FSF submission to the Building Regulations Review

The Fire Sector Federation (FSF) brings together 64 organisations within the UK’s multi-billion pound fire industry. Its membership includes the Fire and Rescue Services, the fire industry sector (involving representative trade associations and main companies providing active and passive fire protection products), building control, global insurers and the National Social Housing Fire Strategy Group.

The FSF serves to give a voice to this broad membership. FSF members have collectively campaigned for scrutiny of fire safety for a number of years and the FSF wishes to be proactive in providing support to the Independent Review of the Building Regulations and Fire Safety.

The FSF wants to ensure that the Building Regulations and its associated Fire Safety Guidance are relevant to today’s buildings and will ensure the provision of buildings that will be safe and sustainable for the future.

The issue does not just concern the regulatory guidance itself. The process for achieving satisfactory compliance with the functional regulatory requirements also requires attention. The FSF believes there are gaps in the current system of fire safety control, regulation and enforcement regime across the built environment in England. It is within these gaps that issues have arisen leading to failures within the current system to deliver fire safe buildings. As a consequence, the Federation believes this systemic failure requires a fundamental review and consideration of a national framework to protect the built environment.

The FSF recommends that any Review of Building Regulations and Fire Safety must be based on an assessment of the real costs of fire (life safety, economic, societal and environmental impacts), anticipated demographic changes, ongoing developments in building products and techniques, changes to Fire and Rescue Services and evolving expectations that buildings should be able to survive fire incidents.

The FSF also believes the Review should consider whether the current regime based on self-compliance has resulted in a safer environment in comparison to the prescriptive regulation it replaced. As a result, the review must also consider the impact of the Regulatory Reform (Fire Safety) Order and whether risk assessment and self-compliance is compatible with the lightly regulated construction industry.

The FSF recommends that the review of the building regulations and its guidance should:

1. Revise the scope of the regulations to include building resilience.
2. Revise the wording of the Guidance to reduce ambiguity and improve clarity
3. Review certain technical aspects including product testing and the applicability of the Regulations to refurbishment projects
4. Evaluate the systems in place for achieving compliance and enforcing the Regulations
5. Consider competency and the impact of the Regulatory Reform (Fire Safety) Order and its relationship with the Building Regulations
6. Look forward in terms of how design and materials are advancing in the built environment to ensure the framework of controls, regimes, research, competencies and knowledge remain relevant to satisfy the risk benefit equation for our society.
1. Scope of Building Regulations and guidance

Currently 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 means that, for example, large, low-rise buildings can be erected which are highly vulnerable to fire as long as there is a reasonable expectation that the occupants will get out before they collapse.

Fires in these buildings can pose an unacceptable risk to firefighters should they enter. FSF research shows that most building owners mistakenly believe that compliance with building regulations ensures their buildings are protected from major fire damage.

While maintaining the focus on life safety, the FSF recommends a greater recognition under the regulations on the protection of property from fire. The focus on life safety provisions alone is often viewed in terms of “provision for escape” with buildings constructed in ways that can be damaged by fire. The continuity of use or the importance of buildings within the local infrastructure is not readily considered.

At the same time the way we use buildings is changing with greater mixed use, demographic changes and higher occupancy rates in some sectors. As such we are concerned that we are promoting paths to a less robust built environment. We consider that greater levels of protection are needed in recognition of the risks that are posed, consideration of the use of the building, location, occupants and a realistic appraisal of the abilities to tackle fires in large buildings.

The FSF believes that if the current limitation on the scope of the regulations were lifted, it would be possible to revise the guidance in Approved Document B (AD B) to reduce incidents of major damage from fires in large buildings.

2. Clarity of Building Regulations and guidance

The Federation has long been campaigning for a revision and update of AD B, primarily to remove ambiguity, provide better clarity where needed and to suggest areas where additions are advisable to better reflect the current risks in the built environment.

The FSF’s Built Environment Issues and Affairs Workstream has undertaken a great deal of work to examine the guidance contained within AD B to the Building Regulations, including a review of the language and areas of ambiguity. It has also undertaken a number of surveys of key fire sector and construction professionals to gather a complete industry opinion of the Building Regulations and its supporting guidance and to demonstrate the strong support from these professionals for a review. (The results of this work are appended).

