

Briefing on non-ACM combustible materials

Overview

As raised in previous submissions to the committee, we recommend building on MHCLG's review of high-rise buildings with ACM cladding with a full of audit of high-rise and high-risk buildings to identify all combustible façade systems. We urge the use of the Euroclass Reaction to Fire classification framework in this process to quickly and clearly identify whether products involved in those systems are combustible. Finally, we believe that the ban on combustible materials should be extended to include all high-rise and high-risk buildings.

Our recommendations for immediate action:

- Under the Building Safety Programme, the Government should conduct a comprehensive audit of the façade materials on all high-rise and high-risk buildings to identify the use of combustible materials. The audit of non-ACM materials should include the following:
 - Identification of the system type (e.g. rainscreen cladding or external wall insulation) and build-up of each building.
 - Identification of both the cladding and insulation products used and their respective European Reaction to Fire classifications (Euroclass), along with the full Declaration of Performance for each product.
- The Government should conclusively identify the materials held in the 1,456 non-ACM samples submitted under the Building Safety Programme and provide information back to building owners on the product type and Euroclass rating.
- The Government should explicitly advise owners of buildings with HPL cladding and combustible insulation to remove those products, given the fact that such a system failed a BS 8414 test which the Government [became aware of in November 2018](#).
- The Government should extend the ban on combustible materials to all high-rise and high-risk buildings such as schools, hospitals and entertainment venues.

Identification and use of non-ACM materials

The simplest and fastest way to identify whether or not materials are safe is to identify their Euroclass rating. A-rated products do not burn, whilst B-F products are combustible.

Building owners have submitted a high volume of non-ACM material samples to the Building Safety Programme. The most recent Building Safety Programme Monthly Data Release from [May 2019](#) confirms that there are 1,456 non-ACM samples held, more than twice as many as the 720 ACM samples.

	Number
Total samples received by BRE	2179
Samples tested	720
Samples of non-ACM materials (untested)	1456
Samples from buildings under 18 meters (untested)	2
Samples returned to sender (untested)	1

On [10 July 2017](#), Helen Hayes MP, asked why the non-ACM samples had not been tested along with the ACM samples. The May 2019 release confirms that those samples remain untested.

In January 2019, the [Government confirmed](#) that of the 1,421 non-ACM samples it held at that time:

- 172 samples could contain High-Pressure Laminate cladding
- 231 samples could contain non-ACM metal composite material cladding
- 134 samples were combustible Expanded Polystyrene (EPS) insulation from an external wall insulation system

Nevertheless, neither the product type nor the Euroclass ratings of the samples have been confirmed and communicated to building owners.

The prevalence of non-ACM combustible façade systems underlines the need to ensure that all combustible materials are treated with equal rigour. For example, HPL cladding and timber cladding are very commonly used and both can have Euroclass ratings lower than combustible ACM products. In the case of HPL, it often provides more fuel per square metre than ACM cladding, as per the table below:

Product	Euroclass	PCS (calorific value) (MJ/m ²)	Thickness
HPL (standard)	D	256	8 mm
HPL (fire retardant)	B	216	8 mm
ACM with PE core	D	123	4 mm

We estimate that in 2016, approximately 300,000m² of HPL cladding was sold – around the same as sales of ACM. Similarly, with regards to the insulation which sits behind the cladding in rainscreen façade systems or is layered under render in External Wall Insulation systems, plastic foam products held a market share of approximately 90% prior to Grenfell. All plastic foam products are combustible and contribute to the spread of fire. Indeed, according to calculations done by Professor Angelo Lucchini of the Politecnico Milano, the combustible PIR and phenolic foam insulation on Grenfell Tower contained the fuel equivalent of almost 20,000 litres of petrol.

There are also documented cases in which non-ACM materials have contributed to fire spread in residential buildings: timber cladding drove the rapid spread of the fire in Barking in June of this year, and HPL panels contributed to the fatal fire at Lakanal House in 2009, with subsequent testing confirming that the panels [burned through in 4 ½ minutes](#).

Non-ACM testing programme

BS 8414 test on HPL cladding and stone wool insulation

In February 2019, [MHCLG confirmed](#) that it was “preparing to commission a BS 8414 test of a whole wall system which will include a High Pressure Laminate (HPL) panel.”

