Dear Dame Judith,

Further to my letter of 18 August concerning your independent review of the building regulations and fire safety, please find enclosed a submission from the National Fire Chiefs Council (NFCC).

The NFCC is the professional voice of the UK fire and rescue services, and is comprised of a council of UK chief fire officers, which I chair.

The submission was put together through the NFCC’s Protection and Business Safety Committee. The Committee is comprised of a ‘protection specialist’ representative from every UK region and Devolved Assembly. The Committee has been established for many years and has made a significant contribution to the wider work of the UK fire and rescue service that has seen the substantial reduction in the number of fires and the number of people killed or injured in those fires in recent years.

Chaired by Mark Hardingham (Chief Fire Officer of Suffolk Fire and Rescue Service) the Committee invited all fire and rescue services across the UK to contribute to this vital piece of work. Responses from 16 English and Welsh fire and rescue services (over a third of fire and rescue services) have been analysed. The Call for Evidence has also been discussed at recent meetings and a national conference and I’m confident the submission reflects the broad views from across UK fire and rescue services.

This overarching submission compiles the key themes where there is broad consensus across the fire and rescue service. As the representative of all UK fire and rescue services, the NFCC can assist your review through discussions with colleagues in the devolved administrations to gain understanding and experience from these jurisdictions, should this be of interest. I am
also aware that many UK fire and rescue services have responded individually, and I am broadly supportive of the content from those responses that have been shared with me.

In the wake of the fire at Grenfell Tower, it is vital that we use this time to reflect and examine the shortcomings that contributed to the terrible events of 14 June. Despite the progress that has been made, events such as this remind us that there are always ways to improve and we can never afford to be complacent.

Considering the potential systemic failures that have been identified, the NFCC requests that the Independent Review give particular consideration to the Coroner’s recommendations following the fire at Lakanal House to examine if all of the lessons and recommendations following that event have been appropriately implemented, and particularly those relating to Approved Document B and to sprinklers.

A summary of the key themes from this NFCC submission is included in the executive summary. Thank you for the opportunity to comment. The NFCC welcomes the independent review, and we look forward to working with you further as the review progresses.

Any further correspondence in relation to the review can be directed to Penny Pender at penny.pender@nationalfirechiefs.org.uk.

Yours sincerely,

Roy Wilsher OBE, QFSM
Chair, National Fire Chiefs Council
Independent Review of Building Regulations and Fire Safety
Response to the call for evidence

Submission of the National Fire Chiefs Council (NFCC)

Executive Summary

Responses from 16 English and Welsh fire and rescue services (over a third of fire and rescue services) have been analysed. This overarching submission compiles the key themes amongst which there is broad consensus across the fire and rescue service.

Our response is structured according to the 10 questions set out by the review, however many cross-cutting themes are evident amongst the responses from fire and rescue services. These are:

Overarching system

Responses reflected a view that building regulations are generally appropriate, but that key requirements are not being followed or enforced, leading to a system which may ultimately fail to protect members of the public and firefighters from fire.

Planning and consultation

Planning and building control consultation processes need revision as fire and rescue services repeatedly report that they are consulted very late, in some cases after the building has been completed and occupied. This leads to inappropriate solutions which once built, may remain in the building for its entire expected life.

Enforcement powers for fire and rescue services

Our original letter highlighted that there needs to be greater clarity about who is responsible for complying with Building Regulations, and who is responsible for enforcing compliance.

The role of the fire authority in relation to regulating, assessing and enforcing is poorly understood. It is right that a line is drawn between the approval process and enforcement functions to maintain integrity and independence.

Fire service consultation is a good process to challenge approved inspectors and local authorities. Unfortunately, we still experience many scenarios where other parties comprehend that it is for the fire and rescue service to ensure that buildings are built correctly and to quality assure the work of designers; these responsibilities belong to the building control regime. Additionally, there is no requirement for observations to be recognised.
The legislation only has three formal notices that allow enforcers to ensure compliance. The enforcement notice can be insufficient at times, but the prohibition notice is only appropriate for use in the most serious of cases.

Consideration should be given to a broader range of graduated statutory enforcement notices. The NFCC (then CFOA) previously issued guidance to fire services on the introduction of informal notices and/or action plans. These notices have no legal standing and we would welcome consideration of a more statutory footing for this level of notice.

Approving authorities are aware that fire and rescue services have limited public funds to pursue any legal case. Taking enforcement action has created additional workload for fire and rescue services, which needs to be considered against the background of reducing resources over the past 10 years.

**Interaction between the Housing Act and the Regulatory Reform (Fire Safety) Order 2005 (the Fire Safety Order).**

The Fire Safety Order regulates the communal parts of buildings whilst the Housing Act governs the entire premises. Confusion over the scope of such legislation occurs when relating to flats beyond the flat entrance, including the flat door. This overlap results in fire authorities only being able to consider certain parts of a purpose-built block of flats, and local authorities being unlikely to consider fire at all.

**Competence**

Fire and rescue services have noted a decline in industry competency over recent years. These concerns cover those taking part in initial designing of premises, those assessing and approving designs (including fire authorities), those undertaking building works and making changes to the original design, and then those assessing fire risk once the building is occupied.

Fire risk assessors are unregulated. They have no requirement to demonstrate competency to any standard, and they are unchallenged – unless a fire and rescue service pursues them at public cost.

There are currently no mandatory checks on the quality of construction for any fire safety elements and items such as cavity barriers. They are difficult to ascertain if they are present or fitted correctly once the construction is complete within invasive investigation.

For complex schemes, there should be consideration of the need for those who developed the original fire strategy to be involved at all stages to ensure that the finished building fulfils the design objectives.

**Independence**

Experience has demonstrated that approved inspectors are not always considered impartial and may allow too much flexibility in fire safety design freedoms, due to the fact they feel obliged to consider the financial implications for their clients.

In respect of the Housing Act there is a question about the appropriateness of local housing authorities being the enforcing authority for their own premises and the same applies for building regulations.

**Guidance**
Guidance to support the legislation is lagging behind common practice and modern construction methods, and needs updating. With lightweight timber and steel-based designs becoming more prominent in the built environment, it is important that the review take into account current and future trends in design and construction.

Inconsistencies in guidance give designers the opportunity to ‘cherry pick’ from documents to reduce costs with the potential to compromise fire safety.

**Non-worsening of conditions, refurbishments and change of use**

There is a disconnect between the minimum standards that need to be reached during refurbishments or changes in the use of a building, and the Fire Safety Order expectations of continuous improvement through the fire risk assessment process.

The current regulations are allowing buildings to remain for many years without any improvements to bring them up to current safety standards.
1. The overarching legal requirements

Q1 To what extent are the current building, housing and fire safety legislation and associated guidance clear and understood by those who need to follow them? In particular:
• What parts are clear and well understood by those who need to follow them?; and, if appropriate
• Where specifically do you think there are gaps, inconsistencies and/or overlaps (including between different parts of the legislation and guidance)? What changes would be necessary to address these and what are the benefits of doing so?

1.1. Overarching system – The performance based system and minimum standards

1.1.1. Building regulations and the associated guidance are perceived to be well understood by those working in the area, such as building control bodies. However, understanding of the process does not automatically transfer to appropriate application or achievement of building performance standards. The extent to which the system succeeds is highly dependent on the competence of both practitioners and users.

1.1.2. For instance, designers and architects have a varying degree of understanding. A common issue encountered is when a design does not follow guidance or best practice either because:

- A specific strategy which may have been accepted before is being used to demonstrate compliance. Many such accepted solutions are based on specific situations, risk factors and/or occupancy. They may be unsuitable for the situation in which they are being applied, or rely on numerous managerial factors which, if they change, could undermine safety later.
- Of a lack of knowledge/appreciation of a fire service’s needs.

1.1.3. There is an increased use of international guidance and theory (fire engineering) to justify specific designs. In the main these are based on formal studies and defined principles. However, concerns remain that their success relies heavily on the competencies of practitioners and the knowledge of end-users to understand the way in which safety is secured (further comment on the competencies of specific users is included under Q4).

1.1.4. In terms of the Building Regulations there is sometimes a lack of appreciation that satisfying one element of the regulations can jeopardise another. Hence the need for competent application in considering the design holistically.

1.1.5. As buildings are constructed, the number of those involved in the design and build increases, and the competencies and knowledge of those required to implement specific designs naturally decreases. Disagreements over how to interpret requirements can create unnecessary delays in the process and, in some cases significant work and discussion around justifying a departure from guidance.

1.1.6. On building completion, the systems and designs are passed to the end-user: building owner, landlord, or manager who may not always be provided with the information and training to be able to understand the details contained in the strategy.

1.1.7. NFCC members have highlighted the incentives created for designs to be ‘just good enough’; for instance, designs where the intention is not to protect the structure, but for the building to remain stable long enough for users to evacuate. The underlying principle of such designs is for the structure to fail during a fire, sometimes within 15 minutes. The ‘build to fail’ principle is a strategy commonly employed in situations where building to a standard where a structure
would never fail would be prohibitively expensive to achieve (e.g., for minimum earthquake strengthening in New Zealand). However, we do not feel that the application of this principle onto structural integrity in a fire is justifiable.

1.1.8. Such designs are accepting potential significant losses, risk to business continuity, risks to the environment and potentially increasing risk to neighbouring people and property. In many cases they also significantly reduce the opportunity for a change of use without further remedial work. Such bespoke strategies ignore sustainability and overlook the potential changing needs of the future, and could be seen as a progressive degradation of standards. They offer little or no opportunity for an emergency response to protect or save the building, and – critically – where this is not clearly communicated to the local fire and rescue services, could put the lives of emergency responders at risk.

1.1.9. Some have minimal recognition of the fire service’s response times and believe that so long as users can self-evacuate there is no need to provide more. Some show no appreciation that the eventual occupiers of the premises and/or the emergency responders may not have all the specific design information available at the time of a fire.

1.1.10. The flexibility within the system to meet functional requirements by justifying new and creative designs has allowed for much innovation, and the success of many iconic modern buildings is based on this process. This must always be balanced against the single most important objective – the safety of end-users and emergency responders.

- We would ask this review to question where and in what situations trade-offs to safety objectives are reasonable when balanced against other objectives.

- Consider if it would be appropriate to expand Regulation 38 e.g. to require that information given to the responsible person be included as part of the fire authority consultation process.

1.2. Guidance - Deviating from guidance

1.2.1. Some parts of the sector (particularly some architects) would like Approved Document B (ADB) to be simplified to make it more accessible to people with limited fire safety knowledge.

