LONDON FIRE BRIGADE

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Freedom of Information request reference number: 6945.1

Date of response: 07/11/2022

Request:

Please can you provide a copy of your full Consultation responses to the Draft British Standard BS 9991:2021 which was released for Public Consultation on 06/08/21.

Response:

Please find the document attached to this response.

We have dealt with your request under the Freedom of Information Act 2000. For more information about this process please see the guidance we publish about making a request on our website: https://www.london-fire.gov.uk/about-us/transparency/request-information-from-us/

LONDON FIRE BRIGADE

Consultation Response

6th October 2021

Subject

Draft for public consultation; BS9991 Fire safety in the design, management and use of residential buildings – Code of practice

Organisation

British Standards Institute

Introduction

London Fire Brigade is London's fire and rescue service – one of the largest firefighting and rescue organisations in the world and we are here to make London a safer city. Decisions are made either by the London Fire Commissioner (the statutory fire and rescue authority for Greater London), the Mayor of London or the Deputy Mayor for Fire and Resilience. A Fire, Resilience and Emergency Planning Committee of the London Assembly holds the Commissioner, Mayor and Deputy Mayor to account.

Executive Summary

London Fire Brigade (LFB) welcomes the review of this design guidance and the inclusion of new expectations seeking to improve the building safety for residents and firefighters. Attached is our detailed technical response for submission and consideration of the technical drafting committee, and this letter summarises some of the key areas upon which LFB seek to comment.

This guidance is reviewed at a time where there remains a significant need for change within the fire and construction industry, competency levels are still low, and the overall quality of the built environment remains of concern. It is essential that BS9991 and similar guidance is used by competent fire professionals, and that the guidance is written in such a way as to try and mitigate against convenient interpretations and provides a clarity in its content for the reader.

There are aspects of the guidance and the way in which is has been written that at points is confusing and disjointed. Important themes are introduced but then not reflected in later, related, text or in the diagrams provided. The public consultation period for such an important code of practice was relatively short which meant LFB were unable to develop detailed text proposals for many of the recommended changes. Due to this and the number of fundamental comments raised, consideration should be given to a further public consultation. It is also recommended that a further review, less than the standard BSI review period, is completed to ensure more timely alignment with expected future changes made to Approved Document B, the Building Regulations and/or associated Legislation which may impact the contents of this code of practice.

It is acknowledged that significant work has been undertaken in reviewing and updating the guidance, however it is recommended that sufficient time is allowed for the ongoing drafting process to ensure that this important code of practice works holistically, and as intended.

There are a number of key areas which are highlighted below with recommendations for the committee's consideration as part of the comments resolution process.

Inclusive design and evacuation lifts

The inclusion of evacuation lifts and greater consideration of the diverse nature of the occupancy of a typical residential block of flats is welcomed. The built environment should support the safety of everyone and particularly those in higher dependency groups. It is recognised that the occupancy characteristics of residential buildings can change significantly over time and a more proactive consideration of the ability of a building to continue to support the safety of residents is long overdue. However, the guidance needs to consider if it has fully met the needs of those with higher dependency and if 'independent living' as defined within the guidance and the implications on the occupants capacity to self evacuate has been truly considered and catered for. This is particularly critical, for example, where an occupant may be bed bound but still classed as 'independent living'.

LFB have welcomed the Mayor's London Plan and its expectation for evacuation lifts in certain residential developments. The revised BS 9991, when published, will be the only guidance providing a 'codified' solution to the evacuation lifts and the protection required to support their safe use. This may imply that BS 9991 is therefore the only appropriate guidance to use for designing those developments.

The code of practice being 'design, management and use' covers the life of a residential building, yet aspects such as Personal Emergency Evacuation Plan (PEEPs) and the practical implications of including a BS8629 system do not appear to have been considered in depth in the revision of the standard as might have been expected given the phase one recommendations of the Grenfell public inquiry.

It is further noted that the code of practice now includes guidance for residential care however this appears to be quite disjointed with the remainder of the code of practice which primarily focusses around a stay put design strategy. Unless further guidance is provided within the document, it is recommended that residential care is removed from this code of practice and instead making residential care the subject of its own specific guidance document. It is essential that if this premises type remains within the standard that there is assurance that the level of protection afforded by the various provisions in the remainder of the document are appropriate for this type of occupancy group with (likely) higher dependency needs.

Intended guidance use

Within the introductory sections there is additional information on scope and intended use of the guidance. Clause 0.7, for example, recommends that for tall and very tall buildings that additional considerations and enhanced measures of protection may be needed. The height suggested within the guidance is currently 50m. LFB recommends that this height is lowered to 30m due to the challenges that buildings over this height present to attending fire crews.

Further, when considering what type of buildings BS9991 are within scope, height is only one key factor, and accompanying clause 0.7 there should also be reference to the construction methodology being used particularly if modern methods of construction might be being utilised e.g. 3D primary structural systems (also referred to as modular/volumetric build). LFB are of the opinion this particular form of construction should be specifically excluded from the scope of the guidance as it is our understanding that it may not conform with the principles upon which BS9991 (and Approved Document B) are founded upon in terms of fire resistance and associated testing protocols. The same principle should also apply to other forms of construction whose typology does not align itself with the fundamental principles upon which the content was historically developed.

The drafting committee should therefore carefully consider, if the code of practice is indeed suitable for all types of construction typology. If it is considered, contrary to the advice above, that all construction forms can utilise the guidance within the code of practice then it is strongly advocated that similar advice to that contained within clause 0.7 in regards to height should be included within the guidance.

This is to clearly signpost the need for additional review regarding the fire safety design principles and to highlight that enhancements may be needed with regards to the fire safety protection measures. LFB experience is that design teams have been seeking to use Approved Document B and BS9991 for schemes that are utilising modular build without giving full consideration to the potential implications of the approach. Including such a reference would bring the guidance more in line with Approved Document B which acknowledges both height and the use of certain modern methods of construction as not being common building situations.

The guidance also does not appear to be giving due consideration to emerging fire risks such as battery storage/charging and the implications on the built environment. There is a need to include further guidance and LFB have suggested text for consideration for inclusion as part of the full technical submission.

Single staircase design

LFB consider that single staircase design in buildings ,other than those considered low-rise, should be used with the utmost caution. Changes to the guidance that have sought to strengthen the protection afforded to single staircases in building over 18m in height are welcomed, and encourage the use of multiple stairs over 18m, however more should be done in terms of the recommendations, it is unclear why 18m has been considered the height threshold above which additional measures are recommended when external rescue opportunities by the fire service are extremely limited above 11m in height. Being a British standard we are unclear how the guidance supports the recommendations within the Scottish technical handbook as it appears to be in direct conflict. It is therefore LFB's recommendation that an upper limit on the use of a single staircase approach is included within BS9991. LFB also advocate that the use of a single staircase is restricted particularly where higher dependency occupants may reside within a building.

The use of ancillary spaces within tall towers is becoming more common in London, and often these are intended for large numbers of people and are not well considered in designs. These then have the potential to compromise a single stair in fire. LFB believe these ancillary spaces should always have access to multiple stairs within buildings.

It is clear that the intention of the drafting committee is to try and ensure more robust protection to the staircase however LFB caution that whatever measures are proposed must work effectively in practice and have sufficient resilience for the life cycle of the building.

Firefighting access and facilities

Within the accompanying detailed technical response to the committee there are several areas relating to firefighting access and facilities where we have advocated additional provision and enhancement to existing recommendations.

As mentioned, research carried out by LFB, and other historical research carried out, shows that with increasing height of a building additional challenges for firefighters are presented. Physiological impact of height as well as increased challenges in effective communication between operational personnel should be supported by facilities within a building.

For taller buildings LFB advocate the inclusion of more than one firefighters lift to ensure resilience at all times this, accompanied with the additional way-finding measures proposed, and our suggested text inclusion in relation to firefighter communications would improve and enhance the support for operational crews.

The creation of an evacuation lift lobby approach gives a valuable opportunity to fundamentally reconsider the layout of the firefighting shaft within residential buildings to provide additional layers of protection to the firefighters lift(s), mains and staircase. This does not appear to have been done within the draft guidance and LFB strongly advocate that technical comments submitted are considered carefully in this regard.

Template for comments observations

Date: **06/10/21 FINAL**	Document: **BS 9991:2021 DPC**

As Organization	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Accepted/Rejected (with rationale) *BSI use only*
LFB		Throughout		ed	Specialised and specialized spellings both used in the document	Amend spelling throughout to be consistent with BSI style.	
LFB		Section 1 – 0.1	Para three bullet points	Ge	While it is appreciated that the list may not be intended to be exhaustive, we would recommend that reference to any refurbishment projects be included. This list also does not make any reference to the occupants of the building which is also an important consideration.	Include reference to refurbishment projects as a specific example for consideration and the need to consider the occupants of the building.	
LFB		Section 1 – 0.1	Page 12 bullet point vii)	Ge	Where reference is made to 'access to the building' is this specifically talking about fire service access or general access to [and into] the building for all?	Suggest rewording to '..access to and into the building for occupants and firefighters'	
LFB		Section 1 – 0.2.1	1st para	Ge	This paragraph should acknowledge that rescue via windows may not be possible	At the end of the final sentence add the words (or not possible). I.e., '..because emergency egress through upper windows becomes increasingly hazardous (or not possible).'	
LFB		Section 1 – 0.2.1	3rd and 4th para	Ge	Incorrect cross references included. Clause 3.67 does not exist and the references to stay put linking to A.1 relate to the smoke control section.	Consider if correct reference is 3.62 rather than 3.67	
LFB		Section 1 - 0.2.3	2nd Para	Ge	It is recommended that this paragraph be updated to also include the evacuation lift lobby as this is now an area where protection needs to be afforded	Update the paragraph to include reference to a primary purpose of protecting the stairs and evacuation lift lobby.	
LFB		Section 1 - 0.2.5		Ge	Should this section acknowledge the later recommendation of including a BS8629 system?	Include reference to BS8629 system. This could be done as a note under the paragraph and a cross reference to the clause on BS8629.	
LFB		Section 1 –		Ge	LFB remain of the opinion that there is a	It would be greatly beneficial is BS9991 were to include additional guidance on how premises	

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		0.3			gap in design guidance surrounding HMOs. While we understand that HMOs are not categorised as a purpose group by ADB etc. Fire services are regularly provided with consultations stating that the intended use is an HMO. LACORS is not a design guide and in our view should not be signposted for use in regards to the design. There is a need for a clear steer as to how these types of premises should be designed.	being put to an HMO use should be designed. It should also be clear that where LACORS is being referenced this is not in relation to the design aspect of the building.	
LFB		Section 1	Table 1	Te	The table makes reference to 'independent living' which as acknowledged in 0.6 can include a range of dependency. This dependency can, to our understanding, include those who are bed bound and unable to escape unaided. There appears to be little within the guidance (other than within the open plan flat design section) which places any limitation on design teams who wish to employ a stay put evacuation strategy or precludes a typical purpose built blocks of flats approach. The note under the definition in 3.41 appears to indicate some additional view however there is a general lack of clarity on this point in our view.	We recommend that the drafting panel consider if there is a need to include, as part of the general commentary that where occupants are unlikely to be able to evacuate without support that aspects of the guidance will be inappropriate to use and careful consideration should be given as to whether a stay put strategy is appropriate in this instance. Design teams will also need to consider this particularly when designing homes where the change to higher dependency needs is more likely.	
LFB		Section 1 – 0.7	3rd Para	Ge	LFB advocate that the 50m threshold is lowered to 30m. This is to reflect physiological trials conducted and our later comments in this submission regarding the need to carefully consider the provision of facilities for attending fire crews. It may also have implications on other aspects of the design such as number of lifts.	Lower the 50m threshold to 30m If change is agreed then please note further reference is made to this height in 13.2.3 note 2.	
LFB		Section 1 - 0.7	Last para	Ge	Would recommend considering alternative examples for enhanced measures that might be needed	Include as examples; firefighting access and facilities including aspects such as number of firefighters and evacuation lifts within the building.	

