

sprinkler focus

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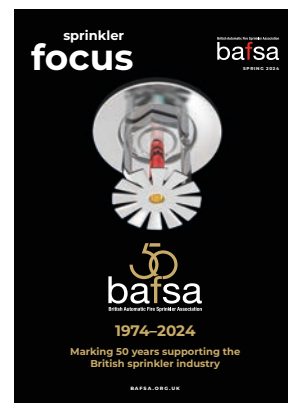
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From the chief executive



Ali Perry

Welcome to the Spring 2024 edition of BAFSA Focus. I recently attended the Building Safety Regulator's second building safety conference. Under The Building Safety Act 2022, duty holders and organisations must demonstrate not only their competence, but also that of everyone in their supply chain. Competence is now a part of compliance and is required in law. Jon Vanstone Chair of the Industry Competence Committee talked about the importance of proving and evidencing competence and the value of awarding bodies in doing so.

BAFSA is therefore engaging across stakeholders and regulators to ensure we can understand industry needs and design our sprinkler training courses so that they receive the appropriate accreditation through

"We are continually working to ensure we understand what we can do to help our members and industry address these challenges"

ABBE and are recognised by the third-party certification bodies.

Philip White, the Health and Safety Executive's Director of Building Safety, stated that competence is central to the work of the Building Safety Regulator and talked about the importance of behaviours and ongoing competence.

We are continually working to ensure we understand what we can do to help our members and help industry address these challenges and, in my opinion, in many ways as an association we are leading the way in this respect. Maintaining standards in the sprinkler industry has always been at the heart of BAFSA since it was founded 50 years ago and I am sure will continue to be so for the next 50.

BAFSA has a new technical committee lead

BAFSA welcomes Richard Cebreiro as the new head of BAFSA's Technical Committee. Richard takes over from Alan Crichton who now takes on the role of BAFSA's Scottish Representative.

Richard is a fire consultant specialising in fire limiting and suppression systems, delivering system designs, review of hazard and third-party inspections to UK, EU and global standards. Formerly the design and engineering manager at Matthew Hall, where he oversaw all design output and implemented

engineering standards for the fire division across the UK, Richard has also specialised in fire suppression in the energy and industrial sectors working at key sites around the world.

He is also an LPS1048 Supervision Engineer for the LPCB, ensuring that sprinkler system design and installation is compliant with the standards by scheme installers. To contact Richard please email: richard@bafsa.org.uk. Remember all BAFSA members are welcome to sit on the Technical Committee.





Liquitech brothers to race in Dakar Rally

Brothers Carl and Craig Searles, who are both managers at BAFSA member and water treatment company Liquitech, hope to race the famous Dakar Rally together in 2025 and need our support.

The lads who have long been racing enthusiasts took their first major step towards that goal in last October when they competed in the Rallye du Maroc which allowed them to qualify for the Dakar race in Saudi next year. The two developed an interest in Dakar from an early age before starting their careers in motocross. They eventually became instructors for BMW Off Road Skills, a school run by Dakar veteran Simon Pavey for aspiring adventure bike riders.

Both have taken part in the BMW GS Trophy, an enduro series organised by BMW Motorrad, as well as 4x4 off-roading in their Toyota Land Cruiser. Carl is the older of the brothers by two years and won GS Trophy in 2018, while Craig represented the United Kingdom at the 2022 BMW International GS Trophy.

The boys are both managers at their family-owned water treatment solutions business owned by their father Andrew. In 2020, the company sponsored Neil Hawker, a BMW Off Road Skills colleague who competed at Dakar in the Malle Moto class. Two years later, Liquitech supported Simon Hewitt's Dakar effort. Now it's their turn to compete.

"This dream began when we were around 10yrs old, we started watching these mad people riding motorbikes across the desert, at crazy speeds and having massive crashes. Turns out it was called the Dakar Rally! From there it really gave us the bug for off road motorbikes. It wasn't until we both started earning some money working for our family business that we saved up and bought our own motocross bikes and started racing them," says Craig. Someone has said to us that it's not just about racing Dakar, it's also about the journey along the way. We want as many of you to join us on this epic journey to the desert in Saudi Arabia."

To find out more about sponsoring the Searles' to Dakar dream visit their website: searles2dakar.com

New Annual Sprinkler Saves review documents successful sprinkler activations for 2023/24



BAFSA has just published its annual *Sprinkler Saves Review*. This comprehensive report documents all of the key sprinkler saves over the last 12 months, that have been reported to BAFSA's sprinkler ambassador, Nick Coleshill, who runs the Sprinkler Saves website.

This review clearly demonstrates how and why sprinklers make a difference to people, property and the environment when it comes to fire safety.

These Sprinkler Saves, collated by BAFSA, from primary fire data and by Fire & Rescue Services around the UK, make this the only available report in the UK that demonstrates the difference automatic fire sprinklers make during a fire incident. The review uses information collated from primary fires reported to BAFSA for the financial year ending March 2024, in which sprinklers were reported as activated and having an impact. The reported incidents span a wide range of building types and occupancies.

You can download a free copy of the report or request hard copies for distribution by contacting claire.mahoney@bafsa.org.uk

Lithium-ion bin fires almost double in last two years

A new 'Stop Battery Fires campaign' from Recycle Your Electricals and the National Fire Chiefs Council is raising awareness of the importance of electricals and battery recycling as new research shows lithium-ion batteries thrown in household rubbish bins have led to over 1,200 fires in the waste system in the last 12 months, compared to 700 in 2022.

A survey of local authorities across the UK has also found that 94% of them said that fires caused by batteries in the waste stream were an increasing challenge. Some 6bn batteries were thrown away in the last year, over 3,000 a minute – including over 1.1bn electricals containing hidden lithium-ion batteries.

The National Fire Chiefs Council says: "fires involving lithium-ion batteries are a disaster waiting to happen." Battery fires cause air pollution levels to spike in local areas, breaking WHO limits, affecting the health of local communities. Plus the cost impact of battery waste fires could also be significant with Zurich UK seeing some insurance claims range up to £20 million.

Turn to page 27 to read our article on where sprinklers stand in the face of lithium-ion fires.

Cheshire Fire Authority funds sprinkler retro-fit

Cheshire Fire Authority has invested £36,000 in sprinklers to help protect a newly renovated block of flats in Warrington

The eight-storey Kingsway House in Kingsway South in Latchford was officially re-opened on Friday 8 March 2024 after an extensive £6.3 million refurbishment project managed by Torus Group. The installation of the sprinkler system in the building will protect the 53 homes and the many people that will live there from fire.

Steve McCormick, Cheshire Fire and Rescue Service's Head of Prevention and Protection, explained: "Every year people are needlessly made homeless, injured and even killed because of fire. It is indiscriminate; it destroys lives, businesses and properties, and can often be prevented with the addition of a sprinkler system."

Steve added: "We're encouraging decision makers to consider fitting sprinkler systems in all new builds, as well as retrospective fitting in older premises. We want to dispel the myth that they are hugely expensive - the cost of installation and the benefits they bring far



outweigh the cost of destruction and potential loss of life and livelihoods caused by fire."

Cllr Stef Nelson, Chair of Cheshire Fire Authority, said: "To date, we have invested more than £200,000 in retrofitting sprinklers into high rise residential buildings across

our county, and Kingsway House is the 18th project we have supported. We have all seen the total devastation a fire in a tower block can cause and we are committed to working with our social housing partners to provide the best possible protection for residents."

Water regs move online

Sprinkler installers may be interested to know that Water Regs UK has moved its Water Regulations Guide Book online and will no longer produce a printed version.

Access to the guidance is free and offers both informative with guidance about regulatory requirements and more general guidance on safe water usage.

For installers this general guidance includes 87 new FAQs, eight new booklets and eight new check lists. The site also features the ability to give feedback to identify gaps and drive continuous improvements.

The new free to access online guidance is available on the Water Regs UK website at waterregsuk.co.uk

Happy 50th Anniversary BAFSA!



It's great to see some of you enjoying the BAFSA beers that we had specially created to celebrate our 50th anniversary. Packs have been sent out to BAFSA council members and key BAFSA supporters. All members will get a chance to sample the beers at the BAFSA AGM in November. Thank you to Monty's Brewery in Powys for brewing the beer and Paul Buckley at Riasca for designing the fantastic bespoke label.



Bernadette Hartley Award winner 2024

Many congratulations to BAFSA's former Chief Executive Officer, Keith McGillivray MBE, on receiving this year's Bernadette Hartley Memorial Award from the National Fire Sprinkler Network (NFSN).

Bernadette Hartley was one of the founding members of the NFSN. A former teacher, she began campaigning for greater fire safety standards following a devastating warehouse fire in her home town of Gloucester. Her passion and vision for the sprinkler cause has helped to push for stricter regulations and bring awareness to the importance of sprinklers in the UK.

Previous winners include BAFSA Sprinkler Saves ambassador Nick Coleshill and former CEO and special projects advisor Stewart Kidd.

New guidance on sprinkler protection idle pallet storage

The FPA has released a revised Technical Bulletin (TB) as part of its LPC Rules for Automatic Sprinkler Installations 2015, offering updated guidance on the correct storage of idle pallets within industry.

The TB215: *Sprinkler Protection of Idle Pallet Storage* update considers the rising number of timber and plastic pallets found, both internally and externally, in solid pile, racking, and incidental storage. As the TB outlines, idle pallet storage represents one of the greatest challenges for sprinklers in terms of control or extinguishment of fires, particularly in the case of wooden pallets stacked in piles inside warehouses as they can dry out and ignite easily. With this in mind, TB215:2024:1 considers the risks posed by the storage of idle pallets and addresses them by providing an enhanced choice of solutions for contractors and their clients.

In particular, the detailed TB outlines the inherent fire risk posed by idle pallets, considers better pallet material classification, presents detailed guidance on storage arrangements, and offers greater storage options with respect to height and design density. Also included is a cross reference to TB234: Protection to High Hazard Storage (HHS) Configurations and information about sprinkler head requirements, Early Suppression Fast



Response (ESFR) options, and confirmed water supply options. The TB takes into account recent research that reviewed fire test information and other international standards to provide a more comprehensive and robust sprinkler protection option for idle pallet storage.

This revised TB215:2024:1 follows the launch of the FPA's subscription service for the LPC Sprinkler Rules in January 2024. Visit the fpa.co.uk for more information.

BAFSA gets OFQUAL approval for Level 2 and Level 3 courses

BAFSA is delighted to announce the approval by OFQUAL, the Qualifications Regulator, of the ABBE Level 3 Award in Inspection and Commissioning of Commercial fire sprinkler systems and the ABBE L2 Certificate in Fire Sprinkler Installation.

The ABBE Level 2 Certificate in Fire Sprinkler Installation systems is a new competency based qualification that will provide experienced fire sprinkler installers with the opportunity to undertake one of the following pathways - residential installation, commercial installation and residential & commercial installation. Ruth Oliver, BAFSA Skills & Development Consultant says: "This new qualification is the result

of 18 months activity by those working in residential and commercial fire sprinkler installation environments who painstakingly reviewed all performance and knowledge criteria to produce this new competency based qualification specification. An industry qualification developed by industry itself." Alasdair Perry, BAFSA Chief Executive Officer comments: "I am delighted that BAFSA has worked with industry to produce this new qualification specification which is a key step forward for the industry.

The ABBE L3 Award in Inspection & Commissioning of Commercial Fire Sprinkler Systems related to the inspection and commissioning of commercial fire sprinkler

systems design in accordance with the LPC Rules inc BS EN 12845 and will address the knowledge and skills required to determine the sprinkler design in relation to; the storage configurations, inspection of the system during and at the end of the installation, the commissioning of the system and an understanding of the required ongoing maintenance of the system.

The qualification is one part of the requirement for applications for the Industry Skillcard Fire Sprinkler Engineer (Blue Skilled Worker card). Furthermore, the revised, new ABBE L2 Certificate in Fire Sprinkler Installation qualification is now also complete. Full details are available on the BAFSA website.

Mist opportunities

Stewart Kidd looks at the compliant applications for water mist fire suppression systems

Despite the fact that water mist has been in use commercially for some 30 years there are still issues regarding its appropriate use. There are also problems in terminology with reference being made to 'water mist sprinklers', 'misting systems' and even 'mist deluge sprinklers'.

BAFSA has recently published a full revision of its Technical Guidance Document No 3 (2004), *Using water mist on buildings and structures*.¹ TG3 makes it clear that water mist systems are based on proprietary products and designs; while they may comply with a standard such as FM 5560, EN 14972-1 or BS 85489 they are not harmonized to a common set of properties. The layout and spacing of nozzles, operating pressure and water capacity will differ between manufacturers and their chosen technology.

In particular, it should be noted that nozzles and components are rarely interoperable² (which means one cannot use a nozzle from one manufacturer on a system installed based by a different manufacturer). This has resulted in problems for some property owners who have found themselves with buildings protected by systems that are unserviceable where an installer has ceased trading. BAFSA is aware of many situations where its members have been called in to try to recommission systems only to find that spare parts are not available or are prohibitively expensive. In these cases, sadly, the advice offered must be to replace the system.

