Automatic Fire Suppression System (AFSS)

Position Statement

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1 Introduction

1.1 London Fire Brigade (LFB) believes that Automatic Fire Suppression Systems (AFSS) play a significant role, as part of an appropriate package of fire safety measures, in reducing the impact of fire on people, property and the environment. They also assist firefighters in carrying out search and rescue operations by limiting fire development, which significantly reduces the risks to people trapped in buildings and to firefighters.

1.2 There is clear evidence that AFSS such as sprinklers and water mist systems are effective in the rapid suppression of fires. We have reviewed our evidence on where AFSS are most needed and revised this position statement accordingly.

1.3 We therefore recommend AFSS in the following building types to protect those living in, working in and visiting London:

2 Residential premises

2.1 Approved Document B (ADB) of the Building Regulations now requires the installation of sprinklers in new blocks of flats over 11 metres.

2.2 LFB recommends the provision of sprinklers should also be extended to *existing* blocks of flats over 11 metres in height (retrofitting), subject to a risk-based approach that should include consideration of the vulnerability of the residents.

2.3 Where the height of a premises is being extended to over 11 metres, LFB would expect sprinklers to be fitted throughout the building including those areas below 11 metres.

2.4 Regardless of height, homes that are occupied by the most vulnerable should be fitted with AFSS.

2.5 For buildings that are categorised 'residential (other)' within ADB such as hotels, hostels and halls of residence, LFB recommends that all new buildings over 11m in height are fitted with AFSS and for existing buildings over 11m in height, AFSS should be fitted subject to a risk-based approach that should include consideration of the vulnerability of the residents.

2.6 Additionally, where possible, consideration should be given to the vulnerability of the occupants.

3 Schools

3.1 Building Bulletin 100 (BB100): *Design for fire safety in schools*, published in 2007 and reviewed in 2014, introduced the 'expectation' that all new schools would have AFSS installed. LFB's experience is that this expectation is not being met in practice.

3.2 LFB recommend that AFSS are mandatory in all new school builds and as part of major refurbishments of existing schools, due to the significant impact a school fire can have on children's education and the wider community.

4 Care homes and Specialised Housing

4.1 LFB recommends the inclusion of AFSS in:

4.1.1 All new residential care homes and specialised housing.

4.1.2 Existing residential care homes and specialised housing (retrofitting), subject to a risk-based approach that should include consideration of the vulnerability of the residents.

5 Hospitals

5.1 Health Technical Memorandum HTM 05 02 expects design teams to consider the advantages that might be gained by installing life safety sprinklers throughout the building or to specific areas. However, this only requires sprinklers to be provided in high rise hospitals over 30m in height.

5.2 The Covid-19 pandemic has bought society's reliance on hospitals and healthcare premises into greater focus. A commitment to installing sprinklers in these buildings would represent an investment in the safety and resilience of these buildings.

5.2.1 LFB recommends the inclusion of sprinklers in all new hospitals and in hospitals undergoing major refurbishment programmes.

6 Car parks

6.1 LFB recommend the inclusion of AFSS in:

6.1.1 Open sided car parks to protect property, including the fabric of the building. While there have been few incidences of fatalities in car parks, there have been recorded fatalities to firefighters due to structural collapse abroad and several large-scale fires.

6.1.2 Enclosed car parks, as is common in Europe and recommended by National Fire Protection Association Standard 88A: *Standard for Parking Structures* (NFPA 88A) in the USA.

6.1.3 Basement car parks, especially those with associated accommodation above. This is a common requirement in Europe and recommended by NFPA 88A in the USA. The UK refers to recently published interim guidance T0194[1] – Covered Car Parks – fire safety guidance for electric vehicles, which recommends a risk assessment based approach if installing electric charging units. Research undertaken by BRE in 2010 also supports this approach[2].

6.1.4 Automated car parks, due to the extra density of fire loading created by stacking cars in carousel or racking systems. Increasingly this is being recommended globally and is required by NFPA 88A.

6.1.5 Both commercial and residential carparks where electric vehicles are present, and/or where Electric Vehicle Charging Equipment is installed. The AFSS installed in the premises should meet the relevant British Standards e.g. BS EN 12845 or an equivalent standard.

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[1] https://www.gov.uk/government/publications/covered-car-parks-fire-safety-guidance-for-electric-vehicles

[2] BRE Group: Fires in Enclosed Car Parks: https://bregroup.com/buzz/fires-in-enclosed-car-parks/

6.2 LFB recommends further research is carried out into fires in car parks and the design of car parks. Current designs do not take into consideration the fire loading of modern vehicles, electric vehicles and liquified petroleum gas vehicles, emerging technologies such as hydrogen, as well as the risk of running fuel fires from plastic fuel tanks.

7 Electrically powered personal vehicles

7.1 With the increased use of electrically powered personal vehicles such as e-bikes, e-scooters, mobility scooters etc. LFB have seen a marked increase in the number of fires caused by these items. Consideration should be given to the provision of AFSS (as well as other fire safety measures such as ventilation) where there is storage and/or charging of electrically powered personal vehicles. This can be undertaken using a risk-based approach.

8 LFB premises

8.1 All new LFB premises will be fitted with AFSS and where buildings are refurbished, where possible, AFSS will be fitted as part of that work.

9 Buildings with a national importance

9.1 Where buildings are considered to have a national importance from either an historic, cultural or asset perspective, LFB recommend that a suitable AFSS is considered on a risk-based approach..

10 Complex, large, and innovative buildings

10.1 Certain buildings, due to either their complex nature or an innovative approach to their design may present challenges to attending fire crews. As such LFB recommends AFSS is included in:

10.1.1 Buildings with deep subsurface structures such as basements or where basements have a complex layout which could cause difficulties for wayfinding for firefighters,

10.1.2 Buildings which include a particular risk that either places the occupants at risk and/or firefighters should include AFSS through a risk-based assessment. This could include waste management and recycling facilities, buildings with quantities of lithium batteries due to the nature of their business e.g. automated distribution warehouses, buildings where their construction could pose particular challenges for firefighters such as structures with extensive voids or large amounts of combustible materials,

10.1.3 New large structures such as warehouses where the current threshold within ADB is, in our view, too extensive.

Additional information supporting this statement is available on the London Fire Brigade website: https://www.london-fire.gov.uk/safety/property-management/sprinklers/