British Automatic Fire Sprinkler Association

bafsa

Sprinkler Saves Annual Review 2025-2026

Real-world evidence of sprinklers and water-based fire suppression systems effectiveness in action

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BACKING THE BRITISH FIRE SPRINKLER INDUSTRY

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An overview

The purpose of this review is to demonstrate the vital role Automatic Water Suppression Systems (AWSS) play in protecting our communities from fire as part of a package of fire safety measures.

The review does this in two key ways:

- Highlighting real life, tangible examples of where sprinklers were present and had an impact for the financial year 2025/2026.
- Interrogating primary fire data sets where AWSS were present and had an impact on the outcome of the fire.

The term AWSS refers to sprinklers and water mist systems within this review. As such, each of these examples provides powerful evidence of the ability of AWSS to mitigate the impact of fire on people, property and the environment as well as reducing the risks to firefighters.

This collection of Sprinkler Saves, collated by The British Automatic Fire Sprinkler Association (BAFSA) from primary fire data with supplementary information provided by our Fire & Rescue Service (FRS) and sprinkler industry colleagues across the United Kingdom, make this the only available report in Europe that demonstrates the impact AWSS make during a fire incident.

Note: A sprinkler save is categorised as where one or more sprinkler heads/nozzles have activated and contained, controlled or in some cases, extinguished a building fire.

The review uses information collated from:

- 86 primary fires reported to BAFSA for the financial year ending March 2026, in which AWSS were reported as present, having an impact. The reported incidents span a wide range of building types and occupancies.
- Primary fire data sets where AWSS were reported as present and having an impact for 2018/19 to 2024/25. This was obtained from a Freedom of Information (FOI) requests to the respective teams collating fire incident data for England, Scotland, and Wales.

Support for Sprinkler Saves from our industry partners

The National Fire Chiefs Council has been a strong advocate for the inclusion of sprinklers in the built environment for many years and consistently called for their mandatory inclusion in certain high-risk settings.

Put simply - sprinklers save lives and help prevent injuries. With a proven track record spanning more than a century, they are highly dependable, limit damage to buildings, reduce repair costs and lessen the environmental damage of fire. Their activation can also provide vital additional time during incidents, which in some circumstances may reduce the need for full evacuations. Evidence shows that sprinklers are 99 per cent effective at controlling or extinguishing fires and demonstrate a 94 per cent reliability rate across all building types.

However, although there have been some welcome developments in recent years, progress has not moved at the pace required.

In England, sprinkler regulations still continue to fall behind those in other parts of the UK. Scotland already mandates sprinklers in all flats, care homes, social housing and schools, while Wales requires them in all new homes, including care homes, student accommodation, boarding houses and certain hostels. Despite the reduced height threshold in England, there remains no requirement to retrofit existing residential buildings.

By bringing together examples that demonstrate the impact sprinklers have during fire incidents, Sprinkler Saves plays a vital role in evidencing their value. It helps to influence decision-makers, building owners and others responsible for decisions on sprinkler installation, while supporting the wider cultural shift needed to improve fire safety outcomes.

Fire and rescue services are also critical to this effort. Reporting sprinkler activations from incidents attended to the BAFSA team ensures that these cases are captured, shared and used to strengthen the evidence base for change.

I am sure that you will find this review both informative and motivating. It contains compelling examples and data highlighting the life-saving difference sprinklers make. If you become aware of an incident where sprinklers have played a role, please do ensure it is reported so it can contribute to the work ahead.

Phil Garrigan,
Chair of the NFCC

NFCC
National Fire
Chiefs Council

"In bringing together and sharing real life examples of where sprinklers have had an impact, Sprinkler Saves has become a vital resource in helping to demonstrate the difference they make"

The evidence presented within these pages reinforces what our members witness every day across the UK: fire sprinklers continue to deliver exceptional, reliable protection for people, property, and communities.

The data is compelling, but it is the real world stories behind each activation that truly demonstrate the value of waterbased fire suppression. These are not abstract statistics; they are verified outcomes that speak to the lifechanging impact of well-designed, well-maintained sprinkler systems.

As the sector continues to evolve, the **National Fire Sprinkler Network** remains committed to working alongside BAFSA, fire and rescue services, local authorities, and industry partners to ensure that the lessons from these incidents inform future policy, design standards, and investment decisions. The evidence is clear: sprinklers work, and they work consistently.

This review stands as a powerful reminder of what can be achieved when proven technology, professional expertise, and a commitment to public safety come together. We welcome its findings and fully support the continued expansion of waterbased fire suppression as a cornerstone of fire safety in the UK.

Terry McDermott,
Secretary NFSN

NFSN
National Fire
Sprinkler Network

“These are not abstract statistics; they are verified outcomes that speak to the life-changing impact of well-designed, well-maintained sprinkler systems”

The importance of Sprinkler Saves to fire safety

The BAFSA Sprinkler Saves project continues to grow as Europe's only comprehensive and credible evidence base for AWSS effectiveness. Its main aim is to raise awareness of how the destructive effects of fire can be mitigated, and in most cases, be prevented through the enhanced use of AWSS.

We do this by encouraging FRS, the fire sector community and our sprinkler industry colleagues across the UK to report all forms of AWSS activations from fire incidents they have attended to the Sprinkler Saves website – www.sprinklersaves. co.uk where each incident is documented, identifying the impact and benefits of the AWSS.

The details of these incidents are a valuable tool in addressing myths and misconceptions regarding their safety and efficiency and providing evidence of the ability of AWSS to protect our communities from fire.

This work adds further weight to the two reports conducted by Optimal Economics[1] commissioned by the National Fire Chiefs Council (NFCC) and National Fire Sprinkler Network (NFSN) into the performance, reliability and effectiveness of sprinkler systems.

The reports found that sprinklers:

- **Are 99% efficient in extinguishing or controlling a fire.**
- **Are 94% efficient in their ability to operate.**
- **Also have a role to play in reducing harm and protecting vulnerable people, supporting the case for a greater inclusion of sprinklers in purpose-built block of flats.**

"It cannot be stressed how important active systems such as AWSS are"

It cannot be stressed how important active systems such as AWSS are. Providing effective fire protection requires a balanced approach to the provision of both passive and active elements. The use of a combined approach plays a significant role reducing the impact of fire on people, reduce the risk to firefighters, property, the environment and increase sustainability.

The aim of the installation of a life safety AWSS is to:

- Reduce fire growth and spread of heat and smoke allowing more time for the occupants to escape to safety or be rescued.
- Provide an element of potential building and property protection from fire.
- The provision of a AWSS does not negate the need for other fire precautions or provisions, particularly where occupants of buildings may be at a higher than average risk from fire.

Fire sprinkler activations are the most reported activation to Sprinkler Saves UK, in comparison, reports of water mist activations in land-based systems are still comparatively rare.

It is envisaged that year on year the number of reported incidents to Sprinkler Saves UK, will increase. This is due to several reasons, including changes in regulatory guidance in England and the renewed focus on fire safety in the aftermath of the Grenfell Tower fire.

- Reducing the building height at which sprinklers are required to 11m in purpose-built block of flats.
- All new purpose-built residential care homes fitted with appropriate AWSS regardless of height.
- The rise of retrofitting sprinkler projects in large scale residential/multi-occupied buildings.

We will encourage reporting through the:

- Appointment of a designated sprinkler saves coordinator.
- Increased communication of the reporting of AWSS activations via multiple communication channels.
- Publication of reports that will provide a detailed analysis of compound data on fire incidents in UK where AWSS are identified as present or activated.
- Continue to develop partnerships working with our FRS and sprinkler colleagues.

This strategy will:

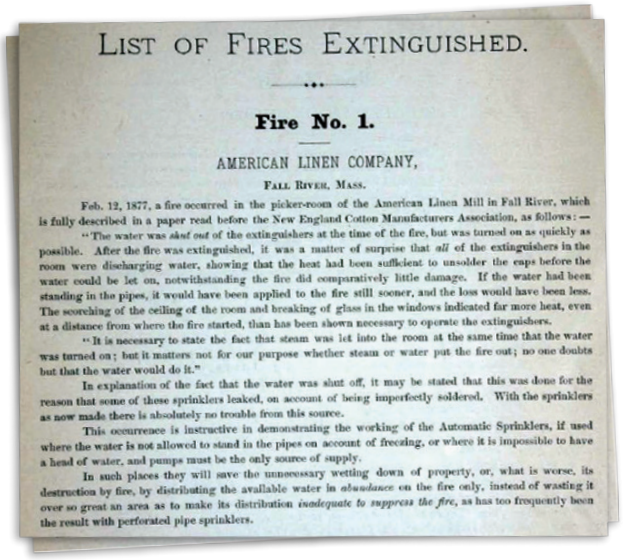
- Encourage FRSs to report AWSS saves to Sprinkler Saves UK.
- Promote a better understanding of the benefits of AWSS in the wider community fire safety sector in general as an effective and reliable fire protection measure as part of a package of fire safety measures protecting life, property from fire.
- Educate and inform FRS's of the benefits of AWSS with the aim of reducing the impact of major fire incidents allowing the release of resources to provide an effective response to attend other emergencies.
- Influence policy makers in government, Members of Parliament (MP) for change advocating the use of AWSS in all buildings, we are concerned about including but not limited to.
  - i. Specialised housing
  - ii. Other residential properties which include student accommodation and hotels
  - iii. Schools
  - iv. Hospitals
  - v. Storage and warehouses
  - vi. Car parks

Year on year the number of reported activations to Sprinkler Saves has increased from 53 in 2021/22 to 86 in 2025/26 with over 300 incidents reported overall demonstrating this strategy is working.

Nick Coleshill
BAFSA Sprinkler Ambassador

Nick Coleshill Coordinates the Sprinkler Saves Website for BAFSA, any questions or enquires can be submitted to nick.coleshill@bafsa.org.uk

Sprinkler Saves for 2025-2026



LIST OF FIRES EXTINGUISHED.

Fire No. 1.

AMERICAN LINEN COMPANY,

FALL RIVER, MASS.

Feb. 12, 1877, a fire occurred in the picker-room of the American Linen Mill in Fall River, which is fully described in a paper read before the New England Cotton Manufacturers Association, as follows: —

"The water was *shut out* of the extinguishers at the time of the fire, but was turned on as quickly as possible. After the fire was extinguished, it was a matter of surprise that *all* of the extinguishers in the room were discharging water, showing that the heat had been sufficient to unsolder the caps before the water could be let on, notwithstanding the fire did comparatively little damage. If the water had been standing in the pipes, it would have been applied to the fire still sooner, and the loss would have been less. The scorching of the ceiling of the room and breaking of glass in the windows indicated far more heat, even at a distance from where the fire started, than has been shown necessary to operate the extinguishers.

"It is necessary to state the fact that steam was let into the room at the same time that the water was turned on; but it matters not for our purpose whether steam or water put the fire out; no one doubts but that the water would do it."

In explanation of the fact that the water was shut off, it may be stated that this was done for the reason that some of these sprinklers leaked, on account of being imperfectly soldered. With the sprinklers as now made there is absolutely no trouble from this source.

This occurrence is instructive in demonstrating the working of the Automatic Sprinklers, if used where the water is not allowed to stand in the pipes on account of freezing, or where it is impossible to have a head of water, and pumps must be the only source of supply.

In such places they will save the unnecessary wetting down of property, or, what is worse, its destruction by fire, by distributing the available water in *abundance* on the fire only, instead of wasting it over so great an area as to make its distribution *inadequate to suppress the fire*, as has too frequently been the result with perforated pipe sprinklers.

