

FIRE & SECURITY



Grenfell: Where does building control and fire safety go from here?

The Grenfell Tower disaster was a human tragedy and a national scandal. PBC Today talks to Martin Conlon, chair of the Building Control Alliance, about the difficult questions raised and the industry's response

The Grenfell Tower disaster, in which 71 people lost their lives, has raised many questions – political, social and legal – but perhaps above all, how could this have happened in 21st century Britain?

For the construction, building control and fire safety sectors there are deep, fundamental issues to address about legislation, regulations and industry practice relating to not only Grenfell but hundreds of other buildings across the country.

An independent public inquiry, led by retired judge Sir Martin Moore-Bick, will examine issues including the immediate cause of the fire and why it spread to the whole of the building; the design and construction of the tower and decisions relating to its modification, refurbishment and management; and the scope and adequacy of building regulations, fire regulations and industry practice relating to the design, construction, equipping and management of high-rise residential buildings.

Separately, the government has announced an independent review of building regulations and fire safety to be led by Dame Judith Hackitt, chair of manufacturers' body the EEF.

A key issue will be how did the fire spread so rapidly and to such devastating effect? The initial cause of the fire has been identified by

the Metropolitan Police, which is conducting a criminal investigation into the disaster, as a faulty fridge-freezer.

How could it have spread when 1970s-built tower blocks like Grenfell were designed to contain fires within individual flats? Indeed, BBC's Panorama reported that firefighters had put out the fridge fire when they noticed flames "shooting up" the side of the building. What happened?

"Aside from the colossal investigation into Grenfell, the fact that cladding used on so many buildings failed the BRE's tests will raise serious concerns in the wider building control industry."

The police investigation is looking at every element of the construction of the tower, but it is suspected that the fire spread through the combustible insulation contained in the Aluminium Composite Material (ACM) panels cladding the exterior.

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

Yet in government-mandated fire safety tests carried out by the Building Research Establishment, insulation samples collected from Grenfell combusted in short order. An independent expert panel, chaired by former London fire commissioner Sir Ken Knight, subsequently called for large-scale testing of ACM panels with different types of insulation.



In the first three rounds of tests by the BRE, cladding used on over 200 tower blocks all over the country failed to comply with Part B.

In all, six different cladding combinations are being tested by the BRE. The test specimens incorporate each of the common types of ACM panel, with core filler materials of unmodified polyethylene, fire retardant polyethylene and limited combustibility mineral. The two insulation materials specified for use in the testing are rigid polyisocyanurate foam (PIR) or stone wool.

The results on their own appear damning but unravelling the decisions that led to the installation of ACM panels that were effectively banned on tower blocks under the building regulations at Grenfell will be a painstaking and complicated matter. At least 60 firms reportedly worked on the

refurbishment of the tower alone. In late September, police confirmed they are investigating 330 organisations involved in the construction, refurbishment or management of Grenfell and have obtained a staggering 31m documents.

Aside from the colossal investigation into Grenfell, the fact that cladding used on so many buildings failed the BRE's tests will raise serious concerns in the wider building control industry.

Martin Conlon, chair of the Building Control Alliance, says Grenfell represents a "systematic failure".

"We tend to get it every generation where there's a major disaster and something has occurred that wasn't quite foreseen. You go back to disasters in the past – Ronan Point,

Summerland, Fairfield old people's home in Nottingham – where there's a problem and it wasn't foreseen at the time," he tells PBC Today.

"I think this is where we are with [Grenfell]. We assumed that a fire would behave in a certain way on the outside and it clearly hasn't. I think that's where there's a systematic failure."

Concerns about cladding, however, are not new. In 1999, the House of Commons' Environment, Transport & Regional Affairs select committee said that while the evidence did not suggest that the majority of external cladding systems posed a serious threat to life or property in the event of fire, there had been incidents of fire spreading behind rainscreen cladding. In 1991, a tower block fire in Knowsley climbed 11 floors behind the external cladding.

The cross-party committee concluded that the small-scale tests being used to determine the fire safety of external cladding were not fully effective and better methods were available, and they called for changes to the building regulations.

"We do not believe that it should take a serious fire in which many people are killed before all reasonable steps are taken towards minimising the risks," the committee said.

There have been changes. Since 2007, all new tower blocks over 30m must, by law, be fitted with sprinklers. It has been said that Grenfell could not be built today – but the changes did not apply to existing blocks.