1.2.2. While there is merit in ensuring guidance is accessible, we believe that fire safety is a complex area that should only be undertaken by individuals with the right level of competence.

1.2.3. Successful application of ADB requires an understanding of fire safety design and how the guidance has been developed. There are areas already identified within ADB as being either misunderstood or misapplied. Satisfying one element may result in conflict with another. There are also solutions for which research has shown to be less reliable than previously thought, or at least limited in where they should be applied.

1.2.4. There is a misunderstanding by some that compliance with ADB is all that needs to be demonstrated without cross reference back to the building regulations. In some cases, people even confuse ADB as being the regulations themselves.

1.2.5. ADB is often considered to be the maximum standard that must be achieved, rather than a minimum. Some designers are open with their opinion that they should only design the minimum to achieve compliance, rather than seeking an appropriate level of safety. While this might be appropriate in certain cases, it is our view that the ADB should be considered the minimum reasonable standard.
1.2.6. ADB may benefit from further explanation or clarification as to the basis behind particular solutions in the guidance; however there is a clear need for those applying the guidance to have appropriate skills, knowledge and professional judgement.

1.2.7. The submission from the London Fire Brigade contains more detail on possible amendments to ADB which we support.

- The review may wish to consider whether increased scrutiny should be required in situations where designs deviate from recognised guidance

- The review may wish to consider what skills and competencies should be required of those involved in the design and design approval process.

- Please refer to Q2 for related comments on consultation at the design stage.

1.3. Guidance - Impartiality

1.3.1. Local authorities in the main have a good understanding of ADB and apply this appropriately. However, it is evident that some building control bodies, and particularly approved inspectors, regularly utilise approved documents and guides to their own ends.

1.3.2. There is too much scope to mix and match guidance. Approved inspectors are aware of guidance but do not always follow the advice contained, or use elements of several documents to 'cherry pick' what suits their clients at the expense of safety measures.

1.3.3. This is potentially due to the lack of impartiality between the approved inspector and the client.

- The review should consider if approved inspectors are sufficiently independent.

1.4. Guidance - Out of date

1.4.1. The original government suite of fire safety guides is over 10 years old and have not been reviewed; lessons have been learnt since the introduction of the Fire Safety Order. In that time, the sector has had to produce its own guidance on housing (LACORS; Purpose Built Blocks of Flats and Specialised Housing). Where guidance is not issued under Article 50 this brings about questions of enforceability and whether people are required to follow it. Inconsistencies in various guidance documents could be brought in line with each other.

1.4.2. ADB requires updating in line with the latest understanding of fire precautions, building methods and design. Inconsistencies give designers opportunities to reduce costs at the expense of safety, e.g. ADB states flats >30m and offices with phased evacuation should have sprinklers fitted, where BS9999 states all buildings >30m should have sprinklers fitted.

1.4.3. Cross-referencing does not link to correct documents (for example BS5588 and BS9999). All associated documents require reviewing collectively to ensure that they correctly cross-reference to each other, and potential conflicts of guidance are alleviated. BS9999 allows a degree of flexibility as opposed to ADB which is considered to be too rigid. Note that BS9991 (Fire Safety in The Design, Management And Use Of Residential Buildings – Code Of Practice) has already been reviewed in 2015 after only being introduced in 2011. ADB has only had minor amendments since 2006.

1.4.4. There are inconsistencies between ADB for new builds and Department for Communities and Local Government guides for existing buildings, such as the length of corridors for subdivision, the number of occupants per door width, and the use of inner room (sleeping). This can result in confusion and variations in application.

1.5. Guidance - Competence of end-users
1.5.1. Within the area of end-users (landlords, premises owners, businesses) there is a varying level of knowledge and understanding of the legislation and guidance. There is still a broad belief that fire services have ownership over fire precautions in buildings, as per the 1971 Fire Precautions Act. There are varying levels of appreciation and knowledge with respect to application of safe fire standards; these generally fall into the following groups:

- Those that want to manage their fire safety, have competence available to them and can operate with an acceptable level of safety.
- Those that know that standards occur but either through ignorance or purposeful avoidance have no interest in fire safety.
- Those that can manage fire safety but require a simple framework to operate under which is clearly laid out.

1.5.2. Whilst guidance is available, the successful application still relies on the competency and knowledge of the user. A further barrier is that not all guidance is free to access.

1.5.3. An area which requires attention is houses in multiple occupation (HMOs). These premises fall across the Housing Act and the Fire Safety Order (FSO) and though the authorities can make arrangements for inspection/enforcement, it leaves the end-user with multiple possibilities.

1.5.4. In areas with multiple local authorities it is possible to encounter various regimes and stances, such as local licensing criteria, and who has taken the position as lead authority for the fire safety standards. This can cause confusion for landlords with properties in multiple areas.

1.5.5. There are numerous guidance documents available: LACORS, Homestamp, the Sleeping Guide, Decent and Safe Homes, etc. Owners are presented with a range of technical advice which they can either choose to interpret or apply or, as is frequently the case, they ask the local authority (fire or environmental health) for guidance.

1.5.6. A specific element which has caused debate is the term 'shared house', featured in the LACORS guide. This term from the previous Housing Act describes a situation which incorporates numerous variables and opportunities for wider interpretation. The guide includes indications that the FSO does not apply to these premises.

1.5.7. What is not helpful to the end-user is the vast array of guidance and information that can be accessed for some areas and even more prudent is that not all of it is freely accessible.

1.6. Guidance - Control over guidance

1.6.1. The lack of government produced guidance and the consequential increase of sector guidance has resulted in a proliferation of inconsistencies in various documents and turned guidance into a currency. This also creates a risk that independent parties can choose to withdraw their guidance and leave large sections of the sector with no guidance to follow.

1.6.2. Bodies such as Local Authority Building Control, London District Surveyors’ Association, the National House-Building Council and the Building & Construction Authority publish their own technical guidance which appears to represent an interpretation of Approved Document B and suggests routes to compliance. We are unclear as to the technical review process for these policy notes and what status these have. A more regular review of Approved Document B might be needed if building control bodies are regularly finding a need to fill gaps in the guidance.

- If guidance was centrally controlled this would not be a risk, and there would be opportunities for greater alignment and clarity.
1.7. Vulnerability

1.7.1. The biggest gap in the present regime that has been widely identified is the protection of vulnerable people.

1.7.2. This is an inevitable outcome of using workplace legislation to protect residential premises from fire, including tower blocks, sheltered accommodation, extra care schemes, or similar buildings that house vulnerable people. It is our experience that housing authorities do not consider buildings containing vulnerable persons to be at high risk from fire.

1.7.3. Most people die or are injured from fires in their own homes, and these premises are not covered by the Fire Safety Order (FSO). Figures published by the Home Office outline that the majority of fatalities (approximately 80 per cent) occur in dwelling fires. Older people, people with disabilities, those living in single parent households, males aged 46-60 who live alone and drink and smoke in the home, and young people aged 16-24 (including students) are at a greater risk. The challenges presented by an ageing population, as set out below, are evident and will almost certainly see an increase in the number and vulnerability of people at risk from fire.

1.7.4. The Housing Act is the primary fire legislation for domestic premises. It is our experience that local authorities rarely use the Housing, Health and Safety Rating System (HHSRS) for fire safety on anything but a house of multiple occupation. This is often because they have very little experience and expertise in fire. Local Housing Act enforcers generally show reluctance to enforce it.

1.7.5. In premises where the Housing Act applies as well as the FSO, situations requiring enforcement can depend on local arrangements. The discussion over legislative primacy can create an issue where authorities operate differently in separate districts. If flats were created outside of building regulations then they may be referred to as an HMO under the Housing Act, but then this can create debate around who takes primacy. Use of the term ‘shared house’ in the LACORS guide as described above still creates debate around which requirements apply in some cases. These matters could be settled centrally and definitively.

1.7.6. Further enforcement guidance was due to be produced by government on these and other issues that were anticipated to arise in light of experience and the application of the FSO. This has not been forthcoming, and has left a significant gap in guidance on related matters, including:

- the sleeping accommodation guide, in the light of publication of other guides
- the lack of clarification with regards to squatters in non-residential buildings
- the application to ‘ships’ where these are used as residential premises
- the application to sheltered housing and/or supported living which are care homes in all but another name.

- The review should examine how successful implementation of the HHSRS by local authorities has been, in particular the enforcement of fire safety provisions in domestic premises. The review could consider any potential role for care quality commissions in registering the environments that vulnerable persons live in.

1.8. Vulnerability - An ageing population

1.8.1. The review should consider the fire safety implications for an ageing population bearing in mind the desire to keep people with dependency needs out of health care facilities and in their own homes.
1.8.2. Older people, especially those aged 65 and over, are at greater risk of dying in a fire. According to ONS population projections those aged 80 and over made up five per cent of the population but accounted for 20 per cent of all fire related fatalities in 2016/17.

1.8.3. Changes have been made to building standards in the past in relation to access and facilities within dwellings. However, no thought has ever been given to fire. The NFCC document Fire Safety in Specialised Housing provides reference to how sprinklers can protect vulnerable people.

1.8.4. An opportunity to include sprinklers in care homes was lost in the previous review of building regulations. A 2012 report by the Building Research Establishment (BRE) found an economic case for fitting sprinklers in care homes and an earlier analysis by BRE in 2004 reached the same conclusion. Despite both pieces of supporting research, sprinklers were not included. Wales and Scotland both require sprinklers in care homes and it is an increasingly common requirement in Europe.

1.9. Vulnerability - Schools

1.9.1. The NFCC strongly recommends that any future version of Approved Document B clearly state a requirement for sprinklers to be fitted in all new schools. Schools continue to be vulnerable to fire and the taxpayer foots the bill for many millions of pounds lost each year, as well as the loss of irreplaceable course work and community disruption.

1.9.2. The current standards for schools are confusing, ranging between ADB, Building Bulletin 100 and BS9999. Designers and developers avoid completing the BB100’s required risk assessment through a lack of clarity as to who is responsible. Alternatively, designers can use BS9999 to avoid fitting sprinklers. The current Department for Education and Skills’ expectation that all but the lowest risk new and refurbished schools be fitted with sprinklers has been in place for 10 years and has only resulted in around 30% of new schools being fitted with sprinklers. The current framework is not robust enough and should be rectified by including the fitting of sprinklers in a new Approved Document B.

1.9.3. Sprinklers can play a significant role in both improving the life safety of occupants (particularly those who are vulnerable) in specialised housing or health care facilities and high-rise accommodation. The NFCC is a member of the National Fire Sprinkler Network and supports their campaign for greater provision of sprinklers.

