

Independent Review: Building Regulations and Fire Safety Submission by GMCA-Fire

This submission has been produced by Greater Manchester Fire & Rescue Service on behalf of the Greater Manchester Combined Authority and the Greater Manchester Mayor.

The principles in this submission have also been agreed by the Greater Manchester High Rise Task Force.

The High Rise Task Force was established by Greater Manchester Mayor Andy Burnham, in response to the Grenfell Tower fire. Led by Salford City-Mayor Paul Dennett, the Task Force has brought together Greater Manchester Fire & Rescue Service (GMFRS), local authorities, landlords, building control, universities and other specialists to provide fire safety assurance to people living in high rises across Greater Manchester.

GMFRS has been working with the Task Force to ensure all high-rise buildings comply with fire safety regulations and residents feel safe in their homes. In three months fire inspectors, firefighters and officers inspected more than 500 high rise blocks. Residents have also been offered a *Safe and Well* visit to talk about health and wellbeing; crime prevention; and fire safety.

Summary of Recommendations

1. The planning process needs to be changed, giving fire and rescue services statutory consultee status for certain development types.
2. Modern risks regarding building construction and demographic changes are not effectively mitigated by the provisions of the regulatory guidance. A review of ADB needs to be undertaken in the context of these risks and new guidance produced which demonstrates how these risks will be mitigated

3. Document ADB should be more precise and more prescriptive. This would reduce ambiguity and the risk of fire safety standards being compromised through lack of understanding or in the interests of economic advantage.
4. Document ADB should be split into three separate volumes – dwellings, flats, other purpose groups.
5. The language of ADB should be simplified and standardised and there should be an agreed level of competency for the wide range of people expected to apply it. Further advice should be provided on how to use the document; who should use it; and what level of qualifications / knowledge is required by those using it.
6. The statutory consultation process needs updating to reflect the complexity of modern developments and the consultation period for fire and rescue services extended beyond 15 days for large scale and complex developments.
7. The regulatory regime needs to be changed to ensure that a minimum standard of firefighter safety is required within building design.
8. The building regulations should consider and promote the fire resilience of a building.
9. The requirements of Regulation 38 should be extended to recognise the multiple parties who may be involved in a building at completion stage. Key individuals at each stage in the process should have a responsibility for sign-off, requiring the completion and handover of standardised fire safety information specific to the building. This should be in a prescribed format and endorsed by these key individuals.
10. Fire critical information-sharing between all agreed key parties needs to be placed on a statutory footing and properly enforced.
11. There should be regulations introduced under the Fire Safety Order requiring the transfer of prescribed fire safety information at the point that ownership or management of a building changes.
12. There should be regulations introduced under the Fire Safety Order requiring the identity of the all responsible person/s to be displayed in the common parts of complex properties (including high-rise blocks of flats) and the extent of their responsibilities.
13. A quality assurance framework should be put in place to ensure that the relevant regulations and legislative frameworks are followed in relation to fire safety design within a building.
14. There needs to be a major review into the competency of professional parties who are considered 'responsible persons' under the Fire Safety Order and the introduction of mandatory registration and a complaints procedure.

15. Competency frameworks and inter-regulatory working practices require statutory guidance to define the necessary levels of competency for key roles and to ensure standards are maintained throughout the life cycle of a building. At the very least those involved in providing risk critical services should be subject to industry registration and regulation by recognised accrediting bodies.
 16. The relationship between the Fire Safety Order and other pieces of legislation and the responsibilities of different regulators needs to be more clearly defined and guidance produced.
 17. The guidance for fire safety in flats should be revised and produced as HM Government Guide for Purpose Built Blocks of Flats to address the different types of ownership and the responsibilities of various parties; to provide clarity in relation to the common parts; and to clearly set out enforcement expectations
 18. The limitation period for prosecutions under the Building Act should be removed to bring offences under the Building Act in line with those under the Fire Safety Order and the Health and Safety at Work Act. The penalties should be increased to match sentences available to the courts in health and safety matters.
 19. The use of desktop studies should be removed as an option from the current Building Control Alliance guidance. The use of desktop studies should be reviewed and if still considered fit for purpose incorporated within the Approved Documents and subject to publication.
 20. The testing regime needs a complete review to ensure it mitigates all the real-world factors that will affect the development of a fire throughout the life cycle of a building.
 21. The use of flammable materials in cladding systems should be banned.
 22. The fitting of sprinklers should be made compulsory in all new residential buildings including care homes and student accommodation.
 23. Detailed consideration and a feasibility study should be undertaken into the benefits of the building regulations being amended to require the fitting of sprinklers in existing high-rise buildings (and other higher risk residential premises) which undergo major refurbishments.
 24. Building regulations and fire safety guidance should be regularly reviewed and evaluated within prescribed legislative timeframes. Fire and rescue services should be involved closely in this process.
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Question Responses

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?*

There is no reliable mechanism for determining the extent to which the various regulatory regimes and guidance are clearly understood by those who need to follow them. In relation to the building regulations, this could only be established by proper evaluation of the number of initial rejections approvals and some mechanism for monitoring the outcome of inspections during the works. However, based on anecdotal evidence and Greater Manchester Fire and Rescue Service (GMFRS) experience as an enforcing authority there are some obvious deficiencies within the existing regime.

