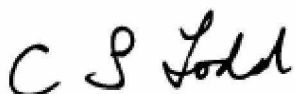


**Report  
for  
The Grenfell Tower Inquiry**

**PROPOSALS FOR INTERIM RECOMMENDATIONS  
BY THE CHAIRMAN**

## PROPOSALS FOR INTERIM RECOMMENDATIONS BY THE CHAIRMAN

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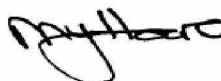
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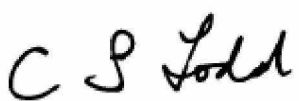
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# 1. INTRODUCTION

- 1.1 I have prepared this report on the instructions of the Grenfell Tower Inquiry (“the Inquiry”). My instructions were set out in a letter, dated 15 January 2019 and signed by Ms Cathy Kennedy, Deputy Solicitor to the Inquiry.
- 1.2 My instructions require that, to assist the Chairman, I prepare a report that addresses the following issues namely:
- i.) whether there are any recommendations (urgent or Phase 1 recommendations) which I wish the Inquiry to consider in terms of building regulations, building safety and fire risk assessment.
  - ii.) whether I have any concerns regarding public safety in respect of high-rise or other high-risk buildings at the present time. I am instructed that, in particular, this should include consideration of whether any interim arrangements which are in place for existing buildings are robust and whether I consider there are any further steps that should be taken to mitigate the risks (e.g. which are posed by the presence of combustible cladding or other external wall materials or arrangements for those buildings).
- In this connection, I am instructed that the Inquiry has been informed by the MHCLG that there are currently 457 high-rise buildings “with unsafe ACM cladding”, but that it is said that MHCLG “has provided clear evidence-led information and advice to building owners on the steps they should take to make their buildings safe”. I am instructed that the Inquiry would be interested to know whether I have any recommendations about further steps that ought to be taken in respect of these buildings in the interest of public safety.
- iii.) I am instructed that the Chairman is aware that I was recently involved with the Scottish Building Standards (Fire Safety) Review Panel. I am further instructed that the Chairman is interested to know whether there are any particular matters which have been considered as part of that review and which, in my opinion, the Chairman should consider when formulating any urgent or Phase 1 recommendations.
- 1.3 As the circumstances of the fire at Grenfell Tower on 14 June 2017 are well-known to the Inquiry, I do not, as would be normal practice in an expert witness report for a Court, rehearse the circumstances of the fire. Similarly, I do not attach my curriculum vitae to this report, as it has previously been provided to the Inquiry, and has been included in a previous report.
- 1.4 The following section of this report contains a short summary of the report, which, for ease of reference, is partly set out in tabular form. In Section 3, I provide my general opinion on the matter of urgent interim recommendations. In Section 4, I discuss what I regard as four possible interim recommendations, which, in my opinion, are likely to prove uncontentious and would not need further evidence to establish their validity.

- 1.5 In Section 5, I discuss the issue of interim mitigating measures in blocks of flats with cladding, which, on the basis of consensus of opinion within the fire safety profession, and by virtue of advice produced by Ministry of Housing, Communities & Local Government (MHCLG), results in undue risk to residents. In Section 6, I review matters, which, by virtue of a press release from Scottish Government, are within the public domain, in relation to forthcoming changes to the guidance contained within the Technical Handbooks that support the Building (Scotland) Regulations 2004 (as amended) (the function of which is equivalent to that of Approved Document B in England and Wales).
- 1.6 I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer. Where, in my experience, a range of opinions on any matter exists amongst fire safety specialists, I have summarized the range of opinion, while clearly giving my opinion along with the reasons for it. I have also identified any assumptions that I have made in reaching my conclusions.
- 1.7 I confirm that I have no conflict of interest of any kind, other than any which I have already disclosed to the Inquiry. I do not consider that any interest which I have disclosed affects my suitability to give expert evidence to the Inquiry on any issue on which I have given evidence and I will advise the Inquiry if, between the date of this report and the further Inquiry hearings, there is any change in circumstances which affects this statement.
- 1.8 The opinions I have expressed represent my true and professional opinion on the matters to which they refer. I have had regard to the evidence that is material to my discipline (including the oral testimony) and I can confirm that I have discharged my overriding duty to the Inquiry.

Signature   
.....

Date 22<sup>nd</sup> March 2019  
.....

