LONDONASSEMBLY Planning Committee

The effectiveness and economic viability of requiring Automatic Fire Suppression Systems (sprinklers) in all London Buildings

Meetings and site visits list

31 October 2017 – Business Sprinkler Alliance (BSA)
7 November 2017 – British Automatic Fire Sprinkler Association (BAFSA)
8 November 2017 – London Fire and Emergency Planning Authority (LFEPA)
27 November 2017 – Site visit to 97-103 Newport Road development site
27 November 2017 – Site visit to Dol Yr Hafren close care properties
27 November 2017 – Meeting with Ann Jones AM, National Assembly for Wales
11 December 2017 – Assistant Commissioner Dan Daly, London Fire Brigade
16 January 2018 – Assistant Commissioner Dan Daly, London Fire Brigade
17 January 2018 – Site visit to Kidbrooke Village
26 January 2018 – Site visit to Parkside Court, Melbourne Avenue, Chelmsford CM1 2DY
29 January 2018 – Commissioner of London Fire Brigade, Dany Cotton
29 January 2018 – Fire Brigades Union (FBU)
7 February 2018 – Conference call with Welsh Government

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Meeting with the Business Sprinkler Alliance (BSA)

31 October 2017, 11:00-12:15

Attendees:

Navin Shah AM, Rapporteur, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly
Andrew Turner, Public Affairs, Business Sprinkler Alliance
Tom Roche, Secretary, Business Sprinkler Alliance

Background to the BSA

- BSA is a lobby group, focusing on sprinklers in industrial and commercial buildings.
- It is supported by a wide range of organisations, including The National Fire Chiefs Council, the National Fire Sprinkler Network, the European Fire Sprinkler Network, the Fire Protection Association, the British Automatic Fire Sprinkler Association and insurers FM Global.

Building Regulations

- Building Regulations should be extended to protect both life and property. Buildings should be more resilient to fire - at the moment nobody is getting hurt, but property is being lost.
- Insurance is claimed to pick up the slack, but what about the recovery of businesses?
- For the Government, it is a zero-sum game, as jobs lost in one area will reappear in another, but what about businesses that move abroad or the consequences of the local impact of the fire?
- London needs to be stronger in its language. At the moment, it is too easy to walk around the guidance and engineer alternative solutions.
- Fire safety needs to be maintained in line with sustainability; a building is not sustainable if it burns to the ground
- There is also a reputational risk to London from lower regulatory standards

Fire safety / damage

- Difference between sprinklered and un-sprinklered property is that globally the damage is about six to seven times greater. In Europe this tends to be higher due the lack of compartmentalisation in buildings.
- Damage to property, the environment and casualties are lower in sprinklered buildings.

- The risk of fire in industrial buildings depends on the use of the building, although there are typically more ignition sources, and the number of large fires is remains high.
- Firefighter safety is a concern of the BSA. In the rest of Europe, warehouses typically require sprinklers at 5,000 sq metres as this is the size of fire the fire service can handle. In the UK the London Fire Brigade has indicated it can handle fires in warehouses up 4,000 sq metres. However, the Building Regulations in the UK do not consider this.

Financial issues

- Incidence of fire is going down, but the cost of fire is increasing. This can't be explained by inflation alone and is down to increases in the value of property and larger-scale damage - for example from hotter fires due to better insulation.
- The BSA has found that the use of sprinklers in warehouses under 2,000 sq metres is cost beneficial- see Cebr study, and the BRE has calculated that roughly 0.5 to 2 per cent of build costs in commercial buildings are for sprinkler systems- see BRE study
- Sprinklers installed in office buildings tend to allow architects to maximise the use of the plot through less compartmentalisation and stop fire spread between tall buildings built close together.
- There are challenges for the marketplace in adapting to this approach, as the view of development is often short term. Occupiers tend to have a more long-term approach, and may be more amenable to sprinkler systems.

Insurance

- In general, the better protected the building, the more favourably that insurers will look at it.
- It is very difficult to quantify the level of insurance premium offered for sprinklered buildings, as this varies on a per-risk basis, and also varies company-to-company.
- While over multiple years insurance may offer a saving, it will not likely offset the cost of installing sprinklers. It can be one of a multitude of incentives for installing sprinklers.
- Insurance is a competitive market, and business owners will often make a short-term business calculation- if an insurer does not require sprinklers this may be cheaper than an insurer requiring sprinklers but with a lower premium. Businesses can often overestimate the ability to recover from a fire too.

Retrofitting

- Industrial and commercial retrofitting costs are very high, due to the need to access the ceiling of building, which means negotiating access and likely working outside operating hours.

- Residential sprinkler installation is easier, and there are plenty of examples of fitting while residents are in the flat. Callow Mount in Sheffield is a good example of retrofitting flat-by-flat. The barrier to is a lack of knowledge about retrofitting costs.

Sprinkler design

- There are multiple different types of sprinklers- smaller heads are typically used in offices, while larger heads are used in warehouses; the bigger the hazard, the bigger the head, the bigger the pipes.
- Sprinklers are typically designed to **contain** a fire, rather than put it out completely. Other technologies, such as water-misting offer the ability to **extinguish** the fire, but typically require higher pressures and more contained environment.
- London water pressure from the mains is insufficient to supply water to sprinklers in a high-rise building. Often a local pumping unit is needed to boost pressure.
- One of the issues with retrofitting is the need for planning permission to install new pumps and piping, particularly if they require their own building.

Public understanding

- There is a large amount of misunderstanding about sprinklers and how effective they are as a form of fire protecting. There needs to be more education about what sprinklers do, particularly around the myth that they all go off at once when a fire is detected.
- Case of a Sony warehouse in Enfield, which burned down from arson during the 2011 London Riots, which was 16,000 sq metres. The building was rebuilt at 32,000 sq metres, but its footprint was below 20,000 sq metres, so was not considered to need sprinklers. In this case London Fire Brigade was only consulted at the end of the process, and told Sony that they would be unable to contain the fire without sprinklers.

Meeting with the British Automatic Fire Sprinkler Association (BAFSA)

7 November 2017, 10:00-11:00

Attendees:

Navin Shah AM, Rapporteur, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly
Keith MacGillivray, Chief Executive, BAFSA

Need for sprinkler systems

- Smoke detectors work very well, but they do nothing for vulnerable people who can't escape from the fire. Sprinkler systems however can contain fires- for example sofa fires that usually kill people
- There is a real need for fire sprinklers in social housing, particularly for people who are hard to reach by firefighters. Many private landlords are now seeking to retrofit sprinklers – people in social housing need to have the same level of reassurance as those living in private housing.
- Residents of care homes and sheltered housing would particularly benefit from sprinkler systems. The Rosa Park fire in which 14 people died is an important case of how sprinkler systems could have saved lives.

Sprinklers in non-residential

- Sprinklers in schools are recommended, on less of a life safety perspective as a cost saving measure, to prevent the loss of stock and the cost to the taxpayer this brings. There are also issues with damage to the building and continuity for pupils and teachers

Financial feasibility

- Several cost benefit analyses have been done, but these struggle to justify sprinklers within the cost of a human life. Generally, sprinkler systems come to about 2 to 2.5 per cent of the build cost. However, many quotes for installing sprinklers also include costs for project management, which adds at least twenty per cent to the installation costs. Residents will usually have to pay for sprinkler systems through service charges.
- Retrofitting varies significantly on a case-by-case basis, and also by region within the country.

