



Fire Performance in High Rise Buildings in Light of the Grenfell Tragedy

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- Specialist Business Resilience Manager – Property
- 20 years experience within insurance risk management
- Technical support to Customers, Brokers, AXA Underwriters and AXA Business Resilience Managers
- Various industry working group representation
 - RISC Authority Passive working group
 - Arson Prevention Forum
 - DEFRA Flood Task Group

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- Fire in the UK
- Grenfell Tower
- Public Enquiry and ways ahead



1 Fire in the UK

Fire Losses*

- Fire losses in the UK continue to average £1.1bn per year in claim payments, excluding Business Interruption
- Yet the number of actual claims keep falling
- In 2006 there were 123,000 domestic and commercial claims
- In 2016 that number had reduced to 59,000 – that’s a drop of 52%
- In 2006 the average fire loss was £9,252
- In 2016 it was £21,576 – up 133%
- * ABI Data

Fire Loss Statistics

- Hugely positive that the number of fires reduces – less chance of injury
- But the increase in fire claim value means each fire is substantially worse
- There are a myriad of reasons for this
- One element that is a concern to insurers is that buildings are not designed or built for property protection, only life safety
- The chances of a “total fire” loss are now more likely
- Insurers are reviewing their maximum loss potential now on buildings



Grenfell Tower 2

Grenfell Tower June 2017



<https://www.youtube.com/watch?v=IPnRT15LN0o>

Background to Grenfell

- Fire occurred on 14 June 2017.
- The cause has been attributed in the media to a fridge freezer in the 4th floor flat.
- London Fire Brigade was alerted and extinguished the fire within the flat.
- It became apparent to LFB that fire was rapidly spreading through the external cladding system on the building.
- Fire was able to spread rapidly, vertically and horizontally.
- 71 people lost their lives in the fire



Previous Major Cladding Fires

- Knowsley Heights
 - 1991 Huyton, Merseyside.
 - 11 storey tower block with newly installed rain screen cladding.
 - Fire deliberately set in rubbish on ground floor and spread across all 11 levels.
 - Fire didn't not enter building – no injuries.
 - BRE investigation considered cladding of low risk of combustibility and lack of firebreaks.
- Garnock Court
 - 1999 Irvine, 14 storey tower block.
 - Fire started on level 6 and spread across 9 levels in 10 minutes (fire started at 12:45pm).
 - 1 fatality and 5 others hospitalised with smoke inhalation.
 - Scottish Building Regulations amended in May 2005 to include:
 - *Every building must be designed and constructed in such a way that in the event of an outbreak of fire within the building, or from an external source, the spread of fire on the external walls of the building is inhibited.*



Not just a UK issue

- Dubai Fire
- <https://www.youtube.com/watch?v=3RtWxVsjlqI>

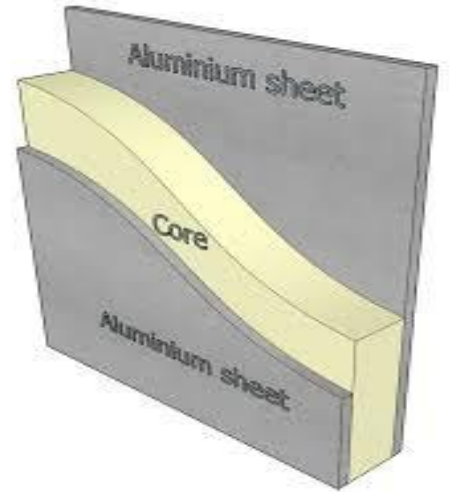


What Insurers have said

- The issues with plasticised foam insulation is that they **cannot** be deemed to be materials of limited combustibility
- Buildings are built/designed/modified with only life safety requirements
- Fire protection for property protection provides enhanced life safety characteristics and reduces the impact of fire on the building/business and aids earlier reoccupation/use
- Insurers learnt major lessons in the 1990s from composite panels
- Following large fires and loss of life (including fire-fighters), this brought about more stringent “insurer” standards for composite panels, which has been successful in driving up standards

