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South Yorkshire
Fire & Rescue

WORKING FOR A SAFER
SOUTH YORKSHIRE

Position Statement & Guide to Best Practice using Fire Sprinklers and Water Misting Systems

1 SECTION 1 - SYFR

2 Sprinkler Position Statement

South Yorkshire Fire and Rescue (SYFR) is committed to utilising all means available to reduce deaths, injuries or damage as a result of fire. Sprinkler systems are proven to save lives and property; they improve fire-fighter safety, minimise environmental damage and reduce economic loss. SYFR proactively endorses the installation of sprinkler systems in domestic, industrial, commercial and residential premises.

3 Our Mission

The time is now for the fire service to adapt to the changes in construction techniques; as new technologies become the norm in construction (light-weight construction etc) and as buildings contents become more flammable and more toxic as they burn. We must protect our communities in new ways through proactive solutions, rather than reactive ones. Fire sprinklers provide the active protection needed to reduce the fire risk of these new building components to our communities and firefighters.

4 Introduction

SYFR are leading by example, our two new fire stations at Parkway and Birley would satisfy the latest building regulations without sprinklers. By taking the decision to install them, SYFR can demonstrate using every occasion to promote sprinklers and urge building owners and developers to follow suit and embrace the benefits they provide, such as:

- Protecting assets from fire,
- Supporting business continuity,
- Improving environmental protection,
- Increasing the safety of those at risk from fire in the community,
- Increased fire fighter safety,
- Their ability to enable design flexibilities in building projects.

SYFR are ideally placed to promote a better understanding of how fire protection measures can reduce the risk to life and limit the impact of fire on the environment and to the local economy. SYFR's sprinkler position statement will be communicated internally and externally to key

stakeholders and will be promoted at every available opportunity.

Within this document, any reference to sprinklers should also be attributed to the new emerging developments in Automatic Water Suppression Systems (AWSS).

5 The Benefits of Sprinklers

SYFR firmly believes that automatic water suppression systems and in particular, sprinklers provide huge benefits to our communities. There is clear evidence that sprinklers and other forms of automatic fire suppression systems can be effective in the rapid suppression of fires and therefore play an important role in achieving a range of benefits for both individuals and the community in general. Where sprinkler systems have been installed:

- Firefighters are exposed to less risks and are therefore safer
- Fire deaths have been almost eliminated
- Fire injuries reduced by 80%
- Significant improvement in firefighter safety achieved
- Property damage reduced by over 80%
- Reduction in the environmental impact of fire
- Reduction to the economic cost of fire

They also significantly help to:

- protect property and heritage;
- reduce the effects of arson;
- reduce fire costs and the disruption to the community and business;
- permit design freedoms and encourage innovative, inclusive and sustainable architecture.

6 SYFR Engagement

SYFR will play a key role in promoting better understanding of the benefits of sprinklers and we strive to encourage building owners, developers, architects and designers to incorporate sprinkler systems where there is a risk-based case for doing so, particularly where the risks to people are unacceptable high, or where there is a clear business case in terms of cost and benefit. While sprinklers work to reduce the human impact, as well as the environmental and economic impact of a fire in buildings, we believe that our focus should be directed at those properties where the most significant impact can be achieved, including domestic properties, residential care homes, supported living schemes, schools and commercial premises that present a significant risk due to their size, construction or use.

To achieve the maximum outcomes for the inclusion of suppression systems and in particular the installation of domestic sprinklers, we will engage locally with all parties that have an involvement in:

- Local government;
- Planning;
- Housing provision;
- Local authorities;
- Registered social landlords;
- Private builders;
- Industrial and commercial premises;
- Residential care providers;
- Water companies;
- Environmental departments.

SYFR will canvas support for automatic water suppression systems and also use our statutory duties under the Regulatory Reform (Fire Safety) Order 2005 to ensure suppression systems are installed

where required. SYFR will work with building regulators to ensure that suppression systems are installed where necessary or included within premises as part of a design solution that allows conformity with regulatory requirements.

Our preferred option is to work in collaboration with all stakeholders to fit suppression systems and in particular, sprinklers to all new build homes, residential care premises, houses of multiple occupation and industrial and commercial premises. We will also campaign to ensure that sprinklers are retro-fitted where occupants are vulnerable to protect people from death and injury as a result of fire.