The fire and rescue service is not a statutory consultee at the Planning stage. So, for instance, the necessary water pressure required for firefighters to extinguish a fire quickly and effectively is not always implemented. A lack of sufficient water pressure was noted by firefighters at Grenfell Tower, drastically reducing their ability to extinguish the fire. A recent commercial development in Greater Manchester built its water supply for toilets and tap water only. Pipes are not big enough to allow adequate water supplies for firefighting. This would prevent a firefighter going in to a fire resulting in higher potential for loss of life and increased damage to the building. Fire's involvement at the Planning stage is also vital in terms of firefighter access. This includes road layout to allow fire engines to get to a building; and layout and parking at the building to allow a fire engine to get close enough to pump water onto it. **The planning process needs to be changed, giving fire and rescue services statutory consultee status for certain development types.**

The building regulations are supported by a number of different documents including [Approved Document B, Fire Safety \(ADB\)](#). ADB is difficult to use and understand for the wide range of people and bodies engaged in the construction, maintenance, management, inspection and refurbishment of buildings. Use of ADB requires a high level of knowledge and understanding and yet there are no defined competencies for its use.

Sections of ADB are easy to misinterpret and lack the necessary precision or prescriptiveness for the document to be fit for purpose. ADB states functional requirements and provides solutions, but does not require those solutions to be adopted:

“The Approved Documents are intended to provide guidance for some of the more common building situations. However, there may well be alternative ways of achieving compliance with the requirements. Thus there is no obligation to adopt any particular solution contained in the Approved Document if you prefer to meet the relevant requirement some other way.” *Approved Document B, Fire Safety*

GMFRS concurs with [the 2013 Coroner’s Report](#) following the Lakanal House fire which stated that,

“ADB is a most difficult document to use. Further it is necessary to refer to additional documents in order to find an answer to relatively straightforward questions concerning the fire protection properties of materials to be incorporated into the fabric of a building.”

GMFRS also concurs with the Coroner’s recommendations that the Department for Communities and Local Government reviews ADB to ensure that it:

- Provides clear guidance to Reg. B4 with particular regard to fire spread over external envelope of building and the circumstances to which proposed work might reduce existing fire protection
- Is expressed in words and adopts a format which are intelligible to the wide range of people and bodies engaged in construction, maintenance and refurbishment of buildings
- Provides guidance to assist those involved in maintenance and refurb of older properties, not just those engaged in new builds

A [recent survey by the Fire Sector Federation](#) found that 92% of its members indicate a need to make changes to the building regulations and ADB, whilst 100% of its members agreed the need to address inconsistencies in building definitions.

Document ADB should be more precise and more prescriptive. This would reduce ambiguity and the risk of fire safety standards being compromised through lack of understanding or in the interests of economic advantage.

The language of ADB should be simplified and standardised and there should be an agreed level of competency for the wide range of people expected to apply it. Further advice should be provided on how to use the document; who should use it; and what level of qualifications / knowledge is required by those using it.

Much of ADB has been developed from post-war building studies and it is widely acknowledged that some of the lengths and distances quoted in it can no longer be considered to have any sound basis or evidence. For instance the 18m height threshold at which fire safety measures have to be more stringent is almost certainly redundant today. It should be 11m. The 18m measurement is based on the reach of the old wheeled firefighters' ladder which could reach 18.3m. These ladders were at one time carried on fire-fighting vehicles and allowed external rescue. This type of ladder is no longer used. Today portable ladders normally have a maximum reach of about 13m, sufficient for rescue if the storey height does not exceed 11m.

It has also been over 10 years since ADB has been reviewed. ADB is arguably therefore out-of-date and fails to reflect the radical changes in architectural design; urban growth and the pressure to build homes quickly; building technologies; and supply chain practices. It fails to acknowledge recent socio-economic changes in relation to demographics, higher occupancy rates and an increasing mixed-use of buildings. ADB also fails to acknowledge the reduction in firefighter numbers and the increasing difficulty fire and rescue services are finding to safely resource large scale-incidents. The inability to mobilise an adequate number of firefighters is likely to bring a more defensive approach to fires, with fewer firefighters being able to enter buildings that are alight. This poses an increased risk to life safety and building damage. **Modern risks regarding building construction and demographic changes are not effectively mitigated by the provisions of the regulatory guidance. A review of ADB needs to be undertaken in the context of these risks and new guidance produced which demonstrates how these risks will be mitigated.**

The statutory consultation process needs updating to reflect the complexity of modern developments and the consultation period for fire and rescue services extended beyond 15 days for large scale and complex developments.

In relation to the Regulatory Reform (Fire Safety) Order 2005 (FSO) it is not possible to effectively establish how well the legislation is understood given the wide scope of the Order across a range of sectors. Nationally only approximately 5% of regulated premises are subject to audits by Fire and Rescue Authorities and of these over 30% are 'unsatisfactory' which suggests that either the requirements of the FSO are not understood and/or there is a significant problem with compliance.

The extent to which there is a proper understanding of legislation and guidance and any proposed solutions will require detailed analysis on a sector by sector basis. There will clearly be significant differences based on not only the industry but also the size and complexity of premises.

In respect of smaller developments, the most significant problems from a fire safety perspective arise not from a failure to adhere to specific provisions of the building regulations but rather a failure to carry out work in accordance with the process and no approval is sought.

In larger scale developments in our experience problems arise where individual elements of work have not been carried out in accordance with the Building regulations and these are often not immediately obvious on completion. Adherence to the building regulations is reliant on the quality of work being assured by Building Control Inspectors and the number of visits can vary significantly.

The building regulations apply to new developments and material alterations, however there is a lack of common understanding of what may constitute a material alteration and therefore work can be carried out which affects the physical fire precautions in a building without the necessary building control processes being followed.

There is significant confusion in relation to purpose built blocks of flats which is primarily caused by the guidance that is available and the perceived overlap of the provisions of the building regulations, FSO and the Housing Act 2004 (HA2004).

The FSO applies to the common parts of flats and HMOs but the extent of this is not made clear in guidance. In relation to the FSO there are a range of Government Guides (which have not been reviewed or updated in 10 years) of which the 'Sleeping Guide is the most appropriate and the Fire Safety in Purpose Built Blocks of Flats Guide (PPBFG) which was produced by the LGA. Although the guide was supported by DCLG is not given the same credence on the Government's websites – being referred to as 'advice' rather than a guide. It is arguable that despite being intended to cover all forms of purpose built flats, the PPBFG is less accessible and may appear less relevant to those concerned in property management in the private sector.