Prescriptive v performance-based standards

While there is a general perception that the application of water mist technology is similar or equivalent to sprinklers or gas extinguishing systems – this is not the case. The use of sprinklers and gas extinguishing systems is guided by prescriptive standards, developed from decades of fire-testing, research and a knowledge base of their effectiveness and reliability in real-case fires. Water mist is a performance-based technology. That is, it requires specific testing against each possible fire scenario. For a limited set of fire scenarios, a set of standardised fire test protocols have been developed. Each manufacturer has developed their own water mist product to 'pass' one or more of these fire test protocols. Thus, all water mist systems are based on proprietary manufacturers' technology and design. The correct use of the design standards for water mist are dependent on an assessment of the application hazard and determination of applicability with the relevant fire test protocol; proof of independent third-party fire testing to that protocol; proof of third-party component approval; and limits of applicability as determined through testing and documented in the manufacturer's design manual.

Where can water mist be used?

The need for bespoke design of systems for specific risks means that mist applications must be more carefully specified. The only

System type	Suitability according to purpose group												
	Domestic	Residential	Residential (mixed use e.g. residential + commercial)	Hotel	Office	School and educational	Warehouse	Data centre	Laboratory or cleanroom	Places of assembly or recreation	Licensed premises (bars and restaurants)	Retail	Hospital
Sprinkler to BS 9251	●	●	● ^(A)	● ^(B)	○	○	○	○	○	○	○ ^(C)	○	○
Sprinkler to BS EN 16925	●	●	● ^(A)	● ^(B)	○	○	○	○	○	○	○	○	○
Water mist to BS 8458	● ^(D)	● ^{(D), (E)}	● ^{(A), (D), (E)}	● ^{(B), (D), (E)}	○	○	○	○	○	○	○ ^(F)	○	○
Sprinkler to BS EN 12845	● ^(A)	● ^(A)	●	●	●	●	●	● ^(G)	● ^(H)	●	●	●	●
Water mist to BS 8489-1	○	● ^{(D), (I)}	● ^{(D), (I), (J)}	● ^{(D), (J)}	● ^{(D), (L)}	○	○	● ^{(D), (M)}	○	● ^{(D), (I)}	● ^{(D), (I)}	○	○
Foam to BS EN 13565-2	○	○	○	○	○	○	● ^(J)	○	● ^(J)	○	○	○	○
Powder to BS EN 12416-2	○	○	○	○	○	○	○	○	○	○	○	○	○
Water spray to DD CEN/TS 14816	○	○	○	○	○	○	○	○	○	○	○	○	○
Aerosol to BS EN 15276-2	○	○	○	○ ^(S)	○ ^(S)	○ ^(S)	○ ^(S)	○ ^(S)	○ ^(S)	○ ^(S)	○ ^(S)	○ ^(S)	○ ^(S)
Gaseous extinguishing to BS EN 15004-1	○	● ^(I)	● ^(I)	● ^(I)	● ^(I)	● ^(I)	○	○	○	○	○	○	○
Gaseous extinguishing to BS 5306-4	○	○	○	○	○	○	○	○	○	○	○	○	○
Oxygen reduction systems to BS EN 16750	○	○	○	○	○	○	○	○	○	○	○	○	○
Personal protection systems to LPS 1655 [8]	● ^(X)	● ^(X)	● ^(X)	○	○	○	○	○	○	○	○	○	○

Key
 ● Suitable if in full compliance with cited standard.
 ● Suitable for specific applications or areas within this purpose group, if in full compliance with cited standard and paying particular attention to accompanying footnotes.
 ○ Unsuitable (out of scope of the system design, installation and maintenance standard).

Table 1 — Method A: Typical examples of fixed firefighting system by building occupancy (or part thereof) — by common purpose groups (1 of 2)

easily accessible guidance on the selection of automatic fire suppression systems is contained in BS 5306-0³ which is intended to assist those charged with selecting and specifying fixed firefighting systems for protection to determine the most appropriate choice of medium and method of application. This needs to include the nature of the fuel and its configuration, whether the objective is to suppress, or extinguish the fire, and the consequences in use in relation to safety of persons, extent of fire damage and scope for secondary damage from the medium itself or by-products of its use.

The standard offers independent advice on where water-mist can be used without reservation, where it should not be used and where it may be used under some circumstances. Table 1 sets out the complete range of automatic fire suppression systems, including sprinklers and water mist and suggests how and where they should be used.

Concerns inhibiting the wider use of water-mist

One reason why perhaps water-mist systems have not been more widely adopted are those concerns expressed in some quarters as to their efficacy and reliability. While I believe these concerns are largely over-exaggerated, i.e. insurers do not have the same confidence in water mist as they do for sprinkler systems. When this perception is challenged, it is usually pointed out that water-mist lacks the more than 140-year track record of sprinklers – the first sprinkler standards were developed by UK insurers in 1885⁴. Apart from the significant body of experience in how sprinklers work in real fires (as opposed to tests) insurers will also refer to the difficulty of assessing water mist installations due to the application-specific nature of the systems. Others have questioned the absence of a consensus standard against which installations can be measured – quoting for example, the widespread use of the BRE's LPS 1048⁵ and the LPC Rules⁶. Sadly, there is no water mist-specific standard or protocols as the existing water-mist standards (BS, EN, FM and NFPA) do not yet provide a rigorous benchmark against which systems can be assessed.

In Wales, the national building codes require automatic fire suppression in all new residential buildings including apartment

blocks and single-family dwellings. While sprinklers are widely used, the use of water mist has been accepted as an alternative but concerns by the Welsh government have resulted in the production of a special guidance for code officials which substantially augments the requirements of BS 8458⁷.

UK standards

- BS 8458 2015 Residential and domestic systems
- BS8489 2016
 - Part 1: Design and installation
 - Part 4: Local application for flammable liquid fires
 - Part 5: Combustion turbines up to 80m³
 - Part 6: Industrial oil cookers
 - Part 7: Low hazard occupancies

BSi is obligated to withdrawn competing national standards when a CEN standard has been published as a BS EN document. While BS EN 14972-1 was published in 2021, the competing British Standards have not yet been withdrawn. There was considerable concern in the UK, when EN 14972-1 was proposed, regarding what was deemed a technically poor document. The National Forward and National Annexes which appear in BS EN 14972-1 express these concerns very clearly.

Since the publication of the 2021 version of the UK's domestic and residential sprinkler standard, BS 9251, other concerns have been expressed at the lack of rigour in BS 8458 when compared with BS 9251. Specifically, as BS 9251 has been extensively updated, drawing upon real-world experience of protecting many domestic, residential and high rise residential and mixed-use buildings. Areas of particular concern which have been updated include the following: prescriptive specifications of when enhanced availability water and power supplies are required and how to do so, detailed guidance on how to protect higher fire loading parts of buildings containing

non-residential fire loadings (e.g. plant areas, car parks, commercial/retail areas, communal amenities, etc). FSH/18/5, the committee responsible for BS 8458, believes that it requires similar upgrading.

However, with the imminent publication of BS EN 14972-17, it is almost certain that BS 8458 will soon be withdrawn. The BSI committee responsible for the standard will ensure that the National Forward and National Annexes have the necessary reinforcement to ensure that the standard is broadly similar to BS 9251 in its rigour.

There is one additional relevant British Standard: *BS 8663 fixed fire protection systems – components for water mist systems Part 1: 2019 specification and test methods for water mist nozzles*.

CEN Standards

- **BS EN 14972** *Fixed firefighting systems. Water mist systems*
 - 14972-1 *Design, installation and maintenance of water mist systems*
 - 14972-2 *for shopping areas*
 - 14972-3 *for offices, school classrooms and hotel*
 - 14972-4 *for non-storage occupancies*
 - 14972-5 *for car garages*
 - 14972-6 *for false floors and false ceilings*
 - 14972-7 *for low hazard occupancies*
 - 14972-8 and -9 *machinery spaces*
 - 14972-10 *atrium protection*
 - 14972-11 *for cable tunnels*
 - 14972-12 *commercial deep fat fryers*
 - 14972-13 *for wet benches*
 - 14972-14 and -15 *combustion turbines*
 - 14972-16 *for industrial oil cookers*
 - 14972-17 *for residential occupancies*
 - 14972-17 *for residential buildings*
- **BS EN 17450** *Fixed firefighting systems — Water mist components*
 - Part 1: *Product characteristics and test methods for strainer and filter components*
 - 17450-2 *nozzles*
 - 17450-3 *check valves*
 - 17450-4 *control deluge valves and actuators*
 - 17450-5 *pressure switches*

Some of the above have still to be published.

Other water-mist standards

- NFPA 750: *2023 Standard on water mist fire protection systems*
- FM 5560: *2021 Examination standard for water mist systems*
- LPS 1655: *2015 Requirements and test methods for the LPCB Approval of personal protection water mist systems*
- LPS 1283: *2104 Requirements and test methods for the approval of water-mist systems for use in commercial low hazard occupancies*
- UL 2167: *2021 Water mist nozzles for fire protection service*
- Vds 3188en: *2019 Water mist sprinkler (sic) systems and water mist extinguishing systems (high pressure systems) planning and installation*
- APSAD D2 *Water mist guide for installation of water mist protection systems*
- IMO A800+ MSC265 *Automatic water mist nozzles for marine use*

Evaluation of systems and installations

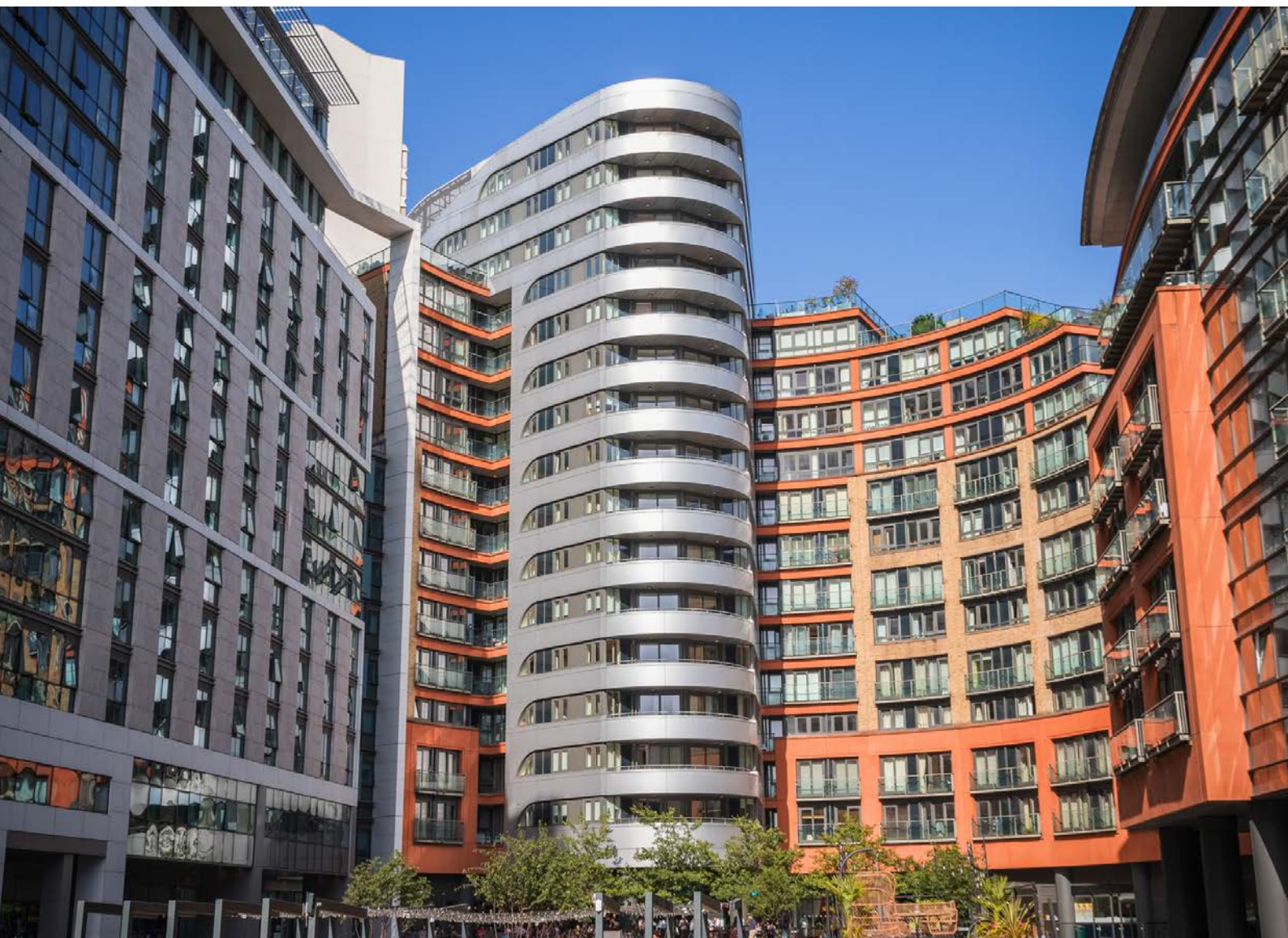
As for any fire protection installation, the system must be able to perform as designed and intended. For that, the supplier needs to demonstrate that the system will be effective for the intended application. Effectiveness depends on the suitability of the proposed system for the application and that it has been designed and installed correctly so that it works as intended. It must also be available to operate, without delay, whenever required.

