



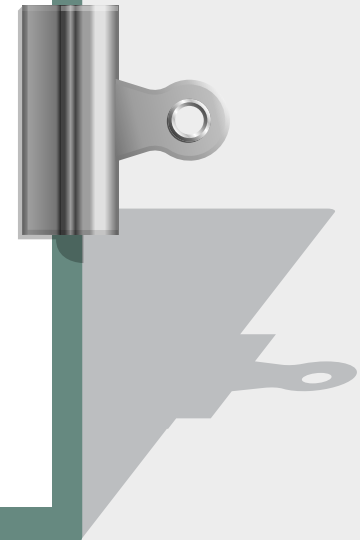
The impact and outcomes of the Grenfell Fire Tragedy

CII Leicester
October 2019
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Management Delivery



Learning Objectives

- How fire was able to spread into and through insulated wall claddings
- How such systems were approved under building regulations and the issues this generates
- What actions could be taken to ensure cladding systems are safe
- An understanding of stay put policies vs mass evacuation
- The changes to building regulations now being made





Background to Grenfell

- Fire occurred on 14 June 2017.
- Cause attributed to fridge freezer in 4th floor flat.
- London Fire Brigade was alerted & extinguished the fire within the flat.
- Fire was rapidly spreading through the external cladding system on the building.
- Fire was able to spread rapidly, vertically and horizontally.
- Reported over 70 people lost their lives in the fire
- [Moment Firefighters First See Grenfell Tower Fire](#)





Enquiries

The ongoing public enquiry continues to highlight areas of concern for the Grenfell tragedy



Decisions around evacuation of the trapped occupants



Compliance of the cladding with building regulations



Issues around fire doors



Grenfell is not the first incident of this type in the UK



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 enter the building – no injuries.
- BRE investigation considered cladding of low risk of combustibility and lack of firebreaks.



Garnock Court

1999
Irvine, Scotland

- 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.



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.”

“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.”

Insurers learnt major lessons in the 1990s from composite panels.”

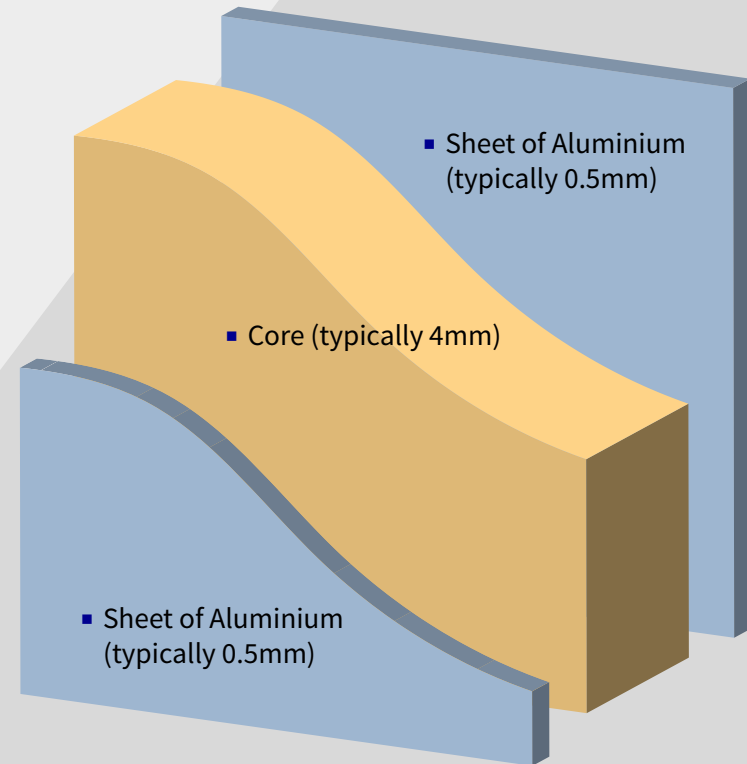


Cladding systems



What is ACM

- **Aluminium Composite Material** (there are similar products e.g. Zinc Composite Material and also HPL - High Pressure Laminates (compressed wood or paper fibre), not to be confused with solid aluminium sheets
- 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)
- In rainscreen cladding there will usually be additional insulation behind the ACM – an additional 100 – 150mm thick