It is primarily from the PPBFG that confusion arises over the interrelationship between the FSO and the HA2004. This guide repeatedly talks about the FSO only applying to the common parts of a building but does not adequately define this. In our view 'common parts' are adequately described in the Health and Safety (Enforcing Authority) Regulations 1998 as "those parts of premises used in common by, or for providing common services to or common facilities for, the occupiers of the premises". It is our view that in a purpose built block of flats 'common parts' includes any part of the structure, facilities or services which

serves more than one flat and / or the freeholder retains some control over. Thus 'common parts will include the communal areas, any services which run through the building, the structural walls (including those within flats) and the front door to a flat. The powers of inspectors under the FSO allow access to any premises at any reasonable time in order to ascertain whether the provisions of the FSO apply and are being complied with. Therefore inspections under the FSO within a flat are in our view possible in order to determine whether or not there are breaches in compartmentation, however the PBBFG contradicts this and states that the FSO does not apply beyond the front door of a flat and there is no power of inspection. Clearly the purpose of inspecting areas within a flat would be restricted to elements of the structure that could affect occupiers elsewhere in the building and it is not suggested that the scope of the FSO extends to the risk of fire within the flat for the occupier of that flat – that would be a matter addressed under the Government Guidance on the Housing Health and Safety Rating System (HHSRS).

Further the PBBFG states that the HA2004 applies to both the common parts and the individual flats, yet this contradicts the Government Guidance for the HHSRS which pays scant attention to purpose built blocks of flats. In the HHSRS Guidance for Landlords and Property Professionals at p13 flats are included under the heading of Houses of Multiple Occupation (HMOs) as follows "HMOs – buildings which contain a number of flats or similar dwellings.....The HHSRS is applied to any form of dwelling whether it is self-contained or not, in a large building or not. The local authority officer only has to examine the dwelling and the parts and areas, shared or not, which form part of that dwelling." This suggests that the focus of Environmental Health Officers enforcing the HHSRS is on individual dwellings rather than the common parts except in so far as they affect the occupier of the dwelling.

There is no specific mention of high rise premises in relation to 'Fire' as a hazard and there are no worked examples readily available to assess the extent of the hazard in a purpose built block of flats. It is hard to see how on the basis that to score a hazard consideration must be given to the likelihood of a fire occurring, the HHSRS would be appropriate for considering the risks arising from a fire affecting all of the occupiers of a block of flats. Therefore in our view it cannot be clearly established that it was ever the case that the HA2004 was ever intended to be the primary legislative mechanism for enforcing fire safety in the common parts of blocks of flats. The PBBFG refers to the protocol contained within the LACORS Guidance on Fire Safety in HMOs in relation to 'purpose built flats', however this protocol defines 'self-contained flats' as those which have been converted and does not explicitly consider high rise properties. It also fails to recognise that the Local Authority cannot enforce against itself and therefore where social housing remains in the ownership of the Local Authority there is no mechanism for enforcement outside of the FSO.

Further confusion also arises from the artificial distinction made in the PBBFG between social housing and privately owned blocks of flats in relation to the ‘types’ of fire risk assessment which can be carried out. In our view the FSO extends to the common parts of the building including services and structural walls which may be found within an individual flat and it is irrelevant in that respect whether the flat is rented and under the control of the Freeholder or owned on a Leasehold basis.

The guidance for fire safety in flats should be revised and produced as HM Government Guide for Purpose Built Blocks of Flats to address the different types of ownership and the responsibilities of various parties; to provide clarity in relation to the common parts; and to clearly set out enforcement expectations

A particular problem in relation to high rise (and other forms of) blocks of flats is that the extent of responsibilities for the building cannot easily be established and may change on a regular basis. Although the FSO makes adequate provisions for establishing legal responsibilities, in practice the arrangements vary from premises to premises, are not always immediately apparent and may require detailed consideration of both lease agreements and contractual management arrangements between different parties. This is not adequately reflected in guidance and creates practical difficulties for occupiers wishing to raise concerns and for enforcing authorities.

In relation to social housing this will generally be relatively straightforward, however in relation to private blocks the complex nature of leasehold ownership means that there may be a number of responsible persons. **There should be regulations introduced under the Fire Safety Order requiring the identity of the all responsible person/s to be displayed in the common parts of complex properties (including high-rise blocks of flats) and the extent of their responsibilities.**

The safety of Firefighters attending an emergency incident is not considered by the Building regulations and they are not relevant persons under the FSO. The Building Regulations “shall not require anything to be done except for the purpose of securing reasonable standards of health and safety for persons in or about buildings”. This effectively means that large, low-rise buildings can be built which are a high fire risk as long as there is a reasonable expectation that the occupants will get out before the building collapses. Similarly the FSO is generally concerned with the safe and efficient evacuation of occupants in the event of a fire. Fires in such buildings therefore pose an unacceptably high level of risk to firefighters should they enter. **The regulatory regime need to be changed to ensure that a minimum standard of firefighter safety is required within building design.**

Similarly, the sole focus on the “health and safety for persons in or about buildings” does not consider the importance of the building itself on local infrastructure, on the maintenance of business continuity, or the environmental impact of a building fire and its extinguishing. This environmental impact includes carbon emission, air pollution, water use, and polluted water run-off. **The building regulations should consider and promote the fire resilience of a building.**

Life safety considerations are often interpreted only in terms of provisions for escape. Both the Lakanal House and Grenfell Tower fires demonstrated that escape is not always possible. This is further complicated by the implementation of a “Stay Put” policy in high-rise blocks. This policy is predicated on the assumption that construction methods will contain a fire within a single flat for an hour before it spreads, giving the fire and rescue service time to extinguish it. Again, in the case of Lakanal and Grenfell this was not the case as the fires spread rapidly up the exterior of the building and into residents’ flats.