On February 12, 1877, a fire occurred in the picker room of the American Linen Company mill in Fall River, Massachusetts. Although the incident resulted in only minor damage, it holds significant importance in the history of AWSS fire protection.

This event is regarded as the first documented case where an AWSS successfully extinguished a fire. The building was equipped with a Parmelee Automatic Sprinkler, an innovative technology of the 19th century developed by Frederick Grinnell. The system functioned precisely as designed, activating automatically in response to heat and controlling the fire at its inception.

Some, 139 years later, we have a dedicated website, Sprinkler Saves UK, documenting and reporting real life examples of AWSS activations from across the United Kingdom on a daily basis.

Such initiatives are instrumental in raising awareness about how the adverse effects of fire can be mitigated or even prevented using AWSS – protecting lives, homes, and businesses while reducing risks for firefighters.

This section of the review presents selected case studies collated by Sprinkler Saves UK for the financial year ending 2026. It highlights various ignition sources, building types, and environments where AWSS were installed and made a noticeable impact.

Comprehensive reviews of the incidents mentioned can be found at **www.sprinklersaves.co.uk**

March 2025 – Lancashire industrial fire

- *Occupancy*: Factory
- *Fire Rescue Service*: Lancashire Fire and Rescue Service (LFRS)
- *AWSS*: Drencher/sprinklers

Matthew Hamer Lancashire Fire & Rescue Service Head of Prevention, Protection and Road Safety, comments:

"The presence of an automatic fire suppression system significantly influenced the outcome of this incident, as fires continue to be a leading cause of commercial property loss. This incident required substantial effort from firefighters to prevent a major external fire from spreading to the primary building."

"The building was equipped with an external drencher system, which assisted firefighting tactics and prevented the fire from spreading to the building. This incident demonstrates how an automatic water suppression system enhances the resilience of buildings and businesses against fire impact, playing a crucial role in preventing major losses and ensuring safety."

"Lancashire Fire and Rescue Service support that automatic water suppression systems play a significant role in reducing the impact of fire on people, property and the environment along with reducing the risk to firefighters."

LFRS responded to reports of a fire involving substantial quantities of plastic stored in an open yard adjacent to the primary building requiring the attendance

External view drone capturing a major fire involving concentrated amounts of plastic stored in the open external yard. Credit LFRS

of 50 firefighters and multiple appliances to control and extinguish the fire.

Concern was raised by LFRS that the radiated heat generated by the fire could lead to its spread, compromising the primary building, which contained additional materials with a high fire loading.

The building was protected by a AWSS compromising of a drencher and sprinkler system which activated shielding the building's exterior from radiated heat and direct flame exposure, whilst also reducing temperatures within the structure by wetting affected areas.

The operation of the AWSS provided a crucial time frame for the incident commander to implement an operational tactical plan and establish a water supply to tackle the fire with firefighting media.

This incident provides further evidence of the benefits of AWSS as part of a package of fire safety measures which can prevent major financial and equipment losses making businesses more resilient to fire incidents. If it was not for the presence of the AWSS, we could be reporting on another industrial fire where the premises was lost to fire with the business facing an uncertain future.

May 2025 – Bristol tall building electric bicycle fire

- *Occupancy*: Purpose built flats/maisonettes of 4-9 storeys
- *Fire Rescue Service*: Avon Fire Rescue Service (AFRS)
- *AWSS*: Sprinklers.

Internal hallway of flat identifying the location of the fire. Credit AFRS

Five fires involving e-bike and e-scooters have been reported to Sprinkler Saves UK since 2022. These have predominately involving residential purpose-built block of flats where sprinklers have been present and had an impact. Despite these types of fires being outside the scope of the operating parameters of a sprinkler system, on each occasion the fire was either contained, controlled or extinguished.

Incidents involving lithium-ion fires are becoming more common. As of the 28 September 2025 LFB[2] reported a record number of fires involving e-bike and e-scooter fires across Greater London with four fatal fires reported involving an e-bike. There are an average of around 18 e-bike or e-scooter fires a month. If this trend continues for the rest of the year, London will have reported and attended 200 incidents in a single year for the first time.

AFRS, report that an e-bike caught fire in the hallway of a four roomed flat on the fourth floor of a six storey residential block of flats. The fire compromised the means of escape. Ten people in the dwelling sought safety in one room until rescued by firefighters via a window using an aerial ladder platform.

The heat generated from the fire activated one concealed sprinkler head directly above the seat of the fire which contained, controlled and extinguished the fire before the arrival of AFRS. Minor injuries from smoke inhalation were reported.

A comparable incident was reported by West Midland Fire Rescue Service (WMFRS) in April 2023. In this instance, a lithium-ion battery for an e-bicycle, left charging in the hallway of a flat within a residential apartment block, ignited and compromised the designated escape routes. The building's retrofitted sprinkler system activated, extinguishing the fire through the activation of a single sprinkler head. The occupants sought refuge on their balcony until they were safely rescued by firefighters.

A West Midlands mum stated her partner and her young son owe their lives to a sprinkler system, she is quoted as saying in a WMFRS media release

"We couldn't get out. We were on the tenth floor. It was too high. I can tell you for sure that the sprinklers saved our lives. It is brilliant they were installed in the first place."

Sprinkler systems play a crucial role in reducing the rate of heat and smoke, providing more time for the occupants to escape to safety or be rescued by the FRS. Without sprinklers, these incidents might have had a much more severe consequence for the occupants.

May 2025 – Bristol tall building electric air fryer kitchen fire

- *Occupancy*: Purpose built flats/maisonettes - 10 or more storeys
- *Fire Rescue Service*: Avon Fire & Rescue Service (AFRS)
- *AWSS*: Sprinklers.

On arrival, firefighters established that there was a fire within an open plan flat involving an electric air fryer. It had been extinguished by the activation of three sprinkler heads. No further firefighting action was required and no injuries were reported.

Observing the image, it's striking to see how the fire plume developed by attaching itself to the wall above the seat of the fire (ignition source electric air fryer) and

Seat of the fire identifying the burnt-out electric air fryer located on the kitchen work top and distinctive smoke layer. Credit AFRS

spreading to the underside of the wall unit extending outward, there were visible burn marks on the cabinet door of the wall unit continuing upwards to the underside of the ceiling. Despite the fire being shielded by the kitchen wall units the sprinkler system was successful extinguishing the fire. Providing evidence that residential sprinkler systems can contain and extinguish fires involving electric air fryers.

The air fryer is now a popular kitchen appliance with the number of dwelling fires in England with "air fryer" mentioned in the additional text from statistics sourced from the Home Office Incident recording system increasing year on year between 2016-2024 with 146 fires reported for the year ending 2024. Aviva insurance has published guidance urging people to exercise caution after a survey revealed nearly one in five adults (19%) have encountered potential or actual fire hazards in their homes due to air fryers.

July 2025 – Bedfordshire bedroom sprinkler save

- *Occupancy*: Purpose built flats/maisonettes - 10 or more storeys
- *Fire Rescue Service*: Bedfordshire Fire & Rescue Service (BFRS)
- *Incident*: bedroom fire
- *AWSS*: Sprinklers

Group Commander Mark Garrett, responsible for fire safety at Bedfordshire Fire & Rescue Service (BFRS), said: "This incident shows exactly how sprinklers save lives. The system worked perfectly, stopping the fire before it could spread. Our partnership with bpha helps keep residents safe.

BFRS responded to a residential tall building fire involving a bed, caused by a lit cigarette. The fire was extinguished by the activation of one sidewall sprinkler head before the arrival of operational crews.

Fire damage was contained to the item first ignited, the resident self-evacuated the flat following the actuation of the domestic smoke detector, no injuries were reported.

Bed damaged by fire. Credit BM Sprinklers/Triangle

External view of FF looking at building. Credit Hampshire & Isle of Wight Fire & Rescue Service (HIWFRS)

August 2025/February 2026 – Sprinklers suppress, extinguish fires in Southampton/ Portsmouth residential block of flats

- *Occupancy*: Purpose built flats/maisonettes - 10 or more storeys
- *Fire Rescue Service*: Hampshire & Isle of Wight Fire Rescue (HIWFRS)
- *AWSS*: Sprinklers, retrofit

HIWFRS, reported two fires involving AWSS retrofitted into purpose-built block of flats, demonstrating their commitment to their Fire Authority Policy Framework Sprinkler Position Statement collating, promoting sprinkler activations.

The first incident involved a Southampton residential flat, the sprinkler system was activated, effectively containing the fire to the room of origin before the arrival of firefighters. The cause of the fire involved textiles that had been accidentally left on a cooking hob. There were no reported injuries.

The second incident involved the charging of an e-bike on the 10th floor of a 12-storey block of flats in Portsmouth which caught fire. The fire activated the nearest sprinkler head which contained the fire. This allowed additional time for the incident commander to implement a tactical action plan allowing the fire to be extinguished by firefighters wearing breathing apparatus. Four casualties were treated for smoke inhalation and were released at the scene by the ambulance service.

View of image e-bike. Credit HIWFRS

"The sprinklers in the flats operated exactly as intended, containing the fire to a single room and preventing it from becoming a far more serious incident. The occupier was already safely outside when we arrived, while other residents followed the building's 'stay put' policy and guidance from our Control team. The building performed exactly as designed during the fire. This incident highlights the importance of having robust fire safety measures in place."

Incident Commander Mark Caplen

August 2025 – Scotland social housing water mist activation

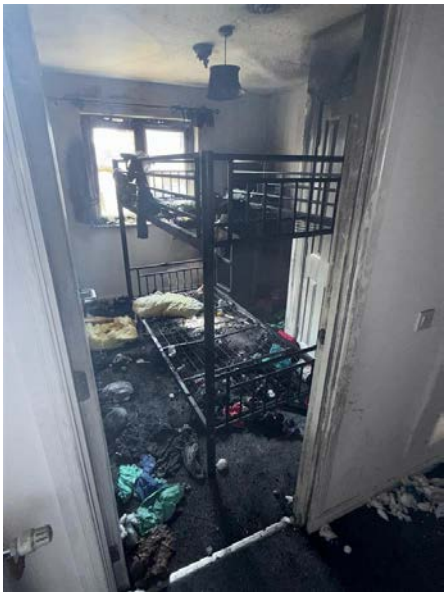
- *Occupancy*: Domestic dwelling
- *Fire Rescue Service*: Scottish Fire and Rescue Service (SFRS)
- *Incident*: Bedroom fire.
- *AWSS*: Water mist system

Stuart Stevens, Scottish Fire and Rescue Service Chief Officer, said:

"The Scottish Fire and Rescue Service welcome the amended regulations and the increased provision of automatic fire suppression systems. This provision is a significant step forward in fire safety and will increase the safety of our communities, residents and firefighters."

SFRS responded to a fire incident originating in a first-floor bedroom of a dwelling. The fire was attributed to electrics, which resulted in the ignition of the mattress and bedding materials. The fire was contained, extinguished by the activation of the building's water mist system. There were no reported injuries, the residents successfully self-evacuated prior to the arrival of the SFRS.