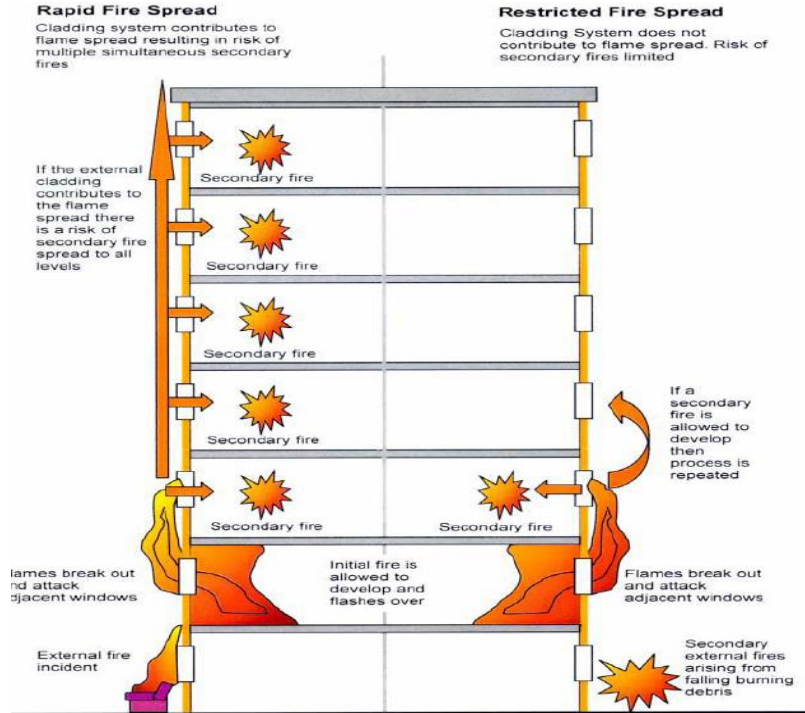
What is ACM

- Aluminium Composite Material (there are similar products e.g. ZCM)
- Two thin sheets of Aluminium bonded to a 4mm core
- Most manufacturers have 3 products with 3 different cores:
 - Polyethylene (PE)
 - Fire retardant core. 60 -70% mineral (FR)
 - A2/ limited combustibility core. 90% mineral (A2) (or, in USA, NC)

