

<p>1 Monday, 10 December 2018</p> <p>2 (10.00 am)</p> <p>3 SIR MARTIN MOORE-BICK: Good morning, everyone. Welcome to</p> <p>4 today's hearing.</p> <p>5 We've reached the stage at which we are going to</p> <p>6 hear closing statements from those of the core</p> <p>7 participants who wish to make them -- that is oral</p> <p>8 statements. I have received many written statements,</p> <p>9 some from those who are going to speak and some from</p> <p>10 those who don't wish to speak.</p> <p>11 So I think we begin by inviting Mr Walsh for the</p> <p>12 London Fire Brigade to make their closing statement.</p> <p>13 Yes, Mr Walsh.</p> <p>14 Closing submissions on behalf of London Fire Brigade</p> <p>15 by MR WALSH</p> <p>16 MR WALSH: Good morning, sir.</p> <p>17 Sir, it seems a very long time since we attended the</p> <p>18 commemorative hearings in May to honour those who died</p> <p>19 as a result of the Grenfell Tower fire. But the</p> <p>20 accounts which were given by those who spoke with such</p> <p>21 dignity at those hearings remain fresh in the memory and</p> <p>22 are a constant reminder of the reasons why we are still</p> <p>23 here in December.</p> <p>24 Since then, the catastrophic events of the night of</p> <p>25 14 June 2017 have rightly been the subject of intense</p> <p>Page 1</p>	<p>1 sheer scale of the incident in multiple respects.</p> <p>2 It is a stark fact that one of the largest fire</p> <p>3 services in the world was severely challenged, in some</p> <p>4 elements overwhelmed, in the performance of its</p> <p>5 functions. This was not by reason of an insufficiency</p> <p>6 or inadequacy of the greatest number of resources ever</p> <p>7 deployed to a fire in residential premises, but by</p> <p>8 a savage fire that rapidly progressed through a building</p> <p>9 which, on the evidence of the inquiry's experts, was</p> <p>10 fundamentally non-compliant with fire safety</p> <p>11 requirements in multiple respects.</p> <p>12 This was a unique fire, not just because of its</p> <p>13 unprecedented scale and rapidity, but also because of</p> <p>14 the way it behaved. The initial fire, of a kind which</p> <p>15 long-term residents described as being similar to</p> <p>16 a number of fires which had been attended by the fire</p> <p>17 service in the past without difficulty, resulted in</p> <p>18 a major incident involving residential premises on</p> <p>19 a scale never before experienced in the United Kingdom.</p> <p>20 Now, there are lessons which obviously must be</p> <p>21 learned with hindsight. Some have already emerged</p> <p>22 during the Phase 1 hearings, to which I will come in due</p> <p>23 course as far as they concern the Brigade itself and the</p> <p>24 measures which the Brigade has adopted and the</p> <p>25 concessions which it makes. Some of those are detailed</p> <p>Page 3</p>
<p>1 scrutiny during Phase 1 of the inquiry.</p> <p>2 The London Fire Brigade has always recognised the</p> <p>3 pressing need for the clearest understanding of what</p> <p>4 happened on the night to be provided to the bereaved,</p> <p>5 survivors and residents of Grenfell Tower and others</p> <p>6 affected from within the local community, both as to the</p> <p>7 causes of the fire and the manner in which firefighting</p> <p>8 and rescue operations were conducted.</p> <p>9 Beyond that, in the wider public interest, the</p> <p>10 Brigade repeats the assertions which it made in its</p> <p>11 opening statement. Meaningful lessons must be learnt by</p> <p>12 many, including the Brigade, and fundamental changes</p> <p>13 made wherever possible to ensure that a disaster of this</p> <p>14 kind never happens again. No one again should be</p> <p>15 subject to the unimaginable suffering of the bereaved</p> <p>16 families and friends of those who tragically died in the</p> <p>17 fire, those who survived and many of those nearby</p> <p>18 residents who witnessed the events of the night as they</p> <p>19 unfolded.</p> <p>20 It is beyond question, sir, that on the night of the</p> <p>21 fire, the Brigade was faced with the biggest challenge</p> <p>22 of any fire service in the UK in living memory. Its</p> <p>23 policies, procedures and training were strained to their</p> <p>24 limits and, in some respects, well beyond. That is</p> <p>25 accepted. But that was because, in large degree, of the</p> <p>Page 2</p>	<p>1 much later on in the written statement, which I'm not</p> <p>2 going to read out, but I will touch upon them in due</p> <p>3 course.</p> <p>4 But, sir, there is a significant difference between</p> <p>5 an assessment of lessons which can and must be learned</p> <p>6 in hindsight, and a consideration of what incident</p> <p>7 commanders, firefighters and control staff did "in the</p> <p>8 moment", to use Dr Lane's phrase. They went beyond what</p> <p>9 might have been expected of them in the ordinary course</p> <p>10 of their duties, and many, we know, risked their lives</p> <p>11 time and again in doing so. Firefighters were pushed</p> <p>12 well beyond their physiological limits in trying to</p> <p>13 effect rescues and in firefighting. At the same time,</p> <p>14 they were required to make very difficult decisions "in</p> <p>15 the moment", which had significant implications.</p> <p>16 Sir, in addition to assisting you and the inquiry to</p> <p>17 fulfil your terms of reference, and again with the</p> <p>18 benefit of hindsight, the Brigade has invested</p> <p>19 considerable time and effort in understanding and</p> <p>20 assessing the events of the night for the purpose of</p> <p>21 identifying lessons which must be learned. The London</p> <p>22 Fire Commissioner also ensured that a number of urgent</p> <p>23 actions were undertaken following the fire. Certain</p> <p>24 changes of policy have been made already and many are</p> <p>25 under detailed consideration.</p> <p>Page 4</p>

<p>1 Mr Chairman, the evidence given so clearly by the 2 bereaved, survivors and the residents, both in writing 3 and from the witness box, has been of enormous 4 importance to the inquiry, but also to the Brigade. It 5 establishes and helps to establish the clearest possible 6 picture of what happened on the night, but it went far 7 beyond that; it described the human suffering -- this is 8 a human tragedy on a colossal scale -- of those who were 9 affected by the fire in the most poignant terms. It is 10 a testament to their courage in facing and recounting 11 the horrors of the night, for the purpose of assisting 12 the inquiry and in honouring those who tragically 13 perished.</p> <p>14 The firefighters and control staff who gave evidence 15 to the inquiry also found the experience extremely 16 challenging and, in many cases, particularly harrowing. 17 Those who gave evidence did so from a sense of duty, 18 which is perhaps an old-fashioned phrase, but it has 19 a modern, current meaning when considered in the context 20 of what they did on the night. It was applicable in 21 equal measure to their conduct during the fire and in 22 coming to give evidence before the inquiry, and to 23 recount and relive their experiences under public 24 scrutiny. It was challenging for all of them.</p> <p>25 Sir, immediately following the fire, the Brigade,</p> <p style="text-align: center;">Page 5</p>	<p>1 facilitating the complex process of taking written 2 statements by the Metropolitan Police from many hundreds 3 of firefighters who attended on the night, and ensuring 4 the attendance at this inquiry of over 90 Fire Brigade 5 staff who gave oral evidence.</p> <p>6 It is, sir, no exaggeration to say that this inquiry 7 in Phase 1 alone has conducted one of the most extensive 8 and forensic examinations of the events of a major fire 9 which has ever been undertaken. But those events did 10 not occur in a vacuum, and the inquiry has inevitably 11 considered matters which touch upon Phase 2 and which 12 will rigorously be scrutinised in that next phase.</p> <p>13 As Dr Lane pointed out in her initial reports, in 14 which she was at pains to emphasise that incident 15 commanders would not have known many of the facts which 16 have since emerged, and that there is an important 17 distinction which must be drawn between an analysis of 18 the actions of firefighters in the moment, in the 19 dynamic and rapidly changing events they faced, by 20 contrast with that which may be conducted over several 21 months afterwards in the cold light of day, with the 22 benefit of considerable quantities of material and 23 evidence. That is, of course, what we, sir, have been 24 engaged in for the last several months, quite properly, 25 of course.</p> <p style="text-align: center;">Page 7</p>
<p>1 under the instruction, again, of the London Fire 2 Commissioner, deployed substantial resources to provide 3 assistance in many forms to both Operation Northleigh, 4 the Metropolitan Police, and the inquiry. The Brigade 5 continues to carry out the complex task of analysing the 6 huge body of evidence which has been gathered in 7 an effort to piece together the clearest possible 8 picture of the events of the night. That work has 9 included the compilation, sir, as you know, of 10 operational response reports for each of the first 11 seven hours of the fire, which provide a minutely 12 detailed narrative -- second by second, where 13 possible -- of the actions of firefighters, drawing 14 together key information from witnesses which are 15 cross-referenced with breathing apparatus telemetry, 16 CCTV and other media. A similar exercise has been 17 conducted in the preparation of a single control report 18 which details the actions of officers situated in the 19 Brigade control room on the night.</p> <p>20 That has been -- and it continues to be because it 21 is an ongoing process, to which many resources are 22 devoted -- an enormous undertaking.</p> <p>23 Sir, therefore, the Brigade hopes that it has 24 provided real and meaningful assistance to the inquiry, 25 both through the preparation of these reports and by</p> <p style="text-align: center;">Page 6</p>	<p>1 Evidence has been received, for example, concerning 2 the design and construction of Grenfell Tower. But 3 there remains much to be understood, as the inquiry's 4 experts have pointed out. This concerns, among other 5 things, the manner in which the refurbishment of the 6 building was undertaken, and the impact which it had on 7 the active and passive fire safety measures.</p> <p>8 Therefore, if one is looking at the impact on the 9 active and passive fire safety measures and the way in 10 which the building behaved, that is directly relevant to 11 the actions of firefighters on the night in relation to 12 them. So there is much yet to be learnt.</p> <p>13 Many firefighters have been asked in detail about 14 their individual understanding and adherence to certain 15 of the Brigade's policies and procedures; but the basis 16 for the development of those policies must also wait 17 until Phase 2.</p> <p>18 Sir, with that in mind, I want now to touch briefly 19 upon the written closing submissions of some of the core 20 participants, just to touch upon one or two issues, 21 which include a number of criticisms of the Brigade as 22 an organisation, which is part of the legitimate 23 function of this inquiry and part of their right to do 24 so -- I'll come to those in due course to some extent -- 25 but also of individuals. Now, I will come to the</p> <p style="text-align: center;">Page 8</p>