Conlon notes there have been many calls, on successive governments, to change fire safety and building regulations relating to existing high-rises. Following the 2009 Lakanal House fire in Southwark, which resulted in six deaths, the coroner Frances Kirkham wrote to then-communities secretary Eric Pickles

recommending a number of measures, including moves to "encourage" housing providers to retrofit sprinkler systems in tower blocks.

"By their very nature, building regulations and building standards are reactive," Conlon says.

"The coroner recommended a review of building regulations and that didn't take place. I don't really know why that didn't happen. Building control officers can only apply the requirements as government lay them down. It's really up to our politicians to give us the framework."

Nevertheless, in the case of Grenfell, it is striking that there were reportedly 16 council inspections of the renovation work that involved the cladding replacement, as well as specific viewings of cladding samples.

"You've got to bear in mind that building control inspections are a snapshot. They are not a replacement for thorough inspections throughout the process from a quality control point of view," Conlon says.

"Don't expect that building control will see every single nail that goes in and every single screw that goes in. That's not its purpose; the purpose is to oversee that the contractor is carrying out their role adequately.

"The people who are responsible for complying with the regulations, legally, are the people who are carrying out the work."

Building control is essentially acting like the referee in a football match, Conlon says.

"The referee will blow the whistle when they see an offence," he adds.

"If an offence occurs behind the referee's back and he or she doesn't see it, then they can't blow the whistle. It's down to the



players on the pitch to abide by the rules of the game. And it's exactly the same for building control."

The main contractor that carried out the refurbishment at Grenfell, Rydon, has stated that it "met all required building regulations – as well as fire regulation and health & safety standards". Its chief executive, Robert Bond, has pledged to cooperate fully with the public inquiry to establish what happened.

From a building control point of view, Conlon hopes the inquiry and the review of building regulations and fire safety bring greater clarity, both in terms of the technical requirements and the language used in guidance, as well as a reaffirmation of the lines of responsibility, particularly for large-scale projects involving multiple contractors.

"If you've got people punching holes through compartment walls to put services through – you might have a plumber, you might have an electrician, you might have air conditioning people, all pushing holes through walls to lay their bits and pieces – where's the responsibility for ensuring that the compartment is well sealed and maintained at the end of the job?" he says.

"Is it the main contractor? The main contractor might say, it's not me, it's up to the

subcontractor to make good after their own operations. The subcontractor might say, that's not my job because my job was just the installation.

"We need clarity, we need affirmation, we need understanding within the whole process."

While the remit of the public inquiry has been criticised by some for being too narrow – it will not, for example, examine social housing policy – Conlon hopes it will provide answers to a number of key questions.

"Certainly, we're looking for answers as to what were the root causes, not just of the fire starting but of the spread – and of the problems that it created. What lessons can we learn, not necessarily from a regulatory point of view but from a building management point of view?" he says.

"It's raised all sorts of questions, broader questions than the cladding."

Indeed, as an industry we must hope that the public inquiry and the review of building regulations provide answers that bring both justice for the victims of Grenfell and genuine, lasting change for the future.

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Fire safety and security: Achieving the best of both

Jon Cole, Chief Operating Officer of Secured by Design, discusses reconciling Part B and Part Q of the Building Regulations and the use of third-party and dual certification to improve and integrate fire safety and security

In the wake of the Grenfell Tower disaster, fire safety is in the spotlight like never before. Secured by Design (SBD), the national police initiative to integrate proven crime prevention techniques into the built environment, has long been working to improve the security of homes and businesses without compromising fire safety.

Ever since Part Q of the Building Regulations (England) came into effect on 1 October 2015, introducing security standards for new homes and buildings converted into homes for the first time, SBD has worked with industry to ensure there is no conflict with Part B of the Building Regulations dealing with fire.

Jon Cole, SBD's COO, says there is no reason why doors and windows, resistant to physical attack by a would-be burglar (in line with Part Q), should interfere with the need for suitable means for emergency egress as required by Part B of the Building Regulations (England), or access for the Fire Service in the event of a fire or other emergency.

"Essentially, we've built-in a whole programme of requirements so there should be no problem at all between Part Q and Part B," he says.

"Working with industry and standards bodies, a new standard has been introduced for single point locking (BS 8621) that provides the security level required from the external

face of the door i.e. equivalent to a BS 3621 lock, but removes the need for the key to unlock the door from the inside. The same requirement and functionality has also been incorporated into a new standard for multipoint locking systems – PAS 8621.

