



Report to Safer & Stronger Scrutiny and Policy Development Committee

26th November 2020

Report of: Janet Sharpe, Director of Housing.

Subject: Hanover Tower

Author of Report: Janet Sharpe, Director of Housing

Summary:

This report is the result of an investigation we carried out into why defective cladding was installed on the Hanover tower block in Broomhall.

The investigation was commissioned by the Council's Cabinet Member for Neighbourhoods and Community Safety after the Grenfell Tower fire tragedy.

We have taken steps to ensure the safety of all tower block residents, including launching this investigation into how one of the city's Council-owned tower blocks was clad in material that did not pass a fire safety test.

Type of item: The report author should tick the appropriate box

Reviewing of existing policy	
Informing the development of new policy	
Statutory consultation	
Performance / budget monitoring report	
Cabinet request for scrutiny	
Full Council request for scrutiny	
Call-in of Cabinet decision	
Briefing paper for the Scrutiny Committee	x
Other	

The Scrutiny Committee is being asked to:

Note the report for information.

Background Papers.

Category of Report: OPEN (please specify)

Hanover Tower

1. Introduction/Context

1.1 This report is the result of an investigation we carried out into why defective cladding was installed on the Hanover tower block in Broomhall.

The investigation was commissioned by the Council's Cabinet Member for Neighbourhoods and Community Safety after the Grenfell Tower fire tragedy.

We have taken steps to ensure the safety of all tower block residents, including launching this investigation into how one of the city's Council-owned tower blocks was clad in material that did not pass a fire safety test.

1.2 What was investigated

A 3 year investigation was carried out which included gathering many documents and interviewing a number of relevant people. It looked at:

- why the cladding on Hanover was different to all other tower blocks in the City
- who authorised the installation of the ACM known as Alucobond PE
- what steps were taken to ensure the fire safety of the materials in the cladding system
- why the Council's Building Control did not undertake inspections of the cladding material when it was put on

2. Our response

We have treated residents and their safety as our highest priority during this period. We have shared the report with them before sharing it publicly.

We acted swiftly to remove the cladding as soon as we were aware and replace it with cladding that meets the new fire safety requirements.

3. Our investigation

The investigation report and appendices, are attached to this report.

4. Recommendation

4.1 The Committee is being asked to note the content of this report

Hanover Tower Block

Investigation into the installation of defective external cladding

1. Introduction

The Tower Block fire at Grenfell in London was by any standards a tragedy and by far the worst incident in recent times affecting a Local Authority owned property. The cladding of Grenfell Tower quickly became a focus of attention and that led to focus on other types of cladding on high rise housing.

1.1 The Governments response to the Grenfell Tragedy

On 18th June 2017 Government issued instructions to local authorities to submit samples of cladding they believed to be a composite material from their publicly owned tower blocks to the British Research Establishment (BRE) for screening.

Subsequently on 6th July 2017 the Government advised local authorities that it intended to undertake six tests of different combinations of insulation and cladding wall systems that are found on tower blocks.

These tests were specified and constructed according to the Building Regulations guidance at that time. The tests were overseen by an expert panel and were to provide data to determine whether or not the wall system has passed the requirements the section of the building regulations that covers the fire performance of external thermal insulation in multi storey dwellings.

On 5th September 2017 the government published consolidated advice on the large scale testing of cladding systems. The expert panels advice following these tests in accordance with that consolidated advice was that an aluminium composite material (ACM) with an unmodified polyethylene (category 3 filler) with any type of insulation failed the test for parts of a building over 18m where the nearest building is over 1m away.

1.2 The Council's Actions post Grenfell

After the Grenfell disaster the Council took steps to determine the type of cladding on all of its tower blocks. The Council issued a letter on the 16 June 2017 to say that all blocks were safe

On the 20th June 2017 the Council received product confirmation from Alumet in relation to all the tower blocks they had been involved with. This stated;

Hanover Job Ref 1720

Hanover Block is clad in 4mm ACM by Alucobond standard grade Class O with Rockwool or Mineral Wool Insulation and Lamatherm firestops all as specified and installed in accordance with Building Regulations.

The Council relied on this information when it gave a further statement on the 20th June saying all blocks were clad with a safe material. This statement was made before the Government published it's advice in September 2017 that an aluminium composite material (ACM) with an unmodified polyethylene (category 3 filler) with any type of insulation failed the test for parts of a building over 18m.

Further on 22nd June 2017 the Council was contacted by a PR officer acting on behalf of Lovell. They provided a draft press release which they proposed to issue in response to a question from Sky News. The draft stated;

The cladding used on Hanover Tower is 4mm thick Alucobond with Rock Mineral Wool (Knauf Insulation) with horizontal firestops installed at each floor and vertically at party walls.

As soon as the Council became aware that a composite material was installed on Hanover a sample of the material was taken on 23rd June 2017 and sent to a government testing laboratory to be tested in line with the government testing regime. The cladding sample test result received verbally on the 25th June and in writing on the 28th June 2017 confirmed Hanover's cladding as an aluminium composite material with an unmodified polyethylene and classed as a category 3 material with no flame retardant properties.

Residents were informed at meetings held at Hanover on 26th June 2017 and this also gave an opportunity to answer any questions on fire safety. Representatives from the Council and South Yorkshire Fire and Rescue Service attended to answer any concerns tenants and residents had and follow up meetings arranged when requested.

The Council started to remove the cladding on Hanover by end June 2017 and by October 2017 all the cladding was removed and new solid aluminium cladding on Hanover tower block and new mineral wall insulation was installed by end November 2019.

2. Terms of Reference for the Investigation

2.1 Scope of Investigation

Following the test results, the then Cabinet Member for Housing and Community Safety requested an investigation into the circumstances behind the installation of the cladding installation.

The investigation aimed to answer 4 key questions in relation to the cladding that was installed on Hanover Tower Block during the Decent Homes refurbishment:

1. Why was the cladding on Hanover different to all the other tower blocks in the City?
2. Who authorised the installation of the ACM known as Alucobond PE?
3. What steps were taken to ensure the fire safety of the materials that comprised the cladding system?
4. Why did the Council's Building Control not undertake inspections of the cladding material when it was put on?

In answering those key questions this report will also provide insight into:

- The background to the Decent Homes project which led to the external cladding being replaced on Hanover Tower
- The suitability of Alucobond PE as an external cladding material for Hanover Tower Block
- The Council's decision on whether it is to take legal action against other parties.

2.2 Matters not in scope of the Investigation

It was determined that the investigation should focus on the circumstances surrounding the installation of the external cladding to Hanover Tower, therefore the following matters were considered outside scope of investigation;

- Conclusions or issues that may arise from the Public Inquiry into Grenfell. The final report is still awaited and this may make some recommendations that we need to consider in future.
- Any emerging fire safety issues that may arise from the Dame Judith Hackitt review of Building Regulations and Fire Safety
- The installation of fire doors and internal cladding at Hanover Tower.
- The remediation actions of the Council following the discovery that the cladding at Hanover Tower was Alucobond PE

3. Timeline for publishing the report

The collating of information, examining records and speaking to those believed to hold information commenced in earnest in early autumn 2017. The period to gather the initial information took until March 2018, this identified gaps in the story of the cladding project and it was necessary to make further enquiries and ensure no information had been overlooked and to cross check information that had been obtained from different sources to enable a chronology to be prepared. Internal services within the Council and Lovell were contacted in the period March 2018 to January 2019.