<p>1 Brigade itself as an organisation later, but right now 2 I'm speaking of the individual firefighters and control 3 staff who came to give evidence. 4 First, they did so in relation to their training and 5 Brigade procedure with absolute candour. That is 6 obvious from the accounts that they gave, from the fact 7 that they did not always agree with each other on 8 certain issues. It would be odd if they did, given the 9 number who gave evidence and the traumatic and dynamic 10 events they had to recount. They had difficult choices 11 to make, which involved substantial risks to life, 12 either way. More than once, sir, you may recall 13 firefighters using the phrase "damned if you do and 14 damned if you don't" effectively to some up the 15 situations they found themselves in. But they acted in 16 many instances with heroism, paying scant regard for 17 their own safety, and returning into the building, 18 sometimes, time and time again, on the instructions of 19 commanders, who themselves struggled profoundly, as you 20 heard them say when they gave evidence, with the 21 knowledge that they were deploying colleagues into 22 perilous surroundings. They did not give up because 23 they are hardwired to save life while there is still 24 a chance. 25 Of course, similar considerations apply to the</p> <p style="text-align: center;">Page 9</p>	<p>1 evidence that has emerged since the fire that, even 2 then, they do not all agree on everything. 3 In those circumstances, sir, it would, in our 4 submission, be unfair to pass judgement on individual 5 actions of any of the firefighters or control staff 6 until more of these issues are fully examined at 7 Phase 2, which has always, as we understand it, been the 8 intention of the inquiry. And it is impossible to make 9 judgements about what they did without fully 10 acknowledging the sheer scale of what was happening and 11 the rapidity with which it happened. 12 The fact is that none of the firefighters who 13 attended the fire or the control officers in Stratford 14 should ever, as individuals, have been placed in the 15 often impossible situations they were by reason of the 16 catastrophic failings in that building, according to the 17 inquiry's experts' findings thus far. 18 Sir, that is another reason -- it's perhaps 19 a secondary reason, but it is one of no less 20 importance -- why meaningful lessons must be learned so 21 that fire service staff up and down the country, both 22 firefighters and those in control rooms, are never 23 placed in those situations again. 24 So much for the individuals. 25 But, of course, in answer to many of these issues</p> <p style="text-align: center;">Page 11</p>
<p>1 control room staff as individuals, who worked constantly 2 and tirelessly throughout the night. They faced 3 numerous personal challenges, which were highly 4 distressing and, in many cases, impossible. They were 5 open and honest in their views about Brigade procedure 6 and, in some cases, critical, as it was open to them to 7 be. 8 But, sir, the primary point that I want to make here 9 is that the evidence they gave was in the context of 10 Phase 1 and its inevitably limited scope, to some 11 extent. 12 On the night, no one knew as individuals why the 13 fire was behaving as it did. No one knew or could have 14 known the conditions in stairwells and lobbies 15 throughout the building, so as to make considered, 16 certain judgements on evacuation procedures, even if 17 an evacuation were possible on a simultaneous basis. 18 The inquiry's experts, who have provided, sir, such 19 excellent assistance to the inquiry thus far, 20 acknowledge that there remain important issues yet to be 21 studied, including a clearer picture of the rapidly 22 changing smoke conditions which are so vital to 23 understand before it is possible to come to any 24 conclusions about the viability of escape at particular 25 times. It is after several months of studying the</p> <p style="text-align: center;">Page 10</p>	<p>1 which I have raised in relation to the individuals, 2 understandably it has been suggested that the Brigade 3 itself, as an organisation, should have had contingency 4 plans in place to address an incident on this 5 unprecedented scale, and training implemented to deal 6 with it. 7 Training is obviously a complex topic in any large 8 organisation, and particularly in relation to the 9 emergency services. We say again that the purpose of 10 Phase 1 evidence was primarily to examine the factual 11 narrative of the night of the fire and, in doing so, 12 inevitably to touch upon Phase 2 issues. But it will be 13 only then, in Phase 2, in our submission, when the 14 myriad of factors which dictate the nature of training 15 can adequately be addressed. 16 It is closely linked to policy, because you can only 17 train to policy in the emergency services. The 18 Brigade's policies and training are the product of long 19 years of learning and experience. They are directed by 20 the multiple risks which fire services face and which 21 exist in the built environment, which are constantly 22 changing. They must take account of competing risks, 23 the availability of resources and funding -- which is 24 a key issue -- the need to address the safety of 25 firefighters and many other complex considerations.</p> <p style="text-align: center;">Page 12</p>

<p>1 At Phase 2, according to its purpose, those issues 2 can be properly and very fully explained, and it would, 3 in our submission, be wrong to pass summary judgment on 4 these matters now before those explanations are before 5 the inquiry. 6 Sir, it is for that reason, actually, as we 7 understand it, that the inquiry's fire and rescue 8 expert, Mr McGuirk, has not been required to prepare 9 a report for Phase 1. We await that report for the 10 purposes of Phase 2. 11 Therefore, sir, insofar as you have been asked to 12 make critical findings at this stage, by which I mean 13 findings other than those of pure fact, which determine 14 individual or systemic failings, it is the Brigade's 15 firm position that such findings, unless arguably they 16 bear upon urgent recommendations you consider should be 17 made, can only properly be made when the full context is 18 examined in Phase 2. 19 Sir, I turn now, as we did in the opening statement 20 of the Brigade, to the crucial importance of the 21 principles which govern the design, construction and 22 maintenance of high-rise residential buildings. 23 The reason why we want just to touch upon some of 24 the key principles again, is that before it is possible 25 to have any appreciation of the actions of Brigade staff</p> <p style="text-align: center;">Page 13</p>	<p>1 which is useful to know, or wise to be aware of; it 2 provides the fundamental basis upon which fire services 3 are required to carry out their functions in buildings 4 of this kind. 5 Buildings such as Grenfell Tower were expressly 6 designed so as to contain any fire in its compartment of 7 origin for sufficient time to allow the fire service to 8 extinguish it before it has a chance to spread. 9 Accordingly, the building design is not intended, as the 10 experts have told us, to facilitate simultaneous 11 evacuation of residents, especially at the same time as 12 firefighting. There is, for example, no common fire 13 alarm provided for that purpose, and the sole means of 14 escape is down a single stairwell, and unless provided 15 in some way by the building owner, no simultaneous 16 evacuation plan which residents are aware of. 17 In simple terms, the design of such buildings is 18 subject to the crucial building design principle known 19 as "compartmentation", which we have heard so many times 20 during the last few months. It is intended to inhibit 21 rapid fire spread within the building from one area to 22 another. That is achieved, as we have heard, through 23 a variety of passive and active fire safety measures, 24 such as fire-stopping, fire resistant self-closing doors 25 and the use of fire resistant materials in the</p> <p style="text-align: center;">Page 15</p>
<p>1 on the night of the fire, it is essential to restate 2 that fire and rescue services, policies and procedures 3 for different types of fires in different types of 4 buildings, are underpinned by the regulatory 5 requirements for their design and construction. 6 The inquiry's experts have devoted considerable time 7 and space to these principles in their reports, and for 8 good reason. 9 But for now, as I say, we want to emphasise and 10 restate some of the most significant principles. 11 First, a reminder that the stay-put strategy is not 12 a Brigade or fire and rescue service procedure; it is 13 a key principle of building design and construction, but 14 it is one, of course, that fire services must understand 15 and apply. 16 It is, on the evidence of Dr Lane -- I am quoting 17 here -- the single safety condition provided for the 18 design of high-rise residential buildings. The 19 statutory guidance, she says, makes no provision within 20 the building for anything other than the stay-put 21 strategy. 22 It follows, sir, that fire safety is a crucial 23 element of the building design process which dictates 24 the way in which fire services are expected to carry out 25 fire and rescue operations. It is not just something</p> <p style="text-align: center;">Page 14</p>	<p>1 construction and maintenance of the building. 2 The principle applies to each flat in the building, 3 to the common corridors and to the single central 4 staircase and lobbies, which must themselves be 5 sufficiently protected from the effects of fire and 6 smoke. 7 Crucially, in this case, similar but differently 8 expressed principles apply to the external envelope of 9 the building, which is expected to be designed and 10 constructed in such a way as to resist the spread of 11 flame over its surface. 12 The express intention of the regulatory regime is 13 that, in the event of fire, the occupants of flats 14 within the building are safe to remain in place, 15 according to the regulatory principles, to stay put, 16 unless they are directly affected by fire, smoke or 17 heat. That is obviously an issue which is under close 18 scrutiny in this inquiry. That is particularly 19 important, though, given the fact that simultaneous 20 evacuation of the building is not factored into the 21 statutory requirements which govern the design of 22 buildings of this kind. 23 We make no apology for repeating that the stay-put 24 strategy is not a creation of fire services in the UK, 25 but rather a principle of building design which</p> <p style="text-align: center;">Page 16</p>