- The review should consider whether it would be appropriate to require the fitting of sprinklers into care homes and schools.

1.10. Sustainability and the environment

1.10.1. The building regulations for fire are out of step with other approved documents which take into consideration environmental and sustainability factors in both the construction and life of a building. ADB has no such focus, and as a result there is no consideration for property protection and/or environmental damage caused by fire.

1.10.2. The environmental damage by fire has long been researched and documented. Building fires are well-researched in respect of carbon dioxide and other greenhouse gas released; the effect of firefighting media on the environment; disruption to local communities from smoke plumes and increased carbon footprint from rebuilding damaged properties. An example of this is this research paper undertaken by the International Association of Fire Safety Science (IAFSS). An improved focus on property protection and sustainability in the building regulations would help to address this issue.
- The review should consider an improved focus on property protection and sustainability in the building regulations. Inclusion of sprinklers can play a significant role in protecting property.

1.11. Interaction of the Housing Act and FSO - Common areas/front doors

1.11.1. Another issue concerning the interaction between the Housing Act and the FSO is in the jurisdiction over communal areas. While corridors and stairs are relatively clear in the FSO, it is well-documented that jurisdiction over front doors is unclear. Areas such as external cladding and internal vents are also interpreted differently.

1.11.2. The front doors to flats are often captured by the lease on the individual flats and hence under the control of the Housing Act, but the front door also provides protection to the means of escape in the common areas.

1.11.3. The design for high-rise blocks of flats may rely on a lobby within the entrance to the flat. On occupation, the local private sector housing department could have remit over a rented flat and the fire service over the front door which protects the means of escape. Whose responsibility is the second door within the flat, which creates the lobby?

- The review should consider if the interaction between The Housing Act and the FSO is clear, including the definition of what is meant by “used in common”.

1.12. Non-worsening of conditions, refurbishments and change of use

1.12.1. There is a disconnect with the building control requirements and the Fire Safety Order expectations of continuous improvement through the fire risk assessment process. Regulation 4(3) of the Building Regulations states that where the work did not comply with Schedule 1, it should be no more unsatisfactory in relation to that requirement than before the work was carried out.

1.12.2. This allows fire precautions to be removed and replaced on a like for like basis, meaning a building can be refurbished many times, but the general fire precautions may never be required to be improved to current standards. For example, a staircase enclosure when originally built provided a nominal 30 minutes fire resistance. Modern standards would expect two hours, yet despite works being undertaken no upgrades would be required.

1.12.3. In general, the framework is focused on life safety, primarily the safety of occupants in terms of escape. The safety of firefighters is catered for within ADB. Article 38 of the FSO can only ask for ‘maintenance’ of firefighting facilities, but cannot require improvements to them due to firefighters not being considered ‘relevant persons’.

1.12.4. This means that while new buildings can be designed to provide firefighter safety, older buildings are not and risk assessments are not expected to consider such issues.

1.12.5. Therefore, when things are approved in relation to ADB B5 (which we don’t believe offers the correct level of protection for firefighters) we have little further legislative power to require changes.

1.12.6. If we consider this in the context of an expected building’s life span, which could be anywhere from several years to several hundred years, this is a long time to have potentially inappropriate firefighting facilities. Firefighting lifts are one example where older units may not have the latest safety features such as dual power supplies, yet under building regulations even if a refurbishment were to include changing the lift cars, the non-worsening condition could still be applied.
1.12.7. This also poses an issue where the approving authority only has an application for refurbishment of part of the building, but our interest with respect to enforcement also includes the impact any changes would have on the rest of the building. There are also potential firefighting safety risks due to the loss of opportunity to upgrade facilities to modern standards.

1.12.8. In some cases, the non-worsening standard is applied where, had the building been occupied, the fire and rescue service would have undertaken enforcement action under the FSO. Despite this, the existing condition is still considered to be the base standard for measuring compliance with the Building Regulations. We believe that this leads to inconsistency and a wide interpretation of the standard that should be met.

1.13. Change of use

1.13.1. An area which should be reviewed is where a change of use of a building takes place, especially from office space (or similar) to sleeping accommodations (for example, a high-rise office space refurbished and converted to flats or student accommodation). In this instance if the building were greater than 30m it would require sprinklers to be installed under current requirements if it was a new build. However, existing buildings are not required to meet current requirements so long as conditions are not made worse than those existing. We believe this is inappropriate; in circumstances such as this, the building should meet current requirements or where this is difficult or impossible, compensatory features should be provided.

1.13.2. Whilst the FSO regulates the future use and occupancy of the building, audits or inspections may occur less frequently than is required for future users or owners to understand the design and any risks. Ways of addressing this could be with alteration notices for a consistent nationwide application for these cases or an improved method to enforce Regulation 38 to inform and/or educate occupiers.

1.13.3. Change of use may in some circumstances only require planning approval. In some instances, this change makes the fire safety precautions at the premises unsuitable, but because there are no material alterations there is no building regulations consultation, and therefore poor fire safety standards may slip past regulators until they are identified through other means.

1.13.4. The review may wish to compare how non-worsening provisions are balanced against continuous improvement in other jurisdictions. For instance, in New Zealand the non-worsening condition applies to alterations and change of use, but requires that the building should comply, ‘as nearly as is reasonably practicable’ with provisions of the building code related to fire safety and access for people with disabilities. Guidance on how this works can be found here.

- Reconsider the appropriateness of the minimum requirements (non-worsening) that should apply during refurbishments, or changes in use of the building (including facilities for firefighting and firefighter safety and sprinkler requirements).

- Consider if fire risk assessments should be explicitly expected to capture facilities for firefighters provided through new buildings and refurbishment work and not just those that are featured in a new or refurbished premise for the purposes of maintaining them (as required in the FSO). Sprinklers can play a major role in providing the safety of firefighters.

1.14. Provisions of safety information for end-users

1.14.1. The current framework within the building regulations that requires designers to pass on details of a building’s safety design and features is not working consistently and in the manner it should.
1.14.2. The Building Regulations (38) require fire safety information to be passed to the user of the building, however, the handover process between relevant bodies is not consistently undertaken. When a building is completed, the fire strategy is rarely communicated to the client/occupiers effectively. There is little if any evidence of enforcement action in these scenarios.

1.14.3. The subsequent risk assessor is often not sighted on the information relating to the original fire strategy. This results in conflict on compliance issues and solutions with the fire service, and cases of unnecessary expenditure through initial failure of fire risk assessors’ understanding of building fire strategies, and recommendations for further fire safety provisions. This can create unnecessary financial burden on businesses who will often just comply believing the fire risk assessor guidance to be expert commentary.

1.14.4. Where the safety within a design is not inherent but is instead passed to the end-user to manage, consideration should be given to requiring that an operation strategy is considered and drafted.

1.14.5. Some bespoke designs may require the end-user to create and maintain a system to monitor and assess fire loading to ensure it is within the design parameters. For example, the physical loading of the floor used within the design will need to be in place to ensure that the margins of safety are met. End-users need to be made aware of what the ongoing management commitment is because of designs that may deviate from standard guidance.

- Consider if Regulation 38 should be amended to encourage or enable greater enforcement.
- Consider a requirement for complex designs to include an operation strategy for the end-user.

1.15. Maintenance and record keeping

The review should consider the benefits of a requirement for maintaining records relating to the testing, service and maintenance of fire safety systems, and any drills undertaken in addition to the current requirements in Article 21 of the FSO.

2. Roles and Responsibilities

Q2 Are the roles, responsibilities & accountabilities of different individuals (in relation to adhering to fire safety requirements or assessing compliance) at each key stage of the building process clear, effective and timely? In particular:
• Where are responsibilities clear, effective and timely and well understood by those who need to adhere to them/assess them?; and, if appropriate
• Where specifically do you think the regime is not effective?
• What changes would be necessary to address these and what are the benefits of doing so?

1 References to ‘fire safety’ requirements in Q2 & 3 should be taken to cover the range of requirements set out across Building Regulations, the Fire Safety Order etc.
2 In other words the planning, design, procurement and construction of new builds and the refurbishment of existing buildings and the ongoing management and maintenance of those buildings

2.1. Approved Inspectors, design responsibility and independence

2.1.1. As mentioned under Q1, approved inspectors (AIs) are perceived to ‘cherry pick’ what suits their clients at the expense of safety measures.
2.1.2. There is a growing concern amongst the fire engineering industry about the independence of AIs relating to the possible design and approve scenario which we understand Regulation 9 of the Building (Approved Inspectors etc) Regulations 2010 seeks to avoid.

2.2. Design responsibility and independence

2.2.1. Concerns relate to the grey area which exists when the line between design and approval has been crossed. In this, and the case of a ‘one-stop shop’ scenario (discussed below), questions may arise on how robust the overall approval process has been.

2.2.2. One of the key areas that should be clear to all parties is the question of who is taking the design responsibility, and subsequent liabilities. Considerations include:

- Should an approving authority be making design suggestions, and where is the line between advice and design?
- What type of design considerations should be referred back to the design team?
- Does a ‘fire safety appraisal report’ constitute a design document if it details departures from the guidance within Approved Document B?
- Is it acceptable for the approving authority to use their own judgement to justify an area of non-compliance where there has not been a justification provided from the design team?

2.2.3. There have increasingly been instances where complex fire safety designs appear to have been created by a team made up of a client, architect and the approving authority, without the presence of a fire engineer. This raises questions about how the fire engineered/alternative design solutions have been reached.

2.3. The One-stop shop

2.3.1. There are also concerns about where the approving authority is within a company group structure that also offers fire engineering services.

2.3.2. This poses a potential for conflict if the design and approval process is considered to be under one roof in terms of the level of checking applied to reviewing the design information.

2.3.3. Monitoring of third-party peer review suggests that this practice varies greatly. It is apparent that some approving authorities that also provide fire engineering services do not employ a third-party to peer review a submission if it has been prepared by their ‘sister’ company.

2.3.4. In these cases, instead of an independent review, there would be a statement from the AI confirming that it was generally satisfactory. This calls into question the level of scrutiny applied to these submissions, and whether this is effectively a process of self-certification.

2.3.5. The risk-assessed approach on what is reviewed on a consultation has also been highlighted, and statements such as ‘if the submission has come from ‘x’ company then we know it will be ok’ are being made. In such cases, the actual competence and experience of the fire engineer in question does not appear to be checked and we fundamentally disagree with this approach. Examples exist where reputable consultancies have made significant errors in their approach or analysis.