AD B is not an easy document to use, and in parts it is open to misinterpretation and lack of precision in application. Its use requires a certain level of knowledge and understanding. Yet there are no defined competencies for the use of the document and its guidance, despite the range of user groups having increased as the built environment has become more congested, more complex and demanding.

When undertaking the review of ADB it is important that terms should be simplified for ease of understanding by the reader and that the practitioner should be competent and have a good understanding of the building regulations. (DCLG commissioned research published in 2017 recommended improvements on the usability of ADB)).
3. Technical aspects

It has been over 10 years since AD B has been reviewed. AD B is somewhat dated, its application is not straightforward and there are major questions over its use and the enforcement of the recommendations that make up its prime guidance.

In the time since the review there have been changes in modern architectural design and urban development, building technologies and design, construction and supply chain trade practices. The FSF believes there is cause to question if the risks in the built environment are now properly and proportionately reflected in the provisions of regulatory guidance. The FSF recommends that a detailed independent technical review of the main evident trends and developments in the built environment and the risks that apply should be undertaken and those risks mapped against the AD B guidance, to see how AD B stands up in both coverage and content. New content and new sections should be introduced to address the main risks, accordingly.

Improving building resilience

While maintaining the focus on life safety, the FSF recommends a greater recognition under the regulations for the needs of protecting property against fire, because life safety provisions are too often seen as maximum provisions, yet greater levels of protection may be needed to consider the threats and risks that can arise in certain buildings (according to design location, occupancy, size).

Some particular details need necessary review (including 18m as the height for transition to non-combustible materials, 30m as a height for the application of sprinklers, and the use of ‘fire-resistance’ (including glazing) rather than Class O surface spread of flame, on the external envelope of the building to minimise the risks of fire break out and break in in tall buildings as a mechanism of fire spread.

Making greater provisions for property protection will in conjunction bring greater levels of protection for people. Life safety is often interpreted simply in terms of “provisions for escape” but as the Lakanal House and Grenfell fires sadly demonstrate, circumstances may dictate that residents cannot escape and are forced to stay in the building as the fire develops. And it is then that much wider fire safety protection measures are needed in the structure and fabric of the building to limit fire spread and keep fire to its place of origin, both outside, inside and in the building structure itself.

The applicability of the Building Regulations as they pertain to the refurbishment

The review should seek to clarify what aspects of the Regulation should be retrospective. In particular it should consider whether there should be any changes to the fire strategy for the building arising from the alterations and the determination made in regards to the retrofitting of automatic sprinkler protection within a building during the refurbishment.

The FSF recommends changing the term ‘where it did not comply before, must be no more unsatisfactory than before the work was carried out’ to ‘upgrade to current day standards if reasonably practicable to do so’. The issue being that it is not always possible to ascertain whether unauthorised changes have been made to the building. Such a change we believe would require a review of the Building Act 1984 in particular, Schedule 1 paragraph 8.
Product, materials, system specification and testing

There has been a gradual progressive development in architectural requirements and the ways buildings are designed, built, serviced and occupied. This has been in response to a number of factors including cost effectiveness and greater energy efficiency.

This has led to a great variety of materials and systems being selected for all types of construction. More innovative engineering designs, different forms and structures for the same range of building functions, in more complex constructions have also led to more open and less compartmented structures and, in some cases, lower levels of inherent fire resistance compared with more traditional brick and stone based constructions. There are also changes related to levels of structural integrity, combustibility and consequent toxic emissions.

Under these circumstances, the FSF is concerned that testing processes and the understanding of those tests have not kept pace with modern building practices and materials. At the same time the lack of access to clear, comparable fire test data on products hampers decision making and evaluation throughout the build process.

Combustibility and real life performance

The definition of combustibility used by the regulations has become overly complicated as ways to differentiate materials has been sought; like the term “limited combustibility” which is felt to be far too ambiguous. This has led to a myriad of test references many of which may once have served the purpose for understanding and controlling surface spread of flame (for example, as originally intended for surface coverings such as fabrics and wallpaper). However the current usage is no longer adequate to describe the large scale performance of combustible organic-based materials throughout, in and on the building loadbearing and non-loadbearing structure.