"For buildings where there may be a glass window next to the door and it's not really advisable to have a thumb-turn release when the building is empty; we have again worked with industry and standards bodies to produce PAS 10621 (multipoint locks) and BS 10621 (single point locks). Both standards effectively have the same functionality as a BS 8621 lock, but with an override facility to deadlock the door from the outside when the house is empty."

"We've taken these requirements, our suggested fixes, if you like, to the Fire Service and we've got the thumbs-up to run with them."

Part Q only covers new homes but SBD is keen to see its security principles applied to all dwellings. Over the years, it has worked on incorporating crime prevention techniques into a number of major refurbishment projects for all tenures, but especially for landlords, such as Nottingham City Homes, and is set for an agreement with a London housing association covering 21,000 properties over 15 years.

Last year, it launched 'SBD National Building Approval' (SBD NBA) to create a simplified route for developers and those commissioning buildings on a larger scale to achieve Part Q compliance. Through the scheme, all aspects of physical security within the buildings are agreed well before any work is carried out. The SBD NBA has been recognised by the Building Control Alliance and is therefore



accepted by local authority building control and the security criteria for all future developments meets the standards of police forces throughout the UK.

National Building Approval also sees SBD carry out due diligence on all suppliers of doors, windows and rooflights to ensure they meet Part Q requirements.

While initiatives like SBD National Building Approval support compliance with the Building Regulations, SBD, which has campaigned for better physical security in buildings for over 30 years, urges developers to go further through its Police Preferred Specification accreditation scheme.

“The big difference between SBD and the Building Regulations is we ask for full third-party certification, whereas the Buildings Regulations only ask for doors and windows to be tested,” says Cole.

“When we first licensed companies to use the SBD Police Preferred Specification logo, it

became obvious when we went out on site to inspect developments that some door manufacturers thought it was acceptable to provide a lesser product to that which had previously been tested. I will always give the vast majority of door manufacturers an awful lot of credit for what they have done to improve security and indeed fire safety – but there were a small number who were quite obviously willing to bend the rules.”

Third-party certification, which is carried out through independent, UKAS-approved certification bodies, means factory production control and an annual test and factory visit ensure standards of doors and windows are met day-in, day-out on the production line.

“The annual audit test is particularly important, not only does it ensure that there is continuity in the manufacturing process but it ensures that third-party component parts of the doorset or window are also providing the same level of security – something that a visual inspection by the manufacturer may not detect, i.e. very few



products remain exactly the same. Value engineering and different third-party material providers can result in products failing the security audit test” says Cole.

“We have seen doorsets fail as a result of material changes to specifications, unknown to the door manufacturer. It may look exactly the same. We’ve actually seen cases where a door manufacturer has changed the supplier of the screws and they looked the same but when they were tested, they failed spectacularly leaving a perplexed door manufacturer saying, well how has that happened? The screws had all snapped. That’s the whole point of third-party product certification”.

“What third-party certification does is it gives us some degree of comfort and a guarantee, as far as possible, that the door that was tested is exactly the same as the door that is installed in the premises. Quite simply, you don’t get that with just Part Q or Part B

because the requirement within the accompanying Approved documents is for products to be ‘tested’ to the relevant standards.”

More than 650 companies have achieved Police Preferred Specification accreditation, the vast majority of those are doorset, window and hardware manufacturers.

“We couldn’t possibly keep tabs on every single one of them, so that’s why third-party certification is so important,” says Cole.

To ensure the standard-setting process remains up-to-date, SBD maintains active relationships with UKAS-accredited test and certification bodies.

“We take an active role in the testing and certification process too, we have representative study groups made up of all UKAS accredited test and certification bodies in the UK (and there are two non-UL members

too). Groups meet on a regular basis to discuss problems encountered whilst testing and to ensure a minimum level of consistency in certification schemes involving the security of doors and windows.” Cole says.

“That information, together with information gained directly from the police service about new methods of attack by criminals, is then fed into BSI, Exova and other standards makers/owners to ensure that products are still secure.”

“One thing the police are very good at is recording lots of information!” says Cole.

“West Yorkshire Police, for example, is outstanding at recording how crime occurs and then passing that information on to us. We can then build it into the standards-setting procedure and make sure that the products remain secure. The process and standards are constantly evolving to ensure the public are buying the best they possibly can.”