7 Local Government

SYFR recognises the importance of working with local government to reduce the effects of fire on our communities. It is vital that the devastation and negative impact of fire on both the community and economy is not viewed as a problem for SYFR, to be dealt with in isolation. Effective partnership collaboration with Local Authorities is essential in order to reduce the impact of fire. The installation of suppression systems offers a real way forward in the reduction of the impact of fire.

We will contact and lobby members of local government and members of all political parties with the aim of educating and raising the awareness to the benefits of sprinklers.

8 Domestic Premises

Fires in the home still account for the greatest number of fire deaths and injuries each year and therefore the installation of Sprinklers in domestic premises would have a significant impact in reducing these. SYFR believes that it is vital that we use our influence to ensure that all new housing is fitted with sprinklers and other social infrastructure projects consider the benefits of sprinklers.

More and more vulnerable people with less mobility are remaining in their own homes. The evacuation policy of “get out, stay out, call us out” is becoming increasingly less appropriate as a

result of an ageing and changing demography. SYFR believes by providing sprinklers in all new build homes, we will go some way to addressing the challenges of a changing demography including an ageing population and policy changes to social care.

The Lifetime Homes Standard, established in the mid-1990s, identified a set of principles that should be implicit in good housing design. The design criteria should maximise utility, independence and quality of life, while not compromising other design issues such as aesthetics or cost effectiveness. It covers important considerations that need to be addressed in order to allow occupants to remain in the dwelling as they become older and more vulnerable to mobility issues. However, the Lifetimes Homes standards and in particular the design criteria **do not** adequately cover the protection of the occupant from the risk of fire. Therefore the installation of a fire suppression system such as domestic sprinklers should be considered.

SYFR firmly believe that all new homes should include the fitting of domestic sprinklers at the point of build and in particular any property designed to be used by more vulnerable groups. Providing sprinklers will protect all house occupants, particularly those that are vulnerable from the devastating effects of fire.

SYFR strive to make sure that new housing and other social infrastructure projects, especially those involving vulnerable persons, consider the benefits of sprinklers. We seek to work closely with all local and planning authorities to include sprinklers at concept stage prior to seeking planning approval so that the benefits of automatic suppression can be considered before the design and costing decisions are so far advanced that it is too late to include them.

9 Registered Social Landlords (RSLs)

The provision of social housing within South Yorkshire must be safe and sustainable for both the occupants and the building owners. SYFR believes that a true partnership approach to housing with social landlords is needed to ensure that homes provide and maintain a high degree of safety from

fire. The installation of domestic sprinklers will help to ensure a 'home for life'. We will actively encourage and work with RSLs to fit domestic sprinklers into

- all newly built homes;
- all refurbished homes;

We will encourage and support RSLs to install, at the initial build or introduce retro-fit sprinklers, into properties where occupants are vulnerable. These will include all homes with a large occupancy and all modernised homes.

10 Residential Care Homes

Fire death and injury data indicates that those most at risk are children, older people, people with mental health problems and particularly those with mobility problems who are unable to leave buildings easily. Care homes normally rely on stay-put or horizontal evacuation strategies when responding to alarms and fires. The increase in the ageing population is resulting in the fact that many more people are less mobile. Original stay-put and horizontal evacuation strategies may no longer be appropriate to provide adequate protection for people living in residential care premises.

Scotland already has the requirement within Building Standards for all new build residential care buildings to have suppression systems installed.

We are of the opinion that all residential care homes should be fully fitted with suppression systems for the protection of residents from fire.

11 Schools

The importance of sprinklers in schools has been recognised for many years. The latest reports suggest that these fires are getting bigger and more costly. The impact of these fires is significant, not just in financial terms, but also in terms of the devastating effect on the communities they serve. This can include damage to the environment and the disruption to students, teachers and families.

The effects on children's education are not confined to lost course work but often include longer travelling times, disrupted social groups and poorer facilities.

The consideration of sprinklers at the design stage of a new school or the refurbishment of existing ones will keep sprinkler installation costs low. Engagement with designers and architects will ensure that schools can be designed to be user friendly, innovative and cost effective with the inclusion of sprinklers.

We will continue to work with schools, colleges and education authorities to ensure that the benefits of sprinklers are fully considered. In new and refurbished schools we expect that the Department for Education risk assessment tool and policy are used and that sprinklers are installed when recommended.

