

## Briefing on bespoke test method for cladding materials

### Overview

MHCLG has confirmed that it has commissioned the testing of non-ACM cladding materials using a bespoke new test method set out in a BRE publication titled “Fire Performance of Cladding Materials Research – Experimental methodology and performance criteria”.

**This is not a Euroclass product classification, nor a large-scale test standard, but rather a new methodology that is unrecognised by standards authorities and regulators:**

- The UK already uses a harmonised European product classification system and defines combustible materials as those in Euroclass B through F. MHCLG is not proposing to use this system and the proposed test is not robust enough as a product test to match the technical accuracy of Euroclass tests in evaluating product safety.
- Similarly, the proposed methodology does not constitute a large-scale system test that could prove beyond legal challenge whether or not the BR 135/BS 8414 route to compliance applicable before December last year could be satisfied.

The test has several significant shortcomings, and further detailed below, including:

- No specific pass/fail criteria listed
- 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.

### What is the test?

- A cladding panel 2890mm tall and 2088mm wide will be placed against a non-combustible calcium silicate board
- A fire will then be started in a wooden crib placed next to the cladding panel
- The cladding panel will then be assessed on the following criteria:

Performance criterion	Means of measurement
Heat flux	Measured value (in kW/m <sup>2</sup> ) on centre line of crib 3m from ground level
Maximum temperature	Measured value (in °C) on centre line of crib 3m from ground level
Heat Release Rate (and peak Heat Release)	Measured value (in kW) from calorimetry
Surface spread of flame (vertical and horizontal)	Visual observation and measured temperature
Burning droplets and falling debris	Visual observation
Delamination	Visual observation
Burn through (loss of integrity)	Visual observation
Cavity temperature	Measured value (in °C) on centre line of sample

### ***What are the shortcomings of the test?***

Specific shortcomings in the alternative test methodology and parameters are as follows:

- **Testing cladding without insulation:** The stated intention of the tests is to investigate the burning behaviour of cladding products. This burning behaviour is however highly dependent on the substrate behind the cladding material (for example, bricks, non-combustible insulation or combustible insulation). Despite this, in the proposed test set-up, substrates will not be considered. This is contrary to the Euroclass testing system, where substrates are included in the “SBI” test, and the validity of the Euroclass rating achieved is dependent on the choice of substrate.
- **Absence of specified test duration and classification requirements:** The proposed test does not specify how long the tests last, or what the standards are for materials to pass or fail under each of the eight criteria by which the panels will be assessed.
- **Exclusion of smoke density and toxicity measurement:** The proposed test will not measure smoke toxicity, despite the fact that it has been documented by expert witnesses to the Grenfell Inquiry, that toxic smoke from the façade system had a significant impact on the occupants.
- **Clarification of legal status of the tests:** The proposed test does not appear to have legal status. It is therefore not clear if cladding materials that “fail” will have to be stripped from buildings, or subjected to further large-scale tests, or indeed what the position is of materials that “pass”.
- **Placement of the fire load:** The wood crib will be placed beside the test rig, and not directly below the panel. This will artificially protect the cavity behind the cladding from direct flame impingement. This does not correlate to real-life, where flames can impinge directly into the cavity, increasing the chimney effect.
- **Variation in wood fire load:** The use of a wooden crib, instead of gas burners, inherently leads to large variations in fuel load from test to test, reducing reproducibility and comparability.
- **No ability to test non-flat cladding products, ETICS and sandwich panels:** Cassettes made from flat cladding boards exhibit different burning characteristics to flat panels (as documented in expert witness reporting to the Grenfell Inquiry). It would not be possible to test this important variation in the proposed test set-up. Equally it is not possible to test systems like ETICS and sandwich panels, even though these systems are often commonly used on façades.
- **No corner configuration:** It is well documented that a corner configuration represents the worst-case condition in this type of construction. The proposed test set-up does not incorporate a corner, such as is used in the large-scale BS 8414 façade test, and thus underestimates the risk from a fire.
- **Joints need to be specified:** As the position and size of the joints in a cladding system can have a critical effect on the outcome of a test, their precise detailing must be included in any façade fire test protocols.

### ***Recommendation***

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.