Once a decision has been made that a water mist system is appropriate, three conditions must be satisfied:

1. The system chosen must be suitable for the proposed fire hazard and fire load (the application).
2. The system must be designed, installed, and commissioned correctly by a competent contractor using approved/listed equipment.
3. The system must be maintained so that it is ready to operate when needed.

Only when there is evidence that this has been done can the system be expected to perform reliably once installed.

“BS 9251 has been extensively updated, drawing upon real-world experience of protecting many domestic, residential and high rise residential and mixed-use buildings.”



Note as mentioned earlier, there is little data on either reliability or efficacy of water mist systems. One of the fire engineering decisions in risk analysis and design is that of reliability and effectiveness. BS 7974 gives detailed quantitative guidance for sprinklers that does not currently exist for water mist.

Current status of system and component testing

At present, in the UK, some installers have submitted their BS 8458 systems to third party testing by either Warrington FIRAS or the Fire Protection Association. Such testing as has been done has been limited to the BS 8458 Annex C protocol, which is somewhat restricted in its scope. Care should be taken to verify claims that success in these tests applies to all the manufacturers' water mist systems.

At the time of writing, as far as is known, no claims of water mist nozzles tested to BS 8663-1 have been made. The CEN standard for nozzles, prEN17450-2 is still 'pending'.

The BRE Red Book lists several manufacturers whose nozzles have been tested to the LPCB's own 'Schedule of Requirements'.

Water mist represents a valuable weapon in the fight against fire in buildings but lacks any significant track record in real fire situations. It should only be specified where there is confidence

in the system supplier and installer and care should be taken to adhere to standards and guidelines.

Note: This article represents only the opinions of the author and does not reflect the views of the British Automatic Sprinkler Association or its Council.

References:

- 1 <https://www.bafsa.org.uk/wp-content/uploads/bsk-pdf-manager/2023/11/Using-water-mist-systems-in-buildings-and-structures-.pdf>
- 2 Think 'closed protocol systems' as in fire detection technology.
- 3 <https://landingpage.bsigroup.com/LandingPage/Standard?UPI=000000000030388486>
- 4 In the UK, John Wormald of the Mutual Fire Insurance Corporation, Manchester, prepared the first-ever sprinkler rules in 1885. In 1888, these rules were adopted by the Fire Offices' Committee for their own members (virtually all of the companies underwriting fire business in the UK at that time). BIF 26: BAFSA.
- 5 <https://www.thefpa.co.uk/shop/lpc-sprinkler-rules-subscription/lpc-sprinkler-rules-with-bs-en-12845-print-subscription>
- 6 <https://www.thefpa.co.uk/shop/lpc-sprinkler-rules-subscription/lpc-sprinkler-rules-with-bs-en-12845-print-subscription>
- 7 Automatic water mist systems for domestic and residential premises (Welsh Government August 2021) <https://gov.wales/water-mist-systems-guidance>
- 8 BS 2974 2019 Application of fire safety engineering principles to the design of buildings (Multi part standard)



BAFSA 50th Anniversary lunch

BAFSA kicked off its 50th anniversary celebrations at a special lunch in the Attlee Room at the House of Lords in February – the same month the association was founded

Some 50 key stakeholders from across the fire safety and suppression sector were invited to a special celebratory lunch to mark 50 years of BAFSA. Honoured guests included Lord David Goddard, Sir Ken Knight, Bob Blackman MP and Ronnie King OBE.

The lunch saw the 'premiere' of a short 50th anniversary video, narrated by broadcaster and fire safety campaigner, Nick Ross CBE, that celebrated BAFSA's many achievements and the gains made in sprinkler legislation over the last half century with BAFSA's support.

The occasion also saw the presentation of the first John McCann award for a significant contribution to the sprinkler industry, which went to Dr Simon Bird. The award is sponsored by Vipond Fire Protection in memory of its former MD John McCann who passed away in 2022.



Top table: L-r Ronnie King OBE, Lord David Goddard, Ali Perry, Keith MacGillivray, Bob Blackman MP



Colin Todd - C.S. Todd & Associates Ltd and Chris Tilley - Fire Industry Association



John Spencer Chair of the Fire Sector Federation and Ian Cox Chair of the Business Sprinkler Alliance



Dr Simon Bird (right) receiving the first John McCann Award for a significant contribution to the sprinkler industry



Jonathan Dyson Chief Fire Officer North Yorkshire & NFCC Sprinkler lead, Gavin Tomlinson, Chief Fire Officer Derby & Chair of NFCC Protection & Business Safety Committee, Ronnie King OBE and Honorary Secretary APPFSRG



Karen Taylor Armstrong Priestley, Roger Brason SYFRS, Ritchie O Connell BAFSA, Wendy Otway EFSN and previously of BAFSA



Fire safety consultant and BAFSA's Wales representative, Ritchie O Connell and Roger Brason of SYFRS

“Nothing BAFSA has achieved in the past 50 years has been done in isolation. It has been delivered through real partnership because of the passion, drive and determination of the people in this room.”

Ali Perry
CEO BAFSA



Chris Stason Vipond with Richard Cebreiro BAFSA's Technical Committee Lead



John Vanstone Chair of the Industry Competence Committee & dr Gavin Dunn, MD of the FPA



Guests watch the BAFSA 50th anniversary video featuring interviews with Ronnie King and Ann Jones

To watch the BAFSA 50th video
click here: <https://www.youtube.com/watch?v=bqOGmsYD1G4k>





Ask Joe

If you have any questions relating to sprinklers then BAFSA's technical advisor, Joe McCafferty, is the man most likely to be able to answer them. Here he details some of the most interesting queries he has received over the last few months

If it is inevitable that a section of a dry riser pipe must travel below ground/below the floor, can it be run in plastic pipe?

BS 9990 only mentions 'heavy quality steel pipe' and galvanised if necessary. There is no doubt that heavy quality steel pipe and galvanised (and probably Denso wrapped/ or similar) for below ground is a safe option from the point of view of robustness and safety from inadvertent penetration by any mechanical excavation work in the future. But heavy duty, high-pressure, thick-walled HDPE pipe is also robust and sometimes used for fire protection underground systems like sprinkler systems. I do not see a problem of using heavy duty HDPE but (technically) it is a deviation from what's written in BS 9990. So I think you should discuss with whatever AHJ's and get them to approve its use. Ensure that any upright leg of the underground pipe (that I assume cannot be drained) is not prone to freezing. Identification tape laid on the pipe would also be beneficial.

Is there any specific requirement in sprinkler rules for the type or standard for pressure gauges?

In The LPC Sprinkler Rules (incorporating BS EN 12845) it states the following in relation to pressure gauges used in sprinkler pump rooms:

TB210.5.2 Pressure gauges (supplements BS EN Clause 15.7) Pumpset pressure gauges shall be in accordance with BS EN 837-1 or equivalent and shall be selected and installed in accordance with BS EN 837-2.

Fluid filled pressure gauges with a nominal size of at least 100mm and an accuracy class of at least 1.6 shall be used. Compound pressure gauges shall be used to measure suction pipe pressures.

Delivery pressure gauges shall be mounted remotely from the pump to avoid mechanical shock and connected in accordance with BS EN Clause 15.7.2. Pressure gauge scale divisions shall not exceed: (a) 0,2bar for a maximum scale equal to or less than 10,0bar; or (b) 0,5bar for a maximum scale value of more than 10,0bar. The maximum scale value shall be of the order of 150% of the maximum pressure. These criteria could be used for any other pressure gauges used on the system even if the pressures are over 10bar.

This is a further extract from BS EN 12845: 8.2 Maximum water pressure 8.2.1 except during testing, water pressure shall not exceed 12bar at equipment....

At the very early stage of a project, before any sprinkler layout drawings are available, what would be considered an acceptable weight (kg/m²) to take into consideration for the sprinkler system to be supported from the roof beams etc?

There are a wide variety of sprinkler system designs and the pipe diameters increase with the increase in the amount of water (density) that is required to control a fire. Some systems will have pipe diameters in the region of 25mm to maybe 100mm, while other systems may have diameters of 40mm to maybe 200mm. So, giving an exact loading (kg/m²) depends on the system design and pipe routes. That is probably why none of the sprinkler design standards specify an exact (kg/m²) loading that I can find. But the sprinkler rules do give guidance on minimum load capacities for the different pipe diameters. This is an extract (below) from BS EN 12845 SPRINKLER RULES:

Nominal pipe diameter (d) mm	Minimum load capacity at 20°C (see note 1) kg	Minimum cross section (see note 2) mm ²	Minimum length of anchor bolt (see note 3) mm
d ≤ 50	200	30 (M8)	30
50 < d ≤ 100	350	50 (M10)	40
100 < d ≤ 150	500	70 (M12)	40
150 < d ≤ 200	850	125 (M16)	50
NOTE 1 When the material is heated to 200 °C the load bearing capacity should not deteriorate more than 25%.			
NOTE 2 The nominal cross section of threaded rods should be increased so that the minimum cross section is still achieved.			
NOTE 3 The length of anchor bolts depends on the type used and the quality and type of material into which they are to be fixed. The values given are for concrete.			

Table 1

You can see from Table 1 what the minimum support requirements are at normal and at elevated temperature conditions. You can find some sites on the internet that mention probable loading allowances for sprinkler systems BUT the final system design layout will take precedence over any general figure like this that you find. Note the loading per metre length for sprinkler mains increases as they get nearer the water source as the pipes will be of a larger diameter.

We have a warehouse of about 7,000m². Our fire insurer has asked us to get a sprinkler system installed. I have been checking what standards we need to use, but it seems complicated. Can you advise what rules we must comply with for the sprinkler system?

The most commonly used British Standard for commercial sprinkler systems in the UK is BS EN 12845:2015 + A1:2019. I suggest that you make life easier for yourself and contact one of the third party accredited BAFSA sprinkler system installers. They can come and have a look and advise you of the best system for your needs. These surveys are free of charge, and you have the option of getting them to advise a cost. This will save you a lot of research and unnecessary work. The sprinkler design is based on many factors such as: Type of business process, stored goods and how they are stored ie in rack or on the floor, wrapping on the stored goods ie plastic etc, flammability of the goods, ie aerosol etc, height of building, availability of water supplies. You can find a list of our members on the BAFSA website: bafsa.org.uk. Third party accreditation is important as any system they design/install must comply with the sprinkler rules used. Your insurers will probably want an accredited company to carry out the work.

Is it possible to have a higher sprinkler density (15 L/min/m²) for an area of our warehouse with some storage and a lower density (10 L/min/m²) for the rest of the warehouse?

It is possible to have different densities on the same sprinkler system. It's down to pipe diameter selection by having larger diameter pipes supplying the higher density area and restricting the diameters to the lower density areas. This is what sprinkler designers do regularly and it would not be a big task for a competent designer. Installer companies

Occupancies	Hazard classification
Schools, colleges and other educational institutions	LH or OH1
Offices, excluding store rooms	LH or OH1
Hotels, excluding kitchens, plant and store rooms	OH1
Hospitals, excluding kitchens, plant, store and laundry rooms	OH1
Museums, excluding store rooms	OH1
Libraries, excluding areas in which plastic materials are stored and stock rooms	OH1
Court rooms	OH1
Nursing homes	OH1
Data processing rooms	OH1
Prisons	OH1
Churches	LH or OH1
Restaurant dining areas	OH1
Attics, without storage	LH or OH1

Table 2

use computer hydraulic programs to work this out and can run a lot of possible pipe diameter 'scenarios' to eventually get the right answer. They also have the option of using different 'orifice' size sprinklers to help. Have a word with your installer and I'm sure they could come up with an answer. Using a third-party accredited installer will give you the confidence that they know what they are doing.

What is the requirement for installing/omitting sprinklers in a corridor in a block of flats, in other words, do fire sterile areas need to have sprinklers?

Provided common corridors are completely free of anything that would contribute to a fire, ie flammable carpets, furniture, pot plants etc, then it is a sterile area. If the area contains any of these items, it is not 'sterile' and it must be sprinkler protected unless the 'fire strategy' states otherwise. In ADB it states the term 'virtually sterile' but without any clear definition. It is advisable to see how/if the 'sterile areas' are defined in any 'fire strategy' document and get agreement of the AHJ before finalising any sprinkler design. Under table 2 in BS 9251 there is a footnote: D) *Where communal areas/ corridors are managed areas and considered to be sterile within a fire strategy report and with agreement by the AHJ. Here are a few comments from a government booklet about FIRE SAFETY IN BLOCKS OF FLATS: There should be a clear policy on whether common parts must remain completely sterile ('zero tolerance') or may be subject to 'managed use'. A 'zero tolerance' approach is one in which residents are not permitted to use the common parts to store or dispose of their belongings or rubbish. No exceptions would apply. It would ensure that the common parts*

are effectively 'sterile' i.e. free of combustible material, ignition sources and obstructions.

