The Building Envelope Authority

Advice Notes

31 AUGUST 2017

AN 02 ALUMINIUM COMPOSITE MATERAL FAÇADE SYSTEMS

NOTE:

This Advice Note incorporates the latest guidance following the completion of the BS 8414 Part 1 fire test programme and supersedes the Advice Note: Façade Systems Testing published on the 28th July 2017

The BS 8414 Part 1 fire test programme commissioned by the Department for Communities and Local Government (DCLG) in the wake of the Grenfell fire tragedy has now been completed and the final results of the seven Aluminium Composite Material (ACM) cladding panels with different insulation materials have now been reported.

The initial test programme conducted at the Building Research Establishment (BRE), involved testing ACM panels with three different core materials (unmodified polyethylene, fire retardant polyethylene and limited combustibility mineral core) in combination with polyisocyanurate (PIR) insulation and also the same three ACM core materials in combination with stone wool insulation. An additional test was commissioned by DCLG to test an ACM panel with a core filler of fire-retardant polyethylene in combination with an insulation material of rigid phenolic foam.

Table 1 provides details of the combination of materials and the test schedule. Copies of the test reports, advice for landlords and building owners and copies of announcements from DCLG can be downloaded from https://www.gov.uk/guidance/building-safety-programme

Table 1: Test schedule and report reference number

	Polyisocyanurate (PIR) insulation	Stone wool insulation	Phenolic foam insulation
ACM unmodified polyethylene (PE) core	DCLG test No 1	DCLG test No 2	Not tested in scheduled programme
ACM fire retardant polyethylene (FR) core	DCLG test No 3	DCLG test No 4	DCLG test No 7
ACM limited combustibility mineral	DCLG test No 5	DCLG test No 6	Not tested in scheduled programme

 This Advice Note published 31/08/17 supersedes the Advice Note published 28/07/17

(A2) core			

Table 2 provides details of the combination of materials and summarises the results contained in the published test reports.

Table 2: Test schedule and results summary

	Polyisocyanurate (PIR) insulation	Stone wool insulation	Phenolic foam insulation
ACM unmodified polyethylene (PE) core	Failed (DCLG test No 1)	Failed (DCLG test No 2)	Not tested in scheduled programme
ACM fire retardant polyethylene (FR) core	Failed (DCLG test No 3)	Compliant (DCLG test No 4)	Failed (DCLG test No 7)
ACM limited combustibility mineral (A2) core	Compliant (DCLG test No 5)	Compliant (DCLG test No 6)	Not tested in scheduled programme

Compliance indicates that the cladding system was tested in accordance with BS 8414-1 without any early termination of the test and can therefore be evaluated against the performance criterion of BR 135:2013. The combinations of materials identified in Table 2 as a failed classification are therefore deemed non-compliant with Building Regulations for the type of application.

It is recommended that those responsible for the safety of buildings with material combinations which are deemed non-compliant should seek immediate professional advice.

Below, MCRMA sets out its guidance relating to removal of the cladding/insulation and identifying a solution for the replacement of the façade. This should be considered in conjunction with information issued by the Government via the DCLG, regarding the overall safety of the building's occupants. It is important to recognise that there are known acceptable and reasonably straightforward solutions. The specific course of action however, will depend on several factors.

 This Advice Note published 31/08/17 supersedes the Advice Note published 28/07/17

1 Things to consider relating to removal of the cladding and/or insulation:

a) Use the services of a contractor directly experienced in façade installation.

b) The quickest and most cost-effective way to re-clad a building is to make identical panels out of a similar, suitable material. Care therefore, should be taken not to damage any removed panels. Original panels should be retained, identified and referenced to their original location and orientation on the building. In the case of face fixed, flat sheet façades, a simple measurement should suffice.

In more complex situations (for example, cassette panels) the panels may need to be returned to a manufacturer, to determine the relevant information required to make new panels. (In an ideal scenario, the original manufacturer may still have the CNC manufacturing computer code.) If buildings have been dismantled without retaining the original panels, then a survey will be required and a new façade detailed.

c) Depending on whether the building remains occupied, the condition of the substructure and the anticipated delay in replacing the façade, a decision should be made on installing temporary weatherproofing (and, if appropriate, new insulation) as the panels are removed.

d) The MCRMA does not recommend removing the ACM cladding in isolation, as this may increase fire risk and create a falling debris hazard.

e) Detailed advice, that may be dependent on the nature of the façade and the substructure, can be obtained from members of the MCRMA and other professionals. This would include for example, whether and for how long, the building is habitable while devoid of its cladding and insulation.

 This Advice Note published 31/08/17 supersedes the Advice Note published 28/07/17

2 In identifying a solution for the replacement of the façade:

a) The building foundations, load capacity and layout of the supporting structure are only likely to be capable of carrying cladding panels of similar mass and design. Therefore, a major departure from ACM for example, terracotta tiling or brick slips, is not likely to be a straightforward or cost-effective solution.

b) PIR insulation and phenolic insulation are not 'limited combustibility' and therefore would need a BS 8414 certificate for use in conjunction with any cladding material, to comply with Building Regulations (or a desktop study, which is likely to be based on a certificate).

At the date of publication of this Advice Note the only known BS 8414 compliant solutions and hence solutions which are compliant with Building Regulations are as follows:

i) A1 mineral fibre insulation with 'FR-type' material.

ii) A1 mineral fibre insulation with ACM limited combustibility mineral (A2) core (lead times and availability may contribute to delays in replacement).

iii) PIR (polyisocyanurate) insulation with ACM limited combustibility mineral (A2) core (lead times and availability may contribute to delays in replacement).

In addition, at the date of publication of this Advice Note there are a number of 'limited combustibility' metallic solutions which use A1 mineral fibre insulation in combination with solid metal such as aluminium, steel, zinc etc. (Care must be taken with this route to ensure compliance with Diagram 40 of Approved Document B, Vol 2, p 95).

The MCRMA would welcome details of any other products that are BS 8414 certified, and will add these to the list of known compliant materials.

 This Advice Note published 31/08/17 supersedes the Advice Note published 28/07/17

c) It must be noted that adequate vertical and horizontal fire stops should be included at appropriate locations within the construction and in line with specific design advice.

d) The MCRMA web site contains the details of members who can assist in the rectification of a building, including independent inspectors, professional advisors and manufacturers. Any MCRMA member would be happy to recommend a reliable installer to help remove and replace the façade. All members comply with the MCRMA charter and code of conduct, and all MCRMA manufacturers possess ISO 9001 quality accreditation.

NOTE:

This Advice Note incorporates the latest guidance following the completion of the BS 8414 Part 1 fire test programme and supersedes the Advice Note: Façade Systems Testing published on the 28th July 2017

USEFUL LINKS

https://www.gov.uk/guidance/building-safety-programme#independent-expert-advisory-panel

https://www.gov.uk/guidance/building-safety-programme

https://www.gov.uk/government/publications/fire-safety-approved-document-b

https://www.bre.co.uk/grenfelltower

DISCLAIMER

©2019 MCRMA - 106 Ruskin Avenue, Rogerstone, Newport, Gwent NP10 0BD
Tel: 01633 895633 info@mcrma.co.uk www.mcrma.co.uk

 This Advice Note published 31/08/17 supersedes the Advice Note published 28/07/17

 This Advice Note published 31/08/17 supersedes the Advice Note published 28/07/17