

A SPECIFIER'S GUIDE: THE HIDDEN COSTS OF CLADDING AND FAÇADES



INTRODUCTION

As the design and construction sector continues on its upward trajectory, consumer demand and other market pressures are making industry professionals more cost-conscious. Project values continue to rise – in September 2018, Buildsoft reported that the construction industry contributes \$134.2 billion to Australia's economy¹ – but with stakes so high, firms must work to set themselves apart. Delivering functional, aesthetically-pleasing spaces that meet the project brief is no longer enough; designers and specifiers must also provide clients with multiple cost efficiencies, faster completion times and returns on investment.

This pressure is visible in all aspects of design and construction, with professionals closely examining different elements to identify cost-effective solutions that deliver high performance, functionality and the desired aesthetic.

In this whitepaper, we take a closer look at cladding systems and explore how smart specification choices can affect costs. We examine economic, environmental and aesthetic costs, highlighting the importance of a broad definition of cost when evaluating cladding solutions.



Above: DecoClad aluminium cladding on a modern home.

IN THE KNOW: UNDERSTANDING COMMON CLADDING TYPES

Cladding is a non-load bearing skin or layer applied onto the exterior of a building to protect it against environmental elements and improve its appearance. Cladding directly impacts building cost and value, as it affects both a building's aesthetic appeal and its environmental performance.

Different cladding types feature different performance characteristics and aesthetic qualities.

Timber

Timber is valued for its natural, warm aesthetic. The most popular forms of timber cladding are weatherboarding, panels and slatted screens. Depending on treatment and species, it can be strong and highly durable, however it is heavy compared to other materials and generally requires ongoing maintenance.²

Brick

Brick is versatile and can be used in two primary ways – as a load-bearing system acting as both external cladding and wall structure, or as brick veneers. Although it is heavy and has a high installation cost, it is recognised as a long-lasting option.

Aluminium composites

Aluminium composite panels (or ACP) are flat panels featuring a non-aluminium (often flammable polyethylene) core sandwiched between two thin aluminium sheets. While ACP is relatively economical in price, the material has been identified as the cause of several high-profile tower fires,³ and government regulations have now restricted or prohibited its use.⁴

Fibre cement

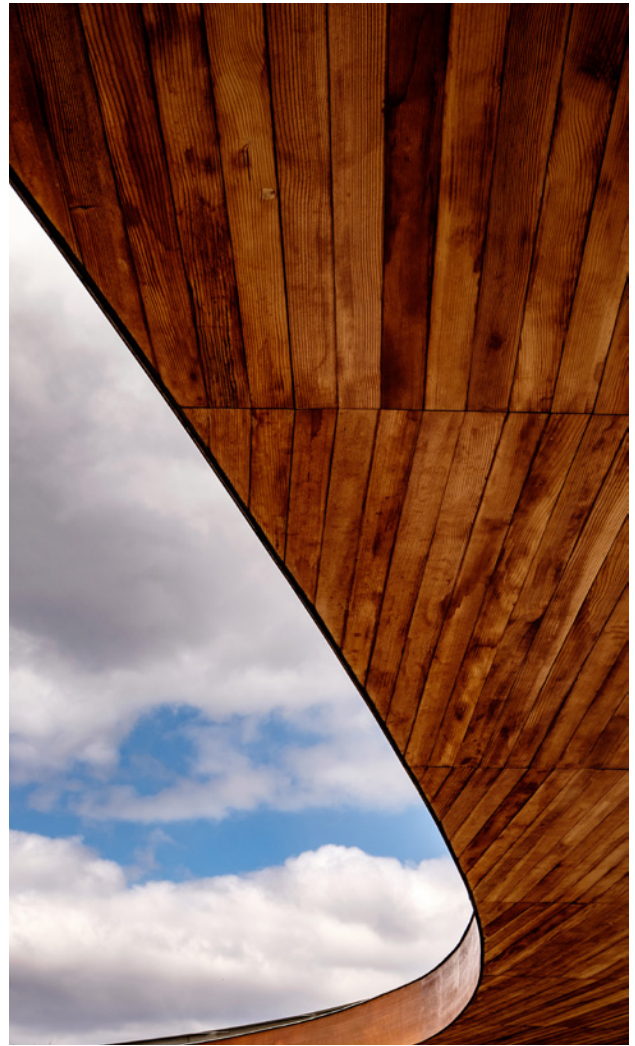
Fibre cement cladding is a modular cladding system consisting of sheets made of a sand, cement and cellulose fibre mixture. It is non-flammable and immune to rot and warping, but can also be extremely heavy, adding to labour time and cost.

