
Submission from the Royal Institute of British Architects to the Call for Evidence by the Independent Review of Building Regulations and Fire Safety

The Royal Institute of British Architects (RIBA) is a global professional membership body that serves its members and society in order to deliver better buildings and places, stronger communities and a sustainable environment. We provide the standards, training, support and recognition that put our members – in the UK and overseas – at the peak of their profession.

Following the Grenfell Tower fire disaster, the RIBA established an Expert Advisory Group on Fire Safety. The terms of reference of the Expert Advisory Group as approved by RIBA Council:

- i. **Advise on emerging RIBA policy on design for fire safety, including recommendations to Government.**
- ii. **Provide information to RIBA members in relation to design for fire safety and relevant regulations.**
- iii. **Make recommendations for further RIBA work on the broader procurement and regulatory context that affects project quality and safety.**
- iv. **Advise the RIBA on its participation in the Grenfell Tower Inquiry.**

The RIBA Expert Advisory Group on Fire Safety has developed this submission by the RIBA to the call for evidence by the Independent Review of Building Regulations and Fire Safety. Part 1 comprises responses to the ten questions in the call for evidence. Part 2 sets out an initial set of specific recommendations from the RIBA.

Part 1 – RIBA response to the questions in the call for evidence

The overarching legal requirements

Q1 To what extent are the current building, housing and fire safety legislation and associated guidance clear and understood by those who need to follow them? In particular:

- What parts are clear and well understood by those who need to follow them?; and, if appropriate
- Where specifically do you think there are gaps, inconsistencies and/or overlaps (including between different parts of the legislation and guidance)? What changes would be necessary to address these and what are the benefits of doing so?

A1.1 Current building, housing and fire safety legislation, associated guidance and compliance routes are ambiguous and open to widely varying interpretation.

- A1.2 Major concerns about the usability and efficacy of current building, housing and fire safety legislation predate the Grenfell Tower fire disaster.

A formal review of the current Approved Document B (Fire Safety) of the Building Regulations was first proposed by the Secretary of State for Communities and Local Government in 2013, in response to the Coroner's rule 43 letter, following the inquest into the deaths resulting from the 2009 fire at Lakanal House¹. In her letter, the Coroner stated:

"Approved Document B 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. It is recommended that your Department review Approved Document B to ensure that it:

- *provides clear guidance in relation to Regulation B4 of the Building Regulations with particular regard to the spread of fire over the external envelope of the building and the circumstances in which attention should be paid to whether 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, and not just to professionals who may already have a depth of knowledge of building regulations and building control matters*
- *provides guidance which is of assistance to those involved in maintenance or refurbishment of older housing stock, and not only those engaged in design and construction of new buildings."*

The Coroner made further recommendations in relation to fire-fighting/search and rescue principles and national guidance, specifically in relation to the "stay put" principle and the risks created by insecure fire compartmentation. In her rule 43 letter the Coroner also highlighted uncertainty about the scope of inspection for fire risk assessments, pursuant to the Regulatory Reform (Fire Safety) Order 2005, which should be undertaken in high rise residential buildings.

- A1.3 In 2017, the Department for Communities and Local Government (DCLG) commissioned NBS Research (part of RIBA Enterprises, a wholly owned subsidiary company of the RIBA) to undertake user research into the usability of Approved Documents B and M of the Building Regulations.² The report was published in April 2017. The broad conclusions can be summarised as:

¹<https://www.lambeth.gov.uk/sites/default/files/ec-letter-to-DCLG-pursuant-to-rule43-28March2013.pdf>

²https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/591028/Usability_Research_ADB_and_M.pdf

- Even professional users find these two approved documents complex, especially Approved Document B
- Users want clearer diagrams and pictures, and simpler language
- Some users are unsure of the current two-volume split in Approved Document B and would prefer a domestic/non-domestic split as has been adopted by the Scottish Building Regulations
- Users favour prescriptive rather than non-prescriptive guidance
- Users want improved navigation and functionality
- Users find the referenced documents (British Standards etc.) useful but some were frustrated that when they change, the references in the approved documents become out of date.

The report ends with a quotation from a Building Control Officer which very effectively captures the essence of the usability issue:

“The building regulations are becoming far too complex and scientific. They should be straight to the point so that everyone from the designer to the builder and the end user can understand them and implement them. There is no point in having a group of academics and scientists write the documents when nobody else understands them or have five different interpretations of what they actually mean and then expect somebody to build it on site. Go back to basics, minimum requirements with clear text and diagrams. There is an industry out there trying to untangle what the documents mean and what they should be complying with.”

