

**Technical Review of Approved Document B of the Building Regulations - A Call for Evidence**  
**RIBA Response 01.03.19**

<https://www.gov.uk/government/consultations/technical-review-of-approved-document-b-of-the-building-regulations-a-call-for-evidence>

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## Introduction

The RIBA supports a detailed technical review of Approved Document B. It has been 20 months since the fire at Grenfell Tower. We urge the government to provide sufficient resources for a swift, thorough and comprehensive review to ensure that the updated guidance includes the recommendations that we and others in industry have been calling for in order to regain public trust and further prevent tragic losses of life in the event of a fire. The RIBA recommendations and evidence in response to this consultation have an emphasis on all multi occupancy residential buildings.

In responding to this consultation, the RIBA reiterates its key recommendations for baseline prescriptive requirements to resist the spread of fire, and ensure that occupants can be safely evacuated and that access is provided for fire-fighters to save lives; further evidence and reasoning for these requirements is included in the relevant sections of the attached table:

- **Sprinklers** – a requirement for sprinklers/automatic fire suppression systems in all new and converted residential buildings (as already required in Wales) and in all existing residential buildings above 18m from ground level as 'consequential improvements' where a building is subject to 'material alterations'.
- **Alternative means of escape** – in all new multiple occupancy residential buildings, a requirement for at least two stairways, offering alternative means of escape, where the top floor is more than 11m above ground level or the top floor is more than three storeys above the ground level storey (as required for commercial buildings).
- **Centrally addressable fire alarms** – a requirement for centrally addressable fire alarm systems in all new and converted residential buildings and in all existing residential buildings above 18m from ground level as 'consequential improvements' where a building is subject to 'material alterations'.

The RIBA recommends that sprinklers/automatic fire suppression systems are a highly effective means of life protection, and therefore there should be a mandatory requirement for sprinklers/automatic fire suppression systems in all new and converted residential buildings, as already required in Wales, and the requirement for retro-fitting of sprinklers/automatic fire suppression systems to existing residential buildings above 18m from ground level as 'consequential improvements' where a building is subject to 'material alterations'.

Sprinklers should not be used as means to compensate other key fire safety measures, such as (Volume 2, 3.52) the removal of self-closing devices to fire doors to bedrooms in care homes, the extension of travel distances (which should be assessed as part of the review to maintain fixed travel distance dimensions based on all peoples capabilities), (Volume 2, 13.17) 'a reduction in boundary distance' or 'alternatively, the amount of unprotected area may be doubled if the boundary distance is maintained'.

For too long government and the construction industry have relied on building design and construction that meets the regulatory requirements to resist the spread of fire (B2 – internal linings, B3 – internal structure and B4 – external), while the requirements for means of warning and escape (B1) and access and facilities for the fire service (B5) have been increasingly deprioritised in technical guidance over decades.

As it stands the technical guidance in Approved Document B has been developed assuming that measures to resist the spread of fire will be effective and the stay put policy can be relied on, with no provision for when fire spreads beyond compartments and occupants need or chose to leave their flats. Enabling occupants to safely evacuate or be rescued from their flats or from protected lobbies during a fire must be a priority for government in the technical review of Approved Document B. This will require changes to the technical requirements in the document on: means of warning; means of escape; sprinklers; ventilated corridors; protected lobbies adjacent to firefighting stairs and lifts; and will require new research to be undertaken on maximum travel distances.

The RIBA recommends that residential buildings should be designed so that it is both safe to stay put and safe to evacuate in the event of a fire should occupants wish or need to. To achieve residential buildings in which it is safe to stay put and which are safe to evacuate in the event of a fire, the RIBA recommends that a requirement is included in Approved Document B for at least two stairways in all new multiple occupancy residential buildings, offering alternative means of escape, where the top floor is more than 11m above ground level or the top floor is more than three storeys above the ground level storey (as required for commercial buildings). This will meet the regulatory requirement (B1) of providing occupants with an 'appropriate means of escape in case of fire from the building to a place of safety outside the building capable of being safely and effectively used at all material times' including when the fire service is using a stairway to fight a fire. This will also reflect the International Building Code's requirement for at least 2 stairways in all buildings containing more than 30 people.

The means of warning and escape requirements in Approved Document B are currently based on the stay put policy, with no alternative provision for when fire spreads and evacuation is required. There are no appropriate provisions for the early warning of fire when fire spreads and the stay put policy must be abandoned and phased or simultaneous evacuation is required. This is exacerbated by the inadequacy of the current Approved Document design guidance, which allows extended travel distances based on other design provisions, such as subdividing intermediate corridors (further compounded with no means of passive or mechanical ventilation), insufficient refuges and allowing firefighting lifts to open into a protected corridor rather than a protected lobby, where minimum fire resistance requirements are much greater.

The RIBA recommends a requirement for centrally addressable fire alarm systems in all new and converted residential buildings; and in all existing residential buildings with a storey above 18m from ground level as 'consequential improvements' where a building is subject to 'material alterations'. The alarm system strategy should take into account the most appropriate evacuation procedure, e.g. delayed evacuation, phased evacuation and simultaneous evacuation. The RIBA recommends that the Approved Document provides guidance on appropriate means of warning and escape strategies for specialised housing and care homes, where means of warning and escape will be carefully managed by the building manager and fire service.

The RIBA have developed design-based research on these recommendations, drawing from relevant industry and fire and rescue authority expertise, to validate these design principles and the integrity of these recommendations as baseline prescriptive regulations. The RIBA would like to take the opportunity

of the review of Approved Document B to present this evidence and discuss this in more detail, feeding into the relevant strands of the Approved Document review.

The RIBA wishes to pose a question to government that requires consideration when drafting any new Approved Document guidance: if a fire breaks out in a multi occupancy residential building, do all occupants have a right to know? If so, this right will have an impact on the requirements for means of warning and escape.

Requirements	ADB Ref	RIBA Response
<b>Area of fire safety: General</b>		
Scope of fire safety		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p>The RIBA recommends that the review of Approved Document B must be a comprehensive, transparent and fundamental reappraisal, rather than amendment or clarification, to remove uncertainty, provide clarity and protect public safety.</p> <p><b>All residential buildings and buildings where people sleep</b></p> <p>The RIBA believes that the scope of research, review and implementation of any new/updated guidance should focus on all residential buildings, although other building types where people sleep will also benefit from the same requirements.</p> <p><b>Clearer guidance on meeting functional requirements in the context of occupant behaviour, construction and fire-fighting practice</b></p> <p>Clearer and updated guidance should be provided on meeting the functional requirements set out in Paragraphs B1 – B5 of Schedule 1 to the Building Regulations 2010. It is acknowledged that the current guidance promotes interpretation, using alternative standards for specific provisions which may result in the functional requirements to resist the spread of fire, provide means of warning and escape and access to save lives in the event of fire not being met. The current guidance has not been reviewed fully since 2006 to reflect how buildings are used, how people behave, their capabilities particularly those that are vulnerable and less mobile, current and emerging materials, systems and technologies and tactical response from the fire service.</p> <p><b>Greater focus on meeting the functional requirements for means of warning and escape and means of access, in addition to resisting the spread of fire</b></p> <p>The means of warning and escape requirements in Approved Document B are currently based on the stay put policy, with no alternative provision for when fire spreads and evacuation is required. There are no appropriate provisions for the early warning of fire when fire spreads and the stay put policy must be abandoned and phased or simultaneous evacuation is required. This is exacerbated by the inadequacy of the current Approved Document design guidance, which allows extended travel distances based on other design provisions, such as subdividing intermediate corridors (further compounded with no</p>

means of passive or mechanical ventilation), insufficient refuges and allowing firefighting lifts to open into a protected corridor rather than a protected lobby, where minimum fire resistance requirements are much greater.

