Building Product Safety Alert

Use of ACP and EPS as external wall cladding

March 2018

This Building Product Safety Alert warns building practitioners about the potential fire risks associated with the non-compliant use of Aluminium Composite Panels (ACP) and expanded polystyrene (EPS) products when used as external wall cladding and provides information on the Ministerial Guideline restricting the use of these products.

Background

The 2014 fire at the Lacrosse apartment building in Melbourne’s Docklands and the tragic Grenfell fire in London in June 2017, highlighted the fire safety risks arising from the non-compliant use of combustible cladding in Victoria and in other jurisdictions.

On 3 July 2017, the Victorian Government established the Victorian Cladding Taskforce to investigate the extent of non-compliant external wall cladding on Victorian buildings, and make recommendations for improvements to protect the public and restore confidence that building and fire safety issues are being addressed appropriately.

Inappropriate usage a risk to life and property

In November 2017, the Taskforce’s Interim Report found that systems failures have led to major public safety risks and widespread non-compliant use of aluminium composite panels (ACP) and expanded polystyrene (EPS) cladding in the building industry across Victoria.

Inappropriate use of ACP (with polyethylene in its core) and EPS present a significant risk in Victoria, and have been implicated directly in the Grenfell, Lacrosse and other fires. In addition to being a fire hazard, both products are prone to melting, dripping and collapsing. When burning, polyethylene and polystyrene release two and a half times the amount of energy as an equivalent amount of wood.

As such, non-compliant use of these products as external wall cladding presents a substantial risk to life and property, particularly in multi-storey buildings.

Despite these risks, the Taskforce found that buildings in Victoria are still being constructed with inappropriate use of ACP and EPS. The Interim Report therefore recommended that the Victorian Government take action to restrict the use of ACP and EPS in buildings above 2 storeys.

Minister’s Guideline ‘Issue of building permits where building work involves the use of certain cladding products’

On 13 March 2018, the Minister for Planning issued the Ministerial Guideline ‘Issue of building permits where building work involves the use of certain cladding products’ under section 188 of the Building Act 1993 (Vic).
The Guideline requires that building surveyors only issue a building permit for the installation of certain ACP or EPS products as part of an External Wall (including as an attachment) where the use has been determined compliant by the Building Appeals Board (BAB).

The Guideline applies to all buildings of Type A or Type B Construction, including Class 2, 3, and 9 buildings of 2 storeys or more, and Class 4, 5, 6, 7, and 8 buildings of 3 storeys or more.

The Guideline applies to certain products

The Guideline applies to the following “prescribed combustible products”:

- ACP products that have a core comprised of 30 per cent or more polyethylene, including both “ACP PE” products and a number of ACP products commonly described as “ACP FR”. Higher grade products with a lower polyethylene content are not captured by the Guideline.
- EPS products used in a rendered external wall system.

The Guideline applies to a product regardless of whether it has CodeMark certification or a Building Regulations Advisory Council accreditation. This guideline also applies regardless of whether a building surveyor interprets that other concessions may apply.

Building Appeals Board Determinations

The Guideline allows for the use of prescribed combustible products where the BAB makes a determination that the use is compliant with Victorian legislation and the National Construction Code.

The effect of the Guideline is not to prevent the use of the products outright but to restrict the approvals pathway to ensure that their use has been subject to rigorous analysis as part of a BAB determination.

Penalties and disciplinary proceedings

Building surveyors who issue permits in breach of the Guideline may be subject to disciplinary proceedings by the Victorian Building Authority.

Product descriptions and uses

ACP

ACP products are flat panels, generally 3-6mm thick, consisting of two thin aluminium sheets bonded to a non-aluminium core (such as polyethylene or a mineral product). Panels are produced in various formats but can span 2-6m in length and 600mm to 2m wide.

The growth of ACP product use over the last 10 years, particularly in high rise applications, has been attributed to its light weight and aesthetic qualities.

ACPs do not generally add to the structural integrity of a building but may contribute to the energy efficiency and weather proofing of an external wall.

Many ACP products incorporate polyethylene (PE) as a major component, sometimes with the addition of minerals such as magnesium hydroxide or aluminium hydroxide.

PE is a thermoplastic with very poor reaction to fire properties. When it burns, a kilogram of polyethylene will release more energy than a litre of petrol.

The Metropolitan Fire Brigade’s analysis of the Lacrosse Apartments fire found that the ACP with a polyethylene core contributed to the fire load and the rapid spread of the fire up the vertical face of the building. In addition, the use of ACP cladding on the Grenfell Tower has been linked to the rapid spread of the fire around the outside of the building, alongside the chimney effect of the cavity between the wall and the cladding, and has been highlighted as a likely major contributor to the tragic loss of life in that incident.

Testing undertaken in the wake of the Grenfell Tower fire has also indicated that ACP FR (fire retardant) products will only comply with full scale fire tests when used in combination with non-combustible insulation and sarking, and where other wall elements are present.

As such, significant caution must be given to the supply or use of ACP with a 30% PE core or greater, including ACP FR products in designs, specifications and construction.
Rendered EPS

EPS is a lightweight plastic material commonly used in packaging as well as in the building and construction industry. Key characteristics of EPS include: ease of installation and its thermal insulating properties. EPS is typically rendered with cement when used as a cladding material.

Polystyrene (PS) is also a thermoplastic with very poor reaction to fire properties. When it burns, a kilogram of PS will release more energy than a litre of petrol. Chemical fire retardants may be added to EPS but these do not prevent combustion from large fire sources. Furthermore, these retardants may leach over time.

ACP PE and EPS have been used in combination in external wall systems.

General Advice

While some uses and types of ACP and EPS cladding are lawful in Victoria, other applications are not lawful or may present risks to public health and safety or property. Therefore, each circumstances of usage on a building will be unique.

Advice for those in the building and construction industry includes:

- Ensuring that ACP and EPS products comply with the Building Act 1993, Building Interim Regulations 2017, the National Construction Code of Australia and the Guideline
- ACP and EPS products which are intended to be used as external wall cladding or as an attachment, or in a combination, whether FR rated or not, composed of lower amounts of PE or not, should be treated with significant caution when being supplied, marketed or used
- Referring to the ABCB Advisory Note 2016-13
- Referring to the Victorian Cladding Taskforce Advisory Note 1: Fire Safety Actions for Residents, Building Owners, Owner’s Corporations and Facilities Managers.

Further Information

As you may be aware, the use of combustible cladding is a serious issue facing the community. The Victorian Building Authority (VBA) is undertaking a state-wide audit of buildings to identify unsafe cladding. Find out more by visiting www.vba.vic.gov.au/cladding or phone 1300 815 127.

Further information will be provided as the work of the implementation of the Taskforce’s recommendations: www.planning.vic.gov.au/building-policy/victorian-cladding-taskforce

Accessibility

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