12 Commercial Premises

Current Building Regulations provide a range of thresholds which already require sprinklers or other types of suppression systems to be fitted in commercial premises. These requirements are however limited and do not cover smaller commercial or industrial premises.

Irrespective of size, there is however a compelling case to be made for sprinklers in any commercial premises, on the basis of loss of production or interruption to business as a result of fire. Approximately 85% of small and medium businesses suffering a serious fire either never recover or cease trading within 18 months. The installation of sprinklers in these types of premises will aid growth in the economy as fewer businesses will cease to trade, losses from fire will reduce and fewer businesses will be forced to relocate. The impact of the loss of trade and jobs to the economy of South Yorkshire can be minimised by the installation of sprinklers.

We will continue to work with commercial organisations in order to promote the inclusion of sprinklers or other types of suppression system.

13 Portable Systems

SYFR recognises there are numbers of vulnerable people within South Yorkshire that are more at risk of fire. Often they are either short term residents, live within smaller accommodation, live within one room or transit to and from care establishments. In these circumstances it is not always possible or practical to retro-fit sprinkler systems. We will not however, leave these vulnerable people unprotected and will seek to fit portable suppression systems, where possible.

We will develop a set of guidelines to assist in prioritising those members of society who we believe are at the greatest risk of harm from fire and would most benefit from the installation of these systems.

We will also work with all partner organisations that represent the most vulnerable in society and will prioritise the most at risk.

14 New Developments and Future Proofing

SYFR recognise that even with our best efforts we will not be successful in persuading all developers to install sprinkler systems; however there are still benefits to be gained in future proofing the building by including basic sprinkler infrastructure (for eg adequate supply pipework) so that they can be retro-fitted at a later date, where there may be a significant increase in risk.

We will work with planners to recommend that new houses built are fitted with a 32mm mains water riser instead of the normal 25mm, so that sprinkler installations could be facilitated without an increase in costs from water companies in the future.

15 Refurbished Building and Retrofitting

Where significant refurbishment and upgrade of an existing building is being planned, we strongly advocate the installation or retrofitting of sprinklers. In older buildings, built to an earlier standard,

the level of risk may no longer be acceptable and in these cases we also recommend the retrofitting of sprinklers to compensate for these risks.

High rise social housing blocks, such as Callow Mount, create a number of specific fire safety and fire fighting challenges. The majority of these blocks were built when the design and fire protection standards were lower than those required by current building regulations.

The retrofitting of sprinklers in occupied high rise flats has been undertaken in Sheffield at a true installation cost of £1,150 per flat[1] which compares favourably with other fire protection measures without disturbing the residents.

16 Freedoms in Design

Even where not required by building regulation guidance, we strongly support the inclusion of sprinklers to achieve the many benefits they provide. We also encourage developers to use sprinklers to allow design freedoms where it can be demonstrated that they offer an equivalent level of safety and that the functional requirements of the regulations are met.

In today's challenging built environment there is a will and a motivation to construct innovative and aesthetically exciting buildings that often require design solutions that depart from traditional fire safety approved codes of practice.

The application of a performance-based approach using more specialised building codes, for example BS9999, allows stakeholders to demonstrate that sprinklers can offer an equivalent level of fire protection and life safety, resulting in greater freedom to fulfil their overall vision for such buildings. The installation of sprinklers allows for such flexibility and helps enable such features as:

- Larger compartment sizes;
- More open spatial designs;
- Extending travel distances;

[1] Safer High Rise Living – 'Callow Mount Sprinkler Retrofit Project' Bafsa ISBN 009571838-0-3

- Reducing exit door widths;
- Reducing periods of fire resistance to elements of structure;
- Reducing space separation constraints for example, distances between buildings;
- Reducing design fire size allowing for alternative smoke management strategies;
- Overcoming fire fighting access constraints;
- Allowing more flexible building management plans for the end user.

We will continue to encourage and support proposals for such design freedoms for both commercial and residential developments where it can be robustly justified that the functional requirements of the building regulations can be met.

17 Communication & Public Education

We are developing our communication methods in order to increase our influence with decision makers and stakeholders at every level about the benefits of sprinklers. **By improving communications and working with all audience groups we will continue to promote better understanding of sprinklers as an effective and reliable fire protection measure, be it from specific local development projects to national initiatives and legislative frameworks.**

SECTION 2 - LEGISLATION AND GUIDANCE

18 Planning and the Housing Market

The housing market within the UK is facing a period of dynamic change with the introduction of new planning regulations. The draft *National Planning Policy Framework* is intended to streamline national policy from over 1,000 pages to 52 pages.