<p>1 underpins the development of fire safety and operational 2 policy for buildings of this kind.</p> <p>3 It is obvious, in those circumstances, that strict 4 adherence to the principle of compartmentation through 5 a range of active and passive fire protection measures 6 is critical to the safety of such buildings and their 7 residents in case of fire.</p> <p>8 Now, I have no doubt that people have spoken to 9 friends and relatives -- I know I have at home -- and we 10 speak of the stay-put strategy, and the Brigade is well 11 aware -- as am I -- of the fact that the stay-put 12 strategy, which I have described as part of the 13 regulatory building design, is something of 14 a counter-intuitive operation. Many have said, "Why 15 would you stay in a building that's on fire? You have 16 to get out." But it is important to emphasise, 17 particularly for those who live in such buildings, that 18 this system of building design which is required by the 19 Building Regulations has -- it's important to say 20 this -- achieved its purpose in the vast majority of 21 cases for decades, in accordance with the principles 22 upon which these buildings were built, by contrast with 23 substantial refurbishments which may have occurred in 24 later years.</p> <p>25 Just to put some context on that -- we said this in</p> <p style="text-align: center;">Page 17</p>	<p>1 in the need to effect a full evacuation of an entire 2 high-rise residential building, even if it were possible 3 to do so.</p> <p>4 That is because, in practice, fire services address 5 localised breaches of compartmentation through a system 6 of sectorisation. We haven't heard a great deal of 7 evidence about this, though we have heard some, in 8 Phase 1, and I'm very conscious of the fact that 9 I shouldn't be giving evidence, but I anticipate that in 10 Phase 2 an analysis of the principle of fire service 11 practice, which is sectorisation, will be made. It 12 involves -- it's important to understand this now -- 13 establishing an operational fire sector in a building 14 where the main firefighting and rescue operations are 15 taking place, which typically incorporates the floor 16 involving the compartment of origin and one floor above 17 and one floor below. Within that fire sector, the flats 18 above and adjacent to the compartment of origin can be 19 evacuated if necessary, and further evacuation within 20 the fire sector may be considered or implemented 21 depending upon the development of the fire beyond the 22 compartment of origin.</p> <p>23 Now, Brigade policy, and Brigade policies all over 24 the country, provide for sectorised firefighting and 25 rescue and the practicality of partial evacuation in</p> <p style="text-align: center;">Page 19</p>
<p>1 our opening statement, but it's worth saying again -- 2 there are, for example, in London about 5,000 3 residential high-rise buildings. That's in London 4 alone. The Brigade attends about 700 fires in such 5 buildings each year, and in the last five years to the 6 end of 2017, which obviously does not include the 7 Grenfell Tower fire, 94 per cent were resolved by the 8 initial attendance of fire crews. I suppose the key 9 point is that only 2 per cent needed the attendance of 10 six fire engines or more, and it had never been 11 necessary to suspend the stay-put strategy for an entire 12 building in all of that time, not for decades. The 13 suspension of the stay-put strategy on the night of 14 14 June 2017 was the first time that it had occurred, 15 insofar as we are aware, ever.</p> <p>16 The national picture, as we understand it, is much 17 the same. That is not because every building, however, 18 has always performed perfectly in respect of 19 compartmentation, because fires such as these, those 20 which have been attended over the years and been 21 addressed very often by the first crews who attended, in 22 those kind of fires, breaches of compartmentation to 23 some degree have not been uncommon. It's 24 a misunderstanding of fire and rescue policy to assume 25 that any breach of compartmentation will always result</p> <p style="text-align: center;">Page 18</p>	<p>1 certain circumstances, such as those that occurred at 2 Shepherds Court, about which we have heard much, on 3 19 August 2016, where that policy was engaged. The fire 4 sector was extended to account for the fire spread 5 within the building, and limited evacuation of flats in 6 the localised sector was affected.</p> <p>7 The fire was extinguished within the sector, without 8 spreading to the rest of the building and without 9 a full-scale evacuation. That is chiefly because the 10 design principles in the Building Regulations to some 11 extent contemplate an element of compartmentation 12 failure by providing for layers of redundancy in various 13 active and passive fire measures. So if one fails, 14 another one is there, and then if that fails, another 15 one is there. That's why fire services, the Brigade in 16 London, have been able to and have under policy managed 17 buildings of this kind for decades.</p> <p>18 However, in the Grenfell Tower fire, it was 19 impossible to adopt a sectorisation process on the basis 20 of localised fire spread. The uniqueness of the fire, 21 which was evidenced by the rapid vertical, lateral and 22 downward spread, possibly encouraged, as we understand 23 it from the inquiry's experts, by the existence of the 24 architectural crown, wholly compromised the stay-put 25 strategy. In other words, the condition of</p> <p style="text-align: center;">Page 20</p>

5 (Pages 17 to 20)

<p>1 Grenfell Tower was such that the fire protection</p> <p>2 measures which should've been in place in layers of</p> <p>3 redundancy, and upon which fire services and residents</p> <p>4 rely, were substantially absent.</p> <p>5 The importance of the statutory fire protection</p> <p>6 measures was emphasised by Dr Lane when she gave</p> <p>7 evidence all the way back in June. She said,</p> <p>8 importantly -- I am going to quote from a passage of the</p> <p>9 evidence which she gave in June:</p> <p>10 "The fire protection measures must be constructed</p> <p>11 and then maintained to ensure they are fit for purpose</p> <p>12 in the event of fire. The stay-put strategy is provided</p> <p>13 through design construction and ongoing maintenance.</p> <p>14 All building occupants, including the Fire Brigade, rely</p> <p>15 on it in the event of a fire. It is the single ..."</p> <p>16 I come back to what she says about this:</p> <p>17 "... safety condition provided for in the design of</p> <p>18 high-rise residential buildings in England.</p> <p>19 "The statutory guidance makes no provision within</p> <p>20 the building for anything other than a stay-put</p> <p>21 strategy. There is no means of warning nor a means to</p> <p>22 communicate the need to increase the areas to be</p> <p>23 evacuated as is currently regulated for other building</p> <p>24 uses." [Day 5, 18 June 2018, page 39 to 40]</p> <p>25 That's one lesson that we can learn quite early on.</p> <p style="text-align: right;">Page 21</p>	<p>1 passive fire protection measures in buildings of this</p> <p>2 kind has not contemplated a total building evacuation.</p> <p>3 That is not to say, of course, that a full evacuation of</p> <p>4 such a building in certain circumstances -- it's</p> <p>5 happened before -- might not be possible, given time and</p> <p>6 with favourable conditions, particularly where residents</p> <p>7 are aware of an evacuation strategy provided by the</p> <p>8 building owner. But the challenges faced by the Brigade</p> <p>9 on the night of the fire were significant, rendering the</p> <p>10 possibility of simultaneous and immediate full</p> <p>11 evacuation virtually impracticable.</p> <p>12 The following factors are important in that:</p> <p>13 1. The building, as we have said -- forgive me for</p> <p>14 repeating it -- wasn't designed or constructed to</p> <p>15 facilitate such evacuations.</p> <p>16 2. There's an absence of any practical mechanism by</p> <p>17 which to effectively communicate with occupants of the</p> <p>18 entire building.</p> <p>19 3. There is an available single staircase only,</p> <p>20 which is also to be used by firefighters in breathing</p> <p>21 apparatus and so on.</p> <p>22 4. This is important: in buildings of this kind, if</p> <p>23 there is widespread failure of active and passive fire</p> <p>24 protection measures, the likelihood that rapidly</p> <p>25 changing conditions in the building as the fire</p> <p style="text-align: right;">Page 23</p>
<p>1 Forgive me for just trying to touch upon some of the</p> <p>2 key principles of building design, but it was important</p> <p>3 to do so, so as to understand what firefighters and</p> <p>4 commanders were doing on the night.</p> <p>5 We know, understandably, and properly said by some</p> <p>6 core participants, that the principles upon which</p> <p>7 buildings like these are designed and the reliance</p> <p>8 placed on them by fire services is all well and good,</p> <p>9 but when they fail on the scale which occurred at</p> <p>10 Grenfell Tower, what is the planned alternative? That's</p> <p>11 a legitimate question which has to be answered.</p> <p>12 The answer to many of those questions in relation to</p> <p>13 the night of the fire can be found in the sheer scale</p> <p>14 and the rapidity of what happened and the fact that it</p> <p>15 was unprecedented. But to understand what the</p> <p>16 alternatives might have been, even with hindsight, it is</p> <p>17 important to recognise how the statutory design</p> <p>18 principles actually impact upon what are option the fire</p> <p>19 services may have in the event that a building fails in</p> <p>20 its safety design to the extent seen at Grenfell Tower.</p> <p>21 I just want to touch upon some of the practical</p> <p>22 issues that arise for fire services arising out of the</p> <p>23 design principles that I've touched upon.</p> <p>24 First of all, simultaneous evacuation.</p> <p>25 Since the early 1960s, the design of active and</p> <p style="text-align: right;">Page 22</p>	<p>1 developed might create toxic and potentially lethal</p> <p>2 conditions through which residents would be required to</p> <p>3 pass without respiratory protection.</p> <p>4 That last point, the fourth, is of particular</p> <p>5 relevance here. A year and a half after the fire, and</p> <p>6 following extensive analysis of multiple issues, the</p> <p>7 inquiry's experts, at least some, say that a detailed</p> <p>8 consideration of the spread of smoke within the building</p> <p>9 is a very complex undertaking which is yet to be done</p> <p>10 fully.</p> <p>11 The Brigade is carrying out its own extensive</p> <p>12 analysis of it and is far from being able to conclude</p> <p>13 with any certainty yet, though that time will come,</p> <p>14 precisely what was happening in terms of the spread of</p> <p>15 smoke.</p> <p>16 Witnesses, both firefighters and residents, have</p> <p>17 given their own valuable accounts which, among other</p> <p>18 things, demonstrate that the pattern of smoke spread was</p> <p>19 variable from an early stage.</p> <p>20 Professor Purser, who recently gave evidence,</p> <p>21 conducted his own assessment, but said he hadn't yet had</p> <p>22 an opportunity to consider the firefighter evidence,</p> <p>23 which is obviously essential before coming to any</p> <p>24 conclusion.</p> <p>25 Sir, I'm going to be about an hour and a quarter,</p> <p style="text-align: right;">Page 24</p>