## 2. EXECUTIVE SUMMARY

- 2.1 In my opinion, very little evidence has come to light thus far to suggest the need for urgent, immediate recommendations by the Chairman of the Public Inquiry. Accordingly, I strongly recommend that any interim recommendations that are made be kept to a minimum.
- 2.2 In particular, I do not consider it appropriate, at this stage, for recommendations to be made in relation to policy, guidance or standards, or in relation to the “stay put” strategy that continues to be adopted in relation to new, purpose-built blocks of flats. Accordingly, while, in my opinion, the Local Government Association guidance on fire safety in purpose-built blocks of flats should be subject to close scrutiny by the Inquiry in Phase 2, I have heard nothing in Phase 1 to suggest that any action should be taken at this stage in relation to that guidance.
- 2.3 Notwithstanding the above, it would, in my opinion, not be inappropriate for the Chairman to consider four recommendations that could be regarded as quite urgent and irrefutable, such that they need not be deferred until publication of the Chairman’s Phase 1 report.
- 2.4 These relate to routine testing of firefighters’ lift switches, floor numbering in stairways and lobbies of high-rise blocks of flats, communication with residents (including communication in residents’ own language), and testing and maintenance of smoke control systems. For ease of reference, in Table 1, I summarize suggested recommendations in respect of these matters in tabular form, along with reasons for them and consideration of whether further evidence is required in Phase 2.
- 2.5 In my opinion, further steps need not be recommended by the Chairman to mitigate the risk to residents in existing high-rise, or other high-risk, buildings at the present time. In respect of high-risk blocks of flats, in my opinion, and in the experience of my consulting practice, the “Waking Watch” guidance produced by NFCC, and other guidance produced by MHCLG, is adequate. Moreover, my consulting practice has experience of high-rise blocks of flats with ACM cladding, in which implementation of the Waking Watch guidance appears to enable orderly evacuation in the event of fire.
- 2.6 However, I would note that our experience is also that the evacuation times are quite prolonged and inconsistent with the notion, which I respectfully suggest is beyond all reasonable credibility, that Grenfell Tower could have been evacuated in a matter of minutes if there had been a general alarm system.
- 2.7 Significant changes are planned to the standards required for new blocks of flats in Scotland, under the Building (Scotland) Regulations 2004 (as amended). However, in my opinion, none of these changes give rise to the need for the Chairman to consider urgent, interim recommendations at this stage of the Inquiry.

**Table 1:**  
**Possible Interim Recommendations for Consideration by the Chairman**

<b>Number:</b>	<b>Suggested recommendation</b>	<b>Reason</b>	<b>Further Evidence required in Phase 2</b>
i)	The housing sector and fire risk assessors should ensure that firefighters' lift switches are tested regularly (e.g. monthly).	The switch at Grenfell Tower failed to operate. It is known that testing is commonly overlooked.	Only on frequency of testing, as standards already recommend regular testing (but weekly, which is impracticable and unnecessary).
ii)	The housing sector and fire risk assessors should ensure that floor numbers are displayed in lobbies and stairway landings in high rise blocks of flats.	In the GT fire, firefighters had difficulty in identifying floors.	No. This was recommended in a Rule 43 letter by the Coroner after the Shirley Tower fire.
iii)	<p>The housing sector should ensure the provision of adequate fire safety guidance to residents.</p> <p>Fire safety information leaflets on fire safety in high rise blocks of flats in multiple languages should be made available from every fire and rescue service.</p>	<p>The Inquiry heard evidence that residents had not been given fire safety information, including information on the meaning of stay put.</p> <p>Not uncommonly, English will not be all residents' first language. Previously available information in multiple languages is no longer readily available.</p>	<p>No. This was an issue in the Lakanal House fire, and the LGA Guide already stresses the importance of this.</p> <p>No. The need for this is obvious.</p>
iv)	The housing sector should carry out a programme of checks to ensure the correct cause and effect logic for the operation of smoke shafts. The Government's Expert Panel should review guidance issued, including guidance on frequency of testing and maintenance.	There are some doubts as to whether the smoke control system at GT operated correctly. Issues of incorrect programming of smoke shafts in certain blocks of flats were known before the GT fire.	Only in relation to the nature and scale of the problem, and the appropriate frequency of testing. The Expert Panel's recommendation for weekly testing is impracticable, but their recommendation for annual maintenance is, in my opinion, inadequate.