Concentrating on fire resilience rather than just provisions for escape requires reviewing certain details of the regulations such as the exact definition and use of non-combustible materials and when the installation of sprinklers becomes statutory. (GMFRS is recommending the fitting of sprinklers be made compulsory in all new domestic buildings including care homes and student accommodation. This is discussed in more detail in Section 9).

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?*

[THIS SUBMISSION HAS COMBINED QUESTIONS 2 AND 3 INTO A SINGLE ANSWER]

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?*

The current system for ensuring the fire safety of a building throughout its life cycle (from design, building specification, purchase, supply, construction to handover and maintenance) does not assign and maintain clear responsibilities for assuring and approving critical fire safety decisions. At the same time, there is no single individual held responsible for building “sign off” and handover. These factors have led to ambiguities and risks in the following areas:

- Specification and material selection frequently mutates along the chain to such a degree that the finished construction and ongoing maintenance of a building does not fully reflect the original level of intended performance. These changes are not always properly recorded, authorised and signed-off to demonstrate why they were made and how they will affect the performance of the building through its entire life cycle.
- The individual responsibilities of Building Control and statutory consultees such as the fire and rescue service are not clearly defined or delineated.
- There is some confusion at the interface between the HA2004 and the FSO, the extent of each jurisdiction, and the responsibilities for enforcement.
- The building regulations don't require the sharing of all relevant information between stakeholders throughout the life cycle of a building. So, for instance, fire and rescue services seldom receive clear notification of satisfactory completion of works or occupation. To become alert to the occupation of a building fire and rescue services are often forced to rely on loose and informal information sources including relationships with Building Control officers; observations by firefighters; The NLPG (National Land and Property Gazetteer); media reports etc. Without knowledge of occupancy, fire and rescue services are unable to initiate either prevention work or regulate under the FSO.
- Under the FSO assessment and management of fire risk resides with the 'responsible person' for the building. In reality there are a number of responsible persons in relation to many buildings and this is not reflected in Regulation 38. There are reported instances of building systems files not being handed over to the responsible person at completion or first occupation, despite this being a statutory requirement under Regulation 38. These files should contain all relevant information on construction, compartmentation, passive and active fire alarm systems and testing regimes. These systems should feed into the fire risk assessment required under the FSO. If responsible persons are not clear of their responsibilities, there is a risk that they will be neglected. Even where the requirements of Regulation 38 are adhered to, due to the complex nature of the financing of residential developments and the scope for the management of a building to change on a regular basis there is no

ongoing obligation to transfer information relating to the fire safety of a building. **There should be regulations introduced under the Fire Safety Order requiring the transfer of prescribed fire safety information at the point that ownership or management of a building changes.** This could be enforced under the FSO but would consequently be built into conveyancing practices which would promote self-compliance.

- Failure to share information with key stakeholders and responsible persons means that fire and rescue services are not always fully aware of key design features that will affect the ability of residents to escape safely. This also impacts on emergency firefighting and rescue actions.
- In any development or building works, the applicant may use either local authority Building Control Officers or approved inspectors to maintain standards. This can lead to a marked difference in acceptable levels of fire safety from one building to another. Similarly, the standards for fire risk assessors are vague and the completion of a fire risk assessment can be based on cost rather than experience. Persons can undertake a two or three day course on the process and then start undertaking complex visits with no controls on knowledge. There are guidance documents on standards but they are not legally enforceable. At the present time, accreditation from a third party for a fire risk assessor is not mandatory. Terms such as 'Fire Engineer' and 'Fire Risk Assessor' are not clearly defined so there is no consistent level of competency or the ability to prevent unqualified persons using these titles. This opens up fire risk assessment and building control functions to market forces, often leading to developers and housing providers sourcing the cheapest rather than the most effective providers.

The requirements of Regulation 38 should be extended to recognise the multiple parties who may be involved in a building at completion stage. Key individuals at each stage in the process should have a responsibility for sign-off, requiring the completion and handover of standardised fire safety information specific to the building. This should be in a prescribed format and endorsed by these key individuals

Fire critical information-sharing between all agreed key parties needs to be placed on a statutory footing and properly enforced.

There needs to be a major review into the competency of professional parties who are considered 'responsible persons' under the Fire Safety Order including the introduction of mandatory registration and a complaints procedure.

The relationship between the Fire Safety Order and other pieces of legislation and the responsibilities of different regulators needs to be more clearly defined and guidance produced.

The competency of all key players should be the subject of a major review. This is considered in more detail in section 4.

Q4 What evidence is there that those 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?*

Competency should be a key line of inquiry. There are a large number of different individuals and bodies involved in compliance during the life cycle of a building. There are also different levels of experience, competency and resources associated with these individuals and bodies.

During the construction or material alteration of a building, assessment and approval of compliance (including acceptance of materials, construction techniques and ultimate performance), can be authorised by a public building control officer or an external approved inspector. This can lead to conflicting and inconsistent advice on fire safety issues. Similarly, the standards for fire risk assessors are very vague. Both fire risk assessment and building control functions are therefore open to market forces, often leading to developers and housing providers sourcing the cheapest rather than the most effective providers.

In terms of evidence in relation to the ongoing competencies of persons supporting and delivering compliance, this is not transparent. For example:

- A planning application is made via architect drawings. This is processed and passed for approval before being sent to tender. The builder is chosen and either a building control or Approved Inspector is employed to maintain standards. However, if the builder changes products, but still maintains requirements of Approved Document B, then they are still deemed compliant. The compliance to standards is a snap shot in time and the industry needs to ensure that buildings are constructed as per design,

and no short cuts taken. This needs to be maintained throughout the life cycle of a building to ensure it remains fit for purpose.