SBD has continued to push the evolution of standards with the recent introduction of dual certification. In short, this means that products which have to meet strict specifications for both security and fire safety must have their certification linked in some way before they are recognised by SBD – something that is particularly important in light of the Grenfell disaster.

“We were the first organisation that I’m aware of post-Grenfell to insist on dual certification for both security and fire,” says Cole.

“The danger with not adopting dual certification is that if two certification bodies are not aligned – in other words, they don’t talk to each other – you get two different specifications: one that meets the fire safety requirements and one that meets the security requirements.”

“What you end up with is doorsets with fire

certification and security certification documentation but they may have different locks, different glazing, different hinges. One has a letter plate on it and the other one doesn’t, which is obviously extremely important for both security and fire. That would be presented to building control officers as being the same door – but it isn’t.” To avoid this situation and ensure the specification for both security and fire safety are the same, SBD insists on a single certification body taking overarching ownership of the two requirements.

“We’ve seen a number of companies who have presented doorsets to us for recognition or approval in SBD developments which we have had to refuse simply because we have been unable to reconcile their fire and security certification details,” Cole says.

“Where there is no evidence that the two doorsets are the same product, we’ve asked doorset manufacturers to go back to their respective certification bodies and gain recognition within the ‘Scope of Certification’ that the fire doorset and security doorset are indeed one product”.

“It doesn’t really matter to us whether it is the certification body for fire that confirms the specification for security is the same, or, whether it’s the certification body used for security that certifies that the specification for the fire door is exactly the same. At the end of the day, the most important issue is that a doorset must have a matching specification for security and fire – I’m extremely pleased that we now have quite a few SBD member companies who are coming back to us with dual certification for fire and security.”

Looking ahead, SBD is working on a totally new method of access for the Fire Service that will still preserve security in multi-dwelling buildings like apartment blocks and high-rise developments.

“The big challenge for us is compartmentalisation,” says Cole.

“Our hurdle, if you like, is to provide secure areas within a large block of flats, like Grenfell, for example, while still allowing fire brigades rapid access in the event of an emergency.”

“Presently, if the Fire Service doesn’t have a prior agreement with the building owner to allow access, they generally end up pressing buttons on an access control system until somebody opens an outside door – this can waste precious time.”

To address the challenge, SBD has worked with security firm Gerda to develop a rapid access box for multi-storey buildings.

“It sounds incredibly simple, but in essence it is a box mounted on the outside of the building with a switch inside. Once the switch is thrown the main access doorset and all internal access controlled doorsets are released to allow free unfettered access to the fire service. It hasn’t been easy and the box must exceed the security of the doorset and access must be gained by a controlled key system to ensure the security of the system is maintained” Cole says.

“Our 2016 SBD Design Guidance for new apartment buildings requires every floor to be compartmentalised. In other words, there needs to be a door on the entrance to the corridor that controls access to that corridor.”

“So if you followed me into a building, for example, and I’m going to the 10th floor, the only place you can go is the 10th floor – or alternatively you can stay in the lobby.”

“It doesn’t stop you from getting rapid egress, because that is always available via stairwells and we’ve also agreed protocols for access to lifts with the Fire Service.”

The Fire Service would have special key to access the box – which itself would meet or exceed the security standards for the main entrance doorset to the building.

“It’s been quite difficult to achieve but we have done it now. We have agreed a Memorandum of Understanding with the London Fire Brigade to trial this new initiative. Once we’ve trialled it in London, we’ll roll it out to local authorities and housing associations across the country,” says Cole.

“Our initial work on this has shown dramatic reductions in anti-social behaviour (ASB), which of course is linked to arson. If we reduce ASB there is a high likelihood that we can reduce arson in apartments blocks too, together with drug misuse in common areas and the sale of drugs from flats – the important point is that this can be achieved without hindering the Fire Service in any way.”

“Essentially we feel that there is no conflict between the need to secure homes and reduce disruptive and fear-generating anti-social behaviour in large apartment blocks, such as Grenfell, and the need to provide the Fire Service with the quickest possible means of access to the building. In short, there is no conflict between Part B and Part Q.”