- A1.4 Subsequent to the Grenfell Tower fire disaster, the DCLG commissioned the Building Research Establishment (BRE) to undertake an extensive cladding test programme focussed on the fire safety of external cladding systems on high-rise, multiple occupancy residential buildings. This programme consists of large-scale fire tests to BS8414, to test compliance with Regulation B4 requirements in accordance with the performance criteria given in the BRE Report 135 for fire performance of cladding systems using full scale test data. In total the test programme has so far identified 228 buildings, over 18 metres high, in Local Authority or Housing Association ownership in England with forms of ACM cladding/ external wall insulation combinations, which do not meet the test criteria set out in BR 135.

The DCLG view that all of the ACM cladding and insulation combinations that have failed the tests do not meet current building regulations guidance appears to be based on the fact that they do not meet the BR 135 test criteria

or alternatively in the case of ACM (PE) rainscreen cladding, identified as “category 3” by the DCLG for the purposes of the test programme, that the core of the panel (now designated “filler” by DCLG) is not a material of limited combustibility (European class A2).

Regulation B4 compliance guidance in Approved Document B states that external walls must either meet the BR 135 performance criteria or alternatively meet guidance given in paragraphs 12.6 to 12.9 of Approved Document B Vol.2. Clause 12.6 states:

“The external surfaces of walls should meet the provisions in diagram 40.”

Diagram 40 indicates that for buildings of height 18m and above external surfaces must meet a minimum classification of “Class O” (European class B). This applies to the whole of the wall area where it is within 1000mm of the relevant boundary. Where the building is 1000mm or more from the relevant boundary, it applies to all wall areas more than 18m above ground.

Clause 12.7 sits immediately beneath a heading in bold type “Insulation Materials/Products” and states:

“In a building with a storey 18m or more above ground level, any insulation product, filler material used in the external wall construction should be of limited combustibility.”

In other words, European class A2.

DCLG Circular 07/2017 issued to all building control bodies in England on 14 July 2017 in relation to recladding of tall buildings in the light of the cladding test programme makes reference to clauses 12.5 to 12.9 of Approved Document B Vol.2 and provides the following guidance:

“Each element of the cladding system including any insulation product, filler material etc. should be of limited combustibility (as defined in table A7 – e.g. Class A2 to BS EN 13501-1).”

The RIBA subsequently wrote to the DCLG asking for clarification as to why this wording is different to that in clause 12.7 and whether it represents new guidance, and received by letter the following reply from Alok Sharma MP, Minister of State for Housing and Planning:

“The wording that you highlight in the second bullet of that section of the Circular Letter describes what is required by paragraph 12.7 of Approved Document B. The text in the Approved Document remains the statutory guidance, and therefore is not superseded by the Circular Letter text (although the latter merely describes what the former requires).”

A number of independent experts have separately questioned this very broad DCLG interpretation of the existing clause 12.7, and whether the reference to “filler material” has been understood within the construction industry to refer either to the core material within a cladding panel or to rainscreen cladding at all. Clause 12.7 as written is certainly ambiguous and is apparently contradicted by information provided in Diagram 40. There is undoubtedly need for greater clarity of guidance.

In April 2016, the DCLG had commissioned the BRE to undertake an investigation into the guidance in Part B4 Section 12 of Approved Document B Vol.2, namely the background to the recommendations, their objectives and intended outcomes. This resulted in a two part report³, the first part consisting of background research and the second part experimental research (testing). This report appears to advise DCLG that no change was necessary to the then current Approved Document B guidance, and this seems to have been based on testing of spandrel/rainscreen panels of consisting of:

- i) fire resistant material
- ii) plywood of no fire resistance, and
- iii) a class O/ European class B-s2, d0 panel.

ACM cladding with a polyethylene core (“category 3”) is generally certified as a European class B-s2, d0 material (UK Building Regulations Class O). There is no mention made in these reports of the need to test the combustibility of the spandrel/rainscreen panel itself, just its spread of flame characteristic.

The RIBA also understands that the Coroner in the Lakanal House inquest instructed the jury on the basis of DCLG evidence that the spandrel panels at Lakanal House only had to meet Class O requirements.⁴

A1.5 During the summer of 2017, the RIBA and RICS have been supporting the Fire Protection Association (FPA) in a further user survey of Approved Document B, to ask whether the technical scope should be expanded, whether the document flow should be amended to match the construction process, what improvements users would like to see, and how it can be ‘future proofed’ given the pace of change in methods of construction. The first round of results should be available by the end of October 2017 and may provide valuable additional insights for the Independent Review of Building Regulations and Fire Safety.

Roles & Responsibilities

Q2 Are the roles, responsibilities & accountabilities of different individuals (in relation to adhering to fire safety requirements or assessing compliance) at each key stage of the building process clear, effective and timely? In particular:

- Where are responsibilities clear, effective and timely and well understood by those who need to adhere to them/assess them?; and, if appropriate
- Where specifically do you think the regime is not effective?
- What changes would be necessary to address these and what are the benefits of doing so?