BAFSA welcomes the Scottish governments action to initiate legislation to require for

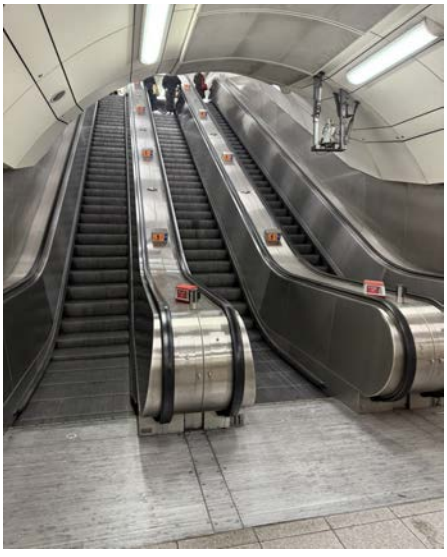


Internal view of the fire within the children's bedroom extinguished by the water mist system. Credit Imist™

all new build social homes, flats and shared multi-occupied residential buildings to be fitted with AWSS from March 2021. Without such legislation the outcome of this incident could have been so different.

August 2025 – London Underground station sub-surface fire

- *Occupancy*: Sub-surface train station
- *Fire Rescue Service*: London Fire Brigade (LFB)
- *Incident*: Electric motor fire
- *AWSS*: Escalator water suppression system activation (EWSS)



View of a typical London underground metal escalator

LFB reported a fire within an underground station's escalator chamber. Firefighters equipped with breathing apparatus responded to the incident and confirmed that the fire had been controlled and contained through the activation of the bespoke EWSS. The fire was extinguished using appropriate firefighting media with no injuries reported. Subsequent investigation determined that the fire originated from a heated motor brake drum igniting accumulated debris. The station was reopened shortly after the situation was resolved.

This incident supports the findings of Sir Desmond Fennell's December 1988 public enquiry following the Kings Cross station fire, which tragically killed 31 people. As a result, stations replaced wooden escalators with metal ones and installed heat detectors and EWSS systems to improve fire safety. These upgrades offer earlier fire detection and suppression, protecting passengers, staff, and firefighters while reducing disruptions.

August 2025 – West Midlands care home loft fire

- *Occupancy*: Residential care home
- *Fire Rescue Service*: West Midlands Fire Service (WMFRS)
- *Incident*: Bathroom extractor fan fire
- *AWSS*: Sprinklers

Fire Safety Inspecting Officer, Mark Serdetschniy said:

"If it was not for the sprinkler system suppressing the fire before the arrival of the fire service, the outcome of this fire could have been so different, the sprinkler system absolutely saved lives and the building."

WMFRS attended a residential care home fire originating from a bathroom ceiling extractor fan. A single sprinkler head activated, containing and limiting fire spread to the roof void allowing the incident commander additional time to implement a tactical action plan to extinguish the fire. No injuries were reported.

This incident highlights the advantages of installing AWSS in residential care homes. Such facilities face challenges due to residents reduced physical capabilities and slower response times to alarms, potentially leading to increased evacuation durations. Reducing the risk of injury or fatality during a fire, especially at night when staff assistance may be limited and resident evacuation requires additional support.

Furthermore, this event demonstrates that the presence of AWSS can help maintain continuity of care for residents with minimal disruption.

November 2025 – Scotland fulfilment centre fire

- *Occupancy*: Warehouse
- *Fire Rescue Service*: Scottish Fire and Rescue service (SFRS)
- *Incident*: Fire within a multi-tiered mezzanine structure
- *AWSS*: In rack bespoke type sprinkler system

The SFRS reported a fire incident that occurred in a four-storey, multi-tiered mezzanine structure located within a large warehouse roughly the size of 14 football pitches involving a multi-tiered mezzanine structure. The fire was able to develop through openings in the structure, leading to a limited number of sprinklers operating on each level to control the fire.

For this incident the operation of the AWSS inside the facility led to the following outcomes:

- Activation of the in-rack sprinkler system preventing horizontal fire spread.
- Reduced the rate of production of heat and smoke limiting fire growth and ultimately containing and controlling the fire.
- Limited the development of the fire, facilitating search and rescue efforts by firefighters and reducing risk to personnel.
- Implementation of the premises emergency plan allowing the safe evacuation of staff from the premises which can accommodate up to 1,200 staff members.
- Averted the complete loss of the building due to fire.
- Prevented a potentially extended incident that could have required considerable resources from SFRS and impacted routine operations.

The risks posed by these types of fires to firefighters should not be underestimated, as they often involve high storage density. This can lead to fires of such magnitude that it becomes impossible for firefighters to access the area and perform manual firefighting operations.

Research conducted by the NFCC[3] identifies that for firefighters to safely perform effective rescues from large storage warehouses there is a threshold limit of 4,000m^2. Demonstrating that the current threshold of 20,000m^2 in England (Size of two football pitches)

and 14,000m² in Scotland are beyond the thresholds of the FRS. (Reducing to 1,000m² for warehouses containing hazardous goods.)

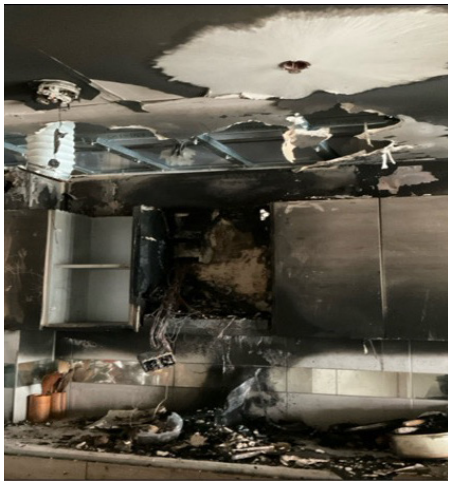
For context, the Business Sprinkler Alliance report that in September 2025, a non-sprinklered 4000m² warehouse was destroyed by fire. Requiring 90 firefighters, 12 fire appliances and specialist equipment from Essex County Fire & Rescue Service to contain, control and extinguish the fire.

The warehouse was shared by two businesses, the financial impact is unknown, but both companies will need to find alternative accommodation. The disruption to the business operations along with the destruction of stock is likely to come at a severe cost.

BAFSA support the NFCC position that Government should reduce the current threshold for the requirement of sprinklers within storage and warehouses to 4,000m².

November 2025

- *Occupancy*: Purpose built flats/maisonettes - 10 or more storeys
- *Fire Rescue Service*: West Midlands Fire & Rescue Service (WMFRS)
- *Incident*: Kitchen fire



Kitchen extractor fan/wall units damaged by fire
Credit tptfire

- *AWSS*: Sprinkler system

A fire that started in the living room of a one-bedroom unit within a 16-story residential purpose-built block of flats was caused by discarded smoking materials. The image identifies that the resident maintained poor housekeeping, with significant disorganisation and clutter throughout the living space with smoking paraphernalia on display. The blaze was effectively extinguished in its original location by the activation of a single sidewall sprinkler head before WMFRS arrived. No injuries were reported.

"The safety of residents is our top priority. We are working with customers and partners such as West Midlands Fire Service to ensure that residents are safe from fire at all times. Installing sprinklers in our tower blocks has proven to not only save lives but also minimise damage to the flat and protects firefighters in tackling what could have been a large blaze."

Nick Lacey, Building Safety Manager
at Wolverhampton Homes

Overview

The aforementioned incidents are recorded in the Sprinkler Saves database, which has documented over 200 cases where AFSS were present and had an impact since its inception in 2021/2022. The completion of these case studies serves as a valuable resource.

- Demonstrating the significant role AWSS plays in safeguarding communities by saving lives, minimising injuries, protecting property and the benefit of minimising the environmental impact of fire.
- Enhancing firefighter confidence when responding to incidents in sprinkler-protected buildings.
- Supporting cultural transformation by informing policymakers, stakeholders on the benefits of expanding AWSS adoption within the built environment.

"Despite progress, England remains behind other UK nations in mandating AWSS installations for new specialised housing and schools a requirement already established in Scotland and Wales. We welcomed the lowering height threshold for mandatory sprinkler systems in new residential buildings to 11 metres but there are still no requirements for retrofitting existing residential buildings."

CASE STUDIES

A look at the current regulatory and legislative picture across specialised housing, blocks of flats and schools

The following presented case studies including specialised housing, a school, and a retrofitted residential block of flats where AWSS were present and had an impact provide further support for the statutory requirement of AWSS in these building categories within England.

Continued advocacy and comprehensive evidence are essential to encourage governmental action and to prompt a review of AWSS installation guidelines within these settings. Reliable evidence remains a pivotal factor in advancing regulatory reform.

Specialised Housing

Specialised housing, extra care housing schemes has seen demographic shifts, with people living longer lives. This rise in life expectancy means more residents face mobility issues, reduced sensory abilities, and cognitive challenges. Sadly, all of which heightens the risk to individuals during such fire emergencies.

BAFSA welcomed the government's announcement that, from March 2025, all newly built care homes must have sprinklers installed. However, we are still concerned that this requirement does not extend to specialised housing, where residents often face similar risks as those in care homes. Fire safety guidance is provided by the NFCC for specialised housing[4] advocating the use of AWSS, but it's not statutory. England's AWSS regulations lag behind Scotland and Wales, where AWSS is required for new specialised housing.

An in-depth review of fire related fatalities and severe casualties in England, 2010/11 to 2018/19 published by the Home Office referenced a shortage of current research on fatal fires. However, existing studies consistently identified factors on the outcome of a fire as age, physical impairments, smoking and alcohol use all of which may reduce a person's ability to respond to a fire.

The Government is continually reviewing Approved Document B, in this context PRP published a fire safety report focusing on Specialised Housing and Care Homes.[5] The report evaluated whether current design guidance and fire safety regulations effectively address the unique needs of specialised housing in England.

The study included various building types and addressed the complexities and scope of these projects, it recommended further research, including a review of sprinkler system provisions in all types and heights of buildings, with particular emphasis on specialised housing and the care home sector.

Previous concerns regarding the lack of mandatory sprinkler systems and other fire-safety measures in extra care and retirement housing particularly for older people with reduced mobility was reiterated in the Coroner's report aimed at preventing future deaths, which was sent to the then Rt Hon Michael Gove, Secretary of State for Levelling Up, Housing and Communities in March 2023.

The report followed the investigation conducted by the coroner into the death of Mr Brian George Harefield aged 85. Sadly, he was overcome by smoke and lost his life. The coroner's report highlighted that the use of sprinklers could have helped to prevent such an event. The report raised concerns regarding the lack of mandatory sprinkler systems and other fire-safety measures in extra care and retirement housing particularly for older people with reduced mobility.

In response from the Secretary of State for Levelling up, Housing and Communities, recognised that more evidence was needed to access the benefits of sprinklers and other protective measures in specialised housing, including extra care, a point addressed in the previously mentioned PRP fire safety report.

The benefit of installing AWSS protecting the most vulnerable residents of our communities who live in specialised housing was clearly demonstrated following reported dwelling kitchen fires by the LFB and South Wales Fire and Rescue Service (SWFRS) involving extra care living accommodation, a form of specialised housing.

For both incidents the fire was controlled by the operation of the building's AWSS with no injuries reported. Demonstrating the effectiveness of AWSS in controlling fires at an early stage, significantly reducing the risk to life, limiting fire spread, and minimising property damage, preventing the fire from spreading further and enabled a swift, safe resolution.

If it was not for the presence and impact of the sprinkler system the outcome of these incidents could have been so different, strengthening the argument for making sprinklers mandatory in England for specialised housing following the lead of Scotland and Wales.

