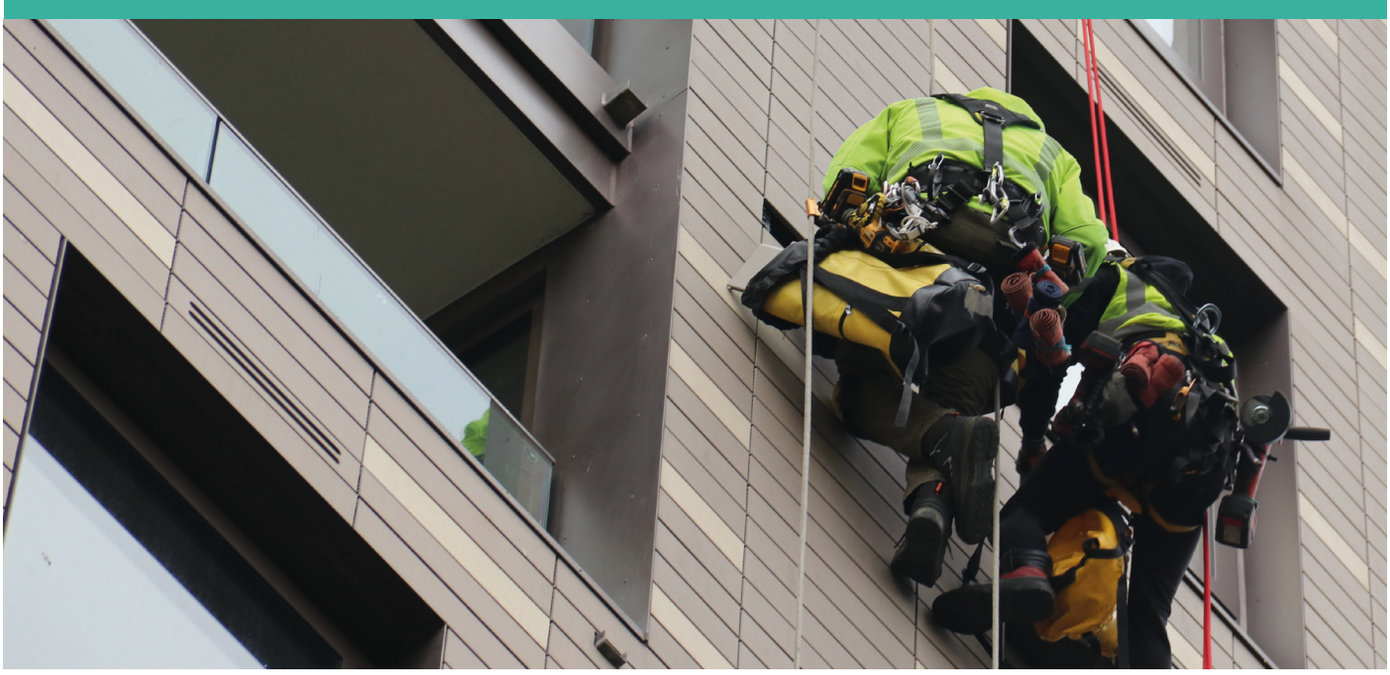
A Practical Approach to Fire Safety: The benefits of mitigation measures to combat the UK's Cladding Crisis

An analysis of the benefits of fire safety mitigation measures on victims of the UK's Cladding Crisis, compared with costly and time-consuming remediation work.



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Introduction

Residents living in high-rise buildings across the UK have lived in fear for a number of years now, facing unprecedented bills for security patrols and remedial measures, as well as living with the constant stress of the knowledge that their home is not fire safe.

The journey of residents affected by dangerous cladding across the UK has already been long and arduous, but the need for action is stronger than ever.

Over recent months, there has been a groundswell of support from fire safety professionals for a mitigation approach to be taken towards helping those affected by the Building Safety Crisis.

Over the following pages, Intelliclad and its partners will investigate the benefits of a mitigation centred approach towards addressing the UK's Building Safety Crisis.

As this Building Safety Crisis continues to evolve, mitigation will remain a key factor in improving fire safety for residents in high rise buildings across the UK.

We believe that mitigation is a realistic and achievable approach towards improving the fire safety of buildings across the UK, whereas remediation is - at present - costly and time-consuming.

Around 18 months ago, it felt as though the UK's cladding scandal wasn't receiving enough coverage or attention and that those responsible would not be held accountable in any significant way.

While the campaign continues to ensure that there is some accountability and further funding is made available to try and boost remediation, the need for mitigation is crucial.