Technical feasibility

- Haven't come across a building where it was not possible to retrofit sprinkler systems.
- Retrofitting requires communication with people within the block- why is it happening, what is happening, and what are the benefits? Disruption to existing residents depends on the layout of the building and the need for evacuation, however a rough figure would be around 2 days per flat, reducing to 1 day per flat as contractors become familiar with the building. Sprinklers can be decorated over- there are case studies from hotels such as Marriott and Hilton where retrofitting of sprinklers is a regular occurrence.
- Water pressure is a significant technical issue. Discussions will first need to take place with the water supplier, as only a minimal pressure or flow-rate can be achieved from the mains supply alone. For taller buildings, a pump and tank are needed. Installing the tank requires a significant amount of space, as they are typically stored outside the building or in the basement. The roof is a last resort as this is very expensive. Smaller buildings may be able to draw directly from the mains, although a communal pump is recommended for estates of low-rise buildings. This needs to be considered at the planning stage.
- Sprinkler design and regulation is quite well regulated. Both sprinklers and water misting systems work effectively, although misting works better in more confined spaces. All sprinkler systems must comply with British and European standards. The Building Standards are also sufficient and don't require wholesale change. However, there is no requirement for installers to have third party accreditation in England – there is in Scotland.
- Training. Anyone fitting sprinkler systems should have complete certification and paperwork to show accreditation, and should also obtain a certificate for the water pressure. BAFSA conducts professional development training. Organisations with a large housing stock should have a trained works department, and if not, should invest in an upskilling course.
- Maintenance. Sprinklers need to be maintained on an annual basis. In high-rises, this should be thirty minute inspection on a quarterly basis. Service charges and rental agreements should cover maintenance to sprinkler systems. Homeowners will need to conduct a visual inspection once a year.

Public understanding

- There is a poor public understanding of sprinkler systems, and more needs to be done to get the facts out there. BAFSA have developed a little pamphlet for educating the public and are currently developing books for children, which should also help to educate parents too about the risk of fire.

Regulation

- If it is possible to take a two-tier approach – at London level and at national level – then that would be beneficial
- There are a lack of powers for local government to effectively require sprinkler systems.

Meeting with London Fire and Emergency Planning Authority (LFEPA)

8 November 2017, 14:00-15:00

Attendees:

Chris Callow, Head of Policy, Fire Safety Regulation Department, London Fire Brigade
Caroline Davis, Head of External Communications and Campaigns, London Fire Brigade
Emma Grove, Communications Officer, London Fire Brigade
Steven Adams, Head of Executive Support, London Fire Brigade
Paul Watling, Scrutiny Manager, London Assembly
Janette Roker, Scrutiny Manager, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly
Maudie Spurrier, Research and Support Officer, London Assembly Labour Group

Position of LFEPA

- Providing sprinklers in schools and anywhere were there are vulnerable residents is critical. Installing sprinklers in high-rise residential, particularly retrofitting existing buildings is also needed. There is a strong argument for sprinklers to be required in buildings above 18 metres in height. However, LFEPA does not have the power to require anyone to have sprinklers.
- The risk of fire varies considerably by building type, lifestyles and the people within the building. There are generally three areas of risk from fire: risk to life, risk to property, and risk to firefighter safety.
- Impact of fire. In schools, fire has a significant impact on pupils, on parents, on parents' employers, and on the local community. In care homes and in social housing, fire can mean having to rehouse large numbers of people, which represents a significant challenge.
- LFEPA has been vocal about the need for more sprinkler systems. This should take a risk-based approach, although LFEPA would advocate a blanket provision of sprinklers for all care homes and schools. Sheltered housing is one case where as the population grows older, the need for sprinklers increases.
- LFEPA has made specific interventions to encourage sprinkler provision, including through its £1.5 million Community Investment Fund (CIF). LFEPA is hoping to repeat its CIF in the near future.
- LFEPA has also responded to the Hackitt review of building regulations. It will also continue lobbying for case-by-case change through planning and building control consultations.

Cost of installing sprinklers

- The cost of installing sprinklers varies according to the circumstances. Generally, it comes to about two per cent of the build cost of a new build development. Retrofitting typically costs between £1,600 and £2,500 per flat, based on several projects that have taken place across the country.
- The London Fire Brigade held a sprinkler competition two to three years ago where five boroughs competed for funding to install sprinklers in flats.

Retrofitting

- There are unlikely to be many buildings that cannot be retrofitted with sprinklers. There are no technological barriers – plastic pipework and push fit fittings making it easy to install new systems. Getting through walls and floors can be challenging.
- There could be issues with the capacity of the sprinkler industry to cope with a sudden and extensive demand for sprinkler retrofitting alongside the ongoing provision of sprinklers in new build developments. There is a risk that if the industry has to expand rapidly to cope with this demand in a short timeframe some standards may be lowered which may compromise the safety of the building - for example if sprinklers are fitted but insufficient fire stopping has been put in place where alterations have been made.
- LFEPA is comfortable that retrofitting currently being conducted is being carried out correctly.

Regulation

- If the industry has to expand rapidly there is a risk of companies coming online without proper certification, technical competency and construction skills which raises concerns. There is a risk that these companies are given building control permission to install sprinklers without wider consideration of other fire safety measures that may be appropriate. Sometimes the need for sprinklers to compensate for the lack of facilities for firefighters to extinguish a fire is not adequately considered at the planning stage.
- LFEPA is only consulted on building control and planning matters; it does not have the power to require changes, only to recommend them. It would be beneficial for LFEPA to hear about fire safety for a building at an earlier stage, perhaps at the planning application stage, to ensure fire safety plans are correctly implemented. It would also be good for LFEPA to be notified of any design changes throughout the process, to ensure that these do not compromise fire safety. The need for ongoing maintenance needs to be better considered within the planning and building control process, and councils need to understand their obligations under the Regulatory Reform Order (2005).
- Under the Local Acts, there was stricter regulation and greater provision of sprinkler systems.

- LFEPA is pleased that Building Bulletin 100 is no longer being revised to remove the clause recommending sprinklers in schools. However, it would like to see it revised to go further and require sprinklers in schools and to see it better applied.

Fire damage and firefighting

- Generally, sprinklers get the fire under control very quickly. Damage tends to be much more minor compared to non-sprinklered buildings. In most cases, sprinkler systems will activate above a fire in the early stages, and can extinguish the fire quickly.
- Within non-sprinklered buildings the fire may remain within a sealed compartment for however long that compartment is designed to contain the fire. However, the compartment will certainly be lost. In addition, compartments are not always perfectly self-contained and fires may affect the utilities of the building or spread beyond the room, affecting other residents. This can cause significant damage that takes a long time to repair and mean the rehousing of residents. Firefighters and residents may also be affected by hot gases in the corridors, and this can also cause further injuries and death.
- The biggest issues come with commercial buildings, as the size and contents of these buildings makes firefighter safety a big issue. Regulations covering certain commercial buildings mean that they must be sprinklered above 2000 m^2, but anything below this is still a huge risk. Firefighters were killed tackling a blaze in a Warwickshire warehouse. There is also a risk that these fires could affect adjoining buildings, spreading fire further. Restricted access to buildings and water supplies also causes issues and sprinklers should be considered at the planning stage were this is an issue.
- Water damage from sprinklers is significantly reduced compared to the use of fire hoses.

Public understanding

- Anecdotally, there is widespread misunderstanding of how sprinkler systems operate, including the myth that all sprinklers in a building will go off if a fire is detected. For audience groups, there is a lot more that could be done, including explaining the cost impact of sprinklers and the potential benefits.
- Sprinkler systems are very reliable and the risk of accidental activation is very low. The statistics don't show that this happens.
- There needs to be clear evidence to support the installation of sprinklers systems, on the risks, fatalities, injuries, costs, and the role of the insurance industry.