The incidents

December 2025 – Abergavenny extra care living accommodation

Firefighters from the SWFRS responded to a fire at a retirement residential complex. When they arrived, they found that a minor fire had broken out in the kitchen of one of the flats. It was found that the fire had already been extinguished by the building's sprinkler system, highlighting the benefits of AWSS to the flat's occupants, other residents of the building, and the responding emergency services. All residents were accounted for, with no injuries reported.

South Wales Fire and Rescue Service, Area Manager Mike Wyatt said.

July 2025 – Croydon extra care, extra care living accommodation

More than ten years after Croydon Council retrofitted sprinkler systems across its six extra-care housing complexes, a kitchen fire occurred originating from a cooker. The fire was effectively contained and extinguished by the activation of a single sprinkler head, eliminating the need for further firefighting, no injuries were reported.

In September 2015, the Fire Industry Association documented an earlier event at one of Croydon's extra-care housing complexes, where a kitchen fire caused by a toaster was successfully extinguished by the sprinkler system. The activation of the sprinklers prevented the fire from reaching the resident's bedroom while he was asleep, thus ensuring his safety.

The decision by Croydon Council to install sprinklers in all their extra-care housing facilities proved decisive in limiting the impact of these incidents.

View of toaster identifying the seat of the fire. Credit Image LFB

Sprinklers in schools

It is surprising that the installation of AWSS is a requirement in Scotland and a condition of government funding in Wales. However, in England the provision of AWSS in schools is less certain.

Fire protection and fire safety management is governed by the Fire Safety Design for Schools Building Bulletin 100 (BB100) first released in 2007, acknowledged the important role of sprinklers and stated that "all new schools should have fire sprinklers installed except in a few low-risk schools.".

This guidance was reviewed by the Department of Education following a technical review in 2019, followed by a wider review and consultation, which ended in August 2021. The result was a proposed draft of a new BB100[6] which will probably form the basis of guidance moving forward.

The 2021 draft of BB100 outlined that sprinklers will be required for new taller new buildings over 11m in height and all special and boarding schools. However, given that only a few schools currently meet this threshold, the benefits of this proposal are likely to be limited.

When replying to the consultation on these proposals, The NFCC position was clear that their belief was that the proposed changes in this guidance are a retrograde step and represent a real lessening of standards in this area.

A new report commissioned by the NFSN[7] has warned that school fires are costing more than £126 million a year and causing widespread disruption to children's education. The independent analysis, carried out by Optimal Economics, examined fire reports from across England between 2010/11 and 2023/24. While the overall number of school fires has fallen over the past decade, the report found there are still an average of 350 school fires per year, the equivalent of six to seven each week. The report found that when the impact on children was included the provision of sprinklers was cost effective in schools.

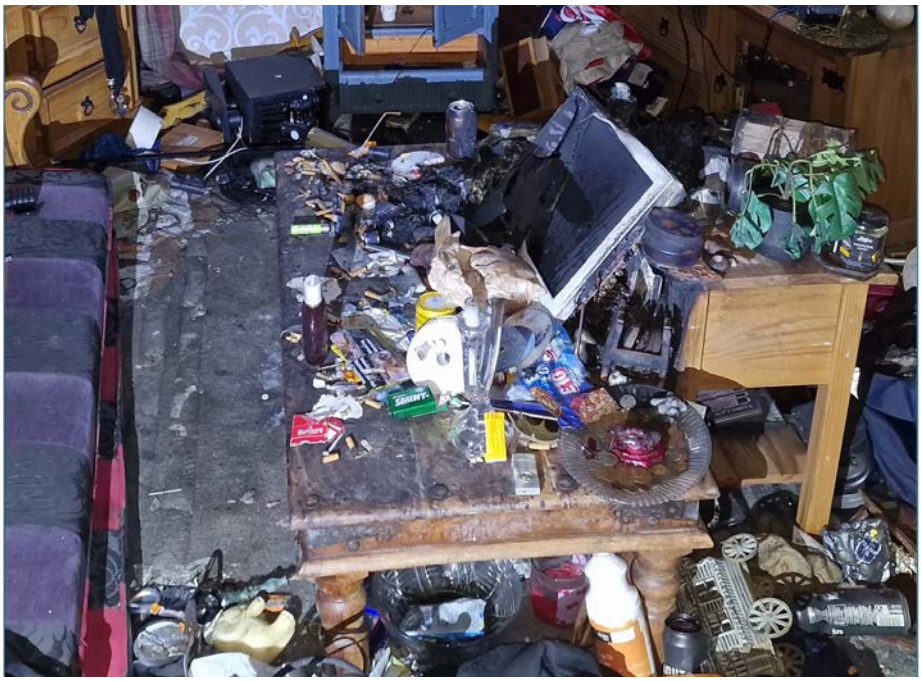
August 2025 – London primary school hot works fire

On 23 August 2025, LFB responded to six emergency calls reporting a fire at a primary school. Fire crews from nearby stations were dispatched at 00:08 hours. Upon arrival, the

"This incident clearly demonstrates the effectiveness of fire sprinkler systems in controlling fires at an early stage, significantly reducing the risk to life, limiting fire spread, and minimising property damage. In this case, the sprinkler system prevented the fire from spreading further and enabled a swift, safe resolution."

"South Wales Fire and Rescue Service continue to support the use of sprinklers, particularly in residential areas and specialised housing, as proven measures to enhance fire safety and protect vulnerable occupants."

"A new report commissioned by the NFSN[7] has warned that school fires are costing more than £126 million a year and causing widespread disruption to children's education"



View living room table damaged by fire. Image credit Wolverhampton Homes

incident commander identified a fire located on the third floor of the building, impacting a constructed timber-framed extension located on the school's green roof.

One sprinkler head activated on the floor of origin, working in unison with fire crews to contain, control the fire. The fire was extinguished by firefighters using jets. In the end 50% of the extension was damaged by fire.

The fire was being treated as accidental, with investigations indicating that it was likely caused by hot works being carried out during construction activities on the extension earlier that day resulting in a concealed fire within the fabric of the building, no injuries were reported.

When you read real life tangible examples of where fire sprinklers have actuated containing, controlling or even in some cases extinguishing school fires, you ask yourself why sprinklers are still not mandatory for newly constructed school buildings in England with the benefits they bring protecting: –

- The school, in terms of life safety/property.
- The environment reducing Co2 emissions.
- Students course work, teachers teaching aids, resources
- Vital local community resource.

The concealment of the fire allowed it to develop and spread unnoticed for an undetermined period, ultimately resulting in the emergence of the fire. The consequences of this event had the potential to exceed the systems design and operational parameters.

Nevertheless, one sprinkler head activated on the floor of origin containing the fire preventing further fire spread.

The sprinkler system contributed to preventing conflagration of the school building, protecting a valuable community resource. When you compare this to the devastating fire at the special educational needs school fire in Okehampton, Devon in February 2026, where the school will be closed for a significant period of time, pupils and staff only moved into the schools in 2023. Sprinklers were not fitted.

November 2025, retrofitted sprinkler system extinguishes fire in West Midlands residential building

Nick Lacey, Building Safety Manager at Wolverhampton Homes said,

"The safety of residents is our top priority. We are working with customers and partners such as West Midlands Fire Service, to ensure that residents are safe from fire at all times. Installing sprinklers in our tower blocks has proven to not only to save lives, but also minimises damage to the flat and protects firefighters in tackling what could have been a large blaze."

Post the Grenfell Tower fire, we have seen a dramatic rise in the appetite of housing providers to retrofit sprinklers in their housing portfolio for purpose-built block of flats (10 or more storeys) with sprinkler systems as part of a package of fire safety measures providing a further layer of safety for their residents from fire.

The City of Wolverhampton Council took the decision as part of their high-rise infrastructure programme to include the retrofitting of sprinklers in all 36 high-rise tower blocks. They were built between 1960 and 1973 to provide large numbers of buildings for social housing on tight footprints.

There is currently no statutory legislation mandating the retrofitting of sprinkler systems in the UK. However, a recent fire incident involving a retrofitted sprinkler system in a 16-story residential purpose-built block of flats has demonstrated the benefits if installing a retrofitted sprinkler system.

This incident provides additional support for BAFSA's endorsement of the NFCC[3] recommendation that the government should require sprinkler retrofits in all high-rise structures over 18 meters in height or those with at least seven storeys accessed via a single staircase.

In the autumn of 2025, West Midlands Fire Rescue Service (WMFRS) responded to a fire that started in the living room of a one-bedroom flat which was effectively contained, controlled, and extinguished by the activation of a single sidewall sprinkler head before the arrival of WMFRS. However, smoke percolated throughout the flat as the internal doors were not closed. The cause of the fire was attributed to discarded smoking materials.

The image (top left) identifies that the resident maintained poor housekeeping, with significant disorganisation and clutter throughout the living space with smoking paraphernalia on display. The NFCC report[8] smoking is one of the top causes of accidental dwelling fires in the UK. Nationally, it remains the top cause of accidental fire deaths.

In the event of a fire, these conditions could have accelerated its spread, compromising the means of escape from the flat to a

place of safety. Fortunately, in this instance, the sprinkler system was present, activated controlling the fire's development and significantly reducing heat and smoke production. This allowed the resident more time to self-evacuate from their dwelling to a place of safety.

Wolverhampton Homes should be applauded for reporting this fire and reiterated its commitment to installing sprinklers, enabling this positive news story to reach a broader audience. By clearly demonstrating the advantages of retrofitting sprinkler systems for residential fires, this outcome:

- Will entice other stakeholders and housing providers to follow its lead and install sprinklers, thereby enhancing fire protection for our communities.
- Influence policy makers, decision makers for change for retrofitting sprinklers in high rise residential buildings.

In retrospect had Wolverhampton Homes decided not to commit to this programme installing sprinklers in their property portfolio, the outcome of this incident could have been significantly different.

The importance of providing real life evidence of AWSS

Spreading the word to local MPs

These Sprinkler Saves case studies are a valuable resource, providing detailed real-world examples that demonstrate the effectiveness and benefits of Automatic Water Suppression Systems (AWSS).

These examples offer compelling evidence of the role AWSS plays in reducing the impact of fire, supporting efforts to promote their wider adoption across the built environment.

As part of British Automatic Fire Sprinkler Association's ongoing campaign to raise awareness of fire mitigation strategies, the evidence clearly shows that AWSS is an essential life and property protection measure that helps minimise the devastating effects of fire within communities.

The Chief Executive of BAFSA regularly shares these case studies with local MPs and other dignitaries to demonstrate the efficiency and effectiveness of AWSS. The aim is to encourage stronger regulations and promote the wider installation of sprinkler systems in buildings where BAFSA has significant safety concerns. Feedback from stakeholders has been overwhelmingly positive, reinforcing support for AWSS and highlighting the importance of continued commitment to fire safety.

This response demonstrates why ongoing advocacy, backed by credible evidence, is vital in influencing government policy and securing stricter regulations, alongside greater inclusion of sprinkler systems within national fire safety strategies. While the Sprinkler Saves campaign is an important tool in lobbying policymakers for change, another key source of evidence is fire Incident Recording System (IRS) data. BAFSA recognises that IRS data provides powerful insight into the impact and effectiveness of AWSS and has previously published a series of reports analysing fire incidents using this data on fires in sprinklered buildings from 2018-2022.