The Council decided that an external assessment of the material collected was necessary to consider if there were any grounds for taking legal action against any party. External solicitors were appointed in February 2019.

This work has been ongoing since and only concluded in February 2020. During that time in order to preserve the Council's legal position in relation to any potential claims against third parties, this report could not be published. The draft report was

updated during that period to take account of developing information. Consideration was given to publishing an interim report early in 2020 but it was decided to conclude the legal investigations and publish a final report. Further information was received from Lovell on the 4th and 18th March 2020 that needed to be considered. Considering this material and finalising the report would have completed earlier but was been delayed due to our response to Covid-19

4. Background

The following background information explains the history of works to improve the Council owned tower blocks in Sheffield and the history of the cladding works both before and after the Grenfell Tower tragedy. These are not matters which are the subject of the investigation but which provide essential background to understand the focus and the findings in this report.

4.1 The Council's Tower Block Estate

The Council manages 24 residential tower blocks in the city. Four blocks are 15 storeys high; the remainder are 12 storeys high. Within the tower block estate there are 1345 flats, 15 of which are leasehold. There are 945 one bedroomed and the remaining are two bedroomed flats.

4.2 Over-cladding of Tower Blocks in the City

Sheffield's 24 Council managed tower blocks have been over-clad to

- provide improved living conditions for residents.
- protect the buildings
- reduce any deterioration of the external structure, and
- extend the future life of these blocks for another 30 years without the need for significant investment.

This over-cladding design approach followed detailed feasibility work by the Council in the 1990's prior to the first tower block being over-clad in 1992.

The three Stannington Tower Blocks have a brick cladding system. This work was completed in 1992.

The remaining twenty one blocks have a metal rain-screen cladding system which although externally different across estates is very similar in how it has been installed.

Eleven of these blocks were clad between 1991 and 1998 as part of a Single Regeneration Budget scheme. The remaining ten were clad under the Decent Homes Scheme between 2009 and 2012.

4.3 Contracting for the Decent Homes Work

In 2004 only 23% of the 49,000 homes owned by the Council met the government decent homes standard and so the programme of works was the largest ever programme of work that Sheffield had embarked on. At the height of the programme over 8,000 homes had works undertaken in one year.

The key elements of work for homes to meet the standard were:

- Repairing building components that were old and in poor condition e.g. windows
- Providing modern facilities and services e.g. new kitchens and bathrooms
- Providing thermal comfort e.g. heating and insulation

In 2003/4 the Council procured a Strategic Partnering contract with 5 construction companies, one of which was Lovell to deliver works to the Council's housing stock to meet the government target to bring all homes up to the Decent Homes Standard. The contract with Lovell was a Design and Build contract.

The specialist cladding works to high rise dwellings was developed later in the programme following appraisals of the high-rise stock to ensure that tower blocks were sustainable and the proposed works had a 30 year life for the buildings. At this stage Lovell appointed Alumet as it's sub-contractor in relation to cladding design and separately to install the cladding on all the ten decent homes tower block projects.

All tower blocks were externally clad with fire break measures located behind the cladding. The fire breaks give one hour protection from smoke and fire.

All the Council owned tower blocks in Sheffield including Hanover had mineral wool insulation behind their cladding. This is a different material to the rigid poly-isocyanate foam core that was found at Grenfell. Mineral wool is non-combustible.

4.4 Wider Investment Programme

Since 2006 significant investment has taken place to all 24 blocks in terms of improving the blocks and with significant funding of measures that minimise fire risk. This work has been commended by the South Yorkshire Fire and Rescue Service (SYFRS) – see Appendix 1

In addition to the main Decent Homes Programme fire safety works to the risers to stop fire spreading between properties & floors have been also been undertaken. Hard wired smoke alarms are also fitted.

During the period 2014 to 2017/18 there were 8 recorded fires on the Council's tower blocks, 4 were arson related and 4 were accidental. Two accidental fires occurred on Hanover tower block in this period and were contained by the fire safety measures.

5. Hanover Tower Block

Hanover estate is a diverse ethnic community located close to the city centre on the ring road. The tower block includes 89 two bedroomed flats and 29 one bedroomed flats of which 6 have been sold under the right to buy legislation and have leasehold tenants.

Hanover was significantly different in design to the other 9 blocks completed under the Decent Homes Programme in that;

- it is a 15 storey twin tower block, the others were 12 storey single towers
- it had a single staircase, the others have 2 staircases
- the external profile was more complex than the other 9 blocks as it is not a flat square profile, it has angles in excess of 90 degrees especially around the windows. It was a planning requirement for the work to this block that the profile be retained.

6. How was the investigation conducted, what information was obtained

6.1 The Investigation

The investigation was led by Jill Hurst, Head of Housing Investment and Maintenance. The methodology adopted was to;

- review written documents held by the council both paper and electronic material held in files, council archives and systems
- obtain documents from external third parties
- interview officers involved in the project that are still employed by the Council, and
- approach the main contractor, Lovell .

6.2 What information was located?

The information that was located from Council files and electronic sources as part of this investigation is summarised below:

- Hanover Tower Block Scope of Work
- Full set of Design Team Minutes produced by the Council
- Emails/ letters and memorandum from the Architect assigned to the project
- National Building Specification document which defines the materials and performance for the project
- Emails to and from council officers and Lovell and Alumet regarding the project
- Building Controls file relating to the Hanover application, conditional approval and correspondence and also archive information relating to the other 23 tower blocks
- Cladding drawings
- Planning Permission decision report and letter. Planning application ref 09/03596
- Structural calculations

- Emails obtained through pre- disclosure from Lovell to the Council and third parties
- Information provided by third parties drawings of the cladding

Interviews with officers still employed by the Council have helped to clarify the queries with the documentation found.

Further information was received from Lovell that comprised emails between Lovell, the Council, Alumet and McMullen together with some drawings and quotations.

What is clear is that not all the contemporaneous documentation relating to the build project was held or retained by the Council. It is not possible to say with certainty what is missing.

7.0 Findings

7.1 Building Control Information

The building regulation application, included the drawings submitted by the Council in April 2010 and included references to Alumet. It is known that officers from the Council had visited cladding schemes in Birmingham prior to work commencing in Sheffield and Alumet had been the cladding specialist in Birmingham.

Examination of the drawings submitted 17th February 2010 specifically drawing numbers AL(0) 16, 17,18, 24 and 28 which were issued by the Council's design team show in multiple places that the external cladding was to be detailed by cladding specialist Alumet. There are no references on the drawings submitted at this time to the cladding being aluminium or an aluminium composite material. The drawings merely state the cladding was to be designed by a cladding specialist. There are no references at all to aluminium as part of the cladding system except as a constituent part of the windows proposed.