The FSF believes that the terms and definition of “combustibility” within the regulation needs a root and branch fundamental review. This should lead to clarity over material performance for building elements. One of the key questions is the fitness-for-purpose of laboratory-based testing and evaluation methods using small scale tests to evaluate likely large scale performance in buildings. It is also important to test systems rather than individual components and elements of those systems

Product data – clarity of information

The key data requirements should be made clear to manufacturers to ensure they have tested their products appropriately, and how that data should be presented and made available to users. An example is the information on cladding materials. The Government expert panel decided to measure the calorific value of the core of the cladding without the facing materials (not at all unreasonable for the combustibility question being considered). Yet cladding manufacturers do not customarily make that information available; and it isn’t at all clear if they actually have that data available on their products.

A further example is the availability of façade test BS 8414 information, where the composition and make-up of the façade system that is subject to testing is critical. Information in the public domain is limited, and manufacturers tend to restrict themselves to broad statements where tests have been carried out, without the detail that allows critical evaluation of the applicability of the tests carried out. We understand the commercial sensitivity that may be attached to some of this information, however access to this information is vital to ensure the process from specification to enforcement is supported. There is accordingly a need for more guidance on the data that is required and
expected for key functional requirement properties, relating to both products and systems. Also, much clearer rules are necessary governing how data should be presented and information communicated (increasingly on web sites) to avoid confusion and uncertainty.

Assessments in lieu of application tests

The practice of using assessments (often now referred to as “desk top studies”) has grown beyond the original intention to allow interpolation, and limited extrapolation, within limited boundaries based on test data for a particular product system (e.g. to allow replacement of door hardware with tested alternatives, or to increase glazing size and configuration). The practice of using assessments instead of testing to extrapolate performance from one system to another system, or outside acceptable boundaries in effect to apply to a different modified system, is to be deprecated.

Rules governing assessments have been in existence for several years, developed by the Passive Fire Protection Federation (PFPF), endorsed and adopted as a resolution by the Fire Test Study Group (FTSG). Those rules need to be formally recognised by building regulations, along with a much better control on the use and application of assessments, with the regulatory conditions that apply.

4. The construction and enforcement process

The development of a building project is a complex one with many elements. To achieve a successful outcome it relies on several people with differing disciplines coming together with strong processes, adequate training, working competently to execute their roles with due regard to compliance with guidance, standards and regulations.

The process can be fragmented, frequently along a drawn-out supply chain, with no individual taking overall responsibility. The FSF believes it is important that there is an overarching construction strategy to encourage collaborative working across the whole design and build process to improve the quality of installed fire protection within the built environment. The FSF recommends the Review should investigate:

- The current processes for overview of the design and the specification of materials and products from concept through to project completion within the building process with a keen attention on their impact on fire safety
- The current processes for approval of the installed materials to ensure that they conform to the design specification and that any changes are managed to ensure compliance with the relevant guidance, standards and regulations
- The adequacy of the oversight arrangements for buildings during their construction, including refurbishment, to ensure fire safety protection is properly executed
- Whether the resources available to local authorities combined with commercial competition from the private sector have affected decisions taken on building and refurbishment work
- Whether appropriate processes are in place to ensure the requirements to pass information over at building handover are adequately enforced through Regulation 38 of the Building Regulations 2010 and via the CDM Regulations
- Whether the current national arrangements across Government and local Government are consistent and sufficient to ensure fire safety in the built environment is effectively administered and enforced
**Enforcement**

The FSF has concerns regarding general consistency in delivery in building control and fire safety enforcement and advice across the UK and the efficacy of the overall scrutiny and control processes in place to ensure competency.

The FSF recommends that procedures and outcomes should be consistent for both local authority building control and approved inspectors to ensure that the opportunity to value engineer is reduced. By value engineering we refer to questionable reductions in costs on tenuous technical grounds without or only with limited technical justification. That isn’t to say that traditional pragmatic engineering processes should not be applied to the fire safety design of buildings. But it is to note that those processes should be reviewed for the application of better checks and balances than currently apply.