In recent months there have been a number of 'what if' moments, where building fires have left the public with no choice but to hope and pray that there isn't a loss of life as a result of this.

Background

An insight into the background of the UK's Building Safety Crisis and how the mitigation vs remediation debate has unfolded.

The Discovery

The UK's Building Safety Crisis first came to the wider attention of the public in the aftermath of the Grenfell Fire tragedy of June 14th, 2017.

Two days after the fire, the government orders social landlords to carry out an audit of their tower blocks – reporting on how many they own and details of any refurbishments. It was then confirmed that aluminium composite material (ACM) cladding was used on Grenfell Tower.

Around this time, the Government and fire officials came together to discuss the potential wider impact the fire could have on building safety. In a bid to identify further use of ACM, social landlords were ordered to send in samples of ACM cladding on their tower blocks for testing.

The first 120 samples sent to the Government all failed safety tests, prompting further testing and strategy meetings as to how the issue can be addressed.

Waking Watch

In October 2017, the National Fire Chiefs Council published guidance recommending the use of a 'waking watch' fire patrol in buildings with dangerous cladding. Over the years since, the patrols have been highly controversial, with each resident paying on average as much as £500 per month.

The introduction of waking watches came as a result of a change in NFCC guidance regarding the evacuation strategy in the event of a fire, from 'stay put' to 'simultaneous evacuation'. They were intended as a temporary safety measure for residents of high-rise buildings with unsafe cladding systems until remediation work could be completed.

Over the years, a number of stories have appeared highlighting a lack of fire safety training for Waking Watch staff, as well as instances where they have fallen asleep or been caught watching TV, putting residents' lives at risk.

Close Calls

As work has continued to find ways to address the Building Safety Crisis - from the financial demands this would bring to the technical expertise required to make sure that any funds are put to good use, there have been a number of close calls, highlighting the need for urgent action.

These include a fire at Samuel Garside House in Barking on June 9th, 2019.

It later emerged that 'Class D' rated timber cladding had been used and that a fire risk assessment had warned of the issues.

Two further fires broke out at timber clad buildings in August and September 2019, with a timber-framed care home in Crewe and a timber-framed apartment block in south-west London burning to the ground.

Just two months later, a fire seriously damaged student accommodation in Bolton that had been clad in high-pressure laminate panels.

These incidents have continued to send shockwaves through residents affected by the Building Safety Crisis, with the latest being a fire at The Relay building in London during March 2022.

Contributors

Ryan Brough
Head of Operations, Intelliclad

Ryan Brough is Head of Operations at Intelliclad and has been crucial to the system's development, deployment and growth.

He leads the Intelliclad team in their efforts to build a lasting legacy of fire safety across the UK. He is also responsible for leading Intelliclad's partnerships with fire safety experts, allowing the product to consistently develop and adapt in order to meet ever changing external requirements.

www.intelliclad.co.uk/

Dorian Lawrence MCIOB C.Build E MCABE
Managing Director, Façade Remedial Consultants (FRC)

Façade Remedial Consultants (FRC) are the UK's leading façade experts, working nationwide to provide investigations and reporting into safety and compliance.

Led by Managing Director Dorian Lawrence, FRC identified a need for guidance, accountability and services in the relatively new and constantly evolving façade fire safety landscape post-Grenfell.

FRC offers a complete consultancy process conducted by suitably qualified professionals; offering a solution to those responsible for building safety who find themselves up against these fast-paced, and often complicated, changes in advice and legislation.

www.frconsultants.co.uk/

Frances Maria Peacock FCIAT, CBuildE FCABE, MIFireE, MSFPE
Olympus Fire Safety

Frances is a renowned fire safety expert whose technical reports have significantly contributed to the further understanding of façade fires, including a report submitted to the Grenfell Tower Inquiry.

She has been involved with Intelliclad as a fire engineering consultant from the outset. All of her reports related to façade fires available for download on the Intelliclad website.

https://olympusfiresafety.com/

Lord Stephen Greenhalgh
Minister of State (Minister for Building Safety & Fire)

Stephen Greenhalgh was appointed an unpaid Minister of State for Building Safety and Fire jointly at the Department for Levelling Up, Housing and Communities and the Home Office on 19 September 2021

Stephen was previously an unpaid Minister of State jointly at the Ministry of Housing, Communities and Local Government and the Home Office from 18 March 2020 to 19 September 2021.