The draft planning regulations state:

'The Government's objective is to create strong, vibrant and healthy communities, by creating a good

quality built environment, with accessible local services that reflect community needs and support well-being. To achieve this objective the planning system should:

- *Create a built environment that facilitates social interaction and inclusive communities*
- *Deliver the right community facilities, schools, hospitals and services to meet local needs*
- *Ensure access to open spaces and recreational facilities that promote the health and well-being of the community.'*

The possible effect of this policy change will be to invigorate and rapidly expand the house building programme. The growth in housing will require an expansion of resources and public services to meet the needs of new home owners. Currently many public services are in the process of reducing their respective operations and may find allocating additional resources a challenge. Fire and Rescue Services, for example, may not be able to fund the provision of additional equipment. In this scenario the provision of domestic sprinkler systems will 'bridge the gap' and enhance safety from fire.

SYFR would like to see sprinklers included in all new build homes throughout the UK as a matter of course, either through legislation or through a government backed incentive scheme. In Wales there is already a requirement for all new domestic premises to be fitted with automatic fire suppression systems.

We will continue to lobby Central Government for the same legislative change in England, achieving this through our membership of the National Fire Sprinkler Network and the British Automatic Fire Sprinkler Association of which we are very active members.

19 Local Development Frameworks

Direction from Central Government has influenced local authorities in the formulation of their respective Community Infrastructure Plans and Local Development Frameworks. These plans and frameworks will affect how local communities are designed for the coming decades. At the forefront

of any plans are the requirements and obligations to ensure communities are safe.

Local communities will need to be inclusive and sustainable in terms of community cohesion and habitation. The design of future homes is an integral part of the process. Central government is continuing to promote the lifetime's homes and lifetime neighbourhood's ethos in the design of sustainable local communities. A Lifetime Neighbourhood is one in which civic and social processes together with physical conditions achieve the following outcomes:

- An environment that is accessible and inclusive, aesthetically pleasing and safe ,
- A community that offers plenty of services, facilities and open space,
- A strong social and civic fabric, including volunteering and informal networks,
- A culture of consultation and user empowerment amongst decision makers,
- A strong local identity and sense of place .

Currently work is on-going to ensure communities are kept safe from harm, from whatever source and many agencies are involved. The risk of harm from fire is still a real threat to our communities, which requires constant awareness and vigilance from all involved in its reduction. The risk of harm from fire dramatically increases amongst vulnerable groups such as the elderly, persons with mobility restrictions or those with other specific needs.

We seek to work closely with the local building control and planning authorities in order to influence building, planning, design and development at every stage so that the benefits of sprinklers can be considered before the design and costing decisions are so far advanced that it is too late to include sprinklers.

We will work to achieve this by hosting seminars for these groups, providing up to update information and developments. We will also endeavour to restore the link between Colleges and Universities with the view to provide training to the next generation of architects and building control officers.

20 Water Act

A major cost, which can vary significantly depending on the interpretation of individual water companies, is the cost of water supply. Sprinklers are currently not classed as a domestic use of water under the Water Industry Act 1991. Water companies are very heavily regulated and are under constant pressure to drive down costs while at the same time raising standards, within this operational framework there are many drivers which conflict with the potential ideals for sprinkler installation.

Recent developments in the wider use of sprinklers in domestic dwellings and residential premises have further highlighted that the issues are not adequately covered by current water industry legislation. The most effective way of addressing this is to change the regulations and achieve a balanced application thereby creating a framework which allows stakeholders to operate as harmoniously as possible.

We will work with CFOA to engage with water companies, regulators and legislators, through our active membership of the Protection & Prevention and Fire Engineering Technical Standards.

21 Environmental Protection

Fires have a negative impact on the environment. Global warming and climate change in particular have become a central challenge in the development of a sustainable society in the UK.

Fires impact the surrounding environment in many ways, through direct gaseous and particulate emissions to the atmosphere, spread of atmospheric emissions, and deposition of atmospheric emissions, soil contamination and aquifer (water course) contamination.

Sprinklers can increase the sustainability and life expectancy of buildings by limiting fire development and significantly reducing the amount of smoke, CO_2 and other pollutants. Because only the sprinkler head or heads immediately above the fire actuate, less water is used than would be the case with conventional fire-fighting methods and there is a significant reduction in the amount of water run-off carrying pollutants into the water system.