Building Control officers have confirmed that as part of their assessment they consulted with South Yorkshire Fire and Rescue Services (SYFRS) on the application submitted for Hanover and shared the drawings that had been attached to the application. It is the responsibility of the local authority to approve the

materials to be used taking into account any representations it receives from relevant consultees e.g. Fire Service.

The Building Control information examined includes a letter giving Conditional Approval of Plans, Building Control Application reference number 10/00954/OTH, in respect of Hanover Block, 101-349 Exeter Drive, Sheffield, this is dated 21 May 2010.

This describes the proposed works as “Overcladding/new windows/balcony enclosures/new roof covering. Internal refurbishment of bathrooms and kitchens and upgrading of common areas.”

The Conditional Approval was issued by Building Control to the Council’s Design and Project Management team subject to conditions only one of which, condition 1, relates to the cladding. Condition 1 requires “details and calculations for cladding design and stability” to be deposited with the Council as the relevant planning authority.

The purpose of that condition is to enable Building Control to check and have assurance that the cladding has been designed to achieve the necessary structural integrity. In the letter confirming Conditional Approval there is a preamble to the conditions which make reference to the “loadings, strength and stiffness”

Interviews conducted as part of this investigation with Building Control officers have indicated that the reasons why no other conditions were made regarding the cladding, apart from condition 1 above, was because :-

- It was known that the cladding system was to be designed by specialist cladding designers, Alumet.
- The planning application (see below) submitted prior to the Building Regulation approval had indicated the proposal was for aluminium cladding panels.
- Hanover was the last tower block refurbishment to be carried out under the Decent Homes Schemes and it may have been assumed at that time that the

Hanover scheme would follow the same principles of design and materials that had previously gone before.

Conditional approval was complied with when the Council's Design and Project Management team submitted drawings showing the structural calculations. A desk top structural assessment was carried out and approved by Building Control structural engineers on 25th August 2010 . The structural calculation sheets make no reference to ACM or Alucobond.

Interviews with officers in Building Control indicate that at no point during the construction period were they approached to discuss the cladding material. As the cladding material was not specified at the Building Regulation application stage there was no requirement to notify that the cladding material was Alucobond PE.

Records of site inspections conducted by Building Control officers whilst building work was being undertaken were examined but they did not provide any information relating to the cladding material installed.

7.2 Planning Information

The role of Planning Officers is to make an assessment of a proposal/development and normally the key considerations are:

- Land Use Policy - Is the development acceptable in this location?
- Design – Is the proposal of an appropriate scale, massing and appearance?
- Amenities – Will the proposal cause any dis-amenity to occupiers of neighbouring properties, or the application property, for example, will it create unacceptable levels of overlooking, unacceptable noise or air pollution etc?
- Highways – Will the proposal cause any highway safety issues?
- Other issues can include affordable housing, education, archaeology, landscape, etc.

In November 2009 the Council's Design Team prepared a supporting submission to accompany the Full Planning Application for Hanover Tower block ref 09/03596.

Page 2 of the report indicates "Externally the block is to be clad in aluminium panels and improved insulation...Early discussions with Planning Officers agreed that the

aesthetic should continue to express the horizontal character of the spandrels and the verticality of the central tower”.

The information in the Hanover planning application does not provide any information to indicate that Planning Officers asked for a different cladding material on Hanover.

The date of application for planning permission on Hanover Tower was 16th November 2009. This was validated on 1st December 2009 and a decision issued by the Highways and Planning Committee 26th January 2010.

The Planning Officers report of 18th January 2010, states that “this application proposes the refurbishment of Hanover Tower block which would be overclad with colour coated aluminium panels with insulation behind it”. It describes the objections and letter of support for the refurbishment. This report refers to “external treatment would be clad in aluminium panels including improved insulation”.

It was a condition of the grant of Planning Permission that prior to works commencing that large scale details including materials and finishes shall be approved in writing by the local planning authority for the windows and external wall construction. The file notes however indicate that the Highways and Planning Committee did ask that a fire risk assessment be carried out. On 29th January 2010 confirmation was given that this had been undertaken and a copy was provided.

An email from the Architect to Planning Officers dated 26th February 2010 makes reference to the colour samples of Alucobond and a further email from the Architect to Alumet dated 12th March 2010 refers to a site visit with the Planning Officers to view Alucobond panel samples on site. The emails do not specify the particular type of Alucobond. It is now known there were different types of cladding that used the brand name Alucobond.

From interviews with the Council’s design team it was noted that the external profile was more complex than the other 9 blocks that were clad by Lovell. Hanover block is not a flat square profile, it has angles in excess of 90 degrees especially around the windows. It was believed to be a planning requirement that the profile be retained as indicated in the supporting submission.

7.3 Design Team and Project Records

There are also number of contract administrator's instructions and emails issued by the Council's Design team to Planning and Alumet that make reference to Alucobond. There are 3 such documents over the period February 2010 to March 2010 that predate the application for Building Regulations approval. The focus of these communications is the colour of the Alucobond.

Officers in the Council's Design team have advised that the specification for the cladding was to be provided by Alumet, Lovell's cladding sub contractor. This information was to be included in the specification for Hanover.

A copy of the Hanover specification issued under the contract was located. This was dated 29th July 2010. Section H92 of this document relates to rain screen cladding and makes reference to Alucobond, but it does not specify a particular product type.

Between June 2010 and August 2010 there is further information that indicates the colour of Alucobond panels is being considered by Alumet and the Council's Design staff. This is repeated in file records over the period January 2011 to November 2011.

The investigation obtained a full set of the Council's Design team minutes. The contents of these minutes indicate that separate meetings were to take place to discuss the external cladding. It is known that an External Cladding meeting involving the Council, Lovell and Alumet to discuss the cladding took place on 17th January 2011. The minutes of the design team meeting 2nd February 2011 indicate that a further meeting of that group was to take place on site but no notes of that meeting have been located and it is unclear who attended the meeting.

A drawing from Alumet, number 1720-D-103 dated April 2011 identified the fitting of a composite panel and had a reference to Alucobond. This drawing was produced post building regulations approval and has the title "As Built".

7.4 Information from Lovell

Lovell have provided a number of emails relating to the period April 2010 to October 2010 when the cost of the project was being priced by Lovell's external costing consultants. These reveal correspondence and drawings with the Council where Alucobond colours are referenced but do not mention the type of Alucobond material.

There is correspondence that deals with the choice of Alucobond. An email of the 12th April 2010 from Lovell to McMullen (a company engaged by Lovell to provide costings for the works) asks for a *'like for like cost (with Alucobond panels and Nordan windows), and a costing for using similar products'*.

A further email from Lovell to McMullen on 12th May 2010 in response to a question about preferred cladding *'so as not to impede planning'* states *'The preferred system is Alucobond and we would require a price based on this system. However, if you could suggest a comparative product with cost savings then this would be appreciated.'*

The Council was not a party to those exchanges.

There is further correspondence between the Council and Lovell regarding costs that starts on 15th July 2010 and ends 2nd August 2010. This references the need to market test the cladding but there is no reference to the type of cladding.