Visit the BAFSA website resources section for more details. www.bafsa.org.uk

Review of data submitted to Sprinkler Saves from 86 fire incidents in 2025/2026, where AWSS were reported as present and having an impact

For this part of this review, we will focus on detailed analysis of compound IRS fire data sets and additional reports provided by our FRS colleagues and partners in the UK's sprinkler industry on fire incidents where AWSS were reported as present and having an impact for England, Scotland and Wales.

This provides a means to look at the trend of AWSS incidents and by extension capture an indication of presence of AWSS installations in the building population. Underpinning BAFSA's advocacy, turning primary fire data evidence into persuasive tools for policy and parliamentary engagement, and reinforcing the case for wider AWSS inclusion within national building safety policy.

The compiled sprinkler save data originates from IRS primary fire records and additional reports provided by our FRS colleagues and partners in the UK's sprinkler industry, covering the financial year ending 2025/2026.

Further proof

This dataset includes information on a variety of fires affecting various building types where AWSS systems were present and had an impact, offering further proof of their effectiveness and reliability. A total of 86 fires were reported across various building types. Of these incidents, sprinkler systems were present in 73, while water mist systems accounted for 13.

The data cannot be cross referenced until the release of the official government primary fire data sets of fires attended where AWSS were present, having an impact for 2025/2026.

It is interesting to compare this data with the 4286 primary fires captured from the IRS fire data records over a seven year period where AWSS were recorded as present and having an impact for the period 2018/2019-2024/2025.

This shows an average of 612 AWSS incidents per year. This would indicate that from the 86 sprinkler saves reported for the period 2025/2026 in this review represent 14% of the fire incidents where AWSS are recorded as present and had an impact.

Focusing on three key areas

Analysis of the data captured and submitted to Sprinkler Saves from 86 reported fires where AWSS were reported as present and having an impact for 2025/26

Primary fire data sets where AWSS were reported as present and having an impact for the financial year 2024/25

Focus on fires where AWSS were reported as present and having an impact in residential purpose-built block of flats for the period 2018/19 to 2024/25

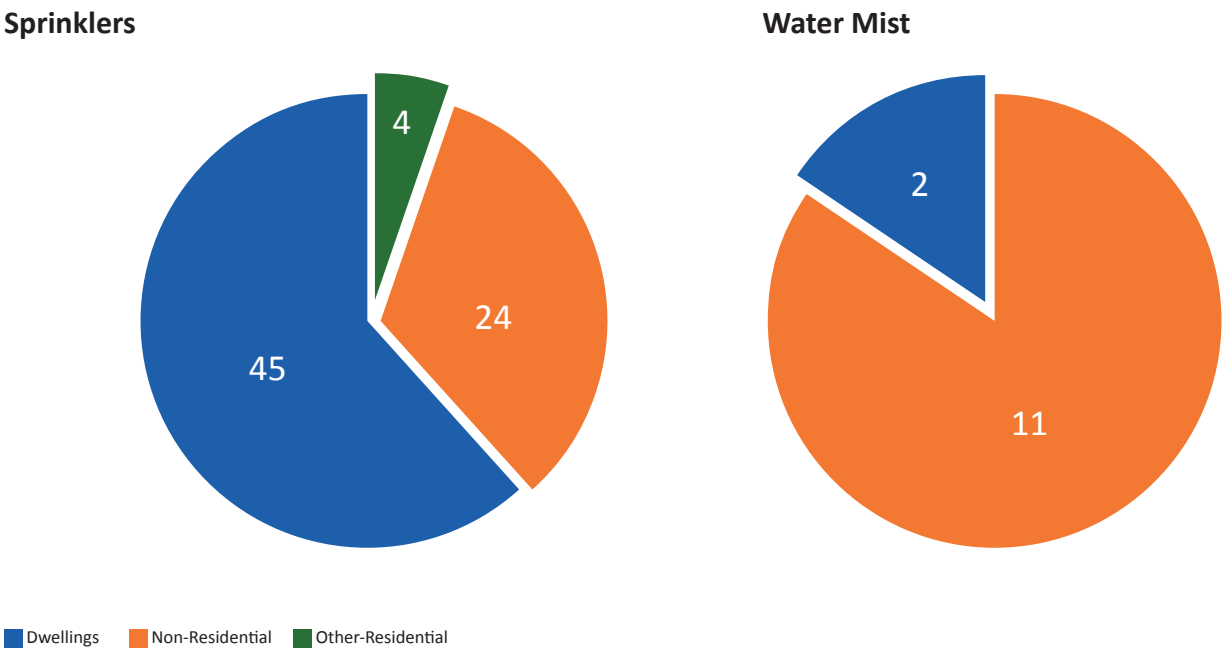


Figure 1: Distribution of 86 fires by building type where AWSS were present and had an impact for the period 2024/25

Building type

These fires are categorised according to building type:

- **Dwellings**; houses, flats maisonettes, self-contained specialised housing and houses of multiple occupation.
- **Other-Residential**; hotels, hostels, residential homes, student halls of residences

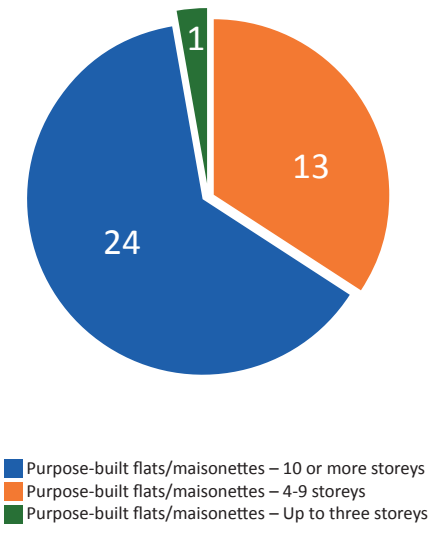


Figure 2: The number of AWSS incidents involving purpose-built flats/maisonettes

- **Non-Residential**; Retail, other public buildings industrial, these incidents encompass several categories, which may be further classified by specific industry subcategories.

Dwellings

Of the 86 fires, dwelling fires dominated the figures with 47 AWSS activations with sprinkler fires dominating with 45 compared to water mist with two. Purpose-built block of flats accounted for 38 dwelling fires which would be expected given the regulatory guidance and sector changes relating to fire safety that have occurred.

Other residential

Of the four reported sprinkler incidents, three involved student halls of residence and one hotel, currently there is no regulatory guidance for installing AWSS in these building types in England. While these figures may seem disappointing, without changes to regulations, the number of fires where AWSS are present making an impact will likely remain low compared to other building types.

Non-residential

A total of 35 fires were documented across various building types, with incidents either being contained, controlled, or extinguished.

The application of AWSS has demonstrated significant benefits for business continuity, as evidenced by an incident at a Scottish fulfilment centre. On that occasion, the activation of the onsite sprinkler system effectively contained and controlled the fire within the racking system, thereby adverting total loss of the facility to fire.

What is interesting is that five incidents have been reported to Sprinkler Saves UK since 2022 involving e-bikes or e-scooters fires which have become one of the fastest growing risks in the home, with two activations were reported involving purpose-built block of flats.

The lithium-ion batteries found in e-bikes or e-scooters can hold a significant amount of energy that can be expelled in the form of a very hot localised fire, or in some cases thermal runaway which can be difficult to extinguish. Despite these types of fires being outside the operating parameters of a sprinkler system, the reported incidents confirmed that on each occasion the fire was contained, controlled or extinguished.

The captured data demonstrates the effectiveness of AWSS, from the 86 reported incidents across all building types 48 fires were extinguished and 32 were contained or controlled. However, the data is unable to confirm why six incidents were either not contained/controlled or recorded as unknown. Further investigation of the 2025/26 IRS fire data would be required when published.

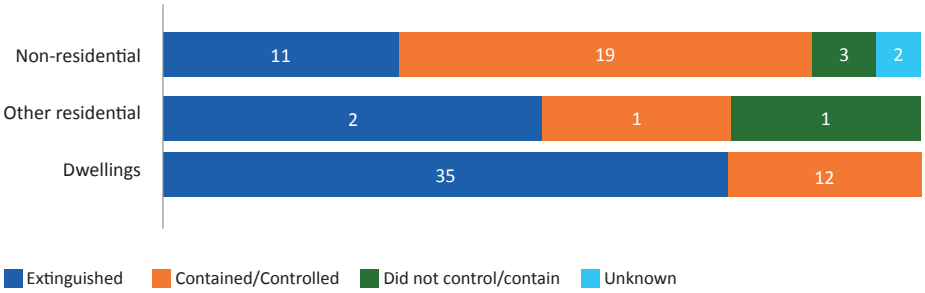


Figure 3: The effectiveness of AWSS for 86 fires for building types dwellings, non/other residential for the period 2024/2025

Key points

- What is inescapable is that AWSS, when properly designed, installed, and maintained in accordance with relevant codes and standards, can reduce both heat and smoke production rates.
- The data reinforces the findings of the Optimal Economics[1] reports that fire sprinklers have a good track record in reducing the impact of fire.
- Identifies that the growing risk of a e-bike and e-scooter fires can be contained or extinguished by a sprinkler system as part of a package of fire safety measures.
- Since the inception of Sprinkler Saves, we have seen an increase in reported AWSS activations reported year on year, showing that our work is consistently encouraging and increasing the number of sprinkler activations reported.

Comparing incidents to Sprinkler Saves with those recorded in national statistics also offers valuable insights. In the 2024/25 financial year, Sprinkler Saves received reports of 72 sprinkler incidents from our FRS and industry partners, while official records identified 737 primary buildings with AWSS present and having an impact. This information was obtained through a FOI request to teams compiling primary fire data across England, Scotland, and Wales. The comparison enables us to better understand how incidents reported to Sprinkler Saves align with those captured in national statistics.

Primary fire data where AWSS were reported as present and having an impact for the financial year 2024/2025

Figures are not available to confirm the number of AWSS installations completed, or currently being undertaken across the country. However, data on fire incidents allows us to capture where AWSS are present and had an impact. This provides a means to look at the trend of AWSS incidents and by extension capture an indication of the presence of AWSS installations in the building population.

Table 1. shows that there were 737 primary building fires with AWSS present and having an impact for 2024/25 compared to 740 in 2023/2024.

Primary fires are divided into sub-categories; here, we focus on fires involving:

Dwellings:
- Bungalow-single occupancy
- Converted flat/maisonette-single, multiple occupancy
- House-single occupancy
- Other dwelling
- Purpose built low rise 1-3 storeys, medium high rise (4-9 storeys) high rise (10+) flats/ maisonettes

Types of premises	Sprinklers present	Watermist present	Grand total
Dwellings	246	20	266
Other buildings	302	169	471
Total	**548**	**189**	**737**

Table 1. Source: FOI Requests for primary fire data relating to primary fires attended by FRSs where AWSS were present, having an impact for England, Scotland, and Wales for 2024/25

Other Buildings:
- Agricultural premises
- Communal living
- Educational premises
- Entertainment, culture, and sport
- Food and drink premises
- Hospitals and medical care
- Hotel, boarding houses, hostels, HMO, sheltered accommodation
- Industrial premises
- Offices and call centres
- Other public buildings
- Private non-residential buildings
- Retail premises

It is unsurprising that the LFB stands out with 97 incidents followed by WMFRS on 67: as the UK largest firefighting and community safety rescue services. London's skyline is dominated by high rise buildings with the highest number of skyscrapers in Europe, with over 8,000 high-rise buildings. Accounting for 85% of the high-rise fires in England. They report attending 4,905 dwelling fires for 2025.