Autoclaved aerated concrete

Autoclaved aerated concrete (AAC) blocks are modular façade components made by adding a foaming agent to concrete.⁵ The mixture is poured and set into a mould and autoclaved, resulting in a finished product with many closed air pockets. ACC is lightweight and easily shaped, yet also has load-bearing capabilities.⁶ It is valued for being highly fire resistant, and for its thermal and sound insulation properties.⁷

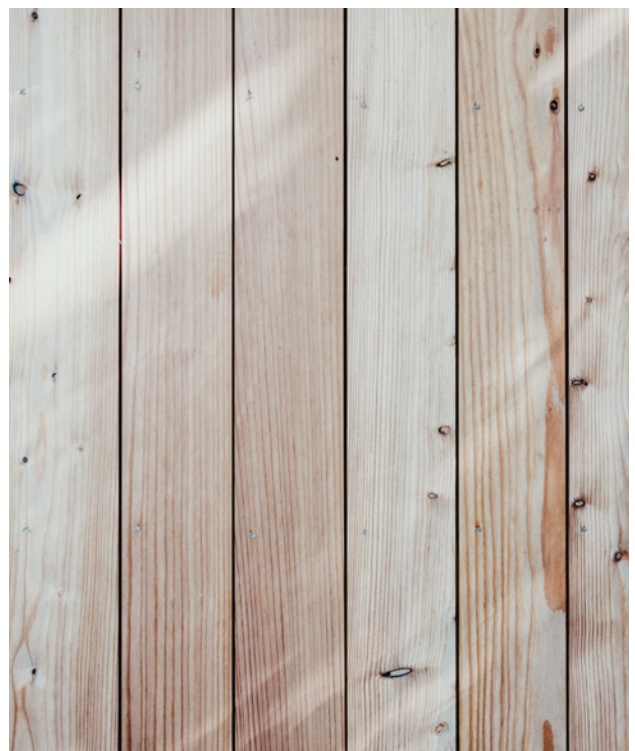
Solid aluminium

Solid aluminium is lightweight, non-combustible, versatile and highly durable, making it a high-performing alternative to other common cladding types. Solid aluminium offers significant design flexibility as it is available in a range of styles, designs and finishes, including powder coating, anodising and natural timber-look or concrete-look finishes.



Above: timber cladding as a ceiling feature.

Below: Standard Timber cladding.





Left: Standard Timber Cladding installed as a ceiling feature.

MEETING THE BOTTOM LINE: ECONOMIC COSTS

Installation costs

Beyond purchase price, designers and specifiers must consider the total installation cost of a cladding system. This includes transporting the product to site, labour costs, and the cost of equipment required. To maximise cost efficiency, it is ideal to specify lightweight, easy-to-transport products requiring minimal specialised labour and equipment for installation. Time-efficient, easily-installed, and flexible solutions with short product lead times and the ability to be pre-assembled offsite can significantly reduce costs by minimising the total hours of labour required.

Unlike lighter weight solutions such as AAC and solid aluminium, certain types of timber and brick cladding can be dense and heavy, adding to transport costs. Similarly, brick structures must be laid a single brick at a time, requiring labourers to work long hours and increasing construction costs. A certified bricklayer may cost as much as \$2 per brick laid⁸ – this will increase depending on the size and scale of the project, the number of storeys, whether the site is risky, and whether additional labourers are required.

In comparison, some lightweight aluminium cladding systems are designed to be quickly and easily installed by tradespersons (who cost approximately \$40 – \$90 per hour⁹) or by consumers in the context of do-it-yourself projects.

Product lifecycle cost

Designers and specifiers are advised to take a “whole of life” approach to costing. This entails accounting for a wider range of factors that impact the performance and lifespan of a product, including:

- climate conditions;
- moisture exposure;
- UV exposure;
- concrete cancer;
- vermin such as termites; and
- rotting and decay.

Timber cladding is susceptible to rotting, shrinking, swelling and cracking under certain environmental conditions¹⁰ and can be prone to termite infestation¹¹, while concrete is at risk of ‘concrete cancer’ if not properly installed. Aluminium, when correctly treated and prepared, is highly corrosion-resistant, waterproof and fire resistant.¹²

Specifiers should consider environmental factors and select a cladding material with the requisite performance qualities for the desired installation environment.

Maintenance costs

Specifiers should note that products with a low purchase price may have hidden costs in the form of ongoing maintenance, diminishing their return on investment. An academic study found that initial building costs account for approximately two per cent of the total cost of a building over a 30-year period, whereas operating and maintenance costs amount to six per cent (the other 92 per cent being personnel costs).¹³ Timber cladding products have relatively high maintenance costs, as they require regular treatment and sealing to maintain their appearance and weather resistance. Painted and rendered brick incurs high maintenance costs for similar reasons,¹⁴ while fibre cement requires regular repainting to maintain waterproofing.¹⁵ Compare this with powder coated aluminium, which delivers long-term durability and aesthetics with minimal maintenance, and specifiers will notice how a product with low maintenance costs can improve the long-term value of a project.¹⁶

Failure to maintain products can enhance total project costs, since the cost of rectification following damage – for example, water leakage – is often several times that of the original building. It is therefore critical that designers and specifiers choose durable, low-maintenance products to prevent degradation, or be prepared to add regular maintenance costs to the overall project costs.