<p>1 an hour and 20 minutes, so I'm not going to take my</p> <p>2 whole two hours, you may be relieved to hear.</p> <p>3 SIR MARTIN MOORE-BICK: All right. Not relieved, Mr Walsh!</p> <p>4 MR WALSH: Perhaps it is me!</p> <p>5 SIR MARTIN MOORE-BICK: Before you go on, can I assume you</p> <p>6 would rather complete the whole of your statement</p> <p>7 without a break?</p> <p>8 MR WALSH: I think so. I'll certainly conclude before the</p> <p>9 mid-morning break.</p> <p>10 Sir, I want to turn now, then, to the statutory</p> <p>11 requirements and the impact on firefighting on the</p> <p>12 night, as opposed to general principles.</p> <p>13 Internal firefighting.</p> <p>14 The statutory requirements are predicated on the</p> <p>15 basis that fires in compartments must be fought</p> <p>16 internally, and that that is the principle which</p> <p>17 supports fire service policy and training for such</p> <p>18 fires.</p> <p>19 The inquiry has heard that the deployment of</p> <p>20 external jets of water into an internal compartment</p> <p>21 through a window cannot be done safely in high-rise</p> <p>22 residential premises -- or others, actually -- because</p> <p>23 of the risk to which firefighters or residents within</p> <p>24 the compartment would be exposed. It can cause boiling</p> <p>25 steam and all sorts of other difficulties, so great care</p> <p style="text-align: center;">Page 25</p>	<p>1 been that the rainscreen cladding did its job insofar as</p> <p>2 it repulsed water applied from the exterior.</p> <p>3 But assuming that it would have been reasonable at</p> <p>4 the early stages to anticipate that the fire in the</p> <p>5 external cladding would spread as far and as rapidly as</p> <p>6 it did, it would've been a fundamental and unprecedented</p> <p>7 departure from high-rise firefighting procedure to</p> <p>8 abandon internal firefighting, because it would've</p> <p>9 allowed the internal fire to develop further, breaching</p> <p>10 compartmentation and potentially impacting on access and</p> <p>11 egress routes.</p> <p>12 Sir, there have also been understandable suggestions</p> <p>13 that the fire might have been fought externally in the</p> <p>14 initial stages using an aerial ladder. We can provide</p> <p>15 more analysis of this at Phase 2, but the inquiry is</p> <p>16 aware that the Brigade's initial predetermined</p> <p>17 attendance, the PDA, to high-rise fires in June 2017 did</p> <p>18 not include an aerial ladder. But even if an aerial</p> <p>19 appliance had been on the PDA, it is unlikely -- highly</p> <p>20 unlikely -- that it could have positioned and set up in</p> <p>21 sufficient time to have been used to undertake</p> <p>22 firefighting operations that could have stopped the</p> <p>23 external fire spread because of the short window of</p> <p>24 opportunity that was available if that was going to</p> <p>25 happen.</p> <p style="text-align: center;">Page 27</p>
<p>1 has to be taken in relation to putting water straight</p> <p>2 into a window in which people are already there.</p> <p>3 In the course of the hearings, though, it has been</p> <p>4 suggested that it may have been an option to abandon</p> <p>5 internal firefighting -- it's a perfectly legitimate</p> <p>6 suggestion, and it has been made -- altogether in the</p> <p>7 early stages of the fire, so as to allow an external jet</p> <p>8 to aggressively attack the fire on the cladding above</p> <p>9 and below the window in flat 16 without risks to</p> <p>10 firefighters within the compartment.</p> <p>11 Now, of course, that window of opportunity, because</p> <p>12 of the rapidity with which the fire spread, was very</p> <p>13 short. But it is also a fact that several attempts were</p> <p>14 made to attack the fire externally in order to prevent</p> <p>15 vertical fire spread. An external jet was applied to</p> <p>16 the cladding in the vicinity of the window, as we have</p> <p>17 heard, of flat 16 in the early stages, but with care,</p> <p>18 for the reasons which I've explained, in the knowledge</p> <p>19 that firefighters were within the compartment. Hoses</p> <p>20 were deployed externally from within flat 16, at</p> <p>21 considerable risk to the firefighters who lent out of</p> <p>22 the window to do it, and later, aerial appliances were</p> <p>23 used. But in all cases, these efforts were without</p> <p>24 material effect to the vertical spread of the fire, and</p> <p>25 it is a cruel irony that one reason for that may have</p> <p style="text-align: center;">Page 26</p>	<p>1 Turning now to the extent to which firefighting on</p> <p>2 multiple floors is provided for in the Building</p> <p>3 Regulations.</p> <p>4 While we have said that the statutory requirements</p> <p>5 for the design of high-rise residential buildings</p> <p>6 provide for internal firefighting, they do not</p> <p>7 contemplate that fire services may be required to fight</p> <p>8 fires on multiple floors. It is just not contemplated</p> <p>9 by the regulations.</p> <p>10 At Grenfell Tower, of course, firefighting on</p> <p>11 multiple floors was essential, notwithstanding the fact</p> <p>12 that the building wasn't designed to facilitate it.</p> <p>13 This meant that doorways from numerous lobbies to the</p> <p>14 stairwell were required to be open for a significant</p> <p>15 period, thereby necessarily to some extent breaching the</p> <p>16 protection provided for an escape route. Of course,</p> <p>17 that would also have been the case in a full</p> <p>18 simultaneous evacuation of the building.</p> <p>19 Whether a building is fitted with dry or wet risers,</p> <p>20 whether there should have been dry or wet risers in</p> <p>21 Grenfell Tower, in either case, the provision provided</p> <p>22 for is for firefighting jets to be connected to the</p> <p>23 rising main, which is sufficient to deal with a single</p> <p>24 compartment fire. That's how the Building Regulations</p> <p>25 plan for these things.</p> <p style="text-align: center;">Page 28</p>

<p>1 The use of further hoses -- you're talking about two 2 hoses on each floor -- connected to riser outlets, 3 whether wet or dry, to fight fires on other floors at 4 the same time results in an exponential reduction, if 5 I can use that word, in water pressure to a degree which 6 renders the ability to extinguish fires inadequate on 7 multiple floors if they're all being used at the same 8 time. That's the way in which the construction and 9 design of a building is accommodated.</p> <p>10 So, in short, the available water supplied by the 11 rising main and the associated water pressures are 12 insufficient to accommodate multiple hoses in the riser 13 outlets on multiple floors. So the possibility that 14 firefighting may need to be effected in such 15 circumstances just isn't contemplated by the regulatory 16 regime. That's another lesson that might well be 17 learned.</p> <p>18 Perhaps that's why the ventilation system in the 19 building was designed only to extract smoke from one 20 lobby at a time, and was not capable, as we understand 21 it, even if it had been working correctly, of doing the 22 same job on multiple floors.</p> <p>23 So, sir, those are all factors which, together with 24 the many others which are addressed in the Brigade's 25 statement, which I won't slavishly go through,</p> <p>Page 29</p>	<p>1 spread, usually vertically -- practically every case 2 vertically, as the experts have pointed out. Certainly 3 the inquiry's experts have said that the information 4 about those other fires is not as well documented as 5 they would wish in order to make comparisons and draw 6 specific conclusions. The Brigade agrees with that, but 7 also points out that they were very different fires, in 8 different buildings around the world, with very 9 different regulatory design regimes. We set out some 10 examples of those in the statement which I won't repeat 11 here.</p> <p>12 But, importantly, the Brigade entirely recognises 13 the fact that the fires in other buildings around the 14 world which involve cladding materials are important 15 factors to consider when assessing the collective 16 knowledge of fire services in the UK about rapid fire 17 spread on the exterior of buildings and the lessons 18 which can be learned from them.</p> <p>19 The extent to which the Brigade was fixed with this 20 knowledge and the manner in which it was used and 21 disseminated and might have assisted in contingency 22 planning will obviously be a significant issue at 23 Phase 2, when those with the relevant responsibility and 24 expertise about these issues will have an opportunity to 25 provide a detailed explanation.</p> <p>Page 31</p>
<p>1 contribute to what was the Brigade firmly maintains was 2 a unique and singular event. But, importantly, they 3 demonstrate how difficult it is to develop contingencies 4 for firefighting and rescue where there is a widespread 5 failure to adhere to the design principles in 6 residential high-rise buildings.</p> <p>7 I say it was a singular fire, and it was, but the 8 Brigade is very conscious of the fact that the inquiry 9 has heard about other fires and the Brigade's knowledge 10 of other fires around the world. I just want to deal 11 with that, if I may.</p> <p>12 In this case, the fire safety measures in the 13 building, which for more than 40 years had served its 14 occupants well from a fire safety perspective, were, on 15 the evidence of the inquiry's experts, so compromised to 16 such an extent that the events of the night of the fire 17 occurred as they did, but they were not yet fully 18 understood by mid-2017.</p> <p>19 Should the Brigade, should fire services, fixed with 20 the knowledge of fire spread in other buildings around 21 the world, have been alerted to something which might 22 have assisted in developing contingency plans?</p> <p>23 Now, the references in Phase 1, as we know, to other 24 fires around the world demonstrated that there were 25 fires which broke out in external cladding and which</p> <p>Page 30</p>	<p>1 But for the present, the Brigade has taken 2 actions -- many actions -- and in this case it includes 3 a new procedure through the National Operational 4 Learning User Group -- it's a process -- with the 5 Institute of Fire Engineers to extract learning from 6 international events and disseminate the relevant 7 learning coherently on a nationwide basis, and that work 8 is in train and is ongoing now.</p> <p>9 But on the evidence of, sir, the inquiry's experts, 10 what was unusual about the fire at Grenfell Tower was 11 the extent of the lateral and downward spread in the 12 external envelope and the extent to which internal 13 compartmentation was compromised. That fire behaviour 14 was, according to the experts, the function of 15 a combination of factors, including the nature of the 16 materials used in the cladding and their complex 17 arrangement -- which is a fundamental and important 18 factor -- the involvement of the architectural crown and 19 the manner in which the new window sets had been 20 installed. This, combined with the range of internal 21 active and passive fire protection measures, created 22 what the Brigade really maintains was a unique set of 23 circumstances. But they're not unique now, because 24 they've happened, and that's why lessons are urgently 25 being learnt about them.</p> <p>Page 32</p>

<p>1 Given those facts and what was happening in that way</p> <p>2 on the night of the fire, I just want now, sir, to touch</p> <p>3 upon certain issues which arose and gave firefighters</p> <p>4 and control staff difficulties on the night.</p> <p>5 The primary cause of the problems faced by them was</p> <p>6 described by Dr Lane as:</p> <p>7 "... the rainscreen cladding assembly together with</p> <p>8 the insulation fitted to the existing external wall and</p> <p>9 the missing or defective barriers became part of the</p> <p>10 successful combustion process. This created a condition</p> <p>11 (in the event of an internal fire, cavity fire or</p> <p>12 external fire) which connected every flat on a storey;</p> <p>13 and every storey from level three to the roof, which</p> <p>14 supported the spread of external fire back into the</p> <p>15 building, through windows, and created a series of</p> <p>16 internal fire events." [page 13]</p> <p>17 That's how she summarises it.</p> <p>18 But, importantly, she went on to say this:</p> <p>19 "2.19.1 I do not consider it reasonable that in the</p> <p>20 event of the installation of a combustible rainscreen</p> <p>21 cladding system on a high rise residential building, the</p> <p>22 fire brigade should be expected to fully mitigate any</p> <p>23 resulting fire event."</p> <p>24 That's her view:</p> <p>25 "That is particularly so in circumstances where the</p> <p style="text-align: center;">Page 33</p>	<p>1 the opportunity to spread. In cases involving multiple</p> <p>2 fires in the premises, it's equally important to</p> <p>3 continue firefighting efforts, notwithstanding the</p> <p>4 difficulties created by the building design, not only to</p> <p>5 prevent further fire spread, but also to protect escape</p> <p>6 routes and to allow rescue attempts to be made.</p> <p>7 As the fire developed through Grenfell Tower, it was</p> <p>8 essential that firefighting operations continued, for to</p> <p>9 abandon them would have further prejudiced the</p> <p>10 possibility of escape from floors on which the fires had</p> <p>11 broken out and from other floors both above and below by</p> <p>12 reason of the smoke and heat which the fires generated.</p> <p>13 It was essential, so long as there might be savable</p> <p>14 life within the building, that firefighting operations</p> <p>15 continued so as to check the continued development of</p> <p>16 the fire internally and to maintain the structural</p> <p>17 integrity of the building.</p> <p>18 As one example, we can all remember that that is</p> <p>19 precisely what firefighters did to protect Mr Bonifacio</p> <p>20 in his flat, who was partially-sighted, as he explained.</p> <p>21 He couldn't get out, but that's how the firefighters</p> <p>22 behaved in protecting his position until he was rescued</p> <p>23 by firefighters as late as 8 o'clock in the morning.</p> <p>24 Just coming to the rescue operation.</p> <p>25 The inquiry now has taken both oral and written</p> <p style="text-align: center;">Page 35</p>
<p>1 fire brigade had never been informed that a combustible</p> <p>2 rainscreen cladding system had been installed in the</p> <p>3 first place. Further, there are so many combinations of</p> <p>4 events, that could fall entirely outside the reach of</p> <p>5 external firefighting activity. This is important when</p> <p>6 only internal firefighting arrangements are made for</p> <p>7 high-rise residential buildings by Regulation at this</p> <p>8 time." [page 14]</p> <p>9 So those were among the issues that the firefighters</p> <p>10 and commanders faced on the night. Inevitably, it was</p> <p>11 necessary that policies and procedures which had been</p> <p>12 established by the Fire Brigade for many long years had</p> <p>13 to be departed from.</p> <p>14 Now, it has been suggested during the course of</p> <p>15 Phase 1 that there must have come a time when it was</p> <p>16 clear to firefighters that the fire could not be</p> <p>17 controlled, and that there should've been a decision to</p> <p>18 abandon firefighting completely in favour of the rescue</p> <p>19 effort. That's the suggestion that some have made.</p> <p>20 It's an understandable suggestion.</p> <p>21 But in addressing that suggestion, it's firstly</p> <p>22 important to point out that firefighting and rescue</p> <p>23 operations are not mutually exclusive. In all cases, it</p> <p>24 is of paramount importance for firefighters to attack</p> <p>25 and extinguish an initial fire so that it is not given</p> <p style="text-align: center;">Page 34</p>	<p>1 evidence from firefighters telling of multiple dilemmas</p> <p>2 they faced when they were committed to the interior of</p> <p>3 the building. As I think is very well known by now,</p> <p>4 more firefighters in breathing apparatus were deployed</p> <p>5 into the building than in any other single incident in</p> <p>6 the collective memory of the Brigade. More than 700</p> <p>7 fire service personnel were engaged in the emergency</p> <p>8 response. Firefighters with breathing apparatus carried</p> <p>9 out many rescues of residents from within flats and</p> <p>10 assisted many other residents who they encountered</p> <p>11 elsewhere in the building to make their own escape down</p> <p>12 the stairwell. In many cases, they removed their own</p> <p>13 masks from their own faces to give clean air to</p> <p>14 residents, to protect them from the toxic conditions.</p> <p>15 Those have all been described in vivid terms,</p> <p>16 I know, but one of the most important purposes of their</p> <p>17 evidence was to describe the conditions in the building.</p> <p>18 That's why we say, again, that a full analysis of the</p> <p>19 descriptions which they made must be undertaken.</p> <p>20 One of the issues which has arisen is the extent to</p> <p>21 which firefighters always made it to the flats that they</p> <p>22 were deployed to get to. The instinct of firefighters</p> <p>23 who encountered residents in the common areas and within</p> <p>24 individual flats was to effect rescues wherever</p> <p>25 possible, often at significant risk, as I have said, to</p> <p style="text-align: center;">Page 36</p>

