

Fire safety and sprinkler systems

House of Commons

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KEY MESSAGES

- Studies have shown that sprinklers operate on 94 per cent of occasions and when they do, they extinguish or contain the fire in 99 per cent of incidents. They also reduce fire injuries and fire damage by 80 per cent.¹
- We are calling on the Government to introduce tougher sprinkler rules to ensure fire safety in high-rise buildings and care homes.
- Our key recommendation is that the Government lowers the height threshold at which automatic fire suppression systems (AFSS), such as sprinklers, are required from 30 metres (10 storeys) to 18 metres (or lower depending on the outcome of the Government's reviews of Approved Document B and other aspects of building safety).
- We also want to see AFSS, such as sprinklers, installed in all new premises where vulnerable people sleep, such as care homes and residential schools.
- Not only are these measures proven to be more effective in enhancing building safety, but introducing them would provide reassurance to residents who are concerned about their safety.
- These calls go beyond the recommendations in last year's Hackitt report. If the definition of high-rise buildings as yet out in the Hackitt review is not widened, we are calling for sprinklers or other AFSS to be retrofitted to existing blocks over 18 metres high, care homes and other high risk premises where a risk assessment justifies it.
- The funding allocated by the Government to local authorities to carry out remedial safety work on high rise buildings has been welcome. The Government should now commit to providing assistance to any council experiencing financial difficulty in meeting the retrospective obligations above as it has done in respect of the remediation of social housing blocks with flammable cladding.
- More than half of the fire and rescue services in England and Wales have experienced significant increases in the amount of prevention and protection work as a result of additional safety checks being carried out following the tragedy of the Grenfell Tower fire. These checks have had to be carried out in the context of reductions to the fire service workforce, as well as funding reductions for both local authorities and fire and rescue authorities.
- We are concerned that this approach to ensuring people's safety is not sustainable. It could expose communities to risk unless the new provisions and expectations on fire and rescue services arising from the Hackitt review are treated as a new burden and funded accordingly.

Briefing

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FURTHER INFORMATION

Current situation on sprinklers and Automatic Fire Suppression Systems in building regulations in England

In England, Approved Document B volume 2, which provides guidance on meeting the fire safety provisions in the building regulations, sets out the broad requirements on AFSS in non-domestic buildings. AFSS have to be installed in new high rise blocks of flats over 30 metres in height and in warehouses with more than 20,000 square metres of floor space. Since 2007 the Department of Education guidance in Building Bulletin 100 has required the installation of sprinkler systems in new schools unless the school can demonstrate it is a low risk and installing sprinklers would not provide value for money.

Changes to the use of sprinklers as a result of the Grenfell fire and the Hackitt review

The fire in Grenfell tower block was a tragedy. In order to mitigate against similar tragedies impacting their residents, a number of councils have undertaken work to retrospectively fit sprinklers. For example, Croydon Council have been fitting sprinklers in Croydon's tallest council-owned tower blocks. This includes 25 blocks at 10, 11 or 12 storeys, and an eight-storey sheltered accommodation block will have sprinklers fitted.ⁱⁱ

Following the fire at Grenfell, the Government commissioned Dame Judith Hackitt to conduct a review of buildings regulations and fire safety. This reported in May 2018.ⁱⁱⁱ Set out below are the key points from the LGA's perspective:

- A new regulatory framework should apply to residential properties which are 10 or more storeys high; higher risk residential buildings (HRRBs). Government could expand the definition to cover other high-rise buildings below 10 storeys or other residential buildings where vulnerable people sleep as next steps). A new regulator, the Joint Competent Authority (JCA), should be set up. It should bring together council building control functions, fire and rescue services and the Health and Safety Executive, working together to maximise the focus on building safety within HRRBs across their entire life cycle. The JCA's work would be funded on a full cost recovery basis.
- Councils would notify the regulator of new HRRBs, and a list of existing HRRBs would be created in the same way MHCLG has been logging private high rise residential buildings.
- HRRBs should be treated as a single entity (as opposed to the current confused division of responsibility between the Fire Safety Order and the Housing Act). There must be a clear duty holder (either the building owner or superior landlord) with responsibility for the safety of all parts of the building.
- HRRB duty holders must take such safety precautions as may reasonably be required to ensure building safety risk is reduced so far as is reasonably practicable.
- The duty holder for a HRRB should proactively demonstrate to the JCA through a safety case at regular intervals (every five years but more frequently dependent on the level of risk) that they are discharging their responsibilities.
- The safety case must identify the hazards and risks, describe how risks are controlled, and describe the safety management system in place.