### 3. GENERAL OPINION

- 3.1 My view is that very little evidence has come to light thus far to suggest that there is serious risk to residents of high-rise blocks of flats (or other premises) such as to require urgent, immediate recommendations; to the extent that such risk has been identified (whether in the Public Inquiry or otherwise), such as the presence of polyethylene core ACM on buildings, the relevant matters have already been, or are currently being, properly addressed
- 3.2 I would, therefore, strongly recommend that any interim recommendations be kept to a minimum, pending further evidence in Phase 2. In my opinion, if recommendations can be of a minimalist nature, and are restricted to those that would not be subject to contention, the fire safety community, building industry and housing sector will respond swiftly and proactively. On the other hand, if recommendations include matters that are particularly contentious, I believe that there is a genuine risk that there will be resistance to implementation of recommendations, possibly including those that would, otherwise, have been willingly adopted.
- 3.3 In particular, I do not believe that it is appropriate, at this stage, for recommendations to be made in relation to policy, guidance or standards, or in relation to the “stay put” strategy. In this connection, I include the Local Government Association guidance “Fire safety in purpose-built blocks of flats”. I should make it clear that, although this guidance was drafted by my consulting practice, I believe that it is appropriate that this guidance be subject to close scrutiny by the Public Inquiry in Phase 2. However, I have heard nothing in Phase 1 to suggest that any action should be taken at this stage in relation to that guidance, which already, for example, warns of the fire hazards associated with overcladding of existing buildings.
- 3.4 I am aware that it has been suggested that guidance within the LGA publication on disabled people is inappropriate to the extent that, in effect, it encourages a breach of the Regulatory Reform (Fire Safety) Order 2005. Aside from my opinion that such an assertion is quite simply incorrect, the Chairman might feel that, without objective evidence to the contrary, the suggestion stretches credibility somewhat.
- 3.5 In this connection, the guidance was subject, before publication, to very close scrutiny by a steering group comprising the DCLG (who, at the time, were responsible for this legislation), the Office of the Chief Fire and Rescue Adviser, the Chief Fire Officers’ Association and many other experts, including fire experts within the housing sector. The draft went through various iterations in response to feedback at a number of public roadshows, at which the draft was discussed. Thereafter, it was subject to a full public consultation. Furthermore, the final draft guidance was scrutinized by Government lawyers within the Department responsible for the Regulatory Reform (Fire Safety) Order to ensure that the guidance was fit for purpose to support the application of the Order to purpose-built blocks of flats and did not, in any way, conflict with the requirements of the Order.



- 3.6 Against the background of the views expressed above, it would, in my opinion, not be inappropriate for the Chairman to consider four recommendations that could be regarded as both quite urgent and irrefutable, such that they need not be deferred until publication of the Chairman's Phase 1 report. I discuss these possible recommendations within the next section of this report.

## 4. POSSIBLE INTERIM RECOMMENDATIONS

### 4.1 Routine Testing of Firefighters' Lift Switches

- 4.1.1 It is known that the firefighters' switch on the fireman's lift at Grenfell Tower failed to operate correctly at the time of the fire. In my experience, the routine testing of this switch (both in blocks of flats and commercial buildings) is very commonly overlooked, most often by those responsible for managing buildings and those who carry out fire risk assessments.
- 4.1.2 With regard to fire risk assessors, those using the (very commonly used) fire risk assessment template given in the BSI publication, PAS 79<sup>1</sup> (which my practice authored), should not really overlook this matter, as they are compelled by the template to confirm whether, *inter alia*, weekly test routines for fire-fighting lifts are carried out. The original (2005) template did not include this. It was first included in the 2007 version of PAS 79, after the Regulatory Reform (Fire Safety) Order came into force in October 2006. Nevertheless, some fire risk assessors may well continue to use a template that follows, or is based on, the 2005 version of PAS 79, or is their own proprietary template.
- 4.1.3 One issue is that BS 9999<sup>2</sup> recommends that firefighters' switches be tested every week. While BS 9999 does include a few references to new blocks of flats, specific guidance on fire safety in the design and maintenance of blocks of flats is given in BS 9991<sup>3</sup>. For guidance on testing and maintenance of fire-fighting lifts, BS 9991 refers the reader to BS EN 81-72<sup>4</sup>. With regard to routine testing of firefighters' switches, BS EN 81-72 is less definitive than BS 9999; it recommends regular testing of the switches, which, in parentheses, is described as "typically weekly".
- 4.1.4 In my opinion, recommendations for weekly testing of the firefighters' switch are much too onerous; the only reason there is reference to weekly testing in PAS 79 is for consistency with the other standards. In my experience, if an unrealistic recommendation is written in guidance, it ends up with those for whom the guidance is intended simply ignoring the recommendation, rather than adopting a more realistic version of the recommendation (e.g. in this case, monthly testing of firefighters' switches, which, in my opinion, would be perfectly adequate). Indeed, it could be argued that weekly testing by lay people merely increases the potential for inadvertent damage to the switch.
- 4.1.5 I recommend that the Chairman makes an immediate recommendation for private landlords and social housing providers to ensure that firefighters' lift switches are tested regularly (perhaps with a suggestion that the frequency