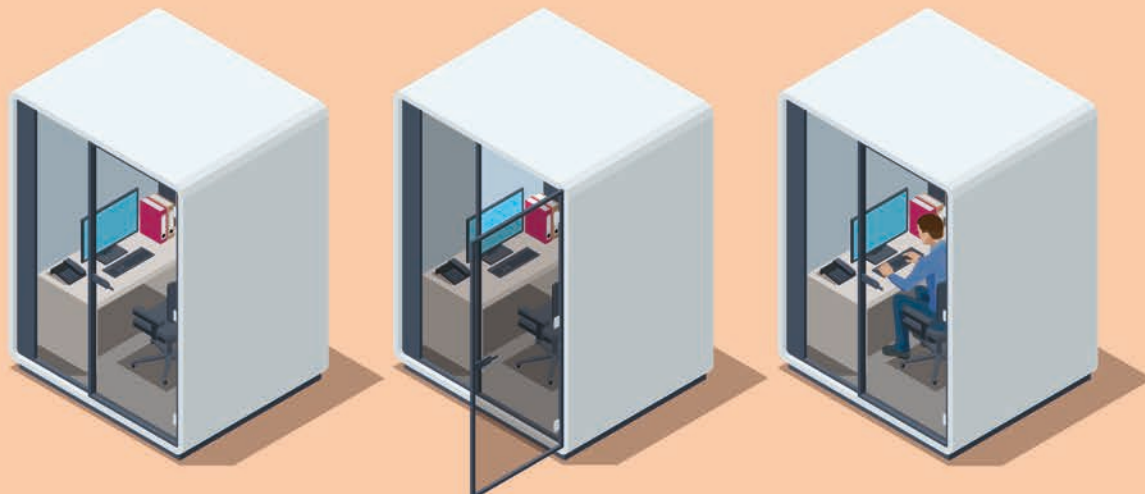
Can we use CPVC pipe for the sprinkler system in a high-rise office block that will be classified as Ordinary Hazard Group 3?

BS EN 12845 Sprinkler Rules does not specifically mention CPVC pipe/fittings or what category of system it is suitable for. One manufacturer of CPVC pipe only mentions suitability for Light and OH1 classifications. In BS EN 12845 Clause 17.1.2 Above ground piping, it states: *Piping downstream of control valves shall be steel, copper (see 17.1.9) or other material in accordance with appropriate specifications valid in the place of use of the system.*

The LPC Sprinkler rules go a bit further and has a table in Technical Bulletin 227 which states that CPVC (plastic pipe) is only suitable up to Ordinary Hazard Group 1 (see Table 2 above).



Photo Wikimedia Commons by Roger Templeman



Temporary office pods and sprinklers

Bafsa recently had an enquiry about the installation of 'temporary' office pods and if they needed sprinklers installed in them.

From internet searches there is a wide variety of these on the market. These pods can vary from two person, say (quite narrow around 0.9m deep x 2m long x 2.2m high) and four person ones which are wider, say (1.4m x 2.5 long x 2.2 high). Some can be open-sided, and some are enclosed with a door. Most have some form of solid ceiling. They usually have some electrics like power points, USB charging points and a light fitting.

There are many aspects to this:

1. Do sprinkler or regulatory standards address this topic adequately?
2. What are building/fire insurers saying about it (one has, see link below)?
3. How do manufacturers reassure their clients that these are not a fire risk/issue?
4. Is it necessary to know the fire loading (kJ/m²) of each pod, to make any future judgments?
5. Have there been any reported fire-related problems with these?
6. Building control may only express the opinion that any sprinkler system must comply with the design standard.
7. Are these 'temporary/moveable' products' an issue for the Fire and Rescue services when they need to get around a building in a fire situation?
8. How long is it acceptable for something to be classified as 'temporary'?
9. Should there be any restrictions on what can be connected electrically within these pods i.e. only phone and

laptop charging, and can they be left unattended?

10. Will increased spacing between the pods help?
11. Will reducing sprinkler spacing at ceiling height above these pods help.

BS EN 12845 or LPC Rules do not specifically mention 'office pods' but does give guidance on the maximum dimensions of obstructions that are allowed below sprinklers before they need heads underneath. Temporary/Movable obstructions not really addressed.

NFPA 13 Sprinkler rules, does address these pods in clause 9.2.10.1 and A9.2.10.1. and states the following:

9.2.10 Small Temporary Occupied Enclosures.

9.2.10.1* Sprinklers shall not be required in small isolated temporarily occupied enclosures that do not extend to the ceiling.

9.2.10.2 The maximum area of the small temporarily occupied enclosures shall not exceed 2.2 m² and storage shall not be permitted.

A.9.2.10.1 These isolated spaces are similar to hearing test booths, lactation rooms, phone booths, or pods and are not used for storage. Miscellaneous furniture, wastebaskets and other nonstorage items are allowed in the space. Isolated is intended to mean that units should not be located adjacent to each other and are physically separated.

From internet searches there are a few articles that address this, but opinions are varied.

Here are a few links:

<https://bellevuewa.gov/sites/default/files/media/document/2019-07/Pre-fabricated%20Booths%20and%20Pods%20%28Building%20and%20Fire%20Divisions%29.pdf>

https://static.aviva.io/content/dam/document-library/risk-solutions/Aviva_Sprinkler_Systems_Meeting_Pods_LPS.pdf

The reader's opinions would be greatly appreciated particularly from any individual or company that has come across this issue on a job they were involved with and how it was finally resolved. Maybe BS EN 12845 needs to address the subject particularly if it is becoming a common occurrence.

Send any comments to:

Joe.mccafferty@bafsa.org.uk.

If you have a questions for Joe, contact him via BAFSA's website:
www.bafsa.org.uk/contact-us/ask-bafsa/

NB: Sometimes it is necessary to reply to enquiries by giving 'an opinion' rather than referring to any hard and fast stipulation in the sprinkler rules, either UK, European or American.



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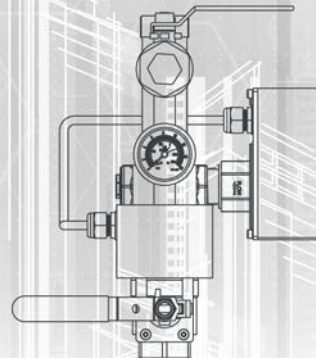
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Ronnie King OBE

As part of BAFSA's 50th anniversary celebrations we have selected two sprinkler heroes that we want to pay tribute to for their commitment to advancing awareness of the value of automatic fire sprinklers. The first of which is Ronnie King OBE.



Ronnie King learnt at a young age about the dangers presented by fire. In 1956 he watched the Keighley Mill in West Yorkshire tragically burn down with the loss of eight mill worker's lives.

"The fire razed the 60 foot, three storey building to the ground in no time," the local papers reported at the time. Despite the fact that 10 fire brigades and 15 fire engines were called out – they had no chance against the ferocity of that blaze. Most of those that died were trapped behind locked doors and had no means of escape. There were no fire alarms and therefore no warning.

"My father, who was previously a fireman in London during the Blitz and later moved to Keighley in West Yorkshire attended that fire," says Ronnie. The fire before subsequently resulted in the Factories Act Legislation of 1961 and the 'means of escape' provisions therein. "I have closely followed every legislative change relating to fire since that time."

Ronnie followed in his father's footsteps and joined the Fire Service first working in London, then West Yorkshire, followed by Fire in Scotland and finally in Mid and West Wales where he eventually served as a Chief Fire Officer – a post he held for 20 years. When it came to retirement however, Ronnie still felt he had more to do and by that time had been made keenly aware through his

many years of service of the value of automatic fire suppression in tackling fires and saving lives.

His first role following retirement was as Vice Chair of the National Fire Sprinkler Network alongside its then Chair, Peter Holland. "I'm very passionate about the role sprinklers can play and I knew from experience that firefighters going up 20 floors of a block of flats in order to tackle a fire, taking all their equipment and breathing apparatus, was a very time consuming effort. If we had automatic fire protection in there it would not only put the fire out, which it inevitably does, it would at least hold the fire until the fire service had more time to get there and tackle it. There is also that fact that a single death in a sprinklered building is a very rare occurrence and a multiple death is almost unheard of."

With this passion Ronnie began to work more closely in government circles. Even while working as Chief Fire Officer of Mid & West Wales he helped the All Party Parliamentary Fire Safety and Rescue Group (APFSG) arrange seminars and launch research findings and in 2012 he was appointed Honorary Administrative Secretary, a role he combined with that of fire advisor to the group. "My motivation has always been to make Members of Parliament aware of the current fire related issues facing the service at any



“Of course, it wasn’t a matter of ‘I told you so’. I just felt so sad that they didn’t listen. It gave me no satisfaction that this was the way to prove it”

given time and the regulatory impact which decisions taken in Westminster might have.”

Eventually he went on to become the Advisor and the Honorary Secretary for the APPFSRG, a position which he has held now for nearly 11 years. In that time he has become a vital conduit between Government and the fire safety sector. More recently he also became a parliamentary researcher for Lord Hendy QC, who he had worked alongside during the coroner’s inquest for the Lakanal House inquest. The fire took place on 3 July 2009 and broke out in a high-rise building in Camberwell, London and resulted in the deaths of six people. “We helped to get all the right questions asked,” says Ronnie.

Influencing those in Government, of course, plays a major role in matters of fire safety. For Ronnie having access to the parliamentary estate allows him to bring the right people together.

“The APPFSRG is one of the most successful groups in parliament and is so well attended,” says Ronnie. “It’s a real cross party group of members and many of the members in the group have had significant fires in their constituency. This might have meant that factories have closed and never reopened as a consequence of a fire. So they know only too well that sprinklers could have made a difference.”

Four years after Lakanal House, of course, Ronnie found himself dealing with a tragic fire on a much larger scale – Grenfell. In the aftermath of the fire he undertook lengthy interviews with the Metropolitan Police and the Council to the Public Enquiry. On behalf of the APPFSRG he produced a 34,000 word statement with approximately 100 exhibits that was used extensively in questioning the witnesses at the enquiry.

Frustratingly Ronnie and others, including, the late Sir David Amis, had been pushing for a review of building regulations since Lakanal House. “The APPFSRG had already warned that if a fire occurs in a tall building or a care home with a large loss of life, we would be bound to make our recommendations public – and low and behold this is exactly what occurred. It gives me no pleasure to say this – but we were vindicated.”

He adds: “We know that Government makes decisions on the advice it is given and obviously whatever advice it was given at the time was not consistent with the advice that I and other politicians in the APPFSRG were giving. Of course, it wasn’t a matter of ‘I told you so’. I just felt so sad that they didn’t listen. It gave me no satisfaction that this was the way to prove it.”



Thankfully on the legislative front with the Hackitt Review, some things have changed since Grenfell. Sprinklers have now been mandated in England in buildings over 11 metres. “We could say this is some sort of success as we have managed to persuade Government to act,” says Ronnie. Obviously in Wales and Scotland they have gone further with all new buildings in Wales protected and in Scotland care homes and schools protected.

Ronnie also worked alongside Ann Jones who was member the Welsh Assembly for Rhyl over the 10 years it took to get sprinkler legislation over the line in Wales in 2016. Ann, like Ronnie, knew first hand what the issues were as she used to be a control room operator in Merseyside.

“She has sight of what was going on and what the benefits would be for the Fire Service. So we helped provide all the background for her case. When they made the final announcement in the Welsh Assembly we filled the public gallery with firefighters and as the legislation went through everyone in gallery applauded. It was a wonderful thing to happen and I was pleased to be a part of it.”

Thank you to Ronnie from BAFSA and its members for all the work you do in being a bridge between the sprinkler industry and government and helping to improve fire safety for all. You truly are a sprinkler hero.



Learning curve

As part of this year's Sprinkler Week, BAFSA teamed up with Zurich Insurance in a campaign to highlight the increased risk of fire in schools during the summer term. Paul Redington, one of Zurich's major loss claims managers, explains why this is the case

Over the last few months there have been numerous news stories about fires in schools, both accidental and deliberate. Fires in education centres is a large and ongoing issue and has been for some time. In fact, schools in England are almost twice as likely to suffer from a fire than other types of non-residential buildings¹. However, some may argue that education premises could be more at risk of a fire than ever before when considering the increase in electronic equipment in schools, and the growing trend among young people to vape. For instance, a

recent *Action on Smoking and Health* survey (ASH) shows that around 15% of children aged 11 to 15 years old and more than a third of 16- to 17-year-olds have vaped².

Disposable vapes can pose a serious fire risk as they contain lithium-ion batteries that can ignite if damaged, or if they are not disposed of correctly. While schools ban vaping in or around school premises, young people may still carry them. A recent freedom of information request to Fire and Rescue services and local councils shows that there were around 300 fires in primary and

secondary schools last year³. While this may seem like a small number, one fire is one too many when you consider how many people – both teachers and young people – could be put in harm's way.

Fires can also be financially crippling for schools or local authorities that have smaller and smaller budgets. Zurich data shows that school fires caused on average more than £128,000 worth of damage last year. In fact, in the three years to 2023, the insurer saw 115 blazes in schools, causing in total more than £27m in damage⁴.

Shocking statistics

Despite these shocking statistics, many schools lack even the most basic equipment needed to prevent small fires from becoming large blazes. As of 2020, two thirds of schools inspected by Zurich were rated as having 'poor' fixed fire protection systems, such as sprinklers, which are proven to significantly reduce the damage caused by fire. A further 25% were judged 'poor' for fire detection measures, such as smoke detectors and fire alarms.

To prevent blazes from occurring, Governments in Scotland and Wales have already introduced rules to mandate the installation of sprinklers in all new build and fully refurbished schools. For several years now, Zurich UK has called on the Government to bring English schools into line with the rest of Britain, but so far, we have yet to see any movement.