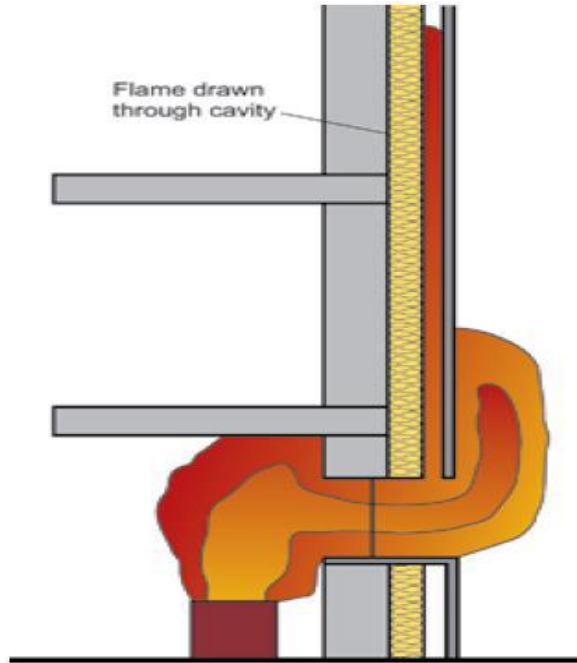


Potential for Fire Spread

BS8414



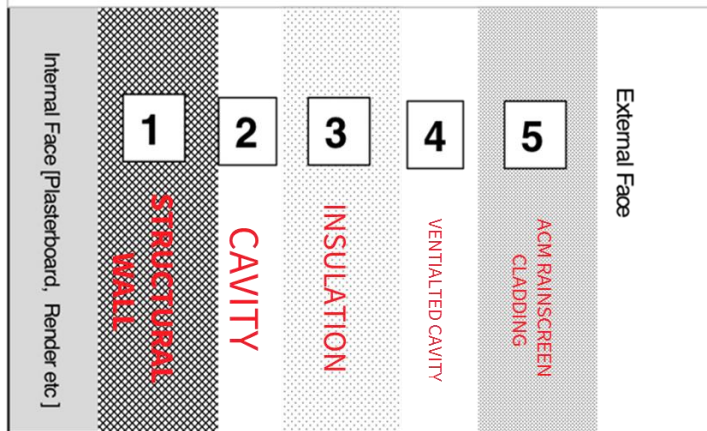
Potential for fire spread



Typical wall build-up with ACM rainscreen cladding

Please note - not all elements will be present in all wall types and there may be additional elements for others.

This figure is for illustration only to assist in identification of layers and

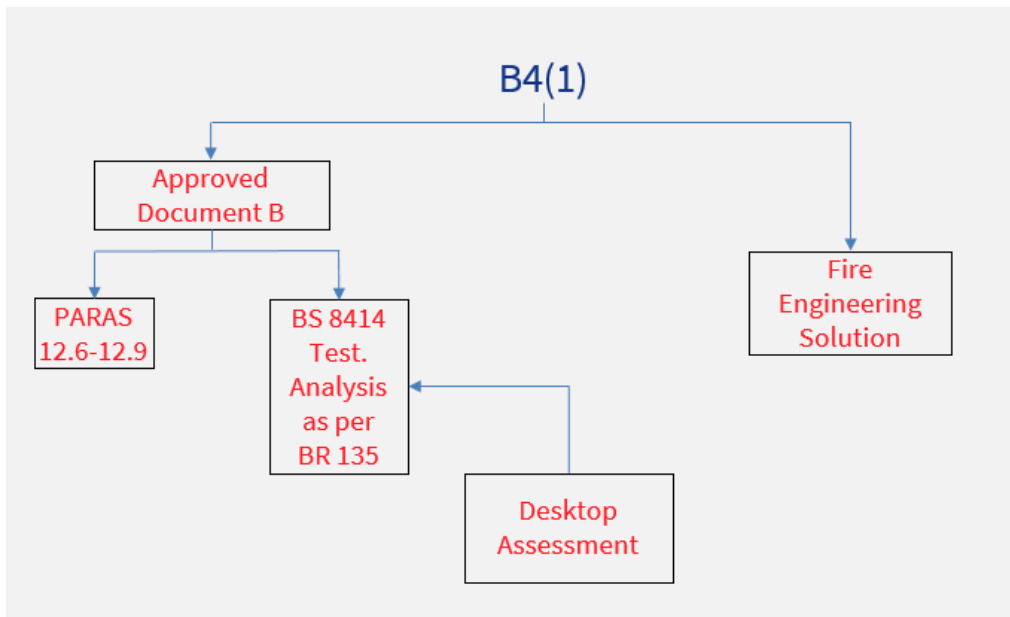


Building Regulations – Requirements relating to external fire spread

- Include: Requirement B4(1)

“The external walls of the building shall adequately resist the spread of fire over the walls...”

REQUIREMENT B4(1) – Methods of Compliance



Government Screening Programme

- Purpose was to help people identify which ACM is on their building
- A 250mm x 250mm sample is removed from the cladding
- The sample is subjected to bomb calorimeter test
- Identification of the product:
 - ≤ 3 . Product is A2
 - $\geq 12 - \leq 20$. Product is FR
 - ≥ 40 . Product is PE

Fire Testing

- BRE Cladding Test (BS8414)
- <https://www.youtube.com/watch?v=V4KA8S4yLol>

- Comparison test – Rockwool, Polyurethane and Expanded Polystyrene
- <https://www.youtube.com/watch?v=tuUFg3MQhbk>

Stay Put Policy – High Rise

- ‘Stay put’ has always been adopted since the earliest standards for blocks of flats
- So, blocks of flats do not have communal fire alarm systems
- ‘Stay put’ is constantly proven to be safe and appropriate
- Typically, there are around 7,000 – 8,000 fires in blocks of flats every year (over 20 fires per day)
- Only around 30 fires per annum require evacuation of more than 5 people with assistance of FRS