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<sup>1</sup> PAS 79: 2012. *Fire risk assessment - Guidance and a recommended methodology*

<sup>2</sup> BS 9999: 2017. *Fire safety in the design, management and use of buildings. Code of practice.*

<sup>3</sup> BS 9991: 2015. (Incorporating corrigendum No. 1.) *Fire safety in the design, management and use of residential buildings. Code of practice.*

<sup>4</sup> BS EN 81-72: 2015. *Safety rules for the construction and installation of lifts. Particular applications for passenger and goods passenger lifts. Firefighters lifts*

should be based on the guidance of a competent person but might not need to be weekly). In practice, landlords are unlikely to send someone to every high-rise block of flats to test firefighters' switches on a weekly basis, but they should be sending someone to carry out the monthly test of emergency lighting, at which time there would be minimal additional work in testing the firefighters' switches.

## **4.2 Floor Numbering**

- 4.2.1 It is clear from fire-fighters' evidence that they suffered some difficulty in determining floor numbers during their fire-fighting and rescue operations.
- 4.2.2 Following the deaths of firefighters at Shirley Towers in Southampton, the Coroner's Rule 43 letter advocated changes in legislation to require floor number signage in lobbies and stairways of blocks of flats to assist the fire and rescue service. Such a change has never been implemented.
- 4.2.3 I recommend that the Chairman make a recommendation to private landlords and social housing providers to ensure that these are provided in all high-rise blocks of flats. There may be some advantage in using photoluminescent signs, though, as this may be contentious, perhaps that additional aspect is for future consideration. A client of my consulting practice uses stainless steel signage, as plastic-based signage is often defaced and can be ripped off easily.

## **4.3 Communication with Residents**

- 4.3.1 One of the lessons that should have been learned after the Lakanal House fire was the importance of communicating fire safety messages to residents of blocks of flats. That is why the LGA guide makes extensive reference to engagement with residents.
- 4.3.2 The LGA guide sets out matters of which residents should be advised, so I do not elaborate in any detail on this matter within this report. However, it is important to stress that the guidance residents need does not relate solely to action in the event of fire or evacuation procedures. Data that were analysed for the purpose of producing the LGA guide showed that, while 10% of the English population reside in blocks of flats, 23% of all domestic fire deaths occur in blocks of flats, which is clearly completely disproportionate to the population of residents. However, I would stress that this has nothing whatsoever to do with the architecture of blocks of flats, fire precautions in blocks of flats or their maintenance, nor has it anything at all to do with the "stay put" strategy.
- 4.3.3 The reason that 23% of all domestic fire deaths occur in purpose-built blocks of flats is that 25% of all fires occur in these blocks (i.e. the number of deaths is simply proportional to the number of fires). The deaths, almost without exception, occur in the flat in which the fire starts. Grenfell Tower is, tragically, extremely unusual in this respect. The issues relate to demographics, lifestyle factors and social factors, such as poverty, the latter of which brings with it an

increased risk of dying from fire. A significant number of those are vulnerable people, directly involved in the fire, and so are quite difficult to save after fire occurs. It is noted in the LGA guide that, statistically, after a fire occurs, the probability of a death in a bungalow is greater than the probability of a death in a flat within a high-rise block.