Dwellings/other buildings

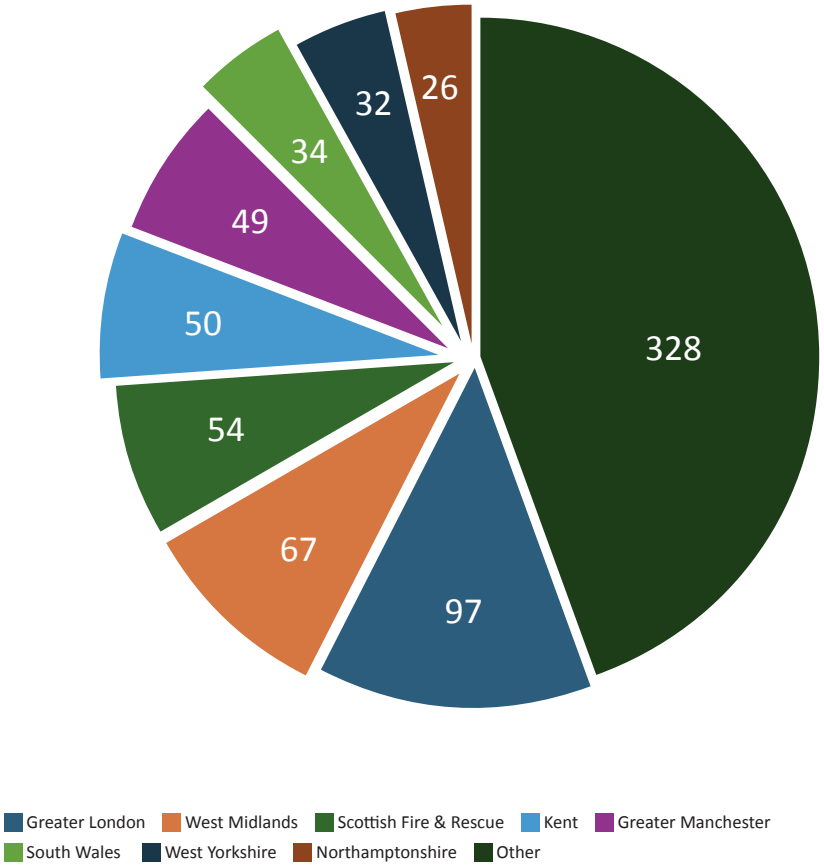


Table 2. Of the 737 fires, the top eight FRS reported 409 incidents: 166 in dwellings and 243 in other buildings. The other FRSs accounted for 328 fires—100 in dwellings and 228 in other buildings.

"Since the inception of Sprinkler Saves, we have seen an increase in reported AWSS activations year on year, showing that our work is consistently increasing the number of sprinkler activations recorded."

Dwellings

Of the 266 dwelling fires recorded, the majority occurred in purpose-built flats or maisonettes, with 195 incidents compared to 205 in 2023/2024. Sprinkler systems were present in 187 of these cases, while water mist systems accounted for eight incidents. This distribution aligns with expectations, as domestic and residential buildings are typically protected by sprinkler systems compliant with BS9251, which are designed to provide life safety and, where applicable, property protection.

A comprehensive analysis of fires in residential purpose-built blocks of flats, where AWSS were reported as present and influential, for the period 2018/19 to 2024/25, is presented later in this review.

The remaining 71 incidents involved low-rise buildings with houses and bungalows accounting for 26 cases. Only 17 were reported in England, which underscores the limited statutory guidance on the installation of AWSS in residential dwellings. Wales accounted for four incidents, despite the National Assembly for Wales's decision in

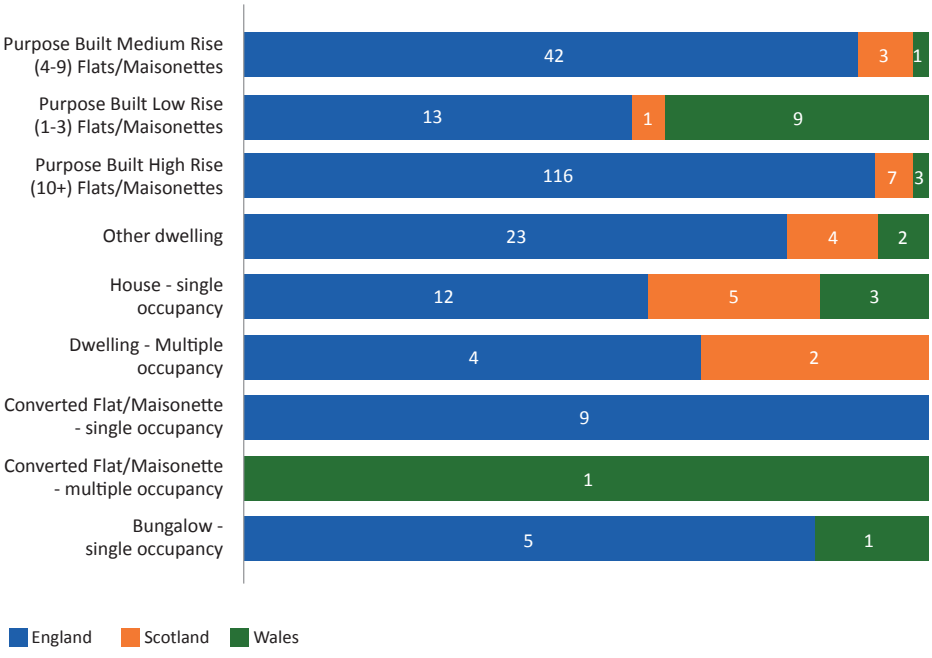


Figure 4. AWSS incidents by building type, country for dwellings for 2024/2025

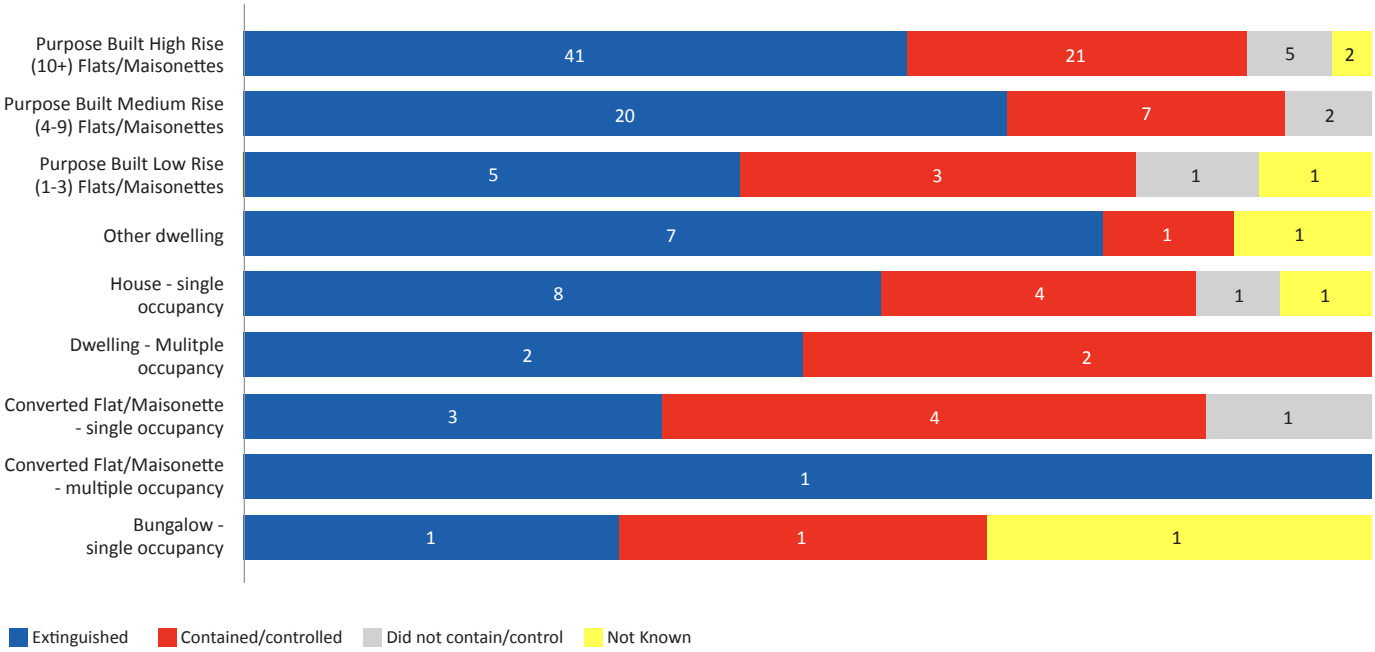


Figure 5: Firefighting system impact, the effectiveness of AWSS within dwellings based on 147 fires for 2024/2025.

October 2013 requiring AFSS installations in new and converted homes. In Scotland, five incidents were recorded.

The IRS primary fire data contains fields that specify the outcome from the activation of firefighting systems in proximity to the fire, thereby facilitating the analysis of AWSS-related incidents.

What was the active firefighting system impact:

i. Extinguished the fire
ii. Contained/controlled the fire
iii. Did not contain/control the fire
iv. Not known.

Figure 5. Of the 266 fires, the effectiveness of the AWSS in controlling or extinguishing the fire is known for 147 incidents where the system operated, this data can be used to measure the performance, and effectiveness of the firefighting system impact.

The AWSS contained, controlled the fires in 43 incidents (29%) and extinguished the fires in a further 88 (60%) of incidents. Hence the effectiveness of AWSS amounts to 89% across the building type 'dwelling' for 2024/2025. Providing further evidence supporting the findings of the independent Optimal economics report[1], on the efficiency and effectiveness of sprinkler systems to operate, extinguish or control a fire.

Preliminary examination of the 10 incidents where AFSS are reported to have operated and did not contain/control or not known, for three of the incidents the fires were in areas not covered by the system. The remaining six incidents recorded as not applicable, null, other and none had a fire area larger than 6-10m^2.

Other buildings

Of the 471 fires reported in other buildings with AWSS, the LFB recorded the highest number in the UK, with 60 incidents occurring within Greater London. This outcome is anticipated, given the city's role as the capital and its diverse fire risk profile. What is surprising is that Kent Fire and Rescue Service ranked second with 41 incidents; further examination reveals that custodial premises, prisons, accounted for 38 of these cases.

The fires were identified within five key primary areas where AWSS were present and having an impact by individual building type, other buildings for the period 2024/2025.

Industrial premises

- Accounted for 149 incidents in 2024/25, representing an increase from the 134 incidents reported in 2023/24.
- Factories accounted for 28 activations, which is surprising as sprinkler systems are not guided by regulations to be installed in factories.
- Upon examining the data, waste and recycling activities accounted for 43 of

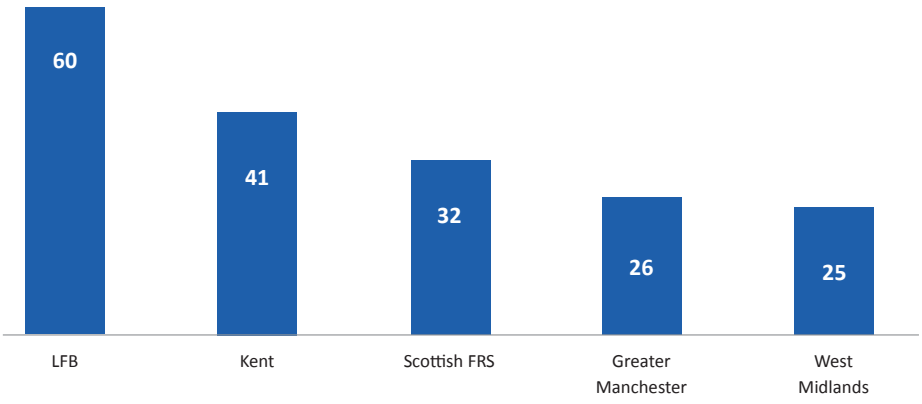


Figure 6. Other buildings, primary fires attended by the top five FRSs where AWSS were present, and having an impact for England, Scotland, and Wales for the financial year 2024/25

these incidents which could be linked to the increasing use of lithium-ion batteries. Veolia[11] report that 238 facility fires were reported in 2024, due to lithium-ion batteries from e-bikes, vapes and portable electronics improperly disposed of in general waste streams.