#### **Interaction with British Standards**

The RIBA recommends that baseline prescriptive requirements are included in BS 9991 (and BS 9999 as necessary), and that government should co-ordinate with British Standards Institute to ensure that these standards are amended to co-ordinate with any revisions to Approved Document B and are issued simultaneously.

#### **Means of asset protection only should be considered outside the building regulations**

The RIBA recommends that, where principles of asset protection are inextricably linked to life safety, these should not be considered as means of asset protection, but rather as means of life safety protection, which provide the added benefit of asset protection and thus sit within the scope of the approved documents.

Measures that only benefit asset protection should be considered outside of the Building Regulations and approved documents. Businesses should make their own decisions on commercial property protection in conjunction with their insurers.

#### **What evidence already exists?**

##### **Lakanal House Fire: Coroner's Recommendations**

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 House. Her Honour Frances Kirkham CBE, the Assistant Deputy 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."*

		<p><b>Details of evidence provided</b></p> <ul style="list-style-type: none"> <li>• BS 9991:2015, Fire safety in the design, management and use of residential buildings. Code of practice <a href="https://shop.bsigroup.com/ProductDetail?pid=000000000030351309">https://shop.bsigroup.com/ProductDetail?pid=000000000030351309</a></li> <li>• BS 9999:2017, Fire safety in the design, management and use of buildings. Code of practice <a href="https://shop.bsigroup.com/ProductDetail?pid=000000000030357099">https://shop.bsigroup.com/ProductDetail?pid=000000000030357099</a></li> <li>• Lakanal House Fire: Coroner's Rule 43 Letter (2009) <a href="https://www.lambeth.gov.uk/sites/default/files/ec-letter-to-DCLG-pursuant-to-rule43-28March2013.pdf">https://www.lambeth.gov.uk/sites/default/files/ec-letter-to-DCLG-pursuant-to-rule43-28March2013.pdf</a></li> <li>• The LPC Design Guide for the Fire Protection of Buildings 2000. A Code of Practice for the Protection of Business <a href="https://www.thefpa.co.uk/fpa-utilities/download.html?fid=3211A07E-D93F-488C-B3DB1D7952983D8B">https://www.thefpa.co.uk/fpa-utilities/download.html?fid=3211A07E-D93F-488C-B3DB1D7952983D8B</a></li> <li>• RISC Authority Design Guide for the Fire Protection of Buildings: Essential Principles <a href="https://www.riscauthority.co.uk/utilities/download.html?fid=BE1E0517-DBAF-4588-956AA88E31E21229">https://www.riscauthority.co.uk/utilities/download.html?fid=BE1E0517-DBAF-4588-956AA88E31E21229</a></li> </ul>
Purpose Groups		
Specialised housing and care homes		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p>The RIBA recommends that the Approved Document provides guidance on appropriate means of warning and escape strategies for specialised housing and care homes, where means of warning and escape will be carefully managed by the building manager and fire service taking into account the mobility of occupants. People residing or sleeping in such buildings can experience issues with mobility and will therefore require longer periods of time and easily accessible methods of escape in the event of a fire.</p>
Trigger heights and thresholds		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p>The RIBA believes that there should be key baseline prescriptive requirements for the design and construction of all residential buildings and other buildings where people sleep in order to prevent further tragic losses of life in the event of a fire. These requirements should be applied at the following trigger height thresholds:</p> <ul style="list-style-type: none"> <li>• The requirement for sprinklers/automatic fire suppression systems in all new and converted residential buildings (as already required in Wales) and in all existing residential buildings above 18m from ground level as 'consequential improvements' where a building is subject to 'material alterations'.</li> <li>• The requirement for alternative means of escape, dry risers, firefighting shafts, protected refuge/firefighting lobbies adjacent to the stairway and firefighting lifts, and ventilated common corridors should be set at 11m in height above ground level, or more than 3 storeys, similar to the requirements on commercial buildings where occupants are not asleep.</li> </ul>