A2.1 **Clarity about the roles, responsibilities and accountabilities of different individuals and businesses in relation to fire safety at each stage of the design and construction process has become complicated by the variety of**

³<https://www.bre.co.uk/filelibrary/Fire%20and%20Security/FI---External-Fire-Spread-Part-1.pdf>
<https://www.bre.co.uk/filelibrary/Fire%20and%20Security/FI---External-Fire-Spread-Part-1.pdf>

⁴ <https://www.lambeth.gov.uk/sites/default/files/ec-decisions-on-fire-resistance-of-composite-panels-4April2013.pdf>

non-traditional procurement routes now in common use, including the many variants of design and build.

- A2.2 These developments in building procurement approaches mean that the Lead Designer (architect or engineer) is commonly no longer responsible for oversight of the design and the specification of materials and products from inception to completion of the project, with design responsibility often transferred to the contractor, numerous sub-contractor designed elements, and no single point of design responsibility. The frequent absence of the role of the clerk of works or site architect and the loss of independent oversight of construction and workmanship on behalf of the client means that the client often has little real control over construction quality and frequently is over-reliant on the building control process alone to ensure compliance with the Building Regulations. Product substitution for so-called value engineering purposes may not be properly assessed.

These issues have been highlighted in other recent independent inquiries and industry reports which have dealt with systemic recurrences of defective and unsafe construction in the UK, including defective installation of important elements of fire protection. In particular the RIBA believes that the Report of the Independent Inquiry into the Construction of Edinburgh Schools⁵ (schools procured using PFI/design and build contracts), published in February 2017, should be a key reference for the Independent Review of Building Regulations and Fire Safety. The executive summary of this report includes the following high level conclusions:

“It is also clear that clients, particularly public sector clients with statutory duties in relation to the communities they serve, cannot simply delegate away from themselves the responsibility of putting in place an appropriate level of informed, independent scrutiny to ensure the safety of the public buildings they procure. By independent scrutiny the Inquiry is referring to inspection by individuals or organisations appointed by or directly employed by the client who are independent of the project company or contractor undertaking the project.”

“Despite the significant increasing reliance being placed on the quality assurance by contractors of their own work, there is no formal requirement for the personnel within contracting organisations charged with undertaking this role to have undergone any recognised test of competency to do so.”

“Recent changes to models of procurement of public building, driven by a desire for greater efficiency, and an unachievable desire to transfer all risk away from the client, have unfortunately not appreciated the need to build into these models the essential provision of an appropriate level of independent scrutiny.”

“Frequently clients under such arrangements have limited direct access to the architects and engineers who design their projects or to any reports they may

⁵http://www.edinburgh.gov.uk/download/meetings/id/53239/report_of_the_independent_inquiry_into_the_construction_of_edinburgh_schools

produce other than through the contractor. Not only does this inevitably impact on the overall design quality achieved, but with these changes the presence of architects and engineers on site has reduced. Increasingly, Clerks of Works and resident engineers are also not being employed to assist in the protection of the quality of construction.”

“A number of witnesses to the Inquiry identified a desire to reduce the cost of fees as a major factor in deciding the level of provision of effective inspection of construction, rather than a serious assessment of the risks of not providing for adequate independent scrutiny.”

“A review of the drivers that have resulted in the virtual removal of appropriate independent scrutiny is required to bring the pendulum back to a more realistic position in this regard. As stated before, best practice methods are available, and could be incorporated into all models of procurement to address what is clearly emerging as a shortcoming in the way the construction industry currently operates. The procurers of buildings need to consider whether the drive for faster, lower cost construction may be being achieved to the detriment of its quality and safety.”

The Scottish Government has already begun to respond to the recommendations of the Report of the Independent Inquiry into the Construction of Edinburgh Schools, publishing Construction Policy Note CPN 1/2017: Interim guidance for site inspection and assurance on behalf of public sector clients.⁶ This guidance requires contracting authorities engaged in construction to make appropriate arrangements for the independent inspection of construction activities, including specific guidance adapted to traditional, design and build and PFI procurement approaches.

- A2.3 The CDM Regulations 2015, which aim to ensure the health, safety and welfare of those constructing, maintaining and demolishing buildings, set out the defined roles of the “Principal Designer” and the “Principal Contractor”, with responsibilities to plan, manage, monitor and co-ordinate health and safety in the pre-construction and construction phases of the project respectively. This may provide a useful model which could be applied in the context of ensuring the fire safety of new buildings and buildings subject to material alteration.
- A2.4 The Regulatory Reform (Fire Safety) Order 2005 repealed fire certificate legislation, with independent oversight by the local fire authority, and introduced a regime of fire risk self-assessment. This regulatory framework imposes on the “responsible person”, the employer in a workplace or the person having control of the premises in other buildings, a duty to carry out fire risk assessments. In most cases the “responsible person” will rely upon the advice of a fire risk assessor, presumably with education, training and experience in the principles of fire safety and fire risk assessment, but such appointments are made in an unregulated professional environment. The number and range of fire protection failures that have been identified through new fire risk assessments undertaken on the 228 buildings over 18m

⁶<http://www.gov.scot/Resource/0052/00522720.pdf>

in height that failed the DCLG cladding testing programme seems to suggest that this regime has been less than effective in the context of fire safety in high-rise, multiple occupancy housing in local authority or housing association ownership. For higher risk premises (for example the premises types that were designated under the Fire Precautions Act 1971 and subsequent statutory instruments) the reintroduction of formal fire certification, with responsibility for enforcement returned to the fire brigades as the fire enforcement authorities, along with rights to issue prohibition notices, must be given the most serious consideration. Alternatively, a much more rigorous, independent and regulated system of fire risk assessors needs to be implemented.