An email from Lovell to McMullen dated 2nd September 2010 refers to budget issues and looks at areas for savings. This email states that in relation to savings they *'don't think there is a lot of scope in the cladding system (unless you know otherwise) so ..the main area is the windows.'*

The response to this suggests looking at '3mm aluminium rainscreen in lieu of 4mm Acn' as a potential saving along with other options for windows and insulation.

Finally, in an email of 8th September 2010 from Alumet to Lovell responding to a request if reducing the thickness of aluminium would make a cost saving, Alumet state;

In order to maintain flatness using solid aluminium, a 3mm sheet is necessary (as on Callow and Leverton). The sheet thickness could be reduced to 2mm and this would have been less expensive on the Callow/Leverton projects but with panel sizes required on those facades, the flatness would have been a major issue and the potential for 'oil canning' would have increased and the finish would not have been acceptable to us or you and this is why we used 3mm aluminium on those projects.

On Hanover however, we offered a more economic ACM product (Alucobond/Reynobond etc) because it suited the application better and has strength, flatness, weight and price advantages

This ACM product is an aluminium composite with 2 thin sheets 0.5mm on each side of a plastic core. The resultant composite panel is strong, flat and lightweight and is the ideal product for this application.

See attached link for technical detail.

<http://www.alucobond.com/alucobond-product-properties.html>

Essentially therefore as you can see, we cannot reduce the thickness nor therefore value engineer the price.

7.4 What information was not located?

Whilst it is not possible to say with any certainty what specific information is missing the findings indicate that not all the contemporaneous information was held or retained by the Council but for completeness it is important to state what information was not located even though enquiries were made by the Investigating officers.

- Electronic records of staff who worked on the project but no longer work for the Council were not recoverable.
- Project management information held on a web based system relating to the decent homes programme was deleted in 2015.

7.5 Building Regulations and ACM Cladding

The Council commissioned Bart Kavanagh of Probyn Myers to provide a report on the relevant building regulations and whether the Alucobond PE was in compliance with the relevant regulations. He was also asked to consider the approach taken by

the industry at the time to ACM cladding and building regulations. His report is at appendix 2 to this report but his main conclusions are;

- Cladding consisting of ACM with an unmodified core and Rockwool insulation **does** meet the Building Regulation requirements for those parts of a building **up to** 18 metres in height, even where the total height of the building exceeds 18 metres.
- Cladding consisting of ACM with an unmodified core and Rockwool insulation **does not** meet the Building Regulation requirements for those parts of a building over 18 metres in height.
- Prior to 2017 and the Government making it clear that it considers that the provisions were intended to apply to the core material of ACM, a large proportion of the architectural profession would not have considered the core material of ACM to fall within the category of materials to which the provisions applied.
- A designer proposing the use of a system comprising ACM and mineral wool may not be held to have fallen below the standard to be expected of a reasonable architect acting with reasonable skill and care

8.0 Case for Litigation

The Council instructed external legal advisors in February to assist with considering whether there was case for the Council to take legal action against any party involved in the design and construction of the cladding on Hanover. Through these external advisors it engaged the services of Bart Kavanagh (expert in architecture/design) and David Pleinar (barrister with expertise in building contracts). The findings of Bart Kavanagh are outlined above and have informed this section.

The external advisors also assisted in seeking further documentation from Lovell and this was successful in further information being sent to the Council.

The view has been reached that the Council does not have sufficient information to establish a claim against Lovell, as the Council's contractor with responsibility for the

installation of the cladding or their sub-contractor, Alumet, which advised on the cladding. Any claim would only be for that proportion of the cladding above 18 metres as the cladding below complied with building regulations.

The Council has no contractual relationship with Alumet (and no contractual warranties) so has no contractual claim against Alumet. The expert report of Bart Kavanagh suggest that although the cladding did not comply with building regulations for the parts of the building above 18 metres, a designer proposing the use of a system comprising ACM and mineral wool may not be held to have fallen below the standard to be expected of a reasonable architect acting with reasonable skill and care and therefore there is no basis for a claim in negligence.

To succeed in a claim against Lovell, the Council would need to establish that they were under a contractual obligation to comply with Building Regulations and that obligation was one of strict liability. Counsel has advised that it is difficult to establish a breach by a party on a strict liability basis and courts are generally reticent to accept such an argument without the wording of the obligation being clear that this was the intention of the parties. Although the contract has an obligation to meet Building Regulation, from the documentation available the obligation is not clear whether it is one of strict liability or otherwise.

Lovell could justifiably argue that the requirement was to take reasonable care and skill in meeting that obligation and as stated above there is no sufficient evidence that such an obligation was breached by their subcontractor Alumet and/or Lovells failed to exercise reasonable care and skill in selecting Alumet as a “competent” subcontractor.

There is a lack of clarity about the Council’s role in the project design and in particular in the decision making that led to the selection of the Alucobond. This is in part due to the lack of full contemporaneous documentation. Counsel’s view is that if the Council’s architects specified the Alucobond but in reliance on the professional advice of the contractors that would not absolve the contractors of liability. However, given the lack of contemporaneous documents the exact involvement of the

Council's architects remains unknown as is the extent to which they may have relied upon any professional advice from Lovell and/or Alumet.

8.1 Reason for Proceedings

The usual basis for a claim against another party in negligence or breach of contract is to recover financial losses incurred as a result of the breach. In this case the primary loss has been the expense of recladding Hanover Tower. The Council has been reimbursed this sum via Homes England from government funding set aside for cladding replacement post Grenfell. Counsel has also advised that as the cladding met Building Regulations below 18m any damages would only be in relation to the cladding above that height.

As part of the process for receiving that funding the Council confirmed to Homes England that there was no legal claim against Lovell. That confirmation was given in early 2019 but as a matter of completeness Homes England have been informed of the subsequent investigations and the Council findings that there was no basis on which to base a claim. On the 23rd January 2020 Homes England wrote to the Council and confirmed;

[We] are content that the Council has taken all reasonable steps to assess the prospect of recovering costs through pursuing legal action and is content with its proposal to cease pursuing recovery. I can confirm that the Council's proposal will have no impact on the payment of the remaining funding to the Council for the remediation of Hanover Tower.

Therefore, the Council has not suffered any financial loss on which to base a claim for damages. Whilst, it is possible for a claim to be made asking a court to make a declaration of negligence or breach only, those claims are rare and are a matter of discretion for the court.

The Council is therefore not taking legal proceedings against any party on the basis that;

- On the current advice a claim for negligence against Lovell or Alumet is not arguable.
- A claim against Lovell for breach of contract could only be based on an argument that the contract required a strict duty to meet Building Regulations rather than an obligation to exercise reasonable skill and care
- Lovell would have good arguments in relation to having taken reasonable skill and care.
- The Council has not borne the direct financial loss that might be the basis of a claim for damages.
- Any claim would be for the cladding above 18m only not the full replacement.
- Homes England has confirmed that the Council has taken all reasonable steps to consider the liability of other parties.
- Whilst there might be a public interest in potentially pursuing a declaration that there was a breach, for the reasons above that is not a certain case and may not be permitted by the court. The benefit of that has to be set against the fiduciary duty to Council Tax payers and the likely risk of adverse costs orders and use of Council resources.

