



Government of **Western Australia**
Department of **Commerce**
Building Commission

Building
Commission

Aluminium composite panelling in high-rise buildings

Interim report

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1. Introduction

Fire prevention and safe occupation of high-rise buildings can be very complex and relies upon many factors including materials selection and systems design. All stages of the design and construction rely on decisions that consider how buildings comply with the applicable building standards.

The Building Code of Australia (BCA) outlines the requirements for the design and construction of new building work. Walling systems, including any attachment, cladding or lining, should be used in a manner compliant with the BCA.

In November 2014 a multi-storey apartment building in Melbourne (Lacrosse apartments) caught fire, with fire spreading rapidly up the building facade. The building facade included aluminium composite panels (ACPs) that contributed to the spread of fire.

2. Background

ACPs are commonly used worldwide and have been in the spotlight at differing times with regard to their combustibility. In the case of the Lacrosse building fire, the Melbourne Fire Brigade investigation and report identified the product as Alucobest PE which has a polyethylene core material. This material, which is also used in other ACP products, is the predominant contributor to the combustibility.

The building control system in Western Australia is different from that in Victoria in the sense that unlike Victoria, where building permits are usually granted by individual private building surveyors, in Western Australia permits are granted by permit authorities which are normally the relevant local government. These permit authorities are responsible for dealing with buildings that may have been built in contravention of the applicable building standards or that may be found to be dangerous.

The building control system in Western Australia requires a building permit to be granted before construction commences. A building permit requires a certificate of design compliance (CDC) signed by an appropriately registered building surveying practitioner and issued by a registered building surveying contractor (building surveyor). The building surveyor must consider all applicable building standards for a particular building including the fire requirements for wall assemblies and external linings and be satisfied that the plans and specification show how compliance is to be achieved.

The builder who is named on the building permit must be appropriately registered and must construct the building in accordance with the granted building permit. The builder must, on completion, provide a notice of completion (NOC) to the permit authority.

After completion of the building work, the owner must not occupy the building until an occupancy permit has been granted. An occupancy permit requires certificate of construction compliance (CCC) signed by an appropriately registered building surveying practitioner and issued by a registered building surveying contractor. The building surveyor must be satisfied that the building complies with the applicable building standards.

If external wall cladding has been identified as not complying with the applicable standards, it does not automatically mean the building is unsafe or unfit for occupation. It also does not necessarily mean the product is illegal or should not be used in Australia as it may be used in certain buildings or certain parts of a building in a compliant manner. Similarly if the building is found to have compliant external cladding it does not necessarily mean there is no risk of fire spread.

3. Preliminary audit

Following the Lacrosse building fire incident the Western Australian Building Commission carried out its own assessment of high-rise buildings that incorporate ACP. As part of its assessment the Building Commission requested the City of Perth and the Town of Victoria Park to carry out a preliminary audit of apartment, hotel and public buildings that are over three storeys in height and constructed in the last 10 years. This preliminary approach was adopted to gauge the level of risk present in the built environment posed by the use of ACP's.

The City of Perth's records revealed that there were 70 buildings fitting the criteria in the central business district. From this it was found that nine buildings were designed and built to incorporate ACP. The City of Perth has since expanded the scope of its audit to include office and retail buildings.

The Town of Victoria Park's records revealed there were 21 buildings fitting the criteria. From this the Building Commission were informed that only two buildings were designed and built to incorporate ACP. Recently another five buildings have been identified as fitting the criteria and have yet to be examined.

As part of their investigation the relevant permit authorities audited the building permits and conducted site visits to give an overall view on compliance and risk.

The permit authority preliminary findings include:

- The buildings subject to the permit authority audits have ACP designed and used as an attachment to a wall that is non-combustible.
- All the ACP specified was the fire resistant type.
- At this stage only four different manufacturers of ACP have been used.

- Permit documentation was not always clear in the specification with regard to fixing and fire resisting requirements.
- With the findings mentioned above the permit authorities' preliminary conclusion was that there was a low risk of fire ignition and spread.

It is important to note that when a building is found to be non-compliant does not necessarily mean it is unsafe to occupy. Buildings are designed and constructed in a holistic manner to include a number of safety features that protect occupants from fire this may include an automatic fire sprinkler system and wall construction that limits the spread of smoke and fire.

4. Victorian Building Authority audit report

In 2014 the Victorian Building Authority (VBA) investigated the Lacrosse building fire incident. The VBA investigation determined the fire was fuelled by the ACP material used to construct the façade.

Subsequently, the VBA has audited 167 apartment buildings, hotels and public buildings to ascertain whether the use of ACPs complies with the BCA and the level of risk its use poses to consumers.

The VBA published their external wall cladding audit report on 17 February 2016. Further information is available on the Building Commission website (see *Industry Bulletin 62 – Victorian Building Authority external wall cladding audit report*).

5. Where to from here?

In 2016 the Australian Building Ministers Forum asked the Australian Building Codes Board (ABCB) to investigate the possibility of further improvements to the BCA and to carry out possible 'out-of-cycle' amendments to the BCA if required.

The Building Commission has been involved in discussions with other jurisdictions and with the ABCB regarding the review of the BCA provisions that set out the requirements for external walls and attachments. This nationally-driven work is ongoing and is intended to clarify any ambiguity that may exist in the current BCA provisions.

Standards Australia, in consultation with the ABCB and other stakeholders has now developed a new Australian Standard (AS 5113) for testing of certain wall assemblies. This standard will provide a more accurate indication of the combustibility of wall assemblies including ACP. This standard will be referenced in the BCA for use by the construction industry to verify the performance of external wall cladding systems against the performance requirements relevant to fire.

The Building Commission, in conjunction with the relevant permit authorities will continue its investigation into the use of ACP.

The Building Commission is also working with the relevant State permit authorities, such as the Building Management and Works division of the Department of Finance, to audit government buildings which are generally of public nature.

The Building Commission intends to publish a final report on the compliance and risk associated with the use of aluminium composite panelling in high-rise buildings in Western Australia at the conclusion of its investigation.

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