Inclusion of specifications in plans at the application stage, rather than a statement of performance standards would ensure that subsequent specification changes would have to be to be notified to building control prior to their use, rather than prior to completion of work.

Where a Fire Engineer or other specialist design consultant produces a fire strategy or design, any variations should be agreed with the author prior to submission to the building control body for approval. This would ensure transparency and ensure there is consistency with the original fire strategy or design.

The FSF also recommends that all enforcement agencies should be required to demonstrate ongoing competence and ensure processes are in place to deliver the appropriate resources for the work being carried out. This should be subject to regular audit.

**Sign off: building and design certification**

The current process for approval of a building from concept, building specification, purchase, supply and construction to handover means that there is little assignment of responsibility for assuring and approving critical fire safety decisions. Too often specification and material selection can mutate along the chain such that the finished construction does not in key respects fully reflect the original design and material specification in important detail (e.g. in product performance, with more uncertainty on whether the key functional performance requirements have been maintained along the way).

There is no single individual held responsible for building “sign off” and handover. The FSF recommends that key individuals at each stage in the process should be made responsible for sign off, and that consideration should be given to the introduction of a completion and handover fire safety certificate for the building, signed by key individuals in the final construction process.

The Association for Specialist Fire Protection (ASFP) (a member of the FSF) has been working with the Royal Institute of British Architects (RIBA) to develop a Plan of Works for Fire Protection which complements the existing RIBA work plan methodology, used by UK architects to manage and plan the building design and construction process. The ‘Plan of Works’ aims to ensure that there is a detailed specification for fire protection at the design stage of any building and a schedule and sign-off procedure for fire throughout the construction process.
The FSF recommends that the Review should consider the introduction of a mandatory sign-off procedure, such as in Ireland where the Building Control (Amendment) Regulations 2014 (BCAR 2014) legislate for certain registered professionals to act as Design & Assigned Certifiers.

Managing contractors should be required to sign a completion fire safety certificate for the building, including a declaration to say that the building has been constructed according to the design specification of its fire safety features. If changes are made during the procurement and construction process which affect the original fire safety design of the building then those changes should be properly recorded and a formal certification authorisation provided under the provisions of building regulations, signed by those responsible for the changes, with references to additional documentation as necessary to explain and account for the change. The FSF also believes it is important that someone should have a complete overview for the whole process.

**Regulation 38**

Regulation 38 of the Building Regulations requires that sufficient information be provided to the occupier/Responsible Person at building handover so they have a complete understanding of how the building works in relation to fire and are able to undertake the fire risk assessment and to control future works and maintenance. There is much anecdotal evidence that this regulation is seldom enforced strongly enough. It is also important that the local fire and rescue service should be fully aware of key design features that will affect the ability of residents to escape safely and have an impact on emergency firefighting and rescue actions.

Work has been undertaken by the FSF to produce a guidance document to assist the client to comply with this Regulation. (See appended document).

There are also recommended timelines for consultation between building control and the fire and rescue service to ensure that there are no unreasonable delays to construction. The FRS should be provided with the necessary resource and skills to meet this requirement or alternatives explored. The FSF worked with DCLG to revise the Building Control & Fire Safety Procedural Guidance document over 2 years ago. This is yet to be published. (See appended document).

The relationship between fire service and the built environment sector is important in order to ensure that fire service knowledge is up to date with design and technology innovation and also to enable the fire service to maintain their operational planning.

The link between design and fire service emergency action needs to be better made than it is in current guidance. For example, the use of single escape and access routes to a place of safety outside the building for tall buildings needs to be properly evaluated in conjunction with the fire and rescue service at the early design stage, especially concerning the fire escape precautions and policies that are likely to apply (including what stay put guidance might be considered).

**Third party certification**

The FSF recommends that requirements for third party certification – for products, systems and installation – should be mandatory. The specialist industry knows that third party certification is very important because of short cuts taken along the non-specialist construction supply chain. Third party certification requires much greater identification and support. It fundamentally affects quality of performance as well as levels of consistency and reliability.
User guidance

The FSF recommends that greater advice is provided within the guidance to the Regulations on how to use the document, who should pay attention to its content, and what qualities are needed by users in accessing the document. That should include, for example, a reminder of what core competencies and minimum knowledge levels are necessary for users to apply the document, and what conditions apply when interpretations have to be made.