Site visit to 97-103 Newport Road development site

27 November 2017, 11:30-12:00

Attendees:

Navin Shah AM, Rapporteur, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly
Simon Fry, Head of Investment, Cadwyn Housing Association
Rhys Ford, Managing Quantity Surveyor, Willis Construction

Installation of sprinklers

- The development didn't need sprinklers when first started, as the Welsh Government's requirement for sprinkler systems had yet to become law, so the development could have avoided a sprinkler system. However, Cadwyn Housing Association reconsidered after the Grenfell Tower fire.
- This decision was taken in consultation with a fire consultant, who considered the case from Cadwyn's, building control's, and the user's perspective, including through a tenant risk assessment.
- Sprinkler systems could have been installed at any point up until plaster-boarding took place. At this point any system would incur surface marking which may be unattractive to residents.
- With sprinklers installed there may have been an opportunity to reduce the provision of other fire protection. However, since the decision to install was taken during the build process, only the dry riser was taken out. If the decision had been taken earlier fire doors could have been removed and containment times could have been reduced.
- Agreed to provide more information on areas where they could have achieved lower specification
- Overall, however, the saving from offsetting is likely to be minimal.

Cost

- The total cost of the system is approximately £100,000, out of a total build cost of £5.2 million (approximately 2 per cent of the build cost). This cost includes around £80,000 for the whole sprinkler system and tank, installation costs, labour costs, and firestopping costs.
- There are 48 apartments, 26 one bedroom and 22 two bedroom apartments over two floors

- The total cost per flat is around £1,800 to £2000. This cost has been further driven down by the Welsh Government's pilot schemes.
- However the cost of maintenance remains a factor. Maintenance includes pump maintenance, testing, and servicing. This cost is covered by the service charge, which at the moment for all fire testing and fire risk assessment is £100,000. Sprinklers add an additional cost through the service charge.
- There is therefore a question over whether housing grant funding should be used to install sprinklers or if the running costs of sprinklers should be covered instead. Costs could be reduced through insurance, especially if insurance companies require the installation of such systems.

Water supply and pressure

- There is an independent water supply to each block, with a stand-alone pump room
- There are problems with Welsh Water in terms of water pressure, as they cannot commit to a minimum pressure bar. This is particularly problematic for low-rise dwellings that may benefit from sprinklers as this means a pump and/or tank is required in every building. This is possible to do, on a flat-by-flat basis - a scheme in Cwmbran showed this, at a cost of £2,000 to £2,500 per unit, but there are additional costs around maintenance of individual pumps and tanks.
- So, they decided to put a tank in anyway, as they would have to install a pump to get the water to the right height too

Site visit to Dol Yr Hafren close care properties

27 November 2017, 11:30-12:00

Attendees:

Navin Shah AM, Rapporteur, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly
Matthew Davies, Director of Development Services, Hafod Housing Association
Martin Peart, Support Manager, Hafod

Installation and maintenance

- For installation, a specialist sub-contractor with BAFSA accreditation was appointed.
- The sprinkler heads are not too conspicuous, as a small circular disc covers the sprinkler head. In the event of a fire a light solder melts and releases the disc, exposing the sprinkler. People are generally not aware of them, but need to be advised about care and maintenance, including not painting over them.
- Hafod arranges for the system to be checked twice per year. This involves a technical inspection including pressure checks, visual checks, checking the pump is running and water level alarms are working. A visual check is also carried out when other routine visits to resident's flats are taking place. Weekly health and safety checks undertaken by Hafod staff also include checking the tanks.

Cost

- The cost of installing sprinkler systems at Dol Yr Hafren was £3,000 per flat.
- Sprinklers are serviced twice per year at Dol Yr Hafren at an annual cost of £200 + VAT
- With the mandatory requirement, it is expected that eventually the cost of sprinkler systems will be absorbed into the land value, since such systems will not be considered as an abnormal development cost.

Water supply and pressure

- There is a separate tank in the adjacent care home building that supplies water for the sprinkler systems in Dol Yr Hafren. A direct connection to the mains was not possible as there was were no guarantees of water pressure.
- However, there is a dedicated mains connection with a pump in Cwrt Hir which is a later development adjacent to Dol Yr Hafren which was part of the Welsh Government’s sprinkler pilot scheme and was built by Willis Construction.

Sprinklers in action

- In March 2017, there was a fire in one of the flats within Dol Yr Hafren where the microwave had caught fire. Fortunately the sprinkler system was activated and managed to contain it. There was some damage to the wooden kitchen cupboards and some water damage to the flat, which was partly due to the fire brigade using a hose, but generally damage was light.

Damage to the flat from fire (photo provided by Hafod Housing Association)

- Within five weeks the flat had been dried-out and the fire damage made good. Without the system in place, the fire brigade suggested that the fire would have taken hold and is likely to have destroyed the whole flat.
- The cost of making good the damage to the kitchen following the fire was £6,695 with the predominant cost attributed to the provision of a new kitchen

Meeting with Ann Jones AM, National Assembly for Wales

27 November 2017, 11:30-12:00

Attendees:

Navin Shah AM, Rapporteur, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly
Ann Jones AM, Deputy Presiding Officer and Assembly Member for Vale of Clwyd, National Assembly for Wales

Development of Domestic Fire Safety (Wales) Regulations

- The Welsh Government's Domestic Fire Safety (Wales) Regulations started as a Private Members Bill. However, as the bill involved changes to the building regulations, which were not under Welsh control until 2011, the bill required approval from the House of Commons' Welsh Affairs Select Committee.
- The bill was supported by the Chief Fire Officers Association, who provided assistance in getting the bill approved by the Commons.
- However, developers, and in particular Redrow Housing, were strongly against the regulations and provided a source of significant resistance.
- Ann Jones AM urged the Welsh First Minister to make implementing the bill a priority, following the devolution of Building Regulation control to the Welsh Government. She argued that this is what devolution is about.
- The new requirements were introduced in three stages: first was housing for the vulnerable; second was student housing, and; third was all housing.
- New planning bill coming forward in Wales- opportunities for requirement to be included in planning process

Making the case for sprinklers

- Ann used arguments about economies of scale when discussing the policy with developers. In all new developments, developers could order sprinklers in bulk and could negotiate a lower price with the sprinkler company. The cost per flat to install sprinklers is around £2,000 to £3,000.
- Insurance companies were also reticent, arguing that it was difficult to extrapolate how much fire damage was costing the industry.
- There is also resistance from Building Control officers, particularly where they may want to be more lenient towards developers.
- There is protection in a multitude of other buildings, including warehouses, offices and schools, but not in people's homes.
- There are also environmental savings. Sprinkler systems use only 219 gallons of water, compared to a fire appliance, which uses 3,290 gallons of water. In addition,

contaminated water enters the system, about which the Environmental Agency is required to be notified.
- Sprinklers also allow greater design freedom, in terms of lowered standards for other fire safety measures, as well as in urban design, making fire appliance access less stringent.
- After Grenfell, Ann wrote to various Mayors, including Mayor Sadiq Khan to urge them to make the case for sprinklers

Water supply and pressure

- The water companies were also a source of significant resistance, arguing that the pressure was insufficient to meet the needs of sprinklers. They argued that if water came from the mains they would have to charge for it, and they cannot charge for water used for firefighting purposes. This could leave them in a situation where they are operating outside of regulations.