<p>1 their own safety. But that in itself presented</p> <p>2 a significant problem for the bridgehead commanders,</p> <p>3 because when firefighters are committed to a particular</p> <p>4 flat and they are heading to that flat and they</p> <p>5 encounter residents in distress on the stairway as they</p> <p>6 come down, they could not pass them by, and so they had</p> <p>7 to direct them down the stairs or in some cases take</p> <p>8 them down the stairs themselves. That presented</p> <p>9 bridgehead commanders, when committing crews to specific</p> <p>10 flats, with significant difficulties. In the moment, in</p> <p>11 the dynamic and changing situations that occurred on</p> <p>12 that night, those were very, very difficult</p> <p>13 circumstances to address with any kind of certainty.</p> <p>14 Accounts were given by firefighters during the</p> <p>15 hearings of difficulty choices they were required to</p> <p>16 make, involving the viability of immediate rescue, the</p> <p>17 number and the vulnerability of the residents they</p> <p>18 encountered and whether to advise residents to remain in</p> <p>19 relatively clean air or to encourage them to venture</p> <p>20 into a hazardous and toxic environment and attempt</p> <p>21 escape down the stairs.</p> <p>22 I want to pause here briefly just to recognise the</p> <p>23 reality of the firefighters' situations. They're</p> <p>24 wearing heavy breathing apparatus. They've got masks</p> <p>25 over their faces. Sometimes they're on the second or</p> <p style="text-align: center;">Page 37</p>	<p>1 the system of communication to and from the fire ground,</p> <p>2 did not provide for an incident on this scale. That is</p> <p>3 one of the most significant lessons which must be</p> <p>4 learned from the Grenfell Tower fire, and the Brigade is</p> <p>5 learning from it. I will come back to what is being</p> <p>6 done about that in due course.</p> <p>7 As has been stated on a number of occasions, the</p> <p>8 Brigade control room at Stratford was required to handle</p> <p>9 more calls -- this is the scale of it -- from residents</p> <p>10 requiring fire survival guidance within Grenfell Tower</p> <p>11 on the night of the fire than the total number of such</p> <p>12 calls in the previous ten years from the whole of</p> <p>13 London. That is the difference in the level of scale</p> <p>14 and the unprecedented nature of what happened on the</p> <p>15 night. That is in the context that certain of the</p> <p>16 control officers, with decades of experience, had only</p> <p>17 been required to handle a handful of fire survival</p> <p>18 guidance calls in all of their service.</p> <p>19 We have also learnt that so voluminous were the</p> <p>20 calls to the Brigade that it was necessary for a number</p> <p>21 of other fire services and other emergency services to</p> <p>22 assist in dealing with them using the established mutual</p> <p>23 aid arrangements. The demand on the control room on the</p> <p>24 night of the fire and the number of calls far</p> <p>25 outstretched anything which the Brigade or, indeed, any</p> <p style="text-align: center;">Page 39</p>
<p>1 third time into the building. They are sometimes</p> <p>2 literally feeling their way up and down the stairs or in</p> <p>3 the lobbies because the smoke is so thick that there is</p> <p>4 zero visibility. Many of the residents, of course,</p> <p>5 describe the same conditions. They are having to</p> <p>6 balance competing demands, and they are keeping an eye</p> <p>7 on their own air supplies at the same time. In some</p> <p>8 cases, they are drawing on the very limits of their</p> <p>9 physiological capabilities.</p> <p>10 So, sir, when assessing or judging the manner in</p> <p>11 which decisions were made by firefighters and commanders</p> <p>12 in those circumstances, it is our submission that those</p> <p>13 factors must be borne in mind.</p> <p>14 I want to come now to the control room.</p> <p>15 Taken as a body of evidence, it is clear in the</p> <p>16 accounts given by control room operators of their</p> <p>17 experiences on the night that the Fire Brigade control</p> <p>18 room was overwhelmed by the scale of the incident from</p> <p>19 an early point in the fire. The operators, the control</p> <p>20 room officers, faced equally difficult and distressing</p> <p>21 dilemmas to those faced by the firefighters inside the</p> <p>22 building.</p> <p>23 The Brigade acknowledges in relation to the control</p> <p>24 room that its policies and procedures for the handling</p> <p>25 of calls, the provision of fire survival guidance and</p> <p style="text-align: center;">Page 38</p>	<p>1 other fire service in the country has ever had to deal</p> <p>2 with. That is a significant consideration, of course,</p> <p>3 in trying to understand what happened on the night, but</p> <p>4 the Brigade entirely accepts that it doesn't impact on</p> <p>5 the fact that lessons must now be learnt in light of</p> <p>6 that experience.</p> <p>7 But in learning those lessons, it's essential to</p> <p>8 acknowledge the real difficulties which control rooms up</p> <p>9 and down the country will always face in these</p> <p>10 circumstances, no matter what changes are made. That is</p> <p>11 not to say that something cannot be found to overcome</p> <p>12 those difficulties, but it is very far from being</p> <p>13 a simple fix.</p> <p>14 Among the many issues explored, the inquiry looked</p> <p>15 at the extent to which control room operators should</p> <p>16 interrogate callers to ascertain the conditions within</p> <p>17 the immediate vicinity outside their flats, rather than</p> <p>18 simply relying on what they say. That is an issue which</p> <p>19 has always presented real difficulties in the training</p> <p>20 of control staff nationally. Remote from the fire</p> <p>21 ground, they have no means of carrying out an objective</p> <p>22 assessment of the conditions immediately outside the</p> <p>23 caller's flats or beyond, and they are reliant to a very</p> <p>24 large extent on what they're being told by a caller.</p> <p>25 That's one of the key problems which has been described</p> <p style="text-align: center;">Page 40</p>