5. Competency and the impact of the Regulatory Reform (Fire Safety) Order

The Regulatory Reform (Fire Safety) Order 2005 introduced a deregulated and non-prescriptive approach to fire safety in the UK where the legal duty for assessment and management of fire risk resides with the person responsible for the building. This responsibility may be singularly undertaken or contracted to another competent person.

Likewise during construction or material alteration, assessment and approval of compliance to building control requirements, including acceptance of materials, construction techniques and ultimate performance, can be authorised by a public building control officer or an external approved inspector. One of the major complaints from wider industry concerning fire risk assessment is the lack of a uniform approach with different authorities offering conflicting and inconsistent advice on fire safety issues.

While the fire service has a statutory duty under the Regulatory Reform Fire Safety Order to enforce fire safety and also a statutory consultation role in the building control process for certain types of buildings, the National Audit Office in 2015 reported a 30% reduction in audits and inspections carried out by fire and rescue authorities 2010-11 to 2014-15.

Overall, the FSF considers that competency is a key line of inquiry. From inception into continued use, through control and inspection of building construction, installation of fire safety features, on into risk assessments under the Regulatory Reform (Fire Safety) Order, and continuous maintenance of those installations and operating circumstances helping to ensure the building remains fit-for-purpose and functional in practice.

HM Coroner at the Lakanal House inquest also expressed concern about the regulatory regime and the uncertainties relating to risk assessment that resulted in the issuing of a Rule 43 letter. A key focus for the Review should be on the impact of fire risk assessment and self-compliance on the built environment and the interaction between Building Regulations and the RRO.

Improved definition of competency

The terms ‘Fire Engineer’ and ‘Fire Risk Assessor’ should be clearly defined to prevent unqualified persons using these titles. The use of Competent Person / Organisation Schemes should be encouraged by those procuring this type of service. Those organisations who administer such schemes should monitor those professionals to ensure they remain competent.

Improved focus on responsibilities of individuals and their competency

The FSF recommends that fire safety legislation should make it absolutely clear from design through to construction and installation the responsibilities and the necessary level of competency incumbent on particular individuals, by role, along the chain through to building handover. Greater levels of responsibility, with accountability, need to be re-assigned to architects and design
engineers as the key professionals involved in the design and construction process from initial concept through to completion."

One of the key failings in the process of observing regulations is the failure of individuals to sufficiently recognise and acknowledge the responsibilities that they have regarding fire safety. The responsibilities are too often not at all clear; and neglected as a result. If those responsibilities are not made sufficiently clear then actions under the regulations for failure to comply are made all the more difficult and indeterminate.

Furthermore, occupiers are not trained in safety, hazards are not obvious, nor do occupants look for them. Work is done by the lowest bidder, regardless of competence and there is nobody permanently present to check every step of the work as it is performed. Although the RRO does look at the building in use, it only looks at common areas and it is not clear whether this includes the building exterior. Moreover, it only comes into play after the building is occupied.

Workforce competency has been an important concern for Federation members since the Federation’s inception. A declared early aim was to help improve overall building fire safety management by addressing issues of competency for those who undertake the role of a Fire Safety Manager (FSM) in a building. The underpinning logic being that an informed and competent FSM would be the person best placed to ensure a building was used and maintained in accordance with a building’s fire safety design, able to react to the variations of occupancy that happen throughout a building’s life thus supporting the concept of the Fire Safety Order and Responsible Person.

FSF work focused upon the whole building life and a competency framework was developed to lead effort. In addition in the post 2009 Lakanal House period, effort focused upon the specific matter of fire risk assessors (FRA). The major outcome here is formation of the FSF Competency Council that has produced the criteria and selection guides that are now published on the FSF web site. (See appended documents).

6. **Looking to the future**

The FSF believes that a better regulatory system is necessary that recognises both life and property on the basis of risk and provides a better balance between economic and social advantages in the built environment. The process must operate from design to demolition for the full life of the building (whether designed to last months or centuries) and should take into account construction materials and methods, whether traditional or innovative. The regulatory regime should take into account changes in use and occupancy and conflicts that may exist between demands, for example, between low energy and heat containment and fire spread, or between security and access.