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Incorporating security features in the design of hinges

A focus on Part Q of the Building Regulation has put security features at the forefront of construction. SFS intec share how their hinges help prevent crime

Building envelope specialist and high-performance hinge manufacturer, SFS intec, has been working with the national crime prevention initiative, Secured by Design (SBD), for several years. SFS intec shares SBD's ethos of designing out crime by incorporating security features into the design and development stage rather than being an add-on to the finished product.

Nigel Wood, Fenestration Business Development Manager at SFS intec, explains; "We have always been proud to work in partnership with Secured By Design, OEMs and fabricators to develop products with security features being integral to the design. In our view, the coveted SBD 'Police Preferred Specification' accreditation is a clear indication for specifiers and developers of our commitment to this initiative".

The importance of security

Security has increased in relevance over the past few years due mostly to Part Q of the Building Regulations and PAS 024 testing



standards. Prevention against burglaries also remains a concern across the country. Industry reports clearly show that SBD developments are much less likely to be burgled compared to non-SBD sites. And while better quality SBD-accredited products may increase the average home costs slightly, the Association of British Insurers estimate the long-term payoff far outweighs any initial building costs. The added security and durability of products also add to the sustainability and longevity of the building. Increasingly, specifiers are researching security-enhanced products and systems, and with the development of BIM, an SBD requirement for new builds may become part of the specification process in the future. SBD-accreditation is now a key USP for any manufacturer's product portfolio.

Design in practise

Nigel Wood comments further; "When expanding our Dynamic 2D range to provide a hinge for composite doors for the commercial,

new build and residential sectors, we worked closely with SBD and customers. Security was a prerequisite for our new Dynamic 2D-C hinge, but this didn't impact on the other qualities we wanted to incorporate. This slim line hinge has the aesthetics, adjustability, security and durable performance customers can expect from an SFS intec hinge. It's CE certified and easily complies with current PAS 024 door testing with the addition of a fire resistance assessment. The hinge is available in 6 standard colours answering the growing trend for coloured profiles and is adjustable to cater for the increased use of low thresholds. Incorporating security features hasn't meant we've had to neglect the other product attributes we wanted to include."

Testimonial

Select Windows, an award-winning family-run business in Walsall, West Midlands, has changed the specification of their composite doors to feature the Dynamic 2D-C due to its operational reliability and excellent visual appeal with built-in strength and security. Nigel Court, Operations Manager at Select Windows, comments; "As a company, we have always championed quality and performance. That's why we don't cut corners and trust only reliable hardware manufacturers like SFS intec. We know that SFS intec's hinge range has passed all PAS 024 testing requirements and enhances the technical performance and styling of our doors. But it's also a more secure fix, and the adjustment process is simple and makes our installers' lives easier. Knowing that SFS intec are SBD-accredited gives us and our customers piece of mind that they are protected against break-ins."

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Do we need to retrofit fire sprinkler systems in social housing?

Following the Grenfell Tower disaster, there have been widespread calls to retrofit fire sprinkler systems in social housing. BAFSA supports this principle – but Chief Executive Keith MacGillivray cautions against a rush to install systems that do not meet British Standards

BAFSA has worked tirelessly for more than 40 years to ensure that automatic fire sprinklers are properly designed and installed in all types of occupancies across the United Kingdom.

The UK sprinkler industry, through this association, has invested heavily in research to ensure we can produce evidence-based data for use by local and national governments. It was BAFSA-backed research in 2011-2012 (The Callow Mount Sprinkler Retrofit Project) which proved that retrofit fire sprinkler systems in social housing were indeed feasible and cost-effective.

A primary objective of this Sheffield high-rise sprinkler project was to determine the practicality of installing a complete system without the need for residents to decamp.

During the early stage of planning, it was recognised that it was vital residents were happy with the proposals to retrofit fire sprinkler systems in their homes and many meetings were held, before and during the project, to ensure they were kept fully informed and that their concerns were properly taken into consideration.

Residents were invited to attend an initial meeting with all partners which explained how fire sprinklers worked and included a myth-busting session to address commonly found fears.