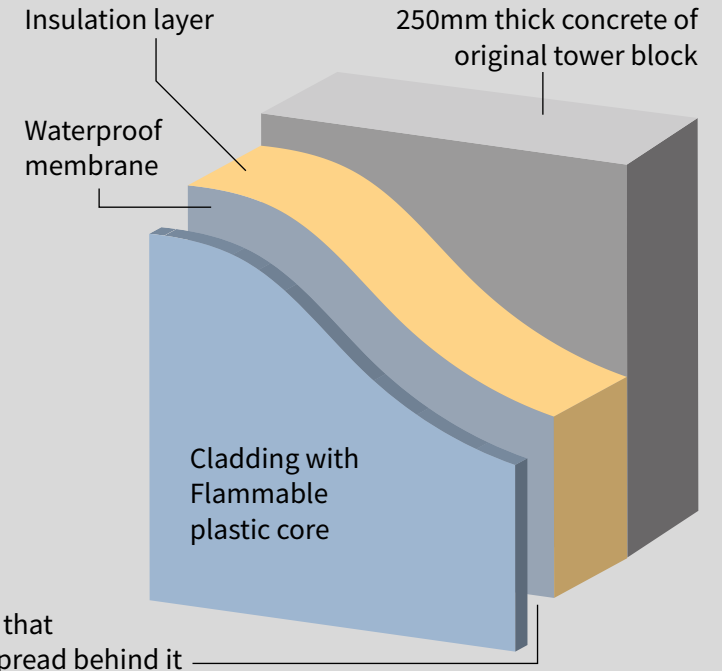
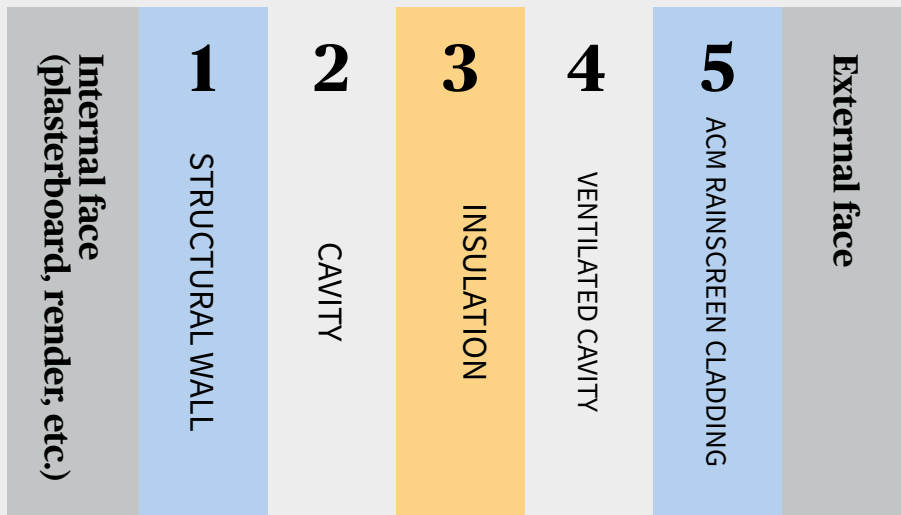