Meeting with Assistant Commissioner Dan Daly, London Fire Brigade

11 December 2017, 10:00-11:30

Attendees:
Dan Daly, Assistant Commissioner – Fire Safety, London Fire Brigade
Chris Callow, Head of Policy, Fire Safety Regulation Department, London Fire Brigade
Helen Newton, Public Affairs Manager, London Fire Brigade
Nicholas Coleshill, Sprinkler Coordinator, London Fire Brigade
Navin Shah AM, Rapporteur, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly

Work of London Fire Brigade

- Working Group on London Plan response – trying to build a joined-up message
- Working closely with BAFSA to align messages

Role of sprinklers

- London Fire Brigade (LFB) believes that Automatic Fire Suppression Systems (AFSS), which include sprinklers, 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 firefighters.
- Sprinklers are one part of holistic, risk-based approach, and should be considered as part of a package or an additional step. The system being installed needs to be fit for purpose and appropriate. Some people don't have knowledge of cause, effect and the correct operation. Sprinklers should enhance safety and effectiveness of a stay-put policy where sprinklers operate within a flat to control the development of a fire.
- Sprinklers are the only system that provides an audible warning and limits damage. The use of sprinklers supports the view that fire protection is not only about life saving, but also about minimising damage.

Need for sprinklers

- Sprinklers should be fitted to any residential building and other buildings providing sleeping accommodation such as hotels, hostels and student accommodation above 18 metres.
- The impact of fire is not just measured in deaths and injuries but by the social impact as well. Fire damage rendering properties uninhabitable for extended periods of time could mean people are rehoused, often moving out of their local area, schools, community etc., into inappropriate temporary accommodation at great expense and

placing even more pressure on housing provision. Sprinklers can reduce the damage caused by a fire by slowing its development or extinguishing it at an early stage.

- Elderly, isolated, issues with health, such people often require support in their own home. These groups are faced with a higher risk of death or injury from fire and sprinklers can most benefit these groups. The loss of a care home or sheltered housing to society is significant, with evidence that it can take a long time to rehouse people at great expense to Local Authorities and the Health Sector.
- Sprinklers in schools are primarily to reduce the risk of loss of the property, rather than life risk. The loss of a community asset that affects children, parents and parents' employers
- Youth intervention programmes may be needed and pupils will have to move to a new school. This has a significant impact on young people, including access to breakfast clubs and after-school clubs
- 90,000 students are affected by fire each year
- Selsey Academy in West Sussex – fire destroyed school leaving 450 pupils with no education for a month. The school is again being rebuilt without sprinklers, raising questions about how effective the risk-based decision-making approach has been.
- Sprinklers are estimates to add only 1 per cent of the total build cost for a school. However, developments are often value engineered backwards, meaning that as questions of viability arise, questions such as "do we really need a sprinkler system?" are asked.
- Heritage buildings and community assets – there was a large fire in the Charles Rennie Macintosh library that encompassed the whole building. The sprinkler system at the time was being retrofitted into the building, but was not yet fully operational.
- Complex buildings create issues for firefighters that may delay firefighting operations and provide time for the fire to develop.

Maintenance

- There is the potential issue of accessing households owned by leaseholders in order to maintain sprinkler systems, local authorities may have to make provision in leasehold contracts for periodic checks and maintenance.
- There is an issue with homeowners managing sprinkler systems, as once the keys are handed over the responsibility for maintenance rests with the homeowner.

Cost

- Barking and Dagenham retrofitted sprinkler systems in a residential care development, costing £72,000 for 35 rooms, the corridor and the atrium. The borough took a very proactive approach and the project was completed in two months. The funding that was left over was used to retrofit the bin and refuge areas in the boroughs' high-rise blocks with sprinklers.
- It costs about 25 per cent more to retrofit sprinklers than to fit them during initial development.

- Realistically there is a question of ensuring funding is focused on buildings where the risk is highest. There is also a need to ensure that general fire precautions are effective and maintained well, which may be a higher priority for funding than the need to fit sprinklers. It is important to emphasise that sprinklers provide an additional layer of protection.
- Southwark were able to find funding and focused it on protecting key vulnerable people in sheltered housing rather than on sprinklers.

Expertise and training

- The design and type of sprinkler system to be fitted needs to be appropriate
- LFEPA has provided advice and guidance to those considering sprinkler installations to ensure appropriate consideration has been given to the environment in which the system is being fitted, the risks involved and the type of system chosen.
- LFB support the retrofitting of sprinklers and the need for installations to get building control approval where the installation of the system breaches compartmentation to ensure adequate firestopping is included to reinstate the integrity of the building's compartmentation.
- The London Fire Brigade would like to see third-party accreditation for all sprinkler installers
- London is looking at over 300 sprinkler installations in high-rises.
- There is public misunderstanding of sprinkler activation, mainly the belief that on activation all sprinkler heads in a property release water and damaging property. There is a need to address concerns about cost, to bust myths and to address concerns using social media, such as through London Fire Brigade Twitter campaigns. Other organisations have done something similar – the Association of British Insurers recently released messages.

Water supply

- The water supply has to have sufficient flow to allow a sprinkler system to work
- A capacity tank must be sufficiently large to allow a sprinkler to operate for ten minutes; in a residential building this would be 30 minutes. The town main presents an opportunity and a risk: an opportunity in that residents will notice if the mains stops operating; and a risk if the water company is slow to reconnect the property.

Regulation

- The burden is currently on industry to respond to demand for sprinklers
- A risk-based approach to the fitting of sprinklers is required to target funding to ensure that those properties and individuals most at risk are protected in the first instance.
- A balance need to be struck between the need to generally improve London's housing stock including the general fire precautions in those properties and

additional safety features such as sprinklers. Hence LFB's support for a risk based approach as outlined above.

- 11,000 Building Control consultations are received by the brigade each year.
- Fire Risk Assessments as well as assessing compliance, need to have a focus on risk to people, especially vulnerable people, and the community impact of damage or loss of some critical assets such as schools, specialised housing etc. Consideration should be given to additional measures to manage fire risk. The London Fire Brigade would be amenable to a recommendation that the provision of sprinklers in certain property types are made mandatory.
- There needs to be early engagement at the design stage. If this is not completed and the strategy for managing fire risk does not hold up to scrutiny partway through or at completion of development this means that sprinklers may have to be retrofitted at a higher cost and to the detriment of design.
- Planning needs to give more favourable outcomes to developments that are 'Safe and Secure by Design', if the development meets the right fire safety approach.
- The current Government enquiries are considering the efficacy of the Building Regulations and options for improving the regulatory oversight, which the London Fire Brigade supports.
- LFB is aware that some Fire and Rescue Services advocate increasing their regulatory role in planning and building control in relation to fire safety However, LFB understand that the current enquiries will consider these complex regulatory issues to ensure the most appropriate agency has oversight of these processes.

