

PREFINISHED POTENTIAL

THE GROWING POSSIBILITIES OF PREFINISHED MATERIALS



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INTRODUCTION

Prefinished materials are beginning to emerge as the superior choice for cladding and lining in the building industry. With increasing options now available in prefinished products, this white paper seeks to provide a better understanding for building professionals about the use of prefinished materials and demonstrate the unique possibilities they offer.

Resolving the misconceptions about prefinished materials is important because, without greater understanding of the material's capabilities, the products won't be used to their full potential. For the purpose of this white paper it is important to make a distinction between the terms prefabricated and prefinished as prefinished materials do tenuously fall under the prefabricated umbrella.

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PREFINISHED VERSUS PREFABRICATED

Prefinished materials can be defined as 'the factory application of those materials, which are expected to impart corrosion protection, colour, surface texture, or other qualities to the component'.¹ When installed, prefinished materials are integrated in the structure as a whole and generally require no further handling, painting or finishing.² Prefinished materials can clad virtually any surface, from interior ceilings and floors to exterior panels.

Prefabricated is a general term that covers many different building types. Any building that includes structures that have been built in a factory and then transported to the site for assembly can be categorised as a prefabricated construction. Construction methods that fall under the prefabricated category include completely prefabricated buildings, modular, pods, panels, components, sub-assembly and materials.³





A TOUGH INITIATION

The adversity of building professionals towards prefinished materials is largely unwarranted and has been a source of continued discussion. In the 1961 Autumn conference of the Building Research Institute in Washington D.C, the 'Prefinishing of Exterior Building Components' was a core topic. In his keynote address, Thomas H. Creighton, the editor of magazine *Progressive Architecture*, noted that the industrialisation of architecture and the revolution of prefinished materials have been met with a 'counter-revolution'.⁴ This so-called 'counter-revolution', Creighton suggests, is a 'desire for enrichment of our architecture, and a revolt against repetitive monotony'.⁵ He states: '[...] The architect [...] wants to have a say in the development of the materials that he is going to use. This is particularly true [...] in the realm of finishes. There have been several instances in recent years of the lack of acceptance of prefinished materials by the architectural profession'.⁶

The 'failures' in early iterations that Creighton cites in relation to prefinished materials have been because of 'bad choice of colour or texture' and 'technical reasons' such as lack of applicability and lack of durability.

In addition to Creighton's suggestions, architects and designers have had other concerns. Prefinished materials have been perceived as standardised and lacking craftsmanship. This has changed dramatically since 1961. High quality levels of finishes can now be achieved, as well as bespoke treatments. As companies continue to research and develop the possibilities of these materials, their popularity continues to grow. The fact that prefinished materials are produced within the confines of a factory setting means that there can be more attention to detail and more consistency in production and tight tolerances.

The initial cost of prefinished materials can seem high in comparison to traditional materials. Architects and specifiers constantly work under the constraints of a client's budget and this perceived cost could be off-putting. Little thought is given to the installation and lifetime costs of prefinished materials or the benefits they provide. For example, choosing a rendered façade requires bricklayers to lay the substrate, in the worst case a brick cleaner to prepare the surface for the next trade to apply the texture coat, and finally, a painter to finish the job. There is variability in the quality of work which can lead to call backs and ongoing rectification costs if the job has not been done to a sufficient standard. Sometimes render needs to be painted every couple of years or re-done because of cracking. A prefinished product only requires one trade to install it and an annual wash down to maintain it. More time needs to be spent explaining the cost of using prefinished with the client so they understand that the biggest benefit ultimately applies to them.

The cost of prefinished materials absorb other overheads that raw materials do not usually include, such as the labour involved in pouring concrete or sanding timbers floors.⁷ In addition to this, houses or buildings are traditionally subject to 'gradual release of funds'.⁸ Having to pay an all-inclusive price when the cost of finishing could be dealt with later down the line is a change in a conservative building industry.

While there has been some hesitation with prefinished materials, there are now a growing number of buildings that are incorporating prefinished into their design and construction. This burgeoning portfolio will increase confidence in the use of these products and how creatively they can be used.

INTEGRATING PREFINISHED MATERIALS

The benefits of implementing prefinished materials are huge and their popularity is developing as building professionals realise their capabilities.