Typical wall build-up with ACM rainscreen cladding

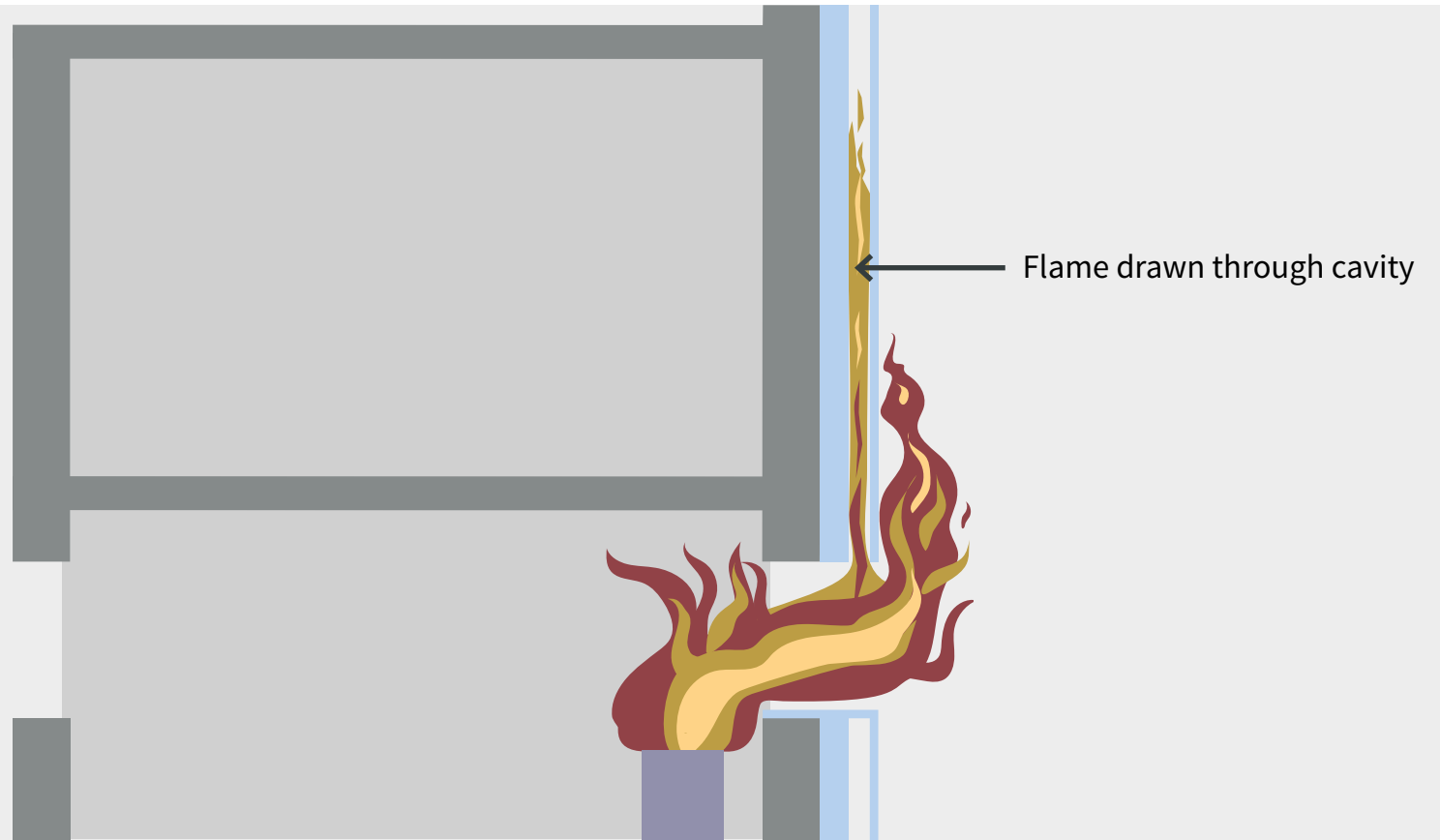
Please note - not all elements will be present in all wall types and there may be additional elements for others.