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?

A3.1 **Increasing fragmentation of roles means that there is inadequate clarity about which professionals have over-arching responsibility for the construction of fire safe buildings and their safety in use, and the responsibilities and duties of construction clients and building owners.**

A3.2 The Report of the Independent Inquiry into the Construction of Edinburgh Schools⁷ makes some important points in relation to the issue of over-arching responsibility for meeting fire safety requirements in buildings:

“Recommendation 1.3 - Public bodies cannot delegate duties.

In seeking to transfer as much risk as possible away from themselves in relation to the design and construction of facilities, public bodies should understand that they cannot delegate to others the duty that they ultimately owe to the public to ensure the provision of a safe environment for the delivery of services to their communities and this should inform their approach to their quality assurance processes of projects. There should always be an appropriate level of independent scrutiny in relation to all aspects of design and construction that are in effect largely or partly self-certified by those producing them.”

“Recommendation 7.1 - Scope of Building Standards inspection and certification.

The Inquiry formed the view that there was a common misconception as to the extent of the reliance that can be placed on the quality of construction of a building because it had successfully gone through the statutory Buildings Standards process [Building Control in England].

The typical frequency of site visits and the level and nature of inspections undertaken, as provided in evidence, can only confirm that buildings are being built generally in accordance with approved warrants (Full Plans approval in England).”

⁷Ibid., 6.

Competencies of key players

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?

A4.1 A review of the training and accreditation of professionals involved in the design and construction of buildings, the verification of Building Control compliance and the assessment of fire risk in use should form part of the Review, but must be accompanied by greater clarity of required standards and a larger role for independent scrutiny of design and construction.

A4.2 The identification of 228 buildings that have not met the cladding testing criteria set by the DCLG can only imply either a widespread lack of competence within the design, building control and contracting branches of the construction industry, or a very serious and systemic regulatory failure.

Jim Fitzpatrick MP, speaking in a debate on the Grenfell Tower fire in the House of Commons on 12 July 2017, set out this fundamental question:

“That raises the key issue. If the guidance is still current and it failed at Grenfell, one of two things must be true: either the guidance is not up to the job and needs reviewing; or the guidance is adequate but was ignored. That is the fundamental question that should be addressed by the independent expert advisory panel, which was announced by the Secretary of State and which contains a number of distinguished members. As I understand it, it can also second additional members for specific tasks. When he responds, will the Minister tell us whether the panel has identified the guidance in Approved Document B of the fire regulations as a priority piece of work that needs addressing? As has been mentioned several times today, it was last revised in 2006, so its review is overdue.”

The RIBA Regulations and Standards Group is working with the Association for Specialist Fire Protection (ASFP) and other construction industry stakeholders to develop an overarching strategy to encourage collaborative working across the whole design and build process to improve the quality of installed fire protection. This project has the working title “RIBA Plan of Work for Fire Safety” and will utilise the RIBA Plan of Work, the standard construction industry framework for project work stages, to ensure that there is a detailed process of design and approvals for issues such as fire brigade access, the need for sprinklers and specification for fire protection in initial and later more detailed building designs, and a schedule for fire safety throughout the construction process which is confirmed as adequately installed. This entails a more detailed mapping of consultations, specialist input and completed work validation processes required during both the design and construction phases. The RIBA would be pleased to share the outcomes of this work with the Independent Review of Building Regulations and Fire Safety.

A4.3 In August 1973, fifty people lost their lives and a similar number were seriously injured in a fire at the Summerland leisure complex on the Isle of Man, and a wide-ranging Commission of Inquiry was established. The Grenfell Tower fire disaster has necessitated a similar investigation, not just of the causes of the fire, its spread and the huge loss of life, but also a broader examination of the efficacy of current Building Regulations and fire safety regulation, the Government's competence in protection of the public, the ways in which building owners discharge their duty of care to their residents, the overall competency of the construction industry and enforcement authorities with regard to fire safety, and the suitability of modern procurement approaches to deliver safe buildings. A number of the 34 recommendations of the Summerland Inquiry⁸ make sobering reading today:

"Recommendation 1: In the designing of a building, a named person should be in charge from the outset and take, and be known to be taking, the major decisions."