	Vol 2, Diagram 51	<ul style="list-style-type: none"> <li>• The requirement for centrally addressable fire alarm systems in all new and converted residential buildings, and in all existing residential buildings with a storey above 18m from ground level as 'consequential improvements' where a building is subject to 'material alterations'.</li> <li>• The RIBA recommends research is undertaken to define a new threshold for the requirement of enhanced compartmentation between floors (e.g. fire break floors every 10 storeys).</li> <li>• The RIBA recommends a review of the trigger height for the requirement of wet risers at 50m, to ensure this is still appropriate.</li> </ul> <p>The RIBA recommends that Diagram 51 (ADB Volume 2), and other guidance sections are updated to reflect these thresholds.</p> <p><b>What evidence already exists?</b></p> <p>The International Building Code and other international regulations provide a higher degree of fire safety with lower trigger heights and thresholds. Due consideration should also be given to associated guidance, such as Fire and Rescue Authority manuals, to ensure that the way buildings are designed reflects the way that the fire and rescue service tackles fires.</p> <p><b>Details of evidence provided</b></p> <ul style="list-style-type: none"> <li>• International Building Code <a href="https://www.iccsafe.org/codes-tech-support/codes/2018-i-codes/ibc/">https://www.iccsafe.org/codes-tech-support/codes/2018-i-codes/ibc/</a></li> <li>• The Building Regulations (Wales): Regulatory requirement for Automatic Fire Suppression Systems <a href="https://www.legislation.gov.uk/wsi/2017/1274/pdfs/wsi_20171274_mi.pdf">https://www.legislation.gov.uk/wsi/2017/1274/pdfs/wsi_20171274_mi.pdf</a></li> <li>• The Report of the Review Panel on Building Standards (Fire Safety) in Scotland <a href="http://www.gov.scot/publications/report-review-panel-building-standards-fire-safety-scotland/">www.gov.scot/publications/report-review-panel-building-standards-fire-safety-scotland/</a></li> <li>• Fire and Rescue Authority Manuals: Tactical Operational Guidance <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/278168/FINAL_GRA_3_2_Fighting_fires_in_high_rise_buildings.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/278168/FINAL_GRA_3_2_Fighting_fires_in_high_rise_buildings.pdf</a></li> <li>• The RIBA have developed design-based research drawing from relevant industry and fire and rescue authority expertise, to validate these design principles and integrity of these recommendations (for trigger heights for sprinklers/automatic fire suppression systems, alternative means of escape, dry risers, firefighting shafts, protected refuge/firefighting lobbies adjacent to the stairway and firefighting lifts, ventilated common corridors and enhanced compartmentation between floors) as baseline prescriptive regulations. The RIBA would like to take the opportunity to</li> </ul>
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		present this evidence and discuss this in more detail, feeding into the relevant strands of the Approved Document review.
Age Distribution		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p><b>Capabilities and Behaviour of People</b></p> <p>The capabilities and behaviour of people should to be assessed, as this underpins the Approved Document guidance and evacuation strategy. Means of escape, including travel distances, horizontal and vertical escape strategies, stair and landing widths should be reviewed to ensure that building design allows all people a safe means of escape to a place of safety outside the building and provides vulnerable people with safe refuge till they can be evacuated.</p>
Smoke and Toxicity		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p><b>Smoke Production and Toxicity of Construction Materials</b></p> <p>The RIBA recommends that smoke production is limited in all products in external walls and internal linings to the European classification sub category s1 (when tested to BS EN 13501-1), to ensure that residents, the public and the fire service are not exposed to unnecessary risk. Guidance should be prescriptive, with reference to limitations for the use of materials where there is no set limit for smoke production and/or flaming droplets/particles, to provide clear requirements for acceptable materials to specifiers. The classifications used in the Approved Document should be extended to also include the toxicity of combustion products and suitable limitations imposed.</p> <p>The scope should include all materials that are not considered as part of the external wall over 18m; materials that are considered as part of the external wall are addressed as part of the amendment to The Building Regulations in England restricting the use of combustible materials in “external walls” and/or “specified attachments” (including balconies and sun shading elements) on any “relevant building”; namely any building with a storey over 18m above ground level.</p>
Construction Technologies and Designs		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p><b>Design for Manufacture and Assembly (DfMA) and Modern Methods of Construction (MMC)</b></p> <p>The RIBA recommend that consideration should be given to the junctions between modular systems, to ensure that Approved Document technical requirements for compartmentation can be met.</p> <p><b>Cross Laminated Timber (CLT) and Glued Laminated Timber GLT</b></p> <p>Further research into the use of Cross Laminated Timber and Glue Laminated Timber should be undertaken, to obtain relevant scientific data or experimental evidence to determine and quantify the performance of timber buildings when subject</p>

		<p>to real fire loads. The paper ‘Needs for Total Fire Engineering of Mass Timber Buildings’, Bartlett, et al (2016), refers to the need for future research priorities.</p> <p>This research may be used to inform any changes to Regulation 7 (2) and the exemptions list under Regulation 7 (3).</p> <ul style="list-style-type: none"> <li>Needs for Total Fire Engineering of Mass Timber Buildings. Bartlett, Alastair; Wiesner, Felix; Hadden, Rory; Bisby, Luke; Lane, Barbara; Lawrence, Andrew; Palma, Pedro; Frangi, Andrea. 2016 World Conference on Timber Engineering (WCTE 2016). Vienna, 2016.  <a href="https://www.research.ed.ac.uk/portal/files/33151493/Joint_WCTE_full_paper_Final.pdf">https://www.research.ed.ac.uk/portal/files/33151493/Joint_WCTE_full_paper_Final.pdf</a></li> </ul>
Construction details		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p>A holistic review of details and associated exemptions should be undertaken, to ensure that products when used in combination, do not lead to unintended consequences (i.e. curtain walling, spandrel panels and fire breaks all have different requirements, when specified as individual products, yet the system fails when used in combination).</p>
Other issues - please specify theme		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p><b>Approved Document B: NBS Usability Research</b></p> <p>The RIBA concur with a recent User Survey by NBS of Approved Document B, which has highlighted that there is a lack of logical flow in the document. The Approved Document guidance is intended for designers (noted as Professionals involved with ‘standard buildings’, Professionals involved with non-standard buildings’ and Small professionals and DIY-ers), and therefore should reflect the design process in meeting the regulatory requirements. The design process follows this order:</p> <ul style="list-style-type: none"> <li>- <b>Requirement B5:</b> Access and facilities for the fire service</li> <li>- <b>Requirement B4:</b> External Fire Spread</li> <li>- <b>Requirement B1:</b> Means of warning and escape</li> <li>- <b>Requirement B3:</b> Internal fire spread (structure)</li> <li>- <b>Requirement B2:</b> Internal fire spread (linings)</li> </ul> <p>Guidance is required within Approved Document B on this order enabling a logical design and approval process to be followed and a Golden Thread of information to be created for all types of project - new build, refurbishment and maintenance.</p> <p>The RIBA believes that there should be mandatory baseline prescriptive requirements for the design of residential buildings where the top floor is more than 11m above ground level or the top floor is more than three storeys above the ground level storey, at which more onerous requirements are imposed on commercial buildings (where occupants are not asleep). Prescriptive requirements will prevent the inappropriate use of fire engineered solutions which rely on mechanical, electrical and water suppression systems to increase human travel distance criteria.</p>

		<p><b>Details of evidence provided</b></p> <ul style="list-style-type: none"> <li>NBS User Survey: Approved Document B  <a href="https://www.thenbs.com/knowledge/nbs-research-finds-users-value-approved-documents">https://www.thenbs.com/knowledge/nbs-research-finds-users-value-approved-documents</a></li> </ul>
<p><b>Area of fire safety:</b> Requirement B1: Means of warning and escape</p>		
<p>Means of escape from blocks of flats</p>		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p>The RIBA recommends that residential buildings should be designed so that it is safe to stay put and safe to evacuate in the event of a fire should occupants wish or need to. To achieve residential buildings in which it is safe to stay put and which are safe to evacuate in the event of a fire, the RIBA recommends a requirement is included in the Approved Document for at least two stairways in all new multiple occupancy residential buildings, offering alternative means of escape, where the top floor is more than 11m above ground level or the top floor is more than three storeys above the ground level storey (as required for commercial buildings). This will meet the regulatory requirement (B1) of providing occupants with an ‘appropriate means of escape in case of fire from the building to a place of safety outside the building capable of being safely and effectively used at all material times’ including when the fire service is using a stairway to fight a fire. This will also reflect the International Building Code’s requirement for at least 2 stairways in all buildings containing more than 30 people.</p> <p>The means of warning and escape requirements in Approved Document B are currently based on the stay put policy, with no alternative provision for when fire spreads and evacuation is required. There are no appropriate provisions for the early warning of fire when fire spreads and the stay put policy must be abandoned and there is a requirement for phased or simultaneous evacuation. This is exacerbated by the inadequacy of the current Approved Document design guidance, which allows extended travel distances based on other design provisions, such as subdividing intermediate corridors (further compounded with no means of passive or mechanical ventilation), insufficient refuges and allowing firefighting lifts to open into a protected corridor rather than a protected lobby, where minimum fire resistance requirements are much greater.</p> <p>Alongside a requirement for alternative means of escape and to further prevent tragic loss of life, the RIBA has recommended the following baseline prescriptive regulatory requirements to support the safe evacuation of residents:</p> <ul style="list-style-type: none"> <li>A requirement for centrally addressable fire alarm systems in all new and converted residential buildings; and in all existing residential buildings with a storey above 18m from ground level as ‘consequential improvements’ where a building is subject to ‘material alterations’. The alarm system strategy should take into account the most appropriate evacuation procedure e.g. delayed evacuation, phased evacuation and simultaneous evacuation</li> </ul>