Meeting with the Fire Protection Association (FPA)

16 January 2018, 11:00-12:45

Attendees:

John Smeaton, Interim Managing Director, FPA
Jim Glockling, Technical Director, FPA
Navin Shah AM, Rapporteur, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly

Insurance and property protection

- Different types of sprinkler systems provide different levels of resilience
- Installing sprinklers in a residential block is not necessarily meaningful to insurers and such buildings are generally insured in anticipation of a total loss
- However, commercial buildings are often not insured to a total loss, only for those areas likely to suffer damage
- Poor quality and timber-framed buildings are those that experience shows are likely to be a total loss
- There is a hierarchy of insurance in which passive protections are prioritised over systems requiring human intervention. The FPA is sometimes accused of create gold-plated standards, but insurers need reassurance that the systems have good performance.
- The expense begins to come in where there are a lack of active sprinklers and the building design means a total loss in the event of fire. If such costs are sufficiently high, then they will have to be shared with reinsurers, which adds additional expense
- Traditionally, a residential environment has been considered different to a commercial environment, in that life safety alone is sought, rather than both life safety and property protection. Commercial fire safety is designed to ensure the business stays viable.
- DCLG takes an attitude where a fire that results in no loss of life is a good thing, but does not account for other losses, such as a loss of heritage assets. Fires can cause the displacement of people and in the case of the loss of a school, an upheaval in education too.
- Used to have the Local Acts, which made provisions for sprinklers. These were the last facility over and above simply getting people out of their homes.
- We must accept that these are life safety systems going in and that protection of property is not at the heart of their design. This means that issues for insurers, such as escape of water, remain.

Training and expertise

- Residential standards for sprinklers are fast and loose compared to commercial standards, including plastic pipes and systems that are not necessarily third-party accredited, which could lead to escape of water claims.
- There is the possibility of higher insurance premiums where systems are put in poorly, which can be problematic
- Developers need to ensure the right equipment is being used, the quality of the installer and a proper maintenance programme.
- There is a question over whether a sprinkler engineer should also be qualified to install passive systems as well.
- Within the fire engineering profession there is a focus on life safety, but there are no qualifications to say you are an engineer. This is particularly an issue if a fire engineer applies a life safety brief to a building that requires a different standard.
- Fire safety/ life protection knowledge in its entirety wold never be held by building control or planning – this is an issue.
- The Building Standards are not always followed correctly, and building control and the fire service may not always hold the level of knowledge required to adequately assess plans.
- Aims are not set when discussing fire safety in buildings. There is question over whether the regulation needs to change, or whether a change in the culture of fire safety is needed.

Quality and reliability of sprinkler systems

- It is impossible to get commercial systems in residential properties in terms of cost. Commercial sprinkler systems feature a large amount of duplication, they are rigorously tested and subject to multiple rules and regulations. Commercial systems can be tested almost to the point of destruction in some cases to ensure they perform in a fire.
- Commercial systems normally have duplicate water supplies, pipework is always made from metal and such systems deliver more water to fires. Commercial systems can only be fitted by certified installers and these need to have a certain number of people skilled in hydraulic design. This results in systems that function 96 per cent of the time.
- Residential systems are much simpler. High quality pumps are available already, as these supply the domestic water supply. These pumps are in use every day to supply water to flats.
- There are differences in the extent of coverage. Room layouts are not uniform and hidden areas may not be protected.
- A sprinkler system is only as good as the time it is active for.
- False activations can lead to discrediting of the investment in sprinkler systems
- In active protection, there is the competing technology of water misting. Such a system is more susceptible to ventilation and is used more in contained

environments in the commercial sector. The domestic environment is more about fuel suppression and making the source of the fire non-combustible. Misting systems can prevent total consumption by fire.

- In terms of installing the right systems, the question should be what standards a system is approved to and whether it is relevant in the circumstances. Many systems might tick a box but still not provide the correct level of protection.
- The FPA is concerned about some technologies, such as Blueproof, which is fitted on radiators. Such technologies may tick a box in achieving compliance but would not be effective in a fire. There are also 'weird and wonderful' technologies, such as aerosol generating systems that could be damaging in a residential environment.
- There are issues with extending standards for sprinklers being for traditional buildings to other types of building. Non-traditional forms of construction, such as prefabrication means that the build stage is very important. If sprinklers are not featured at the design stage this can damage the integrity of the passive resistance in the prefabricated block.

Role of sprinklers

- The importance of passive protections should be emphasised. Why don't you build out of materials that don't burn as easily? A building that is properly put together with two stairwells does not necessarily need sprinklers.
- Sprinkler systems in residential buildings may become more expensive if they go beyond life safety to become a building protection system. A system that aids escape is not the same as one that allows design changes.
- There is a list of special considerations that might require sprinkler systems in the Building Regulations, but there is no detail on where to go beyond these bullet points.
- The reason for increased standards above 18 metres is because this is the height of standard fire equipment. Fire tenders cannot pump above 45 metres in height, so special standards are needed for these buildings.
- Dr Jim Glockling noted that in lower buildings the function of sprinklers probably is just one of life-safety. As you go higher the sprinkler system is additionally providing life-safety assurance via protection of structure (firmly the domain of sprinklers rather than watermist) – this normally means a more robust system with higher safety factors should be used because the consequences of the system failing to perform are very much more.
- Where there are multiple seats of fire this can defeat fire sprinklers. The failure point is when many heads go off, such as in an arson attack. The system may not be designed to cope with such a discharge of water.
- A fire on cladding will have multiple entry points, activating numerous sprinkler heads. This can cause the system to fail very quickly.

Installation

- The cost of installing a sprinkler system increases with the height of the building, as increased pressures are needed higher up.
- In new-build developments water supplies can be fitted on the roof. This reduces the need for space and cost for pumps. It also encourages developers to not rely on the town mains for the supply of water to sprinklers.
- With compartmentation, the amount of water required to reach the Area of Assured Maximum Operation (AAMO) in a residential environment is very low.
- It is not unreasonable to assume a system can be supplied from the town water mains.
- There is insufficient guidance as to how a residential sprinkler system needs re-specification for commonplace challenges / deviations – such as larger compartment sizes / design freedoms / compensation / vulnerable people / tall buildings etc.

Retrofitting

- There is no need to rehouse occupants during a retrofit – each flat can be done in under a day with less disruption than for painting
- If sprinklers are installed at the same time as other renovation work, the costs can be lower than the quoted retrofit price
- The FPA feel that 'targeting' of protection should be exploited to the full because there is limited funding. Therefore, it's better that:
    - good systems (generally a bit more expensive) go in where there is a good risk case, than,
    - poorer (cheaper) systems going in to everything – needed or not.

Cost

- The cost to retrofit a flat is between £2,000 and £2,500
- The FPA is doing some work with Triangle Fire Systems to assess what can be achieved by keep the cost of sprinkler systems the same but by making marginal gains in performance
- The fire sprinkler industry is working at quite high capacity now. However, where there is demand the commercial sector can turn its hand to the residential sector
- The complexity of building designs, including internal geometries such as L-shaped rooms. Such geometries can increase the number of sprinklers needed, and as such the design also needs to be sensitive to the cheap installation of sprinkler systems.
- There is the large additional cost of passive measures, such as firestopping. Firestopping requires skills to achieve and care needs to be taken not to breach compartmentation.

Regulation

- The FPA did not back the Welsh regulation. It punishes those developers making good decisions and occupancies that don't have fire safety problems. Fire services often have a good idea of the areas that are highest-risk, and using this knowledge a more targeted approach should have been taken. There needs to be consideration of the occupancy of the building and the consequence of fire when assessing whether a building should have sprinklers. A blanket rule needs careful consideration as protective methods can significantly vary in quality and appropriateness. The question should be what can be achieved by going further?
- However, the FPA agrees that all residential care homes and schools should have sprinklers.
- A different specification for higher risk buildings would be welcome. This should focus on ensuring that buildings, such as hospitals, can continue to function after a fire. People with lower quality white goods may qualify as higher risk.
- Dr Jim Glockling noted that for other buildings a preferred route to prescription might be the re-definition of the design objective – this method would allow Fire Engineers to use their skills and toolkits accordingly, but to meet a higher objective than just the Building Regulations one of 'evacuation before collapse'.
- The benefit of using the above approach is that it makes designers consider everything in the round – some elements may be achieved by the use of good performing materials (passive protections), others by the deployment of i.e. sprinklers (active protection), but most probably intelligent deployment of all available methods in a coherent fashion to meet objectives which are basically bourn of business (service) continuity planning – a very well-established discipline.
- It would be fantastic if sprinklers were as commonplace as air bags in a car.