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LFB		Section 1- general		Te	'Modern methods of construction' not currently addressed within the introduction of BS 9991 in terms of recommending, as per clause 0.7, that enhancements may be needed to the fire safety measures. Drafting committee should carefully consider if the code of practice, as written, is appropriate for all construction typologies. Our view is that Modular buildings in particular should be excluded from the scope of BS9991 as there Is currently insufficient guidance in this draft. If the committee feels that it is appropriate to remain in scope then, as a minimum, we advocate that a new detailed clause titled 'modern methods of construction' or equivalent should be included before or after current clause 0.7	Committee to consider if all MMC are truly covered in the scope of the code of practice. If yes, then for the new paragraph; Suggested wording; The recommendations in this code of practice can be applied to residential buildings of any construction methodology. However, where innovative/modern methods of construction are proposed e.g. 3D primary structural systems (commonly referred to as modular or volumetric off-site construction) or cross laminated timber, the guidance within BS9991 alone may not be sufficient in terms of the fire safety measures. It is therefore recommended that specific evaluation of the intended construction methodology is informed by qualitative design review process (QDR) in accordance with BS7974. Such a review should determine if BS9991 can be used for the specific design, and should also consider, for example, aspects including available fire test data, voids and connection detailing and how this might influence fire behaviour, interaction with fire safety systems alongside an in depth understanding of the structures behaviour in fire.	
LFB		Section 1 - 0.8		Ge	LFB fully support and endorse the statement; "Appropriate fire safety design takes into account the way in which a building will be managed. Any reliance on an unrealistic or unsustainable management regime cannot be considered to have met the recommendations of this	Observation only – no change proposed	

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					British Standard"		
LFB		Section 1 – 0.8	Pg 18 5th Para	Ge	When reflecting on building performance and its reliance on factors it should also acknowledge build quality within this paragraph.	Include build quality into the sentence describing the factors upon which the life safety strategy relies upon. '..can only do its job properly if it has been built properly and if it can be managed, maintained and tested over the whole life of the building...'	
LFB		Section 1 – 0.8	Pg 18 bullet point list	Ge	Effective management also requires communications with residents	Including effective communications with residents in the bullet point list.	
LFB		Section 1 – 3.0	Definitions	Ge	Include a definition for 'evacuation lift lobby' as this is a term that has now been introduced into this guidance	Include definition for 'evacuation lift lobby'	
LFB		Section 1 – 3.0	Definitions	Ge	Include a definition of 'protected shaft' as this is used within the document to include various configurations (e.g. with or without a lobby, with or without a stair).	Include definition of 'protected shaft'.	
LFB		Section 1 – 3.44.2		Ge	The definition for the evacuation lift is noted however this does not include reference to the automatic mode offered within this guidance.	Include a note and cross reference to Annex G to indicate the option for automatic control.	
LFB		Section 1 – 3.44.3		Ed	Need to ensure consistent terminology is used throughout for the term 'firefighters lift'	Amend the occurrences of 'firefighting lift' to 'firefighters lift' 50.3.2.2; 52.2.1 (a and c)	
LFB		Section 1 – 4.0	Pg 29 bullet points a-d	Ge	Is this list meant to be detailed as exhaustive? Would suggest it is not in terms of the events listed.	Consider including 'for example' after the words 'following events' in the sentence preceding the bullet points.	
LFB		Section 1 - 4.4	2nd para	Te	This section discusses that residential accommodation should be separated and independent. However, it does not provide any indication as to what the separation will	Re-word the paragraph to read and include "a separated part" as per the definition in section 3 "Where a building is in mixed use and is partly	

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					need to be.	residential, then it should wherever practicable be designed such that from the standpoint of fire safety the residential and non-residential uses are a separated part (as defined in Section 3) and independent to each other"	
LFB		Section 1 - 4.6	3rd para	Ge	LFB Support the changes to Inclusive design section and in particular "The need for people to require assistance from other parties to evacuate should be minimized where reasonably practicable." However, does this still work as a blanket statement given the inclusion of residential care within the guidance?	Consider if the statement needs rewording to acknowledge the inclusion of residential care provision within the guidance. Note 1 also needs to be considered as these may need to be used within a residential care setting or where specialised housing includes high dependency individuals.	
LFB		Section 2 – 5.1.1	Bullet point a)	Ge	It is agreed that doors need to be readily openable by all people at all times. We have experience of doors being unopenable by firefighters during firefighting mode of an extra system. We therefore recommend some additional wording and an additional note cross referencing A4.2.1 to provide clarity.	Include the words 'at all times' at the end of the first sentence Include an additional note cross referencing A4.2.1	
LFB		Section 2 – 5.1.2	Bullet point c)	Ge	Include consideration for falling debris in the consideration for final exit siting	Include reference to falling debris.	
LFB		Section 2 - 5.1.2	Bullet point d)	Ed	Wording within the guidance should be modified to be more inclusive and not to imply that a wheelchair user is simply an 'obstruction'.	Suggested re-word - 'Wherever possible, final exits should provide a level or ramped route away from the building. Where a final exit leads to steps outside the building, there should be space for a wheelchair user to await further assistance, whilst maintaining the continued flow of other occupants from the exit.'	
LFB		Section 2 – 5.1.2	Notes 2 & 3	Te	The notes are acknowledged but this guidance includes reference to including a BS8629 system. Is this considered by the	Clarity needed within the notes as to whether the activation of a BS8629 system is classed within	

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					drafting committee to fall into the category of 'where the stay put policy has been abandoned' or a different phase of evacuation that should be considered as part of the final exit design?	this guidance as 'stay put policy' has been abandoned?	
LFB		Section 2-5.1.2	Note 3	Ed	This note includes the phrase 'stay put policy' - the definition in 3.62 is 'stay put strategy'.	Any reference within the guidance to stay put *policy* should be replaced with stay put *strategy* in line with the definition.	
LFB		Section 2 – 5.2	1st para	Ge	It should be clear that escape windows are not considered as the primary escape route from a building. We have had schemes, for example, which have used escape windows as a means to try and justify non provision of smoke control to common parts.	Include wording 'but should not be considered as the primary escape route from a building' to the end of the first sentence.	
LFB		Section 2 - 5.2	Bullet point C) 3)	Ge	Add in a provision for onward evacuation	Suggested rewording - The ground beneath the window or balcony should be clear of any obstructions (such as iron railings or horizontally hung windows), should be of a size and material that is suitable and safe for supporting a ladder and have access to a final exit route away from the building.	
LFB		Section 2 - 5.3	First sentence	Ge	Would recommend that as per the commentary on 5.2 that inner room design is not appropriate as detailed for residential care or residential accommodation specifically constructed for older people or people with mobility impairments I.e. higher dependency.	Include caveat that the inner room guidance is not appropriate for high dependency individuals. This is particularly pertinent to the recommendations for escape windows such that a room containing one does not need to be treated as an inner room.	
LFB		Section 2 - 5.3	Second Sentence	Ge	It is largely unknown at the design phase whether mobility scooters are to be provided. Risks such as appliances and mobility scooters should be discouraged within protected lobbies.	This section requires further clarity around the intent of the guidance and limitations on the approach. Suggest removing the reference to 'permitting' fire risks within the internal protected lobby. This could be considered to be providing a lower standard than Approved Document B.	

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					It is noted that where a mobility scooter is provided within a protected lobby then a solution is to provide an escape window within any rooms leading from the lobby. As the individual is likely to have mobility issues, we question the efficacy of the escape window provision. In addition, the consideration of allowing a fire risk within the protected lobby not only impacts the means of escape within the flat but may also have an impact on the protection to the common parts which does not appear to have been reconciled. For example, a small single stair building where flats have a protected entrance lobby can, under some circumstances, have the flat door entering directly into the staircase. It should therefore be very clear within this section if the lobby area is no longer defined or can be considered an internal protected lobby for the purposes of the overall design of the building.		
LFB		Section 2 – 5.5	Note	Ge	Suggest removing the word ‘normally’ as this is not considered to be a good practice or advisable	Remove the word ’normally’ from the note.	
LFB		Section 2 – 5.6		Te	There has been a longstanding need for additional guidance relating to open plan flat design and in particular open kitchens. We therefore welcome the inclusion of further detailed guidance. However, there are elements of the proposals which remain unclear as to how they support the safe evacuation of occupants. 1) What consideration has been given to the type of detector head	Seeking clarity on these points and guidance updated accordingly.	

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					to cover the kitchen area to ensure early warning to the occupants? 2) Should the guidance include further recommendations e.g. safety (thermal) cut outs on the cooking apparatus in the event of a fire? 3) Should an overall travel distance limitation be placed on this clause to prevent the use of this layout in very large apartments? Or is the cross reference to clause 9.5 and overall size of open plan flat considered sufficient for this purpose?		
LFB		Section 2 – 5.6	Figure 1	Te	It is unclear how the 1.8m was determined to be an appropriate distance but assume some research was conducted. Hopefully this research considered cumulative effect of radiative heat and a suitably conservative fire size. In terms of the diagram itself and the shaded area – is it considered that this area should be free from any combustible items or is this only to highlight the distance to a clear escape route?	Clarity on the diagrammatic representation is sought.	
LFB		Section 2 - 5.6	c)	Te	It is noted that the guidance is limited to cooking apparatus with a fixed connection to the dwelling's electricity or gas supply. This means that the guidance considers is acceptable for a 13amp cooker, fridge, freezer to be next to the escape route.	Confirmation sought that the wording reflects the intent of the drafting committee in terms of capturing risk.	
LFB		Section 2 - 6.2	Bullet point a)	Ge	We are unclear regarding the reference to a fire rated floor? do we need to protect the floor as well as the ceiling?	Check reference to fire rated floor is accurate in this instance.	