- 4.3.4 It follows from the above that guidance to residents should include advice on measures to prevent fire. (It also follows that more should be done in society to recognize those who are vulnerable to fire.)
- 4.3.5 Notwithstanding the above, there is a need for residents to be advised regarding the fire precautions in their building, again a matter on which the LGA guide makes significant reference. Very importantly, residents need to understand the meaning of “stay put” and the action they should take if fire or smoke is affecting their flat. It should also be made clear to them that they are perfectly free to leave their flat if they wish at any time, but I would stress that this is really only appropriate if the resident can determine it is safe to do so. Unfortunately, there is experience of fires in which people left their flat unnecessarily, resulting in smoke inhalation within escape routes when they would have been safe to remain within their flats. Also, a mass evacuation of residents is clearly undesirable.
- 4.3.6 There are those who argue that “stay put”, as a strategy, was shown to be wanting by the Lakanal House fire. In my opinion, the opposite is the case. This building suffered from substantial problems in relation to compartmentation and the effects of alterations. Yet, those who died could, very arguably, have survived if they had known to use the escape balconies to make their escape when their flat was affected by fire.
- 4.3.7 It was clear from the inquest into the deaths at Lakanal House that residents had not been given any (or any adequate) information about fire safety when they first occupied their flats, or periodically thereafter. From the evidence of survivors, the situation may have been no better at Grenfell Tower.
- 4.3.8 Equally, while I have no doubts regarding the honest recollections of residents, I would suggest some caution in an assumption that they were never given any information on taking up residence. In my experience, those involved in fires in commercial premises often claim, after a serious fire, that they were never given induction training in fire safety.
- 4.3.9 Again, I believe that this is their honest recollection, but, on starting a new job (or occupying a new home), the novelty of the experience can be overwhelming to such an extent that information on fire procedures may seem quite trivial and unimportant; the public are well aware that, statistically, they are never likely to be involved in a serious fire. (By analogy, many frequent flyers would have no idea how to remove a life jacket from under their seat, though they have regularly been exposed to the standard safety briefing. Similarly, the instructions for guests in every holiday let normally include fire safety matters, but, in practice, we know that these are unlikely to be read and/or remembered.)

- 4.3.10 Nevertheless, in my opinion, it makes little difference whether residents were, or were not, given initial information. It is unreasonable to expect such information to be retained for years. There is a need for regular information to be given to residents on fire safety within the block of flats in which they live.
- 4.3.11 It is essential that fire safety information should be given to residents in their own language. In this connection, prior to revamping Government department websites into one single consolidated website, fire safety information for householders was available on the DCLG home fire safety section of their website in many different languages. These were all taken down after the new single Government website was created, and the documents now reside on the National Archives website, on which, at the time of my March 2018 report, many of the links for specific languages were broken (though this appears to have been rectified since the time of my report).
- 4.3.12 On one occasion, a few years ago, as my practice could not obtain for residents in a block of flats in London, in which most residents were of middle Eastern origin, guidance in Arabic, it was necessary for us to seek an obligation from Scottish Government, who provided a large number of suitable guidance leaflets (albeit with reference to Scottish legislation).
- 4.3.13 In view of the circumstances outlined above, I recommend that the Chairman make a recommendation that fire safety information for residents of high-rise blocks of flats be made available in multiple languages from every fire and rescue service in England and Wales; further, that the attention of the social housing sector to the need to provide fire safety information to residents in blocks of flats be again reiterated and emphasised as strongly as possible.

#### **4.4 Testing and Maintenance of Smoke Control Systems**

- 4.4.1 It was known, prior to the Grenfell Tower fire, that, in a concerning number of cases, smoke control systems involving the use of smoke shafts were not programmed correctly, or had other faults that would allow smoke to spread from one floor to another.
- 4.4.2 The Chairman will be aware that the Government's Expert Panel, set up after the Grenfell Tower fire, has issued guidance to building owners on smoke control systems. However, it does not highlight this issue or require building owners to check the correct operation of smoke shafts in high-rise residential buildings. It would probably be reasonable to recommend that a programme of checks be carried out.
- 4.4.3 The Expert Panel's guidance also states that smoke control systems should be tested every week. This does not, in my opinion, properly take into account that simple systems with automatically opening vents direct to atmosphere do not normally have any means for carrying out this test, other than test-operating smoke detectors, which building owners will not have the facilities to carry out.

