CLADDING, COMPLIANCE & COMMERCIAL CONSTRUCTION:

UNDERSTANDING AUSTRALIA'S COMPLEX FIRE SAFETY REQUIREMENTS

CAPRAL ALUMINIUM

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INTRODUCTION

A recent spate of high profile fire tragedies around the world has resulted in heightened fire safety concerns throughout the architecture and construction industries. The 2014 Lacrosse and 2017 Grenfell tower fires, and more recently the Neo200 tower fire in Melbourne in early 2019, prompted building audits throughout Australia alongside stricter building regulation and enforcement.

Subsequent investigations into the cause of the Lacrosse and Grenfell fires attributed the accelerated spread of flames in both incidents to the use of cheap, combustible aluminium composite panels (ACPs).[1] While it was determined that a discarded cigarette started the Neo200 building fire, the rapid spread of fire on the building facade was also primarily attributed to non-compliant cladding.[2] In July 2019, the Victorian Cladding Taskforce issued a report which noted that out of 2227 buildings inspected under various state-wide cladding audits, 1069 buildings have been found to have combustible cladding as at 5 July 2019[3] – a public safety and compliance issue that is set to cost governments, property owners and industry stakeholders hundreds of millions of dollars to rectify.

As calls grow for swift government and industry action to remedy the fire safety risks posed by flammable cladding, it is essential for design and construction professionals to understand the potential impacts of non-compliant cladding products. This includes:

- potential injury or loss of life of building occupants;
- building damage or destruction in the event of fire;
- insurance issues; and
- cost and burden of rectification.

Industry professionals must be mindful of Australia's increasingly complex regulatory landscape, and ensure they have an up-to-date understanding of the minimum requirements for fire performance that govern the selection of cladding.

In this whitepaper, we dive into these matters in detail, setting out the key considerations that designers and specifiers must account for when selecting cladding for their next project.

THE RISKS OF NON-COMPLIANT SPECIFICATION

Threat to human life

Loss of life and long-term health issues are very real risks when highly flammable building cladding is used. In the 2017 Grenfell tower fire, 72 residents lost their lives within hours in the deadliest residential fire since World War II.[4] Survivors of these fire events are vulnerable to long-term health risks such as respiratory illness, emotional trauma and mental health issues.[5]

Health risks are heightened in multi-residential buildings as residents may be asleep during a fire and windows are often left open, allowing smoke and fire to enter the building.[6] Exposure to toxic substances and dust through smoke inhalation can require regular health screenings, further impacting the lives of survivors.[7] Older buildings may also contain harmful substances such as asbestos, which may be released during a fire.

Building damage or destruction

As shown by the Lacrosse and Grenfell tower fires, fire events caused or accelerated by non-compliant cladding can cause significant building damage, often to the point where the damage is beyond repair, or the building itself is completely destroyed or uninhabitable. Costly litigation, building repairs and restoration or demolition usually follow such events. This translates to significant financial loss for victims, the government, insurers and the building industry.

The cost of this type of fire disaster should not be underestimated. The total cost of the Grenfell tower fire was estimated at almost £1 billion when factoring in litigation costs, the number of deaths, re-housing costs, demolition costs and the impact to surrounding buildings.[8] The Grenfell Tower is no longer inhabited and stands derelict as a demolition date is determined.

In March 2019, the Victorian Civil and Administrative Tribunal determined that the builder of Melbourne's Lacrosse Tower was liable to pay more than $5.7 million in damages to the apartment owners.[9] In addition to this amount, the consultants and architects working on the Lacrosse project were required to pay $6.8 million for the cost of replacement cladding.

Insurance concerns

According to the Insurance Contracts Act 1984 (Cth), building owners who become aware that their building is clad with non-compliant building products must disclose this heightened risk factor to their insurer. Non-disclosure of the risk to the insurer may result in a decline of an insurance claim following damage caused by a fire event.[10] However, disclosure may result in the insurer withdrawing coverage, putting owners in a difficult legal and financial position.