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





Potential for fire spread



Potential for fire spread

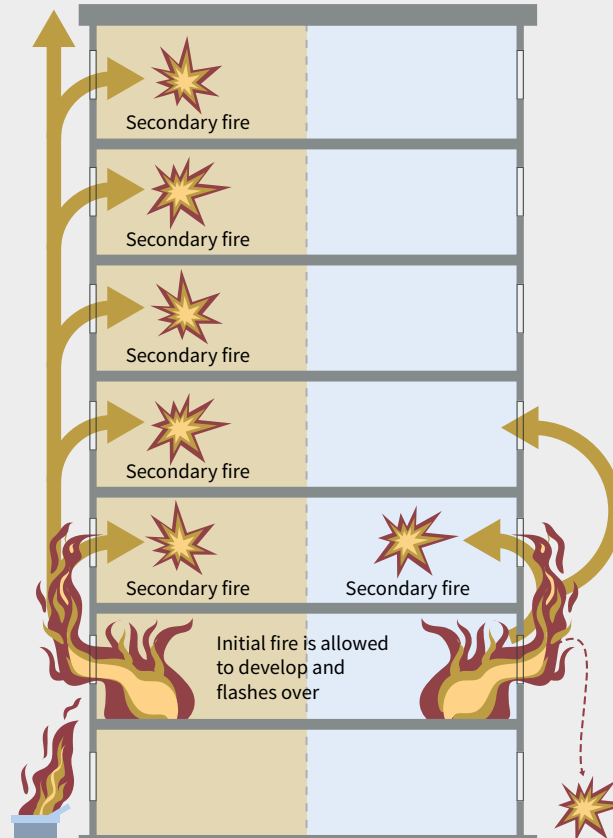
BS8414

Rapid Fire Spread

- Cladding system contributes to flame spread resulting in risk of multiple simultaneous secondary fires
- If the external cladding contributes to the flame spread there is a risk of secondary spread to all levels

- Flames break out and attack adjacent windows

- External fire incident



Restricted Fire Spread

- Cladding System does not contribute to flame spread.
- Risk of secondary fires limited

- If a secondary fire is allowed to develop then process is repeated

- Flames break out and attack adjacent windows

- Secondary external fires arising from falling burning debris



Building Regulations



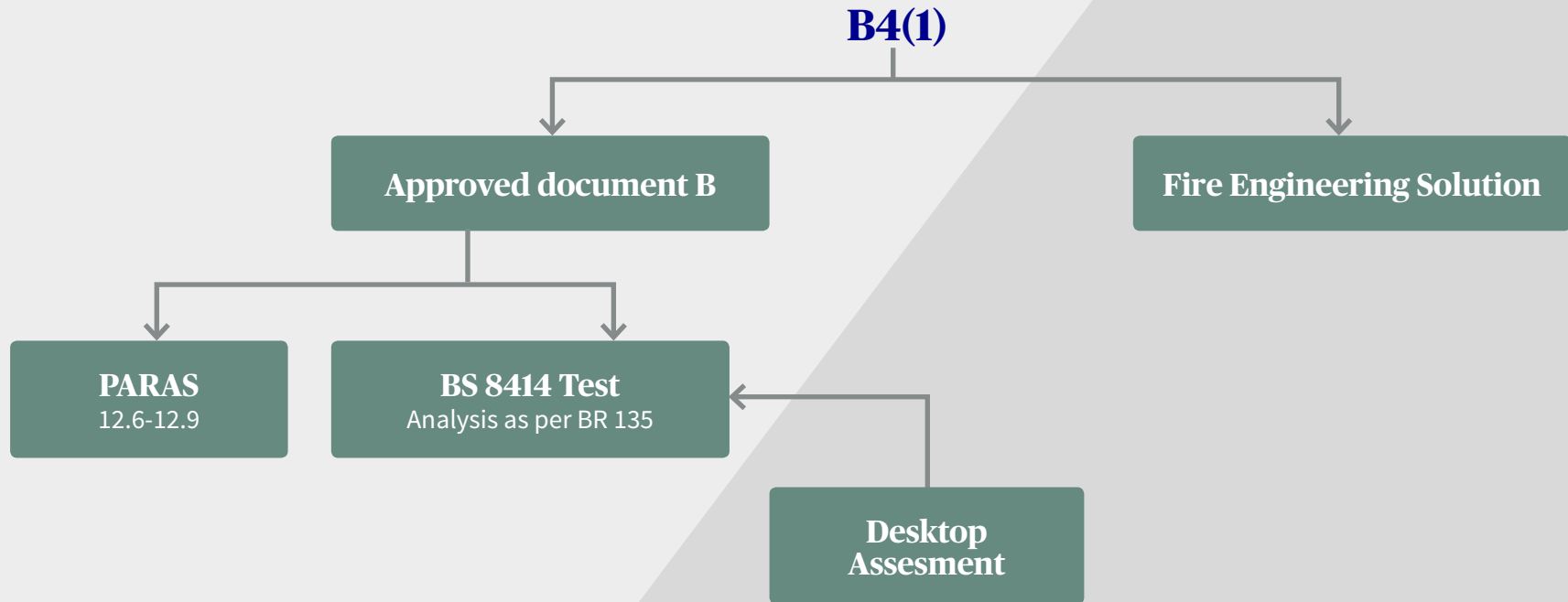
Building Regulations - Requirements relating to external fire spread