Site visit to Kidbrooke Village

17 January 2018, 10:00-12:00

Attendees:

Karl Whiteman, Divisional Managing Director, Berkeley Group
Navin Shah AM, Rapporteur and London Assembly Member for Harrow and Brent
Tom Copley AM, London Assembly Member – Londonwide
Stephen Greek, Senior Researcher, GLA Conservatives, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly

The case for installing sprinklers

- The visual impact of sprinklers is minimal
- The case for installing sprinklers at Kidbrooke is to do with personal safety rather than building safety
- Sprinklers produce just 40 to 45 litres of water per minute, whereas fire hoses have about 1,000 litres per second. Sprinklers are only activated when the temperature reaches 67^{O}C and do not activate from smoke alone.
- They have 25m^2 of coverage, are triggered for 30 minutes and are linked to the alarm system
- There are standalone and communal systems available. Typically, in residential you get communal systems. Standalone systems may be cheaper for every apartment if sprinklers are required for every flat.
- Sprinklers are not required by the Building Regulations for low-rise residential buildings. Sprinklers work alongside other passive fire safety measures such as smoke extraction systems in communal areas, fire doors and restrictions on storage in communal areas. It is important to note that if someone changes their fire door, compartmentation is lost.
- Historically it has been possible to produce an engineered approach, but now on all schemes going forward Berkeley will apply the most current iteration of Part B of the Building Regulations
- The provision of greater fire safety measures above 18 metres has been because this is the height at which fire fighters can effectively fight a fire from outside the building
- Sprinklers are not required in buildings between 18 metres and 30 metres as firefighting is possible with dry and wet risers

Benefits of sprinklers

- Berkeley Group is installing sprinklers in three storey townhouses at Kidbrooke as this allows a much more open plan layout than would otherwise be possible without

sprinklers. Developments also need to consider whether access arrangements are sufficient, a need that is lessened with the provision of sprinklers.

- There is also a risk to the UK built environment brand from the lack of regulation of sprinklers
- Sprinklers also offer improved marketability. There is a risk with requiring sprinklers in every new building of creating a two-tier market where those buildings without sprinklers attract much lower values. Sprinklers should be fitted to add value alongside existing passive measures, which are valuable in their own right.
- Sprinklers also allow more straightforward approval by Building Control and the Fire Brigade
- There is also the possibility of reduced insurance premiums, although Berkeley Group have not seen their premiums fall
- Sprinklers offer contentment to occupiers that they are safer in their home.

Issues with installing sprinklers

- Sprinklers can require a large amount of space, including a plant room. The Community Infrastructure Levy is charged on the floor space needed to provide such a room.
- May require increased service void depths, spaces that are usually used for heat networks and cables. This adds an extra service in an already congested area.
- The setting out of sprinkler heads is also a challenge, playing havoc with lighting and decoration
- Before sprinklers, there wasn't anything within an apartment that required landlord intervention. Now there is a sprinkler system that requires maintenance, which raises issues of access to leaseholders' homes. In private residential leases, the onus is usually on the tenant to maintain the property.
- Generally, Berkeley Group leases allow the company to retain the ability to gain access, although in other organisations this may not be the case.

Cost

- Sprinklers can be costly to install. An apartment generally costs around £1,500, which is about 1 per cent of the base build cost for a development in London. In a house, installation costs around £5,000 for a standalone system, which accounts for around 3 per cent of the build cost.
- One challenge is the size of the accredited installation market, which is very small.
- "Automist" systems are an alternative spray system that tackles heat and oxygen. Each flat requires its own kit, which is all installed in the apartment. For a 'Manhattan' apartment, the cost would be around £3,000 because of the need for more sprinkler heads, as these cover only $5m^2$. There are, however, no plant room issues and no water pressure issues with installing such a system as it is standalone.

Maintenance

- The annual inspection of sprinkler systems will not be material on the service charge. There will be a capital replacement charge but this will be after ten or twenty years, as the system is not on demand all the time. This cost is likely to be pence on the service charge.
- The maintenance includes inspection for leaks, checks that there are no material increases in fire loadings and checking of valves.
- Sprinklers represent a relatively low-tech install, as only pumps, piping and taps are needed. When installed the pumps are placed under 8-bar pressure for an hour to test the system.

Expertise

- A third party fire consultant is required to provide sign-off and photograph any changes to the system.
- A standard plumber can install a sprinkler system, provided they have the proper certification. If the demand is there, then more people will be getting their UKAS accreditation. Costs will therefore drop as time goes on. There is also the possibility of expending apprenticeships to cover sprinkler installation.

Site visit to Parkside Court, Melbourne Avenue, Chelmsford CM1 2DY

26 January 2018, 10:30-11:30

Attendees:
Denise Kent, Director of Commercial Services, CHP
Graham Thomson, Surveying & Contracts Manager, CHP
Richard Cowing, General Practice Surveyor, CHP
Jade Parker, Communications Manager, CHP
Rosanna Low, Communications Co-ordinator, CHP
Mike Sparrow, Essex County Fire and Rescue Service
Navin Shah AM, Rapporteur and London Assembly Member for Harrow and Brent
Stephen Greek, Senior Researcher, GLA Conservatives, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly

Sprinklers in action

- Smoke detectors should always be the first warning system, but sprinklers will help the most vulnerable residents to survive a fire by containing it allowing valuable additional time to evacuate.
- British Standards require Sprinklers to have a minimum 10-minute activation time in domestic properties and 30 minutes in residential. This will extinguish the fire or contain the fire to allow people time to escape. Sprinklers normally have a 68°C activation temperature.
- The sprinkler system ejects water in droplets that are finer than rain. Sprinklers are suitable for electrical fire and chip pan fire, as the water becomes small droplets so when they contact the fire it evaporates straight away. This smothers the fire and deprives it of oxygen.
- Water damage from fire hoses is significantly higher than the damage from sprinklers.
- As fires are often extinguished, the fire service might only need to do an inspection following a fire in a sprinklered building, reducing the need for additional appliances.

Installation

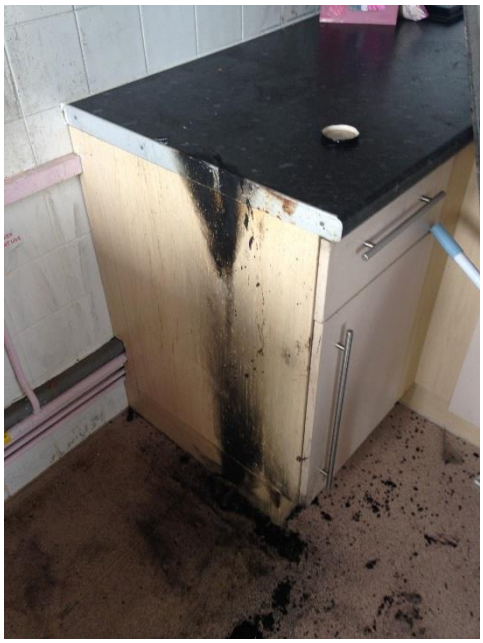
- The block was built in 1962 and refurbishment took place in 2007 to 2009. Sprinklers were installed in 2014 following the judgement from the Lakanal House fire in Southwark.
- CHP commissioned Butler and Young mechanical and electrical consultants to design the system and supervise the work. Triangle Fire Systems carried out the installation. The sprinkler company only took a month to install the sprinklers.
- After the Grenfell Tower fire, CHP visited residents and checked that all smoke detectors, fire doors and sprinkler heads were intact. CHP also checked for any gaps around pipework and where found filled them with intumescent filler to improve

existing fire-stopping measures and prevent fire spread. There were already fire doors fitted to Parkside Court and a program of installing fire doors & upgrading existing fire doors in other blocks was undertaken.