"Recommendation 2: If manufacturers, fabricators, and other participants in a project are expected to take responsibility for some part of the performance of the building, these responsibilities should be clearly agreed in writing, and the client should be informed."

"Recommendation 3: Architects and clients together should carefully consider the requirements and performance of a building in use at the stage when conceptual designs are proposed, and before proceeding with the details of the design and the later submission of plans to the authorities."

"Recommendation 5: Architectural training should include a much extended study of fire protection and precautions."

"Recommendation 6: Building inspections during construction should be conducted formally and precisely, both by architects and the local authority inspectors. They should be recorded to confirm that the building is being built in accordance with the approved plans and the relevant byelaws and regulations."

"Recommendation 7: On the completion of the works, after a satisfactory official inspection, a completion certificate should be issued. No public building should be occupied until after this has been done."

"Recommendation 14: When a large public assembly or entertainment building will contain any substantial quantity of flammable materials, the design should include installation of a sprinkler system unless special reasons apply."

"Recommendation 16: Manufacturers and suppliers should provide the fullest possible information about the fire properties of building materials to intended users."

⁸Report of the Summerland Fire Commission (Hon Mr Justice Cantley, Chair), May 1974

“Recommendation 17: In applying the results of British Standard and other standard fire tests on building materials and structures, architects and designers should bear in mind the difference in scale between the standard test and the conditions of use in full size. If necessary, special investigations should be made on a suitable scale to supplement the test.”

These 43 year old recommendations form a useful benchmark to assess current practice and any future proposed changes.

- A4.4 Under the Architects Act 1997, the Architects Registration Board (ARB) has the responsibility for prescribing the qualifications and practical experience required for entry onto the UK Register of Architects. The ARB produces prescription criteria which are held in common by the RIBA for the purposes of RIBA validation of architectural courses in the UK. The ARB prescription criteria⁹ are themselves derived from specific criteria for architectural training set out in Article 46 of EU Directive 2005/36/EC on the recognition of professional qualifications. They include the following requirements:

“The graduate will have the skills to prepare designs that will meet building users’ requirements and comply with UK legislation, appropriate performance standards and health and safety requirements. (GC10.3)”

“The graduate will have knowledge of the fundamental legal, professional and statutory responsibilities of the architect, and the organisations, regulations and procedures involved in the negotiation and approval of architectural designs, including land law, development control, building regulations and health and safety legislation. (GC11.1)”

“The graduate will have knowledge of the professional inter-relationships and individuals and organisations involved in procuring and delivering architectural projects, and how these are defined through contractual and organisational structures. (GC11.2)”

“A successful candidate for the Professional Practice Examination will demonstrate an understanding of building regulations, approved documents and standards, guidance and processes (PC3.3) and health and safety legislation and regulations (PC3.6).”

UK architectural education therefore includes in broad terms the legislative framework for ensuring the health, safety and welfare of both construction workers and building users, in terms of health and safety regulations and building regulations. However, it is noticeable that there is no explicit reference within the criteria to design for fire safety as a specific element of technical design and regulatory compliance, and the RIBA proposes that as part of the current review of ARB prescription criteria the issue of design for fire safety should be given greater prominence. RIBA visiting boards should ensure that evidence of addressing design for fire safety is provided by schools of architecture seeking validation or re-validation of courses.

⁹http://www.arb.org.uk/wp-content/uploads/2016/05/ARB_Criteria_123.pdf

Enforcement & Sanctions

Q5 Is the current checking and inspection regime adequately backed up through enforcement and sanctions? In particular

- Where does the regime already adequately drive compliance or ensure remedial action is always taken in a timely manner where needed?
- Where does the system fail to do so? Are changes required to address this and what would be the benefits of doing so?

A5.1 **The lack of a formal legal requirement for the issue of a Building Control Completion Certificate, infrequent use of Building Control enforcement procedures and inadequate enforcement of regulation 38 of the Building Regulations (provision of post-completion fire safety information to the “responsible person”) are separately and in combination highly problematic.**

A5.2 The Report of the Independent Inquiry into the Construction of Edinburgh Schools¹⁰ covers the issue of non-application for and non-issue of Building Control completion certificates:

“Recommendation 7.2 - Sanctions for non-compliance with Building Standards.

The evidence provided to the Inquiry showed a number of breaches in relation to the PPP1 schools compliance with the statutory applications and certification processes required under the Building (Scotland) Act 2003.

The Inquiry noted that:

(a) there does not appear to be an automatic follow up by Building Standards Departments to require compliance, where proper processes have not been complied with; and

(b) that the non-application for and non-issue of completion certificates for new buildings would not appear to be an infrequent occurrence.”

A5.2 Some commentators have suggested that the introduction of market competition to Building Control, via private sector Approved Inspectors, has created risk of potential conflicts of interest and under-resourcing of the checking and inspection regime.