Bigger and older schools, including those with a canteen, and secondary schools – which have more complex and dangerous equipment – are particularly at risk of fire, according to our data. We have also identified a correlation between poor Ofsted ratings and greater risk of fire, meaning children in areas where there are higher levels of social deprivation could be at greater risk.

Not only do a lack of sprinklers in schools put lives in danger, it can also lead to months or even years of upheaval, putting pressure on a generation of children who have already seen their education disrupted by Covid, and potentially resulting in the loss of spaces relied on by local communities.

A report published in medical journal JAMA Network Open⁵ found that school disruption caused by Covid led to an increased risk of depression, behavioural, social, and emotional difficulties among children, as well as a deterioration in overall mental health. It is essential that measures are put in place to stop blazes from leading to similar disruption.

Increased risks

As Summer approaches it's now a busy time for schools as they plan for improvements to be made to the school while they're closed. While some schools will just give their buildings a lick of paint, others will be planning major works to make sure their premises are ready for the new intake of children in September.

However, major improvements to schools can increase the risk of fire. For instance, Zurich Municipal saw one school suffer

“As of 2020, two thirds of schools inspected by Zurich were rated as having ‘poor’ fixed fire protection systems, such as sprinklers, which are proven to significantly reduce the damage caused by fire. A further 25% were judged ‘poor’ for fire detection measures, such as smoke detectors and fire alarms.”

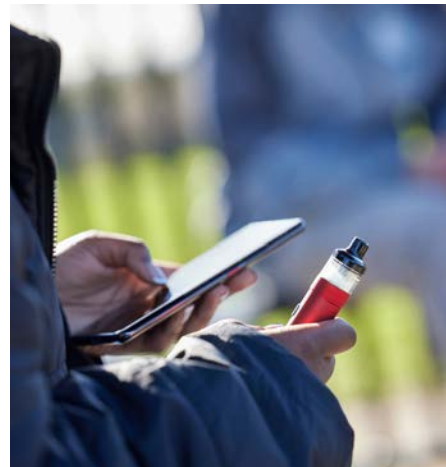
around £20m worth of damage after a roofing contractor accidentally started a fire when carrying out some hot works (e.g. grinding, welding and torching). This resulted in the school being closed for longer than just the summer holidays and a lot of upheaval for more than 450 students.

It's not just contractors on school premises that can cause a fire during the summer break. Schools are particularly vulnerable to arson during this period. We advise our customers to do a couple of things ahead of the summer holidays, such as making sure staff are extra vigilant in turning off all appliances and making sure all buildings are locked up. We also recommend schools regularly monitor for signs of malicious damage or trespass. If there are contractors carrying out work, we also recommend this is overseen to ensure they follow both safety and security procedures.

Many fires in schools could be reduced if there was a legal requirement to fit sprinklers across all schools in the UK. Sprinklers drastically reduce the extent of damage when there is a blaze, often confining the fire to a single room. According to the National Fire Chiefs Council, sprinklers control or extinguish blazes in 99% of cases. This gets children back into schools and classrooms more quickly, as well as saving taxpayers' money.

References:

- 1 Zurich Municipal analysis of data from 26,800 schools in England. The analysis shows that the average fire risk is almost double that of most other non-residential buildings
- 2 ASH survey: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://ash.org.uk/uploads/Use-of-vapes-among-young-people-GB-2023-v2.pdf?v=1697209531
- 3 Freedom of Information request based on 39 out of 45 UK Fire and Rescue Services contacted by Zurich Municipal (2024)
- 4 Based on Zurich Municipal 2023 claims data
- 5 <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2809780>



School fire statistics



School fires caused on average more than £128,000 worth of damage last year



There were around 300 fires in primary and secondary schools in 2023

Schools at higher risk of arson during the summer months.

Increased use of vapes in and around schools create an additional risk of fire from lithium-ion batteries

Source: Zurich Insurance



Business continuity management

The effectiveness of sprinklers and other automatic fire suppression systems also relies on clear communication management between those responsible for the fire safety of the building and the FRS, writes Nick Coleshill

I have been an operational fire safety inspection officer for over thirty years and it still surprises me the lack of awareness within the building fire sector on the importance of business continuity management when it comes to fire safety. There seems to be a real lack of consistency in the provision of emergency response information made available to Fire & Rescue Services and onsite representatives who have to deal with a building's active fire safety systems, including sprinklers, in the event of a fire.

This can have a major knock-on effect, not only on the business or premises itself, but on attitudes towards Automatic Fire Suppression Systems (AFSS) amongst landlords, leaseholders and the general public.

Fire sprinklers are designed to control, suppress or even extinguish a fire within a building. We know that the amount of water released from a sprinkler system will be far less than that from a firefighter's hose. An AFSS will in many cases be connected to an alarm monitoring station that will notify the Fire & Rescue Service - facilitating a prompt attendance minimising the amount of water released by the sprinkler system.

Representing BAFSA as the sprinkler coordinator for Sprinkler Saves UK, a dedicated website that collates and reports AFSS activations across the UK, I monitor reports of sprinkler activations and I find it disappointing to see regular news media reports on fires that focus more on water damage than the fact that the activation of the sprinkler system has prevented a minor incident becoming a major fire. That is why it is so important to stress the importance of completing a business continuity plan that includes details on how to isolate a sprinkler system following activation.

From my experience when it comes to retro-fitting sprinklers, tenants and leaseholders are still very preoccupied with concerns about water damage – be it from an unwanted activation or an un-intentional release of water from the system. I was recently challenged on this at a resident's meeting in London, where a proposal was being put in place for a retro-fit as part of a new package of fire safety measures. Sometimes in these cases, the outcome is a partial sprinkler retrofit due to leaseholders not being willing to have sprinklers fitted throughout. But a fire within a partially sprinklered building cannot always be contained/controlled to the compartment of origin and even if fire spreads into a sprinkler protected area, if that fire is fully developed,



the sprinkler system may not be effective as its parameters will have likely been exceeded.

Furthermore, the regulatory Reform (Fire Safety) Order 2005 does not give the local authority or housing provider the statutory power to enter the dwelling of leaseholders for the purpose of installing a sprinkler system. But this type of thinking can result in huge fallout, not just for the case for sprinklers but for everyone involved should there be a fire. Time and time again while completing fire safety inspections as a regulator enforcing the Fire Safety Order, I am surprised by the lack of understanding amongst building managers and onsite representatives of the role the sprinkler system plays in supporting their buildings safety plan and I am also regularly reminded of the inadequate procedures in place in the event of an activation of a sprinkler or an unexpected release of water from the system to ensure the sprinkler system can be isolated.

This is despite the fact that it is a requirement of the Regulatory Reform (Fire Safety) Order 2005 for the responsible person to implement the appropriate arrangements for the effective, planning, organisation, control, monitoring, and review of preventive and protective measures. Also, under the Building Regulation 38, it is required that fire safety information is passed from the person carrying out the building

works onto the 'Responsible Person' once the build is complete.

In my experience these regulations are either not complied with or insufficient information is passed to the 'Responsible Person.' There is not just a potential life safety cost to this either. There is a financial cost too.

I recently completed a post fire inspection at a student hall of residence building where a one sprinkler head had successfully contained, controlled and extinguished a small communal cluster flat kitchen fire. The estimated cost to make good came could have come in at £13,000 with no major impact to the business continuity of the premises.

However, the actual outcome of the incident was that all the occupants of the building had to be relocated to temporary accommodation because no-one in the building knew how to isolate the sprinkler water supply once the fire had been extinguished by the FRS. This meant the building's electrics were compromised with a final overall cost to the building owner and insurer estimated to be in the region of £1.5 million pounds.

You could argue that at the time of the incident the FRS may not have taken reasonable steps to prevent or limit damage to the property during or after a

fire due to the delay implementing salvage operations and isolating the residential fire sprinkler water supply. On reflection, if the appropriate onsite information for the fire sprinkler system was immediately available to operational crews, we would be focusing on the positive outcome of this incident – ie that the fire was extinguished by the residential fire sprinkler system before the arrival of the FRS with no injuries or fire fatalities reported.

My inspection identified some key failures that contributed to such a dramatic impact on the business continuity for the premises:

- Fire safety information contained within the premises information box was not fit for purpose. There was no block plan readily available to the incident commander to enable them to locate the controls and isolate the system.
- Location plates and signs were not fitted to riser cupboards or doors to rooms to ensure that the sprinkler stop valves could be easily identified and isolated.
- Overall there was inadequate training of onsite staff on the active fire safety measures within the building so there were no protocols to be implemented.

The importance of having onsite information for the FRS was reinforced in an open London Fire Brigade letter sent to shopping centre managers following a number of fires in the city. It highlighted the importance of fire safety management and measures that should be taken to ensure the safety of the public, staff and firefighters. The contents, guidance contained within in this letter could be directed at any building installed with an AFSS.

So I ask, that if you are a regulator, sprinkler contractor or building manager you consider the areas highlighted in this article and ask yourself whether you need to do more to ensure that relevant information is available on site allowing the sprinkler system to be isolated following activation, once it has been confirmed by the FRS that the fire has been extinguished. Lets debunk the myth that water damage from the actuation of the sprinkler system costs more than the damage from a major fire.

“The actual outcome of the incident was that all the occupants of the building had to be relocated to temporary accommodation because no-one in the building knew how to isolate the sprinkler water supply once the fire had been extinguished by the FRS”

Key AFSS info for Fire & Rescue Services

Providing relevant information on the AFSS in situ that is readily available to operational crews is of paramount importance. Here's a best practice guide to what should be contained in that information.

- General overview of the AFSS
- Zone and coverage of the AFSS
- Type of water supply/duration
- Laminated copies, zone map that is easy to read and includes the location of the isolation valve sets and pump room
- 24-hour contact numbers for relevant contractors

Nick Coleshill is the British Automatic Fire Sprinkler Association's sprinkler ambassador and runs www.sprinklersaves.co.uk where he collates sprinkler activations across the UK to provide a body of evidence of the effectiveness of sprinklers as part of a fire safety and prevention strategy. Prior to this he worked for London Fire Brigade for over 30 years, first as a firefighter and then in Fire Safety, before becoming LFB's sprinkler co-ordinator.



The latest BAFSA Sprinkler Saves Review is out now

Documenting all the sprinkler activations reported to the Sprinkler Saves website and demonstrating sprinklers in action – protecting property and saving lives

British Automatic Fire Sprinkler Association

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Latest sprinkler activations

The following sprinkler activations have been reported to our Sprinkler Saves website which documents real incidents of sprinklers containing and controlling fires up and down the UK

Suffolk: Motorbike fire in open sided carpark

On 12 May 2024 the Suffolk FRS was called to a motorbike fire in a low-rise purpose built block of flats. The location of the fire was in an open-sided basement carpark. Thankfully it was sprinklered as the premises also consisted of two residential low-rise block of flats – blocks A & B. Suffolk Fire & Rescue Service mobilised four fire appliances to the site and on arrival it was identified that the premises sprinkler system had actuated within the car park area containing and controlling the fire preventing further fire spread.

Six sprinkler heads activated (VK468) with the water supply provided from a 6000-litre water tank. Firefighters wearing breathing apparatus extinguished the fire using one hose reel jet. At the time of the fire no other motor vehicles were located adjacent to the motor vehicle with minor fire damage reported to light fittings and the electrics located above the seat of the fire. No injuries or casualties were reported and the cause of the fire is currently under investigation. It should be remembered:

- At the time of construction, statutory legislation required sprinklers to be installed in residential block of flats of 30m and above.
- There is no requirement for sprinklers to be installed in car parks, instead reliance is placed upon smoke ventilation either natural or mechanical.
- If the requirements of ADB B5 had not been complied with, we could be

looking at a more significant fire because sprinklers were not installed.

- Sprinklers were only installed as a trade-off due to the requirement of B5 not being complied with.

Edinburgh: Recycling bin fire at block of flats

A fire in a bin store located in a purpose-built low rise block of flats of four floors was extinguished by one sprinkler head. The Scottish Fire & Rescue Service mobilised two pumping appliances to the incident that had broken out in a large recycling wheelie bin. No further fire fighting was required and the total property area damage was restricted to just 1m².

This incident demonstrates once again the effectiveness of sprinkler systems for refuse/bin store fires. These types of fires can have a dramatic effect on the safety of the residents, specifically where refuse chutes and access hatches can sometimes be found directly opening onto protected corridors, lobbies and stairs. This can result in the spread of fire and smoke to the common escape routes.

BAFSA realises that fire incident data provides powerful evidence of the benefits of fire sprinklers and has published a series of reports analysing Incident Recording System data on fires in sprinklered buildings from 2018-2021. The aim of the analyses is to identify trends and gain insight on the use of sprinklers within Great Britain to help effect a change so that sprinklers are the norm, not the exception. One such report focused on where sprinklers were reported and having



Car parks

The British Automatic Fire Sprinkler Association fully supports the recommendations made by the National Fire Chiefs Council within their Automatic Fire Suppression System (AFSS) position statement. We recommend AFSS be required in open sided car parks to protect property and including the fabric of the building. And we strongly recommend AFSS be required in enclosed car parks, as is common in Europe and automated car parks, due to the extra density of fire loading created by stacking cars in carousel or racking systems.

an impact for refuse store/bin store fires which accounted for the highest number of incidents with 141 outside the flat. From the 141 sprinkler activations outside the flats, refuse fires accounted for the highest number of incidents with 123. In refuse store fires sprinklers extinguished 53 (43%) incidents with a further 63 (51%) incidents being contained or controlled. Further interrogation of the data would have to be completed to identify why seven incidents were not contained/controlled.