The RIBA also recommends that the Approved Document B includes the following technical guidance to meet the regulatory requirements for means of escape:

- A refuge lobby adjacent to all stairway doors and lifts (including firefighting lifts) to provide adequate means of refuge at all levels
- Ventilation in all common corridors, lobbies and firefighting cores, with a preference for passive ventilation where possible
- Dry riser outlets in stairs and refuge lobbies to minimise stairway contamination by hoses through doors; including a fire-fighting and evacuation lift wherever 2 lifts are provided.
- All residential buildings should be designed to enable delayed total evacuation when all other measures fail, taking into account whether occupants have a right to know there is a fire in their building.

#### **What evidence already exists?**

The requirements for appropriate means of escape and early warning of fire is covered within the Building Regulations 2010 (B1), alongside further guidance notes within Approved Document B and historically, the British Standard Code of Practice CP3. The interpretation of the Building Regulations functional requirements, which the Approved Document design guidance is based upon, should be reviewed, to ensure that the fundamental intentions to provide appropriate provisions for the early warning of fire, and appropriate means of escape in case of fire to a place of safety outside the building are met. These intentions have been clearly noted in the draft revised Approved Document B (Volume 1 and 2), pending release following clarity updates, yet the design guidance remains unchanged.

Evidence beyond statutory guidance should also be considered, such as the Fire and Rescue Authorities Operational Guidance, to fully comprehend the basic requirements of how firefighters tackle fires.

#### **The Building Regulations 2010**

The Building Regulations 2010 (Building and Buildings, England and Wales, 2010 No. 2214) B1, Means of warning and escape, states:

*'B1. The building shall be designed and constructed so that there are appropriate provisions for the early warning of fire, and appropriate means of escape in case of fire from the building to a place of safety outside the building capable of being safely and effectively used at all material times'*

	<p>Vol 2, B1. vii</p> <p>Vol 2, B1. viii</p> <p>Vol 2, B1. i</p> <p>Vol 2, B1, 2.20</p>	<p><b>Approved Document B</b> (Version: 2006 edition incorporating the 2010 and 2013 amendments)</p> <p>The guidance notes provided in Approved Document B should be based on the principle of safe to stay put (alongside documented compartmentation), and safe to evacuate when a fire escapes from the compartment of origin. Approved Document guidance states:</p> <p><i>‘There is always the possibility of the path of a single escape route being rendered impassable by fire, smoke or fumes. Ideally, therefore people should be able to turn their backs on a fire wherever it occurs and travel away from it to a final exit or protected escape route leading to a place of safety’</i></p> <p><i>‘Unprotected escape routes should be limited in extent so that people do not have to travel excessive distances while exposed to the immediate danger of fire and smoke. Even with protected horizontal escape routes, the distance to a final exit or protected stairway needs to be limited because the structure does not give protection indefinitely’</i></p> <p><i>‘They assume that, in the design of the building, reliance should not be placed on external rescue by the Fire and Rescue Service nor should it be based on a presumption that the Fire and Rescue Service will attend an incident within a given time. This Approved Document has been prepared on the basis that, in an emergency, the occupants of any part of a building should be able to escape safely without any external assistance’</i></p> <p><i>‘Every flat should have access to alternative escape routes so that a person confronted by the effects of an outbreak of fire in another flat can turn away from it and make a safe escape’</i></p> <p><b>Approved Document B</b> (Consultation Version 2018: Clarification of Statutory Guidance)</p> <p>The consultation on the clarification of Approved Document B guidance noted the aims were to improve usability and reduce the risk of misinterpretation by those carrying out and inspecting building work, whilst the intentions and essence of the guidance remain unchanged, other than pending changes to restrict the use of assessments in lieu of tests and a consultation on restricting the use of combustible materials in the external walls of high-rise residential buildings. The clarified version of Approved Document B, published as information for the consultation, provided a set of ‘intentions’ in the Secretary of State’s view, on how compliance with the functional requirements of the Building Regulations 2010 can be met. These are;</p> <p><i>In the Secretary of State’s view, requirement B1 is met by achieving all of the following.</i></p> <ol style="list-style-type: none"> <li><i>a. All people in the building are given early warning of fire.</i></li> <li><i>b. All people can escape to a safe place without external assistance.</i></li> <li><i>c. Escape routes are well located and of sufficient capacity.</i></li> <li><i>d. Where necessary, escape routes are protected from the effects of fire.</i></li> </ol> <p><i>Building work and material changes of use subject to requirement B1 include both new and existing buildings.</i></p>
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### **The British Standard Code of Practice CP3**

The British Standard Code of Practice CP 3, Chapter IV, Precautions against Fire, 1971 (CP 3 : Chap. IV : Part I : 1971) states that occupants should be safe to stay put and the provision to enable occupants to be safe should they choose to leave under their own unaided efforts:

*'...The occupants should be safe if they remain where they are. Nevertheless, the possibility that individuals may seek to leave the building cannot be overlooked and provision should therefore be made for the occupant of any dwelling to do so by his own unaided efforts, using adequately protected escape routes within the building without external assistance'.*

### **Stairway and Firefighting Functions**

A single stairway in a building where there is a major fire has to fulfil two very important and separate functions:

- Provide a safe smoke free route out of the building for the occupants
- Provide a safe route from the bridgehead for firefighters to extinguish the fire and effect search and rescue

If there is only one stair these functions are inevitably in conflict.

In firefighting terms, the 'Bridgehead' is a safe position inside the building from which to carry out fire-fighting operations, usually two clear floors below the lowest affected floor. Once the firefighters tasked with extinguishing the fire connect their branch hoses to the charged dry riser at the bridgehead, they then run their hoses up to the fire floor. This means the stairs can become smoke logged as well as impeded with hoses. They have no choice but to jam the door open with the hose.

The Fire and Rescue Authorities Operation Guidance, General Risk Assessments in fighting fires in high rise buildings acknowledges this issue which arises when firefighters carry out their rescue and firefighting roles, and states that:

*'It should be remembered that hose lines and other equipment laid through doorways from firefighting shafts may allow smoke and the products of combustion to travel into the protected stairwell, worsening conditions on upper floors and possibly increasing fire spread through the stack effect'*

Dr Barbara Lane sets out this conflict in her expert evidence to the Grenfell Tower Inquiry. If compartmentation is breached or there is rapid vertical spread of the fire, then the stay put policy becomes unviable, but a single stairway building is not really designed to facilitate simultaneous evacuation.