This is not simply a UK matter - in terms of international comparisons North American codes tend to be more prescriptive, Australasian codes include both prescription and fire engineering and in the EU, when the Construction Product Directive was introduced, a Swedish study revealed a very wide range of approaches with limited international statistical indicators of performance.

The evidence suggests both prescriptive and performance fire regulations are needed that offer greater clarity in design and construction with better controlled application. It also suggests fire risk awareness and competent assessment are often lacking or compromised.
Building risk categorisation

The FSF considers that trying to cover a wide variety of buildings in one set of regulations results in the guidance being unnecessarily complicated. The FSF recommends that consideration be given to categorising buildings by type/risk allowing guidance to be streamed to reflect the differing styles of buildings.

Consideration could be given to applying more stringent/prescriptive regulations to high risk premises; for instance insisting such buildings are assessed by a person / organisation who has demonstrated competency through a recognised scheme. The Fire Safety Order should be reviewed to put additional pressure on building management to ensure adequate ongoing control of the fire safety measures. This will then link to the requirement that adequate information be provided under Regulation 38 to enable this to happen.

FSF key recommendations

1. Introduce a greater element of building resilience into the core regulatory guidance (which at the same time will provide higher levels of protection for those who cannot easily escape).

2. Review current guidance and assess how it can better reflect the risk profile of today’s urban built environment, with the objective of developing select new guides for particular risk categories (e.g. tall residential buildings).

3. Provide better correlation between the different elements of building regulations, to ensure that the implications of developments in one functional objective do not compromise fire safety objectives. For example, between AD B and AD L (energy), and between AD B and AD M (ease of access).

4. Introduce a definition of the core competency criteria expectations as separate guidance backing the regulatory guidance for fire safety, specifically and individually for the key roles that can be identified along the design, specification, supply and construction chain through to building occupation (including risk assessment). That should include a stimulus to the various building trades to develop and implement their own competency codes regarding fire safety.

5. Commission a complete review of the combustibility concept and associated product and system testing, which should include a better consideration of not just ignition and surface spread of flame but also the overall ability of a material used in construction to sustain fire.

6. Introduce a formal requirement under regulatory revisions placing an obligation on those introducing design, product and building system innovations which depart significantly from current practice, to demonstrate that the development will at least not compromise fire safety and that it will meet the functional requirements of building regulations for fire.

7. Develop new guidelines and guidance on what to do on refurbishment and modernisation for those works that fall outside of AD B new build guidance. This should advise, on a practical basis, how older buildings can be better brought up-to-date with the latest best practice fire safety and property protection provisions on a suitable, sufficient and appropriate basis. Consider that upgrades and changes outside major change should cover adaption and use of buildings.
8. Provide stronger support in the regulatory guidance to the wider application of third party certification schemes for products, systems, and installation for better controls and minimum assurances on levels and consistency of fire performance, including fire resistance, reaction to fire, ability to sustain fire and load-bearing capability.

9. Introduce regulatory provisions for the better assignment of responsibility and accountability at key points in the chain through to building handover, on the basis that responsibility for risks should be better assigned to those who create the risks potentially. For example, introduce requirements for formal sign off of the design, the specification, sub-contractor completion of individual elements, the completion by the main contractor on handover to the owner (including recognition of Regulation 38).

10. Revise AD B and new guidance to remove ambiguity, ensure clarity, and improve that guidance is more user friendly given that there is now such a wide spread of different possible user groups.

11. Ensure that there is within the regulatory guidance a stronger requirement, as a regulatory obligation, for involvement of the Fire and Rescue Service in the design process through to finalisation of the design, to ensure that the planned provisions are consistent with local firefighting policies and provisions. It should be a requirement under the regulations to ensure that there is a statement of implications for firefighting actions in the completion documents for the design.

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Institute of Fire Safety Managers (IFSM)
Independent Fire Engineering And Distributors Association (IFEDA)
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Institution of Occupational Safety and Health (IOSH)
Joint Oil Industry Fire Forum (JOIFF)
Joint Universities Fire & Rescue Research Programme
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