9.0 Conclusions from Findings.

From these findings we can conclude the following in respect of the key questions posed by the Cabinet Member for Housing and Community Safety.

9.1 Why was the cladding on Hanover different to all the other tower blocks in the City?

Hanover is the only twin tower block that Lovell were contracted to improve as part of the Decent Homes programme previous blocks of this style were demolished at Norfolk Park. The block has a unique profile which records indicate Planners were keen to retain.

The only information that has been located to indicate that the choice of cladding material at Hanover was impacted by the requirement to retain the profile or the technical demands the design posed are the references in the emails provided by Lovell. Whilst this strongly suggests the Alucobond was chosen for technical reasons it is not determinative. What this does show is that it had been chosen as

the preferred material before cost savings on the scheme were sought and that its cost benefits were incidental to its choice, not the reason for it.

9.2 Who authorised the installation of the ACM known as Alucobond PE?

The archive information and other written records are absent of information regarding the specific decision to use Alucobond,

It is evident that Alucobond was being referenced in correspondence between the Council and Lovell and Alumet as a cladding material as early as February 2010 but this was only in relation to colours to be used.

As indicated above in addition to the design team meetings other meetings were held about cladding but it is not clear, how many meetings there were, whether minutes were taken or who attended these meetings and if this was the forum where a change to the cladding may have been discussed and approved.

From an interview with an officer in the Council's Design team it is known that the Council made changes to the insulation material from Kingspan to mineral wool and Knauf insulation but they were unable to provide any information on the decision to use Alucobond PE.

Alucobond is specifically stated on the drawings made by Alumet in December 2011 and a Council letter in December 2011 specifically refers to the "acceptance" of the drawings (plus others) for "construction/production purposes" but caveats by saying that "acceptance" does not relieve Lovell of their design responsibilities.

The instructions issued by the Project Manager do not exist so it is not possible to trace whether they approved the material. However, it is evident from the design team minutes that during 2009 and 2010 Lovell had appointed Alumet as it's sub-contractor for cladding design, and that this design would have been relied upon by the Project Manager with the support of the Architect.

9.3 What steps were taken to ensure the fire safety of the new materials that comprised the cladding system?

As indicated above there is a lack of specific information to confirm who approved the use of the cladding material Alucobond PE so this constrains obtaining a direct answer to this key question.

In line with the Regulatory Reform (Fire Safety) Order 2005 a fire strategy was developed and SYFRS were consulted on the building regulation application.

The design team minutes from February 2010 and a number of emails indicate that an aluminium composite material and Alucobond was reported as being used on the Hanover project. The minutes or emails do not highlight any enquiries having been made regarding the fire safety of Alucobond.

The investigation has found no information to illustrate what steps were taken to check safety. The incompleteness of the Councils records to help answer this question is a major reason why Lovell were approached to share the information they hold on the project, however, this did not yield any additional information.

However, it is clear that in their response to the Council in 2017 Alumet regarded the cladding as meeting the requirements of Building Regulations.

9.4 Why did Building Control not undertake inspections of the cladding material when it was put on?

The files provided by Building Control do indicate that officers made their own file notes of their visits to site. Sixteen site visits are recorded and further enquiries with Building Control have clarified the observations and checks that were undertaken on these visits. This has indicated:

- There is no reference on any of these site visits to any inspection of the material used in the cladding. This is not surprising as the material to be used was not made the subject of a condition in the approval.
- There are a number of references to “cladding” in the site visits stated below but these were to do with the structural integrity of the cladding
- Officers who carried out those inspections have confirmed that these inspections would have been carried out at ground level and from the inside of

the building and they do not recall having seen the cladding panels “side on” and they did not view the cladding from the mast climbers.

10. Summary

From the information provided in the report above, it is possible to draw some conclusions about the installation of the cladding at Hanover Tower in 2011/12 in line with the key lines of enquiry requested by the Cabinet Member and the additional information provided by external experts. The key conclusions are:

- The Council carried out extensive fire stopping work to all its high rise blocks including Hanover, with fire break measures located behind the cladding.
- The fire breaks give one hour protection from smoke and fire. This confidence is illustrated by photographs taken of Hanover as the cladding was being removed showing that the fire breaks were in place.

The Council also took action after the Lakanal House tragedy and all ventilation passageways and compartmentation was carried out thus creating floors and walls around flats. This action ensures any fire would be contained in a single flat and not spread to adjacent flats or upper and lower floors. The Council was commended by SYFRS for taking such action.

It should be noted that this report is not an investigation into the actions of the Council before or after the Grenfell tragedy, but is useful in providing important background information to aid in rebuilding any loss of confidence of the Council as landlord and that it cares deeply about the safety of its residents. The Council responded to that tragedy effectively and quickly by removing the defective cladding. The Council engaged tenants and residents in that process and put interim safety measures in place.

The Council has placed huge value and respect on the involvement of tenants and residents in the replacement cladding and fire safety work that have now been replaced at Hanover.

Appendix 1

Letter from South Yorkshire Fire and Rescue Service to Sheffield Homes March 2012

1 page

Appendix 2

Report of Bart Kavanagh of Probyn Myers August 2020

15 Pages

James Courtney
Chief Fire Officer & Chief Executive

Date: 23.03.12

Your Ref:

Our Ref: EM2303FSCS

Technical Fire Safety
Central Support
197 Eyre Street
Sheffield
S13 9QA

This matter is being dealt with by: Station Manager A. Cloke

Tel Direct line: 0114 2532471

Fax Direct line:

Email: acloke@syfire.gov.uk

Website: www.syfire.gov.uk

Tel: 0114 2727202

Fax: 0114 2532888

Gary Lund RMaPS, TechIOSH
Sheffield Homes
Health Safety and Facilities Manager
Kier Depot
Main Office Block 2nd Floor
Manor Lane S2 1 TR

Dear Gary

RE: Sheffield Homes Fire Safety Standards Improvement Project

The last few years have proved hugely challenging for Sheffield homes following the incident at Lakanal House, Camberwell in 2009, and the emerging issues as a result of the re-examination of building standards in the social housing sector.

Following the schedule of inspections carried by our officers at the Sheffield District Fire Safety Office, it was clear that Sheffield Homes had to make a substantial commitment both from a logistical and financial perspective to overcome the issues identified during the premises audits.

It is therefore very pleasing to note that the majority of the buildings surveyed in the initial stages can now be regarded as broadly compliant and it is clear that Sheffield Homes continue to show the level of commitment required to overcoming the remaining issues throughout their housing stock.

In my capacity as the Chief Fire Officer Association technical fire safety lead on the social housing and high rise flats working group, our experiences gained in the co-operative approach between South Yorkshire Fire and Rescue and Sheffield Homes are becoming to be regarded as best practice, and as such discussed at national level.