- As stated in Section 2/3, under the FSO assessment and management of fire risk resides with the 'responsible person' for the building, however in practice there will for many buildings be more than one responsible person and the demarcation of responsibilities is not always clear. Regulation 38 does not reflect the realities of modern developments and fails to recognise that there may be multiple parties who should receive the information.
- As stated in Section 2/3 there are reported instances of building systems files not being handed over to 'the responsible person' on completion or first occupation. If responsible persons are not clear of their responsibilities, there is a risk that they will be neglected. As stated in Section 2/3, there is no regulation of fire risk assessors, which creates difficulties for those reliant on their services to establish competency and experience. In some cases this may lead to a fire risk assessment being commissioned based on the lowest price particularly where tendering is required and / or justification of expenditure.
- The management of both commercial and residential buildings is largely unregulated, with existing trade associations offering a degree of self-registration and compliance in relation to those companies who choose to become members. There is no mechanism for requiring a basic knowledge or qualification relating to fire safety. There is little or no adequate means of redress for consumers in relation to this.

In relation to the level of competencies across organisations that enforce compliance, it is apparent that there are highly trained practitioners in the enforcement arena and less so in the private and owner/occupier arenas. At the same time, the numbers of appropriately and adequately skilled practitioners is reducing year on year due to funding constraints and the retirement of experienced officers.

Within the building control arena, staff have higher level qualifications in building construction and maintain their CPD to ensure that standards of building control are met. Similar higher levels of qualifications are found within local authorities and housing providers working on behalf of the local authority. There is a competency framework for fire and rescue service staff concerned with inspecting and auditing under the FSO and this aligns directly to the complexity of building types.

In terms of adequate resources, these areas require addressing through appropriate skills, training and ultimately funding. If the funding is reduced through public sector budgets,

there are not enough staff available to ensure compliance and then self-regulation takes over, causing a potential drop in standards in building management and maintenance.

Competency frameworks and inter-regulatory working practices require statutory government guidance to define the necessary levels of competency for key roles and to ensure standards are maintained throughout the life cycle of a building. At the very least those involved in providing risk critical services should be subject to industry registration and regulation by recognised accrediting bodies.

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?*

There is a disconnect between the transfer of responsibilities in relation to fire safety following the completion of a building and accountability for any failures. If a building complies with the building regulations it should have adequate physical fire precautions. However, a failure to comply with the building regulations which has not been identified as part of the building regulation approval process may not easily be identified under other regulatory regimes and in some cases may only become evident following a significant event and some time after the completion of the building.

The Building Control process, through regular inspections during works, should be sufficient to drive compliance. However this is not done in a consistent manner and the opening up of the market to competition has resulted in a disincentive to building control inspectors to carry out adequate numbers of inspections as it is not commercially viable to do so. Where the Approved Inspector' route is taken the suspension of the LABC enforcement powers means there is little remedy available even where there is evidence that work may not comply with the regulations there is no effective enforcement.

The limitation period for prosecutions under the Building Act places an unnecessary restriction on effective enforcement action and is a detriment to those parties who suffer as a direct result of work being undertaken which does not comply.

This means that remedial action may not be taken at the construction stage and if it is identified under the FSO and enforcement action taken, the costs of doing work may be significantly higher and the cost met by those who were not responsible for the failures – i.e. the owner or occupiers of the premises at the time the defect is discovered.

The limitation period for prosecutions under the Building Act should be removed to bring offences under the Building Act in line with those under the Fire Safety Order and the Health and Safety at Work Act. The penalties should be increased to match sentences available to the courts in health and safety matters.

The enforcement options under the FSO are in principle sufficient, however due to the application of the national enforcement management model a full and detailed inspection of the building will not always be undertaken. This coupled with the complexity of ownership and management responsibilities in many modern buildings, including high rise blocks of flats and multi-occupied commercial buildings means that identifying the most appropriate ‘responsible person’ to enforce against is complex and time consuming. In addition the complexities relating to other legislative areas – i.e. Landlord and Tenant and in particular provisions relating to leasehold land if properly considered can result in an unacceptable delay in completion of the work. For example, in a privately owned development of flats the statutory requirement to consult with leaseholders in relation to expenditure of service charges can delay the ability to carry out work. This would be addressed by implementing a statutory requirement to transfer fire safety information and display the identity of all responsible person/s for fire safety in a building.

***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?*

In relation to residential development it is our view that there is a clear divide in this area between social and private housing. Within the social housing sector, there are clearly established complaints procedures and where complaints cannot be resolved access to the Housing Ombudsman.

This is not reflected in private developments and there is little effective redress for individual leaseholders concerned about fire safety beyond a complaint to the fire and rescue service or local authority and / or collectively to trigger a change of management which can be time consuming and costly.

Consideration should be given to extending the remit of the Housing Ombudsman or making membership compulsory for those involved in the management of residential developments.