London: Chip pan kitchen fire

A kitchen fire was successfully extinguished by the activation of the sprinkler system within a City Corporation social housing tower block with no injuries reported. The Avondale Square Estate consists of three 20 storey blocks each containing 72 dwellings. The a chip-pan fire broke out in a one-bedroom flat on the 13 floor. It was contained, controlled and extinguished by the activation of one sidewall sprinkler head. There was as a result, minimal smoke and soot damage on the kitchen walls and ceiling and no direct burning or fire damage around the seat of the fire.

The City of London Corporation (The City Corporation) following the tragic events of the Grenfell Tower made a commitment to review policies, processes and procedures relating to fire safety precautions across their housing portfolio to reduce the likelihood of a fire occurring in a building, recognising that the largest number of deaths from fire occur in the home.

As part of this directive in May 2018, the decision was made to install life safety residential sprinkler systems compliant to BS91251:21 as par of a wider scheme of works to improve fire safety for all dwellings in the five social housing tower blocks owned by them, providing a further layer of safety from fire for their residents and tenants.

In England cooking fires were the most common type of accidental fire reported for the period 2013/2014 to 2022/2023 with over 1100 fires.

We still see reports from the Fire Rescue Service (FRS) that where the occupant is present at the time of a chip pan fire and they have tried to extinguish the fire themselves by placing the oil pan under the tap in the kitchen sink or throw water on the pan causing the oil to explode causing serious injury and allowing further fire to spread.



Doncaster: High-rise flat fire

South Yorkshire Fire & Rescue Service were mobilised to Shaftesbury House, a 14-storey residential block of flats that had been retrofitted with sprinklers in 2019, as part of a joint initiative between SYFRS, St Leger Homes and Doncaster Council. The fire had broken out in a two-bedroom flat on the 11th floor. Upon entry to the flat it was established that a fire within the entrance hallway had been contained and extinguished by the activation of one sprinkler head. No further firefighting media was required with no rapid-fire growth reported. Due to the location of the fire within the flat, the occupants were unable to self-evacuate taking refuge in another room until operational crews arrived. Thanks to the sprinkler system, the fire was controlled within the compartment of origin and there was minimal fire damage. The sprinkler was a BS9251:2014 Category 3 system supplied via pump and tank water supplies, duty and standby with UPS.

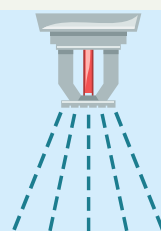
This is the second reported fire for Shaftesbury House within two years, on both occasions the fire was fully extinguished by the activation of one sprinkler head potentially preventing a fatal fire. The previous incident took place on the 25 August 2022, involving a chip pan fire which overheated and set light.

Roger Brason, South Yorkshire Fire & Rescue's lead sprinkler advocate says: "When the sprinklers were installed at Shaftesbury House and other high-rise buildings in Doncaster, we said we were delighted, and this is why. Had it not been for the sprinkler system, this fire would have spread very quickly and could have caused significant damage to the property and, potentially, seriously hurt the occupant. Credit should also go to the working smoke alarms which alerted the resident who was asleep at the time of the fire. Together, these are two amazing devices."

Isle of Wight: Care home waste bin fire

A small fire within a residential and nursing care home for older adults in Hampshire was successfully extinguished by the onsite sprinkler system. Fire crews were mobilised to reports of a fire following the activation of the premises automatic fire detection system and sprinkler alarm. On arrival it was identified that the premises' emergency plan and progressive horizontal evacuation had been implemented by staff moving residents away from the affected fire compartment with no injuries reported. Upon entry to the room of origin a small fire involving a plastic waste bin had been successfully contained and extinguished by the activation of one sidewall sprinkler head located directly above the seat of the fire. No further firefighting media was required with only minor fire, smoke damage reported within the compartment of origin.

Residential care premises present a series of unique challenges with respect to fire safety. The needs of the occupants and the resources required to undertake an evacuation in these types of premises require careful consideration both in the design and ongoing operation of such buildings, to ensure that an appropriate level of fire safety is provided.



All sprinkler activations can be reported by the FRS using the Sprinkler Saves sprinkler activation reporting form at www.sprinklersaves.co.uk





Taking charge

Ritchie O' Connell looks at where sprinklers stand in the face of the increasing risk of fires from lithium-ion battery-powered devices in the home

The risk of e-scooter and e-bike fires is well documented, with dramatic footage being frequently shown on national television and various rail networks prohibiting their carriage, so we could be forgiven for thinking that the risk is limited only to scooters bikes, hoverboards etc.

In fact, the batteries are principally very similar, differing predominantly in size and the risk also exists in the smaller devices we use routinely. The larger battery packs fitted to micromobility vehicles such as e-scooters contain more stored energy and there is a concomitant increase in potential fire severity.

The concern is not unwarranted, London Fire Brigade (LFB) recorded 149 e-bike fires in 2023 and three deaths and 87 e-bike fires in 2022. There have also been fatal fires involving micromobility devices with eleven people killed in fires caused by e-bikes in the UK in 2023.

Many of the fires involving e-bikes have been linked to converting a manual pedal cycle into an e-bike using readily available conversion kits. Of the fires reported by LFB involving e-bikes at least 40% of those fires are believed to have involved a converted e-bike.

Whilst professional conversions using correctly designed and fitted conversion kits sourced from reputable manufacturers and retailers are not inherently dangerous, DIY conversions using conversion kits sold online and which appeal to those on limited incomes are unlikely to be as safe. Thermal runaway occurs if the Lithium ions create more heat energy than the cell can use or disperse; the heat created then causes a self-sustaining chemical reaction as the battery overheats, the heat transfers to adjacent cells which results in thermal propagation, a chain reaction where adjacent

cells are heated to the point that thermal runaway also occurs in these cells – the more cells involved the greater the heat output, the faster the reaction and the more rapid the fire development.

The higher the number of cells the higher the chance for thermal propagation. Thermal runaway once initiated is irreversible which is why the battery packs fitted to e-scooters and e-bikes result in larger fires, smaller batteries such as those in phones, tablets etc with fewer cells are less likely to cause significant damage, although the consequences of a fire or explosion depend largely on where the battery is at the time.

Two of the principal causes of thermal runaway are physical damage and excess heat

- Lithium-ion batteries can overheat if they are kept in an environment that is too hot for the battery to function properly.
- While extreme heat is the main factor that will cause a Lithium-ion battery to ignite and cause a fire, they are also sensitive to extreme changes in temperature. If possible, particularly whilst charging, you should keep the batteries in the ideal temperature range of 15 to 25 Co.
- You should also try to keep Lithium-ion battery powered devices out of direct sunlight e.g. in windows or in hot vehicles to prevent any malfunctions leading to fires.

- Don't cover chargers/devices whilst on charge, as this may accelerate overheating, this includes using or charging devices in bed where they may be underneath bedding or pillows.
- Don't keep devices plugged in longer than it takes to reach full charge, Lithium-ion batteries should not be continually on charge or left on charge overnight.
- Always use the charger that came with your device. If you need to buy a replacement, choose a branded, genuine product from a supplier you can trust.
- If using "after-market" replacement batteries, ensure that they are compatible with the device and the charger.
- Only use batteries, chargers and leads which meet UK safety regulations.
- Avoid dropping or damaging Lithium-ion batteries.
- Do not use batteries which have been subjected to physical damage, and that are swollen or deformed.
- Larger devices, such as scooters, should ideally be stored and charged outdoors.

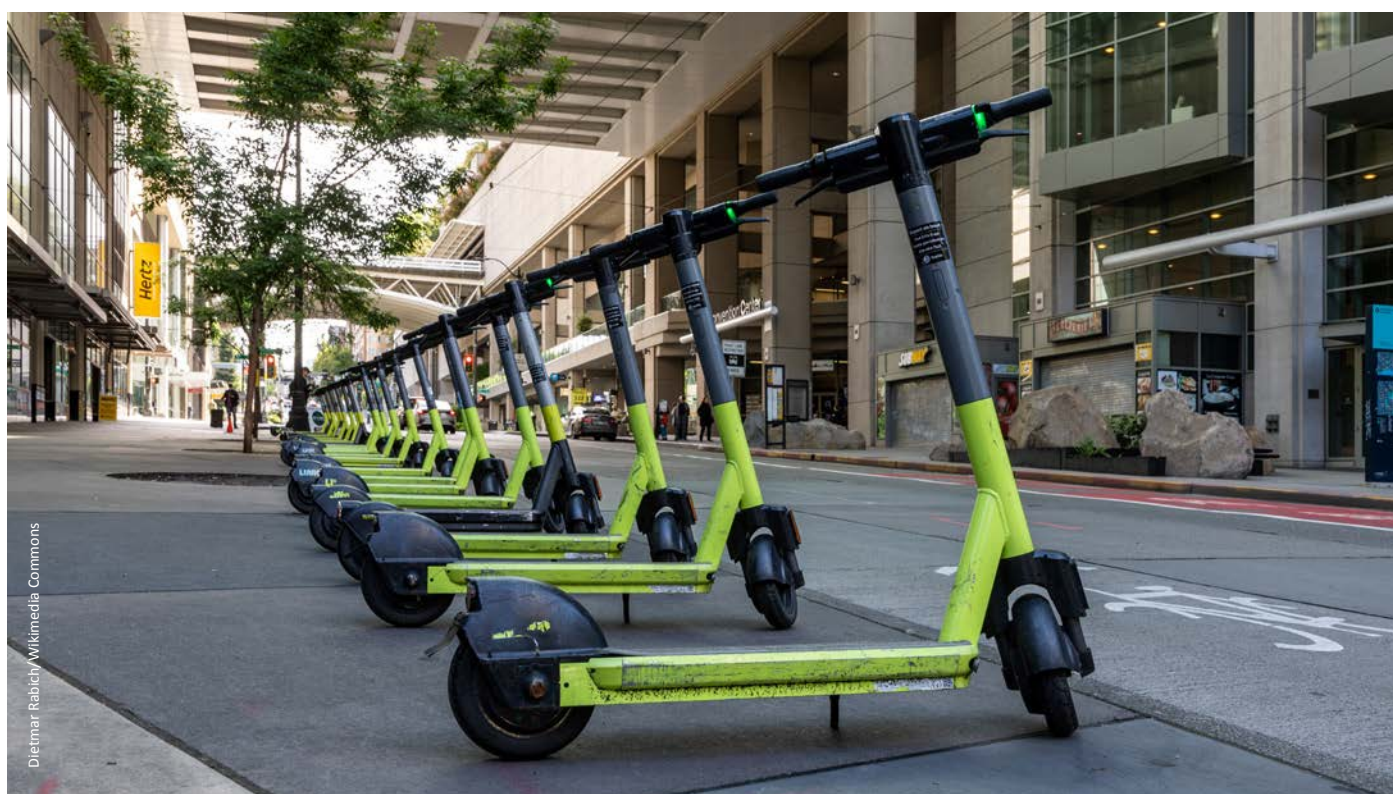
The hazards associated with li-ion battery fires include explosion, rapid fire development with the potential for flashover occurring quickly and exit routes becoming inaccessible, and the generation of toxic gases such as hydrogen fluoride and phosphoryl fluoride as well as asphyxiants such as carbon monoxide.

Whilst there have been successful sprinkler stops involving Li-ion powered mobility devices, such as the successful actuation of a sprinkler head in the West Midlands when an e-bike on charge caught fire in a flat the full impact of domestic and residential sprinklers on fires involving li-ion batteries is not fully understood at this time. The duration of the water supply may be insufficient to effectively deal with the battery fire throughout its growth and decay cycle, there is also some concern that the very rapid development of a fire and the possibility of explosion could mean that the sprinkler system could be overwhelmed.

The main benefit of sprinklers in relation to controlling a fire involving a device such as an e-bike would appear to be in preventing fire spread to other items.

UL's Fire Safety Research Institute (FSRI) are conducting research to test whether residential sprinkler systems can limit the growth of Li-ion battery powered e-mobility device fires. Whilst the full results are not yet published early results demonstrate that whilst the device was completely destroyed and there was damage to the room, sprinklers prevented spread to secondary items and ultimately prevented flashover.

Whilst the prevention of flashover and greater fire spread is a clear benefit, it is by no means a complete solution. a badly located e-mobility device which catches fire



Dietmar Rabich/Wikimedia Commons

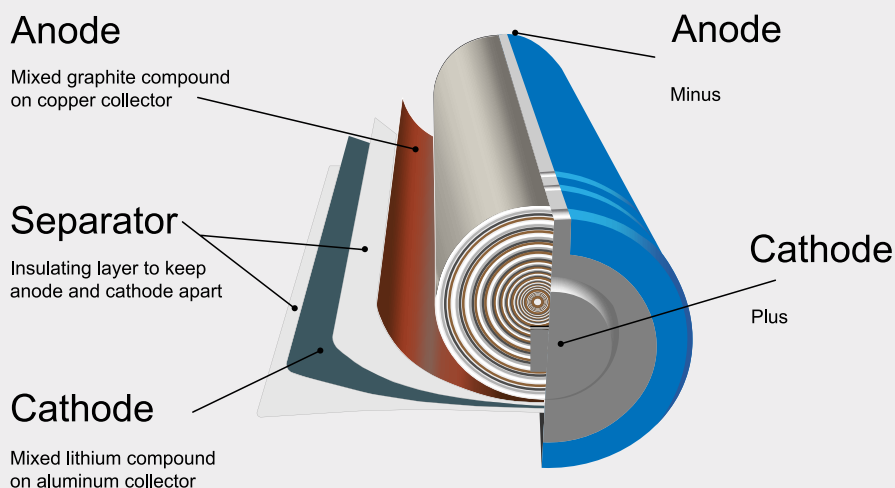
blocking exits and producing toxic gases could still cause death or serious injury.