Tenants’ & Residents’ Voice in the current system

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

A6.1 **Currently apart from potential recourse to the Housing Ombudsman there is little real opportunity for the tenant’s voice to be heard.**

A6.2 The reintroduction of a fire certificate regime for higher risk premises, with stronger powers for the fire brigades as the fire enforcement authorities, would offer a straight forward and effective route for tenants and residents

¹⁰Ibid. 6, 8.

to raise concerns about the fire safety of their buildings via the fire enforcement authorities. Tenants and Residents' Associations are ideally placed to act as a conduit for such communication and need to be involved when fire risk assessments are carried out.

Quality Assurance and Testing of Materials

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

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

A7.1 **Testing requirements need to be clear in Approved Document B and should include consideration of the toxicity of combustion products.**

A7.2 The claims made by material manufacturers and suppliers with respect to public health and fire safety could be checked by independent bodies with suitable qualifications and experience to identify any false, misleading or incorrect statements. Manufacturers of building products and systems should be required to prove their fitness for purpose by full scale fire tests.

Differentiation within the current Regulatory System

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

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

A8.1 **User research undertaken by NBS for the DCLG¹¹ suggests that users are confused by the current division of Approved Document B into dwelling houses and other buildings. Any risk-based differentiation should not ignore the life risks inherent in all building types.**

A8.2 The 2017 user research undertaken by NBS for DCLG suggested that users of Approved Document B would prefer a domestic/non-domestic split (residential/non-residential).

A8.3 Any further differentiation in terms of fire safety guidance would be better based upon the level of fire risk of the building rather than height or use alone. Many factors, including height, building use, level of occupancy, presence of vulnerable occupants etc., can affect the level of fire risk. If a fire certification regime were re-introduced this would provide a ready means of defining higher risk premises, which would presumably include high-rise multiple occupancy residential buildings.

¹¹Ibid., 2.

- A8.4 The design of passive fire protection measures, such as numbers of stairs, travel distances, compartmentation, fire stopping etc., should be balanced with active systems such as smoke ventilation, automatic detection, alarms, sprinklers, fire curtains, management evacuation policy etc. Active systems should not supplant passive alternatives in fire engineering solutions. The principle of an “alternative means of escape “ should always give recourse to physical options of actual escape, such as always providing two stairs above a certain height or size of building, or access to a secure fire refuge area higher in the building. The likelihood of both staircases being immediately compromised together is low in a two staircase building. This is a Risk Management solution rather than a Fire Engineering solution, and requires the intervention of rational and independent designers, consultants and advisers.
- A8.5 Lower risk buildings also present life risks. Relatively simple, prescriptive measures, such as the introduction of mandatory automatic sprinkler/fire suppression systems in all new housing, as is already required by the Building Regulations in Wales, would have an immediate positive effect in reducing the loss of life in fires in homes.

International Comparisons and Other Sectors

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

- A9.1 In considering expert evidence on the behaviour of fire in buildings and the UK regulatory framework for design and construction for fire safety, the Review should seek independent input by experts not directly or indirectly involved in the development of UK Building Regulations, i.e. from recognised authorities outside the UK.**
- A9.2 The RIBA believes that extremely valuable lessons could be learned from both other fires in high rise residential buildings that have occurred internationally and best practice in regulatory systems for ensuring fire safety in other countries, for example from Australia, Canada and Dubai.
- In 2016, “out-of-cycle” amendments to the National Construction Code in Australia were opened for public comment¹². The proposed amendments are largely a response to the Lacrosse Apartment fire in Melbourne in 2014, and aim to improve fire safety in high rise buildings. The consultation document proposes the introduction of a new Verification Method for testing external wall assemblies and changes to “Deemed-to-satisfy” provisions for non-combustible elements including external walls, including a requirement for the core of any bonded laminate material to be non-combustible (A1).

¹²https://www.abcb.gov.au/-/media/Files/Resources/Consultation/NCC_2016_Volume_One_Amendment_1_Public_Comment_Draft.pdf

There may be similar lessons to be learnt from the National Fire Code of Canada.

The 79-storey Torch Tower in the Dubai Marina area caught fire on August 5th 2017. While no loss of human life occurred, the blaze caused extensive damage. It was the second major fire at this high-rise residential building in two years. Numerous skyscrapers in the UAE have witnessed fire incidents in recent years, especially in the Dubai Marina district where three fire incidents occurred in the last 12 months alone. It is thought that over 150 high rise buildings in Dubai may have ACM (PE) rainscreen cladding.

An amended version of the UAE Fire Safety and Life Protection Code is currently under development, and it is understood that changes will primarily be concerned with improving the fire safety of cladding panels. In September 2017, the Dubai Land Department (DLD) through its regulatory arm - Real Estate Regulatory Agency (Rera) - also announced a process of taking proactive and preventive measures to reduce the fire incidents in Dubai, by replacing non-fire-resistant facades on existing buildings in collaboration with the city's real estate developers.