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LFB		Section 2 – 6.2	Bullet point c)	Ge	The last sentence refers to a distance above ground or 'external deck level'. What is meant by external deck level and how does this support evacuation away from the building to a place of ultimate safety?	Clarify what 'external deck level' is and how onward escape is achieved and ensure that this can't be applied to a condition significantly above ground level.	
LFB		Section 2 – 7.3	2nd para	Te	With the emerging fire data relating to battery fires, it is advocated that the level of separation detailed for the storage area from other parts of the building is reviewed. Is a single door separation and 30 mins FR sufficient when there is no limitation on the size of this space, or the numbers of batteries located within it that may be on charge?	Review whether a protected lobby should be included separating the storage facility and the means of escape and whether a size limitation on the room is included also.	
LFB		Section 2 - 7.4	First sentence		As per our earlier comments regarding independent living, this clause is confusing as it is placing travel distance limitations but other than the title makes no reference to supported evacuation within the clause text? This reads like progressive horizontal escape? We also advocate additional text that places a strict restriction on variation of travel distances where occupants are not able to independently evacuate.	The guidance within this clause does not appear to reflect the clause title relating to an on-site and managed evacuation and is confusing in what it is describing. Does this piece of guidance only apply where there is accompanying onsite management (as the narrative doesn't say this) and should the bullet points also make it clear that variation in these travel distances is not permitted	
LFB		Section 2 – 7.6		Ge	LFB welcome the inclusion of evacuation using lifts into the guidance and the positive step towards creating a more inclusive environment that supports the safety of all occupants. There is however a real disconnect within the guidance in terms of the included text and information in this section and the lack of cohesion with the rest of the guidance document. Elements	Review the guidance to ensure cohesive inclusion of the evacuation lift lobby concept throughout. Update the diagrams showing common parts layouts to include the evacuation lift lobby.	

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					such as the diagrams showing common parts layouts should now include the evacuation lift lobby.		
LFB		Section 2 - 7.6.1.		Ge	It is agreed that the number of lifts provided for evacuation should increase with height. As the building further increases in height then further consideration is needed by the design team as to whether more than two evacuation lifts may be needed and whether they should be entirely separate in function from the firefighting lift(s) regardless of whether there is a stay put strategy employed within the building. We raise this point because of comments we would like to highlight regarding minimum numbers of firefighters lifts in addition to consideration that much be made regarding the included BS8629 system and the possibility of a wider evacuation of the building. While it is understood that a guidance document such as this cannot cover all eventualities and scenarios by including the BS8629 system there must be some consideration by the guidance to sufficient provision to practically support both the onsite management and firefighters in the event of its use.	Include further commentary to detail that as the building increases in height then the requirements for a dedicated evacuation lifts are likely to increase. We would suggest that over a certain height that dedicated evacuation lifts will be required that are separate from the firefighters lift(s).	
LFB		Section2 – 7.6.3	First sentence	Ge	There is a requirement for an evacuation strategy for people with mobility impairments but no accompanying guidance. Will details of requirements be known for a general needs block or sheltered accommodation? How will this be determined by the design team?	Additional guidance is needed regarding developing an evacuation strategy to support the use of the evacuation lifts that gives due consideration to the needs of the occupants	
LFB		Section 2 – 7.6.3	2nd para	Ge	It is assumed that if there are multiple lifts in a bank that they can be served by the same evacuation lift lobby or is there a need for a	Clarify the wording such that where it is a group of lifts this may be served by the same evacuation lift lobby and that this can be shared with the	

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					separate lobby per lift? It is also assumed that it is permitted to include the firefighting lift within the same lobby? It is noted that dual entrance lifts are mentioned. Some designs have lifts that open directly into flats, would recommend that these are specifically excluded from the guidance due to the vulnerability of ongoing maintenance of the provisions on the flat side lift entrance	firefighters lift(s). Include the note: dual entrance lifts where one side of the lift opens into an apartment are not permitted to serve as an evacuation of firefighters lift.	
LFB		Section 2 – 7.6.3	4th para	Ge	Is this permissible for a firefighting stair/ corridor also?	Add a comment that where the building is over 18m the lobby will need to meet the requirements of a firefighting shaft	
LFB		Section 2 – 7.6.3	Figure 6	Ge	The diagram would benefit from showing the connection of the evacuation lift lobby with the staircase	Amend the diagram to show connection to a staircase	
LFB		Section 2 – 7.6.4	1st para	Ge	We welcome the protection level detailed for the evacuation lift lobby as it must remain tenable for any occupants awaiting an evacuation lift, it also serves to improve the protection to the staircase	No change proposed	
LFB		Section 2 – 7.6.5	Bullet point a)	Te	The proposal to share an evacuation lift and firefighters lift needs to be approached with caution. At present, regardless of height of the building, there is no specific requirement in the guidance to provide more than one firefighters lift (comment made separately relating to that section). It is our recommendation that evacuation lifts are separate from firefighters lifts particularly given the inclusion of a BS8629 system and that potential phase of evacuation of a building.	Amend the proposal to separate the use of a firefighters lift for evacuation lift purposes. There could be a potential to have a dual use but only up to a limited height and/or if the minimum number of firefighters lifts have been reviewed and amended.	
LFB		Section 2 – 7.7	Bullet point b)	Ge	While this comment is being included against this bullet point the issue is a wider one. Design trends indicate a desire to link	Include a separate clause specifically providing recommendations for when and where links to car parks can exist and what accompanying	

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					car parks with residential staircores. This poses a risk from fire and has security implications. Our recommendation is that instead of having multiple different references within clauses in the guidance that there is a separate clause which tackles when and where a link to a car park can exist and what protection measures need to be in place.	protection measures should be in place. The guidance should ensure stairs have clear protections commensurate with the risk i.e., single stair, final exit route and consider how the firefighting phases might affect the staircase. Detach the various reference to car parks (examples below) and incorporate into section 48 as a more comprehensive section about designing an ancillary carpark. • The protections to staircases discussed in 7.7, 15 c, 22.3.4 and section 38 • 22.4.3.2 Venting of smoke and heat from covered car parks, • 45.3.2.2 Lifts that serve a single floor level of a ventilated car park. Include a diagram similar to Figure 27 for a range of solutions?	
LFB		Section 2 – 7.8	Bullet point a)	Ge	Is the 'adjoining smoke-free area' mentioned in this paragraph referring to the staircase?	Include the term i.e. and clarity about what the smoke-free area is.	
LFB		Section 2 – 7.8	Bullet point b)	Ed	In the second sentence 'smoke ventilation' is mentioned twice	Remove one reference	
LFB		Section 2 – 7.8	Figure 8	Ge	The drawing should be amended to include reference to the evacuation lift lobby.	Amend drawing to include evacuation lift lobby	
LFB		Section 2 – 7.8	Figure 8	Te	Number 2 in the key indicates that the maximum distance can be extended to 15m if sprinklers are fitted, but no ventilation is provided. Clause 19.2 permitted variations requires a ventilated corridor for the	Consider removing the option to extend the corridor to 15m without accompanying ventilation provision.	

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					extension to 15m. Sprinklers are now required for buildings of this height and the lobby serving the stairs is now an evacuation lift lobby which should have the same standard of ventilation as the staircase. There is a question therefore as to whether the layout detailed in bullet point a) remains a valid option to have a permissible non ventilated corridor and for that corridor to be extended without		
LFB		Section 2 – 7.8	Figure 9	Ge	The drawing should be amended to include reference to the evacuation lift lobby.	Amend drawing to include evacuation lift lobby	
LFB		Section 2 – 7.8	Figure 10	Ge	The drawing should be amended to include reference to the evacuation lift lobby.	Amend drawing to include evacuation lift lobby	
LFB		Section 2 - 7.8	Figure 9 Key 1	Ge	Maximum travel distance to be extended to 60m if sprinklers are fitted. However, consideration should be given to the hose distances (max of 60m). This was in the previous revision.	Include reference to hose distances as part of the 'limitations' consideration.	
LFB		Section 2 – 7.9	Figure 10	Te	The diagrams (and accompanying text) do not indicate how an evacuation lift lobby would be accommodated within this type of design.	Update the diagram (and associated text) with clear guidance on how evacuation lift lobbies would be accommodated within this type of design.	
LFB		Section 2 – 8.0		Ge	The new section regarding residential care is noted. The majority of the guidance within BS9991 is relevant to buildings with a stay put evacuation strategy. The inclusion of residential care with a substantially different evacuation strategy needs to be considered with care to ensure that the remaining content (beyond section 8) remains relevant and appropriate.	Recommend removing residential care from the guidance or provide substantially more guidance to support appropriate design development.	
LFB		Section 2 -	1st Para	Ge	This paragraph references the registration and inspection authority for each country	Include reference to the fire safety enforcing	

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		8.0			but there is no reference to the Fire Safety enforcing Authority. The RRFSO will generally apply to all parts of the care home including the bedrooms.	authority	
LFB		Section 2 – 8.5.2		Ge	We would advocate some additional commentary regarding progressive horizontal evacuation taking place in a timely manner and giving due consideration to the dependency levels of the individuals within the compartment. ADB takes an approach of placing a 10 bed limit in one protected area yet BS9991 appears to be taking a compartment size approach instead.	Consider including text to indicate that the design team needs to think about the time within which progressive horizontal evacuation takes place and whether there should be additional recommendations regarding the dependency levels of occupants within the compartment and the impact this may have on the evacuation design.	
LFB		Section 2 - 8.5.3	Table 2	Te	These distances are greater than in the approved documents (9m and 18m in ADB).	Review the travel distances to ensure that they are appropriate.	
LFB		Section 2 – 8.7		Ge	Consider inclusion of option to include hold open swing free devices in residential care circulation spaces.	Eg - Where fire-resisting, self-closing doors present an obstacle to normal access and egress, consideration should be given to the fitting of hold open devices or swing-free devices. Or refer reader to clause 32.1.1 note 1	
LFB		Section 2 – 9.3	Bullet point b)	Ed	Two references to subclause 9.4.3 which are related to flats above 4.5m? It is unclear the intent of this clause, it is assumed that it is in relation to giving options around both 9.4.2. and 9.4.3 depending upon flat entrance levels, rather than the stated building height.	Check cross references are correct and is appropriate for flats situated not more than 4.5m above ground or access level.	
LFB		Section 2 -	Figure 17	Ed	Within the diagram the less than or equal to	Correct the diagram to provide accurate and clear	

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		9.4.3.			9m is labelled on the arc rather than on each lines of direction	reference	
LFB		Section 2 – 9.5	Note 2	Ge	The clarification provided in Note 2 regarding the non-compatibility of open plan flats with small single staircase designs that rely upon internal protected lobbies to protect the staircase is welcomed.	Observation only.	
LFB		Section 2 – 9.7	Figure 18 b)	Ge	It is unclear how the 35m travel distance has been derived, the diagram is also unclear in how the layout links with the 'common' escape route.	Drafting committee to be clear on the travel distance detailed and be satisfied it offers appropriate levels of safety. Consider if the diagram should be revised to offer more clarity to the reader.	
LFB		Section 2 – 9.7.2	2nd sentence	Ge	The guidance indicates that kitchen doors should be held open – would strongly recommend that the wording is amended to 'can' rather than 'should'.	Change the wording from 'should' to 'can' in this sentence.	
LFB		Section 3 – 10.1		Ge	The additional guidance regarding the protection of a single staircase is noted and welcomed. It is unclear how this British Standard reconciles with the Scottish Technical Standards which we understand places a limitation on the height at which a single staircase can be used. Notwithstanding the above comment, it is our view that an upper height limit should be included within the guidance. In addition, we also recommend that this approach is not acceptable for schemes where individuals with higher dependency may be present.	Consider how the guidance works in conjunction with Scottish Technical standards and include a height limitation for the single staircase approach. Restrict approach such that it is not used for schemes with higher dependency occupants.	