Fire mains outlets at each floor should be always be located within the protected enclosure of a stairway and in a protected refuge/firefighting lobby adjacent to the stairway and firefighting lifts (Further evidence for this recommendation is described in 'Requirement B5: Access and facilities for the fire service' below).

### **Review Panel on Building Standards (Fire Safety), Scotland**

Review Panel on Building Standards (Fire Safety) in Scotland has recommended the requirement for at 'least two stairways in high rise domestic buildings with a storey at a height of 18m'.

### **International Building Code and other International Regulations**

The International Building Code and several other countries require a minimum of 2 stairways, providing alternative means of escape (This includes the United Arab Emirates, USA and Sri Lanka). Further research could be undertaken to establish code requirements across the world.

### **What are the potential impacts of change?**

Design and construction industry professionals require a basic understanding of firefighting processes to enable them to more effectively apply the technical guidance. The RIBA recommends that Approved Document B refers to basic firefighting and fire rescue principles that impact building design.

### **Details of evidence provided**

- The Report of the Review Panel on Building Standards (Fire Safety) in Scotland  
[www.gov.scot/publications/report-review-panel-building-standards-fire-safety-scotland/](http://www.gov.scot/publications/report-review-panel-building-standards-fire-safety-scotland/)
- Dr Barbara Lane's Expert Report to the Grenfell Inquiry  
<https://www.grenfelltowerinquiry.org.uk/evidence/dr-barbara-lanes-expert-report>
- International Building Code and other International Regulations
- DCLG, Fire and Rescue Authorities Operation Guidance, General Risk Assessments in fighting fires in high rise buildings (February 2014)  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/278168/FINAL\\_GRA\\_3\\_2\\_Fighting\\_fires\\_in\\_high\\_rise\\_buildings.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/278168/FINAL_GRA_3_2_Fighting_fires_in_high_rise_buildings.pdf)
- Current Approved Document B, Buildings other than dwelling houses, Volume 2  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/441669/BR\\_PDF\\_AD\\_B2\\_2013.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/441669/BR_PDF_AD_B2_2013.pdf)
- Consultation Version 2018: Approved Document B, Volume 1  
<https://www.gov.uk/government/consultations/fire-safety-clarification-of-statutory-guidance-approved-document-b>

		<ul style="list-style-type: none"> <li>• Fire and Rescue Authority Manuals: Tactical Operational Guidance <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/278168/FINAL_GRA_3_2_Fighting_fires_in_high_rise_buildings.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/278168/FINAL_GRA_3_2_Fighting_fires_in_high_rise_buildings.pdf</a></li> <li>• The RIBA have developed design-based research on the recommendations, drawing from relevant industry and fire and rescue authority expertise, to validate these design principles and integrity of these recommendations as baseline prescriptive regulations. The RIBA would like to take the opportunity to present this evidence and discuss this in more detail, feeding into the relevant strands of the Approved Document review.</li> </ul>
Means of escape for disabled people		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p>The RIBA recommends a requirement for refuge/firefighting lobbies adjacent to the stairway and firefighting lifts, in residential buildings where the top floor is more than 11m above ground level or the top floor is more than three storeys above the ground level storey, for disabled and vulnerable people when they chose to or must leave their flat. For those who cannot leave their flats, a Personal Emergency Evacuation Plan must be in place.</p> <p>The RIBA recommends that the Approved Document provides guidance on appropriate means of warning and escape strategies for specialised housing and care homes, where means of warning and escape will be carefully managed by the building manager and fire service.</p>
Other issues - please specify theme	Vol 2, Diagram 8.b	<p><b>Ventilated Common Corridors and Lobbies</b></p> <p>The RIBA recommends that all common corridors, lobbies and firefighting cores are ventilated, with a preference for passive ventilation where possible to enable occupants to have a safe exit free from smoke and toxic fumes in the event of a fire. Currently the Approved Document (Volume 2, 8b) notes that flats served by more than one common stair (corridor access with dead ends), do not require ventilation to any intermediate corridors between stairways.</p> <p><b>The British Standard Code of Practice</b></p> <p>The former CP3 requirements for building design, promoted smoke control with separate lobbies, forming a sterile zone with no opening doors to habitable or other rooms (CP 3, Chapter IV, 1962, Figure 1 and; Chap IV: Part 1: 1971, Figure 21).</p> <p><b>Travel Distances</b></p> <p>The RIBA recommends that current guidance on travel distances should be reviewed to fix travel distance dimensions based on the capabilities of less mobile people, with the maximum required safe egress time as the limiting factor. The use of the available safe egress time, as described in BS 7974 'Application of fire safety engineering principles to the design on buildings. Code of Practice', should not be used to extend travel distances, which effectively circumvents the technical requirement to provide appropriate means of escape in the event of a fire.</p>

		This review of travel distances should also consider dead ends, intermediate corridors and corridor spurs and both horizontal and vertical distances to ascertain what is an acceptable distance for the least mobile person.
<b>Area of fire safety:</b> Requirement B2: Internal fire spread (linings)		
Other issues - please specify theme		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p>The RIBA recommends that there should be a required level of documentary evidence to demonstrate that compartmentation and the firestopping of services has been achieved on all completed buildings, which may also include audit testing (QA) and/or physical testing, applied by the regulatory body. Auditing and evidencing compartmentation will require an independent onsite inspection process.</p> <p><b>What evidence already exists?</b></p> <p>Following the inquest into the deaths resulting from the 2009 fire at Lakanal House, Her Honour Frances Kirkham CBE, the Assistant Deputy Coroner’s Rule 43 letter, made recommendations in relation to firefighting/search and rescue principles and national guidance, specifically in relation to the “stay put” principle and the risks created by insecure fire compartmentation. The letter 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.</p> <p>The independent inquiry into Edinburgh Schools and DG One Dumfries, by Prof John Cole CBE, identified a number of significant failings in construction quality, including defective and missing fire stopping, and breaches in compartmentation in every school investigated, despite all designers and contractors having their own approved quality assurance systems.</p> <p><b>Details of evidence provided</b></p> <ul style="list-style-type: none"> <li>• Lakanal House Fire: Coroner’s Rule 43 Letter (2009) <a href="https://www.lambeth.gov.uk/sites/default/files/ec-letter-to-DCLG-pursuant-to-rule43-28March2013.pdf">https://www.lambeth.gov.uk/sites/default/files/ec-letter-to-DCLG-pursuant-to-rule43-28March2013.pdf</a></li> <li>• Report of the Independent Inquiry into the Construction of Edinburgh Schools (February 2017) <a href="http://www.edinburgh.gov.uk/news/article/2245/independent_report_into_school_closures_published">http://www.edinburgh.gov.uk/news/article/2245/independent_report_into_school_closures_published</a></li> <li>• Report of the Independent Inquiry into the Construction of the DG One Complex in Dumfries (April 2018) <a href="https://www.dumgal.gov.uk/article/17432/DG-One-build-inquiry">https://www.dumgal.gov.uk/article/17432/DG-One-build-inquiry</a></li> </ul>