Larger devices, such as scooters, should ideally be stored and charged outdoors away from any enclosure and not in an area that blocks the only exit from a room or flat. If they must be stored indoors, they should not be charged overnight and should be located where they do not obstruct escape routes, preferably behind a fire door in area covered by both detection and suppression.

It is clear that whilst sprinklers may have much to contribute to preventing flashover, a more holistic approach involving the regulation of the sale of such devices and their component parts, device management, detection, compartmentation and suppression is necessary.

“The full impact of domestic and residential sprinklers on fires involving li-ion batteries is not fully understood at this time. The duration of the water supply may be insufficient to effectively deal with the battery fire throughout its growth and decay cycle, there is also some concern that the very rapid development of a fire and the possibility of explosion could mean that the sprinkler system could be overwhelmed.”

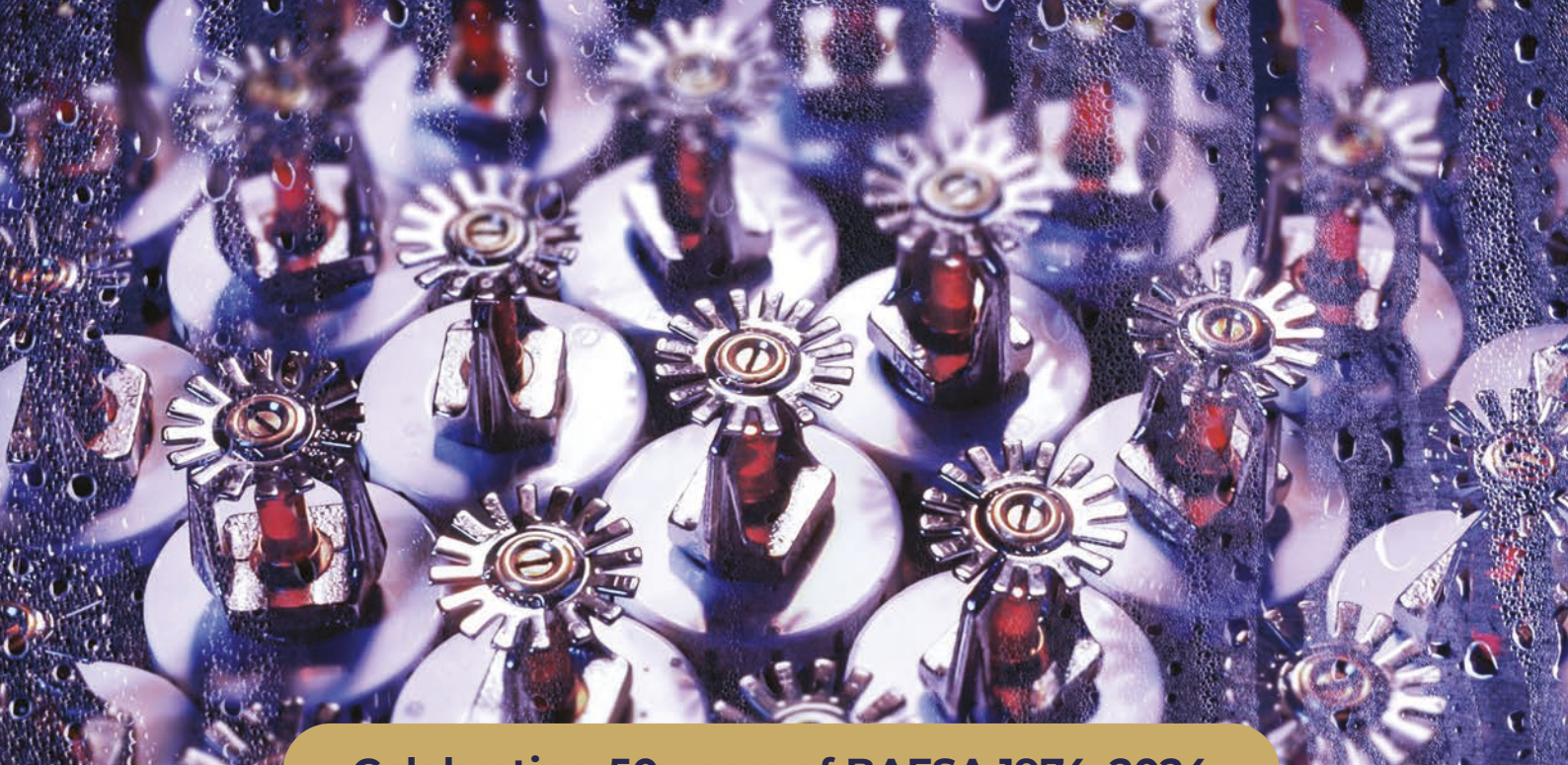
The make-up of a lithium-ion battery



Most of the portable electrical devices we commonly use rely on rechargeable power storage (batteries) and the most common of these is the lithium-ion (li-ion) battery, which consists of a positive electrode (cathode), a negative electrode (anode) and a porous separator between them. Electrons and lithium-ions can pass through this porous layer.

When a battery is charging, lithium-ions move from the cathode to the anode. When the battery is unplugged and powering a device, the process works in reverse, Lithium-ions move from the anode to the cathode. Once all ions have reached the cathode the battery is out of power.

The above process can be repeated through numerous cycles, allowing the battery to charge and power the device for far longer than traditional alkaline batteries would.



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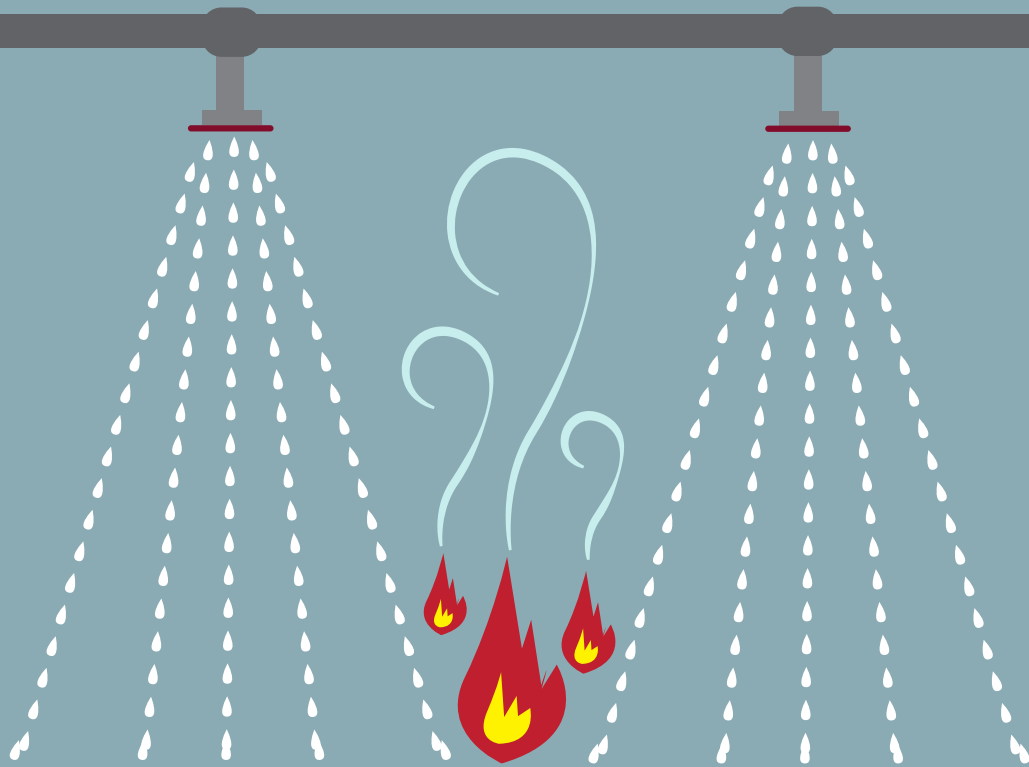


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Double standards?

Steward Kidd argues that the standards imposed on the UK by the European Committee for Standardisation (CEN) via the BSi creates an extra layer of complexity and confusion that the sprinkler industry could do without

A recent press story reported the negative impact of an EU Regulation 1176 on children's playground equipment. BAFSA members will realise that this does not refer to an 'EU regulation' but a European Standard. This has been 'imposed' on the UK not by the EU or the UK Government but by the British Standards Institute.

This is of course not the first instance of an EN standard causing problems when being published as a BS EN document. We are all aware that the standards on which we depend now emerge mainly from the CEN process and then are republished by BSI.

Post Brexit, the BSI remains a member of the European Committee for Standardisation (CEN) and operates under an obligation under the Vienna Agreement with ISO and CEN to re-publish all EN standards – even where there is a perfectly adequate (or even superior) British Standard covering the same area which may have been in existence for many years.

In the cases I'll refer to, the relevant UK standards committee (the 'mirror committees') voted unanimously against adopting an EN standard in the form submitted.

This happened most recently in 2021 when BSI proposed publication of BS EN 149721-1 (a standard for the design and installation of water mist firefighting systems) despite the fact that the UK has had in BS 8458 and BS 8489 its own standards for water mist since 2010.

The UK committee responsible for water mist standards, FSH/18/5 said in the National Forward to what is now BS EN 14972-1:

BSI, as a member of CEN, is obliged to publish EN 14972-1:2020 as a British Standard. However, attention is drawn to the fact that during the development of this European Standard, the UK committee voted against its approval.

It is the view of the UK committee that some of the requirements in EN 14972-1:2020 – for example those relating to the necessary fire test protocols – are suboptimal to the recommendations in the BS 8489 series and to the protocols that have been in use in the UK to date.

The UK committee also has concerns about a number of other aspects of EN 14972-1:2020, including:

- *specifications for system design and application;*
- *limits of application;*
- *the incomplete suite of fire test protocols;*
- *the degree of reliance on the design,*

“There is widespread belief that the BSI's somewhat doctrinaire approach deserves to be reviewed, as it may not always be in the wider interests of UK plc nor will it contribute to making UK buildings safer from fire.”

installation, operation and maintenance (DIOM) manual to constrain critical parameters; and

the absence of interoperability provisions. The UK committee believes that the standard does not sufficiently cover certain technical and safety matters.

Similar comments have been included in the National Forward to BS EN 16925 for domestic sprinkler systems the publication of which has created a partial conflict with BS 9251 which had been in use in one form or another for 20 years and in three iterations.

Again, the UK committee voted unanimously against adopting the EN standard and this time, the UK fire regulators also expressed concern about the scope and quality of the EN document which failed to include in its scope tall blocks of residential apartments. This concern appears to have been enough to satisfy BSI that the content of the two potentially conflicting standards is sufficiently distinct to remain in use.

There is widespread belief that the BSI's somewhat doctrinaire approach deserves to be reviewed, as it may not always be in the wider interests of UK plc nor will it contribute to making UK buildings safer from fire. The standards referred to do nothing to promote harmony in Europe as there is no situation where European installers of fire protection systems are queuing up to work in the UK – or vice versa. There may be some component manufacturers who would prefer to have a single European standard for equipment – but this is not relevant for systems or 'kits of parts'.

At present, CEN TC191 is overseeing a major revision to the EN standard for industrial and commercial fire sprinkler installations (EN 12845-1) which has so far been 13 years in gestation. This has been

deemed in its draft form by the UK sprinkler industry, insurers and the fire community in general as being over ambitious, deeply technically-flawed and potentially dangerous in its impacts. Its text omits a major design protocol widely used in the UK which has resulted in a special annex covering this type of sprinkler design having to be added to the draft.

The publication of this standard as a BS EN will lead to confusions, complications and an almost certain increase in the costs of some fire protection systems and make their installation more complex and their design and certification more complex. The eventual impact may go further, as more than one UK expert has been heard to suggest that the new standard will be unusable, resulting in the UK having to revert to an older version of the standard.

It's worth noting that reservations about the contents of some standards is not restricted to the UK. Some 4000 comments having been submitted following the publication of the draft of the new sprinkler standard.

Summary

Standards developed through the CEN system are imposed on the UK as a result of extra-legal obligations assumed by the British Standards Institution. Even where the relevant UK committee votes against the adoption of a new standard, BSI policy is to publish it as a BS EN and withdraw any competing existing British Standard.

For more information on interfaces with the international and European standardisation systems <https://www.bsigroup.com/Documents/standards/guide-to-standards/BSI-BS-0-2016.pdf>

Creating career pathways

BAFSA Skills and development advisor, Ruth Oliver, reflects on a decade of skills and qualification development at BAFSA



Is it really 10 years since BAFSA commenced its journey into education? Yes, it is and I am pleased to say that I have supported and advised BAFSA in terms of skills and development during all of those years. A trade association that now, in 2024 has, not just third party accreditation, but national qualifications, accredited training and skillcards for employees within the sector to evidence their competency across the various different disciplines that make up the fire sprinkler industry.