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LFB		Section 3 – 10.1	1st sentence & note 3	Te	It is unclear how the guidance within this section, particularly where a single staircase may be utilised places any limitations or requirement for additional guidance in relation to section 7.9 and the option for a balcony or deck approach.	Consider how the single staircase recommendations apply to section 7.9.	
LFB		Section 3		Te	We have included additional features which should be a requirement for a single stair if that was an option to remain in the guidance. These include: Additional protection for fire crews over the firefighter entrance point; Restriction in the use of occupied amenity spaces in single stair buildings over 11m; Multiple firefighting lifts as a minimum for single stair buildings. More information is contained within our comments specific to those areas outlined.	Recommend including those specific restrictions/additions within this section.	
LFB		Section 3 – 10.1	Bullet point d)	Ge	Clarity requested as to whether what is being described is the evacuation lift lobby. We would support the inclusion of a sterile protected lobby separating the staircase from the common access corridor serving flats.	Ensure reference to evacuation lift lobby is included as necessary.	
LFB		Section 3 – 10.1	Bullet point e)	Ge	The apparent intent of the guidance to advocate a ventilation system that seeks to 'guarantee' availability of the single staircase is fully supported. However, the solution must be a system that is practically achievable by design, commissioning, ongoing management and maintenance.	Additional guidance may be required.	

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					This may include the need to split a tall single stair into shorter vertical sections with a separate pressurization system for each portion.		
LFB		Section 3 – 10.1	Bullet point e)	Ge	We note that BS EN 12101-6 is about to change, and BS EN 12101-13 additionally introduced. These changes introduce various options in terms of protecting a space for escape or firefighting without the strict expectation of parameters in the way that the current standard does. Therefore the key areas to be protected and the performance parameters should be defined here.	Provide the detail on the areas to be protected and the performance requirements to be met. This could be for example repeating the requirements for a BS EN 12101-6 class B system with additional door openings to be accounted for.	
LFB		Section 3 - 10.1	Bullet point f)	Ge	It is our view that the travel distance within corridors should, where a single staircase is being used, have a limitation of 15m.	Remove option to exceed 15m travel distance.	
LFB		Section 3 – 10.1	Note 4	Ge	Would advocate reconsidering the wording of this note and strengthening the statement regarding '.. a degree of flexibility in the provision of fire safety measures..' The way in which the second sentence is worded implies approving authorities almost 'enabling' departure from guidance which we assume is not intended.	Reconsider wording to strengthen the sentence to encourage design teams, on refurbishment projects, to aim, where possible, to upgrade fire safety measures in a building. This may include reference to fire safety case review.	
LFB		Section 3 - 12	Bullet point a)	Ge	Include reference to no service risers opening directly into a common stair	Suggested re-word; ' no storeroom or service riser should open directly into a common stair'	
LFB		Section 3 – 13.2.1	1st Sentence	Ge	Is the text in this sentence contrary to 10.1.(i?	Include cross reference within a note to the limitations of the approach as outlined in 10.1.(i	
LFB		Section 3 –	Figure 21	Ge	13.2.2 is explicit in figure 21 only being	Change title to Figure 21 - Staircase separating	

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		13.2.2			applicable for 'small single stair buildings under 11m' however the title to figure 21 does not include the word 'small'	basement and upper storeys in small single stair residential buildings	
LFB		Section 3 – 13.2.2	Figure 21	Te	It should be noted that if a fire occurs within the basement area, and firefighting access is limited to the main entrance door of the block, then the door detailed on the drawing as separating the lower and upper storeys will be in the open position due to hose laying. If the drafting committee considered that this door is essential in protection the upper levels from a fire in the basement then we would advocate considered whether the layout in figure 25 would be more appropriate.	Consider if figure 21 should reflect the layout in figure 25.	
LFB		Section 3 – 13.2.3	1st Sentence	Ge	Reference should be included that this approach is limited up to 18m.	Include clarity that this guidance is for between 11 and 18m. Not for a building of any height as this is contrary to earlier recommendations within the guidance.	
LFB		Section 3 – 13.2.3	Figure 25	Ge	Title of the diagram needs to reflect limitation on the approach up to 18m	Title of the figure need amending for clarity of limitation on this approach.	
LFB		Section 3 - 14	Bullet point a)	Te	The recommendation contained within b) 2) iv) is applicable, in our view, to a) also.	Include the recommendation in relation to a linked automatic fire detection for buildings within a)	
LFB		Section 3 - 17	Bullet point g)	Ge	The guidance would be enhanced with a cross reference to the evacuation of those from the evacuation lift(s) which now feature within this guidance.	Enhance this bullet point with reference to the evacuation lift location and dispersal.	
LFB		Section 3 - 17	Last two paragraphs	Ge	What considered is given to the onward evacuation of those using evacuation lifts to continue their means of escape if the staircase/evacuation lift does not continue	Include guidance on how to manage the onward evacuation of those using evacuation lifts if these lifts/protected shafts do not continue to descend down to ground floor level.	

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					to ground level?		
LFB		Section 4 – 19.1	Note 2	Te	Does the note mean to refer to 'separated parts'?	Check technical reference and amend to 'separated part'	
LFB		Section 4 – 19.1	Last para	Ge	We welcome the reference that all residential care facilities should be covered by a sprinkler system, but we advocate that this is extended to all specialised housing where higher dependency occupants may be present.	Include reference to specialised housing to those buildings that should have a sprinkler system fitted (regardless of height of the building)	
LFB		Section 4 – 19.2	1st para	Ed	There is a cross reference to clause 7.9 which is incorrect	Check clause cross reference for accuracy.	
LFB		Section 4 - 20	3rd para	Ge	While residents may not utilise fire aid firefighting equipment there is likely to be trained staff in residential care premises.	Check that this section of guidance has considered the newly incorporated residential care premises.	
LFB		Section 4 - 21	Para 2	Ge	Care should be taken in implying that a car park can always be protected with a BS 9251 system, when BS9251 itself says it can only be applied to limited car par areas.	After "..should be provided with sprinklers in accordance with BS 9251:2021 or BS EN 12845:2015+A1" add " within the limitations of scope of those standards".	
LFB		Section 4 - 22	First sentence	Ed	Is aid the right word to use in this context?	Change 'aid' to a more appropriate word.	
LFB		Section 4 - 22	Bullet point a) 1st sentence	Ge	Include reference to the evacuation lift lobby protection	Suggested reword; '.. is to protect the stairwell enclosure and evacuation lifts lobby, it can also..'	
LFB		Section 4 - 22.1	Third sentence	Ge	Missing reference for pressurization system which reinforces the expectation where single stairs over 18m are proposed.	Include specific reference or cross reference to 10.1 e)	
LFB		Section 4 – 22	Bullet point a) 7th para	Ed	The sentence is poorly constructed while we agree with the principle.	Suggested reword; 'The determination that a natural ventilation system does not work, is not a justification for the proposal of a mechanical system of comparable poor performance which	

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						does not restrict or prevent smoke migration into stairwells.'	
LFB		Section 4 – 22.1	5th para	Ed	Unusual language in terms of the words 'not to interfere with each other'	Suggest a reword to change 'interfere with each other' to 'conflict' in terms of their intended performance	
LFB		Section 4 - 22.2	Last sentence	Ge	LFB fully Support the statement that "Tenability-based acceptance criteria to the stair enclosure in terms of visibility and toxicity should not be used in the CFD analysis."	No change proposed – observation only.	
LFB		Section 4 – 22.3			While reference is made to the smoke control guidance, this guidance would benefit from repeating key principles such as arranging a smoke control system to extract away from the stair. The principle of only extracting heat and smoke away from the stair is critical for safe firefighting operations as this allows a relatively clean air path for firefighters to approach the flat affected by fire. This allows firefighters to conserve the limited air in their firefighting breathing apparatus and to reduce the potential for heat stress. This also supports better conditions for rescuing casualties or evacuating other flats if required.	Include the requirement, at least for mechanical systems in long corridors to extract away from the stair to protect fire crews.	
LFB		Section 4 – 22.3			Where smoke control systems are extracting via a shaft they are often not supplied with sufficient dedicated inlet air. LFB have noted occasions when this has prevented doors from being opened, or the system only being effective when doors are opened and kept open to provide the required inlet air. Extract shafts may have had sufficient inlet via general leakage in	Provide a requirement for sufficient dedicated inlet air for systems employing smoke shafts.	

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					historic designs, however this does not appear to be the case for modern building designs with limited leakage. This leakage should not be provided by ducts or dampers between the lobby/corridor and the stair.		
LFB		Section 4 - 22.3.2.2	Bullet points a) and b)	Te	Suggest including a hierarchy with option b coming first.	Include hierarchy of approach changing the bullet points around in order.	
LFB		Section 4 – 22.3.4		Ge	Include an additional note to serve as a reminder when a single staircase cannot connect to an enclosed car park	Include a note regarding single staircase condition not connecting to an enclosed car park as a reminder.	
LFB		Section 4 – 22.3.4		Ge	The heading of this appears misleading as this does not provide an appropriate solution for all protected corridors and lobbies. In fact the 0.4m^2 permanent vent is significantly less than the corridor/lobby requirements in 22.3	Amend the title to reflect the specific ventilation discussed.	
LFB		Section 4 – 22.4.2.1	First para	Ge	We welcome the reference to pressure differential system being used for FF shafts serving basements below 10m.	Comment only. No change proposed.	
LFB		Section 4 – 22.4.3.1	Bullet point 2)	Te	Reference to an extension to 'the mechanical system' - which mechanical system is being referenced? Clarity is needed as to which mechanical system is being referred to	Add clarity to which system is being referred to.	
LFB		Section 4 – 23		Ge	LFB generally supports the changes to Clause 23 from the content of Clause 15 in BS 9991:2015. We support the removal of the option to provide an incoming power supply from a single substation, with diverse power supply routes within a residential building provided as an alternative to a life	Comment only.	