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?*

[The Building Control Alliance \(BCA\) guidance note 18 recommends](#) four options for showing compliance regarding the use of combustible cladding materials on buildings exceeding 18m in height:

1. The use of materials of limited combustibility for all elements of the cladding system both above and below 18m. This includes the insulation, internal lining board and the external facing material.
2. An acceptable alternative approach (see AD B2 paragraph 12.5) is for the client to submit evidence to the Building Control Body that the complete proposed external cladding system has been assessed according to the acceptance criteria in BR135 - Fire Performance of External Thermal Insulation for Walls of Multi-storey Buildings. The preferred method of demonstrating compliance is via a fire test carried out in accordance with BS8414:1.
3. The BCA guidance note 18 recommends two further options. Option 3 – if you have relevant testing data, a desktop study can be conducted: “If no actual fire test data exists for a particular system, the client may instead submit a desktop study report from a suitably qualified fire specialist stating whether, in their opinion, BR135 criteria would be met with the proposed system. The report should be supported by test data from a suitable independent UKAS accredited testing body and so this option may not be of benefit if the products have not already been tested in multiple situations / arrangements. The report should also specifically reference the tests which have been carried out on the product.” *BCA Technical Guidance Note 18, Use of Combustible Cladding Materials on Buildings Exceeding 18m in Height*
4. Option 4 recommended by the BCA guidance is the use of a fire-engineered solution – “If none of the above options are suitable, the client may consider addressing this issue via a holistic fire engineered approach taking into account the building

geometry, ignition risk, factors restricting fire spread etc. Such an approach would be expected to follow a recognised design code such as the BS 7974 Application of fire safety engineering principles to the design of buildings suite of documents and be supported with quantitative analyses where appropriate.” *BCA Technical Guidance Note 18, Use of Combustible Cladding Materials on Buildings Exceeding 18m in Height*

The issue with desktop studies appears to be where small scale (material) testing has occurred and then the product has been substituted into the desktop study. The aim of fire testing is to assess the fire hazards within the finished building, whereas these standard tests provide a rating system to evaluate the fire performance of a product. This rating system provides information in relation to behaviour observed under the specific test conditions. This makes it very difficult for fire and rescue services and building control bodies to effectively verify the suitability of the components in situ in a real-world building. The results of desktop studies are not published and are often considered commercially confidential.

In cases where fire engineered solutions are adopted there are many examples where ‘pre-application’ liaison with the FRS has benefitted all parties and this supports the view that the statutory consultation timeframe should be extended.

The use of desktop studies should be removed as an option from the current Building Control Alliance guidance. The use of desktop studies should be reviewed and if still considered fit for purpose incorporated within the Approved Documents and subject to publication.

To understand the risks associated from external fire spread we must first understand the fire performance requirements (i.e. what is the required time for means of escape or for the fire and rescue service to attend and extinguish the fire). When we understand the prescriptive performance requirements we can then examine the testing regimes.

Small scale testing (material testing) cannot always be extrapolated to full scale (system testing) reliably and should always be used with a level of caution.

Materials are currently classified using BSEN 13501-1:2002 from a variety of fire test standards, these standards only provide a rating system that relates to the specific test.

Even with respect to full scale testing there are issues which need addressing. The current BS8414 test does not replicate a complete building (i.e. the test wall has no openings such as windows) and therefore no assessment can be ascertained of how the fire may attack the opening and transfer an external fire to an internal fire. Also the testing of the product/system does not take into account material or installation defects, alterations in design and installation or aging/deterioration of the product. Further questions are raised including as the building gets taller do the current building regulations (B4, diagram 40) provide enough information and guidance around the use of products on the external envelope. As buildings get taller, the minimum periods of fire resistance increase apart from external walls. Weather conditions are also not considered including stack effect and fluid dynamics associated with external fire spread.

The current use of open state cavity barriers in ventilated facades is also causing a high level of confusion. The current BS8414 test examines external and cavity fire spread, it does not provide any assessment of smoke spread within an open state cavity. It is therefore a B4 (ADB) test and does not make any comment on Section 9: Concealed spaces (cavities) within B3 (ADB). Therefore the vast majority of the systems that have been installed with open state cavity barriers either do not comply with the current building regulations for B3 or they have not had an assessment.

Section 9 considers how testing is undertaken in other countries and what lessons can be learnt.

The testing regime needs a complete review to ensure it mitigates all the real-world factors that will affect the development of a fire throughout the life cycle of a building.

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?

It would be helpful if there was separate guidance for buildings of different complexity.
Document ADB should be split into three separate volumes – dwellings, flats, other purpose groups.

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?

The 2014 fire at the Lacrosse building in Melbourne's Docklands was similar in nature to the fire at Grenfell. The rapid spread of fire at the Lacrosse building was blamed on flammable aluminium composite cladding that lined the exterior concrete walls. However, there were no fatalities or serious injuries at the Lacrosse fire. According to the Melbourne Fire Brigade this was because of the high performance of the building's sprinkler system which prevented fire spread into apartments and common areas. Firefighters only had to extinguish two flat fires and even then the sprinklers had reduced their spread. "Fire-fighters confirmed that the sprinkler system operating within the apartments had held the fire in check, and was preventing further internal spread and fire development." *Post-Incident Analysis Report, Melbourne Fire Brigade*

There have also been a number of significant fires in the United Arab Emirates over recent years involving cladding systems similar to that used on Grenfell Tower:

- The [Ajman One fire](#) occurred in March 2016. The fire is believed to have started on a balcony on the 4th floor and quickly spread to involve most levels in the building. It is believed that aluminium composite panels caused the rapid spread of the fire. Five people sustained minor burns, however there were no fatalities. The sprinkler system operated as expected and prevented the fire spreading inside the building.
- A fire at the Marina Torch in February 2015¹ was believed to have started on the balcony of the 51st floor, which then spread to other storeys. All residents were safely evacuated and there were no fatalities. A sprinkler system was fitted and operated, which prevented the spread of the fire into the building. Although the outside of the building was badly damaged, there was limited fire damage within the apartments. Another fire at this building occurred in August 2017. This fire also occurred at approximately 01:00 hours, and the fire quickly spread up the building. As with the previous fire, there were no injuries or fatalities.

Similar to the Lacrosse fire, an analysis of recent high rise building fires in Dubai found that there were no fatalities or serious injuries despite buildings having flammable cladding systems installed. It is believed that the presence of sprinklers prevent the spread of fire within the building, allowing for residents to evacuate safely.

¹ A. Almutawa, "Case study for the 'Torch Tower', Dubai Marina" in 2015 AGM & International Conference, London 2015.