Cost of removal and replacement

In some cases, the cost of removal and replacement of unsafe cladding systems factors into specification. The 2014 Lacrosse apartment building fire in Melbourne resulted in the Australian Building Codes Board cracking down on the use of non-compliant ACP in façade systems. The builder was subsequently court-ordered to remove unburnt non-compliant cladding from the building, an action that would cost an estimated \$15.5 million.¹⁷

Considering these events, designers and specifiers must not only select materials with fire performance characteristics, but also ensure that products comply with relevant Australian standards to avoid incurring removal and replacement costs.

DECO

DECO has been the Australian market leader in stunningly realistic photo imaging technology since 2004. The proudly Australian owned and operated family business now expertly designs and manufactures their own comprehensive range of aluminium building products. Offering both commercial and residential solutions, DECO supplies a diverse catalogue of finished aluminium building products that represent the highest level of innovation and craftsmanship.

DECO upholds an ongoing commitment to consistently delivering high standards of quality in manufacturing and design, and outstanding customer service. All DECO leading-edge building products and finishing technologies have been developed in response to specific industry needs, including demanding levels of performance, compliance and cost-effectiveness.

DecoClad – Aluminium Cladding

DecoClad is a lightweight aluminium cladding solution from DECO that offers durability, performance and maximum cost efficiency. Consisting of solid aluminium, it has been deemed non-combustible by the CSIRO and is fully compliant with AS1530.1 and AS1530.3, meeting the fire performance requirements for cladding specified in the *National Construction Code of Australia*.

Ideal for residential and commercial applications, DecoClad leverages aluminium's proven strength and versatility into an effortless cladding solution. DECO's easy-to-follow installation guide allows DecoClad to be easily installed by any relevant tradesperson, carpenter or handyman, reducing installation times and labour costs.

Showcasing DECO's signature high-quality photo imaging (sublimation) technology, DecoClad is available in a range of finishes including Super Durable™ DecoWood, an authentic, natural timber finish, and DecoCrete, a new, realistic concrete finish. These finishes offer 50 per cent more durability than standard powder coating and can be achieved without the costs and labour requirements associated with timber and concrete. DecoClad eliminates ongoing maintenance costs as there is no need for sanding, painting or staining. Highly durable and long-lasting, DecoWood and DecoCrete finishes are corrosion-resistant and can withstand tough conditions including beachfronts and direct sunlight.

DecoClad is supplied with a 12-year warranty in accordance with AS3715, giving customers peace of mind that they will not incur additional short-term replacement costs.

MORE THAN JUST DOLLAR VALUE: OTHER POTENTIAL COSTS

Environmental

As industry focus on sustainability increases, so does demand for energy-efficient solutions with minimal environmental impact. With façades and cladding, specifiers have another opportunity to identify sustainable, environmentally-friendly alternatives. Specifiers should search for cladding systems that do not require resource-intensive production or manufacturing methods.

While aluminium can be regarded as energy-intensive to produce (though many plants worldwide now use hydro power), it is 100 per cent recyclable without compromising its performance qualities, making it a highly sustainable option.¹⁸ When buildings are remodelled or deconstructed, aluminium can be harvested and reused with minimal environmental costs.¹⁹ Approximately 75 per cent of all aluminium ever produced is still in use today.²⁰

Performance in changing climatic conditions is also a growing concern. Cladding systems provide weather tightness and insulation and can also incorporate rainscreens, thus contributing to sustainable, energy-efficient building structures. Timber and brick cladding provide excellent insulation. Due to their lightweight properties, aluminium cladding systems can have insulation backset behind them without requiring additional support.

Design innovation & aesthetics

Design innovation and flexibility can add value to projects, achieving consistent styles and resulting in a more desirable end product. Innovative products in terms of design, fixing solutions and materials can all impact project performance and aesthetics, while versatile, high-quality materials and systems with a variety of design options (including colour, pattern, scale, texture and orientation) can enhance a project's unique visual appeal.

It is also important to consider the quality of the product and the material itself. Poorly-designed or cheap materials can actually enhance costs by delaying projects and introducing lengthy waits for product replacements.

Working with a product manufacturer willing to offer innovative solutions can ensure a project's overall success.



Left: DecoClad aluminium cladding.

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