

Advice for building owners: Large-scale wall system test with ACM with a fire retardant polyethylene filler (category 2 in screening tests) with polyisocyanurate (PIR) foam insulation.

1. The government is undertaking large-scale testing of cladding systems to better understand how different types of Aluminium Composite Material (ACM) panels behave with different types of insulation in a fire. This note should be read alongside the government's [explanatory note on the large-scale wall systems testing](#), and sets out in more detail the results of the large-scale test for a wall system including:
 - ACM with a fire retardant polyethylene filler (category 2 in screening tests), and
 - Polyisocyanurate (PIR) foam insulation.
2. In all other respects, all tests are being specified and constructed according to the Building Regulations guidance – including fire stopping between floors and the required cavity barriers in place.
3. Two previous tests have been conducted, and the results and advice are available [here](#). Further tests over the coming weeks will provide more information about how other systems behave in a fire, and more advice is expected to be published over the course of this month as results from the testing become available. In addition, the government has asked the BRE and industry to publish the results of previous large-scale tests¹ on ACM and other cladding systems. This will help inform building owners' decisions about whether remediation work is required, and if so what materials could be used as replacements.

What do the test results say?

4. BRE have undertaken test BS8414-1 with a wall system with the above generic description. The detailed technical specification and results are available [here](#).
5. This wall system failed the test, which means it did not adequately resist the spread of fire over the wall to the standard required by the current Building Regulations guidance and which is set out in BR135. The Expert Panel's advice is that, based on the test result, they do not believe that this combination of ACM cladding with fire retardant polyethylene filler (category 2 in screening tests) and PIR foam insulation would meet current Building Regulations guidance. This specific combination of materials therefore presents a significant fire hazard on buildings over 18m.
6. It is important to note that there are many different variants of this cladding and insulation and it is possible that products from different manufacturers may behave differently in a fire. The composition of ACM panels with fire retardant

¹ Under BS8414

polyethylene filler can vary between manufacturers. The calorific value of the FR panels used in the test is set out in the test reports. Building owners should consult their screening results to check how their category 2 values compare with these. A higher value will indicate greater combustibility than the panel used in this test and vice versa. Equally, it is important to note that materials may have been fitted or maintained differently, which can affect the safety of the cladding system. Building owners should seek professional advice that looks at the specific circumstances of their building.

7. To further build the evidence base on the behaviour of foam insulation with these panels, the government has commissioned a 7th large-scale system test, testing ACM with a fire retardant polyethylene filler (category 2 in screening tests) with phenolic foam insulation. This test will be carried out immediately following the previously announced large-scale tests, and results and advice will be circulated in the same manner as for the other tests.

What do I need to do in light of these results?

8. Firstly, and while building owners are considering further actions they should take, based on the advice from the Expert Panel it is recommended that they ensure they have implemented the interim measures set out in DCLG's letter to Local Authorities and Housing Associations on 22 June 2017, and act on them immediately if they have not already done so, in particular to ensure the local Fire and Rescue Service has visited to complete a fire safety audit to assess mitigations. An email should be sent to nfccwmfshighrisecoordinationgroup@wmfs.net if a Fire Service visit is needed. The Expert Panel have reviewed and confirmed that the interim measures remain sound, and will help ensure safety of residents as any remediation work is planned and undertaken.
9. Secondly, building owners should take professional advice on what further steps to take with respect to their cladding system. This professional advice may be obtained from a qualified engineer with relevant experience in fire safety, including fire testing of building products and systems, such as a chartered engineer registered with the Engineering Council by the Institution of Fire Engineers. Professional assessment of system performance may be obtained from an assessor employed by a test laboratory accredited by the United Kingdom Accreditation Service to carry out BS8414 and classify results to BR135.
10. Based on advice from the Expert Panel, where building owners have the same materials on their building as those set out in paragraph 1, it is recommended that in conjunction with their own professional advice they should follow the steps set out below:
 - Take full professional advice on whether any remedial work is necessary to ensure the safety of their building. This may need to consider the combination of materials used in the cladding system, as well as whether the construction of their building meets the other provisions of Building

Regulations guidance including fire stopping between floors and the required cavity barriers in place.

- If any remedial work is undertaken building owners will need to take professional advice to ensure that work is undertaken safely (for example from an expert in cladding systems with relevant experience), and to ensure any replacement materials are safe.
- Assure themselves that remedial work also complies with Building Regulations guidance on how the system is designed and fitted – including provisions for fire breaks and cavity barriers.
- Ensure that when any work is carried out, including removing cladding, care is taken to consider the impact that removal may have on the other wall elements, and therefore on the overall structural and fire integrity of the building as well as other Building Regulation requirements. In particular care should be taken to ensure that insulation material is not exposed to the elements unnecessarily.

11. DCLG has published a circular letter to building control bodies which sets out the planning and building control requirements that will need to be considered.

What other advice or support is available?

12. Further advice will be provided as more information is received following other large-scale tests. This will add to the information available to building owners to help them take decisions about any remediation work necessary. All advice will be published on the Building Safety Programme [webpage](#), and anyone can sign up for weekly email updates.
13. Government and industry are working together to support the process of remedial work needed to ensure that buildings are safe. Further information will be provided on this via the website above.