One of the largest potential benefits of prefinished materials is the reduction in the length of time spent onsite.⁹ Jobs that are usually required to occur in sequence, for example, the laying of concrete occurring after the foundations have been made, can take place parallel to on-site activities. This overlapping of jobs will save time and, ultimately, money. Scaffolding time can be reduced and painting is not necessary. Potential rectification costs from inconsistent labour quality are greatly reduced. After prefinished materials have been employed, there is virtually no ongoing maintenance.

The introduction of prefinished materials to a project is of great benefit to architects and designers specifically because of the more sophisticated range of textures and finishes that are possible from materials that are treated in a factory setting. Manufacturers are continuously streamlining the production process so that response times for new finishes are faster. According to Australian interior designer Kathy Demos, her Melbourne-based company of Supermaquette Pty Ltd 'works best with a concise and considered range of colours, materials and textures that correspond to emerging trend patterns. We admire and support manufacturers that invest in research and expertise to ensure their ranges are relevant to specifiers and the market'.

Another unique aspect of prefinished materials for designers like Demos, is the ability to check the compliance of just one product – the prefinished material – as opposed to a number of assembled components – in the case of materials finished on-site. This streamlines what has traditionally been an arduous and complex process.

This ease in checking compliance is hugely beneficial to building professionals in Australia who must adhere to a number of rules as laid out by BCA and Australian Standards. Imported products may need further testing carried out to determine its eligibility in regards to Australian Standards. Australian suppliers will already have had to undertake stringent testing on its products so choosing a supplier from within Australia should simplify the process.

Australian companies are continuing to grapple with the competition posed by imported products which are potentially non-compliant and non-conforming. While a number of products imported from countries, like China, appear to offer a cheaper alternative, significant costs may be involved later on. The industry is learning first hand from the Lacrosse Docklands apartments' fire in Melbourne of the downside of using cheaper materials. The latest reports have suggested that the Building Appeals Board 'have ordered the owners to remove the material'. This is at a potential cost of \$8.6m for a cladding replacement bill, on top of the \$6.5m already spent to fix damage from the fire.¹⁰



MOVING FORWARD WITH PREFINISHED MATERIALS

As the popularity of prefinished materials grow, so too does the number and variety of options available. Examples include:

Fibre-Cement

Austrian Ludwig Hatschek developed the fibre-cement manufacturing process in the 1890's. Fibre-cement is a composite building and construction material and it considered a long-lasting building material. It is mainly used in cladding and internal linings. Fibre cement has enjoyed increased popularity over the years, particularly in modern construction because of its lightweight nature, durability and capacity to provide innovative and bespoke design solutions.

Timber

In this category, types of finishes range from traditional opaque systems and natural finishes to water-repellent preservatives. All prefinished timber products must abide by the AS/NZS 2311 – Guide to the Painting of Buildings. While a popular option, ongoing maintenance of timber can be a deterrent as people become more cost conscious and have less time for maintenance.

Metal

Pre-coated metals or metals that have been treated to minimise the amount of finishing required make up the category of prefinished metals. The variety of prefinished metals available is large and growing. Base metals pre-plated with a variety of decorative or functional metal, as well as a myriad of colour options are widely available.

STREAMLINED PROCUREMENT

Incorporating prefinished materials in a building project is not just about purchasing a new product; it is about changing the whole approach to how projects are finished. New methods of procuring cladding and lining are making the integration of prefinished materials a smooth and logical transition for building professionals. Online or downloadable apps for selecting systems and specifying measurements are making the procurement of prefinished materials a seamless process, while the ability to integrate specific prefinished products into BIM/CAD models ensure that materials are integrated in the design from the very beginning.

As an interior designer, Supermaquette's Kathy Demos values being able to consider the implementation of prefinished materials from the very beginning of the design process: 'When materials impress both in performance, appearance and other values, they play a greater role in the concept phase of a project, informing or even inspiring design rather than being considered as an add-on'. It is the combination of the benefits offered at the procurement stage, with the unique characteristics of prefinished materials, that is creating a bright and long-lasting future for the burgeoning sector.

BENEFITS OF USING PREFINISHED MATERIALS

- Low Maintenance
- Potential to reduce building costs
- Speedy Installation
- Great choice of sophisticated textures and finishes

Since 2003, the market share of lightweight external cladding on multi-residential buildings has leapt from 20 to 70 per cent.¹¹



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