<p>1 by many of the control officers who gave evidence in 2 this inquiry.</p> <p>3 But the problem, the issue, is perhaps most clearly 4 articulated by a resident of Grenfell Tower on the night 5 of the fire. It is vividly described by Mr Roncolato, 6 who lived on the 10th floor, who called the Fire Brigade 7 on a number of occasions on the night. He made two 8 attempts to leave his flat and found it impossible to do 9 so by reason of the conditions that he faced.</p> <p>10 The Fire Brigade called him back at 4.49 am. That 11 was because the control room had spoken to his 12 sister-in-law. So there was a callback. Mr Roncolato 13 said "I can't leave the flat because of the thick, black 14 smoke". He was asked by counsel to the inquiry, Mr 15 Millett, what he would have done if the control operator 16 had told him to leave and get out even though he said he 17 couldn't get out, and he said this:</p> <p>18 "Well ... I would have assessed again if I was in 19 the condition to go out. But obviously she would've 20 taken a big responsibility to do so on her behalf, 21 because she wouldn't know how bad the conditions outside 22 were. I knew, she didn't. She wouldn't know." [Day 52, 23 3 October 2018, page 68]</p> <p>24 Those are the words of Mr Roncolato.</p> <p>25 Then in his call to the Brigade control again at</p> <p style="text-align: right;">Page 41</p>	<p>1 As we know, the inquiry has heard that many of those 2 who made calls during the fire felt extremely and 3 understandably reluctant to leave their flats, 4 Mr Bonifacio being one.</p> <p>5 So the lessons which must be learned from control 6 rooms within the UK, and particularly within London, of 7 course, must be considered in the context of the 8 enormous scale of the Grenfell Tower fire, and the fact 9 that the decision to suspend the stay-put strategy 10 provided by the building design and the Building 11 Regulations for an entire building was made for the 12 first time in history in the UK.</p> <p>13 Sir, in the final section before concluding, I just 14 want to highlight, if I may, the actions which the 15 Brigade has taken since the fire and the significant 16 effort which is being put into the process of learning 17 lessons.</p> <p>18 First of all, interim safety measures.</p> <p>19 Immediately after 14 June 2017, the Brigade was in 20 close liaison with the National Fire Chiefs Council, the 21 NFCC, for the purpose of recommending interim control 22 measures for fire services nationally to mitigate 23 failings in high-rise buildings demonstrating the 24 failings that were seen at Grenfell Tower.</p> <p>25 The resulting guidance was a document produced by</p> <p style="text-align: right;">Page 43</p>
<p>1 5.05, an hour later, during which the control operator 2 did instruct him to leave, even though he said he cannot 3 get out, he said that he could not do so and decided to 4 remain where he was. But he went on to say this in 5 evidence:</p> <p>6 "Now let's say I would be convinced by this person 7 to go out, and if something had happened to me, how 8 would that person feel if I had not made it out, 9 basically? So that's why I said ..."</p> <p>10 In fact, what he said was in that call, "Someone 11 will have me on their conscience if I leave":</p> <p>12 "So that's why I said, you know, I don't want to 13 think of someone thinking, 'Oh, because I gave him that 14 advice, look what happened to him'. How would that 15 person then live for the rest of their life?" [page 77]</p> <p>16 Mr Roncolato was in fact rescued from his flat by 17 firefighters at around 6 o'clock in the morning, but in 18 that short passage, just that last short passage, he 19 captures the essence of the challenge which fire 20 services must face in developing policy derived from 21 lessons learned by the Grenfell Tower or earlier fires. 22 This is not the Brigade's suggesting, "Well, we can't do 23 any more about it"; it is merely highlighting the 24 genuine and difficult human difficulty that arises in 25 developing policy and training on issues of that kind.</p> <p style="text-align: right;">Page 42</p>	<p>1 the NFCC which recommends a process by which certain 2 types of high-rise residential buildings should be 3 subject to a risk assessment and analysis by a suitably 4 qualified person, and, in short form, those buildings 5 particularly with ACM cladding and systems similar to 6 the Grenfell Tower fire are now subject to a system, 7 certainly in social housing, by which it is necessary to 8 develop the possibility of evacuation even before the 9 Fire Brigade get there. That is achieved by trained 10 persons in these buildings, who are on duty 24 hours 11 a day as waking watchers, who, in the case of fire, 12 alert the occupants of the building, the building 13 occupants are made aware of the evacuation process, and 14 that is how that is achieved. It's the only way it 15 actually can be achieved when there aren't fire alarms 16 all over the building and an evacuation process.</p> <p>17 So that is the position for buildings which have 18 been identified as being high risk, and that's the 19 policy which the NFCC recommends and which the London 20 Fire Brigade itself adopts. But it makes it clear that 21 a simultaneous evacuation strategy for any fire should 22 only be a temporary measure until all the risks have 23 been rectified.</p> <p>24 In addition, in London, the Brigade has provided, as 25 an interim measure, an increase in the predetermined</p> <p style="text-align: right;">Page 44</p>

<p>1 attendance required for such buildings for an interim 2 period, which increases the number of personnel and fire 3 appliances which will attend a fire in the first 4 instance. Further details of that can be found in 5 a document called the "Organisational Overview", which 6 has been disclosed by the inquiry.</p> <p>7 Importantly, though, more recently, the Brigade has 8 now introduced fire escape hoods that are designed to be 9 used by members of the public where they need rescuing 10 through smoke-filled environments. They provide 11 15 minutes' protection from four of the main fire gases 12 and can be worn by conscious or unconscious persons. 13 They're now carried on all firefighter breathing 14 apparatus sets, and there is also a reserve available if 15 it becomes necessary in a more major incident.</p> <p>16 Importantly, the Brigade, together with the Kent 17 Fire and Rescue Service, are the first fire and rescue 18 services in the country to adopt the use of them. In 19 fact, they have already proved useful, and have been 20 engaged most recently in a fire in which a child was 21 able to leave a 2nd floor property through the building 22 with the smoke hood, rather than run the risk of being 23 rescued by a ladder. There are many instances in which 24 they're useful. So that has been done.</p> <p>25 Now, there are further actions which I am not going</p> <p style="text-align: center;">Page 45</p>	<p>1 being able to capture all of the information identified 2 in various policies, in particular those which are 3 relevant to section 7(2)(d) visits, familiarisation 4 visits.</p> <p>5 Perhaps just very briefly touching upon all of those 6 issues, those which are perhaps most important.</p> <p>7 Having acknowledged that position, sir, in relation 8 to the operational risk data, the Brigade is now in the 9 process of reviewing the way in which familiarisation 10 visits under section 7(2)(d) are conducted in relation 11 to policy, including the system which governs the way in 12 which risk information is gathered, recorded and 13 disseminated; including also a review of the way in 14 which buildings are assessed; the introduction of 15 a scheme by which fire station staff are provided with 16 increased fire safety knowledge when carrying out 17 7(2)(d) visits, and also when carrying out premises risk 18 assessments and operational database visits. So there 19 is a new scheme in development to improve that system. 20 And, of course, a full review of training to reflect all 21 of those issues.</p> <p>22 The statement, for those who wish to read it in more 23 detail, also looks at the issues concerning the 24 evacuation of buildings with a stay-put strategy and the 25 measures which are put in place in relation to that, and</p> <p style="text-align: center;">Page 47</p>
<p>1 to go through in detail, but they appear in 2 paragraphs 75, sir, to 110 of the Brigade's statement. 3 But I do need to touch upon some of them.</p> <p>4 There are several actions and several projects which 5 are now underway to learn the lessons which have been 6 learned from the night of the fire. The accounts which 7 are given in the statement frankly acknowledge where 8 procedures and policies and training fall below the 9 standard required by the Brigade and the actions taken 10 to address them. It details further actions concerning 11 the use of equipment for firefighting and rescue, and 12 an analysis of the work undertaken to improve 13 fire ground-control communication.</p> <p>14 Operational risk information, the ORD. It is 15 necessary that I say something about that.</p> <p>16 The Brigade accepts that the quality of the 17 operational risk information recorded for Grenfell Tower 18 at the time of the fire fell below the standards 19 expected by the Brigade, as was acknowledged by the 20 London Fire Commissioner during her oral evidence. It 21 also points to a wider concern the Brigade has in the 22 way that this type of information is gathered, recorded 23 and disseminated across the organisation. The Brigade's 24 witnesses have highlighted certain issues and practical 25 challenges, particularly for fire station personnel, in</p> <p style="text-align: center;">Page 46</p>	<p>1 the recognised need that policy note 633 does not 2 provide specific guidance to commanders and firefighters 3 on how evacuation might be achieved. Amendments are 4 being looked at for that. But I repeat what I said 5 earlier, that that is not a simple matter because of the 6 nature and design of buildings.</p> <p>7 On incident communications, the Brigade is reviewing 8 the whole of the communications issue in relation to 9 fire ground and control, and it is proposed to upgrade 10 those communications, both for fire ground radios and 11 for breathing apparatus radios, obviously together with 12 training.</p> <p>13 In relation to Brigade control, it is right that 14 I repeat that the Brigade accepts that its policies and 15 procedures for handling calls, the provision of fire 16 survival guidance and the system of communication to and 17 from the fire ground just didn't provide for an incident 18 on this scale. Therefore, measures are now being 19 addressed to include the exploration of a new dedicated 20 Airwave talkgroup to enable different fire services and 21 different control rooms to communicate with each other 22 and to effectively exchange communication in case of 23 a major disaster.</p> <p>24 There is to be a revision and is a revision in place 25 of the fire survival guidance policy, 790, fire survival</p> <p style="text-align: center;">Page 48</p>

<p>1 guidance refresher training is being undertaken, and 2 a range of other measures in connection with that. 3 Other issues which those who read the statement will 4 see are that there are reviews of policy concerning 5 high-rise policy firefighting itself, that's all being 6 looked at. Incident command training is also being 7 looked at, particularly in relation to the 8 re-enforcement of the FSG co-ordinator role on the fire 9 ground, and in relation to the search co-ordinator, 10 Brigade control and the incident commander. All of 11 those issues came sharply into focus in the evidence in 12 Phase 1. 13 Sir, in conclusion, can I say that the Brigade will 14 continue to pursue the actions which it has identified 15 in the statement that I've just summarised, those last 16 few issues, and, where practical, will adopt measures to 17 address the lessons which can be learned from the 18 Grenfell Tower fire. 19 It is expected that the inquiry will wish to examine 20 many of those issues further in Phase 2, and the Brigade 21 will continue to provide every assistance it can to that 22 end. But the Brigade does return to the question it 23 posed in its opening statement back in June, as 24 an expression of the issues with which fire services 25 nationally must wrestle. I'm not going to read out that</p> <p style="text-align: center;">Page 49</p>	<p>1 which arise from the lessons learned in the 2 Grenfell Tower fire, they cannot extend to overcoming 3 the shortcomings in the system of building regulation. 4 That is the primary basis upon which the fire safety is 5 maintained in high-rise residential buildings. Sir, 6 these are challenging issues which must be scrutinised 7 in Phase 2. 8 But the Brigade is well aware that it has its own 9 lessons to learn. We're not pointing fingers, we're 10 simply saying that's the reality of the position. Some 11 of the evidence at Phase 1 has demonstrated that. 12 So, for the present, the Brigade repeats its 13 continuing commitment to the bereaved, survivors and 14 residents of Grenfell Tower to do everything in its 15 power to meet their justifiable demand for answers to 16 their questions, and that meaningful lessons, by the 17 Brigade, some of which have already been identified, 18 which I've outlined, must be learned from the night of 19 14 June 2017. 20 Sir, I don't think I can help you further unless -- 21 SIR MARTIN MOORE-BICK: Thank you very much indeed, 22 Mr Walsh. You've been very economical, for which you 23 should always be thanked, but I hope you feel you've 24 covered everything you want to cover. 25 MR WALSH: I feel I've been given a very full opportunity.</p> <p style="text-align: center;">Page 51</p>
<p>1 question again, but in essence, it poses the simple 2 question, whether it is in the public interest to make 3 fundamental changes to the building regulation regime, 4 the design, construction and building control regimes, 5 so as to ensure that residential premises, particularly 6 high-rise premises, are safe so that residents and the 7 public can be confident that they are safe, and so that 8 fire services, when they attend to deal with fires, can 9 be equally confident; or whether -- it might be "and", 10 but for the moment I would say "or" -- fire services 11 should plan across the country to fight fires and carry 12 out rescues in buildings which are wholly non-compliant 13 with safety provision. If that is so, so be it, but 14 there are very significant challenges in planning for 15 that. Some of those challenges I've highlighted today. 16 Those questions are obviously not mutually 17 exclusive, sir, but it is finally important to bear in 18 mind that fire and rescue services undertake their 19 functions in the built environment on the assumption 20 that it is governed by rigorous regulations, robust 21 testing, competent individuals making choices about 22 methods of construction and the materials used to ensure 23 buildings are safe. 24 Whatever changes may be made in fire service 25 policy -- and there will be, that is a commitment --</p> <p style="text-align: center;">Page 50</p>	<p>1 I'm grateful for it, sir. 2 SIR MARTIN MOORE-BICK: Thank you very much. 3 That might be a convenient point to have a short 4 break. We'll break now for 10 minutes and resume at 5 11.35, please. Thank you. 6 (11.25 am) 7 (A short break) 8 (11.35 am) 9 SIR MARTIN MOORE-BICK: Now, the next person I'm going to 10 invite to give us a closing statement is the 11 representatives of G4, which I think for this purpose is 12 Ms Barwise; is that right? 13 MS BARWISE: Yes. 14 Closing submissions on behalf of G4 by MS BARWISE 15 MS BARWISE: Sir, I propose to address you, if I may, on 16 five matters but, before doing so, must put my 17 submissions into context. 18 On 14 June 2017, a devastating fire raged through 19 the homes and lives of the Grenfell Tower residents. 72 20 people died as a result, and many more found themselves 21 bereaved and homeless. The effects rippled yet more 22 widely as communities across the UK and overseas, 23 reflecting the diversity of the Grenfell residents, lost 24 friends and relatives. 25 I appear before you, sir, on behalf of the bereaved,</p> <p style="text-align: center;">Page 52</p>