Costs and burden of rectification

While the party who must bear the burden of replacing non-compliant cladding varies depending on the circumstances surrounding each particular project, one thing is certain: the cost of rectification will typically be extremely high.[11] In January 2018, the Supreme Court of Victoria found that apartment owners could be required to pay up to $60,000 each for the removal and replacement of non-compliant cladding on their building.[12] The Court subsequently ruled that builders could not be forced to repair an apartment block once residents are able to move in.

The financial risk to Australian homeowners is immense. Across the country, approximately 10,000 high and medium rise buildings are clad with ACPs.[13] In many cases, homeowners would be placed in serious financial difficulty if made to pay for replacement cladding.

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A CULTURE OF COMPLIANCE: UNDERSTANDING THE RELEVANT REQUIREMENTS

The Building Code of Australia

The *Building Code of Australia* (BCA), which comprises Volume One and Two of the National Construction Code (NCC), does not currently have a blanket ban on the use of combustible cladding in high rises. However, the use of such cladding is restricted where it is deemed dangerous.

According to the BCA, combustible cladding can only be used in conjunction with non-combustible external walls that inhibit the spread of fire via the external surface of a building.[14] Performance Requirement CP2 of the NCC Volume One requires buildings to have elements that prevent the spread of fire in a building and between buildings, in a manner appropriate for that building.[15] This requirement can be met partly by fulfilling the Deemed-to-Satisfy requirements in Performance Requirement C1.9 for buildings of Types A and B construction by using non-combustible external walls.[16]

Combustible cladding may also be deemed compliant under the Performance Solutions process of the BCA. Performance Solutions address the Performance Requirements of the BCA by assessing compliance based on performance according to the specifics of each individual situation. Performance Solutions enable flexibility in achieving the outcomes required by the BCA, and also encourage innovative design and technology use.[17]

Australian Standards

Cladding must comply with the relevant Australian Standards governing the use and testing of combustible building materials. *AS 1530.1-1994 Methods for fire tests on building materials, components and structures* sets out the standard test for non-combustibility under the BCA. The test in AS 1530.1 involves measuring the material's response in a furnace held steadily at a temperature of 750ºC.

AS/NZS 1530.3:1999 Methods for fire tests on building materials, components and structures: simultaneous determination of ignitability, flame propagation, heat release, and smoke release sets out the testing regime for determining the ignitability, flame propagation, and heat and smoke release of a material. The relevant test under this Standard involves assessing the performance of a material placed 850mm away from a gas-fired ceramic panel. The panel is moved closer to the material every 30 seconds until it is 175mm away.