- 4.4.4 As a result of this guidance, it has become necessary for a social housing client of my consulting practice to send contractors every week to their high-rise stock to insert a test aerosol into smoke detectors (resulting in significant cost and probably doing the detectors little good in terms of possible contamination).
- 4.4.5 Again, in my opinion, monthly testing would be perfectly satisfactory. On the other hand, the Expert Panel recommend only annual maintenance of smoke control systems, which, in my opinion, is not sufficient. In view of the above comments, perhaps the Chairman might recommend that the Expert Panel reconsider the guidance that they have issued.
- 4.4.6 It may also be relevant to note that a BSI committee, of which I am a member, has issued a draft of a new standard, BS 7273-6, for public comment. This new standard will provide guidance on the interface between fire alarm systems and other systems, including smoke control systems; it will also provide recommendations of the testing and maintenance of the interface arrangements.

## **5. EXISTING BLOCKS OF FLATS WITH COMBUSTIBLE CORE ACM CLADDING**

- 5.1 At the invitation of NFCC, I arranged for other experts to join me in a group, and provided secretarial support, to draft urgent guidance for publication by NFCC on blocks of flats with cladding that has been deemed to be unsafe, the so-called “Waking Watch” arrangements for these blocks. The guidance, which has subsequently been subject to minor revision, recommends arrangements for simultaneous evacuation of these blocks, including 24 hour fire wardens and temporary fire alarm systems throughout the flats.
- 5.2 In the experience of my consulting practice, this guidance is entirely satisfactory, and there is no need for any further guidance in respect of these blocks.
- 5.3 In this connection, a consultant within my practice has been seconded for a long-term period of time to manage fire safety within a social housing provider. Housing stock includes three 17 storey blocks of flats (comprising lower ground, ground and 15 upper floors) clad in polyethylene core ACM. Following the Grenfell Tower fire, my colleague implemented a Waking Watch arrangement ahead of the NFCC guidance.
- 5.4 Since then, there have been four fires in these three blocks, each resulting in initiation of simultaneous evacuation, each of which was carried out in an orderly and satisfactory manner with the assistance of the fire wardens.
- 5.5 There is CCTV footage of every one of these evacuations, produced by CCTV cameras, which are located in every lobby and every stairway landing on every floor (as well as within the lifts).
- 5.6 As an aside, I would refer to the notion, presented to the Inquiry by expert evidence, that Grenfell Tower (some six or seven storeys higher than the blocks in question) could have been evacuated in a matter of minutes if there had been a general fire alarm system in the building, which is, in the unanimous opinion of the consultancy team within my practice, beyond all reasonable credibility.
- 5.7 There was, of course, no fire alarm system by which the evacuation could be triggered, regardless of how long it might have taken, but there would also be a need for consideration of how such an alarm could be triggered and, in practice, the typical response of building occupants to fire alarm signals. It is recognized in fire engineering that response can involve quite long “pre-movements times” before evacuation begins after an alarm signal is given.
- 5.8 In this connection, the Chairman might wish to be aware of experience of the four fires to which I referred above, and the simultaneous evacuation of the blocks (in which there was a temporary fire alarm system to trigger the simultaneous evacuation), bearing in mind that the residents of these blocks

had the greatest possible incentive to evacuate; they were well aware that the building was clad in the same material as Grenfell Tower, that the temporary fire alarm system was there to trigger their immediate evacuation and that there was no significant experience of false alarms that would result in complacency. (In one of the blocks, there had never been a false alarm.) The awareness of residents was ensured through written communications, residents' meetings and individual visits to each and every resident by housing officers (at which time vulnerability was also determined).

The following information is provided with the express consent of the client.

- a) In the first evacuation, during which five residents refused to evacuate (regardless of the extremely loud alarm signal given by the sounders in their flats), the evacuation was stopped by the fire and rescue service after 25 minutes (as the fire was extinguished), at which time the evacuation was still not complete.

Peer pressure not to evacuate is very evident in the CCTV footage, and the fire wardens needed to be insistent that residents evacuate. It is obvious from the CCTV footage that, without the intervention of the fire wardens, significantly less residents would have evacuated.

- b) In the second evacuation, it was, again, stopped by the fire and rescue service after 28 minutes (by which time, recently installed sprinklers had extinguished the fire), at which time the evacuation was still not complete.
- c) The video evidence from the third fire is still being analysed, but a disabled resident (who was ambulant with a single walking stick and was assisted by the fire wardens) reached the ground floor 43 minutes after leaving his flat, having been alerted by a fire warden two minutes before operation of the fire alarm system. At that point, an able-bodied resident was only just ahead of him, and it is uncertain, pending further analysis, how many residents had not yet evacuated. It is known that some residents descended two floors, changed their minds and returned to their flats where they remained thereafter.