<p>1 those who survived and local residents, all of them</p> <p>2 seeking answers as to how a fire such as this could</p> <p>3 happen in 21st century London. They seek the truth and</p> <p>4 place their trust in you and your team to find it.</p> <p>5 My five topics are (1) how an inevitable fire</p> <p>6 overwhelmed the tower; (2) the seminal events of the</p> <p>7 night in the context of the building; (3) root causes of</p> <p>8 rapid fire spread; (4) active and passive protection</p> <p>9 systems; and (5) toxic conditions on the night. I will</p> <p>10 conclude with findings we invite the inquiry to make.</p> <p>11 Turning first to the inevitability of the fire and</p> <p>12 the tower's ability to withstand it.</p> <p>13 The travesty of Grenfell is that the fire which</p> <p>14 overwhelmed it is one which its design contemplated and</p> <p>15 could easily have resisted due to its concrete</p> <p>16 compartmentation, which was originally complemented by</p> <p>17 a concrete facade.</p> <p>18 Professor Torero described the fire, which he</p> <p>19 calculates was no bigger than a frying pan fire, as</p> <p>20 an inevitable, perfectly foreseeable event, with</p> <p>21 a probability of 1; in other words, bound to happen.</p> <p>22 From the moment Grenfell Tower was enveloped in</p> <p>23 patently non-compliant cladding materials, which would</p> <p>24 both ignite easily and burn rapidly, its fire safety</p> <p>25 strategy, which depended on the stay-put principle and,</p> <p style="text-align: center;">Page 53</p>	<p>1 The first stage is breach of the compartment of</p> <p>2 flat 16 between 00.54 to 01.05 or 01.13.</p> <p>3 First, how was the compartment of flat 16 breached?</p> <p>4 The two most probable routes by which fire escaped</p> <p>5 flat 16 and entered the cladding are either through the</p> <p>6 window surround, once the uPVC has fallen away, or</p> <p>7 through the extractor fan or window. All three fire</p> <p>8 spread experts agree that the most probable route is by</p> <p>9 the defacement or falling away of the uPVC surround.</p> <p>10 The uPVC, which Professors Torero and Bisby agree loses</p> <p>11 its mechanical strength at low temperatures within 5 to</p> <p>12 11 minutes, served as a single barrier between the</p> <p>13 interior of the tower and the components of the cladding</p> <p>14 system. The experts agree that the falling away of the</p> <p>15 uPVC likely occurred first, exposing a complex system of</p> <p>16 combustible materials to heat and smoke, facilitating</p> <p>17 ignition.</p> <p>18 Beyond that, we are unlikely ever to know the</p> <p>19 precise sequence in which the materials burned. As</p> <p>20 Professor Torero said, the importance to the overall</p> <p>21 outcome of what was the first thing to catch fire is</p> <p>22 probably not that significant.</p> <p>23 Dr Lane considers the fire exited the top of the</p> <p>24 window by the column. Professors Torero and Bisby also</p> <p>25 favour this route, although they approach it by</p> <p style="text-align: center;">Page 55</p>
<p>1 in turn, on compartmentation, became invalid and</p> <p>2 dangerous. All three fire experts agree that once the</p> <p>3 building was clad in this particular cladding system,</p> <p>4 a stay-put policy was no longer appropriate. It is</p> <p>5 clear from the experts' evidence that the installation</p> <p>6 of this particular cladding system, so complex that its</p> <p>7 performance cannot be properly, precisely assessed,</p> <p>8 inexorably led to the disaster that followed.</p> <p>9 As Dr Lane forcefully put it, Grenfell Tower should</p> <p>10 never have been handed over after the refurbishment with</p> <p>11 this rainscreen system given the stay-put policy. The</p> <p>12 tower represented a health hazard so egregious it should</p> <p>13 never have been occupied. Given the combination of fire</p> <p>14 inevitability, coupled with a stay-put policy, it is no</p> <p>15 exaggeration to describe the tower, as refurbished, as</p> <p>16 a deathtrap, as indeed our clients did describe it.</p> <p>17 My second topic is the seminal events of the night,</p> <p>18 Professor Torero's four stages.</p> <p>19 Before I outline each stage, we should bear in mind</p> <p>20 Professor Torero's observation that the defining</p> <p>21 characteristic of a high-rise building is that the</p> <p>22 timescales of allowing people safe time to exit will</p> <p>23 converge with the time in which parts of the building</p> <p>24 will fail, and that the fire safety strategies assume</p> <p>25 parts will fail, but that the escape route remains safe.</p> <p style="text-align: center;">Page 54</p>	<p>1 different but complementary analyses. Professor Torero</p> <p>2 uses fire dynamics and Professor Bisby analyses images</p> <p>3 to determine the sequence of ignition of the cladding.</p> <p>4 Professor Torero stressed that both analyses are to be</p> <p>5 considered.</p> <p>6 The alternative route of ignition by smoke venting</p> <p>7 from the window is not a likely scenario.</p> <p>8 Professor Torero is satisfied this was not the means of</p> <p>9 escape since the temperature of smoke venting from the</p> <p>10 flat 16 window was insufficient to cause fire in the</p> <p>11 aluminium panels.</p> <p>12 The properties of any given material do not indicate</p> <p>13 which would ignite first. Whilst those with low thermal</p> <p>14 inertia will ignite much faster, it depends where each</p> <p>15 material was in relation to the flame. Further, the</p> <p>16 contribution of exposed polyethylene edges of the</p> <p>17 Arconic aluminium cladding panels will have changed the</p> <p>18 outcome, in that they will ignite faster than other</p> <p>19 areas of the panel; but, given the proximity of other</p> <p>20 materials, it is impossible to identify the significance</p> <p>21 of that, except perhaps at the crown.</p> <p>22 The experts are agreed that in the event of any fire</p> <p>23 starting near a window, there was a high probability of</p> <p>24 fire spread into the cladding.</p> <p>25 The second question during this first stage is: when</p> <p style="text-align: center;">Page 56</p>

<p>1 was the compartment breached?</p> <p>2 There are two competing views. Whichever view is</p> <p>3 accepted as correct, all three experts agree that the</p> <p>4 fire had breached the compartment between 01.05 and</p> <p>5 01.13, and had very obviously breached the compartment</p> <p>6 by between 01.11 and 01.13.</p> <p>7 Taking the two alternative definitions of</p> <p>8 compartment breach in turn, the first is that it occurs</p> <p>9 the moment the fire leaves the compartment and enters</p> <p>10 the cladding. Professor Torero's view is that the</p> <p>11 compartment is breached at a defined moment in time;</p> <p>12 namely when the fire is within the cladding outside</p> <p>13 flat 16, which he says occurred between 01.05 and 01.08</p> <p>14 and was fairly obvious by 01.11.</p> <p>15 Professor Bisby was willing to accept, at Grenfell,</p> <p>16 because of the inevitability of fire spread, that the</p> <p>17 compartment was breached at the moment when the fire was</p> <p>18 in the cladding outside flat 16, so, on his reckoning,</p> <p>19 01.09.</p> <p>20 The alternative definition of compartment breach is</p> <p>21 that it occurs only when the fire enters another flat.</p> <p>22 Dr Lane's view is that from the perspective of ADB,</p> <p>23 compartmentation is not assumed to have been breached</p> <p>24 until the flame is in the next compartment. On this</p> <p>25 basis, compartmentation is breached at 01.13. Dr Lane</p> <p style="text-align: center;">Page 57</p>	<p>1 needed. On her view, compartmentation had been breached</p> <p>2 at 01.13, but stay put did not substantially fail, as</p> <p>3 she put it, until 01.26, which she chose because by then</p> <p>4 20 flats were visibly on fire.</p> <p>5 Dr Lane appears to have had in mind the point at</p> <p>6 which the firefighters ought to have perceived the</p> <p>7 failure of stay put. In fact, the firefighters</p> <p>8 perceived that defend in place, on which stay put</p> <p>9 depends, had failed by 01.13, since at that time the</p> <p>10 Brigade ordered a hydraulic platform, which is only</p> <p>11 consistent with external firefighting. As Dr Lane said</p> <p>12 in her evidence, that was a recognition that unplanned</p> <p>13 for external firefighting is becoming necessary.</p> <p>14 I now move on to stage 2, vertical fire spread up</p> <p>15 the east face, 01.05 or 01.13 to 01.29.</p> <p>16 Vertical spread at Grenfell took approximately 12 to</p> <p>17 15 minutes and averaged 4 metres per minute. That rate</p> <p>18 of spread puts Grenfell among the slowest of 12</p> <p>19 international cladding fires examined by</p> <p>20 Professor Torero. From the early stages -- so 01.13 to</p> <p>21 01.16 -- the fire had spread along the tip and edges of</p> <p>22 column B5. During vertical flame spread, the flame</p> <p>23 propagated laterally northwards but not southwards.</p> <p>24 Between 01.18 and 01.28, the vertically propagating fire</p> <p>25 had already ignited internal fires on the 5th, 12th and</p> <p style="text-align: center;">Page 59</p>
<p>1 relied on diagram 33 of ADB, but ADB implies that</p> <p>2 compartmentation is breached simply on spread beyond the</p> <p>3 compartment of origin. Once the fire is in the</p> <p>4 cladding, it is, by definition, no longer within the</p> <p>5 compartment of origin.</p> <p>6 Once compartmentation is breached, evacuation is the</p> <p>7 only viable option. Professor Torero was clear that</p> <p>8 once compartmentation is breached, evacuation is</p> <p>9 necessary to secure the safety of the residents and is</p> <p>10 the only viable option at that point. That is because</p> <p>11 stay put depends on early extinction of the internal</p> <p>12 fire, namely the tactics known as "defend in place",</p> <p>13 which Dr Lane defined in her first report as meaning</p> <p>14 early extinction of the fire. Once that early effort</p> <p>15 has failed, the stay-put strategy must change to</p> <p>16 evacuate. The fact that, in the past, as Mr Walsh told</p> <p>17 us this morning, the Brigade has ignored a breach of</p> <p>18 compartmentation by sectorisation and has managed to</p> <p>19 extinguish the fire does not alter these fundamental</p> <p>20 principles.</p> <p>21 While Dr Lane was unwilling to say that stay put had</p> <p>22 failed at the moment compartmentation was breached, she</p> <p>23 accepted a high degree of compartmentation was needed to</p> <p>24 support a stay-put strategy, and, if that cannot be</p> <p>25 achieved, a total evacuation is highly likely to be</p> <p style="text-align: center;">Page 58</p>	<p>1 22nd floors.</p> <p>2 Combustion within the cavity in the column and in</p> <p>3 the cavity behind the spandrels is considered by the</p> <p>4 experts to be complex, and we may never know the precise</p> <p>5 mechanism. What we do know is that the flames elongate</p> <p>6 as they seek oxygen and fuel, leading to flame extension</p> <p>7 of five to ten times that of the expected lengths of</p> <p>8 an unenclosed fire, and the fuel-rich cavity is kept hot</p> <p>9 by the insulation. The complexity of the way the</p> <p>10 insulation interacted with the polyethylene within the</p> <p>11 cavity is also significant, as I will explain shortly.</p> <p>12 Professor Torero tells us that the width of the</p> <p>13 cavity is fundamental to determining the extent to which</p> <p>14 the cavities acted as chimneys. If the width of the</p> <p>15 cavity is either too great or too small, then the fire</p> <p>16 dies out.</p> <p>17 During the second phase, residents fled the flat 6s,</p> <p>18 and in this phase the lobbies and stairwell appear to</p> <p>19 have been relatively smoke-free.</p> <p>20 The second stage was what Professor Purser describes</p> <p>21 as the golden early period during any fire when people</p> <p>22 can make a safe escape, and after which the fire gets</p> <p>23 exponentially worse.</p> <p>24 The third stage is compromise of the interior</p> <p>25 between 01.09 to 01.50 or 02.00. This stage began when</p> <p style="text-align: center;">Page 60</p>