Following the Lacrosse fire the Australian Government established an inquiry into the use of non-conforming building products. The inquiry's [interim report in September 2017](#) was informed by the Grenfell fire and called for, "a total ban on the importation, sale and use of Polyethylene core aluminium composite panels as a matter of urgency." *Senate Economics References Committee, Non-conforming building products, Interim report: aluminium composite cladding*

Similarly, the large number of high rise building fires in Dubai has led to a changes in the Civil Defence Fire Code. [The 'New Code' was first presented at the Intersec 2017 exhibition in January 2017](#). The 'New Code' aims to address some of the known limitations around the use of low cost, flammable aluminium panels and increase accountability across and beyond the local construction industry, which bring the regulations in line with global standards. Now all companies involved in the installation of materials will need to be registered and licensed by the Civil Defence Authority. Previously this was just a requirement of consultants and contractors.

The 'New Code' also contains more detailed specifications for cladding and construction materials. It also mandates a more comprehensive materials test, which will be facilitated by the establishment of a new materials testing laboratory.

Following construction, the final building will need to be jointly signed off by the main works consultant and the manufacturer of any fire safety materials. This will then be submitted to the Civil Defence Authority for final approvals. Consultants will remain responsible for any defects for at least one year following the delivery of a building project.

The Civil Defence Authority also has the power to impose fines and criminal prosecution if the new codes are violated. This should also act as a deterrent to prevent the use of unapproved or dangerous materials. The Civil Defence Authority also has the powers to impose fines on residents who have unsafe behaviours what could lead to a fire (e.g. BBQs on balconies).

The 'New Code' contains a requirement for building owners to annually renew no-objection certificates which are issued by the Civil Defence Authority to ensure structures remain fire safe after the initial construction. This replaces a one-time only completion certificate under the old regulations.

The prescriptive approach to fire prevention in buildings is one that is adopted in Germany and much of the rest of Europe². If an individual component is not of a high enough specification regarding non-combustibility, it cannot be used. In Germany fire protection is included in the first stages of the design process. For nearly all buildings with a floor level above 7m, some proof of fire protection is needed. This also applies for all buildings of special usage. During the design stage a fire protection concept is devised by a qualified private fire expert. These are then checked by the building regulator or certified experts. After construction, detailed checks on structure and fire safety are done by private contractors. These are then backed up by more basic checks by the building regulator. As discussed in Section 1, the building regulations in England need to be changed to give fire and rescue services statutory consultee status at the planning stage of a building's life.

In addition to Germany, [a number of other countries have changed their building regulations](#) to ensure that only non-combustible materials are used on building facades. These countries include Denmark, Croatia, Poland, Slovakia, Serbia and the Czech Republic. The building regulations in many of these countries specify that cladding and insulation materials used on high rise buildings must meet reaction to fire class A1 or A2 (i.e. non-combustible). In addition, some countries specify additional requirements and state that cladding and insulation materials must emit limited amounts of combustion gases and must not emit burning droplets or particles.

The Swedish building regulations, known as the [Boverket Building Rules](#), state that prescriptive design should meet the fire safety requirements within the regulations. However, if an automatic fire suppression system can meet the requirements of some of the regulations then an analytical, performance based approach can be considered. In addition to this, a fire protection document must be prepared for each building. This will contain information about the pre-conditions for fire protection and how the buildings fire protection is designed. It will also include a verification that the fire protection complies with the Boverket Building Rules mandatory requirements.

In Japan, there is a mandatory Fire Service Law, which is used in conjunction with the national Building Standard Law³. While there are no specific requirements for building facades, the Fire Service Law states that materials used in buildings greater than 13m in height must be constructed from materials which have been approved as a fire resistive construction, especially where the building is located in a 'fire protection zone', which are

² Fire Safe Europe, "Building Height Study: National regulations related to fire safety in schools, hospitals and high rise residential buildings", November 2014.

³ H. Tomohiro, "Introduction to the Building Standard Law – Building Regulation in Japan", 2013

designated in urban areas where regulations are more stringent to prevent the spread of fire between buildings.

In England the regulations are less prescriptive. They do not state how a building should be designed, but how it should perform. This means that more flammable building materials can be used in some circumstances. According to an [investigation by the Guardian](#), a more flammable cladding product was used on Grenfell Tower.

England should adopt a more prescriptive approach. **The use of flammable materials in cladding systems should be banned.**

In England regulations permit the use of flammable materials if they are tested as part of a larger system and the system passes that test. However, the risk of using more combustible materials in England is not fully mitigated because of the increasing use of desktop studies in the place of full scale testing. Desktop studies do not always provide a guarantee that the individual products perform as expected in real life. In Section 7 of this submission, GMFRS is recommending that the use of desktop studies should be removed as an option from the current Building Control Alliance guidance; and that the use of desktop studies should be reviewed and if still considered fit for purpose incorporated within the Approved Documents and subject to publication.

In New York, real-world testing is required on any materials to be used in buildings taller than forty feet. Facades on new buildings taller than 75 feet are then inspected every five years.

“We have a very rigorous fire-testing standard as part of our code. And so, those standards are listed for any manufacturer that wants to use that product in the city. Once that material is installed, we require a special inspection to make sure that the material that was installed is the material the architect specified, and what meets our fire protection construction requirements.” *Rick Chandler, Commissioner, NYC Department of Buildings*

“The U.S. codes say you have to test your assembly exactly the way you install it in a building.” *Robert Solomon, National Fire Protection Association (NFPA)*

Materials have to be tested to NFPA-285. This has to be done at one of three certified testing labs and requires the construction of a full replica wall using the material, several stories high, complete with a window opening near the base. The test fire is trained to come out through the window and on to the cladding. If temperatures at the top of the wall exceed 537C, it fails. If flames spread more than 10ft vertically from the top of the window opening or 5ft horizontally, it fails. According to the NFPA the cladding used on Grenfell

Tower has never passed their test. As a result, flammable cladding in high-rise buildings has been effectively banned in America.

