

Engineering News

# Australia Must Stop Cladding Apartments with Flammable Material

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**By all accounts, the pace at which fire ripped up Melbourne’s Lacrosse apartment tower in 2014 was frightening.**

Following this, audits all over the country have revealed alarming details about how many buildings are or may be clad with flammable material. In Victoria, an audit of multi-storey buildings constructed over a ten-year period spanning 1 January 2005 to 30 April 2015 throughout the Melbourne CBD and surrounding areas found that cladding on 51 percent of the buildings audited does not comply with the National Construction Code (NCC). In NSW, a data audit of more than 178,000 building projects identified 1,000 which may have dangerous cladding.

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In its interim report on cladding released in September, the Senate Economics Reference Committee into Non-Conforming Building Products made eight recommendations. These include banning outright aluminium composite panel products with a polyethylene (PE) core, national licensing schemes for all construction professionals and trades, making Australian standards freely available and blacklisting companies that fail to build according to NCC requirements from work on Commonwealth funded projects. A dissenting report issued by Coalition senators did not support either the ban or the blacklisting.

Under Performance Requirement CP2 of the NCC, buildings are required to contain elements which will avoid the spread of fire in a manner which is appropriate for that building. This, in part, can be met under a deemed to satisfy (DTS) solution for Type A and Type B construction through non-combustible external walls.

According to Dr Mark Tatum, building technology director at Kingspan Insulated Panels, action is needed in five areas.

First, all types of cladding systems should be subject to large-scale testing. According to Tatum, current small-scale tests under which a small amount of material is placed in a furnace which is heated to 750 degrees Celsius for 30 minutes fails to provide a reliable indicator about what will happen in a real fire on a large scale. Rather, he says large scale tests which subject a significant amount of material (often a 15-metre wall) to a large fire source are needed.

Work is happening on this front. In conjunction with the Australian Building Codes Board, Standards Australia has developed a new standard (AS5113) which is based on large scale façade fire testing. This may potentially be added to the NCC in the next updating cycle.

Second regulation surrounding how cladding is installed should be strengthened. Even a system which is non-combustible, Tatum says, can represent a fire danger when not installed correctly. For example, the material could be installed using a construction adhesive, which under a fire scenario could cause the entire panel to fall off the structure. Similarly, air gaps in the panel after assembly can create opportunities for fire and smoke which were not considered during the initial specifications.

Along with that, Tatum says training with fire safety considerations should be incorporated into all courses which involve modern façade construction.

Fourth, regulations should be more proactively enforced to ensure that designs meet NCC requirements and that as-built products actually match the designs.

designed and managed.

Others agree that large-scale testing is needed. Sahil Bhasin and Lucas Coombes, National General Manager and Building Reports Consultant respectively at property reporting, project management and facilities management company Roscon, say the existing test 1530.1 is geared more toward brickwork and masonry and is pointless for cladding as no cladding material is able to pass the tests.

What is needed, Bhasin and Coombes say, is for full-scale testing of entire wall systems and assemblies to determine how well or otherwise particular assemblies work together to resist fire spread, with a 15m complete facade system, in situ.

Coombes and Bhasin also agree that PE cladding should be banned. Whilst aluminium composite cladding with a mineral fibre core was not problematic, they said that ACP with a PE core should not be sold or used other than on buildings of one or two storeys.

To help make this happen, Coombes and Bhasin would like a new third-party certification scheme for cladding. This would operate along the lines of the existing Codemark scheme. Materials would only be able to be imported and used where they were certified for the use in question.

As well, the NCC should prescribe specific installation methods for cladding as it does with flashing, downpipes, roofs, masonry or other products, Bhasin and Coombes say.

As for existing buildings, Bhasin and Coombes say one solution which might well be used in some circumstances are intumescent paint coatings. When exposed to fire, these protect the cladding material by expanding into an insulating char of up to 50mm in thickness. This enhances the fire safety property of the materials and makes them more fire retardant.

Whilst this would not be adequate where buildings are fully covered with combustible cladding, Coombes and Bhasin say it might be a realistic solution where combustible cladding has been primarily for decorative purposes used sporadically throughout the building. The cladding may have been used, for example, on the first floor and then again on the fifth floor and so on.

At the moment, this would not be allowed under the aforementioned DTS solution as this requires cladding to be non-combustible. To facilitate application of intumescent paints using DTS, Bhasin and Coombes would like to see the provision altered to enable intumescent paint coated materials to be allowed under a DTS solution in cases where the amount

In absence of this, intumescent paint can only be used (as an alternative to having the cladding itself removed or sprinkler systems extended) under a performance solution.

Beyond that, Coombes and Bhasin say having cladding replaced or sprinkler systems extended is unlikely in light of the cost and disruption involved. Besides, removing cladding is problematic in terms of issues such as water damage (with the cladding gone, the building is not watertight) and structural issues which could occur where the cladding was replaced with a heavier material and the foundation is asked to cater for a load greater than that for which it was designed.

Retired architect and building consultant Mark Whitby, meanwhile, says the capacity under current NCC rules for 'expert judgement' should be abandoned.

So called 'expert judgement' he said, had failed to stop hundreds of buildings being clad in the aluminium composite panels with the polyethylene core all around Australia.

Those who chose and inspected the product, he says, were obviously not expert.

"Instead", he said, "we need a system of data which catalogues all fires world-wide and gives a detailed description of the products that were used."

Moreover, he says all cladding products should be required to be tested (and registered) by a NATA accredited testing authority for the purposes for which they are designed.

"Meanwhile the material needs to be banned until the tests are completed."

"It has to be tested by the laboratory itself...to Australian Standards, (and not by the manufacturer), so as to by-pass any falsifying of documents."

Australia has a substantial problem with flammable cladding on buildings.

In order to address this, action is needed on multiple fronts.



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