- It took roughly one day to install the sprinklers on each floor. As long as the main fittings were in place in the dry riser outlet then it is relatively easy to install sprinklers one each floor. A false ceiling was fitted in each flat, which was generally unobtrusive in design.
- Usually water pressure is sufficient that a tank is not necessary, particularly in houses, although some may need a booster pump. However, this depends on the area and on the water company.
- The lack of skills in the industry is where the main issue is. Procurement of sprinklers and materials is less of an issue.

Cost

- Essex County Fire and Rescue Service have ring fenced funding for the installation of sprinklers. This covers 50 per cent of the cost of successful bids, or £50,000, whichever is lower.
- The sprinkler installation cost £172,894 plus VAT. This covered not just the cost of installation in flats, but included installation in all communal areas and the costs of installing a tank and pump and associated building works such as boxing in pipework.
- Sprinklers fitted in new buildings are significantly lower than the cost of retrofitted sprinklers.
- Following a fire in one of the flats, the sprinkler system activated and limited damage to largely cosmetic work. The total cost of fire damage in the flat (including replacement sprinkler head) came to £916.29.



Damage to flat following sprinkler activation at Parkside Court (photo provided by CHP)

- The cost was below the insurance excess so an insurance claim was not made. CHP have seen a reduction in insurance costs overall as result of installing sprinklers.
- Rehousing the occupants and redecorating a fire damaged flat is significantly higher than the cost of installation. A fire in a bungalow can cost upwards of £30,000 to repair.

Working with residents

- Residents did not have to move from the flat during installation
- To incentivise residents to allow access to the homes, those who offered access on the scheduled dates and times were entered into a raffle for flat screen TV. This was necessary as sprinklers needed to be fitted into all flats on one floor at the same time. This was successful and sprinklers were fitted in every flat.
- CHP has a zero-tolerance policy with regards to items being stored or left in communal areas.
- After Grenfell, security guards visit Parkside Court every night to check that fire doors aren't being left open.
- The reaction from residents has been very good. Since Grenfell there have been positive comments from residents on social media. Residents are now more tolerant of inspections and are more understanding that things cannot be stored in the communal areas. Residents are informed of the operation of sprinklers when they move into a flat.

Maintenance

- Maintenance is part of the service charge, but it is a relatively small cost. The sprinkler systems are serviced annually by a specialist company, a process that includes fire risk assessments and running the system to check the pump.
- The cost of annual maintenance is £825.00 plus VAT.
- There have been no malfunctions with the system – there is more chance of winning the lottery than an accidental discharge of water. Residents have not damaged or tampered with the system.

Regulations

- The Fire Service is notified of new developments, but is not notified at the planning stage. Often when the Fire Service is notified it is too late for changes to be made.
- The Fire Service don't get the right to veto development without adequate fire protection.

Meeting with Commissioner of London Fire Brigade, Dany Cotton

29 January 2018, 10:30-11:00

Attendees:
Dany Cotton, Commissioner of London Fire Brigade
Navin Shah AM, Rapporteur, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly

Need for sprinklers

- The LFB's view is preventing the majority of injuries and deaths caused by fire, with the main priority of making people safer
- The whole purpose of sprinkler systems is to alert people and save lives
- Sprinklers are especially beneficial for care homes where people are more likely to have issues with dementia or mental impairments such as dementia, which mean they are unable or unwilling to escape.
- The vast majority of deaths from fire are for older people, those with special educational needs, or those with mental health problems#

Benefits of sprinklers

- The cost of installing sprinklers is not a significant issue as they only constitute a small percentage of the build cost of a development
- When installed as part of a new build it represents a significant benefit as an insurance measure. It protects the building by containing fire to a very small building. It also means that during a fire you don't have to decant the rest of the building.
- Installing sprinklers in new buildings is a 'no brainer'

Message to community

- The London Fire Brigade (LFB) have produced a myth-busting fact sheet, giving people facts and figures about sprinklers. Sprinklers only cause a small amount of water damage and people need information about this and the realities of living with a sprinkler system.
- The London Safety Plan 2017 outlines how the London Fire Brigade will support sprinklers in new and existing buildings and takes a risk-based approach.

Capacity

- There are lots of new opportunities emerging for the sprinkler industry, which will likely grow to meet the increased demand.

- There will potentially be issues in the short-term with capacity in the industry, but in any savvy business will see the opportunities available in the long-term.

Retrofitting

- Sprinklers need to be installed in existing buildings below 18 metres too, for which there needs to be a risk-based approach.
- Sprinklers have a very limited visual impact. One of the main concerns in retrofitted flats is the visual impact of sprinklers, but often they are inconspicuous and pipes can be boxed in. Most people don't know a sprinkler is even there.

Water supply

- In a tower block it is reasonable to expect the water supply to be able to run all of the showers in the building regardless of height. Sprinklers only use water for around ten minutes to put out the fire and so therefore could be supplied using the existing water supply in a tower block.
- Most tower blocks contain static tanks and wet rising mains anyway.

Funding

- For the London Fire Brigade to fund the installation of sprinklers would be a massive undertaking, for which it does not have the resources. There would also be questions about a conflict of interest.
- Funding would be best led by a governing board across London, such as through London Councils.
- Where funding is available it should be focused on sprinklers, as there is already legislation in place that requires passive protection to be installed and maintained in new and existing buildings.
- The Community Infrastructure Fund (CIF) was targeted at the highest-risk households, such as those with mobility issues.
- The LFB would like to continue with the CIF. The main lessons learned are that there are far more people in need of help than expected. It is difficult to reach many of those in need of support from the CIF and the LFB had to rely on referrals. There needs to be a better network for connecting people in need of support with the LFB's resources.
- In some cases, this may mean taking away the choice from vulnerable people, who may not understand why they need protection from fire. This is where sprinklers are superior to measures such as smoking aprons, as they do not require any decisions on the part of the vulnerable person.

Regulation

- Legislation will likely take a long time to emerge and come into effect. In the meantime, planning can help fill the gap, and the Mayor understands the benefits of sprinklers. However, it is unlikely that sprinklers can be made compulsory through the planning system.
- The new requirement for a Fire Statement in Policy D11 of the London Plan is very welcome. However, there will be an issue with the capacity of the LFB, for which the brigade would welcome increased supervision and resources to recruit staff with the right training and qualifications.
- New regulation will encourage changes in attitudes. People resisted hard-wired fire alarms, but now they are commonplace. Sprinklers represent the 'next step' in fire safety.

Additional powers

- The LFB do need additional powers, particularly where it comes to the ability to inspect bother sides of fire doors in the common parts of the building.
- The LFB would like to be able to require a building to have a sprinkler system at the Building Control stage.

Meeting with Fire Brigades Union (FBU)

29 January 2018, 13:00-14:00

Attendees:
David Sibert, Fire Safety Advisor, FBU
Navin Shah AM, Rapporteur, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly

Sprinklers in low-rise dwellings

- Installing sprinklers is relatively cost effective, costing less in a house than putting in a new kitchen or carpet
- However, there is a maintenance issue with installing sprinklers into private houses as homeowners may not maintain the system. People can forget that the systems are there, which can create complications when there is a fire and the sprinklers do not activate.