Since the ban on combustible materials which came into force on 21 December 2018, BS 8414 is no a legal route to compliance for high-rise façade systems. Indeed, the test has been heavily criticised by experts:

- The [Association of British Insurers \(ABI\)](#) has criticised the “utter inadequacy” of the BS 8414 testing regime.

- [Professor Jose Torero](#), an expert witness to the Grenfell Tower Inquiry, has [warned](#) that “many details can be hidden within the results of the test”. “Tests such as BS 8414 provide a single scenario deemed consistent with an external fire, a very limited number of measurements and a very simple failure criterion. The combination of these three characteristics does not provide a sufficiently comprehensive assessment of performance.”
- [Dr Barbara Lane](#), another expert witness to the Grenfell Tower Inquiry, has said “I don’t take anything from [BS 8414] tests because I don’t consider them to be relevant because they are so far away from the kind of construction detailing that people like me have to deal with in our profession.”

However, MHCLG has used the test to assess compliance for systems installed prior to the ban and the route remains open for buildings that fall outside of the scope of the ban (such as high-rise hotels and offices, and well as schools and hospitals below 18 metres in height).

In the summer of 2017, MHCLG commissioned seven tests on systems involving a variety of ACM cladding materials and a range of insulation products. Those tests used four horizontal fire barriers, twice as many as would be used on a real building. Moreover, as ROCKWOOL [stated at the time](#), “[...] the fire barriers were placed below the thermocouples. Configured this way, the fire barriers will protect the thermocouples from the flames and heat, which can delay the temperature increase readings. In short, putting the fire barriers below the thermocouples can influence the test results, making it easier for a given façade configuration to pass”. MHCLG has confirmed that the recently commissioned test of HPL cladding and stone wool insulation will use the [same set-up](#) as the tests conducted for DCLG in the summer of 2017.

Further to this, the system being tested uses a combination of products that are not commonly combined in façade systems – B-rated HPL cladding and A1 non-combustible insulation. [Inside Housing](#) has reported industry insight that the standard grade Euroclass D-rated version of HPL cladding is much more commonly used than the fire retardant Euroclass fire retardant B-rated version, whilst we estimate that combustible insulation has been installed on approximately 90% of high-rise buildings pre-June 2017.

MHCLG [has not committed](#) to conducting large-scale tests with HPL cladding and combustible insulation, but has acknowledged that it has been [aware since November 2018](#) of a BS 8414 test on such a system that failed. As yet, [no explicit advice](#) or instructions to building owners to remove that combination of products from buildings has been provided. If the HPL and stone wool test fails, [MHCLG’s current position is that it intends](#) to “consult the Independent Expert Advisory Panel urgently and consider appropriate action”.

Bespoke non-ACM testing programme

MHCLG has also commenced a bespoke non-ACM testing programme, which is looking at cladding panels in isolation from the insulation materials they are used with.

We have already [communicated to the committee](#) our concerns that the bespoke non-ACM testing, the methodology for which is set out in a BRE publication titled “Fire Performance of Cladding Materials Research – Experimental methodology and performance criteria”, has several shortcomings.

These include:

- An absence of pass/fail criteria
- No accounting for the role of combustible insulation in affecting the way cladding burns
- No measurement of smoke toxicity, despite its leading role in building fire fatalities

- No legal standing upon which to take action to remedy unsafe non-ACM cladding

As such, we are concerned that this test will neither provide any useful fire safety information nor accurately estimate the risks of non-ACM combustible cladding.

Our recommendation remains the use of the Euroclass system as the fastest and most reliable route to determining the safety of the materials used. All construction products placed on the market in the UK are required to have Euroclass certification, and it should therefore be possible to identify these classifications immediately without further testing. Using this harmonised European material classification system, which is also the basis for the new ban on combustible materials for certain buildings over 18m, would give a fast and legally recognised route to establishing the combustibility of non-ACM materials.

Extension of the Ban on Combustible Materials

The ban on combustible materials introduced last year explicitly excludes high-rise hotels and high-rise offices (despite the high office-to-residential conversion rates across UK cities). Indeed, the [Government Desktop Studies Impact Assessment](#) published in December 2018, concedes that desktop studies are still allowed on these buildings, as a route for the use of combustible materials.

We continue to strongly urge, as the committee has done, an extension of the band to include all high-rise and all high-risk buildings such as schools, hospitals and entertainment venues to protect public safety.