- The review should consider if stronger guidance/clarification is needed to ensure the independence of the approving authority.

2.3.6. Compliance checks by building control bodies are limited due to cost restraints placed on them, and the need to remain competitive against approved inspectors in an open market place. This has had the effect of driving costs down by provision of a minimal service. Both
building owners and occupiers pay for these services therefore directly or indirectly influence how this work is carried out.

2.3.7. While competition in the sector was welcome, there are clear difficulties that arise where one party is limited to cost recovery, which creates a baseline with little scope for efficiency savings other than to potentially reduce the amount of time spent on a project.

- The review may wish to consider if the competition created by the introduction of approved inspectors has raised or lowered standards.

2.4. Competencies to review designs

2.4.1. As mentioned under Q1, the performance-based approach relies heavily on the competence of practitioners. Concerns have been highlighted over examples where an approving authority does not have the expertise to understand a design proposal, and yet fails to employ a suitably qualified third party to support them.

2.4.2. The reliance is then placed on the statutory consultees (i.e. the fire and rescue service) for advice and guidance. Common examples are the use of computational fluid dynamics (CFD) or structural fire protection which requires high level technical understanding to enable appropriate scrutiny.

2.4.3. Concerns have been raised about inconsistent scrutiny and a reliance on opinion provided by others where the approving authority has accepted a calculation method based on who has presented it to them. There is a need to consider whether the effectiveness of the building performance standards is affected by the self-regulation of both local authority building control and approved inspectors.

2.4.4. Another concern is the practice of undertaking desktop studies in the absence of carrying out fire tests. External wall construction in Approved Document B (para 12.5) refers to BRE 135. The BCA guidance note 18 states that if no actual fire test data exists for a particular system, then a desktop study can be submitted from a suitably qualified fire specialist stating whether, in their opinion, BR135 criteria would be met with the proposed system. This relies heavily on the competence of the person undertaking the desktop study, and may lead to errors or a reduction in safety margins.

- Where standard guidance is not followed and deviations are sought, the review should consider if greater scrutiny or competency requirements would be appropriate.

2.5. Fire Risk Assessors

2.5.1. The regime is not effective around the role of the fire risk assessor. Following the fire at Lakanal House, the Fire Risk Assessment Competency Council was set up, and published a set of competencies for fire risk assessors. However, there is no legal requirement to meet these or any other minimum standard of competence to carry out a fire risk assessment.

2.5.2. This was to avoid an implication that every duty holder needed to employ the services of a fire safety specialist, such as a consultant, to carry out their fire risk assessment. However, the fire risk assessment is a fundamental check and balance of the system; the current arrangement has led to inconsistencies in interpretation of the regulations and guidance.

- We believe the review should consider a minimum standard of competence to carry out a fire risk assessment, particularly for high risk premises.

2.6. Awareness of responsibilities
2.6.1. There is a general view that the Fire Safety Order has resulted in responsibilities being correctly assigned since it is widely considered that those in control of the day-to-day running of a building should also be responsible for its fire safety, in itself a day-to-day activity. This is similar to the responsibilities of owners and employers under Health and Safety legislation. However, identifying the person in control in residential buildings can be complex when having to examine contracts and leases.

2.6.2. There is widespread evidence that people are still not aware of their responsibilities. Many Responsible Persons (RPs), particularly in small and medium enterprises, houses in multiple occupation etc. are not well-versed with their responsibilities under the FSO. This is disappointing 11 years on from when it came into force.

2.6.3. FSO Article 5(3) is to ensure that when a Responsible Person does not have the skills to undertake a task to ensure compliance (e.g. to maintain a fire alarm system) they engage an appropriate person to do so. A fire alarm maintenance contractor therefore has a responsibility to maintain the system correctly, and the enforcing authority can require them to fix any problems rather than placing that obligation on the RP. That is not fully understood by all contractors.

2.6.4. The role of the fire authority in relation to regulating, assessing and enforcing is poorly understood. This confusion is not necessarily confined to RPs; similar concerns have been raised about council and housing authorities. The FSO and the Housing Act should have more defined boundaries; experience tells us that housing officers have much the same powers as fire officers, yet attempt to coerce fire officers to act through the FSO rather than take action under the Housing Act.

2.6.5. There needs to be greater clarity about who is responsible for complying with Building Regulations, and who is responsible for enforcing compliance.

2.6.6. It is right that a line is drawn between the approval and enforcement functions to maintain integrity and independence. Unfortunately, we still experience many scenarios where other parties comprehend that it is for the fire and rescue service to ensure that buildings are built correctly and to quality assure the work of designers; these responsibilities belong to the building control regime.

- The review should consider how to provide greater clarity about who is responsible for complying with Building Regulations, and who is responsible for enforcing compliance.

- There is an opportunity to drive national awareness, which the NFCC welcome a role in, working with government and other partners. Fire and rescue services can also work locally with chambers of commerce, Local Enterprise Partnerships and councils to raise understanding.

2.7. The consultation process

2.7.1. The legislation and guidance can be perceived to show clear roles and responsibilities. However, as mentioned, it is the application and understanding where failure can occur.

2.7.2. Many fire authorities have highlighted concerns around the consultation process and how this is being implemented. Fire authorities are often consulted too late in the design development to have any meaningful influence. It is noted that procedural guidance suggests that building control bodies should consult only once they are minded to approve.

2.7.3. The fire authority is not a statutory consultee for planning applications. Late consultation often manifests itself in issues such as inappropriate site access which has been agreed at the
planning stage and is therefore very difficult to change at building regulations stage. Even where designs follow national guidance for access and facilities the local provision may not be comparable, resulting in inappropriate access for emergency responders. Another common example of issues created through late consultation would be cookers by front doors in open plan flats.

2.7.4. The Building Regulations and Fire Safety Procedural Guidance document 4th Edition July 2007 Pg18 Para 2.13.1 states ‘approved inspectors may not give a final certificate until 15 working days have elapsed from the date on which they have consulted with the enforcing authority’. Approved inspectors regularly use this to their advantage; a new build can often be complete or nearing completion before consultation is even commenced.

2.7.5. Consultations on premises that are near to completion or have been completed are common. Concerns have been raised on numerous occasions that late consultation is used as a tactic for presenting a fait accompli to force fire and rescue authorities to accept that any change to the design is neither practicable or possible.

2.7.6. The objective of consulting is to ensure that a safe building is constructed or refurbished without any undue additional cost to the client. However, consultation on issues that were known at the design stage have been brought so late that resolving them becomes problematic and costly, making it difficult to achieve major improvements. Instead of working together to ensure compliance it is often the case that fire authorities are at odds with building control bodies, particularly approved inspectors. A report was published by Bickerdike Allen1 (1990) which criticised the process of consultation and the competence of both building control bodies and fire officers.

2.7.7. Concerns also exist about what happens when no credence is given to comments from fire authorities. The regime is not effective for resolving conflict between parties and getting a timely resolution can be challenging.

2.7.8. Fire authorities often do not see the ‘as built’ fire strategy; therefore, what might have been acceptable at building regulations consultation stage may change significantly at final build. It may be an undue burden to require a process of re-consultation, but there should be a robust process to ensure that any design changes do not adversely affect the fire safety strategy, especially if ‘value engineering’ has been adopted at a later stage in the process.

2.7.9. Value engineering examines alternative products/services to eliminate any unnecessary costs to achieve value for money on a project. It is an accepted approach however it should never reduce the function of a given solution. At times value has been considered for one property of a given product (e.g. the thermal performance of an insulation material) overlooking, and to the detriment of, the expected fire performance.

- **Consider how to encourage more consultation at planning stage, and/or make it a requirement to consult the fire authority during planning approval stage (any change to the current process would have implications in terms of resources required by the authorities concerned).**

- **Procedural guidance could be revised to include a need for earlier consultation. It could also clearly identify that the responsibility for remedial work, required due to lack of early**

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1 Fire and Building Regulation: A Review by Bickerdike Allen Partners for the Enterprise and Deregulation Unit in Conjunction with the Home Office and the Department of the Environment—31 Dec 1990
consultation and/or deviation from guidance without suitable justification, does not sit with the fire service.

- Consider incentives such as those created by the inspection charging regime in HSE to promote higher standards.

- The review should consider if avenues for dispute resolution are adequate.

- There should be a robust process to ensure that any design changes do not adversely affect the fire safety strategy especially if ‘value engineering’ has been adopted at a later stage in the process.

- Please refer to the section below on statutory undertakers for further comments around consultation with relation to transport infrastructure.

2.8. Statutory undertakers

2.8.1. There is an anomaly within existing legislation associated with statutory undertakers. Statutory undertakers are responsible for elements of the built environment including, but not limited to, transport infrastructure, utility distribution and public health infrastructure. It is worth noting that at the time of the Building Act 1984, the statutory undertakers were essentially government bodies and therefore it could be questioned, following denationalisation, whether the consultation requirements have kept pace with the bodies responsible for this role today.

2.8.2. A key area of concern is associated with transport infrastructure where multi-million-pound projects (such as Crossrail) are not subject to the same governance associated with the consultation process as other parts of the built environment.

2.8.3. The Fire Safety Order applies to transport premises when they become operational, but does not explicitly require statutory undertakers to consult building control bodies or the relevant fire and rescue authority at design stage. As statutory undertakers are normally exempt from having to make an application to a building control body there is no formal mechanism for consultation to take place. Statutory undertakers often opt to consult fire and rescue services directly as a matter of best practice however, this varies.

2.8.4. Factors driving the need for a clear legislative direction for statutory undertakers to consult with fire and rescue authorities include:

- Key design parameters for major infrastructure projects are often constrained early in the concept design stage due to the site, or public opinion during public consultation. Failure to consult early may result in infrastructure that does not adequately permit fire and rescue service operations or comply with the Fire Safety Order or Fire Precautions (Sub-surface Railway Stations) (England) Regulations 2009.

- The fire and rescue authority under the Fire and Rescue Services Act 2004 has a duty to obtain information, train firefighters and obtain sufficient personnel, services and equipment. It may be impossible for a fire and rescue authority to carry out these duties without being adequately consulted on the design of the infrastructure.

- There is a benefit to the standardisation of key firefighting provisions across the built environment to assist firefighters in effectively responding to incidents on transport infrastructure. These recommendations could be conveyed at consultation meetings.

- The fire and rescue authority can contribute their experience of other projects, including auditing fire safety compliance on existing infrastructure and of emergency response to new projects. This input could assist with effective fire safety engineering design and result in savings of time and cost across a project.
• The statutory undertaker can provide information to the fire and rescue authority about matters such as innovative construction techniques, fire protection technologies and emerging hazards in the transport environment which can assist the fire and rescue authority in their objectives of saving life, protecting assets and reducing the impact of emergencies on business continuity.