<b>Area of fire safety: Requirement B3: Internal fire spread (structure)</b>	
<i>Compartmentation</i>	<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p><b>Electrical Cabling</b></p> <p>On 1 July 2017, the Construction Products Regulation (CPR) came into force, and, as a result, all cables sold in the EU now have to adhere to new, improved common standards. However, the EU hasn't been prescriptive in specifying which classification of cable performance should be used for buildings and infrastructure. Instead it is the responsibility of each EU member states' regulator to decide this.</p> <p>MHCLG has not specified which class of cable should be used for buildings, and instead requires all electrical installations in buildings to comply with BS 7671 – a minimum performance requirement, equivalent to Euro Class E – that allows for more flammable cables that are less resistant to the spread of flames. The RIBA recommends that a minimum requirement of Euro Class Cca should be required in the UK.</p> <p><b>Regulatory Oversight</b></p> <p>The RIBA recommends that there should be a required level of documentary evidence to demonstrate that compartmentation and the firestopping of services has been achieved on all completed buildings, which may also include audit testing (QA) and/or physical testing, applied by the regulatory body. Auditing and evidencing compartmentation will require an independent onsite inspection process.</p> <hr/> <p><b>What evidence already exists?</b></p> <p>See evidence provided under 'Requirement B2: Internal fire spread (linings)'.</p> <hr/> <p><b>Details of evidence provided</b></p> <ul style="list-style-type: none"> <li>• The Safer Structures Campaign (Electrical Cabling) <a href="https://www.saferstructures.org.uk/">https://www.saferstructures.org.uk/</a></li> <li>• Lakanal House Fire: Coroner's Rule 43 Letter (2009) <a href="https://www.lambeth.gov.uk/sites/default/files/ec-letter-to-DCLG-pursuant-to-rule43-28March2013.pdf">https://www.lambeth.gov.uk/sites/default/files/ec-letter-to-DCLG-pursuant-to-rule43-28March2013.pdf</a></li> <li>• Report of the Independent Inquiry into the Construction of Edinburgh Schools (February 2017) <a href="http://www.edinburgh.gov.uk/news/article/2245/independent_report_into_school_closures_published">http://www.edinburgh.gov.uk/news/article/2245/independent_report_into_school_closures_published</a></li> <li>• Report of the Independent Inquiry into the Construction of the DG One Complex in Dumfries (April 2018) <a href="https://www.dumgal.gov.uk/article/17432/DG-One-build-inquiry">https://www.dumgal.gov.uk/article/17432/DG-One-build-inquiry</a></li> </ul>

<p>Sprinklers and other Fire Suppression systems</p>	<p>Vol 2, 0.16 and 8.14</p> <p>Vol 2, 3.52 and 13.17</p> <p>Vol 2, 0.16 and 0.17</p>	<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p>The RIBA recommends that sprinklers/automatic fire suppression systems are a means of life protection, and therefore there should be;</p> <ul style="list-style-type: none"> <li>• a mandatory requirement for sprinklers/automatic fire suppression systems in all new and converted residential buildings, as already required in Wales, and;</li> <li>• the requirement for retro-fitting of sprinklers/automatic fire suppression systems to existing residential buildings above 18m from ground level as 'consequential improvements' where a building is subject to 'material alterations'.</li> </ul> <p>The current Approved Document guidance (Volume 2, 8.14) stipulates that only 'Blocks of flats with a floor more than 30m above ground level should be fitted with a sprinkler system', and that (Volume 2, 0.16) 'Sprinkler protection can also sometimes be used as a compensatory feature where the provisions of this Approved Document are varied in some way', and '..where sprinklers are being installed as a compensatory feature to address a specific risk of hazard, it may be acceptable to protect only part of building'. The RIBA recommends the mandatory requirement for sprinklers/automatic fire suppression systems in all new and converted residential buildings, and existing residential buildings above 18m from ground level as 'consequential improvements' where a building is subject to 'material alterations'.</p> <p>Sprinklers should not be used as means to compensate other key fire safety measures, such as (Volume 2, 3.52) the removal of self closing devices to fire doors to bedrooms in care homes, the extension of travel distances (which should be assessed as part of the review to maintain fixed travel distance dimensions based on peoples capabilities), (Volume 2, 13.17) 'a reduction in boundary distance' or 'alternatively, the amount of unprotected area may be doubled if the boundary distance is maintained'.</p> <p>The Approved Document (Volume 2, 0.16) notes that 'Sprinkler systems installed in buildings can reduce the risk to life and significantly reduces the degree of damage caused by fire', and (Volume 2, 0.17 - Note) 'Any sprinkler systems installed to satisfy the requirements of Part B of the Building Regulations should be regarded as a life safety system'.</p> <p><b>What evidence already exists?</b></p> <p><b>The London Assembly</b></p> <p>In March 2018, The London Assembly Planning Committee published its review findings into whether sprinklers should be made mandatory in London's homes. The report, <a href="#">Never again: Sprinklers as the next step towards safer homes</a>, makes 8 recommendations including reducing the installation cost of automatic fire suppression systems (AFSS) and working towards making AFSS mandatory in every residential building in England.</p>
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### **The Building Regulations (Wales)**

There is a regulatory requirement for automatic fire suppression systems to be installed in all new and converted residential dwellings (Houses and Flats) in Wales, including care homes, children's residential homes, boarding houses, halls of residences and hostels other than hostels intended for temporary accommodation for leisure purposes ([The Building \(Amendment\) \(Wales\) Regulations 2017 No. 1274 \(W. 296\), Regulation 37A](#)).

### **Review Panel on Building Standards (Fire Safety), Scotland**

The [Report of the Review Panel on Building Standards \(Fire Safety\) in Scotland, June 2018](#), chaired by Dr Paul Stollard, reached a unanimous consensus for the requirement to install automatic fire suppression systems in Houses in Multiple Occupation (HMOs) used for "care" 24/7 and large HMOs (10 or more residents). It was agreed that this requirement 'should be extended to flats...'

### **National Construction Code, Australia**

A suite of amendments has been made to [The National Construction Code \(Volume One\)](#) which are to be adopted by States and Territories from 1 May 2019. This notes the provision of 'fire sprinklers, for apartment buildings and other residential buildings'.

### **ABI Study: Post Grenfell Research on Residential Sprinkler Systems**

The [Fire Protection Association](#) (FPA) produced a report ([ABI Study: Post Grenfell Research on Residential Sprinkler Systems](#)), commissioned by The [Association of British Insurers](#) (ABI), to promote the procurement philosophy set out in the Hackitt Review in respect of the provision of sprinkler systems for residential buildings.

The report outlined 'fourteen potential research themes that it considered valid in addressing fire safety and resilience issues within the UK built environment', with research aim 13 focussing on sprinkler provision: 'The United Kingdom has one of the weakest policies in respect of Sprinkler provision in comparison to other European countries. Much like seat-belts and airbags are deemed essential for making cars safe, the provision of sprinkler systems is considered as essential component to ensuring safety in large buildings and some modern methods of construction – particularly in light timber frame buildings in the US where it is the dominant residential construction method'.