Retail premises

- Experienced a decrease of 23 incidents, falling from 64 in 2023/2024 to 41 in 2024/2025
- This reduction may indicate potential signs of weakness within the retail sector.

Communal living

- Reduction of 13 incidents failing from 34 in 2023/2024 to 21 from 2024/25.
- Which is a surprise given the strength in growth of this market to address acute housing shortages.

Educational premises

- During the 2024/25 period, 14 fire incidents involving infant, primary and secondary schools were documented, representing a modest rise from 11 cases in the previous year.
- England reported seven fire incidents, representing the highest number among the regions. Wales followed with four cases, and Scotland recorded three occurrences.
- It is notable that regulations regarding the installation of sprinkler systems in England are less stringent compared to those in Scotland and Wales.
- The latest report from the NFSN[7] report that school fires are not rare with six to seven school fires occurring every week in England, around 350 fires per year.

Other public buildings

- These dominated the figures with 184 fires, which is contributed to incidents involving custodial premises, namely prisons which accounted for 170.
- For the period 2018/19 – 2024/252, 614 fires were recorded in prison cells of which water mist systems accounted for 505 incidents compared to sprinklers with 121.
- What is unclear from the data is whether these incidents reflect the use of mobile units or fixed installation water mist systems.

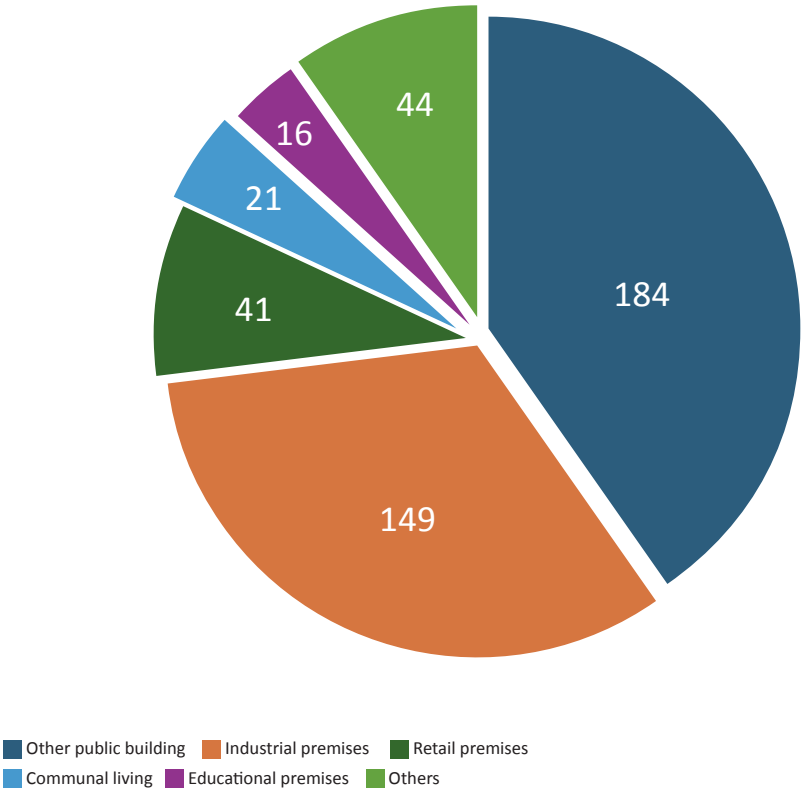


Figure 7: Number of fires where AWSS were present having an impact by individual building type, other buildings for the period 2024/2025

Out of 471 fires in "Other buildings," data on the AWSS's effectiveness is available for 275 incidents where the system operated, as shown in figure 8. This information helps assess the performance and reliability of AWSS when activated, specifically by calculating how the sprinkler system successfully contained, controlled, or extinguished fires.

AWSS contained or controlled fires in 91 incidents (33%), and extinguished them in 174 incidents (63%). Therefore, its overall performance effectiveness is 96% for this building category in 2024/2025.

Further analysis is needed for the remaining 10 incidents (4%) where the fire was not contained or controlled. The breakdown includes:

- Two fires occurred in areas not covered by the system
- Eight cases were classified as not applicable, not known, null, other.

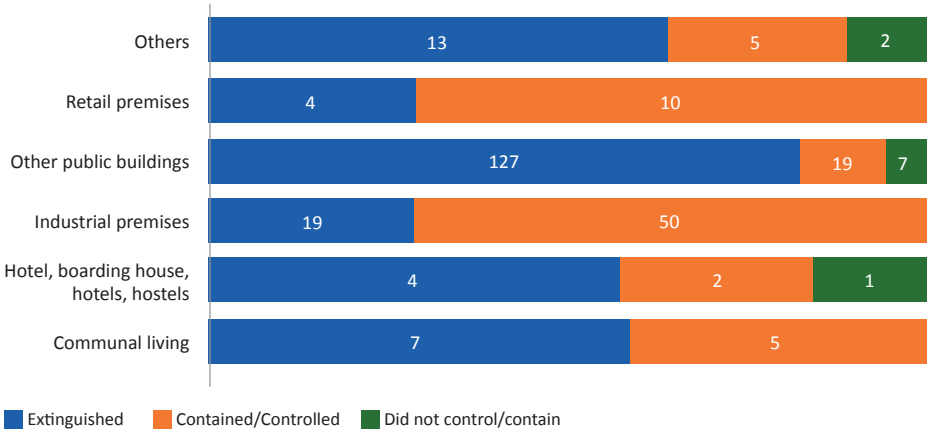


Figure 8: Impact on fires where system operated by individual building type, other buildings for the period 2024/2025

Take-aways

- Unsurprisingly, sprinkler systems dominate the figures compared to water mist in residential buildings, due to the guidance contained in Approved Document B for the installation of BS9251 sprinkler systems.
- Reports of sprinkler system incidents in low-rise buildings, houses, and bungalows are relatively rare, largely because England has limited legislation mandating sprinklers in these types of dwellings.
- The majority of dwelling fires where AWSS were installed and had an effect occurred in purpose-built flats or maisonettes, comprising 195 out of the 266 recorded incidents.
- Other buildings
  i. Waste and recycling accounted for the highest number of fires accounting for 25 AWSS activations which could be associated with the growing use of lithium-ion batteries, which presents an emerging risk.
  ii. Of the 153 AWSS activations that occurred in public buildings, prisons were responsible for 147 incidents, with water mist systems accounting for 137 of these.

An examination of IRS fire data sets reveals identifiable patterns associated with specific building types installed with AWSS, which have demonstrated measurable impact. Reports provided to Sprinkler Saves further substantiate these conclusions, indicating that a considerable number of incidents took place within dwellings and purpose-built blocks of flats.

This trend is expected, given:

- Recent changes in regulatory guidance reducing the building height are which sprinklers are required to 11m.
- An increase in large-scale retrofitting projects, largely driven by heightened attention to fire safety following the Grenfell Tower tragedy.

This part of the review looks at fires affecting purpose-built blocks of flats where AWSS were present and had an impact, covering incidents from 2018/19 to 2024/25, including:

- Purpose-built high-rise flats/maisonettes (10+ storeys)
- Purpose-built medium-rise flats/ maisonettes (4–9 storeys)
- Purpose-built low-rise flats/maisonettes (1–3 storeys)

Interrogating the locations of these fires and the reliability and effectiveness of AWSS in controlling or extinguishing these fires.

Focus on fires where AWSS were reported as present and having an impact in residential purpose-built block of flats

From 2018/19 to 2024/25, there were 1,098 fires involving purpose-built residential flats with AWSS, present and having an impact. These incidents resulted in 652 system activations: 626 sprinkler systems and 26 water mist systems. Sprinkler activations were mostly associated with high-rise buildings over ten storeys, accounting for 455 incidents, while sprinklers in low- and medium-rise flats accounted for 171.

Table 2 illustrates a consistent year-on-year rise in the number of fires reported with AWSS present, having an impact between 2020/21 and 2023/24 While this upward trend is evident, the data for 2024/25 shows an overall decrease of 13 incidents. Notably, there was an increase of seven incidents in medium/lower-rise flats/maisonettes when

Purpose built block of flats	Fixed firefighting system	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Total sprinklers, water mist	Total fixed fire-fighting systems
Purpose-built high rise, (10+) Flats/ Maisonettes	Sprinklers	35	68	45	69	82	88	68	455	462
	Watermist	1	1	2	0	1	1	1	7	
Purpose-built medium rise, 4-9 Flats/Maisonettes	Sprinklers	7	22	9	27	18	19	27	129	137
	WaterMist	2	0	2	0	1	1	2	8	
Purpose-built low rise, 1-3 Flats/ Maisonettes	Sprinklers	8	2	1	7	8	6	10	42	53
	WaterMist	1	2	0	1	1	6	0	11	
	Total	**54**	**95**	**59**	**104**	**111**	**121**	**108**	**652**	**652**

Table 2. The number of primary fires in purpose-built high-rise flats/maisonettes where AWSS were present and having an impact for 2018/19 to 2024/2025

compared to 2023/24 to 2024/25. Despite this, the number of reported fires with AWSS present and having an impact remain low when compared to the total primary fires reported for purpose-built flats.

Figures are not available to confirm the number of sprinkler installations completed, or currently being undertaken across the country. However, data on fire incidents allows us to capture where sprinklers are reported and if they have activated. This provides a means to look at the trend of sprinkler incidents and by extension capture an indication of the presence of sprinkler installations in purpose-built block of flats.

The Grenfell Tower fire in 2017 prompted many housing providers, councils, housing associations and developers voluntarily committing to install AWSS in purpose-built flats on a new and retrofit basis across the Uk as part of a broader package of fire safety measures providing a further layer of safety from fire for their residents.

The London Borough of Croydon was the first council to retrospectively retrofit fire sprinklers in their 26 high rise residential blocks of flats over 10 storeys or more with support and guidance from the LFB, completed in 2018/19.

The positive impact of this initiative has been clear; Southampton City Council[9] have reported five flat fires in their 20 high-rise residential blocks of flats since completing their retrofitting sprinkler project. In each instance, the sprinkler system contained, controlled the fire before the arrival of the fire service. This decision played a crucial role, as the outcome of these fires incident might have been far worse without the presence of the sprinkler system.

Further endorsed by reviews published by Sprinkler Saves UK, within this document promoting real life tangible incidents where AWSS have contained, controlled, or in some cases, extinguished fires involving residential purpose-built block high rise flats/ maisonettes. If it was not for the tragic events of the Grenfell Tower fire encouraging housing providers to install AWSS into the property portfolios, the outcome of these incidents could have been so much different.