- A HRRB duty holder will have to demonstrate a fire risk assessment for the whole building has been undertaken by someone with relevant skills, knowledge and experience and reviewed regularly, and ensure any recommendations/requirements outlined in the fire risk assessment are undertaken and completed in a timely manner. Fire risk assessments should be reviewed at least annually until a first safety case review has been completed.
- Residents of HRRBs should have clear obligations to maintain the safety of flats and to cooperate with the duty holder (or building safety manager) to the extent necessary to enable them to fulfil their duties. The duty holder should educate, influence and inspect to ensure residents meet these obligations and the JCA should be able to intervene where there is any immediate risks to persons.
- The regulator would have a suite of powers to ensure new buildings are safe.
- In addition there are proposals for reform of the Approved Documents that provide guidance around buildings regulations.

The LGA supported many of the recommendations made in the Hackitt Review's final report as set out in our response.^{iv}

In particular, we are concerned that the definition of higher risk residential buildings in the Review's report is too narrow and should be extended to cover all residential buildings over 18 metres in height and other residential buildings where vulnerable people sleep. The Hackitt review states that the Government could do this as next steps.

The Government has committed to reviewing Approved Document B, the guidance on how to comply with the fire safety regulations. A call for evidence to inform this review concludes on 15 March. This review provides an opportunity for changes to be made to the requirements related to AFSS in residential buildings.

It remains to be seen how the detail of the Hackitt proposals for a new regulator will develop, but it seems unlikely that they will include specific requirements (for example, to retrofit sprinklers) and that the retrofitting of AFSS will be one of a series of measures that a duty-holder may need to employ to meet their obligations.

Evidence sessions and the LGA AFSS Working Group

In October 2017 the LGA Fire Commission established a new working group to consider sprinklers and AFSS, and to consider the evidence for retrofitting these. The group collated evidence from a number of expert witnesses before agreeing a set of recommendations.

The evidence the LGA received emphasised that it was important to understand what AFSS are for and what they do:

- In all cases the role of AFSS is to reduce the spread of fire and thereby reduce the damage and the risk to people elsewhere in the building.
- While it has previously been argued that sprinklers are not effective in protecting the occupant of a room from a fire, international research demonstrates that this is not the case. In 2004, the Building Research Establishment (BRE) undertook several experiments comparing fires in sprinkler-fitted and non-sprinkler-fitted buildings. In all cases it discovered that

survivability in all areas (including the room of origin) was greater in the presence of a sprinkler system.^v

- Sprinklers have enviable statistics on fire safety and saving lives. Their track record in this country is 94 per cent reliability and 99 per cent for life safety.
- Sprinklers are effective. They do not, as a rule, cause significant damage through false alarms. The vast majority of fires are managed by up to four sprinkler heads, with 65 per cent of fires controlled by one sprinkler head activating, and a further 20 per cent by two.
- There is also a strong argument for reducing the height above which sprinklers are required on grounds of firefighter safety such as the fires in Stevenage and Southampton, both of which cost the lives of two firefighters.

Witnesses who addressed the AFSS working group generally agreed that fire safety needs to be considered in a holistic manner and a proportionate risk-based approach taken:

- AFSS are proven as the most effective safety feature, however, they are not a substitute for fixing flaws in primary safety features of a building and can only add another layer of safety to a building.
- Fire doors are essential in protecting high rise residents, hard wired smoke alarms are also important (11 per cent of homes do not have smoke alarms but fires in homes without smoke alarms account for 36 per cent of fire deaths).
- Spending money on sprinklers *instead* of these elements contravenes the need for a holistic approach to fire safety.
- A typical AFSS will not be able to fight a fire in the structure of the building, such as in the walls or vent ducts. There have, however, been instances involving fires from internal services or even from external sources to a building where sprinklers have been highly effective. An example is a fire at Studley Green where an external fire was controlled by a sprinkler in a kitchen. A recent high-rise fire in a Walthamstow Tower block started on an external balcony and was controlled by the sprinkler system inside the flat.
- It was pointed out that two people died on 2018 in sprinkler fitted properties. However, it is important to note that, in these examples, the two fatalities occurred because their clothing was the main contributor to the fire and they died of the burns inflicted. AFSS are not specifically designed to save lives in these circumstances as they require significant heat to activate.
- Some felt that a well-designed building should not need AFSS and that, as the UK currently has low loss of life due to fire (the UK has 4.5 fire deaths per year per every 1 million), there was arguably not an overwhelming case for lowering the height of residential high rise buildings in which fire suppression systems should be installed. However, data produced by the ABI shows that while the numbers of fires are in decline, losses per fire are increasing.
 - In 2004, there were £812 million of fire-related losses from 125,000 claims (an average claim cost of just under £6500);
 - Yet in 2015, there were £1.14 billion of fire-related losses from 58,000 claims (an average claim cost of just under £20,000).

- It was felt to be important that care homes, supported housing, schools and other similar buildings should be built well in the first place. However, it was acknowledged that there is an urgent need to bring existing care homes and schools up to safety standards to that of commercial buildings. Public buildings, such as hospitals, schools and care homes should be considered as commercial properties and have the most appropriate fire safety systems. Thought should also be given at the design stage to the location of, for example, vulnerable residents or service users.
- A strong starting point would be building new structures with heat resilient materials, not being allowed to compromise on cheap, possible combustible materials. Some builders have adopted using a light timber frame in new-builds, which is an extremely combustible material. Some schools are made of wood and polystyrene panels.
- There is uncertainty over the cost of retrofitting. The working group was quoted figures of £4-10,000 per flat and there is no guarantee of access to leasehold flats, but our research on this point was not comprehensive. These figures do not include maintenance costs and maintenance also requires continued access.

A number of the concerns about retrofitting AFSS were addressed in the evidence session:

- There were mixed views on the difficulties posed by asbestos in blocks which might be disturbed by installation. One figure quoted was a 25 per cent increase in installation costs (to £4k per flat) as a result of this factor.
- Water supply has certainly been an issue in Wales and is recognised as an issue that would arise were London to follow the Welsh example. However ‘lo-flow’ technology can allow the existing mains to be used.
- Retrofitting can be much more complex in practice than it appears on paper and a standard approach to all blocks is not practical:
 - There are issues regarding the accreditation of installers, which significant increases in demand would exacerbate, and the standards around installation. The group was told that BS291 is a very loose standard and needs tightening.
 - Retrofitting needs a workforce that is trained to work in people’s homes. Sprinkler installation must be done by competent people with the right mind-set. Blanket installation could lead to a lowering of standards and witnesses gave examples of poor installation that has taken place recently.
 - Access to leaseholder properties is remains a significant issue, but some felt leaseholders have been more accommodating post-Grenfell. Access to tenanted properties can also be an issue. Education and engagement will be a critical element of any retrofitting work that needs to be undertaken.
 - Retrofitting sprinklers is intrusive work. It is essential that the work site is left in a fire safety state every night. It is important to check at the end of every day that no compartmentation has been compromised, using a clerk-of-works would be helpful here.

ⁱ The figures in this briefing come from evidence sessions held by the LGA AFSS Working Group over the course of 2018, unless otherwise indicated.

ⁱⁱ <https://www.croydon.gov.uk/housing/firesafety/>; see also <https://www.bbc.co.uk/news/uk-england-manchester->

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ⁱⁱⁱ <https://www.gov.uk/government/publications/independent-review-of-building-regulations-and-fire-safety-final-report>

^{iv} <https://www.local.gov.uk/parliament/briefings-and-responses/lga-response-dame-judith-hackitts-review-building-regulations>

^v https://www.bre.co.uk/filelibrary/pdf/rpts/partb/sprinkler_section5.pdf, Effectiveness of Sprinklers in Residential Premises.