Stephen served both as Deputy Mayor for Policing and Crime in London from 2012 until 2016, and Hammersmith and Fulham Council Leader from 2006 until 2012.

He was created Lord Greenhalgh on 16 April 2020.

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Foreword

The purpose of this white paper is simply to shine a light on the benefits of mitigation measures in tackling the UK's Building Safety Crisis.

However, the safety of residents is the only thing that truly matters as we try to move forward from this in a sustainable and effective way.

If I believed that a more realistic and practical method to ensure buildings across the UK are made safer existed, I would support it.

However, right now it looks as though mitigation is the way forward. Time really is of the essence.

I remember watching the Grenfell disaster unfold and the fear I felt in its aftermath when it became clear that a repeat could happen at any time.

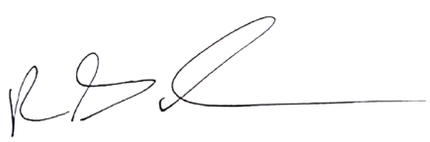
There has been a major leap forward in understanding and knowledge with regards to fire safety technology in the five years since Grenfell and now is the time to utilise this.

We have brought together some of the most respected voices across fire safety for their honest thoughts on how support for mitigation measures can make a real impact.

I hope that over the following pages their thoughts, knowledge and opinions will make those who read this white paper think about the Building Safety Crisis as it currently stands and see that something can be done.

Thanks

Ryan Brough



How Building Surveys Can Prove Mitigation is More Efficient and Effective Than Remediation

Dorian Lawrence MCIOB C.Build E MCABE
Managing Director, Façade Remedial Consultants (FRC)

On 10th January 2022, the Government announced the retirement of the Consolidated Advice Note, the previous guidance driving external wall fire safety post-Grenfell. Two days later, the long-anticipated PAS 9980 was published, coming into effect from 31st January 2022.

PAS 9980 replaces the Consolidated Advice Note with guidance that mirrors the Government's new direction towards proportionality in building safety.

It is a documented code of practice, commissioned by the Government and developed by the British Standards Institute (BSI).

Its full title is 'PAS 9980:2022, Fire risk appraisal of external wall construction and cladding of existing blocks of flats – Code of practice'.

The document provides a methodology for a competent professional to complete and record a Fire Risk Appraisal of External Walls (FRAEW).

The approach it sets out is intended to determine the need for any risk-proportionate actions in relation to external wall construction required to protect occupants of blocks of flats. PAS 9980 has been designed to be risk-based and proportionate rather than 'prescriptive'.

"PAS 9980 has been designed to be risk-based and proportionate rather than 'prescriptive'."

Therefore, putting more emphasis on considering risk-mitigating measures, such as sprinklers, alarm systems or revised evacuation strategies, before remediation such that the costs are proportionate to the risk.

The PAS 9980's risk rating scale

To assess risk a rating scale is adopted in PAS 9980, in which the outcome from the assessment will be that the fire risk is either "low", "medium" or "high".

The fire risk posed by external wall construction and cladding is considered to be influenced most by factors falling under three broad headings:

• **Fire performance** – such as cladding, spandrel panels, cavity barriers, etc.

• **Façade configuration** – such as height of cladding from the ground, setbacks and overhangs, positioning of combustible materials, etc.

• **Fire strategy/fire hazards** – such as escape route design, fire-fighting facilities, fire detection systems, etc.

In the context of PAS 9980's risk-based approach, the risk in question is the combination of:

• The likelihood of undue speed of fire spread over the external walls of the building.

• The likely consequences, namely the resultant occurrence and extent of secondary fires on other floor levels.

• The likely consequences in terms of evacuation before the onset of untenable conditions in the escape routes, whether evacuation is intended to occur immediately on the warning of fire or, in the case of a stay put strategy, at some point during the course of the fire.

• The likelihood of effective intervention by the fire and rescue service at a point before all of the above occur.

There will, of course, ultimately still be instances where external walls are high-risk and will require remediation.

PAS 9980 states:

"Some form of remediation works to the external façades might ultimately be necessary, but equally, in some circumstances, a more proportionate response might be improvements or alterations to the fire safety design and fire strategy in the building.

"For example, in some cases, this could be retrofitting sprinklers into the block, or, in some cases, albeit rarely, changing from a stay put strategy to an immediate, simultaneous evacuation strategy by introducing a fire detection and fire alarm system, although these approaches might have limitations."

PAS 9980:2022, pg. 19

The introduction of this risk-based approach means that resources can, in theory, be expedited to buildings that are of higher-risk, whilst mitigation measures may be suitable in other buildings.