It all started way back in 2014 when Mike Green, BAFSA Vice Chair and Chair of the Skills and Development Committee worked with BAFSA Council Members to produce a '*BAFSA Vision for the Future*'. It was readily acknowledged that since the fire sprinkler evolved into a mass-market product in the late nineteenth century, it delivered many benefits. We know that fire sprinkler systems have saved lives, quelled countless fires, boosted economic growth, increased flexibility of building design and given firefighters that bit of deserved relief. No wonder people look to the fire sprinkler as 'the firefighter in every room', which is changing the way modern buildings are constructed and used.

But the fire sprinkler industry, as with many other industries, brings with it many challenges. Significant change was inevitable in the coming years and BAFSA needed to

reflect how it was to tackle these challenges for the future.

One such challenge was, and still remains, an aging workforce. An aging workforce means people retiring from the sector, taking their skills, knowledge and vast experience with them. With little or no widespread and industry led focus on the development of skills and qualifications there is a need to attract a new generation of young people into all areas of industry including installation, design, project management and maintenance. In doing so we will be ensuring that the workforce remain fit for purpose and ready for the challenges ahead.

BAFSA established that there was, and again still remains ten years on, a shortage of young people within the industry and therefore focus was needed to ensure the industry raised its profile to encourage and show those looking for job opportunities that the fire sprinkler industry was, and still is, a career to look forward to. Establishing clear career pathways offer potential recruits a glimpse of the diverse range of opportunities within the industry.

Qualifications and training was deemed to be at the forefront of BAFSA activities so that our continued promotion of the benefits of fire sprinklers is not to be wasted. With support from Stewart Kidd, BAFSA Secretary General and Peter Armstrong BAFSA Chairman the journey into education began.

However, I personally had already been involved with BAFSA as early as 2011. My previous employment as Head of Skills & Standards for the Security Standard Setting Body brought me into contact with Stewart Kidd. Quite unexpectedly I received a telephone call from Stewart asking if it was possible for the fire sprinkler sector to develop occupational standards, a benchmark for competence for those installing fire sprinklers. As the sector was deemed a part of security systems it was logical for the standard setting body to bid for government funding to oversee the development of the requested standards.

Working with BAFSA over a 12 month period resulted in the National Occupational Standards (NOS) for Mechanical Fire Protection being developed and subsequently approved by United Kingdom for Commission of Employment & Skills (the NOS regulator). These standards set the knowledge, skills and understanding required from installers to be evidenced in respect of competency. The underpinning document of any national qualification. These standards then sat for three years gathering dust whilst the industry decided what to do with them.

In early 2013 BAFSA took full ownership of the responsibility to develop and nurture fire sprinkler installer competence through qualification. Government funding had ceased in 2012 for qualification development

“There is a need to attract a new generation of young people into all areas of industry including installation, design, project management and maintenance”

and the onus was on industry to provide for itself. BAFSA Council had the foresight to recognise this. At this time I was preparing to leave the security standard setting body to establish my consultancy business following the successful delivery of the London Olympics. One of my last activities for the standard setting body was to attend a BAFSA Training Committee Meeting, hosted by Compco, and the late John Sinclair, to advise on how a qualification could be developed. I had no idea at the time what journey lay ahead.

With the introduction of the Welsh Measure in 2014, it was out of the blue that I received a telephone call from Mike Green (BAFSA Vice Chair) to meet with him at Neath Port Talbot College to discuss development of a short qualification, aimed at experienced plumbers that would evidence competency for installation of domestic fire sprinkler systems. Little did I expect that this would be the catalyst for the journey ahead.

Working with BAFSA from then onwards, establishing not a training committee but the BAFSA Skills & Development Committee, BAFSA and its members, have actively participated in the development of training and qualification opportunities, including content setting, to professionalise the industry and ensure that the workforce is fit for purpose and ready for the challenges and opportunities that will occur in the 21st Century. I think at this point it is fair to say that without the Skills & Development Committee member's input we would be lagging far behind where we are.

Accompanying the development of the Agored Level 3 Installation of Fire Sprinkler Systems in Domestic Dwellings in 2014 came a Career Pathway document for installers. Out of date now and requiring significant amendment, it provided a first opportunity for young people to see the industry as a career.

This was followed by a significant piece of work undertaken by BAFSA members, the development of the first national qualification for fire sprinkler installation, the Level 2 Certificate in Fire Sprinkler Installation for those involved in installation of residential and commercial fire sprinkler systems. A qualification developed for industry, by industry.

Whilst the qualification required independent assessment BAFSA developed the BAFSA Assessment Strategy for Qualifications providing a strategic overview of the arrangements required for the assessment of candidates against the National Occupational Standards underpinning national qualifications for fire sprinkler installers. Not only did BAFSA develop the qualification an assessment strategy but secured delivery of the qualification by three colleges across the UK.

Further developments in 2016 saw the introduction of a BAFSA Skills Card, way ahead of any requirement for an Industry CSCS card and eventually superseded by Industry Skillcard in 2018. The year 2017 arrived and yet another new initiative by BAFSA, a Career Transition Partnership with Walking with the Wounded. An initiative to help ex-service people to find a new civilian career or job and help employers to recruit the best.

By 2018 BAFSA was working with Industry Skillcard (CSCS) to support the development of an Installer Skilled Worker (blue) card. CSCS is the leading skills certification scheme within the UK construction industry with CSCS cards providing proof that individuals working on construction sites have the required training and qualifications for the type of work they carry out. To successfully hold the card the applicant is required to evidence completion of the L2 Certificate in Fire Sprinkler Installation. Working to embed the qualification within industry was now essential.

In 2019 and with the introduction of the Skillcard BAFSA widened delivery of L2 Certificate in Fire Sprinkler Installation by working with London South East College delivering the qualification. Then came the Covid 19 pandemic and all changed.

However, change can be good and whilst face to face learning was no longer possible it provided BAFSA, along with many other educational organisations the opportunity to consider and develop online learning. For BAFSA, a major step forward took place in 2020 with the redevelopment of L2 Certificate in Fire Sprinkler Installation qualification to be delivered entirely on line, with no requirement to attend college. This was followed by the development of courses in respect of design, inspection and commissioning and with considerable input from BAFSA Technical Consultant Alan Crichton, BAFSA has now a portfolio of courses available.

More recently in 2022 and 2023 new Skillcards have been awarded to the industry, a Black card Skillcard awarded for Domestic & Residential Fire Sprinkler installers and in 2023 a blue skill card Skillcard awarded for Fire Sprinkler Engineers (Commercial) who have successfully completed and achieved the BAFSA Inspection and Commissioning course requirements.

A major development in September 2023 saw the launch of the BAFSA Training Centre providing an opportunity for BAFSA to have its own courses accredited through an Awarding Organisation (ABBE), taking ownership of its own destiny. Booking for a course could not be simpler as this is now undertaken via the BAFSA automated booking system.

This year, 2024, will see a major review of the L2 Certificate in Fire Sprinkler qualification and the development of a new, two part, Level 1, Awareness of Fire Sprinkler Systems qualification, underpinning the red trainee Skillcard and being available to those working in a professional capacity alongside the FSI, ie building control, architects, fire service personnel. It is expected that this will be delivered via BAFSA's online e-learning platform.

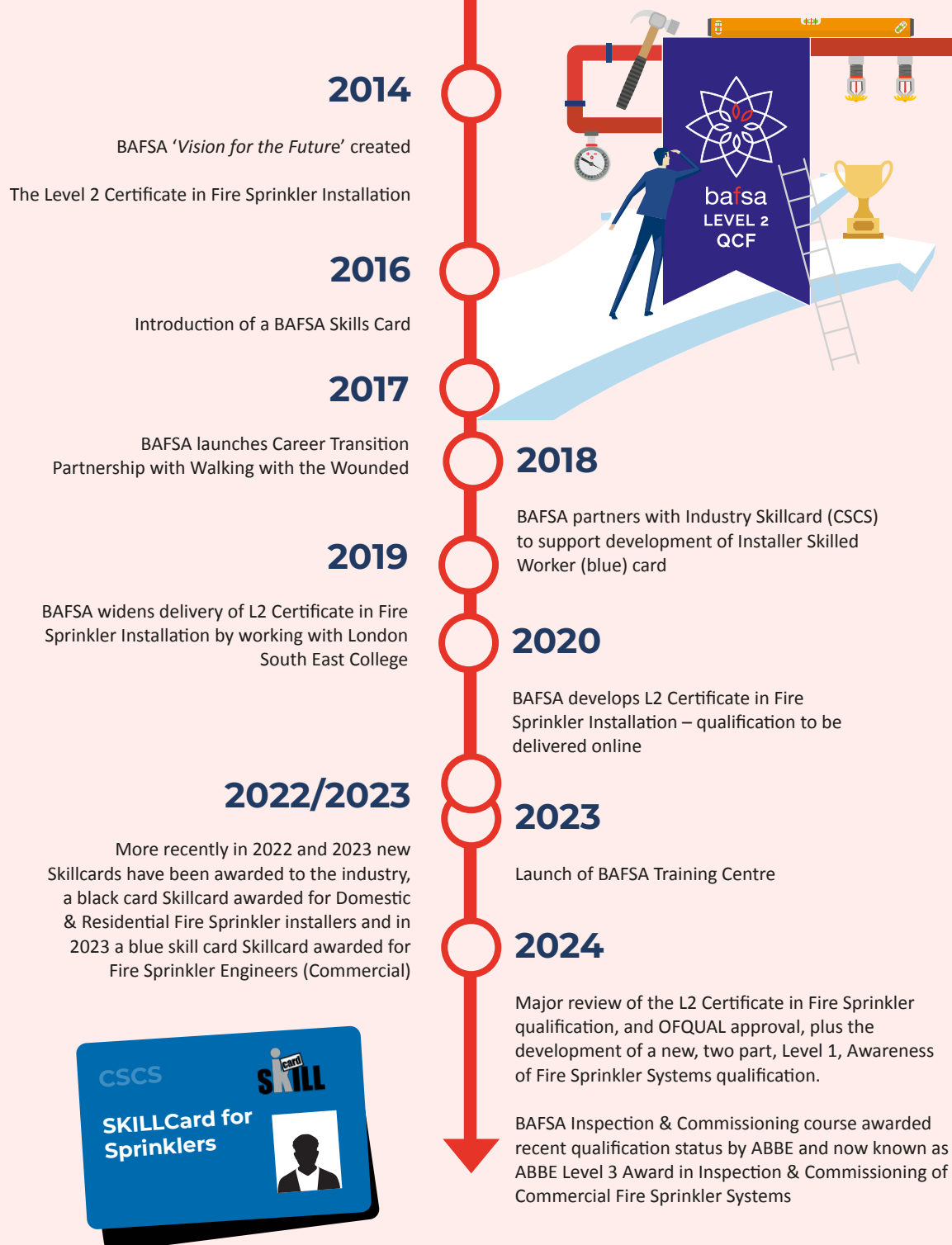
With the BAFSA Inspection & Commissioning course being awarded recent qualification status (ABBE Level 3 Award in Inspection & Commissioning of Commercial Fire Sprinkler Systems) providing another qualification to the industry, we are now working with BRE & FIRAS to replace existing exams with BAFSA Design courses, another step forward in the journey into education. And to think it all started with a simple telephone call

“BAFSA and its members, have actively participated in the development of training and qualification opportunities, including content setting, to professionalise the industry”

BAFSA Skills & Development timeline

British Automatic Fire Sprinkler Association

bafsa





BAFSA Training Centre Course Dates 2024

ABBE Level 3 Award in Inspection & Commissioning of Commercial Fire Sprinkler Systems

Date: 8-11 July

Level: Blue CSCS Skill Card

Venue: London (TBC)

Cost: £1,350.00 (BAFSA member) £1,500.00 (non-BAFSA member)

BAFSA FHC Sprinkler Design (Commercial)

Date: 6-10 August 2024

Level: Intermediate

Venue: Online (four days)

Cost: £1300 (BAFSA member) £1500 (non-BAFSA member)

System Classification & Pre Calculated Fire Sprinkler System Design Level: New Entrants

Date: 27 August - 31 October

Venue: Online (two days a week)

Cost: £3250 (BAFSA member) £4000 (non-BAFSA member)

System Classification & Pre-Calculated Fire Sprinkler System Design

Date: 18 November

Level: Experienced Worker Route

Venue: Online (five days)

Cost: £2500 (BAFSA member) £3250 (non-BAFSA member)

Level 2 Certificate in Fire Sprinkler Installation

This course has no fixed start or term dates so enrolment can take place anytime. The course is entirely online and must be completed within six months of enrolment.

Cost: £850 (BAFSA member) £950 (non-BAFSA member)

* NB: All prices exclude VAT

Visit www.bafsa.org.uk/booking/ to book

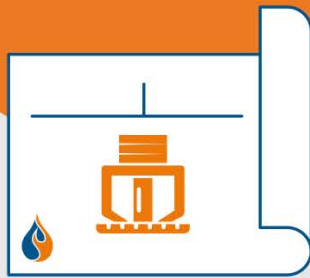
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