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 (A2 is a high standard Euro Grade)
 - $\geq 12 - \leq 20$ – Product is FR (may only achieve UK Class 0)
 - ≥ 40 – Product is PE (combustible)





Government Screening Programme

Country	 National Classification	 EU Classification
United Kingdom (England and Wales)	Non-Combustible	A1 (provision for non testing)
	Limited Combustible	A2-s3,d2 or better
	Class 0	B-s3,d2 or better
	Class 1	C-s3,d2 or better
	Class 3	D-s3,d0 or better
United Kingdom (Scotland)	Non-Combustible	A1 or A2 (-s3,d2) (provision for non testing)
	Class 0	B-s3,d2
	Class 1	C-s2,d2
	Class 3	D-s3,d2



Stay Put Policy



Stay Put Policy - High Rise

- 'Stay put' has been adopted since the earliest standards for blocks of flats
- 'Stay put' is constantly proven to be safe and appropriate based on construction and fire resistance
- Blocks of flats do not have communal fire alarm systems
- Communal fire alarm systems would have potential for false alarms, so complacency and damage plus additional management issues - who calls the FRS, who silences/resets?
- 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*

* CS Todd & Associates

Fire Action TSBTMO

There is a "stay put" policy for residents unless the fire is in or affecting your flat

IF YOU DISCOVER A FIRE IN YOUR FLAT/BLOCK

1. Leave at once shutting the doors behind you.
2. Leave the building by the nearest and safest route.
3. Telephone the Fire Brigade by dialling "999" or "112" and give your address and postcode.
Wait for the Fire Brigade to arrive. Do not re-enter the building.

IF YOU ARE SAFELY WITHIN YOUR FLAT & THERE IS A FIRE ELSEWHERE IN THE BLOCK

You should initially be safe to stay in your flat keeping the doors and windows closed.
On arrival the Fire Brigade will make an assessment and will assist with evacuation if required.

If you wish to evacuate, leave closing the door behind you and exit the building.

IF YOU ARE IN A COMMUNAL AREA & BECOME AWARE OF A FIRE

Leave the building at once & alert the Fire Brigade by telephoning "999" or "112"

IF LEAVING THE BUILDING PLEASE

- Do NOT use lifts
- Do NOT re-enter the building until instructed to do so.

Your Assembly Point is:
OUTSIDE THE FRONT OF THE BLOCK



Stay Put Policy - Simultaneous evacuation

- Evacuation can be phased or simultaneous
- Phased can mean per floor and controlled
- Simultaneous evacuation:
 - is physically hazardous for many occupants
 - is prejudicial for disabled people
 - would impede fire-fighting operations
 - during fire-fighting brings additional hazards to residents (smoke, hoses)
 - only works if there is a management presence





Temporary Mitigation Measures and Risk Management

- Check that, at ground level and any balconies, there are no combustibile 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.
- Check fire doors/doorsets/specification
- [Fire Door Safety Week](#)





Identifying cladding systems

- BRE and others will continue to test materials
- 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 testing)
- Fire risk assessors to be competent
- Refer table

Registered holders	AS 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			✓
Institute 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	✓		



Enquiries



Public Enquiries



Grenfell Tower Enquiry

Chaired by retired judge Sir Martin Moore-Bick.
Enquiry into cause of fire and response
Ongoing