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					safety generator or other independent source of secondary power. In our experience, fully independent sources of secondary power such as life safety generators are often omitted from residential buildings based on the assertion that life safety generators in residential buildings and their associated fuel supplies are often not suitably maintained or considered within fire risk assessments. Whilst this may reflect the reality experienced by many in the industry, this assertion is often made despite the presence of legislative requirements (for example those given in the Regulatory Reform (Fire Safety) Order 2005) for persons who have control of buildings to ensure that fire protection and life safety systems are suitably maintained, which should include maintenance of secondary power sources. In our opinion, the recommendations given in Clause 15 of BS 9991:2015 enable the omission of suitably independent secondary power sources and provide a lower standard of safety than that of fire safety legislation, at least in the UK.		
LFB		Section 4 – 23		Te	For some other types of electrical installation, theft of components such as cables has been a problem. We would recommend including a recommendation for the enclosures housing UPS/battery inverter equipment to be provided with a suitable level of security to prevent/deter theft.	Include a recommendation that UPS/battery inverter equipment should be provided with a suitable level of security to prevent and/or deter theft, preferably referencing appropriate standards to support the specification of the security systems.	
LFB		Section 4 – 23		Te	Although we acknowledge that it is not necessarily a common occurrence, there is a potential for a fire to occur within the	Include a recommendation that suitable isolation controls be provided in a location accessible to firefighters to be able to independently electrically	

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					UPS/battery equipment enclosure(s), either as a result of a fault with the UPS equipment itself or other equipment within those enclosures. If such an event were to occur, it is important that firefighters are provided with a facility to electrically isolate the UPS//battery equipment without having to isolate the primary power supply to the building.	isolate the UPS/battery inverter equipment and other electrical equipment within the affected fire resisting enclosure. These controls should be secured against use by unauthorised persons, provided with suitable identification signage and be identified on premises information plans provided for use by firefighters. Signage local to the isolation controls should also clearly identify that operating the controls will isolate the secondary power source for life safety systems and/or firefighting facilities and should only be used in the event of a fire originating within the enclosure to the UPS/battery inverter system.	
LFB		Section 4 – 23	Para. 1, Table 5 and Para. 2	Te	There appears to be a contradiction between the proposed content of Clause 23, paragraph 1 (and the supporting Table 5) and paragraph 2. In some cases, the requirements given in BS 8519:2020 would appear to exceed those proposed in the draft Clause 23. Paragraph 1 and Table 5 link fire and water damage protection of power supplies, electrical wiring and control equipment to the fire resistance of the associated building electrical switchroom enclosures (the fire resistance of which are presumably as recommended elsewhere in this document). However, BS 8519:2020 bases the requirements for selection of the fire, mechanical and water damage protection of fire-resistant power and control cable systems upon their application (we refer to Clause 5 of BS 8519:2020). To give an example of how we perceive that a contradiction may be introduced, the fire resistance of the building electrical	The proposal to link power supply, electrical wiring and control equipment fire, water and mechanical damage protection to the minimum fire resistance of building electrical switchroom enclosures should be reviewed to ensure that it does not provide a lower standard of safety than required in order to conform to BS 8519, as recommended by the draft paragraph 2 of this Clause. It is unclear why the recommendations of paragraph 1 and Table 5 have been introduced. Alternatively, it may be sufficient to include a note to explain the relationship between the recommendation given in paragraph 1 and Table 5 and that given in paragraph 2. This would only be appropriate, in our opinion, if the technical panel have confirmed that the proposed recommendation does not result in a lower standard of safety being recommended by BS 9991 when compared with BS 8519 or other relevant codes, standards and guidance.	

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					switchroom enclosures given in the proposed Table 5 may largely be in accordance with the requirements of BS 8519:2020, i.e., they are 120 min for buildings with a height of top occupied storey measured as >18m above fire and rescue service access level. However, for buildings with a depth below FRS access level of basement level >10m, Table 5 proposes a fire resistance of 90 min, in accordance with the recommended fire resistance period of an associated LV or ELV switchroom. BS 8519:2020 would recommend Category 3 power and control cable circuits for some applications for a building with this depth of basement, resulting in a fire survival time of 120 minutes.		
LFB		Section 4 – 23	Para 1 and 10.	Te	Clause 23 refers to the need for power supplies, electrical wiring and control equipment to be protected against fire and water damage, but not mechanical damage.	It should be considered if Clause 23 needs to refer to the protection of relevant services from fire, water *and* mechanical damage. Protection from mechanical damage is considered by BS 8519 and other relevant specification standards, in addition to protection from fire and water damage. This may also apply to other parts of this draft code of practice.	
LFB		Section 4 – 23		Te	BS 8519:2020 Annex A (informative) 'Selection and specification of UPS/battery inverter systems to serve as the secondary source of supply to life safety, fire-fighting and other critical systems' refers to some potential disadvantages of UPS/battery inverter systems, when compared to more established technology such as diesel	It should be considered if a direct cross reference to BS 8519:2020 Annex A would assist the user of this draft code of practice in selecting an appropriate secondary power source to support firefighting and life safety systems. Alternatively, further notes could be introduced to make users aware of additional potential disadvantages of UPS/battery inverter systems that they should consider when selecting an appropriate	

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					generators. These are only partially referenced in the draft Clause 23, for example in Note 4.	secondary power source. For example, a UPS/battery inverter system is unlikely to provide the same duration of secondary supply as a generator, although this disparity may be expected to reduce as UPS/battery technology advances.	
LFB		Section 4 – 23		Ed	Paragraphs 8 through 18 (inclusive of Notes 3 and 4) appear to exclusively provide recommendations relating to UPS/battery inverter systems. Paragraph 19 then provides a general recommendation on power supply changeover. This could be made clearer for the user.	It may be easier for the reader for paragraph 19 to be moved before the paragraphs relating to UPS/battery inverter systems and for paragraphs 8 through 19 to be placed in a sub-clause, e.g. '**23.1** UPS systems for secondary power supply to firefighting and life safety systems'. This would also ensure that paragraph 19 is not overlooked in error by users of this code of practice who are not proposing to use UPS/battery inverter systems for a particular application.	
LFB		Section 4 – 23	Note 3	Te	Note 3 suggests that UPS battery equipment is considered unsuitable to supply wet rising fire main pumps. This would both appear to potentially include a normative recommendation, i.e. that UPS battery equipment should not be used to supply wet rising main fire pumps, but it is also unclear as to whether or not UPS battery equipment is unsuitable for other fire protection and life safety systems, for example sprinkler pumps, smoke control system fan sets or firefighters lifts. It should be noted that LFB does not oppose the use of UPS/battery inverter systems as a secondary power source for firefighting and life safety systems providing that these provide an equivalent performance to other available secondary	Consider making Note 3 normative text rather than a note and consider if the same consideration applies to the suitability of UPS battery equipment for use in supporting other types of fire protection and life safety systems. In our opinion, the conservatism of the recommendations and informative guidance given in this Clause with regards to UPS/battery inverter systems should reflect the degree of uncertainty held by the technical panel Further consideration should be given to the potential risks introduced by greater incorporation of UPS/battery inverter systems into the built environment, especially high-risk residential buildings, if this has not already been considered in the drafting of this Clause.	

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					power methods (and for a comparable life cycle period). However, we do not have the expertise to evaluate whether current UPS/battery inverter technology provides this equivalence, and we presume that the technical panel have given this suitable consideration based on available evidence and/or have consulted suitably competent experts in this field. We note that BS 8519:2020 Annex A includes the following statement: "BS EN 12101-10 calls for a standby generator required to support life safety and fire-fighting equipment to be equipped with 4 h, 8 h or 24 h of fuel storage; this level of UPS autonomy period would be difficult to achieve." Furthermore, we are aware that battery systems can pose an additional risk when used within the built environment and we presume that this has been considered by the technical panel. For example, fires involving lithium-ion batteries—which we note are only one of several battery technologies typically used for UPS systems — can be especially challenging to suppress and extinguish.		
LFB		Section 4 – 23		Ge	We note that the content of Note 1 of Clause 15 of BS 9991:2015 has now been omitted, which reminded users of the requirement of BS 7671/the Wiring Regulations to provide non-combustible supports to wiring on escape routes. Whilst we acknowledge that this requirement has	Consider retaining the content of Note 1 of Clause 15 to BS 9991:2015 in Clause 23 of this draft code of practice.	

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					been part of the Wiring Regulations for several years now and may be considered to be established, there may be a benefit of retaining this note to remind users of this requirement given the potential implications for firefighter safety.		
LFB		Section 4 – 23	Note 4	Te	Note 4 reminds users of the fact that the extended battery recharge period for UPS/battery inverter systems will result in a building remaining potentially unprotected by the secondary source. However, the context provided in BS 8519:2020 Annex A comparing the recharge time of UPS/battery inverter systems with the fuel replenishment time of a life safety generator—which BS 8519:2020 Annex A states may be feasible within 3 hours, whereas the full recharge period for UPS battery equipment may be eight times longer—is lacking. As a result, the implications of selecting a UPS/battery inverter system as a secondary power source may not be sufficiently understood by the user, who we presume is more likely to be a fire safety engineer providing a high-level specification for the secondary power source rather than an electrical engineer undertaking the detailed design. Furthermore, whilst it is acknowledged that BS 9991 is a fire safety design code of practice and is not intended to provide guidance for building fire safety managers, it is our opinion that building designers need to also consider the implications of the longer recharge duration, which may require suitable minimum operating requirements to	We would recommend expanding the commentary in Note 4 to provide some context to the current draft note and also to reinforce the cautionary guidance around the extended battery recharge period. For example: "*NOTE 4 When compared to a fuel oil powered life safety generator, a significantly extended time is typically required to fully recharge UPS batteries. During the extended battery recharge period the building remains potentially unprotected by the secondary source, with significant implications for occupant and firefighter safety, and consideration may need to be given to the suitability of occupying the building during this extended time, or to providing suitable interim measures until the UPS batteries are recharged. The building designer may need to consider defining suitable minimum operating requirements to support the building end user in developing fire safety management procedures."* The technical panel should also consider whether to make part of this a normative recommendation, where considered appropriate for a fire safety code of practice, and whether such a recommendation would also be appropriate to also cover the shorter, but nonetheless significant, fuel replenishment time of a life safety generator.	

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					be defined at design stage to support the building end user in developing suitable fire safety management procedures.		
LFB		Section 4 – 23	Para. 18	Te	The paragraph regarding UPS battery room air conditioning could be misleading due to the inclusion of "where necessary" at the end of the paragraph. Whilst it is acknowledged that there may be some cases where UPS equipment may not require air conditioning, it is our understanding that supplementary cooling is normally required both due to the heat generated by UPS equipment and other heat loads as well as that resulting from climactic conditions. BS 8519:2020 Annex A states: “UPS equipment installed as an alternative secondary source of supply instead of a standby generator, required to operate for extended autonomy times in the event of mains failure, requires the air conditioning plant to be supported from the UPS equipment and dual redundant cooling units might also be necessary.” In our opinion, dual redundant cooling units should be recommended in order to eliminate the potential single point of failure introduced by a single item of cooling plant.	We recommend amending the paragraph to the following: “The UPS battery room should be air-conditioned by suitably resilient cooling plant, with cooling plant maintained by the UPS equipment, unless it is determined by suitable analyses that air conditioning is not required for the UPS equipment to remain operational under all reasonably foreseeable conditions. The UPS equipment should be sufficiently sized to support the cooling plant in addition to the other loads it is designed to support. Dual redundant cooling units should be provided so that the failure of a single cooling unit does not result in the failure of UPS equipment due to overheating.“	
LFB		Section 5 – 26.2	Table 10	Te	We question that within the guidance there are no provisions for control of external surfaces of walls where the building is 11m or below.	Consider if building below 11m should have a performance expectation on the external walls – this is particularly critical where higher dependency occupants may reside or single staircases are to be utilised.	