2.8.5. Due to the lack of a formal consultation process, a requirement for an independent third-party review of transport infrastructure proposals (such as a building control body) as required for most of the built environment might also be appropriate due to the scale and complexity of these projects.

2.9. The Construction (Design and Management) Regulations 2015

2.9.1. There is confusion between The Construction (Design and Management) Regulations 2015 and the FSO, particularly in premises that are part occupied and part building site. Where the FSO should take precedence, it is unclear sometimes between agencies who has legal primacy.

2.9.2. The Building Regulations outline what type of work needs to comply with schedule 1 however there is a lack of clarity around the responsibilities for compliance. The C(DM) Regulations appear to provide a clear framework for detailing roles and responsibilities which could be considered for comparison.

3. Roles & Responsibilities

Q3 Does the current system place a clear over-arching responsibility on named parties for maintaining / ensuring fire safety requirements are met in a high-rise multi occupancy building? Where could this be made clearer? What would be the benefits of doing so?

3.1. Awareness and education

3.1.1. The current system does set out the over-arching responsibilities of named parties within multi-occupied buildings. However, it is ill-understood; most occupiers of buildings do not seem to have a clear and full understanding of their responsibilities.

3.1.2. Fire Safety in Purpose Built Blocks of Flats Guide and the LACORS Guide identify the overarching responsibilities on named parties. Article 3 of the FSO details the responsible persons and clearly shows a hierarchy.

3.1.3. However as high-rise buildings are likely to be multi-occupied, the duties may be spread between different people and enforcement may be difficult. This causes confusion as to who is the lead body and creates complexity in enforcement, for example where a flat is owned by a tenant in a high-rise building.

3.1.4. There is currently no clear way of identifying all the people who have responsibilities around compliance (including those responsible for co-operation and co-ordination, maintenance, reporting, vulnerable people etc.). It is difficult enough to get Responsible Persons to comply with Article 22 (co-operate and co-ordinate), as many tenants do not read tenancy agreements to identify their responsibility within the building.

3.1.5. Responsibility for maintenance is dependent upon contracts and leases etc. Requirements for maintenance of fire safety requirements are often derived from a fire risk assessment. The required complexity of assessments is unclear as there are four different types of fire risk assessment suggested for flats (whether in flats and/or common parts and whether destructive
or not). This means that the appropriate application of this part of the system relies heavily again on the competence of risk assessors.

3.1.6. Building management would benefit from legislation clearly defining the owner or leaseholder of multi-occupied buildings as responsible for maintaining the structure and the fire safety provisions, and not provide them the option to devolve responsibility to tenants which often results in confusion.

3.1.7. Accepting that management is a cornerstone of the FSO and fire safety standards, these types of buildings may benefit in having the managerial arrangements/responsibilities being documented in the design strategy. This would mean that the future management for a building is known in the same way that the fire precautions for a building are known. Many strategies are seen with caveats that the fire safety arrangements will be determined on occupation. If the building is a speculative build then it should ensure clear needs and responsibilities are identified for the end user or the next stage of fit-out.

3.2. Private dwellings in high-rises

3.2.1. Concerns have been raised about the ability to enforce fire safety in buildings containing multiple single private dwellings, relating back to matters raised previously about the relationship between the Housing Act and the FSO. This creates a lack of right of access to domestic premises in high-rise buildings to ensure that safety measures are in place.

3.2.2. As also touched on previously, there is a conflict over where some domestic premises start. The design for a high-rise block of flats may rely on a lobby within the entrance to the flat. On occupation, the local private sector housing department could have remit over a rented flat and the fire service over the front door which protects the means of escape. However, responsibility for the second door within the flat which creates the lobby has been highlighted as a source of confusion.

- The review should consider whether responsibilities for the level of assessment and maintenance, and where a domestic premise starts could be made clearer.

4. Competencies of key players

Q4 What evidence is there that those³ with responsibility for:
- Demonstrating compliance (with building regulations, housing & fire safety requirements) at various stages in the life cycle of a building;
- Assessing compliance with those requirements

are appropriately trained and accredited and are adequately resourced to perform their role effectively (including whether there are enough qualified professionals in each key area)? If gaps exist how can they be addressed and what would be the benefits of doing so?

³ For example, architects, those with responsibility for installing products, those undertaking Building Control sign-off or fire protection and enforcement work

4.1. Competencies

4.1.1. This submission has already commented many times on the heavy reliance on the competencies of practitioners and users to ensure successful outcomes. The extent to which the current legislation and guidance is clear and understood will be highly dependent on the competence of the user. While this might seem an obvious statement, there is a wide range of competence of those within the process.
4.1.2. In terms of the Building Regulations there is sometimes a lack of appreciation that satisfying one element of the Regulations can jeopardise another, hence the need for competent application in considering the design holistically.

4.2. Fire risk assessors

4.2.1. Fire safety is a complex area that should only be undertaken by individuals with the right level of competence. Please refer to our comments on fire risk assessors as outlined under Q2.

  - The review could consider a minimum standard of competence to carry out a fire risk assessment, particularly for high-risk premises.
  
  - The review could consider a register for competent persons to assist those responsible for the fire risk assessment and the prevention and protection measures for certain high-risk premises.

4.3. Designers and architects

4.3.1. There are concerns about the competencies of designers and architects, particularly to design safe solutions when there is a departure from guidance. Deficiencies in competence are also evidenced through examples of designers trying to apply previously accepted solutions in scenarios where they would be inappropriate or unsuitable.

4.3.2. There are numerous qualifications, accredited schemes and training programs available to those within this area. Demonstrating and assessing competence is often seen as compliance with guidance, or meeting the overarching (but non-specific) principles within the functional requirements.

4.3.3. With respect to guidance there is a common phrase ‘it is only guidance’ and that other processes and assessments can be undertaken to achieve performance. Where there are departures from guidance the question becomes how do you reassess compliance, and to what standard?

4.3.4. There is no restriction on who can develop a fire safety design. Submissions can be developed by architects or a chartered (fire) engineer. There is no stipulation on when a differing level of competence should be expected, and no requirements for complex designs to be undertaken by a qualified or professionally registered fire engineer. There is no protected title for a fire engineer and no requirement for checking of experience or qualifications of individuals carrying out even complex fire engineering design.

4.3.5. There has been a significant increase in recent years of complex strategies being submitted, from parties that we do not believe have the appropriate level of competence.

4.3.6. Requirements for an emergency response are not detailed sufficiently within guidance. As such, these are common elements where designers and building control bodies create or look to accept deviations. Whilst a fire authority may be consulted, they are not statutory consultees for planning applications and experience shows that often building control bodies and designers lack the training or competencies needed to ensure these requirements are met.

4.3.7. This can include a lack of appreciation for the capabilities of local fire services. Often schemes are approved at planning stage with inherent issues regarding fire access. Comments around poor access or facilities are also not enforceable by the fire authority, and as raised previously in this submission there are concerns around how effective dispute resolution processes are.

4.3.8. In one case, the local authority signed the design off but made it clear that the access was not satisfactory, and that the deeds would contain this fact. This provided a mechanism for the
future owners to be made aware, but in the event of a fire where people are hurt or worse, who then has responsibility for that outcome?

4.3.9. There are also some concerns over the competencies of Building Control Bodies to review complex designs. The recent report produced by Meacham Associates commissioned by the Building Standards Division of the Local Government and Communities Directorate\(^2\) highlighted areas of concern which, in our view, are also relevant in England in terms of the competence of those undertaking and reviewing fire safety designs.

- **Consideration should be given as to why, in the fire engineering industry, similar standards to that of structural engineers are not applied i.e. the expectation that the structural design is completed by a chartered engineer qualified in structural engineering.**

- **In cases of high-risk premises or significant departures from guidance, the review may wish to consider whether more scrutiny or competency should be applied.**

- **The review should consider making the fire service a formal consultee at planning stage and/or provide a mechanism that would allow fire services to make recorded comments early on.**

### 4.4. Fire safety (prevention and enforcement) officers

4.4.1. Those that enforce the Fire Safety Order should be able to demonstrate competence to enforce the law. This would improve consistency of enforcement. They should also have sufficient design knowledge to fulfil the role of reviewing the fire safety consultation submitted as part of the building regulation process.

4.4.2. At the NFCC we have set our own expectations for a fire engineer competence standard, developed by our Fire Engineering and Technical Standards Group. This was developed with reference to formal qualifications and UK Engineering Council registration dependent on the level of fire engineer.

4.4.3. In terms of the fire safety officer role, the NFCC has developed a competence framework entitled ‘Competency Framework for Business Fire Safety Regulators’ which specifies recommended levels of qualification.

4.4.4. The impact of austerity and reduction in funding for fire and rescue services has been felt across all its functions, including the numbers of officers and staff with responsibility for Protection and Business Safety. These changes have been managed through each fire authority’s integrated risk management planning arrangements but, in almost all cases, seen a reduction in capacity over recent years.

- **NFCC have committed to review this framework and its application across UK FRS and the review may wish to comment on this and endorse such a review.**

### 4.5. Contractors (build and maintenance)

4.5.1. There is concern that a lack of competency amongst contractors is at least partially responsible for identified failings in compartmentation in buildings throughout the country. This can include contractors either not installing the correct products, not installing products correctly, or not investing in appropriate training of staff. This can include contractors not

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understanding what they are installing or how small changes in fixings or products can detrimentally affect the performance of the system.

4.6. Fire safety systems designers, installers and maintainers.

4.6.1. There is no formal requirement to hold a qualification to work on life safety fire systems (e.g. complex smoke ventilation systems). Contractors with insufficient knowledge in this area can create issues, for instance where a contractor is charged with maintaining a complex system with little appreciation of the design parameters and limitations, and little understanding of the cause and effect analysis originally applied. This has resulted in contractors not maintaining key components, or detrimentally changing or reconfiguring the system without understanding the repercussions.

4.6.2. Small to medium business owners will often look to appoint a cheaper option for the installation of emergency lighting or a fire warning system. This often impacts on the quality of installation and effectiveness of a vital safety system.

4.6.3. These contractors could be Fire Safety Order Article 5(3) Responsible persons and therefore competence is a critical issue to demonstrate compliance.