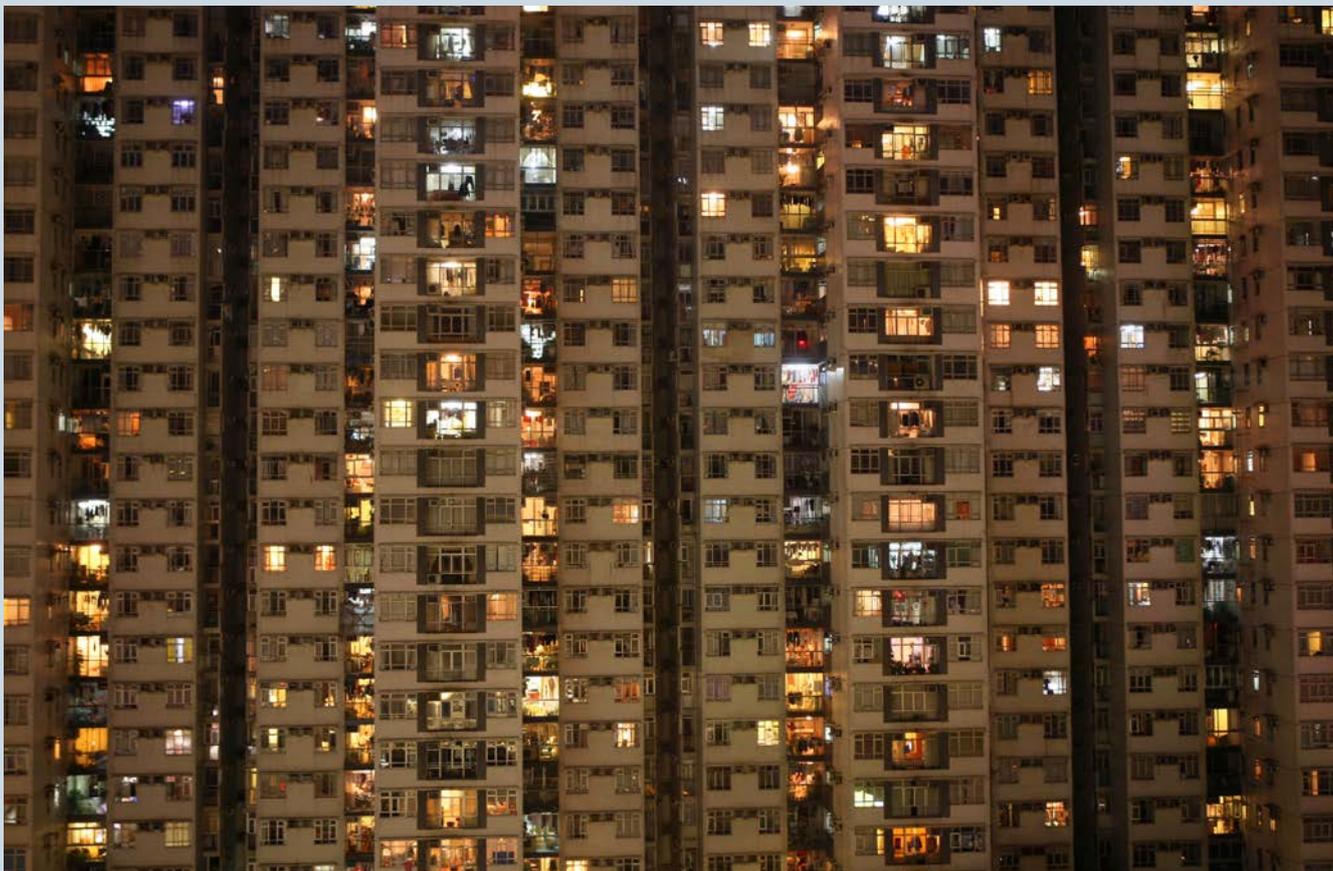
To allow the installation team to test, and refine, their approach without impacting on any of the residents, installation commenced in a vacant flat kept for respite use. Systems were then installed in three additional flats. This included some that were occupied – at the request of the residents. In the light of this initial experience, the programme was slightly amended. The whole scheme, covering 48 flats including lobbies, boiler rooms and bin stores, commissioning and snagging was completed in four weeks.

The experience revealed that the installation in each flat could be completed in less than one day without evacuating residents and the adopted approach ably illustrated how significant improvement in life and building safety can be readily achieved with minimal disruption.

This was smoothly realised through the cooperation of all concerned and clearly if the adopted approach could be fully integrated with other refurbishment work programmes, additional cost and time benefits would be achieved.

In the light of the Grenfell Tower disaster, while housing providers appear eager to provide more robust fire protection for tenants – especially those in high-rise blocks – BAFSA members report growing fears that a ‘rush to install something quickly’ may result in retrofit fire sprinkler systems being provided that are not fit for purpose.