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LFB		Section 5 – 26.7	Final para	Ge	More guidance is needed with regards to PV arrays and the potential impact this may have in regards to the roof materials and fire spread.	Include more specific guidance which could include reference to expected fire performance.	
LFB		Section 5 - 27	3rd Para	Ed	In our opinion, the words 'large spaces' are potentially misleading, as unseen fire spread can be a risk in any space dependent on the circumstances and layout of the building	Remove the words 'large spaces' from this sentence.	
LFB		Section 5 – 27.1.1	Figure 37	Ed	The diagram is not very clear as to what it is showing and would benefit from being redrafted	Improve the clarity of the diagram.	
LFB		Section 5 – 27.2	3rd para	Ge	It is noted that the guidance includes reference to open state cavity barriers. It is our understanding that their effective performance very much depends on the fire materials above and below the barrier line.	We assume that the ASFP guidance referenced sufficiently covers the issue raised. Therefore this comment is for observation only and no change is proposed.	
LFB		Section 5 - 30		Te	Glazed elements are not appropriate for walls, floors, ceilings, stair risers etc. for firefighting shafts. Glazing in these areas can have a significant detrimental psychological effect on attending fire crews.	Glazed elements in firefighting shafts should be limited to vision panels in doors only. This should be cross referenced in the firefighting shaft construction section (50.3).	
LFB		Section 5 – 30.3 (a)		Ge	It is unclear why the fire resistance period is limited to 60 minutes. It is unclear if this is a typo, if it is intended to describe a minimum, or if it is intended to exclude firefighting shafts which will require a higher fire resistance period.	This should be clarified.	
LFB		Section 5 – 30.4		Te	It appears inconsistent that fire-resisting glazing requires testing (30.1), yet the requirements are far less stringent for a combination of glazing and sprinklers. That	Where sprinklers and glazing are intended to work together to as a combined fire resisting wall system the guidance should require the specific combination to have been demonstrated as	

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					there is not a formal standardised test for the combination of sprinklers and glazing should not be a reason to lower the expected burden of successful testing. In particular 30.4 (a) (2) appears to suggest that non fire-resisting glazing can be used in conjunction with sprinklers, as long as it is fully wetted, yet provides no scope/limitations as to the fire resistance period.	appropriate for the proposed period via testing.	
LFB		Section 5 – 32.1.1	Note 1	Ge	The recommendation of the use of hold-open devices is dependent on their location and ongoing maintenance. Hold open devices should be regularly released and we recommend that they are released at night. Therefore, their use within purpose built blocks of flats should be as part of a fire risk assessment.	At the end of the sentence add the words 'but their use must be considered as part of a fire risk assessment and the devices should be subject to a regular management and maintenance regime.'	
LFB		Section 5 – 32.1.6.1	Para 6	Ge	Text starting 'if the force..'. We recommend that the word 'should' be replaced with 'can' when discussing hold-open devices as they still rely on an accompanying maintenance and management regime.	Replace the word 'should' with 'can'	
LFB		Section 5 – 32.1.6.2	Notes	Ge	Include an additional note which details that the use of hold open devices should be considered as part of a fire risk assessment and have an accompanying management and maintenance regime.	Include an additional note which makes reference to the use of hold open devices being considered as part of a fire risk assessment for the premises.	
LFB		Section 7	Entire section	Ge	The section on ancillary accommodation does not reflect how these areas are being incorporated into tall residential buildings – at least in London. Our experience is that	The sections should: • Separate non or low occupancy amenity spaces from the areas intended as occupied areas, and provide specific	

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					these are being requested by planners as there is often no available outside community spaces at the base of tall towers – and they can be used by significant numbers of people. Frequently these are introduced on the basis of the guidance (or lack thereof) in BS 9991 (using; "9991 doesn't say we can't"). We have seen these presented as entire floors, large rooms, or collection of rooms for as many as 250+ persons – all ultimately accessing a single stair. These have included cinemas, crèches, restaurants and bars and are sometimes intended for members of the public as well as residents. These designs often fail to consider that they are simultaneously evacuating persons into a single stair in excess of 11m (the 'normal' limit on simultaneous evacuation into a single stair). Treating these areas as something appropriate for a 'stay put' strategy is equally problematic as persons are unlikely to adhere to this if they recognise an incident is occurring elsewhere in the building, so are more likely to simultaneously evacuate. Sometimes these are deemed acceptable by design teams on the basis of a 60 person limitation – however that only considers escape from the room, and not into a single stair at height. Our view is that these spaces are simply not compatible with a tall single stair. The revised text in this draft does little to dissuade a designer that this is not appropriate.	guidance to reflect the very different uses; • For the occupied spaces, provide further detailed guidance on the management required to enable these areas to be used appropriately and to support and evacuation; • For occupied areas provide further specific guidance/protection for disabled occupants. The requirements for disabled evacuation for these (potentially) highly populated areas is very different from evacuation from a single flat; • Limit occupied areas located in excess of 11m from ground to require access to multiple stairs. This should be repeated or cross referenced in the number of common stairs section (10.1)	
LFB		Section 7 - 37		Ge	This section would benefit from diagrams similar to those in section 2 (with the addition of evacuation lift lobbies) to	Provide diagrams demonstrating the limitations for appropriate ancillary spaces.	

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					demonstrate the appropriate restrictions regarding occupied amenity spaces.		
LFB		Section 7 - 37	37 (b)	Ge	Further to our comments regarding the interaction between the ancillary spaces and the single stair - the reference to BS 9999 may not be appropriate for application in a single stair condition. The escape capacity needs to consider the stair(s) as well as the escape from the room itself. The guidance in BS 9999 will expect access to multiple stairs above 11m.	Clarify that the guidance is only applicable to designs which have access to multiple stairs if greater than 11m in height.	
LFB		Section 7 - 37	37 (e)		The references to other requirements appear the wrong ones (clause 21 not mentioning lobbies) or do not exist (22.1.6).	Update with correct references.	
LFB		Section 7 - 37	Table 18	Ge	Kitchens – it is unclear what the minimum standard would be for a cooker hood suppression system. Without an expected standard, bespoke, untested systems could be utilised – and a false reliance placed upon these.	A minimum standard, or a performance-based specification should be included in the standard if any weight/reliance is to be placed on the protection afforded by these.	
LFB		Section 7 - 37	Table 18, Note G	Ge	The note G appears to conflict with note A in the same table. For example, when note G is applied to a restaurant/café this appears to suggest that 30 minutes separation is not required ('requirement relaxed' as per the note). This appears to suggest that the separation can be reduced from 30 minutes to a lower value. It would be wholly inappropriate to reduce fire separation from 30 minutes around a restaurant/café ancillary space, regardless of the suppression system.	Remove note G	
LFB		Section 7 - 41	2nd para	Ge	While advice is given for small single-stair buildings there does not appear to be	Advice should be included for buildings other than	

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					advice for any other type of buildings.	small single-stair buildings.	
LFB		Section 7 – 45.1	Opening commentary	Ge	The initial commentary does not reflect the inclusion of the evacuation lifts for residential blocks - 'generally, lifts are not included in the evacuation procedures in buildings for the following reasons...'. This section needs review and updating as a more positive and proactive stance on this is being taken.	Review the text to ensure that it does advocate appropriate guidance for the use of evacuation lifts	
LFB		Section 7 – 45.1	5th para (following note 2)	Ge	There is reference to phased evacuation buildings in this paragraph. Is this relevant to this standard?	Remove reference to phased evacuation buildings.	
LFB		Section 7 – 45.3.1	2nd para	Ge	This paragraph does not make mention of evacuation lifts and evacuation lift lobbies. Should be clear that these are treated separately.	Include reference that evacuation lifts should be treated differently and have appropriate protection as detailed within section 7.6 of the standard.	
LFB		Section 7 - 48		Te	With the drive towards the decarbonisation of transport, targeted for 2030-50, there has been an increase in the installation of electric vehicle charging units (EVCU) and electric vehicles (EV). It is our expectation that EVCUs and EVs will become an increasingly prevalent feature of the built environment and, in our opinion, BS 9991 needs to provide guidance to users on fire safe design of EVCUs and areas where EVs may be present. An EV fire is somewhat different in nature to an internal combustion engine vehicle fire in terms of intensity, toxicity and potential explosion hazard. There are concerns that some built environments, particularly enclosed spaces such as basement car parks, may therefore not be constructed	We recommend the inclusion of a new sub-clause on electric vehicles and electric vehicle charging units. We have provided some suggested wording below, which includes both normative and informative text. The technical panel should consider whether more of the informative text/commentary could be provided in the form of normative text/recommendations: **48.2 Electric vehicle charging units and electric vehicles in car parks within or adjoining buildings** *Electric vehicles (EVs), and hybrid EVs, are increasingly prevalent and may be present within car parks within or adjoining buildings. Electric vehicle charging units (EVCUs) may be provided to enable building users with EVs to charge their*	

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					with the fire protection measures needed to withstand and manage EV fires and allow safe access for firefighters, nor to provide protection to other parts of the building in which a car parking area is located (with particular reference to car parks located below residential accommodation). Firefighters need to be able to isolate the electricity supply to EVCUs, where provided, obtain suitable water supplies (which may need to be in excess of those currently recommended by guidance such as BS 9990:2015) and undertake environmental protection activities. There is also the potential for greater fire spread between modern vehicles than was the case for vehicles in the 1960s and 1970s. One of the reasons for this is that modern vehicles include a significantly greater proportion of hydrocarbon-based materials, especially within the interior of the passenger compartment. Therefore, the provision of enhanced fire protection measures to car parks may be of benefit in relation to fires involving both alternative fuel vehicles and traditional internal combustion engine vehicles, even whilst EVs continue to comprise a minority of the vehicles in use. The novel hazards associated with EVs, EVCUs and lithium-ion battery technology also further support the recommendation by LFB and others for the provision of AWFSS to all car parks. There are still unknown factors with regard to both the development of fire in parking garages in general and also regarding	*vehicles. Whilst EVs and EVCUs do not necessarily pose a greater risk than that of traditional internal combustion engine vehicles or other alternative fuel powered vehicles, they do introduce novel hazards in terms of how they/their battery systems behave when involved in fire, the actions required to be taken by the fire and rescue services in order to suppress and extinguish fires involving lithium-ion batteries, the potential unique hazards posed to firefighters as well as the longer duration of cooling that may be required to prevent re-ignition of lithium-ion batteries once the phenomenon of thermal runaway has occurred. This may require the fire and rescue services to use larger quantities of water for a significantly longer duration to fully extinguish and prevent re-ignition of fires involving EVs when compared to those involving traditional internal combustion engine vehicles or other types of alternative fuel vehicle. Those designing car parks which may be used by EVs should consider whether the minimum recommendations of this code of practice are sufficient to mitigate for the hazards associated with EVs. The following should be considered, preferably as part of a Qualitative Design Review (QDR) undertaken in accordance with the recommendations given in BS 7974. This is not intended to be an exhaustive list of considerations:* • *Whether the smoke ventilation provisions recommended in **22.4.3.2** for car parks are sufficient to manage the products of combustion from a fire involving one or more EVs* • *Whether AWFSS require enhancements beyond the minimum recommendations of the relevant standards*	