4.6.4. Regarding the maintenance of sprinklers, were sprinklers to become more widely included in ADB then consideration should be given to third party accreditation of installations and annual maintenance checks. However, research indicates that sprinklers generally are very reliable. The NFCC part commissioned an independent analysis in 2017. This looked at over 2,000 incidents attended by UK fire services in sprinkler-protected buildings which found that sprinkler systems correctly operated on at least 94% of the fires where they could have been expected to operate and controlled or extinguished 99% of those fires.

- The review should consider what the appropriate minimum oversight of fire safety systems contractors should be.

4.7. Statutory undertakers

4.7.1. The issues associated with appropriately trained and accredited professionals for transport infrastructure is no different than for the rest of the built environment. If benchmark standards are to be outlined for professionals responsible for Building Regulations compliance, this should also extend to those providing fire safety guidance for statutory undertakers. It could be argued that the level of competence of professionals, especially fire engineers working on behalf of statutory undertakers, is even more critical given that there is no requirement to consult a building control body.

4.7.2. A requirement for an independent third-party review of transport infrastructure proposals (such as a building control body) as required for most of the built environment may also be appropriate due to the scale and complexity of these projects.

4.8. Inspectors and surveyors

4.8.1. There are concerns that cost pressures and a reducing number of building control inspectors have reduced both the frequency and quality of building inspections.

4.8.2. Sample inspections do not necessarily cover fire safety checks such as lifting of ceiling tiles and/or checking firestopping as this should have been completed at the build stage. Anecdotal evidence suggests this area is not being complied with, but still the building is being signed off as complete. Whether this is due to building inspector competence, lack of detailed inspection and/or visits is not known but should be considered.
4.8.3. In addition, companies are increasingly appointing approved inspectors some distance from where buildings are being erected who may never even visit the site, relying instead on local surveyors to inspect on their behalf, often with few incentives to take a necessarily thorough approach.

4.8.4. Joint inspections by fire and rescue services and building inspectors now rarely take place, whereby previously this supported the exchange of information and skills on site.

5. Enforcement and Sanctions

Q5 Is the current checking and inspection regime adequately backed up through enforcement and sanctions? In particular:
• Where does the regime already adequately drive compliance or ensure remedial action is always taken in a timely manner where needed?
• Where does the system fail to do so? Are changes required to address this and what would be the benefits of doing so?

5.1. Enforcement

5.1.1. Successive governments’ drive to reduce regulation and encourage innovation has contributed to weakened enforcement, particularly where there has been a culture shift towards partnership working. The reduction of fires and fire deaths may also have led to complacency amongst the sector.

5.2. Independence

5.2.1. The review should consider the appropriateness of a building control body, e.g. a local authority, approving work within their own enforcement authority whilst at the same time receiving payment for the process. This could also be extended to include fire service trading arms who offer fire engineering design services within their own enforcement area.

5.2.2. In respect of the Housing Act there is a question about the appropriateness of local housing authorities being the enforcing authority for their own premises.

5.3. Primary Authority Partnerships

5.3.1. Greater clarification around enforcement in Primary Authority could be considered, in terms of the separation between enforcement roles and partnership working agreements and how to avoid conflicts of interest.

5.4. Intrusive risk assessments

5.4.1. There is a disconnect with the building control requirements and the Fire Safety Order (FSO).

5.4.2. The FSO relies on the building being built appropriately. This allows the Responsible Person to engage a risk assessor with some assumptions in terms of things like suitability of the construction. However, when the construction is inadequate there is little support for a risk assessor to identify hidden issues.

5.4.3. The development of the performance standards and the licensing/ongoing auditing of approved inspectors are undertaken by those within the industry. This should be reviewed to consider if this is an effective process. There are no mandatory checks for fire safety elements,
and items such as cavity barriers are difficult to ascertain if they are present or fitted correctly, without invasive investigation, once the construction is complete.

5.4.4. Given concerns relating to the quality of current construction, consideration should be given to a more robust process of inspection. The impact on fire safety measures of follow-on works also need careful attention, e.g. where compartmentation is completed and then breached by later utility installation. Should those who developed the original fire strategy be involved in subsequent alterations?

5.5. Enforcement notices

5.5.1. The Fire Safety Order is a self-regulating piece of legislation but this needs to be backed up with robust enforcement, and those who do not comply need to know there are consequences.

5.5.2. For those who are prosecuted it is considered that courts have adequate powers, though it is noted that there have been issues with taking a prosecution due to a lack of case law.

5.5.3. The legislation only has three formal notices that allow enforcers to ensure compliance. These are:

- Prohibition/Restriction Notice: This can only be used if the risk to life is so serious occupation of the premises needs to prohibited.
- Enforcement Notice: The only formal mechanism to ensure non-compliance found by enforcing officers is recorded and remedied.
- Alteration Notice: This is for a serious risk or where any change could create a serious risk.

5.5.4. Before the introduction of the FSO, the NFCC (then CFOA) issued guidance to fire services which included the introduction of informal notices and action plans, however fire services have introduced this in different ways. These notices have no legal standing and therefore are only used for minor non-compliance.

- The review may want to consider the appropriateness of introducing additional lower level enforcement notices under legislation.

5.6. Housing Act

5.6.1. As detailed in the response to question 1, there is a need to ensure the overlap and distinction between the Housing Act and the Fire Safety Order is much clearer. This will be significantly assisted by the inclusion of a clear definition of what is meant by ‘used in common’.

5.6.2. We have also noted a reluctance by housing authorities to act and an apparent misunderstanding of their powers which, for several years, were interpreted as only applying to houses in multiple occupation. There has also been a reluctance to use the HHSRS due to the view that all 29 hazards must be addressed rather than being able to act in a thematic way. This results in the HHSRS being considered cumbersome.

5.6.3. There should be much better collaboration between other regulators including housing, building control boards and the Health and Safety Executive.

5.6.4. In respect of the Housing Act there is a question about the appropriateness of local housing authorities being the enforcing authority for their own premises.

- The review could consider whether more formal arrangements should be established to ensure adequate enforcement takes place by housing authorities.
5.7. Facilities and access

5.7.1. As raised earlier in this submission, concerns have been raised about how to enforce access requirements for fire services to enable emergency response.

5.8. Enforcement in other sectors

5.8.1. Examples of enforcement regimes in other sectors that NFCC members have highlighted for consideration include the charging regime used in the Health and Safety Executive for follow-up inspections to incentivise first time compliance.

- The review may wish to consider:
  - Whether certain premises should have a single enforcement regime.
  - Additional notices that are under the legislation but are dependent on risk to relevant persons.
  - The appropriateness of a requirement for more intrusive risk assessments

6. Tenants’ and Residents’ Voice in the current system

Q6 Is there an effective means for tenants and other residents to raise concerns about the fire safety of their buildings and to receive feedback? Where might changes be required to ensure tenants'/residents' voices on fire safety can be heard in the future?

6.1. Tenants’ and Residents’ Voice in the current system

6.1.1. The need for residents to be able to raise concerns is not limited to fire safety, and the NFCC recognises that this is chiefly a matter for landlords, housing associations and local authority housing services.

6.1.2. Tenants' groups and associations can feed information through to fire protection and safety teams and fire and rescue services have processes for investigating alleged fire risks. For instance, the London Fire Brigade has fire safety teams who can be contacted by all members of the public. For queries without a perceived risk to life, officers will deal with fire queries via telephone or email, or book a visit by an inspecting officer. Where there is serious concern this normally takes place within three hours.

6.2. Record keeping

6.2.1. There is potential benefit in requiring housing providers to maintain records of complaints relating to fire safety, these could then be cross-referenced with complaints received by enforcing authorities.

6.3. Complaint processes

6.3.1. The review could consider whether it would be appropriate to require enforcing authorities to set service standards against responses to complaints, not only from residents but general fire safety complaints from members of the public relating to shops, places of work or leisure facilities.

6.4. Enforcement

6.4.1. We are aware that local enforcers either in fire or local housing authorities are encountering issues when doors are replaced. This typically involves fire doors being replaced with uPVC doors by private flat owners. Legal tests can then be required to determine responsibility.
Providing greater clarity around doors as raised earlier in this submission would help to resolve this.

6.5. Sprinklers

6.5.1. There is value in engaging with residents and tenants in respect of installing sprinklers. The case study that follows is of the first development of social housing to be fitted with sprinklers in the UK. The residents clearly had a voice and influenced the installation of sprinklers. Studley Green Experience.

### 7. Quality Assurance and Testing of Materials

**Q7** Does the way building components are safety checked, certified and marketed in relation to building regulations requirements need to change? In particular:

- Where is the system sufficiently robust and reliable in maximising fire safety and, if appropriate
- Where specifically do you think there are weaknesses/gaps? What changes would be necessary to address these and what would be the benefits of doing so?

7.1. Quality Assurance and Testing of Materials

7.1.1. Where certain products are marketed with claims of passing various fire tests there is often a lack of detail around the scope, applicability and limitations on the testing undertaken.

7.1.2. Some fire testing of products is now being used for items for which the tests were not designed, and are therefore arguably unsuitable. The submission from the London Fire Brigade contains further specific comments on fire testing, product compliance and performance disclosure, which the NFCC supports.

7.1.3. Concerns have been raised that different flammability tests across European and British requirements leads to confusion.

7.1.4. Some fire protection products are covered by a British Standard which requires labelling and certifying as having passed the appropriate fire test. However, many other products do not which is a significant inconsistency within the industry. A national or international register of tested and approved fire safety products would be of assistance.

7.1.5. External wall construction in Approved Document B (para 12.5) refers to BRE 135. The BCA guidance note 18 states that if no actual fire test data exists for a particular system, then a desktop study can be submitted from a suitably qualified fire specialist stating whether, in their opinion, BR135 criteria would be met with the proposed system. This relies heavily on the competence of the person undertaking the desktop study, and may lead to errors or a reduction in safety margins.

7.1.6. The definitions of materials of limited combustibility for insulation materials/products in buildings with a storey more than 18m high in Approved Document B (para 12.7 and Appendix A) is complicated and may need to be clarified. More comprehensive compliance checks with underpinning sound rationale and research would serve to ensure standards in this area.

7.2. Fake products

7.2.1. Fake products such as fire resisting glazing, fire doors and cladding materials are known to have been produced. To determine if a product is legitimate or not would usually require removing the product and subjecting it to expensive fire testing.
7.2.2. It is unclear if Trading Standards in most areas have the awareness, capacity and/or appetite to consider concerns such as those above.