It is therefore hoped that this effective working relationship between us can be maintained in the future to ensure the sustainability of the housing stock, protect the safety of tenants, and underline the significant commitment to safety that Sheffield Homes is undoubtedly undertaking on behalf of the communities within Sheffield District

Yours Sincerely

SM Andy Cloke
Technical Fire Safety Central Support

EXPLANATORY REPORT ON EXTERNAL CLADDING

for

SHEFFIELD CITY COUNCIL

18 August 2020

CLADDING REVIEW FOR SHEFFIELD CC

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CLADDING REVIEW FOR SHEFFIELD CC

1 INTRODUCTION

- 1.1 I am Bartholomew Joseph Kavanagh, MA (Arch) LLM RIBA FCI Arb MAE, Chartered Architect, Barrister (non-practising) and Associate Director of Probyn Miers Limited.
- 1.2 I am an architect with over 35 years' experience in the construction industry. During this time, I have been involved with the design and construction of a wide variety of building types. I have also provided expert advice and evidence on issues relating to design and construction defects, fire safety and professional negligence.
- 1.3 A copy of my curriculum vitae is attached at **Appendix A**.
- 1.4 I am instructed by Geldards, solicitors for Sheffield City Council, ("**SCC**"), as an independent expert architect to provide a report regarding external cladding consisting of Aluminium Composite Material ("**ACM**") panels in combination with thermal insulation, and the use of such cladding on high-rise residential buildings prior to 2017. I am specifically asked to consider:
- i. whether this type of cladding would have breached Building Regulations at the time of its design, and
 - ii. if so, what liabilities may exist in relation to its design.
- 1.5 This report takes into account the particular instructions and requirements of our clients Geldards and Sheffield City Council. It is not intended for, and should not be relied upon, either in part or in its entirety, by any third party. Probyn Miers undertakes no responsibility to any third party for such reliance.
- 1.6 The Report begins by providing an overview of the relevant section of the Building Regulations, considers the design obligations typically imposed on Architects before going on to consider the specific questions posed.

2 REGULATORY CONTEXT

- 2.1 Part B of Schedule 1 of the Building Regulations 2000 (as amended) sets out a series of functional requirements regarding fire safety under the following five subsections:
- B1 – means of warning and escape;
 - B2 – internal fire spread (linings);
 - B3 – internal fire spread (structure);

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- B4 – external fire spread;
- B5 – access and facilities for the fire service.

- 2.2 Guidance on how these functional requirements might be achieved is provided by a series of Approved Documents. Approved Document B volume 2, ("**AD B**"), applies to the functional requirements of Part B of Schedule 1 as they apply to residential developments.
- 2.3 Between 2000 and 2019, AD B was updated through a series of editions. For the purposes of this report I have referred to AD B Volume 2, 2006 edition incorporating the 2007 amendments, ("**AD B - 2007**"). The requirements of AD B regarding external cladding remained essentially the same between 2007 and 2017.
- 2.4 Further amendments to AD B were made in November and December 2018, and in 2019. The requirements of these later amendments are not applicable retrospectively and I do not consider them further in this report.
- 2.5 Buildings are required to comply with all subsections of Part B, but the requirements for external cladding are covered in part B4.

AD B 2007 - Part B4 External fire spread

The Functional Requirement

- 2.6 The functional requirement is stated as:

"External fire spread

B4. (1) The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use and position of the building.

(2) The roof of the building shall adequately resist the spread of fire over the roof and from one building to another, having regard to the use and position of the building."

AD B 2007 Guidance

- 2.7 AD B 2007 provides guidance on complying with the requirements of Part B4 in Sections 12, 13 and 14.

CLADDING REVIEW FOR SHEFFIELD CC

Buildings over 18m high

- 2.8 Section 12 of AD B considers the construction of external walls. Paragraph 12.3 requires that;

"The external walls of the building should have the appropriate fire resistance given in Appendix A, Table A1, unless they form an unprotected area under the provisions of Section 13".

- 2.9 Table A1 item 5 requires external walls with any part 1000mm or more from the relevant boundary to have a minimum insulation value of 15 minutes. Table A2 specifies minimum periods of fire resistance (integrity) for elements of structure according to the height (in metres) of the top floor above ground. However, these requirements apply to the walls as a whole, rather than to individual components within the wall assembly.

- 2.10 Paragraph 12.5 requires that;

"The external envelope of a building should not provide a medium for fire spread if it is likely to be a risk to health or safety. The use of combustible materials in the cladding system and extensive cavities may present such a risk in tall buildings."

It then proceeds to set out how that risk can be mitigated;

"External walls should either meet the guidance given in paragraphs 12.6 to 12.9 or meet the performance criteria in the BRE Report Fire performance of external insulation for walls of multi storey buildings (BR 135) for cladding systems using full scale test data from BS 8414-1:2002 or BS 8414-2:2005."

- 2.11 Meeting the guidance given in paragraphs 12.6 to 12.9 of AD B 2007 is commonly referred to as the '*linear route*' to compliance. Meeting the performance criteria of BR 135 is commonly referred to as the '*performance-based route*' to compliance; this is an alternative to meeting the guidance given in paragraphs 12.6 to 12.9 not an additional requirement. AD B also offers a third route to compliance, which relies on a fire engineering assessment of the construction. This is normally used for specialised buildings and is not considered further here.

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- 2.12 Paragraph 12.6 deals with external surfaces, stating that *"The external surfaces of walls should meet the provisions in Diagram 40."* The relevant part of Diagram 40 is reproduced at **figure 1** below. As the Property is more than 1 metre away from any neighbouring buildings, the diagram on the right is applicable.