### **London Fire Brigade**

The London Fire Brigade (LFB) commissioner, Dany Cotton, suggested new legislation stipulating the requirement for sprinklers could help avert disasters (such as Grenfell) and that "We [LFB] think they're essential in every high-rise building" ([Independent, 11 February 2019](#)). The LFB Fire Safety Guidance Note (GN89), [Retrofitting Automatic Fire Suppression Systems in Residential Premises](#) (January 2018), notes that:

- 'AFSS provide a high level of protection for vulnerable residents, especially for those likely to be affected with long term impairments which could potentially restrict their ability to respond in an emergency situation. AFSS provides protection against the potential damages caused by fire as well as aid the protection of residents. This is especially so where there is increased likelihood that the effects of age or deterioration on mobility sensory facilities and cognitive ability could impair their evacuation response', and;
- 'The [National Fire Chiefs Council](#) (NFCC) and the [National Fire Sprinkler Network](#) have worked together to investigate the '[Efficiency and Effectiveness of sprinkler systems](#)'. This report indicates that where installed, sprinkler systems operate on 94% of occasions, demonstrating very high reliability. Furthermore, it is evident that when they do operate, they extinguish or contain the fire on 99% of occasions which demonstrates that they are very effective. The research also found that in both converted and purpose built flats, sprinklers are 100% effective in controlling fires'

The LFB have called for:

- the retrofitting of sprinklers in all residential high-rise tower blocks, as part of an appropriate package of fire safety measures, and;
- sprinklers to be installed in all school new builds and major refurbishments.

#### **What are the potential impacts of change?**

LFB commissioner, Dany Cotton, noted that the cost of sprinklers when incorporated from the design stage are around 1% of the total build cost and the economic case for the retrofit of sprinklers can be justified, where the cost to retrofit a flat would be around £1,500 - £2,500, compared to the cost of refurbishing a one-bedroom flat after a fire, which is about £77,000 ([LFB News Update](#)).

#### **Details of evidence provided**

- London Assembly, Never again: Sprinklers as the next step towards safer homes  
[https://www.london.gov.uk/sites/default/files/final\\_afss\\_report.pdf](https://www.london.gov.uk/sites/default/files/final_afss_report.pdf)
- The Building (Amendment) (Wales) Regulations 2017 No. 1274 (W. 296), Regulation 37A  
[https://www.legislation.gov.uk/wsi/2017/1274/pdfs/wsi\\_20171274\\_mi.pdf](https://www.legislation.gov.uk/wsi/2017/1274/pdfs/wsi_20171274_mi.pdf)
- Report of the Review Panel on Building Standards (Fire Safety) in Scotland, June 2018  
<https://www.gov.scot/binaries/content/documents/govscot/publications/report/2018/06/report-review-panel-building-standards-fire-safety-scotland/documents/00537771-pdf/00537771-pdf/govscot%3Adocument>
- National Construction Code, Australia

		<p><a href="https://www.abcb.gov.au/Connect/Articles/2019/01/14/What-to-Expect-in-NCC-2019">https://www.abcb.gov.au/Connect/Articles/2019/01/14/What-to-Expect-in-NCC-2019</a>, and; <a href="https://ncc.abcb.gov.au/ncc-online/NCC">https://ncc.abcb.gov.au/ncc-online/NCC</a></p> <ul style="list-style-type: none"> <li>• ABI Study: Post Grenfell Research on Residential Sprinkler Systems <a href="https://www.abi.org.uk/globalassets/files/subject/public/fire/abi-post-grenfell-residential-sprinkler-study-oct-2018.pdf">https://www.abi.org.uk/globalassets/files/subject/public/fire/abi-post-grenfell-residential-sprinkler-study-oct-2018.pdf</a></li> <li>• Housing developers 'consistently ignoring' sprinkler safety advice, says London Fire service (11.02.19) <a href="https://www.independent.co.uk/news/uk/home-news/housing-fire-safety-sprinkers-grenfell-tower-london-fire-brigade-dany-cotton-a8773776.html">https://www.independent.co.uk/news/uk/home-news/housing-fire-safety-sprinkers-grenfell-tower-london-fire-brigade-dany-cotton-a8773776.html</a></li> <li>• LFB Fire Safety Guidance Note (GN89), Retrofitting Automatic Fire Suppression Systems in Residential Premises (January 2018) <a href="https://www.london-fire.gov.uk/media/2319/gn_89_If_format.pdf">https://www.london-fire.gov.uk/media/2319/gn_89_If_format.pdf</a></li> <li>• Efficiency and Effectiveness of Sprinkler Systems in the United Kingdom: An Analysis from Fire service Data <a href="https://docs.wixstatic.com/ugd/f44fe5_6953a66099984107b6c44a52c1ad0973.pdf">https://docs.wixstatic.com/ugd/f44fe5_6953a66099984107b6c44a52c1ad0973.pdf</a></li> <li>• LFB Update: 'Fire Chief urges action on sprinklers as Grenfell Inquiry opens' <a href="https://www.london-fire.gov.uk/news/2017-news/fire-chief-urges-action-on-sprinklers-as-grenfell-inquiry-opens/">https://www.london-fire.gov.uk/news/2017-news/fire-chief-urges-action-on-sprinklers-as-grenfell-inquiry-opens/</a></li> </ul>
<p><i>Other issues - please specify theme</i></p>		
<p><b>Area of fire safety:</b> Requirement B4: External fire spread</p>		
<p><i>Space Separation</i></p>	<p>Vol 2, Diagram 40</p>	<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p><b>External Surfaces</b></p> <p>Although the enacted changes to the Building Regulations in England (2018, SI No. 1230) restrict the use of combustible materials in “external walls” and/or “specified attachments” on any “relevant building” with a storey over 18m above ground level, the restriction is not applicable to all building types and heights; and although the scope of the ban permits use of materials below the European Classification of A2-s1, d0. The RIBA that hotels, hostels and commercial buildings should not be exempt from the ban.</p> <p>Diagram 40 ('Provisions for external surfaces and walls', ADB, Vol 2) should be revised to provide clarity, reflect the changes to the Building Regulations (Regulation 7) and references to National Classes should be removed.</p> <p>Further research should be undertaken to assess the adequacy of the current guidance, dimensions and classification requirements.</p>

