™ NC is the proven sustainable choice for external facades. It has received the tick of approval on sustainability which is evident and transparent in Mitsubishi's successful registration of its EPD which has been produced by GECA. This EPD should be a major ongoing factor when specifying sustainable facades on re-clads or new builds on any building if you are serious about the environment.

Download the ALPOLIC™ NC EPD
bit.ly/ApolicePD2022

Or visit epd-australasia.com

“EPDs are an effective way to demonstrate material selection improvements under the Green Star ratings criteria.”





REFERENCES

- ¹ World Green Building Council. "New report: the building and construction sector can reach net zero carbon emissions by 2050." WGBC. <https://www.worldgbc.org/news-media/WorldGBC-embodied-carbon-report-published> (accessed 19 November 2021).
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All information provided correct as of December 2021.