Retrofitting

- It is potentially problematic to suggest a height threshold for retrofitting, as this ignores those buildings with clear issues with poor compartmentation. Such buildings could miss out on sprinklers, while taller buildings that are safe would end up with sprinklers. This is a question of what it is reasonable to spend limited funds on.
- There needs to be a focus on how we identify those buildings that need retrofitting now and those that could benefit from retrofitting in ten years' time. The FBU would advocate an 'intelligently risk-based approach' as the scale of retrofitting every building is enormous.
- Per head, flats are safer, whereas lower rise residential buildings with more vulnerable residents may be a greater risk.
- The question should be what is reasonable and practical to do to reduce risk of fire.

Firefighter safety

- Even with sprinklers, firefighters are still needed to attend the scene, as sprinklers are designed to control and not to extinguish the fire.
- Someone also needs to turn the systems off to prevent water damage

Expertise

- There is not enough capacity in the industry to cope with demand at present.

- In a residential block, a fire risk assessor only looks at fire doors and corridors, which leads building owners to incorrectly assume they have taken account of fire safety. There needs to be fire risk management over and above the fire risk assessment. For instance, this approach would take account of how occupiers were using the building, such as identifying hoarders.

Funding

- Funding should use a risk-based approach, supporting either a passive or active fire safety measure, dependent on which is most appropriate.

Expertise

- Staff who currently have the responsibility for the management of fire safety may not have the necessary knowledge and expertise to take on the role of a dedicated fire risk manager and make effective decisions

Regulation

- It is questionable how much of a meaningful impact there can be in introducing fire safety into the London Plan. Planning applications are often put forward before many of the details about the building are decided.
- The Scottish Government is currently consulting on new legislation that would make it mandatory for sprinklers to be fitted to all new social housing. However, at some point social housing tenants will be better protected than those in private housing, at which point questions will be asked as to why that is the case.
- In new-build housing it is a 'no brainer' to install sprinklers. The FBU supports the mandatory provision of sprinklers in all new-build housing.
- The right approach is to introduce mandatory sprinklers in buildings in stages. This approach should avoid the issue of cowboy installers entering the market and installing poor quality sprinkler systems.

Conference call with Welsh Government

7 February 2018, 09:30 to 10:00am

Attendees:
Lesley Griffiths AM, Cabinet Secretary for Energy, Planning and Rural Affairs, Welsh Government
Rebecca Evans AM, Minister for Housing and Regeneration, Welsh Government
Francois Samuel, Head of Building Regulations, Welsh Government
Navin Shah AM, Rapporteur, London Assembly
Reece Harris, Assistant Scrutiny Manager, London Assembly

Mandatory fire suppression in Wales

- Ann Jones AM introduced mandatory automatic fire suppression systems (AFSS) in residential buildings through the Domestic Fire Safety (Wales) Measure.
- The Welsh Government obtained devolved control over Building Regulations in 2011
- The initial driver for the introduction of new Building Regulations on AFSS was a cost-benefit analysis that set out the numerical case for installing sprinklers. The analysis showed that for low-rise housing there was no financial basis for making AFSS mandatory.
- This meant there was resistance from developers when AFSS was made mandatory
- Changes were made to the Building Regulations in 2013, but implementation was delayed for two years. Initially, in April 2014 the new regulations were applied to student housing, care homes and hostels.
- However, the full application of the regulations was delayed until 2016. The Welsh Government recognised that a new industry would need to develop to manage the demand for AFSS and this delay was intended to help give time for housebuilders and industry to adapt to the new rules.
- After Grenfell there is greater public concern about fires and so there is a wider acceptance of the role that AFSS can play

Initial resistance to regulation

- The traditional transitional arrangements when new requirements are introduced has been perceived as a loophole that developers could exploit whereby developers with sites registered before the new regulations came into effect could avoid providing AFSS provided a start on site was made within 12 months.
- Carl Sargeant AM, then Cabinet Secretary for Communities and Children, was looking at what could be done to tackle excessive use of these arrangements.
- Through working with the Householder Engagement Group, the Welsh Government is considering whether AFSS could be linked to Help to Buy scheme support.

- The Welsh Government looked back at the legislation to consider whether retrospective legislation could be applied but this was not feasible.
- The consequence of the loophole was that, initially, 53,000 homes, or almost 9 years of supply would not have AFSS fitted. A further survey with local authority building control 12 months later reduced this to 26,000 as a significant number of sites had not met the start on site criteria, some did not have planning permission and some were not yet in the ownership of the developer.
- Initially developers did not understand why the additional cost of AFSS was being imposed on them and were concerned about the viability of their developments. The 2-year delay in implementing the AFSS requirement for new housing was intended to address this concern.
- Another jurisdiction looking to make AFSS mandatory might start incrementally with high rise and then broaden it out to cover other buildings, the technologies and issues e.g. water pressure were very different.

Maintenance issues

- In low-rise and individual homes, the maintenance is often the responsibility of the owner-occupier. The Building Regulations don't currently provide for ongoing compliance. An analogy is boiler maintenance, whereby owner-occupiers hold responsibility and guidance is issued to householders to help them with this.
- The Welsh Government has published guidance for householders on fire sprinkler systems.
- With mains-fed systems the system is easy to maintain. However, where there is a pump and/or tank, owner-occupiers need to be informed by developers about their responsibility for AFSS maintenance. The Welsh Government recognises that this is an ongoing challenge.

Water supply

- One of the main challenges is water supply. This is less of a problem for high-rise blocks than it is with for low-rise dwellings as high-rise blocks tend to have tank and pumped supply.
- The water company is the most important stakeholder to engage on AFSS. There was learning all round in Wales including the water companies. The water company existing policy on AFSS would not reflect volume implementation and in Wales' experience they needed to develop a different approach.
- Welsh Water have recognised this and now hold regular meetings with developers (development forums). Water companies have been used to the more complex and demanding AFSS such as those installed in commercial premises. Attitudes do change – it is about getting water companies to develop policies aimed at low-tech solutions at high volume, rather than high-tech solutions at low volume.

- There is innovation taking place in the industry. New pumps are reducing the number of developments that would have required a tank. This means that some installations just need an in-line pump connected directly to the mains.
- This is a solution for some situations, such as low-rise dwellings where there are pressure and flow problems as typical costs for storage tanks are very high.
- Some water meters can reduce pressure and flow, in Wales different meter technologies are being investigated to mitigate this.

Training

- There was initially only one further education (FE) college providing training. The Welsh Government is now seeing new training opportunities develop, including the upskilling of plumbers. When introducing mandatory AFSS ensuring that FE colleges are providing upskilling from the outset is recommended. Initially it will be the existing sprinkler industry undertaking the work over time one would wish to that low rise work shifts towards existing house building trades.
- Developers are increasingly taking up new training opportunities
- The problem for colleges was concern about a lack of demand, but this is slowly resolving itself with increasing demand as AFSS installations increase. FE colleges are finding that training opportunities are now being taken up. The more homes that have AFSS the bigger the take up of training opportunities will be.

Changes since introducing regulation

- A stock transfer RSL, Newport City Homes, has decided to fund retrofit sprinklers to three tower blocks where non-compliant ACM was found. This demonstrates that some social landlords are committed to ensuring the safety of their tenants. Swansea City Council has gone the furthest and is funding retrofitting large numbers of blocks on 11 sites.