	<p>Vol 2, 13.1</p> <p>Vol 2, Diagram 44</p>	<p><b>Space Separation</b></p> <p>Space separation, as per Section 13.1 (ADB, Vol 2), notes that the provisions are based on ‘a number of assumptions’. It is the RIBA’s view that further research should be undertaken to assess the distance of notional boundaries, based on current design characteristics to provide guidance for other boundary/geometry and circumstances, and ensure that the guidance is relevant and clear. Currently, the guidance only assumes straight edge building typologies.</p> <p><b>Unprotected Areas</b></p> <p>In addition, guidance on unprotected areas (Diagram 44, ADB, Vol 2), which may be disregarded in assessing the separation distance from the boundary, is unclear and complicated. There are currently four different ways to calculate unprotected areas which creates confusion. Research and clarification is required to enable users to assess the requirements. Currently, unprotected areas shown either side of a compartment have no restriction on separation distance, yet unprotected areas within the same compartment are restricted. The RIBA recommends that restrictions should be made on the distance between unprotected areas either side of compartment wall/floor, and further clarified to show the requirements; openings are not clearly shown (windows/vents) and arrow styles need to be clearly different.</p>
<p><i>Other issues - please specify theme</i></p>		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p><b>Curtain Walling</b></p> <p>The Approved Documents make no reference to curtain walling; although we understand that curtain walling is exempt from Building (Amendment) Regulations 2018, Regulation 7 (2), this is not clear as Regulation 7 (3) (j) uses the term ‘window frames and glass’.</p> <p>Further research and testing should be undertaken to understand how curtain walling systems are deemed to meet the requirement of B4. - (1), which stipulates that;</p> <p style="text-align: center;"><i>‘the external walls of the building shall adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use and position of the building’</i></p> <p>or whether these systems should only be used in unprotected areas. The RIBA recommends a standard test procedure is developed to assess the fire performance of curtain walling systems.</p> <p><b>Fire breaks</b></p> <p>The RIBA recommends that the current testing procedures for fire breaks (BS 472-20 and BS EN 1364-4) at compartment floors are reviewed, to ensure that testing for such elements reflects real-world conditions - for example, how a fire break at a compartment floor is tested with the actual external wall system that will be applied to the building. Currently, testing of these</p>

		<p>products is completed in isolation between two solid elements and does not fully represent the fire performance when part of a curtain walling system would inevitably fail first.</p> <p><b>Restriction on the use of Combustible Materials in External Walls over 18m</b></p> <p>The RIBA recommends that further guidance is provided in the Approved Document B on Regulation 7 (2) and (3) of the Building Regulations (2018, SI No. 1230) without waiting for a lengthy review. The new regulations states “materials which become part of an external wall, or specified attachment, of a relevant building are of European Classification A2-s1, d0 or Class A1, classified in accordance with BS EN 13501-1:2007+A1:2009 entitled “Fire classification of construction products and building elements. Classification using test data from reaction to fire tests”.</p> <p>This is misleading as ‘products’ are tested whereas ‘materials’ rely on the European Council Decision which lists products that are deemed to satisfy A2-s1, d0 or A1 classification without further testing (EU Commission Decision 96/603/EC Amended). If materials cannot rely on the European Council Decision this will place undue burdens on industry to undertake unnecessary testing. New guidance in the Approved Document B should also consider excluding other products that do not contribute to the spread of fire over the surface of the external wall, due to their limited size and application, if they are necessary standard construction methods that meet the regulatory requirement B4. This will likely require some research to identify products that can be safely included in the exemptions list of Regulation 7(3).</p> <p>Approved Document B makes no reference to curtain walling, although we understand this is exempt from Building (Amendment) Regulations 2018, Regulation 7 (2), it is not clear as Regulation 7 (3) (j) uses the term ‘<i>window frames and glass</i>’.</p>
<p><b>Area of fire safety:</b> Requirement B5: Access and facilities for the fire service</p>		
<p><i>Access and Facilities for the fire and rescue service</i></p>		<p><b>What issues need to be resolved and why should they be reviewed?</b></p> <p>The RIBA recommends that dry riser outlets be located in stairs and refuge/firefighting lobbies, adjacent to the stairway, to minimise stairway contamination by hoses through doors.</p> <p>Fire mains outlets at each floor should be always be located within the protected enclosure of a stairway and in a protected refuge/firefighting lobby adjacent to the stairway and firefighting lifts. This enables the fire service to connect to an outlet within the stairway at the Bridgehead (two clear floors below the incident floor where firefighters deploy from) to protect the stairs and connect to a second fire main outlet at the fire incident floor within the protected lobby. This will eliminate the need for firefighters to jam stairway doors open with hoses, preventing the protected stairs from becoming smoke logged.</p> <p>The RIBA recommends that the fire service have access to a ground/entrance storey level control panel to a centrally addressable alarm system, which enables the fire service to override a building’s current strategy, such as the stay put policy, when they deem it necessary to begin a phased or simultaneous evacuation procedure.</p>

	<p>Vol 2, 15.2</p> <p>Vol 2, 15.5</p> <p>Vol 2, 17.2</p>	<p>Firefighting/refuge lobbies are especially essential for disabled and vulnerable persons to await assisted evacuation, and as a refuge for firefighters. Firefighting lifts should always open into a protected lobby, not directly into protected corridors, where minimum fire resistance requirements are much greater.</p> <p><b>What evidence already exists?</b></p> <p>Approved Document B notes the provision of fire mains and the requirement for</p> <p><i>‘Buildings with firefighting shafts should be provided with fire mains in those shafts, and where necessary, in protected escape stairs...’</i> and;</p> <p><i>‘The outlets from fire mains should be located within the protected enclosure of a stairway or a protected lobby where one is provided...’</i> and;</p> <p><i>‘Buildings with a floor at more than 18m above fire and rescue service vehicle access level, or with a basement at more than 10m below fire and rescue service vehicle access level, should be provided with firefighting shafts containing firefighting lifts...’</i></p> <p>The notion of 18m above ground level, for ‘effective’ fire and rescue service vehicle access level, stems from fire and rescue authority access based on a fire service appliance with ladders. This trigger height should be reviewed to ensure that design guidance reflects current modern firefighting practices and available equipment at all fire and rescue authorities.</p> <p><b>Details of evidence provided</b></p> <ul style="list-style-type: none"> <li>• Approved Document B: Trigger Heights (2013)</li> <li>• British Standard Code of Practice, CP3 (1971)</li> <li>• East Sussex FRS Tactical Operational Guidance (Sept 2018)</li> </ul>
<i>Basements</i>		
<i>Other issues - please specify theme</i>		<p><b>Protected Stairways, Escape and Evacuation</b></p> <p>The RIBA recommend that other design requirements are reviewed, including:</p> <ul style="list-style-type: none"> <li>• widened stair landings to enable firefighters to evacuate persons while kept as horizontal as possible in a stretcher, as a high angle and confined space evacuation would increase the risk to the person</li> <li>• widened stair widths, to ensure ambulant/wheelchair bound persons can escape or be evacuated safely via the stairs in the event that the firefighting lift may not work</li> <li>• consideration of requirements of Personal Emergency Evacuation Plans (PEEP), where individuals who may not be able to reach an ultimate place of safety unaided or within a satisfactory period of time in the event of any emergency</li> </ul>

		<ul style="list-style-type: none"><li>• the conflicting guidance on stair widths between Approved Document Part B, M and K, including further clarity on the method of measuring stair widths/handrails</li></ul>
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