This, in conjunction with the recent progress of the Building Safety Bill, is a step in the right direction - although further clarity is needed in other areas, such as funding.

The introduction of PAS 9980 has been instrumental in working towards a more joined-up approach to building fire safety.

It can be used as a framework for assessing external walls as part of compliance with the Fire Safety Act 2021 as well as being able to facilitate the completion of an EWS1 form, whilst also being an important part of any building's golden thread of information.

"The introduction of this risk-based approach means that resources can, in theory, be expedited to buildings that are of higher-risk, whilst mitigation measures may be suitable in other buildings."

How We Can Learn From Building Fires

Frances Maria Peacock FCIAT, CBuildE FCABE, MIFireE, MSFPE, Olympus Fire Safety

Olympus

The 14 June 2017 is a date which will stick in many people's minds. In the early hours of that tragic day, a small fire started in the kitchen of a fourth floor flat in Grenfell Tower in West London.

In normal circumstances, this would not have been a remarkable event, but this small and seemingly insignificant kitchen fire became the worst residential fire in the UK since the Second World War. Seventy-two people died, and those who survived lost their homes, their possessions and much loved family members, friends and pets.

As the shock waves spread through the construction and fire industries, many were asking how such an event could have happened. How could a whole 24-storey building be gutted by fire with such tragic consequences?

It very soon became apparent that the building's cladding was to blame.

"Rather than fully reclad affected buildings, measures aimed at bringing the risk down to an acceptable level could be introduced."

Although Grenfell had previously been a concrete "brutalist" building dating from the early 1970s, it had been refurbished by having a rainscreen cladding system attached to its exterior.

This new façade contained materials which were highly combustible; Aluminium Composite Material (ACM) cassette panels with a polyethylene (PE) core, behind which was a ventilation cavity and foam insulation consisting of polyisocyanurate (PIR).

However, as has been revealed by the ongoing public inquiry, the fact that these materials readily burn was already known.

Apart from the obvious common sense one could apply (ie. PE and PIR have been likened to petrol and it doesn't take a genius to realise that they burn), there had been several cladding fires before, both in the UK and abroad.

The city of Dubai in the United Arab Emirates (UAE) has a very large number of high rise buildings covered in ACM cladding, and fires frequently occur. If fires were occurring in the UAE on the facades of buildings with ACM cladding, then surely it should have been realised that the same thing could happen here.

Yet, despite the media publicity these fires were given, the potential risk was not acknowledged and no further thought was given. In the UK, there have been several facade fires involving combustible materials over a lengthy period, yet the risk which was exposed was not heeded.

Knowsley Heights in Liverpool (April 1991), Garnock Court, Irvine, Scotland (June 1999) and Lakanal House, London (July 2009) are all serious fires which occurred prior to Grenfell.

Two of these fires also resulted in fatalities.

The fire at Garnock Court claimed the life of an elderly man, and that at Lakanal House killed six people, including a three week old baby girl.

Yet still the lessons were not learned.

Even as recently as March this year, a fire occurred in a high-rise building in Whitechapel, London, which disturbingly had several parallels which could be drawn with Grenfell, nearly five years after the disaster.

Sadly, it seems that the lessons of Grenfell, Lakanal and other fires have not been learned, and with so many buildings still covered in combustible material, the possibility of another fire cannot be discounted.

Work to remediate the risk is proving too slow, the costs too high, and in the meantime, the residents face financial ruin because costs for fire safety work – running into thousands of pounds – are being passed on to them.

It is therefore hardly surprising that the situation is affecting their mental and physical health, and many have had to put their lives on hold because they cannot sell their flats.

As it is unlikely that these buildings will be remediated anytime soon, it is now time for alternative solutions to be considered. A well planned mitigation strategy would be a viable alternative, as this would reduce costs, timescales and the impact on residents' lives.

Rather than fully reclad affected buildings, measures aimed at bringing the risk down to an acceptable level could be introduced. Intelliclad is one such measure because it can be installed directly into the façade where it is able to detect and warn residents of the first signs of fire.

Innovation, Installations & Impact: Our Journey so Far

Ryan Brough, Head of Operations, Intelliclad

Intelliclad's journey began in earnest on June 15th, 2017 as the scope of the Grenfell Tragedy became clear.

Over the weeks that followed, we assembled our team and began discussing realistic, achievable ways we could help increase building safety across the UK.