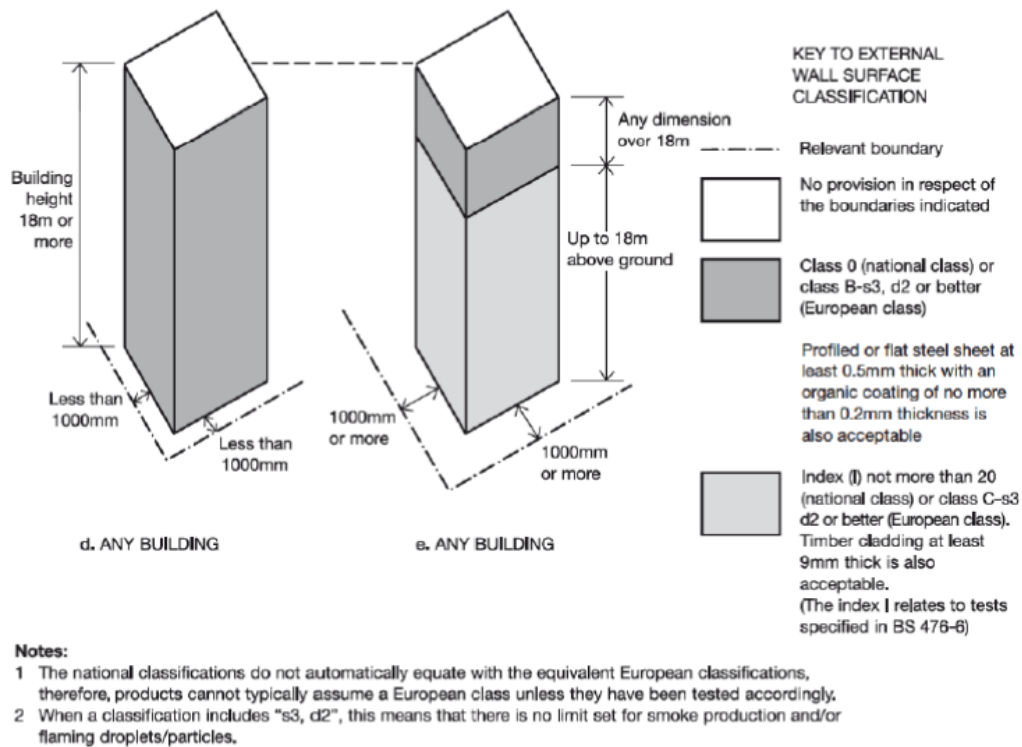


Figure 1 AD B Diagram 40

- 2.13 Diagram 40 stipulates that for any building more than 18m in height, that part of the external surface which is up to 18m above ground requires a surface classification of index (I) not more than 20 (national class) or class C-s3, d2 (European class) – index (I) relates to tests specified in BS 476-6. Timber cladding at least 9mm thick is also acceptable.
- 2.14 The European classification system ranges from class A to F. In essence, class A1 means 'non- combustible', class A2 means 'limited combustibility' and classes B to F mean the product is progressively 'combustible'. On buildings that were not above 18m in height, therefore, AD B 2007 permitted the use of external surface materials which were neither non-combustible nor of limited combustibility.
- 2.15 However, any part of the external walls that were more than 18m above ground required a surface classification of Class 0 (national class) or class B-s3, d2 or better (European class). Class 0 is essentially a measure of a product's surface spread of flame.

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Insulation materials / products

- 2.16 AD B paragraph 12.7 deals with insulation materials, stating;

"In a building with a storey 18m or more above ground level any insulation product, filler material (not including gaskets, sealants and similar) etc. used in the external wall construction should be of limited combustibility (see Appendix A)."

- 2.17 Appendix A addresses the performance of materials, products and structures in relation to fire. Materials of limited combustibility are defined in Table A7, which in turn refers to BS476-11:1982 (national class) and BS EN 13501-1:2007 (European class). The latter classifies limited combustibility as A2-s3, d2 or better – but some Agreement Certificates make no reference to the European classification – only to Class 0.

3 WAS THE CLADDING IN BREACH OF REGULATIONS

Requirements of AD B 2007

- 3.1 Paragraphs 12.5 and 12.7 set out the requirements for external wall construction.

Paragraph 12.5 states:

*"... External walls should **either** meet the guidance given in paragraphs 12.6 to 12.9 **or** meet the criteria given in the BRE Report ... (BR135) for cladding systems using full scale test data from BS 8414-1:2002 or BS8414-2:2005."*
(Emphasis added)

Paragraph 12.7 states:

*"In a building with a storey 18m or more above ground level any insulation product, filler material (not including gaskets, sealants and similar) etc used in the external wall construction should be of **limited combustibility** (see Appendix A)."* (Emphasis added)

- 3.2 Appendix A, at item 8, defines materials of limited combustibility as those with a fire rating of Class A2-s3, d2 or better.

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Aluminium Composite Material

- 3.3 ACM consists of two sheets of aluminium with a non-metallic core between them. This core may be manufactured from polyethylene, which may be modified to improve its fire resistance or from mineral material which is non-combustible. Whichever core material is incorporated into the ACM, the aluminium surface will achieve a Class 0 rating. This rating indicates that the material will not support the spread of flame.
- 3.4 Class 0 rating also satisfies the criteria set out in Diagram 40 of AD B 2007.

Kingspan K15 insulation

- 3.5 Kingspan K15 insulation consists of rigid phenolic foam, and is classified as C-s1, d0 in accordance with BS EN 13501-1: 2007. As noted above, Table A7 of AD B defines limited combustibility as a classification of A2-s3, d2 or better. Kingspan K15, therefore, is not a material of limited combustibility.
- 3.6 The use of Kingspan K15 insulation in the external cladding of buildings with a storey 18m or more above ground level will be dependent, therefore, on the successful outcome of full-scale tests in accordance with BS 8414-1 or BS 8414-2.

Mineral wool insulation

- 3.7 Mineral wool is manufactured from stone and mineral wool insulation products, such as those manufactured by Rockwool or Knauf, are non-combustible. They are suitable, therefore, for use in the construction of the external walls of buildings with a storey more than 18m above ground level.

Compliance with the regulations at the time of the design

- 3.8 According to the guidance given in paragraphs 12.6 to 12.9 of AD B, including Diagram 40, the use of insulation which is of limited combustibility and cladding panels which have a class 0 rating will satisfy the requirements of Part 4 of the Building regulations.
- 3.9 The use of ACM, which has a class 0 rating with Kingspan K15 would not accord with the guidance given in paragraphs 12.6 to 12.9 of AD B, including that set out in Diagram 40 because Kingspan K15 is not of limited combustibility.
- 3.10 The use of Alucobond, which has a class 0 rating with Rockwool would accord with the guidance given in paragraphs 12.6 to 12.9 of AD B, including that set out in Diagram 40 because the Rockwool is non-combustible.

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Subsequent testing and developments

- 3.11 Following the fire at Grenfell Tower in June 2017, the Department of Communities and Local Government, ("**DCLG**"), ordered a series of screening tests to be carried out on cladding materials.
- 3.12 I have seen a copy of the results of these tests, which were carried out by Exova Warrington. These indicate that ACM with a core of unmodified polyethylene similar to the type used on Hanover Tower, falls into category Cat 3. This screening test applied only to the ACM panel and did not provide information about the full construction of the external wall.
- 3.13 Subsequently, the Ministry for Housing, Communities and Local Government, ("**MHCLG**"), carried out several full-scale tests, in accordance with BS 8414, of various, cladding build-ups to assess which, if any, would meet the criteria set out in BR 135, (the alternative method of demonstrating compliance with the Building Regulations set out in Paragraph 12.5 of AD B).
- 3.14 MHCLG Advice Note 11, ("**AN 11**"), provided the results of these tests. Paragraph 23 of provides a summary of test results for buildings in England and is reproduced at **figure 1** below. It indicates that external wall constructions incorporating ACM panels with unmodified polyethylene core (Cat 3 as used at Hanover Tower) failed tests even when stone wool insulation, which is non-combustible, was used, (Test 2).

Test results for buildings in England			
Aluminium Composite Material (ACM) with...	Insulation		
	PIR Foam	Phenolic Foam	Stone Wool
Unmodified polyethylene filler (Cat. 3 in screening tests)	Test 1 failed 81 Buildings Report and Advice	N/A	Test 2 failed 107 Buildings Report and Advice
Fire retardant polyethylene filler (Cat. 2 in screening tests)	Test 3 failed 8 Buildings Report and Advice	Test 7 failed 21 Buildings Report and Advice	Test 4 passed 12 Buildings Report and Advice
Limited combustibility filler (Cat. 1 in screening tests)	Test 5 passed 0 Buildings Report and Advice	N/A	Test 6 passed 0 Buildings Report and Advice

Figure 1 – Extract from MHCLG Advice Note 11 – Test results.