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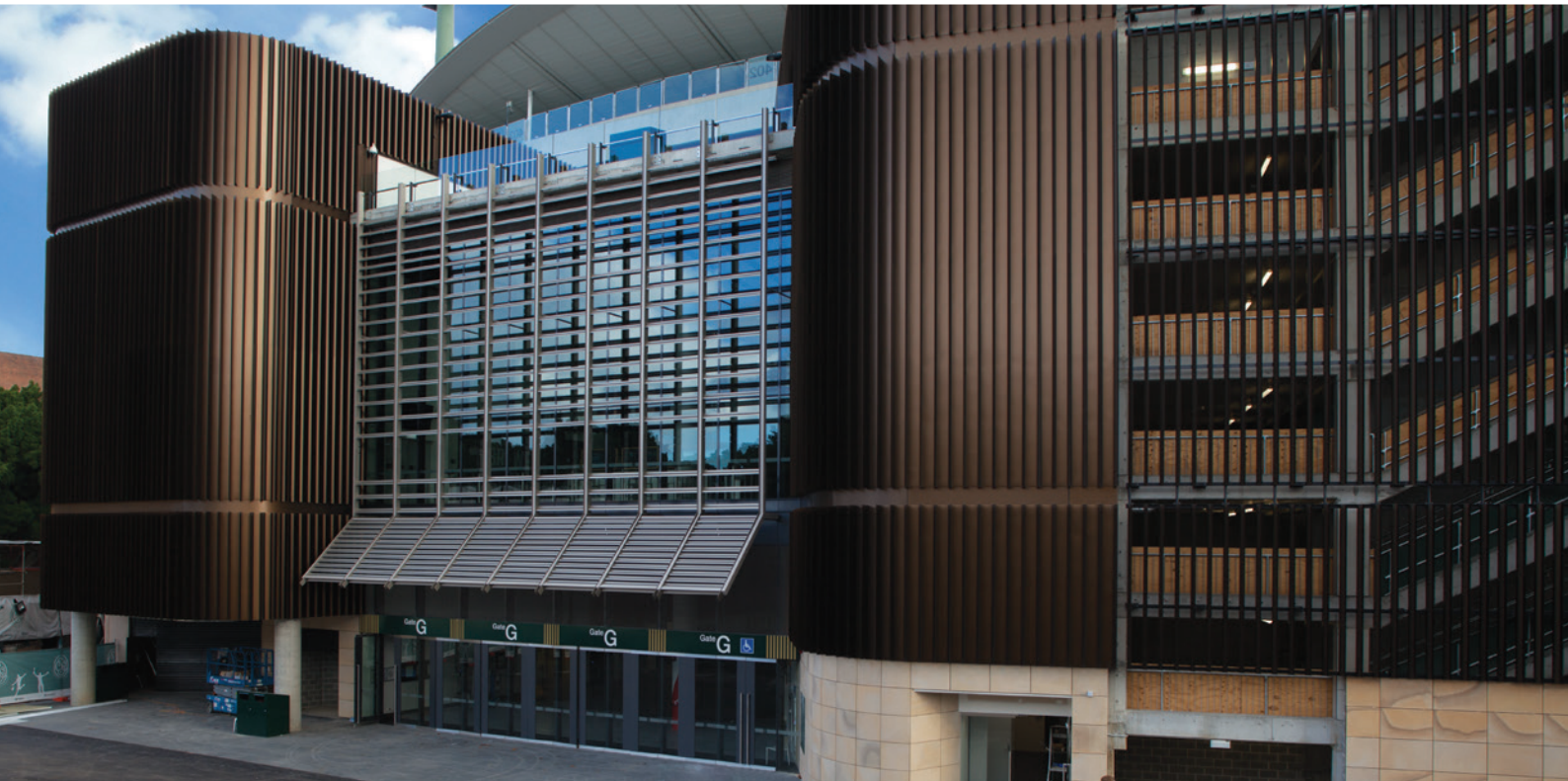

CAPRAL

Since 1936, Capral has been the Australian leader in the manufacture and distribution of high performance, innovative aluminium profiles. Owned and operated in Australia, Capral maintains several world-class manufacturing plants across the country. The company has also built an extensive distribution network across regional and metropolitan areas.

Capral has leveraged its strong in-house research and development team to develop a comprehensive range of products that respond to the evolving needs and demands of the Australian market, including an increasingly complex national framework for safety and compliance.

Smartfix Aluminium Facade System
Smartfix by Capral aluminium is a solid plate alloy, mechanical fix façade system that delivers a high performance, safe and sustainable cladding solution. With the Evershield High Grade Anodising finish from Australian Aluminium Finishing (AAF), the Smartfix system is abrasion resistant, non-combustible and mechanically fixed, making it ideal for a wide variety of applications, especially low to high rise construction.

Smartfix features solid plate aluminium sheets with a high quality anodising finish that delivers outstanding fire resistance. It is a non-combustible, A1-classified building product under EN 13501-1:2018 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests, and does not develop toxic gas or smoke under fire. This material will only melt under extremely high temperatures and has no flame spread. Accordingly, Smartfix provides architects and builders with an efficient path to compliance with the fire safety requirements in the BCA.

Waterproof-tested, cyclone-rated and engineered to last, the Smartfix system also offers superior functionality and performance. Solid pre-painted aluminium sheet in the proper, optimised alloy and temper may have mechanical properties (permissible load) approximately 30% greater than that of regular composite panels. The Evershield finish is non-abrasive, with superior hardness suitable for high altitudes, and exceeds the Performance Standards in AS 1231-2000 Aluminium and aluminium alloys - Anodic oxidation coatings and AAMA 611-2014 Voluntary Standards for Anodized Architectural Aluminum. It is accompanied by an exclusive AAF 30-Year Evershield Coastal Marine Warranty.

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