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					potential fire propagation to/involving the battery pack. Fires involving EVs (and hybrid EVs) also present additional challenges and hazards to firefighters due to the difficulty in extinguishing a fire involving lithium-ion batteries once the phenomenon of thermal runaway has been initiated. It is unclear whether the current safety measures recommended for enclosed parking areas are sufficient to mitigate the impact of an EV fire and the BS 9991 DPC draft (as well as existing guidance such as Approved Document B and BS 9999) is currently silent on this issue. There is an opportunity and a need for new guidance to address EVCUs and EVs.	• *Whether the fire resistance of elements of structure should be increased beyond the minimum recommendations of this code of practice (see **24.2**)* • *Whether car parking spaces served by EVCUs should be located closer to the access points to the car park for the fire and rescue services and to any fire main outlets in order to assist firefighters in applying extinguishing media to the fire* • *Whether the water supplies provided for the fire and rescue services should be enhanced beyond the minimum requirements of BS 9990 and other relevant standards, in particular with regard to the duration of water supply available* • *Suitable protection to car park internal surfaces and drainage systems to facilitate post-fire clean-up and environmental protection* A means of isolating the power supply to EVCUs should be provided for the fire and rescue services in a suitable location associated with, but outside of, the fire resisting enclosure to any car park containing EVCUs. This should be at the main designated access point to the building or car park for the fire and rescue services. Signage should be provided to identify the power supply isolation controls and this should state: “FIREFIGHTERS ELECTRICAL ISOLATION SWITCH FOR CAR PARK ELECTRIC VEHICLE CHARGING UNITS”	

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						The signage should be conform to BS 5499-1. The location(s) of power supply isolation controls serving EVCUs should be indicated on premises information provided for firefighters. The power supply to all EVCUs should also be automatically isolated upon actuation of the fire warning and detection system or sprinkler system serving the car park in which they are located. EVCUs should be provided with a suitable level of water resistance to ensure that they do not pose a hazard to firefighters should they become immersed in water, either as a result of the activation of the sprinkler system or firefighting operations. All car parks containing EVCUs should be provided with sprinkler coverage in accordance with BS 9251:2021 or BS EN 12845:2015+A1, irrespective of whether a building is otherwise provided with a sprinkler system. The sprinkler system should provide coverage throughout the fire resisting enclosure containing the EVCUs.	
LFB		Section 8 – 49.0	Bullet point b)	Ge	Include specific reference to wayfinding	Suggest wording change '...interior of the building (with associated wayfinding) for firefighters and ..'	
LFB		Section 8 – 49.0	Bullet point f)	Ge	We support the reference for provision of fire and rescue service communications yet there is minimal/no guidance in this regard. We therefore request further guidance is provided for this area.	Add further information to bullet point f- f) provision for fire and rescue service communications. Fire ground radio signals may be interrupted/impacted in a premises by aspects of its construction or size. Communications might	

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						need to be extended by the installation of systems such as a radiating cable (leaky feeder), distributed antennae systems (DAS) or the installation of fire telephones.	
LFB		Section 8 – 50.2.1		Te	It is noted that BS9991 is using the 18m threshold for a trigger height for a firefighting shaft, we have asked for this to be reviewed as it was based on equipment that is no longer in service.	Careful consideration should be given to whether the guidance places any over-reliance or implicit expectation on early stage external intervention by the fire service that does not reflect current firefighting equipment carried on appliances which are likely to be those in initial attendance.	
LFB		Section 8 - 50.2.1		Te	When a building only has a single stair there is a risk to firefighters from falling debris when entering and exiting during the course of an incident.	If a single stair is utilised then structural protection to fire crews should be provided over the firefighting entry point to the building to protect against falling debris. The guidance should provide the performance expectation, e.g: Where a single stair is proposed structural protection should be provided over the firefighting entry point to withstand a 100kg object falling from the uppermost flat. The protection should extend 1m either side of the entrance and 2m perpendicular from the entrance doors. This should be repeated or cross referenced in the number of common stairs section (10.1)	
LFB		Section 8 – 50.2.1	1st para	Te	Schemes with an arrangement with a duplex at the top level often try and suggest that the floor within the duplex is not a 'floor' in terms of determining height at which a firefighting shaft should be provided.	Include a note to indicate that this height criteria includes internal floors within accommodation.	

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					Clarification should be provided if this is a floor or a storey and the requirements to provide a firefighting shaft accordingly.		
LFB		Section 8 - 50.2.2	Note1	Ed	The text references b) which is in relation to firefighting shaft protection.	Change the b) reference to reference 2)	
LFB		Section 8 – 50.2.2	Note 3	Te	This layout requires revision as there will now be the evacuation lift lobby provided. Therefore, it would seem logical to also utilise this lobby as a firefighting lobby	Amend the guidance to acknowledge the change in layout for residential corridors and include the reference to the evacuation lift lobby.	
LFB		Section 8 - 50.2.2		Ge	Route to the FF shaft at ground floor level – can it contain lifts? Figure 20 of BS 9999 suggests that it cannot. BS 9991 should therefore be explicit in this regard. Figure 25 (BS9991, for example depicts a scenario whereby the FF muster point adjacent to the lift may obstruct occupants via through the final exit route.	Ensure that the guidance is clear as to the siting location for lifts in conjunction with firefighting access routes and shaft layouts.	
LFB		Section 8 - 50.3.2.1	1st para	Ge	In our opinion, it should be demonstrated that firefighting stairs are maintained smoke free, not “relatively” smoke free as the text states.	Change the wording from “relatively free” to just “free from smoke”.	
LFB		Section 8 – 50.3.2.1	3rd Para final sentence	Ge	Additional cross reference to the new material in 10.1 should also be included	Include cross reference to 10.1 also.	
LFB		Section 8 – 50.3.2.2		Ed	Ensure that the terminology for firefighters lifts is consistent throughout the document. 50.3.2.2 uses both “firefighters lift” and “firefighting lift”. “Firefighters lift” is used in BS EN 81-72.	Ensure consistency of terminology for firefighters lifts both within this code of practice but also with guidance such as BS EN 81-72 and BS 9999.	
LFB		Section 8 –	4th para	Ge	Consider how this recommendation works	Consider the consistency of the guidance in terms	

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		50.3.2.2			in conjunction with our earlier comment regarding penthouse accommodation etc. As design teams use this aspect of the guidance as a means for non-provision of firefighting shafts and access to these levels.	of what the expectations are for firefighting shafts and lifts serving 'floors' within a building.	
LFB		Section 8 – 50.3.2.2	7th para	Ge	In terms of the position of the firefighters lift this should, now, open into the sterile evacuation lift lobby rather than the corridor serving the flats.	Change guidance to reflect current layouts proposed and to enhance the protection afforded to the firefighters lifts.	
LFB		Section 8 - 50.3.2.2		Te	We strongly advocate that the guidance incorporates further recommendations on the number of firefighters lifts within a building. This needs to not only consider resilience for firefighting access if a firefighters lift is out of service for any reason (similar to the need for multiple evacuation lifts), but also have a cohesive approach dependent on what advice is being given with regards to the function of the firefighters lift being shared with the evacuation lift function. The guidance should provide assurance that, regardless on any intent to share firefighting/evacuation functionality, at least one firefighters and one evacuation lift will be available at all times, including where lifts are unavailable through repair or maintenance. In some cases, that might require the provision of three separate lifts - comprising one dedicated evacuation lift, one dedicated firefighters lift, and one lift with combined functionality. However, in some cases it would be more beneficial to have specific evacuation and firefighters lifts associated with separate stair cores. The worst case currently allowed by the	This section must be carefully considered in conjunction with Clauses 7.6 and 52.3. Amend guidance to include: For buildings over 18m and with access at any floor to only a single stair, more than one dedicated firefighters lift should be provided. This should be repeated or cross referenced in the number of common stairs section (10.1) The guidance should then provide a requirement for multiple firefighters lifts, and the easiest metric may be height. However, it would be preferable for the guidance to determine this based on both height and numbers of apartments, and any other determining factors such as occupied amenity spaces and distance between stair cores. For example, in a case where multiple stairs are included but separated by long common corridors, the guidance should recommend specific firefighters and evacuation lifts associated with each stair. There will be a point where this will need to be determined by following the QDR process. This should link directly to the	

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					recommendations of guidance is the combination of a single firefighters lift in conjunction with a single stair. In that case, should the single firefighters lift be unavailable then the flexibility and options for firefighting may become significantly impeded. That configuration should be specifically excluded by this guidance.	requirement for an EAS and should be cross referenced in section 8.	
LFB		Section 8 – 50.3.2.2	14th para starting 'where a firefighters lift'	Ge	It is unclear when there might be a situation where a firefighters lift may need to run blind through a building particularly with the new requirement for an evacuation lift which will clearly need to serve all floor levels?	Observation only.	
LFB		Section 8 - 50.3.2.2		Ge	Signage is needed to support attending fire crews to understand the specification and associated safety equipment lifts in a building may offer. Firefighters lifts in a building may have been constructed to various standards or have been partially upgraded. For fire fighters to assess the risks using a firefighters lift during an incident it is important they have a good understanding of the facilities and protections the lift installation provides.	Suggested wording; It is important to clearly indicate which lifts are firefighters lifts with signage showing the standard the lift is constructed to and its key firefighting features i.e. (a) Secondary power supply (b) Firefighting car and door controls (c) Water management and protection (d) Lift Car Escape hatch (e) Firefighter communications system This label should be permanently fixed as close as possible to the lift. Where a single switch or call button is placed between lifts in a group, care should be taken to ensure that the label identifies which lift in the group has the fire-fighting features. Lift car floor indications must match the local floor	

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						numbering / lettering/ wayfinding signage. This includes ground and basement floor indications.	
LFB		Section 8 - 51.1	Line under point b)	Ge	"The fire main should be located in the stair enclosure". This may be suitable in flats where the lobby is ventilated but we do not consider this acceptable in a building designed as residential care. Also need to consider whether it is appropriate to allow the fire main to be located within the evacuation lift lobby and design this to be a firefighting lobby.	Include additional commentary to ensure that the fire main location is appropriate and considers the new layouts including evacuation lift lobbies. See comment below in reference to Figure 41	
LFB		Section 8 - 51.1	Figure 41	Ge	This diagram does not appear to meet the recommendation for evacuation lift within this document.	Diagram needs updating to consider the layout where the evacuation lift lobby now is included and whether the protection afforded to that lobby would provide sufficient protection as a firefighting lobby to the staircase.	
LFB		Section 8 - 51.1	Figure 41	Ge	We question whether this layout would be suitable in a residential care home.	Review diagram specifically considering residential care being included in the guidance.	
LFB		Section 8 - 51.2	3rd para	Ge	We note that the open water option has been removed from this clause which was in the previous revision 51.2 and welcome this amendment	Observation only, no change proposed.	
LFB		Section 8 - 51.2	1st para	Ge	We would request that the guidance be more specific about the requirement to consider a route suitable for laying hose (no walls, railways, motorways, etc on the route path that would either prohibit hose laying or cause longer distances if hose has to be laid in order to avoid obstructions).	Amend to; Firefighters have to lay out hose between the water supply and the fire appliance, so these distances should be kept to a minimum. Consideration must be given to a route that is suitable for laying hose (and better indication of what that is). Include a general statement to this effect.	