7.3. White goods

7.3.1. It is important to consider the fuel loading in our homes and the affect this can have on the structure and its fire safety measures. Many of our ‘white goods’ are now made of plastic and insulated with polyurethane foam. Domestic refrigeration has been of particular concern, as it is normally on continuously, and many appliances have flammable plastic backs which in turn covers flammable polyurethane foam. There have been several deaths in London alone in recent years due to refrigeration fires and the fire at Grenfell Tower also started in a fridge freezer.

7.3.2. Research has shown that flame spread on a plastic back panel could be as fast as one centimetre per second and as the fire develops to involve the polyurethane foam, this rate of flame spread will increase (as seen at further tests carried out at the Building Research Establishment).

7.3.3. On the basis of the research, it has been calculated that if just the back-insulation panel of a typical refrigeration appliance was consumed by fire, it could produce heat at a rate of some 320 kW. This is the same rate of heat produced by 320 one bar electric fires all switched on together. (Please note: this figure is based on the back panel only. In reality, the fire will develop to involve the insulation which covers every side of the food compartments.)

7.3.4. The NFCC support the London Fire Brigade’s Total Recall campaign which is calling for our white goods to be made safer.

7.4. Home energy generation

7.4.1. A further area for consideration, is around home energy generation and storage. Roof structures which may be fitted with solar arrays should incorporate an adequate level of protection from fire. A large fire in Erith last year, which started in the solar panel array on the roof of a six-storey block, resulted in fire spread throughout the building and all residents needing to be rehoused.

7.4.2. The expected major increase in home energy storage solutions, which could involve technologies such as banks of lithium-ion batteries, which can fail violently, should also be considered as a potential future risk.

7.5. Installation

7.5.1. Standards need to be fit for purpose with guidance which directly relates to how a product will be installed or used and have clear testing criteria on the products in their intended configuration.

7.5.2. During refurbishment or construction, it is the responsibility of the building control body to ensure that the measures required are installed to the appropriate standard. As discussed earlier the inspection schedule is for them to decide upon.

7.5.3. However, workmanship relating to the installation and fitting of materials and components needs to be to a professional standard. This relates back to comments on the competencies of contractors raised under Q4. To meet requirements, products must be installed in the correct manner, following the manufacturers specifications, with the correct fittings and other products that are compatible which can often rely on the knowledge of practitioners.
8. Differentiation within the current Regulatory System

Q8 What would be the advantages/disadvantages of creating a greater degree of differentiation in the regulatory system between high-rise multi occupancy residential buildings and other less complex types of residential/non-residential buildings?

Where specifically do you think further differentiation might assist in ensuring adequate fire safety and what would be the benefits of such changes?

4 For example in terms of higher competency requirements, pro-activity/frequency of safety sign-off

8.1. Building regulations

8.1.1. In terms of the building regulations we do not see a benefit or need in providing a differentiation between high rise residential buildings and other types of residential or non-residential buildings. The functional nature of the building regulations provides a suitable framework on which the designs should be developed for any type of building and if done correctly should afford the right level of safety.

8.1.2. Purpose-built blocks of flats can be a relatively straightforward design dependent on the approach yet a lower rise, multi-purpose group building could pose more complex considerations in terms of the fire safety design.

8.1.3. We do feel that more guidance on ‘super high-rise’ buildings (including residential) should be considered as Approved Document B Volume 2 provides little guidance for buildings over 30m in height. While Approved Document B refers in its introduction to being applicable to ‘more common building situations’ however what is common has significantly changed in the past ten years. We would therefore recommend that the scope of Approved Document B is considered and limitations on its use are clarified.

8.2. Regulatory Reform (Fire Safety) Order

8.2.1. There are other types of premises that also require a greater scrutiny in addition to high-rise multi-occupancy residential buildings. These include premises that have some of society’s most vulnerable people, e.g. hospitals, residential care homes, specialised housing, hostels and houses in multiple occupation. There is an opportunity to create a stronger emphasis on protecting the most vulnerable by ensuring those who are responsible for any life safety elements of these types of premises are suitably qualified and registered.

8.2.2. The disadvantage would be the extra compliance costs on businesses, the NHS, charities and social services.

8.2.3. A potential solution would be for all those engaging in preventive and protection life safety measures in the high-risk premises to demonstrate competence through qualification and/or registration. There could also be an annual sign-off for these buildings to demonstrate compliance; however, it would have to be determined who would undertake this role as we are not advocating a return to fire certificates.

8.3. Competencies, inspection regimes, other

8.3.1. NFCC members raised a range of suggestions for other parts of the system where greater differentiation may be worth considering. These include consideration of:
• Differing levels of required competence from practitioners in the building sector, depending on the complexity of the building
• Greater scrutiny (such as independent third-party peer reviews) where designs are of higher complexity or depart from guidance
• Differing levels of required competence for building control bodies and/or approved inspectors, depending on the complexity of the building
• Designated ‘high risk’ buildings attracting more frequent inspection or audit

9. International Comparisons and Other Sectors

Q9 What examples exist from outside England of good practice in regulatory systems that aim to ensure fire safety in similar buildings? What aspects should be specifically considered and why?

9.1. International Comparisons and Other Sectors

9.1.1. We are aware that Northern Ireland through their Care Quality Commission only allows those who are on a fire risk assessor’s registration scheme to carry out a fire risk assessment in a care home. Such an approach goes a long way towards appropriate competence and may be worth considering for higher risk occupancies.

9.1.2. American standards use prescriptive codes which can be inflexible, however they have been adopted in several countries.

9.1.3. Some countries (e.g. Australia and New Zealand) require the design of a building to be agreed and approved with regulatory bodies at an early design stage. This type of approach may alleviate many of our concerns relating to the timing of the consultation/approvals process.

9.1.4. Some countries such as New Zealand require the evacuation strategy to be formally agreed with the fire service as a regulatory requirement. A change such as this removes the self-regulation for fire safety (which is similar to other health and safety requirements) and places additional workload on fire and rescue services, however it does place a greater emphasis on persons to have an appropriate strategy in place, and one which is externally verified.

9.1.5. Some countries also have defined points in a build which have a formal site inspection requirement such as the completion of the foundations or the roof. Under these regimes it is common that works cannot progress without the formal site inspection.

9.1.6. In Europe, there are three basic types of plan approval and site inspection regimes:

• Public authorities are responsible for plans approval and site inspections (e.g. Ireland and the Netherlands). This is what used to be in place in England;
• Public and private authorities share responsibilities: usually one for plans and one for site inspections; and
• The applicant can choose to have plans approval and site inspections conducted by either a public or private authority (as is the case in England).

9.1.7. Whilst there are benefits and drawbacks to each of the three regimes, there might be changes to the current financially competitive process between those who can deliver these services. As described above, that financially competitive process inevitably leads to a reduction in services (e.g. frequency of site visits) to cut costs and therefore gain business.
9.1.8. In 2014 the Republic of Ireland increased the levels of accountability for professionals signing off on new buildings by introducing a mandatory requirement for certification of buildings by "Assigned Certifiers". An Assigned Certifier must be an Architect, Surveyor or Engineer registered with the appropriate professional bodies. They, in conjunction with the builder, will certify that a finished building complies with the requirements of the Regulations. Prior to this the industry operated a system of “self-certification” which served only to ensure substantial compliance, as opposed to certifying that all building standards were fully adhered to.

9.2. Development of the regime in New Zealand

9.2.1. Following a shift to a more self-regulated regime in New Zealand during the 1990s, significant issues emerged relating to the use of cladding systems. These contributed to what is now known in New Zealand as the ‘leaky homes crisis’. In 2010 the Government announced a financial assistance package to help homeowners who were affected. The Minister for Construction at the time described the scale of the problem as ‘equivalent to a natural disaster’, with the cost of the problem estimated at over $11 billion NZD.

9.2.2. There have been significant amendments to the Building Act in New Zealand including the introduction of a licensing scheme for building designers, builders and related trades. From March 2012, building practitioners must be licensed to carry out or supervise work on homes and small-medium sized apartment buildings that is critical to the integrity of the building.

9.2.3. This ‘restricted building work’ includes the design and construction of foundations, framing, roofing and cladding. It also applies to the design of active fire safety systems in small-medium sized apartment buildings.

9.2.4. A history of changes to the New Zealand regime may be of interest to the review, and can be found here.

9.2.5. Following fires in Melbourne and Dubai, the New Zealand Government amended Building Code provisions in January 2017 to restrict the use of combustible cladding systems in buildings. Further proposals for tightening the fire safety requirements for high-rise buildings are also being considered. The intention of these would be to clarify the responsibilities between structural and fire engineers, tighten the verification methods for claddings and firefighting provisions such as water supply and location of fire hydrants in the building and improve the process for the development of alternative solutions.

9.3. Sprinklers

9.3.1. There is a lot of research of the effectiveness on sprinklers and the NFCC fully support the use of Automated Water Suppression Systems in the appropriate circumstances.

9.3.2. Sprinkler requirements in overseas countries were examples frequently raised by our members, with the thresholds in guidance now double or more than those in neighbouring countries (such as Scotland and Wales).

9.3.3. Wales have required all new dwellings to be fitted with sprinklers since 2016. All schools must also be fitted with sprinklers where grant funding is being provided for new buildings or refurbishments. In Scotland sprinklers are required in high-rise buildings over 18m, all new care homes, sheltered accommodation and schools. Norway has required sprinklers in new flats since 2010.

9.3.4. The requirements, within legislation and guidance, which relate to sprinklers and firefighting facilities are perceived to be well known at the building regulations stage. This is based on the designs which are created which sit just below height thresholds or under space/volumetric
thresholds. Buildings have been designed to be as large or as tall as possible without incurring the additional features covered with the guidance.

9.4. Sprinklers – Research

9.4.1. In the *Optimal Economics* and NFCC analysis of 945 fires where sprinklers activated in the UK in the last five years, there was not a single death reported. It was found that sprinklers are 99% effective in extinguishing or controlling a fire. It was found that sprinklers have an operational reliability of 94%.

9.4.2. In dwellings, the fire damage is typically less than 4m$^2$ when a sprinkler system is present as opposed to 18-21m$^2$ where a sprinkler system isn’t present. In other types of buildings where a sprinkler system is present the fire damage is half that of where a sprinkler system isn’t.

9.4.3. The recent discussion over removing a recommendation for sprinklers from the foreword of BB100 was viewed by NFCC and others as a negative step. The positives of sprinkler inclusion are proven and supported by research. This is not limited to high-rise buildings or higher risk premises but also to public and community buildings.