Grenfell Tower Enquiry Independent review of building regulations and Fire Safety

Chaired by Dame Judith Hackett
Complete



Dame Judith Hackett

Over 50 recommendations overall including:

- Regulatory Regime change for buildings 10 storeys and above
- Reform of the large scale testing regime for cladding systems including desktop studies
- A 'Joint Competent Authority'. This should comprise Local Authority Building Standards, fire and rescue authorities and the Health and Safety Executive
- Better handover of construction information, post build
- Better route to redress if tenants remain unsatisfied with the safety of their building





Building Regulation and Fire Safety - Post Grenfell views

- 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 update 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 collaborated 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



Update of Building Regulations



Amended Building Regulations - England

With effect from 21 December 2018

- Ban on combustible cladding for NEW buildings over 18 metres tall in the following categories:
 - » Residential blocks of flats
 - » Student accommodation and dormitories in boarding schools
 - » Residential care
 - » Hospital buildings
 - » Schools
- Insulated cladding to be A1 or A2 only
- Use of the test methodology BS8414/BR135 no longer valid
- Does not apply to other high rise (hotels, offices etc)
- Only retrospective action on EXISTING Buildings is Local Authority funding to inspect for non compliance – any corrective action costs CANNOT be passed to tenants but Government has budget £200m now to assist with these costs





Amended Building Standards - Scotland

Due October 2019

- Classification for High Rise buildings (all) reset to 11 metres (from 18 metres)
- Insulation to be A1 or A2
- However the BS8414/BR135 test to be retained
- The same guidance also apply to external wall cladding on new multi-storey entertainment and assembly buildings regardless of storey height (smaller buildings, to be defined, may be exempted)
- No retrospective retesting





Amended Building Regulations - Wales and Northern Ireland

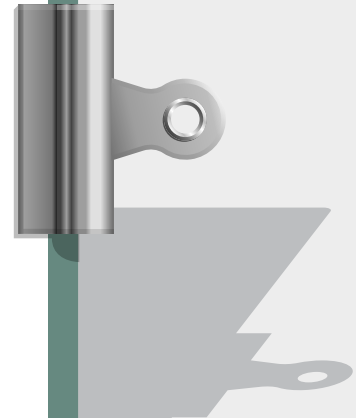
- Housing and Local Government Minister Julie James will consider new legislation to replace the current Fire Safety Order and a new building control process for high rise buildings
- “While the Hackitt report recommended that all buildings above 30 metres should be subject to a new regulatory system, I believe that the situation is different in Wales, where we have fewer buildings of that height. I am clear that the threshold will be no higher than 18 metres”
- “We will also consider whether the new system could feasibly apply to other types of higher-risk buildings, such as those where vulnerable people sleep”
- “We have a strong record of working to improve fire safety in people’s homes; we led the way in requiring sprinklers in all new and converted homes, and since responsibility for fire was devolved in 2005, the number of fires in dwellings has fallen further and faster in Wales than anywhere else in the UK”
- Decisions to be made in the Autumn
- Northern Ireland - to be advised





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 took a massive tragedy like Grenfell to recognise the need for change, but change is now happening
- There is a need for existing buildings to be stripped of combustible cladding if deemed to be non compliant
- Information should be passed to insurers on materials in use and approvals gained to assess insurance acceptance
- Any review of existing cladding must include the local Fire & Rescue Service





Thank you - Any questions

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>

Fire door test

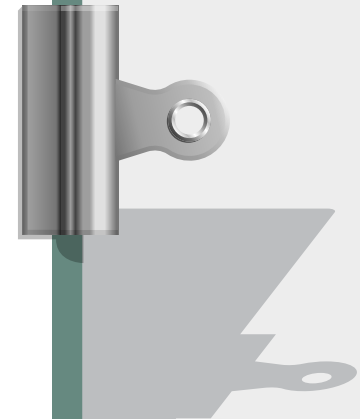
<https://www.youtube.com/watch?v=IE8TJTGRxU0>





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