Table 3. England accounts for the highest number of AWSS activations reported with 571 which is unsurprising based on the variation in the population figures and the number of high-rise residential buildings built since 1949 in the metropolitan areas.

With 652 recorded fires occurring where AWSS systems were present and having an impact, we can examine and evaluate the systems effectiveness both inside and outside the flats.

Fire start location		Extinguished	Contained/ Controlled	Did not contain/ control	Not known	Number of activations
Inside the flats	Kitchen	138	24	4	9	175
	Living Room	25	10	3	2	40
	Bedroom/Bedsitting Room	21	18	2	0	40
	Bathroom/Toilet	1	0	2	0	3
	Dining Room/Utility Room/Conservatory	1	1	0	1	3
	Total	**186**	**53**	**9**	**13**	**261**

Table 4: Breakdown and impact, the effectiveness of AWSS inside the flat for 261 fires for 2018/19 to 2024/25

Fire start location Inside the flats

Table 4 identifies that out of the 261 documented fire incidents:

- A total of 239 incidents were either extinguished or controlled, resulting in a success rate of 92%.
- Of the nine incidents where the fire was not contained, controlled, the location for one fire was not in the area covered by system. For the remaining eight incidents the reason for the poor outcome was either recorded as not known, null or not applicable.
- According to the London Fire Brigade[12], approximately 60% of domestic fires originate in the kitchen, making it the most common location for household fires, corroborated by the 175 kitchen related incidents highlighted in Table 4.

Purpose built block of flats	England	Scotland	Wales	Total
Purpose-built high rise, (10+) Flats/ Maisonettes	404	47	11	**462**
Purpose-built medium rise, 4-9 Flats/ Maisonettes	128	7	2	**137**
Purpose-built low rise, 1-3 Flats/ Maisonettes	39	3	11	**53**
Total	**571**	**57**	**24**	**652**

Table 3: Primary fires where AWSS operated in purpose-built high-rise flats or maisonettes having an impact by country from 2018/19 to 2024/25

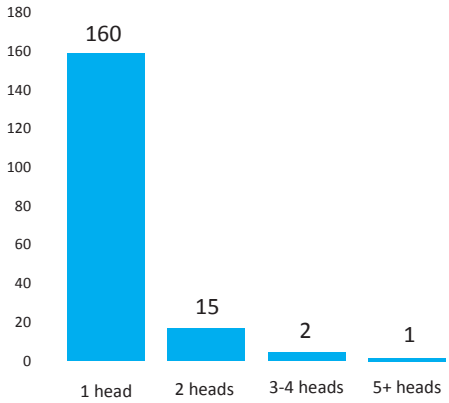


Figure 9. Number of fires by the number of sprinkler heads activated inside the flats for 261 fires for 2018/19 to 2024/25

Fire Start Location		Extinguished	Contained/ Controlled	Did not contain/ control	Not known	Number of activations
Outside the flats	Refuse	130	167	15	3	315
	Corridor/Hall/Open Plan Area/Reception Area	7	6	0	1	14
	External fittings and Structures	3	7	5	1	16
	Under stairs (enclosed storage area)	1	0	0	0	1
	Other	19	20	6	0	45
	Grand Total	**160**	**200**	**26**	**5**	**391**

Table 5. Breakdown and impact, the effectiveness of AWSS outside the flat for 391 fires for 2018/19 to 2024/25

Of the 261 fires where the system operated, data is available on the number of heads that operated for 178 incidents. The distribution of these fires by the number of heads operating is shown in figure nine. It is not surprising that the figures are dominated by the operation of 1-2 heads accounting for 98% (175) of fires.

Fire start location outside the flats

Table 5. Shows that of the 391 fires recorded:

- Refuse store fires accounted for 315 activations which should be of no surprise as communal refuse stores are often located in vulnerable, unsupervised areas making them prone to arson.
- Of the 315 activations, WMFRS attended 154 involving refuse stores which aligns with expectations following Birmingham City Council's initiation of a three-year project in 2017 to retrofit sprinkler systems in 213 high-rise buildings.
- Prior to this project, all shared bin areas in their residential high-rise blocks had been equipped with sprinklers.

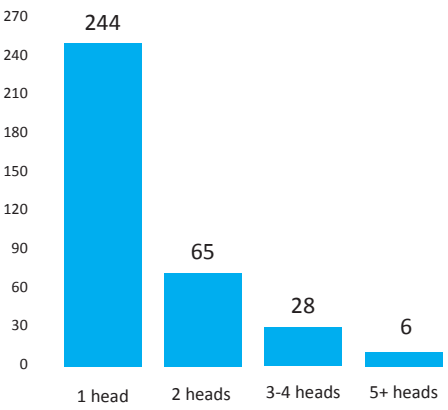


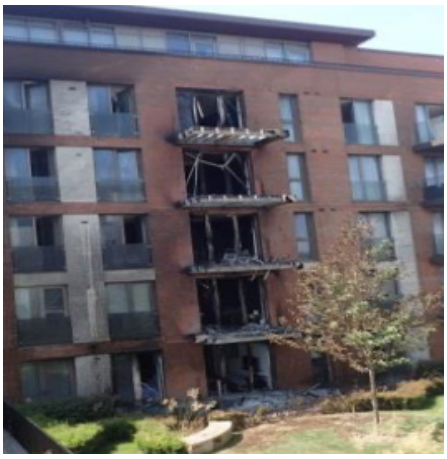
Figure 10. Number of fires by number of heads activated outside the flats

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, so providing the potential for the spread of fire and smoke to the common escape routes.

The government publication, *"Purpose-built block of flats guide"* provides guidance and advice to reduce the risk of fire in refuse and chute rooms including that further protection can be provided by a sprinkler system. This is clear evidence that this is being applied.

- 360 incidents were either extinguished or contained, controlled with a success rate of 92%.
- Of the 26 incidents where the fire did not contain, control
  i. Three fires not in the area covered by system.
  ii. One system not set up correctly
  iii. In 22 cases the outcome description was either recorded as not known, null or not applicable
- Further interrogation of the IRS primary fire data would have to be completed to identify five incidents recorded as unknown.

Out of 391 fires fire data is available for 343 incidents where the heads/nozzles activated. In 244 (71%) cases, only one head/nozzle operated; 65 (19%) cases involved two heads/nozzles; 28 (8%) fires had three to four heads/nozzles activated; and 6 (2%) fires involved five or more heads/nozzles.



West Hampstead Square Balcony Fire. Credit LFB

- The effectiveness of a sprinkler system involving a high-rise residential fire was demonstrated in July 2018 resulting in a multi-point residential incident in West Hampstead London. According to the LFB report[10], an external balcony fire resulted in five apartments being exposed to fire and heat within a span of 19 minutes, 12 sprinkler heads activated containing, controlling the fire an unprecedented occurrence in a residential building fire.
- If it was not for the presence and activation of the sprinkler system, it is likely that the incident could have escalated into five separate compartment fires across five floors, significantly increasing risks to both residents and firefighters resulting in a large, protracted incident.

Take-aways

- Sprinklers dominated the figures compared to water mist systems which should be no surprise given the guidance in ADB for BS9251 sprinkler systems
- The majority of the incidents occurred in purpose-built high-rise flats/maisonettes (10+ storeys)
- Reflecting statutory guidance, appetite of housing providers to retrofit sprinklers in high rise buildings post Grenfell.
- Overall trend saw an increase of reported incidents during the period with a drop reported for 2024/25, the first for five years.
- England accounted for the majority of incidents which is linked to population size and the number of high-rise buildings compared to Scotland/Wales.
- Kitchen fires accounted for the highest number of incidents inside the flats reflecting national statistics.
- Refuse store fires accounted for the highest number of incidents outside the flats identifying their vulnerability to arson.

“Each one of the Sprinkler Saves captured in this document provides a real-world example of the power of fire sprinklers. These are tangible evidence of where sprinklers have been the difference in containing or extinguishing a fire and therefore minimising property damage, protecting the environment and protecting the lives of firefighters and members of the public. This makes me extremely proud to be associated with the fire suppression industry.”

Ali Perry, CEO BAFSA

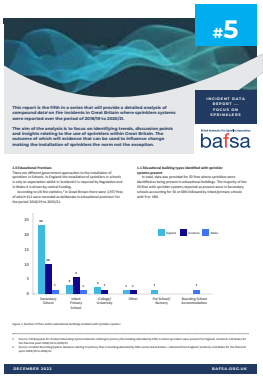
Further reading /resources

Sprinklers play a significant role as part of an appropriate package of fire safety measures reducing the impact of fire on people, property, and the environment.

- Sprinkler Saves UK Annual Review 2021/2022
- Sprinkler Saves UK Annual Review 2022/2023
- Sprinkler Saves UK Annual Review 2023/2024
- Sprinkler Saves UK Annual Review 2024/2025
- Sprinkler Saves UK, newsletters
- Fire Sprinklers Greater London Review 2018/2021
- Incident data report, focus on sprinklers

The publications focus on incidents where sprinklers were recorded as being present and having an impact, providing a roundup of news and activities from Sprinkler Saves Uk.

The fire data around the incidents provides powerful evidence as to the ability of fire sprinklers and other forms of AWSS in protecting our communities, businesses from fire. All the above-mentioned publications are available to download from the sprinkler saves website, resources section. https://www.sprinklersaves.co.uk/resources/



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1 Optimal Economics Reports Efficiency and Effectiveness of Sprinkler Systems in the United Kingdom: An Analysis from Fire Service Data; May 2017 Efficiency and Effectiveness of Sprinkler Systems in the United Kingdom An Analysis from Fire Service Data-Incidence of Deaths and Injuries in Sprinklered Buildings: A Supplementary March 2019.

2 LFB, London faces record number of e-bike fires in 2025 press release

3 National Fire Chiefs Council AWSS Policy Statement

4 NFCC Specialised Housing Guide

5 Fire safety: Specialised and Safety Executive and the Ministry of Housing, Communities & Local Government

6 Fire Safety Design for Schools Building Bulletin (revised) draft for consultation May 2021

7 Optimal economic report, what is the cost of school fire

8 NFCC Home safety policy position statement

9 Southampton City Council website fire sprinklers

10 LFB Report, West Hampstead Square, Automatic Fire Suppression System Activation Case Study

11 Veolia, one fire every day: why Britain's battery crisis demands urgent action

12 LFB website, Cooking and fire safety

British Automatic Fire Sprinkler Association
bafsa

CPD COURSES

Professional development for the fire suppression & fire safety sector

The British Automatic Fire Sprinkler Association (BAFSA) offers a range of high-quality CPD-accredited online courses designed for professionals across the sprinkler industry and fire safety sector, construction and insurance sectors.

With legislation, standards and best practice continually evolving, ongoing professional development is essential. BAFSA's flexible e-learning programmes help individuals and organisations build knowledge, strengthen competence and demonstrate commitment to compliance.

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- Sprinkler System Installations
- Legislation & Standards
- Ethics & Own Actions
- Non-Compliance

Duration: Approx. 2 hours / 7 modules

Water Mist Systems vs Automatic Fire Sprinklers

This CPD-accredited programme explains the differences between water mist systems and automatic fire sprinkler systems, helping learners understand the benefits, applications and limitations of each.

Duration: Approx. 2 hours

Principles & Practices of Automatic Fire Sprinkler Systems

A comprehensive programme exploring how automatic fire sprinkler systems operate.

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All completed sprinkler saves should be forwarded to nick.coleshill@bafsa.org.uk.

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