The carbon footprint of a building increases by a factor of three when destroyed by fire, which means that the environmental impact of fire in commercial premises is considered to be significant. We will continue to promote the installation of sprinklers on the basis of life safety, reduction of fire damage and environmental sustainability. This will add value to our communities and be advantageous to both the economy and the environment.

22 Sustainability

The Government is encouraging UK businesses to move towards a permanent low carbon footing, whilst simultaneously securing maximum economic benefits. Moving to adapt to new models of sustainable development has now become a major focus in the construction industries.

To cement their commitments on sustainability to their stakeholders and staff, more and more public and private sector clients are demanding 'green' buildings. This has proved a powerful business driver as companies adopting this ethic achieve superior investment performance and efficiency through more productive buildings.

Fire sprinklers are very important elements in 'green' buildings, where their contribution to fire protection allows fire damage to be mitigated quickly, hence limiting economic loss, disruption, and most importantly, saving human lives and injuries. Warehouse businesses have seen the UK's largest losses as a result of fire, according to the Association of British Insurers (ABI) and the Fire Protection Association (FPA). Though there are fewer fires in warehouses than in manufacturing, the financial impact can be disproportionately higher because of the loss of property and stock, the

costs related to business interruption and liability implications.

The most recent ABI figures suggest insurers paid out between £639m to £3.6m every day for damage caused by fires in the first half of 2009. In an era when business is already suffering the aftershock of the worst recession in living memory, these mounting and completely unnecessary losses are unjustified and wholly preventable.

Fire loss however is more than just monetary. It goes beyond the traditional concept of risk, such as business interruption, cash-flow volatility, life safety and loss of reputation. This represents only a portion of the total impact and cost of fires to society.

Fire losses are felt across the real economy. They impact production downtime in a challenging competitive environment. They force closures of UK manufacturing sites and encourage the relocation of these facilities to countries where costs are likely to be cheaper.

Furthermore, buildings are usually uninhabitable after a fire. In comparison, a premise protected by a sprinkler system can usually be back in use within a few hours, and the rest of the building will often be unaffected. A valuable asset sprayed with water from a sprinkler can usually be recovered or restored in comparison to one that has been burnt to a cinder and completely destroyed by a fire hose.

Sprinklers prevent major losses by turning what could be a potential disaster into a minor inconvenience. And they do so time and again with irrefutable reliability. This is a small price to pay to prevent a business' hard earned success from going up in flames.

We will work with all stakeholders in the commercial sector and developers of buildings to highlight the benefits if sprinklers for businesses.

23 Safe Environment

Fire sprinkler systems prove to be vital protection for a building, a company's assets and the welfare of people who work there.

Ensuring employee safety should always be top priority. Businesses should provide proper measures for fire protection, fire prevention, and firefighting and evacuation systems in an emergency. Under the businesses must safeguard the health, safety and welfare of all its employees, especially in the case of fire where steps must be taken to help protect workers from hazardous conditions. A sprinkler system is the only device that can detect a fire, sound an alarm, alert the fire and rescue service and deliver water immediately to the fire, thereby extinguishing it or preventing spread.

Businesses should always put safety first. Safety is about protecting employees from the risk of injury in the workplace.

Employers have a legal obligation to protect their staff and all employees have the right to work in places where risks are properly controlled and minimised.

A fire can obviously prove a serious threat to the health and safety of staff members. As well as external burns, or worse, some of the most incapacitating fire injuries relate to lung damage from breathing smoke and fumes. By protecting your business you protect your workforce.

Fire is a serious threat to personal safety and health. Firefighters who respond to fires place themselves at serious risk in order to protect life and property. Each year, thousands of fire fighters are injured in the performance of their duties worldwide.

While the majority of injuries are minor, a significant number are debilitating and career-ending. These injuries exact a toll on the Fire and Rescue Services. Recent cases of fires in business premises have demonstrated the dangers to which fire fighters are exposed, especially in very large, single-

story buildings where the size, layout, and contents of the premises often result in substantial injuries.

The installation of fire sprinklers will significantly reduce injuries and deaths to firefighters and create a safer environment.

We will actively promote the installation of sprinklers to ensure the safety of the public and our staff. We will use our regulatory powers, where circumstances permit, to ensure sprinklers are installed in the built environment.