Stay Put

- Communal fire alarm systems would have potential for false alarms, so complacency and damage
- Simultaneous evacuation over many floors would be physically hazardous for many occupants
- Simultaneous evacuation is prejudicial for disabled people
- Simultaneous evacuation would impede fire-fighting operations
- Simultaneous evacuation during fire-fighting brings additional hazards to residents (smoke, hoses)
- Simultaneous evacuation only works if there is a management presence
- Communal alarm systems bring about additional management issues - who calls the FRS, who silences/resets?

Temporary Mitigation Measures and Risk Management

- Check that, at ground level and any balconies, there are no combustible materials in the vicinity of the cladding. Consider need for barriers/ instructions to residents. **Prohibit barbeques on balconies.**
- Check fire stopping in walls and risers.
- Check that any smoke control facilities are operating correctly/not undermined.
- Check all facilities provided for FRS (dry/wet rising mains and fire-fighting lifts).
- Check adequacy of roadways and hard standing for FRS appliances.
- Ensure that there are adequate smoke alarms in rented flats, and that leaseholders are advised of need.

Identifying cladding systems

- BRE will continue to test materials, although at a fee
- A competent fire risk assessment can be “invasive” of the cladding to test the materials and if installed correctly = Type 4 – Common parts and flats (destructive)
- Fire risk assessors to be competent

Fire Risk Assessor Competency

Registered holders	UKAS Accredited Company Certification Scheme	UKAS Accredited Person Certification Scheme	Professional Body Person Registration Scheme
The BAFE 'SP205' company https://www.bafe.org.uk/sp205	✓		
IFC Certification Ltd operate the 'IFCC 0099' company scheme http://www.ifccertification.com/fire-risk-assessment.html	✓		
Institute of Fire Prevention Officers (IFPO) This is a professional body registration scheme http://www.ifpo.org.uk/fireriskassessor_register.html			✓
Institute of Fire Safety Managers (IFSM) This is a professional body registration scheme http://www.ifsm.org.uk/fra-registers/nafrar/			✓
Institution of Fire Engineers (IFE) This is a professional body registration scheme http://www.ife.org.uk/Fire-Risk-Assessors-Register			✓
Warrington Certification Ltd operate a 'Fire Risk Assessors Certification Scheme (Individuals) FRACS' https://www.warringtoncertification.com/fracs.html		✓	
Warrington Certification Ltd operate a 'Fire Risk Assessors' https://www.warringtoncertification.com/fracs.html	✓		



3 Public Enquiry

Public Enquiries

- Grenfell Tower Enquiry - chaired by retired judge Sir Martin Moore-Bick – likely to be several years long. Enquiry into cause of fire and response
- Independent review of building regulations and Fire Safety – Chaired by Dame Judith Hackett



Building Regulation and Fire Safety

- Successive governments have dismissed or delayed any review of “Approved Document B – Fire”
- Regulatory change has been “one-in two-out” for some years
- The last review of ADB was in 2006
- Most nations review between 2-4 years, given pace of construction material change.....
- Early comments are that ADB is “not fit for purpose” and at times, too complex leading to confusion which can cause non compliance

ABI Response

- ABI has linked up with the FPA (Fire Protection Association) to support the building regulations review to provide evidence to support revision
- FPA very well known to the insurance industry – separate work via RISC Authority
- Three key areas are now being researched and reviewed by FPA
 1. Materials in external cladding and test standards “in the real world”
 2. High integrity fire alarm systems
 3. Sprinkler protection in high rise

Summary

- The UK insurance industry has lobbied government for years (via FPA/RISC Authority) for a review of AD-B and the potential for a fire like Grenfell was not wholly unexpected
- It is a massive tragedy that it took an event like Grenfell to recognise the need for change, but change does now appear to be starting
- There may be a need for existing buildings to be stripped of combustible cladding if deemed to be non compliant
- Any review outcomes of existing cladding to include the local Fire & Rescue Service



AXA Vantage
Construction

Thank you