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3.15 I consider that these test results demonstrate that:

1. It is highly unlikely that an external wall construction consisting of ACM and Kingspan K15 insulation would meet the criteria set out in BR 135 when subjected to a full-scale test in accordance with BS 8414.
2. Although ACM panels have a classification of Class 0, thereby meeting the requirements of paragraph 12.6 and Diagram 40, ACM with an unmodified polyethylene core fails to meet the criteria set out in BR 135 when subjected to full scale tests. This is so even when tested with, non-combustible, mineral wool insulation.
3. Whilst a cladding system comprising ACM and mineral wool insulation would accord with the guidance given in paragraph 12.6 of AD B, including that set out in Diagram 40, its failure to meet the criteria set out in BR 135 when subjected to a full scale test in accordance with BS 8414 results in a failure to satisfy the requirements of Part B4 of the Building Regulations.

3.16 In my opinion, therefore, a cladding system using ACM with either Kingspan K15 or Mineral wool insulation would not satisfy the functional requirements of Part B4 of the Building Regulations. This is despite the fact that a cladding system using ACM with mineral wool insulation satisfies the requirements of AD B 2007.

4 WAS THE SPECIFICATION OF THE CLADDING NEGLIGENT

Obligations of an Architect

4.1 The obligations of architects to their clients are set out in the terms of the architect's appointment. The Royal Institute of British Architects, ("**RIBA**"), produces standard forms of appointment. For example, Clause A2.3 of the standard form of appointment current in 2007 states:

*"The Architect advises the Client about the application of statutory requirements to the Services and the information which must be submitted for **consents by statutory authorities**, and of any related obligations of the Client. In any conflict between the statutory requirements and this Agreement the former take precedence."* (Emphasis added)

4.2 Thus, architects are required to provide their clients with designs that satisfy the functional requirements of the Building Regulations. Typically, they will aim to do this by following the guidance in the relevant Approved Document.

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4.3 In fulfilling their obligations architects do not undertake to achieve a perfect outcome. Rather the standard to be achieved is that of a competent member of the architectural profession acting with reasonable skill and care.

4.4 In my view, designers other than architects who provide design services related to construction, such as specialist consultants and specialist subcontractors, undertake similar obligations.

Assessment

4.5 ACM panels generally have a class 0 fire classification, which satisfies the letter of the requirements set out in Diagram 40 of ADB 2007. However, the use of Kingspan K15 insulation in buildings with a storey more than 18m above ground level would require a full-scale test in accordance with BS 8414-1 or BS 8414-2. In my view a competent architect acting with reasonable skill and care and having regard to the relevant paragraphs of ADB 2007, would ask for evidence of successful full-scale testing of any cladding system that combines these materials.

4.6 As noted above it is highly unlikely that such evidence exists. I infer from this that the designers would have been unable to satisfy themselves that the combination of Alucobond and Kingspan K15 would meet the requirements of AD B

4.7 In my opinion, therefore an architect designing cladding consisting of ACM and Kingspan K15 insulation for use on a building above 18m in height would have fallen below the standard to be expected of a competent architect acting with reasonable skill and care.

4.8 Conversely, an architect designing cladding consisting of ACM and Rockwool insulation for use on a building above 18m in height would have met the standard to be expected of a competent architect acting with reasonable skill and care

4.9 Following the fire at Grenfell Tower, the Government has made it clear that it considers that the provisions of paragraph 12.7 were intended to apply to the core material of ACM. If this is correct, then the use of ACM with an unmodified polyethylene core did not accord with the recommendations of paragraph 12.7.

4.10 In my view, however, prior to the fire at Grenfell Tower a large proportion of the architectural profession would not have considered the core material of ACM to fall within the category of materials described in paragraph 12.7. This view is supported in the Expert Report of Dr Barbara Lane to the Grenfell Inquiry.

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- 4.11 In my opinion, therefore, it is likely that a designer proposing the use of a system comprising ACM and mineral wool may not be held to have fallen below the standard to be expected of a reasonable architect acting with reasonable skill and care.

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5 APPENDIX A – CV of BART KAVANAGH

CLADDING REVIEW FOR SHEFFIELD CC

Mr BART KAVANAGH

MA (Arch), LLM, RIBA, FCI Arb, MAE.

Qualifications, training, accreditation

Master of Laws ("LLM")	City Law School	2014;
Diploma in International Arbitration	Chartered Institute of Arbitrators	2013;
Bar Vocational Course ("BVC")	City Law School	2010;
Graduate Diploma in Law ("GDL")	BPP Law School	2009;
Certificate of Mediation Skills for ADR	Regent's College London	2009;
RIBA Professional Practice - Part III	University of the South Bank	1995;
MA (Arch)	Kingston University	1994;
RIBA Part I Examination	Kingston Polytechnic	1975.

Past and present positions

Present:

Probyn Miers, Chartered Architects. Associate Director (Sep 2012 to present)

Past:

Morgan Sindall Contractors	Design Manager	(Feb 2011 - Aug 2012)
3D Reid Architects	Architect	(Sep 2010 – Jan 2011)
Arup	Architect	(Jun 2010 – Sep 2010)
Kohn Pedersen Fox Architects	Senior Architect	(Jul 2007 – Nov 2008)
Pascall + Watson Architects	Senior Architect	(May 2005 – Jul 2007)
KF Associates Architects	Partner	(Sep 1998 – Apr 2005)
Gensler Associates Architects	Associate	(Jan 1996 – Aug 1998)
GMW Architects	Associate	(Sep 1978 – Apr 1993)

Principle professional specialisms

I have extensive experience in the design and management of complex commercial, aviation and retail projects and the design and management of new-build and refurbishment projects for high quality residential accommodation; A number of these buildings have involved masonry construction and basement waterproofing. My experience includes design, design management, the production of construction information and the coordination of multidisciplinary consultant teams on both traditional and design and build forms of procurement.

I have administered construction contracts on new buildings, refurbishments and residential developments up to approximately £100m (current value).

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Membership of professional organisations

I have been registered with the Architects' Registration Board and a member of the Royal Institute of Architects since 1995; was called to the Bar at Middle Temple in 2011; and was elected as a Fellow of the Chartered Institute of Arbitrators in 2014. I am also a member of the Society of Construction Law and the Adjudication Society.

Published works

I am the Author of the book, *Avoiding and Resolving Disputes; a Short Guide for Architects*, published by RIBA Publishing

In addition I have had a number of articles published in Perspective, the quarterly newsletter of Probyn Miers, which I also edit. I have also had articles published in JCT News (jointly with Mr Christopher Miers) and in Construction Law Journal.

Training, qualifications and accreditation as an expert witness

I became a Full Practising Member of the Academy of Experts in 2013. Whilst undertaking the BVC, I studied the requirements of the Civil Procedure Rules and Practice Directions as they apply to Expert Witnesses. In addition, my LLM dissertation was entitled '*A Critical Analysis of the Use of Expert Evidence as it Applies to Construction Cases*'. I have received further informal training from experienced Expert Witness colleagues at Probyn Miers.

I regularly attend teaching and update conferences and seminars on all aspects of architectural and construction law practice. I also regularly attend update events organised by the Academy of Experts; most recently (01 July 2020) a presentation on the management and use of joint expert meetings and statements given by Mr Jeremy Nicholson QC an experienced advocate and tribunal member.

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