Those specifying systems and authorities having jurisdiction (eg building control and fire & rescue authorities) must therefore appreciate the risks – and possible liabilities – involved.



There are available on the market a number of automatic fire suppression systems that purport to comply with or 'provide an equivalent degree of protection' as those installed to British Standards. Such products may be designed to other standards – or to none – but it is BAFSA's belief that these are unlikely to provide the same degree of certainty of reliable operation and levels of protection as systems designed and installed in accordance with established codes of practice.

Such non-standard-compliant or innovative systems include 'low-cost sprinkler protection' where the sprinkler heads are fed directly from the property's internal cold water distribution system, 'pre-action' or 'double-knock' sprinkler systems.

Recent developments in the provision of standalone 'personal protection' systems, which provide a freestanding fire suppression system covering a small room or part of a larger room, can now be used with confidence

for the safety of immobile people, provided equipment certificated to LPS 1655 by the LPCB is used. The scope for this equipment will be covered in a future British Standard.

One particular product, growing in popularity with building control officers, comes with the claim that it meets the performance standards of BS 92521 and BS 84582. On the face of it, this looks impressive; however, these tests only relate to the nozzle – not the system. It therefore seems bizarre that something installed in a building to protect life can obtain approval simply on the basis that a single component has passed a laboratory test.

It is BAFSA's opinion that since reliability and efficacy is a paramount issue, only systems designed and installed to the British Standards should be specified for residential and domestic premises.

Furthermore, owners and responsible persons should seek to employ competent contractors with the appropriate third-party

accreditation to both design and install sprinklers or watermist systems and ensure that arrangements are put in place for future servicing and maintenance. Where component standards exist then these should also be complied with.

By choosing a third-party certificated contractor with certification from a UKAS-accredited certification body, clients have the confidence that in addition to the contractor having been competence assessed in their activities by the certification body, the certification body are themselves subject to assessment of their competence and abilities by UKAS.

Currently, there are three accredited bodies that operate such certification schemes for sprinkler installations: The Loss Prevention Certification Board (LPCB), Exova Warrington and IFC Certification.

Specifiers, or those involved in providing guidance on the procurement of non-standard systems (including the fire & rescue services), should also be aware that at the time of writing, none of these UKAS-accredited fire certification bodies will allow a certificate of compliance or conformity to be issued for a non-compliant system. Those who propose or support the use of systems that do not comply with an appropriate standard should understand that they may incur an assumption of liability should such a system be discovered to be unfit for the purpose for which it was installed.

It should also be noted that at the time of writing, only the LPCB maintains schemes for testing the components of automatic fire suppression systems.

Seven years ago, BAFSA instigated the development of the first National Occupational Standards for the Mechanical Fire Sector, which state what is required of a worker in terms of performance and knowledge. These provided the building blocks for the IQ Level

2 Certificate in Fire Sprinkler Installation – the first nationally recognised qualification for sprinkler installers, which was designed, developed and launched by BAFSA. To acquire this qualification, launched in 2015, students must achieve seven mandatory units, which reflect the knowledge and competencies necessary to meet the industry standards for the installation role.

BAFSA is urging the government to take immediate action to actively promote, through legislation and regulation, retrofitting of automatic fire sprinklers in high-rise housing throughout the UK as the only effective measure to compensate for single staircases, combustible external cladding and poor standards of fire compartmentation. It is also essential that housing providers only install automatic fire sprinklers to the appropriate British Standard using third-party accredited installers and approved components.

We are also calling for a coordinated approach to the provision of financial and technical support to ensure that all housing bodies are able to carry out this work.

Action to prevent the needless number of fire deaths in the UK continuing is needed now.

British Automatic Fire Sprinkler Association

The logo for the British Automatic Fire Sprinkler Association (BAFSA). It features the word "bafsa" in a lowercase, sans-serif font. The letters "b", "a", "s", and "a" are dark blue, while the letter "f" is a vibrant red. The letters are closely spaced and have a clean, modern appearance.

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New guidance for safe and effective gaseous fixed fire-fighting systems

FIA WG Gases Chairman Alan Elder and FIA Technical Manager Robert Thilthorpe talk to PBC Today about the FIA new guidance document, Pipework for Gaseous Fixed Fire-Fighting Systems

It has taken six months and significant input from a range of experts, but now the Fire Industry Association has published a new guidance document designed to demystify the standards surrounding the design, selection and installation of gaseous fixed fire-fighting systems pipework.