A9.3 In her rule 43 letter to the Secretary of State for Communities and Local Government in 2013¹³, the Coroner for the Lakanal House inquests recommended retro-fitting of sprinkler/automatic fire suppression systems in high-rise residential buildings, writing:

“Evidence adduced at the inquest indicated that retro-fitting of sprinkler systems in high-rise residential buildings can now be possible at lower cost than had previously been thought to be the case, and with modest disruption to residents.

It is recommended that your Department encourage providers of housing in high-rise residential buildings containing multiple domestic premises to consider the retro-fitting of sprinkler systems.”

In October 2013, the National Assembly for Wales passed new regulations that require a sprinkler/automatic fire suppression system to be installed in new and converted houses and flats, developed following the passing of the Domestic Fire Safety (Wales) Measure 2011 by the Welsh National Assembly. In introducing the new regulations, John Griffiths AM, Minister for Environment and Sustainable Development said:

“We accept that there is a cost to introducing sprinklers but, as a society, we must seek to prevent avoidable death and injury arising from house fires...the number of deaths and injuries is still too high. On average, over the last 10 years, 17 deaths and 503 injuries have resulted from fires in residential properties each year in Wales. The BRE report indicates the cost benefit analysis case for installing sprinkler systems in new build care homes, halls of residence and potentially for flats, sheltered flats, and traditional houses in multiple occupation. The study indicates that the cost benefit case is less strong for regulating all new domestic properties but the Welsh Government

¹³Ibid., 2.

believes that care is required when considering any policy that has the potential to protect life.”

Regulations 37A and 37B of the Building Regulations for Wales now require sprinkler/automatic fire suppression systems in all new and converted residential buildings in Wales.

- A9.4 It is clear that other countries such as the US and Germany have a much more rigorous passive fire design, scheduling, installation, checking and validation process than that required by regulation in the UK. The weaker UK context allows the value engineering, and non or incorrect installation, of fire protection materials, whether accidentally or intentionally, and due to the lack of validation or independent supervision these cannot be identified until the occurrence of a fire or by intrusive surveys. Active systems are easier to check but can also fail to work in fire situations.
- A9.5 The UK construction industry is rapidly adopting greater use of digital design and construction information, commonly referred to as Building Information Modelling (BIM). Such digital design and construction data can increasingly be used to check Building Regulations compliance. Singapore is relatively advanced in this form of automated verification, which it utilises in its Building Control processes to confirm matters such as means of escape and escape travel distances. BIM also offers the opportunity for improved management and utilisation of post-completion fire safety information.

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?

- A10.1** Although the RIBA does not have any specific detailed knowledge of other regulatory regimes, clearly there may be valuable lessons to be learnt from other sectors.
- A10.2 The RIBA believes that the "Just Culture" approach being widely adopted in the commercial aviation sector may offer some useful pointers and fresh thinking. The European Corporate Just Culture Declaration aims to deliver a safer aviation system. In it, signatories commit to build an atmosphere of trust in which staff are confident to report safety events and occurrences even when they themselves have made honest mistakes. "Just Culture" has a direct impact on lowering incidents and preventing aircraft accidents, through creating a safer environment for the reporting of errors and near-misses to prevent similar mistakes turning into disasters. The rate of airline accidents has now dropped to one crash for every 8 million take-offs.
- A10.3 The concept of Design and Build and PPI procurement as it has developed in the UK construction industry has had an impact on health and safety and fire safety processes and cultures in the industry. The legal and financial aspirations to have "a single contract" and "financial certainty" may have unintended consequences, due to the contractor's capability to value engineer the professional design team's intended design without an independent and considered evaluation of alternative proposals.

Part 2 - Initial recommendations from the RIBA to the Independent Review of Building Regulations and Fire Safety

The RIBA believes that the Independent Review of Building Regulations and Fire Safety should be comprehensive, covering the whole of Approved Document B and not just focussed on guidance and regulations relating to high-rise, multiple occupancy residential buildings. The Review should encompass all building types and in particular must also address current innovations in construction methods, such as multi-storey timber frame construction and offsite modular and volumetric fabrication.

The RIBA proposes the following specific initial recommendations, which are provided strictly for the benefit of the Review, and should not be relied upon by others as constituting expert advice:

- R1 **Repeal of The Regulatory Reform (Fire Safety) Order 2005**, under which building owners undertake their own fire risk assessment, and the re-introduction of mandatory Fire Certificates for designated premises, based on independent inspections by the fire brigades, with statutory powers of entry to individual dwellings where necessary.
- R2 **An enhanced role for the fire brigades in assisting Building Control authorities** in the fire risk assessment of Building Regulations Full Plans Applications for works involving higher risk buildings that will require mandatory fire certificates.
- R3 **Review of the “stay put” policy in high-rise, multiple occupancy residential buildings**, first introduced in British Standard Code of Practice CP3: Chapter IV (1962) Part 1: Fire Precautions in flats and maisonettes over 80ft in height. For new buildings, the RIBA has a preference for simultaneous evacuation, or phased/staged fire alarm systems, alternative means of escape options, and increased escape stair widths.
- R4 **Introduction of a Building Regulations requirement for central fire alarm systems, with phased /staged capabilities, in multiple occupancy residential buildings.**
- R5 **Removal of the “desk-top” study approach to demonstrating compliance with Regulation B4.**
- R6 **Introduction of requirements for sprinklers/automatic fire suppression systems in all new and converted residential buildings**, as currently required under Regulations 37A and 37B of the Building Regulations for Wales, or at least for residential buildings over three storeys in height.
- R7 **Introduction of a requirement for more than one means of vertical escape from new multiple occupancy residential buildings of more than three storeys in height**, and no use of compensatory features for omission of a staircase or alternative means of escape.

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- R8 **Review of the requirements for natural and mechanical smoke vent/exhaust provisions** to corridors, lobbies and stairs to ensure current performance capacities are sufficient.
 - R9 **Development of clearer, prescriptive and design process driven guidance in Approved Document B**, written in plain language with straight forward diagrams. Any test based solutions to be based on full scale fire testing and not use desktop studies.
 - R10 **External walls of buildings over 18m in height to be constructed of non-combustible (European class A1) materials only.** (The Independent Review should also give detailed consideration to much greater restriction on the use of combustible materials and materials of limited combustibility in external wall construction more generally.)

The RIBA believes that the Independent Review should also make recommendations in regard to ensuring the fire safety of the UK's existing stock of high-rise, multiple occupancy residential buildings, and recommends:

- R11 **Retro-fitting of central fire alarm systems in existing residential buildings over 18m in height.**
- R12 **Retro-fitting of sprinklers/automatic fire suppression systems to existing residential buildings over 18m in height**, and perhaps extended to all existing residential buildings above three storeys in height.
- R13 **Consideration of the construction of alternative vertical means of escape, or escape safe havens/refuges, for residential buildings over 18m in height when there is currently only one staircase.**
- R14 **For new refurbishment projects involving “material alterations” to high-rise, multiple occupancy residential buildings, the retro-fitting of central fire alarm systems and sprinklers/automatic fire suppression systems should be mandatory.** This could be structured on a similar basis to the “consequential improvements” required under Part L of the Building Regulations to the energy performance of existing buildings where they are subject to renovation and/or extension.

The development of new materials and methods of construction and constantly evolving knowledge about the fire performance of buildings means that fire regulation needs to be regularly updated. The lack of a periodic timetable for updating of the Building Regulations Approved Documents, which has allowed review of Approved Document B to be almost indefinitely delayed, is highly problematic.

- R15 **The RIBA proposes that a formal, predetermined programme for review of key Approved Documents should be adopted**, as is the case with the Australian National Building Code. The CDM Regulations (Health and Safety) are reviewed every 5 years.

The RIBA believes that in addition to making recommendations for changes to Building Regulations, enhancement of the Building Control and enforcement regime, and repeal of the Regulatory Reform (Fire Safety) Order 2005, **the Independent**

Review of Building Regulations and Fire Safety should also give significant consideration to the impact of procurement decisions and allocation of project responsibilities on project quality and safety, and the role of clients in ensuring independent scrutiny of construction work. The public sector has an important national role to play in demonstrating best practice in procurement and construction oversight.

Consideration should be given to the adoption of the “Principal Designer” and “Principal Contractor” roles set out in the CDM Regulations 2015, with regard to ensuring so far as is reasonably practicable the health, safety and welfare, including fire safety, of those constructing, maintaining and demolishing buildings, within new regulation to also encompass ensuring the fire safety of building users. The “Principal Designer” should have powers during the design and any “contractor design” periods of projects to enable safe design and construction. This will need greater level of approvals and inspection by Building Control officers and independent clerks of works/site architects. The “Principal Contractor” role should have a greater responsibility to work collaboratively with the fire brigades, client and “Principal Designer” to achieve these fire safety objectives. Such a regulatory framework could include:

- **During construction:** Building Inspections conducted formally by the Principal Designer, Principal Contractor and the Building Control Officer, and recorded in writing by the Principal Contractor that the building is constructed in accordance with the approved plans, relevant Building Regulations and Codes of Practice.
- **Before the issue of the Final Certificate:** The Principal Contractor confirms, in writing to the Principal Designer, that the works to any building have been built in accordance with the approved plans, relevant Building Regulations, Codes of Practice, Fire and HSE legislation.
- **The Final Certificate:** Cannot be issued until this written confirmation has been received by the Principal Designer.
- **Regulation 38:** The Principal Designer shall give all the fire safety information critical to life safety in and around the building.
- **H&S File:** These statements are to be recorded in the H&S File for the life of the building until its demolition.