As the situation evolved it took turns that nobody had expected, highlighting a systemic and dangerous precedent towards building safety had long been set, with Grenfell shining a spotlight on an issue that desperately needed uncovering.

While necessity meant that our approach and development of what Intelliclad stood for and what it could achieve continued to change, our commitment to creating an effective and practical support system never faltered.

Once Intelliclad underwent final testing in November 2020, we were confident that its result would be impressive.

Testing carried out on a specially constructed 10m wide and 9m high cladding rig at the Fire Service College's national headquarters showed our sensors were activated six minutes and 33 seconds prior to cladding being breached by fire on test 1 and 9 minutes, 47 seconds prior on test 2.

Coupled with our smart technology system, the test indicated that residents would have been alerted of the fire via smartphone app before the fire had a chance to take hold.

This meant that after three and a half years of development, we were ready to begin supporting residents.

It wouldn't be until June 2021 that we were able to complete our first installation - despite clearly proving the positive impact our product would have, we were met with hesitation and uncertainty as to whether or not installing Intelliclad would have the financial benefits of removing waking watch patrols.

The next phase of our journey focused on compliance and once we had a watertight justification for replacing the waking watch with Intelliclad, we were able to move forward.

Our first internal and external installation - conforming with BS 5839-1 L5 standards as per the simultaneous evacuation guidance - allowed a West Croydon residential apartment building to remove its waking watch patrols.

This was followed by installations at the 33 apartment St Chad's building in Plymouth and a mixed use building in Bournemouth.

We are now supporting buildings across the UK and have seen our profile grow with support from leading fire safety experts. Our recent install at a 30m tall residential building with restaurants located on the ground floor, used innovative installation techniques by replacing the terracotta tiles with A2 aluminium replica's fixed with an Intelliclad smoke detector.

From small beginnings, we are ready to act now and make a huge impact - that in a nutshell

"While necessity meant that our approach and development of what Intelliclad stood for and what it could achieve continued to change, our commitment to creating an effective and practical support system never faltered."

The Need for Mitigation Innovation

Lord Stephen Greenhalgh, Minister of State (Minister for Building Safety & Fire), House of Lords - Building Safety Debate at the House of Lords, January 11 2022

I suppose that I am the longest-serving Minister in government focused on the building safety crisis.

I was appointed in March 2020 and got to know many of the cladding groups and some of the leasehold groups personally through Zoom and Teams.

Around this time, Michael Gove worked incredible magic to come up with a profound and brave reset around building safety.

We should just reflect on what he said in the Statement—first, on proportion:

"We … need to ensure that we take a proportionate approach in building assessments overall. There are too many buildings today that are declared unsafe, and there are too many who have been seeking to profit from the current crisis."

That is absolutely spot on; we need a greater sense of proportion.

Underpinning proportion, we need a call for innovation. If we are to have more buildings made safe not by costly remediation where people profit—let us be clear, they profit from remediation—let us make mitigation a possibility in more homes.

That is why I am delighted that we are beginning to fund some innovative ideas, some of which will work and some of which will not.

I mention the **Intelliclad** system that has been funded by the Waking Watch Relief scheme. I shall not go into exactly how that works, but it is a form of innovation that may make mitigation an option more often than remediation.

We have funded that system in two buildings, the Interchange building in Croydon and the Guildhall Apartments in Southampton.

If noble Lords would like to join me to visit those, it may be useful and interesting. We need more innovation such as that, so here is a call for innovation.

"We need more innovation such as that, so here is a call for innovation."

Conclusion

Over the course of this white paper, we have seen how the Grenfell Tower tragedy set off a chain reaction that has continued to grow for nearly half a decade.

Campaigners have been restless and relentless in their quest for a response as to how they can move forward from a life of mental exhaustion, fear and uncertainty.

The goalposts have continuously been moved and just when it appears that the picture of the Building Safety Crisis has been made clear, something has happened to change this.

It would appear now that there is clear support for the mitigation measures created over the last five years and a track record of success to back this support up.

New regulations and funding opportunities point to a willingness to make this change happen, while near misses point to the need for action to be taken now.

We hope that this white paper has helped to further enforce the belief that things can change, starting now.

However, despite this volatile backdrop, fire safety experts have been responsive and open to new ideas in their bid to make buildings safer across the UK.

It would appear now that there is clear support for the mitigation measures created over the last five years and a track record of success to back this support up.

New regulations and funding opportunities point to a willingness to make this change happen, while near misses point to the need for action to be taken now.

We hope that this white paper has helped to further enforce the belief that things can change, starting now.

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