For those that don't know, a fixed gaseous fire-fighting system is a system that does pretty much what it says on the tin – it uses a gas-based agent to put out a fire either by displacing some of the oxygen in the room to suffocate the fire, or by removing heat. The method is dependent on the type of agent used.

In almost all gaseous fixed fire-fighting system installations, the agent is delivered to the protected hazard through a network of pipework. Installing the pipework presents a number of challenges and ensuring it is correctly designed and specified is important to avoid issues that could affect the safety and effectiveness of the system. The key thing is knowing what problems there could be and knowing how to avoid those common pitfalls.

Alan Elder, Chairman of the FIA's Working Group Gases, explained: "The supply of gaseous fixed fire-fighting systems requires a number of skills, experience and specific knowledge of the equipment, design codes and the hazards associated with handling high-pressure gases. People need to

understand how to install gaseous systems so that the system is not only operational, but safe."

Safety is the key issue that has inspired the FIA's WG Gases to create a series of useful, freely downloadable documents designed to explain the key safety concerns to those working with, handling and installing these systems.

The latest in the series of documents, the FIA Guidance Note, Pipework for Gaseous Fixed Fire Fighting Systems, contains an expanse of information based on the technical knowhow from the experts who prepared it and includes handy referral charts and formulas for working out which pipes should be selected.

"There are a number of concerns in the industry, especially when it comes to pipework," explained Elder.

"One of the big concerns is that people can mix up British and American standards. It can happen accidentally as there are standards for pipes in the UK that are different to the ones in the USA.

"People do not necessarily realise that pipe fittings manufactured to British standards may not be compatible with fittings manufactured to American standards. It is entirely possible that one installer may be familiar with American standards and another familiar with British standards – and if components are mixed on the same system then there could be some compatibility issues between the different types of fittings, which could lead to a decrease in the integrity of the system as a whole."



Elder was keen to stress the importance of sticking to just one standard for any given system and ensuring that the standards are applied consistently.

“Pipework and fittings may be suitable for one type of gas system, but they might not be suitable for another,” he added.

“Fortunately, with the new guidelines that we have created, it is our intention to help to educate the industry and reduce any confusion surrounding the pipework.

“We really need people to understand that working with gas requires a highly specialised skillset and an understanding of how gas reacts and moves within a pressurised environment.”

The guide states that it is “important that the pipework from the container storage location to the protected space is professionally installed by trained personnel, who have experience with the installation of gaseous fixed fire-fighting systems. They should also be fully conversant with the manufacturer’s requirements to ensure the integrity and stability of piping during discharge and aware of the forces generated. Where agent storage containers are located outside the protected space then the pipe routing should be the shortest route possible to the protected space.”

Thankfully, the document has a handy chart for installers and designers of gaseous fixed fire-fighting systems to refer to, which gives the measurements for the maximum spacing between the supporting hangers, depending on the nominal pipe size, which with the correct selection of the support should prevent any pipes from coming away from the wall and causing any damage.

In summary, the guidance document covers everything a designer or installer of gaseous fixed fire-fighting systems needs to know – the pipe specification for both the actuation lines and the pipework installation, methodologies for connecting the pipes, how to join and seal the pipes, what type of support to use to fix the pipes to the structure, how to avoid corrosion, marking, earth bonding and testing of the completed pipework installation.

The guidance document is available to download free of charge from the FIA’s website. Simply go to fia.uk.com, click the Resources section and search the publications library for “FIA Guidance Pipe work for Gaseous Fixed Fire Fighting Systems”, which also contains all the other guidance documents produced by FIA Working Group Gases.

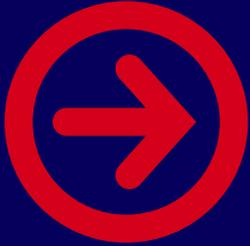


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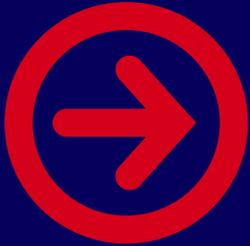
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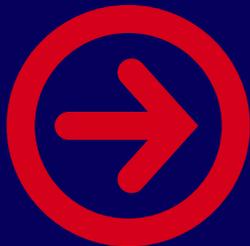
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