This fire was on Floor 13. On Floor 12, a fire warden banged on doors to raise the alarm, even though the fire alarm system was operating in every flat. Thereafter, a group of four residents stood chatting in the lift lobby for six minutes, before returning back into their flats, where the fire alarm system was still operating. Two residents eventually left their flats after approximately 12 minutes. When the fire and rescue service brought the casualty (from the flat of fire origin) down into the 12<sup>th</sup> floor lift lobby, to administer oxygen, the three remaining residents opened their flat doors and watched.

- d) An analysis of the video evidence of the fourth evacuation has not yet begun.

5.9 Our client would be willing to make this video evidence available to the Chairman if it would be in the interest of public safety to do so.





## 6. CHANGES TO BUILDING STANDARDS IN SCOTLAND

6.1 To assist the Chairman, I would suggest that none of the changes proposed in Scotland need be considered at this stage of the Public Inquiry. The measures that the Minister has agreed, following advice from the expert group on which I sat, will be implemented primarily by amendments to the technical handbooks that support the Building (Scotland) Regulations 2004 (as amended). (As noted in Section 1 of this report, the technical handbooks are the equivalent of Approved Document B in England and Wales.)

6.2 For completeness, I would note that the changes, which are expected to come into force in October 2019, are as follows:

- Components of external wall cladding systems (including insulation material exposed within the cavity) on all high-rise buildings with a storey over 11m above ground are to comprise materials rated as A1 or A2.

(In contrast with England, this applies only to the cladding system (including infill and spandrel panels); there are no proposed changes to existing guidance on the structural elements of the building, which were outside the scope of the review. Also, BS 8414<sup>5</sup> and extended field of application (which will be the subject of a new British Standard, BS 9414) will not be precluded, as in effect, is now the case for new blocks of flats, and certain other premises in which people sleep, in England, following the introduction of the Building (Amendment) Regulations 2018 in December 2018.

The new trigger height of 11m as opposed to 18m should be noted. The trigger height of 11m is measured from the ground level to the floor of the topmost storey (so will apply where there are five or more storeys). This aligns with the height of a pitched fire and rescue service ladder, and with advice from the Scottish Fire and Rescue Service of the height that might be reached by a jet from a fire-fighter's hose, discharged at ground level.

- The above guidance will also apply to all new entertainment and assembly buildings, all new residential care buildings and all new hospital buildings, regardless of storey height (with exceptions for small buildings).
- Two stairways will be advocated for high-rise blocks of flats. This is a measure in respect of which I do not consider the need has been established by any objective evidence, and it is a matter of public record that it does not reflect the majority opinion within the expert Review Panel. It is also notable, in my opinion (and is a matter of public record), that a requirement for two stairways was not supported by the Scottish Fire and Rescue Service, the National Fire Chiefs Council and various respondents to the public consultation within the building control sector.

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<sup>5</sup> BS 8414-1:2015+A1:2017. *Fire performance of external cladding systems. Test method for non-loadbearing external cladding systems applied to the masonry face of a building.*

- Facilities will be provided to enable fire alarm warning sounders to be operated in flats, but solely by the fire and rescue service. This was my recommendation, and I have now drafted interim guidance, which is being included in the new draft technical handbook that addresses blocks of flats. Following my discussions with British Standards Institution on this subject, it has been agreed by BSI that a new British Standard for the design, installation, commissioning and maintenance of these systems will be published by BSI. I have been commissioned by Scottish Government to prepare this draft standard on their behalf, so that it can be tabled to the relevant new BSI technical sub-committee, which will be entrusted with the production of the final standard, for which a BS number has now been allocated (BS 8629).
- Automatic fire suppression systems are to be installed in domestic-scale buildings used for care (supported housing) and HMOs with 10 or more residents from April 2021.
- Automatic fire suppression systems are to be installed in all new build social housing and blocks of flats from April 2021 (with some exceptions for small blocks).

Since the Building Standards Review Panel met on 4 December 2018, Scottish Ministers have agreed to delay introduction of new legislation and guidance on automatic fire suppression systems until 2021. This was as a result of a commitment by the Scottish Government to take over, and give full effect, to a private members Bill proposed by David Stewart MSP, requiring all new build social housing to be provided with automatic fire suppression systems.

- 6.3 Various other procedural and enforcement changes, arising from other groups will be implemented, but, again, I do not see that these impact on the urgent interim recommendations of the Chairman.