9.4.4. The Fire Protection Research Foundation study; *Fire Hazards of Exterior Wall Assemblies Containing Combustible Component*, White and Delichatsios June 2014 analysed data from USA, Australia, New Zealand and Nordic countries. The report made this statement in relation to the presence of sprinklers in buildings that experienced external fire spread.

9.4.5. ‘U.S. data on injuries and deaths from more than 5,000 exterior fires shows that no deaths have taken place in other than residential properties. In the U.S these are the properties least likely to be sprinklered, and most can be expected to have been single family dwellings with combustible exterior walls.’

9.4.6. ‘It is concluded that sprinkler systems are likely to have an effect on the risk of interior fires spreading to the external wall to become exterior wall fires.’

9.4.7. This (the data) indicates that whilst sprinklers may have some positive influence, a significant portion of external wall fires still occur in sprinkler protected buildings, which may be due to both external fire sources or failure of sprinklers. On this basis, it is recommended that controls on flammability of exterior wall assemblies should be the same for sprinkler protected and non-sprinkler protected buildings.

9.4.8. This research clearly indicates that fire suppression has a part to play in the overall fire strategy in buildings which feature external materials which may have a degree of combustibility.

9.5. Sprinklers – European Standards

9.5.1. In terms of sprinkler provision and regulation, we are lagging behind parts of Europe. In the following examples each of these countries has more stringent requirements for sprinklers than England.

9.5.2. *Warehousing*: Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Netherlands, Slovak Republic, Spain, Sweden and Turkey.

9.5.3. All of these nations require sprinklers in warehouses of much lower volume or surface area than England.

9.5.4. *Hospitals*: Austria, Belgium, Denmark, Greece, Hungary, Italy, Norway, Slovak Republic and Sweden.
9.5.5. All of these nations require sprinklers in hospitals, either as a matter of course or based on the number of beds or building size. In the UK, sprinklers only have to be a consideration and as a result are rarely featured.

9.5.6. Care homes: Denmark, Finland, Greece, Hungary, Italy, Norway, Slovak Republic, Sweden, Wales and Scotland.

9.5.7. All of these nations require sprinklers in care homes as a matter of course or based on the number of beds or building size. There is no requirement in England to fit Care Homes with sprinklers.

9.5.8. Many other European nations feature sprinklers in their standards where England does not. They often also allow relaxations in other areas such as fire resistance and means of escape as compensatory features for their inclusion. These are usually highly cost effective and attractive to designers.

9.6. Sprinklers - Height thresholds

9.6.1. The NFCC was pleased that the previous revision of Approved Document B required the fitting of sprinklers in high-rise buildings over 30m in height. However, the classification of buildings into purpose groups leaves inconsistencies when it comes to sprinkler provision. Purpose groups “1b Institutional” and “1c Other residential” do not need to be fitted with sprinklers. Purpose group “1b Institutional” has been interpreted by designers to include student accommodation and therefore not included sprinklers, even though students are statistically at greater risk from fire. Furthermore, purpose group “1c Other residential” captures hotels. Hotel occupants are sleeping in an unfamiliar environment, which is exacerbated by being in a high-rise and therefore should have sprinkler protection.

9.6.2. The NFCC do believe that the threshold of 30m is far too high and illogical. Standard fire and rescue service rescue ladders typically reach up to 13.5 metres. Data published in the English Housing Survey shows that households in flats were more likely to experience a fire than those living in a house. The BRE research made the business case for fitting sprinklers in all blocks of flats. A review of building regulations should either consider this to become a mandatory requirement, or set a height limit far below 30m. We would recommend a premise with three storeys or, a top floor above 4.5m, where people will be asleep, be sprinklered.

9.6.3. The retrofitting of blocks of flats has been found to be cost beneficial. The building regulations should clarify what constitutes a refurbishment that would require a retrofitting of sprinklers. This is best evidenced in the Callow Mount project where a tower block in Sheffield was effectively retrofitted with sprinklers.

9.7. Sprinklers - Size thresholds

9.7.1. The NFCC has campaigned that the current size limit before sprinklers are fitted is too high. Currently, sprinklers are only required in warehouses over 20,000m². Warehouse fires are significant events that have a disruptive impact on local communities, impact on future employment and cause damage to the environment. Fire fighting in warehouses is also extremely dangerous for firefighters; research by Manchester Fire and Rescue Service and the Fire Brigades Union shows that firefighters could be exposed to building collapse should they attempt to enter and search or fight fire in a very large compartment during a fire. For warehouses, the safe limit is currently considered to be c4,000m².

9.7.2. The BRE found an economic and environmental case for fitting sprinklers in new warehouses larger than 2,000 – 5,000m². The Centre for Economic and Business Research showed that HM Treasury would gain if sprinklers were fitted in these warehouses. The current provision
for sprinkler provision for buildings with large compartments such as warehouses, and other industrial uses, is not safe, nor economically prudent.


9.8.1. Fires in high-rise buildings across the globe have highlighted the need for sprinklers to protect balconies. Fire can often start on balconies or exacerbate vertical fire spread on the outside of a high-rise building. As such, sprinkler codes and regulations now feature such requirements. Any revision to building regulations should feature this requirement.

9.8.2. Examples as below:

9.8.3. *Fire and Facades, Dean Feb 2017, FSAI Journal special edition* ‘Internally it is common to have active fire protection systems - smoke or heat detection and fire suppression, including sprinkler systems. These systems can and should also be installed on balconies, but this is rarely done.’

9.8.4. This makes sense given the reports dealing with fires on balconies caused by barbecues and careless disposal of smoking materials. Buckinghamshire Fire & Rescue Service, for example, recently experienced a small fire in cladding insulation as a direct result of careless disposal of materials external to the building.

9.8.5. The Lacrosse building fire in Melbourne Australia on 25 November 2014 was attributed to a cigarette on the 8th floor balcony spreading up the ACP cladding. The Melbourne Fire Brigade Investigation stated that ‘The sprinkler system operated well above its designed capability and minimised the impact on a number of apartments when the fire spread from the balcony to the inside of the apartment’. The report recommended sprinkler cover on all balconies.

9.8.6. The sprinkler systems in ‘The Address Downtown Dubai Hotel’ were reported to have run out of water 15 minutes into the fire on New Year’s Eve 2015, due to the extent of the blaze, which was beyond the capacity of regular sprinkler systems to cope with a major fire across more than 40 floors, but had restricted the fire development to the point where a full evacuation had been able to be achieved and with no fatalities.

9.8.7. Matt Bright of the Dubai Civil Defence Operations and Fire Investigation team said, when detailing the unique challenges faced by the firefighters ‘The sprinkler systems worked as they were designed to do but this was an extraordinary fire. The water in that system drained quite quickly because of how many sprinklers were operating.’

9.8.8. Experts made recommendations to Dubai Civil Defence such as adding extended sprinkler lines to an updated fire safety code. These could help suppress fires caused by barbecues and shisha on balconies.

9.8.9. Such fires in buildings have led to revisions to sprinkler codes and balcony coverage:

- **Dubai:** Sprinklers are required to cover balconies due to referencing the NFPA 13 code in the Dubai Code.
- **New Zealand:** Sprinkler standard NZS4541 requires sprinklers over balconies wider than 1.5m. Under that, no sprinklers are required (following the Lacrosse fire this is under review).
- **Norway:** Sprinklers have been required in all flats since 2010. They require sprinklers on balconies.
- **Australia:** Melbourne mandated sprinklers over all balconies as a result of the Lacrosse fire.
9.9. Sprinklers - Scottsdale Arizona

9.9.1. In Scottsdale, Arizona, a sprinkler ordinance was implemented on January 1, 1986. Ten years after the ordinance was passed, the Rural/Metro Fire Department published the Scottsdale Report. The study has now been updated to include five additional years of data. More than 50% of the homes in Scottsdale (41,408 homes) are protected with fire sprinkler systems.

9.9.2. In the 15 years there were 598 home fires. Of the 598 home fires, 49 were in single-family homes with fire sprinkler systems:

- There were no deaths in sprinklered homes;
- 13 people died in homes without sprinklers; and
- The lives of 13 people who would have likely died without sprinklers, were saved.

9.9.3. There was less damage in the homes with sprinklers:

- Average fire loss per sprinklered incident: $2,166.
- Average fire loss per unsprinklered incident: $45,019.
- Annual fire losses in Scottsdale (2000-2001) were $3,021,225 compared to the national average of $9,144,442.

9.9.4. There was also reduced water damage. Only the sprinkler closest to the fire will activate, spraying water directly on the fire. Ninety per cent of fires are contained by the operation of just one sprinkler. According to the Scottsdale Report, there was less water damage in the homes with sprinklers:

- Sprinkler systems discharged an average of 341 gallons of water per fire.
- 2,935 gallons of water per fire were released by firefighter hoses.

9.9.5. Recent technology breakthroughs make sprinklers more affordable and easier to install in homes. On a national average in the US, they add only $1.35 per fire sprinklered square foot. These facts have been echoed in case studies and reports in the UK. The latest report commissioned by the NFCC and National Fire Sprinkler Network can be found here.

10. International Comparisons and Other Sectors

Q10 What examples of good practice from regulatory regimes in other industries/sectors that are dependent on high quality safety environments are there that we could learn from? What key lessons are there for enhancing fire safety?

10.1. International Comparisons and Other Sectors

10.1.1. The Health & Safety at Work Act has been the pillar of health and safety legislation for over 40 years, however in that time subordinate legislation has been introduced to make risk critical stages clearer (e.g. working at height or confined spaces).

10.1.2. In the same way Article 24 of the Fire Safety Order gives the Secretary of State powers to introduce such regulations. This has already been used for the introduction of sub surface regulations which are around a special class of premises. Subordinate legislation could therefore be introduced but only within the confines of the original Order. That subordinate legislation could not change the extent the Order could be applied – for example it cannot change this FSO to include the inside of a flat. However clarification might be provided in
respect of matters such as the application for compartmentation between flats and the external façade of a residential building.

10.1.3. National agencies such as Food Standards Agency and HSE sit above local authority enforcers, and may be a model worth consideration to ascertain if something similar would be appropriate for fire safety enforcement.

10.1.4. Other models recommended for comparison include the HSE model with respect to fees for intervention and the sentencing guidelines used for their offences. [http://www.hse.gov.uk/fee-for-intervention/what-is-ffi.htm](http://www.hse.gov.uk/fee-for-intervention/what-is-ffi.htm).

10.1.5. This could be triggered by formal notices under the FSO. Fees for intervention provide a sanction that can influence low level or repeated non-compliance. Small penalties on large organisations would not send the correct message to others in the same sector; available finances and organisation size would need to be considered in such a framework.