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LFB		Section 8 - 51.2	3rd para	Ge	Insert reference to current version of the **National guidance document on the provision of water for firefighting** which contains guidance on flow rates required.	Water mains and hydrants should be capable of delivering a sufficient flow of water to enable effective firefighting to be undertaken. Information on flow rates for firefighting can be found in the current version of the National guidance document on the provision of water for firefighting	
LFB		Section 8 - 51.2	5th para	Ge	State that the water main(s) which a fire hydrant is attached to must allow suitable water supplies for firefighting. Water undertakers are increasingly installing 63mm mains on new developments. This size of main is not suitable for firefighting.	Suggested edit- 1) hydrants provided by the water undertaker on a service main that's suitable for firefighting.	
LFB		Section 8 - 51.2	6th para	Ge	Insert reference to existing current British Standards re underground fire hydrants and pillar fire hydrants before reference to BS 3251 (hydrant signage)	Insert line after 51.2 bullet 3) Underground hydrants must conform to the current version of BS750. Pillar hydrants must conform to the current version of BS EN 14384. All hydrants should have signage in accordance with BS 3251.	
LFB		Section 8 - 52.1	A)	Ge	There is limited detail in this part and no definition of firefighting facilities.	Provide a definition of a firefighting facility within the definitions section Extend the comment to include the provisions below: simple floor plan layouts, indicating any fire resistance provisions and compartmentation lines,	

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						stair numbers, location of any specific hazards (equipment/storage), utilities isolation points for (gas, electric, water), specific evacuation information (areas of delayed evacuation, disabled refuges), location of firefighting facilities (rising/ falling main inlet and outlet points, firefighting shafts, firefighting lifts, smoke ventilation/ clearance controls, fire control rooms), location of fixed installation (suppression systems, fire detection and warning systems, Evacuation alert systems) controls/ isolation points , the location of smoke shafts outlets and make-up air, location of any building information (Premises Information Box).	
LFB		Section 8 - 52		Ge	This section lacks detail defining wayfinding and how it can be provided to assist firefighters. There is an opportunity to provide greater clarity and guidance.	Suggestions- Change title 52.2 to- **52.2 Wayfinding for the fire and rescue service** Insert explanatory commentary - Wayfinding is a critical aspect of response in an emergency. Having unambiguous and consistent signage throughout specific points in a building, not only speeds up response by firefighters but also aids the public/staff in directing firefighters to an incident location accurately. Some examples of where signage maybe required is to clearly identify; the building's name, hydrant plates, rising mains, stair numbers, floor numbers, firefighting facilities (rising/ falling main inlet and outlet points, firefighting shafts, firefighting lifts, smoke ventilation/ clearance controls, fire control rooms) and operation	

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						location of any building information, premises information boxes etc. After the general signage explainers add section- **52.2.4 Premises with complex layouts** A premises with multiple firefighting stairs, fire mains or have complex layouts should have clear signage to aid navigation and direct firefighters to the best access and firefighting points. There should be a system in place to ensure these features and facilities are clearly identifiable to firefighters. This might require consideration to providing Premises Information boxes with associated information to assist wayfinding. Design teams should liaise with the local FRS for requirements.	
LFB		Section 8 - 50.3.2.1	Last line	Ed	Old section about signage has been superseded by Wayfinding guidance - ”Signage numerically indicating the floor level should be provided within the firefighting stair”.	Remove line and add- “Wayfinding signage should be provided as per **52.2**”	
LFB		Section 8 – 52.3	1st para	Ed	Should this sentence say ‘ any storey’ instead of ‘and a storey’ to make it clear?	Amend sentence to read ‘and any storey more than 18m’	
LFB		Section 9	2nd para	Ge	There is a cross reference included to Regulation 38 but no further detail. It is our view that this warrants more commentary within BS9991 as without the Regulation 38 package being handed over in a complete and accessible manner the Responsible Person will not start on a good footing to being able to understand and then subsequently effectively manage and maintain the building (and assess any	While it is understood that Regulation 38 is itself outside the scope of BS 9991, providing a clearer indication of what the Responsible Person should expect to receive, from whom and when would assist in raising the importance and profile of this package - it is a critical information exchange for a building.	

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					accompanying risks)		
LFB		Section 9 - 55		Ge	This dialogue between the responsible person and the residents should be more frequent. It should also include reference to any changes that might impact the fire risk assessment for the building that residents should be aware of. It should also support residents by recommending a two-way communication channel such that residents can advise of any fire safety related issues or concerns and to have these responded to and dealt with.	Ensure that the language of this section supports a two-way communication process between the Responsible Person and residents.	
LFB		Section 9 – 58.3		Ge	We would welcome an additional note which advises the Responsible Person to report any significant issues with the functioning of any firefighting equipment or unavailable access to their local fire and rescue service so that pre-planning can be reviewed.	Include an additional note. Suggested wording; Where firefighting equipment such as firefighters lifts and rising mains are found to be in a non-operational state or where fire service access is unavailable or significantly limited then the responsible person is advised to notify their local fire and rescue service.	
LFB		Annex A	2nd para	Ge	The reference within this paragraph is that the adjacent lobby 'might gain some protection' - there should be a cross reference and clarity around the expectations of protection for the evacuation lift lobby as detailed in 7.6.4	Reword to acknowledge the protection expectation to evacuation lift lobbies and cross reference 7.6.4	
LFB		Annex A - A.2.1	8	Ge	We strongly support that systems should not require the interaction of firefighters, and appreciate that BS 9991 has this expectation. However, some in the industry continue to design and install in this manner, and it may be that some might argue for this requirement to be removed.	Retain the expectation that systems should be fully automatic and not require the intervention of fire crews to ensure they work effectively.	
LFB		Annex A – A.2.1		Te	In its current form, A.2.1 could be read to imply that the provision of manual override	Insert, after the first normative paragraph following commentary to A.2.1 (new para. 2):	

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					controls for fire and rescue service use are optional. Whilst we welcome the recommendation that smoke control systems be fully automatic and not require the interaction of firefighters to operate as designed, we recommend that suitable manual override controls are provided in order to enable firefighters to override smoke ventilation systems should they decide to do so.	"Suitable override controls should be provided to enable firefighters to manually switch all smoke control systems off and to activate them if they have not activated automatically on operation of the fire detection system. The default state of all manual override controls should be the automatic mode."	
LFB		Annex A – A3.2	1st para	Ge	It is noted that reference is made to the staircase adjacent lobby being the point of extract. This of course isn't the case where this is the evacuation lift lobby. Must ensure that this section does not cause any confusion on this regard.	Ensure that the wording within this commentary and throughout this section reflects that the new guidance indicates that a lobby adjacent to a staircase could, particularly where it is a single stair condition, be an evacuation lift lobby and should be protected accordingly.	
LFB		Annex A – A3.2.1 / A4.2.1	3rd para/ 5th Para	Ge	It should be clear that the requirement for door opening forces should be considered in the firefighting phase also. We have had experience of a design where the forces acting on the door made it difficult to open and then jammed the hose within the door opening.	Ensure that door opening pressures are considered in both means of escape and firefighting phases. While the sentence says at 'any stage' does the committee think this is clear enough?	
LFB		Annex A - A.5.2.3.2		Ge	We are still seeing magnetic hold close devices on AOVs opening into smoke shafts. These have been shown to both fail to actuate and fail under heat conditions in fire.	Add: "NOTE 3 – Magnetic or electromagnetic devices to hold closed AOVs have been shown to fail in fire and are therefore not acceptable".	
LFB		Annex A - A 5.3 (or A 5.6).	Para 2	Ge	It is unclear how far 'any wiring associated with the fans' extends to, and this could be interpreted as simply any wires with direct linkage to the fan sets. The reference to BS 8519 is not then repeated in the general power supply, cabling section A 5.6.	Amend to: All wiring associated with the smoke control system should be in accordance with BS 8519 using the appropriate category (e.g. category 2 or 3).	
LFB		Annex E	Figure E.1	Ed	For an accurate flowchart there should be a	Edit diagram to include a 'no' option from the top	

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					yes or no function coming from the third box down clearly indicating that if the answer is 'no' then the guidance within this section can not be used. We are also assuming that an evacuation lift lobby would have to be included in such a design.	three boxes for accuracy but in particular for box three.	
LFB		Annex E – E2.2	Bullet point b)	Ge	Do the two directions of escape need to lead to separate stairs or can the atrium be circular in nature and link to the same staircase? Clarification is sought to ensure guidance is fully understood in its intent.	Clarification is sought on this point and we would advise careful consideration is given to this as dependent on the geometry of the atrium space and balconies the conditions within the space during means of escape phase can be poor from a visibility perspective (from schemes we have seen)	
LFB		Annex E – E2.2	Bullet point 5) ii)	Te	If the balcony is to be separated from the atrium then does the balcony then need to be treated like a protected corridor i.e. include standard ventilation provisions?	Clarity in terms of ventilation of the enclosed balconies is sought to ensure guidance is clear in this regard	
LFB		Annex E – E3.3	1st para	Ge	The initial opening of the Annex focusses on the scope of BS9991 being for floors up to 18m in height. It does not talk about a limitation of approach for basement levels. Would suggest a limitation is placed on the number of below ground levels as this will have an impact particularly on firefighting access.	Suggest including a limitation on the number of basement levels are within the scope of this annex.	
LFB		Annex E – E6.1	Note	Te	It is unclear why a range has been included (8-10m) and we would recommend that a 10m visibility is included. The 10m visibility approach to balconies is also questionable	Note to only include the 10m reference and that this is only in reference to the balcony of fire origin.	

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					as in a standard block of flats design there would be no smoke present on any other corridor level – this design should intend to do the same and ensure that the visibility criteria is only applied to the balcony of fire origin and not anywhere else.		
LFB		Annex G – G.3.3.2	Bullet point b)	Ge	We are unclear how the lift will know which floor is the fire floor? What system(s) will the lift be linked to? What if more than one signal is received? Can more than one signal be received?	Clarity is requested on how the interlink between the evacuation lift sequencing works in conjunction with the onsite fire safety systems.	
LFB		Annex J - J.3.5 (and Annex A)		Ge	It is unclear how responsible persons can appropriately simulate the actuation of a residential smoke control system weekly – as most residential smoke control systems do not have the facility to do so. Therefore in many (if not most) current building stock the RP will not be able to fulfil this expectation. Actuation from the panel itself does not simulate actuation as it is not determining if a signal is sent and received from a detector to the panel, and using cosmetic smoke on the detectors may over time clog up the detector and inhibit actual detection. We do however support the regular actuation and testing of systems as we have commonly encountered systems which have not been tested and do not operate effectively.	While there is a note in 57 (d) that self test facilities may be desirable that does not sufficiently address the need for such a system in smoke control systems. Insert into Annex A a requirement for the system to have a self test facility which simulates the entire actuation of the system (i.e. from each individual detector to full operation) so that those responsible for buildings can operate a weekly test.	

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