The risk posed by less prescriptive regulations in England could be mitigated by strengthening the legislation regarding water suppression systems. It was such a system that prevented any fatalities in the Lacrosse fire and recent fires in Dubai.

Research by The Chief Fire Officers Association (CFOA) found that where a sprinkler system has been installed:

- Fire deaths (including firefighter deaths) have been almost eliminated
- Fire injuries reduced by 80%
- Significant improvement in firefighter safety achieved
- Property damage reduced by over 80%
- Effects of arson reduced
- Reduction to the economic cost of fire including its impact on business disruption; loss of stock; clean-up; job losses; reputation; insurance costs

There are also environmental benefits to sprinkler installation relating to both carbon emissions and water use, "Fires in the UK are estimated to release over two million tons of carbon dioxide into the atmosphere every year - this is excluding further emissions resulting from constructing replacement buildings and in recycling the fire damaged materials. Research carried out by Bureau Veritas suggests that sprinklered fires release between 7.8% and 21.6% less carbon compared with an un-sprinklered fire in a similar building. FRS will use 15 times more water to control a fire where no sprinkler is in place to control it." *Business Case for Sprinklers, CFOA*

The cost and impact of sprinkler installation has also been drastically reduced over recent years, even retrofitting. [BAFSA's study](#) of sprinkler retrofit at Callow Mount, a high-rise council block in Sheffield found:

- It is possible to retrofit sprinklers into occupied social housing without decanting tenants, or serious disruption to their lives
- The cost of sprinklers per block or per flat will compare very favourably with other fire protection methods which might otherwise be required to provide acceptable levels of fire safety for older blocks, especially for blocks such as Lakanal House and Grenfell Tower, which only have a single staircase
- Sprinklers are fully accepted by the tenants and occupants
- British Standard 9251 can be used for such installations

- The work can be undertaken in short order
- Evidence of the potential to reduce the cost of having to re-house tenants and undertake major refurbishments etc. following a fire has also been proven

In 2016 Wales became the first country in the world to make the fitting of sprinklers compulsory in all new domestic buildings, regardless of their height. This legislation also covers care homes and student accommodation. A [cost benefit analysis completed by BRE on behalf of the Welsh Government](#) found that fitting sprinklers in high rise buildings has the potential to save 7 lives and prevent 297 injuries over a 10 year period in Wales. England should introduce the same legislation and go even further.

The fitting of sprinklers should be made compulsory in all new domestic buildings including care homes and student accommodation.

Detailed consideration and a feasibility study should be undertaken into the benefits of the building regulations being amended to require the fitting of sprinklers in existing high-rise buildings (and other higher risk residential premises) which undergo major refurbishments.

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?

The nuclear industry in the UK is regulated by the Office for Nuclear Regulation (ONR). In addition to nuclear safety ONR is also responsible for regulating non-nuclear, or conventional, health and safety on nuclear licensed sites. This includes fire safety.

A key principle approach is that nuclear licensees are required to build, operate and decommission nuclear sites in a way that ensures that risks are kept as low as reasonably practicable. This is referred to as the ALARP principle and requires licensees to demonstrate that they have done everything 'reasonably practicable' to reduce risks. The legal responsibility for ensuring nuclear safety rests with the dutyholder.

The International Atomic Energy Agency Safety Standards states that a fundamental safety objective applied for all stages in the lifetime of a nuclear power plant. Paragraph 2.3 of the Fundamental Safety Principles states that:

“Ten safety principles have been formulated, on the basis of which safety requirements are developed and safety measures are to be implemented in order to achieve the fundamental

safety objective. The safety principles form a set that is applicable in its entirety; although in practice different principles may be more or less important in relation to particular circumstances, the appropriate application of all relevant principles is required.”

The Government is responsible for establishing nuclear policy through a legislative regulatory framework. However, it does not set regulatory standards or make regulatory decisions. These matters are the responsibility of ONR.

The UK generally operates a goal-setting regime rather than the more prescriptive, standards-based regimes applied in some other countries. This means that ONR sets out its broad regulatory requirements, and it is for licensees to determine and justify how best to achieve them.

ONR has attached 36 conditions to each nuclear site licence within which the licensees are required to operate. These set requirements for the licensee to make and implement ‘adequate arrangements’ for compliance with the licence condition, as well as some more prescriptive requirements.

A combination of ONR’s assessment and inspection functions allows ONR to judge whether licensees are operating with risks reduced to as low as reasonably practicable.

In relation to this inquiry, **building regulations and fire safety guidance should be regularly reviewed and evaluated within prescribed legislative timeframes. Fire and rescue services should be involved closely in this process.**

The International Atomic and Energy Agency outlines state that nuclear power plants should have procedures in place for the purpose of ensuring that combustible materials and potential ignition sources are minimised within the site. The Agency states that each plant should perform a comprehensive fire hazard analysis in order to do the following:

- Demonstrate the adequacy of existing fire protection measures (both passive and active)
- Identify any specific areas where levels of fire protection are inadequate and where corrective measures are necessary
- Provide a technical justification for any deviations from the recommended practices for which no corrective measures are taken

This fire hazard analysis should be completed regularly over the lifetime of the plant including commissioning, operation and decommissioning stages. In addition to this, a

quality assurance programme specifically addressing fire protection measures should be in place for the lifetime of the plant. Each plant should have a document control system which provides easily accessible information about the management, performance and verification of work completed in the plant. This ensures that the plant operates within the specified regulations and legislative framework.

As in the case of the International Atomic and Energy Agency, **a quality assurance framework should be put in place to ensure that the relevant regulations and legislative frameworks are followed in relation to fire safety design within a building.**