<p>1 the fire reached the top of the east face and began to</p> <p>2 spread laterally by means of the crown.</p> <p>3 The crown was responsible for one of the very</p> <p>4 unusual features of the Grenfell fire; namely that</p> <p>5 horizontal spread enveloped the entirety of the building</p> <p>6 within less than 3 hours. The crown, described by</p> <p>7 Professor Bisby as essentially a fuse around the top of</p> <p>8 the building, was a wholly unnecessary architectural</p> <p>9 feature, whose sole function was aesthetic. Its</p> <p>10 contribution to lateral fire spread was, however,</p> <p>11 devastating, taking 24 lives from the 23rd floor alone,</p> <p>12 to say nothing of the many lives lost on the floors</p> <p>13 below caused by fires starting by dripping materials</p> <p>14 from the crown.</p> <p>15 The crown was made purely of Arconic cladding panels</p> <p>16 shaped into fins and without insulation behind them.</p> <p>17 The rate of lateral spread at the crown was half a metre</p> <p>18 per second, setting the pace for lateral propagation.</p> <p>19 Lateral spread at the crown was significant for two</p> <p>20 particular reasons.</p> <p>21 First, it effectively compromised the flats above</p> <p>22 level 20. The rate at which those flats were penetrated</p> <p>23 was at a similar rate to the progression of fire in the</p> <p>24 crown. These flats suffered from heating, melting and</p> <p>25 dripping of polyethylene from the crown.</p> <p style="text-align: center;">Page 61</p>	<p>1 the extract fans and the uPVC window surrounds, allowing</p> <p>2 flame to re-enter.</p> <p>3 During this third phase, evolution of conditions in</p> <p>4 the stairs and the lobbies is very dynamic. Communal</p> <p>5 stairwells and lobbies on levels 10 to 14 and above</p> <p>6 level 20 intermittently become actually or seemingly</p> <p>7 impassable to occupants by about 01.50.</p> <p>8 Another key feature of this third phase is that</p> <p>9 smoke spread from the east to the west face of the tower</p> <p>10 relatively early on at 01.57. At this time, the flame</p> <p>11 front had not yet reached the west of the tower,</p> <p>12 suggesting a breach already of two layers of</p> <p>13 compartmentation.</p> <p>14 The opening of doors and the doors' failure to close</p> <p>15 appears to have played a key role in the loss of</p> <p>16 compartmentation and smoke spread during this phase, but</p> <p>17 further investigation is required.</p> <p>18 The convergence of timescales that I talked about</p> <p>19 earlier also becomes particularly acute in this third</p> <p>20 phase, as the tower's safety systems are failing,</p> <p>21 limiting the opportunities for residents to evacuate.</p> <p>22 The stairs and lobbies are affected by firefighting</p> <p>23 activities bringing firefighters into conflict with the</p> <p>24 residents' need to escape.</p> <p>25 Finally, Professor Torero identifies his fourth</p> <p style="text-align: center;">Page 63</p>
<p>1 Second, the crown drove horizontal and vertical</p> <p>2 spread elsewhere over the building. Melting and burning</p> <p>3 polyethylene and molten debris from the crown fell to</p> <p>4 lower levels, igniting fires which propagated vertically</p> <p>5 upwards. The phenomenon of falling, burning debris was</p> <p>6 also the key mechanism of horizontal spread at the lower</p> <p>7 levels.</p> <p>8 It is tempting to think that solely the Arconic</p> <p>9 panels were responsible for the devastating effects of</p> <p>10 rapid lateral spread caused by the crown, since there</p> <p>11 was no insulation behind the fins. It must be</p> <p>12 remembered, however, that the melting, dripping</p> <p>13 polyethylene fell into the insulation and other</p> <p>14 materials in the cladding, so whilst the speed of</p> <p>15 lateral spread at the crown clearly implicates Arconic</p> <p>16 panels as being the most significant cause of rapid fire</p> <p>17 spread, in terms of lives lost as a result of the crown,</p> <p>18 the other materials also played a role.</p> <p>19 The arrangement of materials around windows is also</p> <p>20 important in this phase, as in other phases of the fire,</p> <p>21 as it provided a means for the external fire to re-enter</p> <p>22 the flats. Heat fluxes generated by the fire would</p> <p>23 impose thermal loads an order of magnitude greater than</p> <p>24 the components were designed to tolerate, and which</p> <p>25 would inevitably cause a failure of the window glazing,</p> <p style="text-align: center;">Page 62</p>	<p>1 stage, the untenable stage, until the extinction of the</p> <p>2 fire. Professors Torero and Purser define untenability</p> <p>3 as a combination of physiological and behavioural</p> <p>4 conditions. Both observe that although conditions in</p> <p>5 the stairs were often perilous during this period, they</p> <p>6 were variable, such that escapes were possible, even</p> <p>7 after 3.00 am.</p> <p>8 My third topic is the causes of failure of the</p> <p>9 tower.</p> <p>10 The root cause of the failure of the tower is the</p> <p>11 facade and the window assemblies.</p> <p>12 I turn first to the question of how compliance of</p> <p>13 the facade and windows is to be achieved under the</p> <p>14 Building Regulations.</p> <p>15 Functional requirement B4.(1) of the regulations</p> <p>16 requires that:</p> <p>17 "B4.(1) The external walls of the building shall</p> <p>18 adequately resist the spread of fire over the walls ...</p> <p>19 having regard to the height, use and position of the</p> <p>20 building."</p> <p>21 Non-mandatory guidance on how this functional</p> <p>22 requirement can be achieved is given in the form of</p> <p>23 Approved Document B, which I'll call ADB. There are two</p> <p>24 principal routes for compliance suggested by ADB: either</p> <p>25 the large-scale test or the so-called prescriptive</p> <p style="text-align: center;">Page 64</p>

<p>1 route. The third route is a holistic fire safety</p> <p>2 assessment of the building, and industry suggests</p> <p>3 a fourth route might be a desktop study.</p> <p>4 As there is no evidence of any route to compliance</p> <p>5 having been followed, the prescriptive route was adopted</p> <p>6 by default by the Grenfell contractors and design team.</p> <p>7 That route sets requirements for insulation and outer</p> <p>8 surfaces of external walls by reference to national and</p> <p>9 European standards, and requires proof of compliance by</p> <p>10 product certificates. No certificates were, however,</p> <p>11 provided.</p> <p>12 Dr Lane has identified the reaction to fire</p> <p>13 classification which the product should have met by</p> <p>14 reference to the European standard BS EN 13501, which</p> <p>15 classes products as A1, described as non-combustible;</p> <p>16 A2, known in the national system as products of limited</p> <p>17 combustibility; or, below A1 and A2, classes B down</p> <p>18 to F.</p> <p>19 As can be seen from Dr Lane's table at figure F.4 of</p> <p>20 her report, there are similarly low limits of thermal</p> <p>21 energy output imposed on both A1 and A2, but there are</p> <p>22 no such limits on classes B to F. Both A1 and A2 can</p> <p>23 pass the non-combustibility test, BS 1182, though to</p> <p>24 achieve A2, that is not necessarily required.</p> <p>25 The relative flammability of A1 and A2 as against</p> <p style="text-align: center;">Page 65</p>	<p>1 industry as petrol.</p> <p>2 Dr Lane considers that not one of the materials in</p> <p>3 the facade complied with ADB or was compliant with the</p> <p>4 Building Regulations. Professor Bisby is equally</p> <p>5 adamant that functional objective B4 was clearly not</p> <p>6 achieved at Grenfell Tower.</p> <p>7 The consequences of this non-compliance was that the</p> <p>8 fire would spread, the spread would be rapid and, once</p> <p>9 in the cladding, nothing could impede the spread of</p> <p>10 smoke and fire. As Professor Bisby said, if a fire is</p> <p>11 ignited in a cladding system such as this, made from</p> <p>12 materials such as these, under any circumstances, we</p> <p>13 have to expect it to spread quickly and catastrophically</p> <p>14 because of the nature of the materials involved.</p> <p>15 I turn next to the windows, starting with the uPVC</p> <p>16 linings of the sill, head and sides of the windows on</p> <p>17 the interior of the tower.</p> <p>18 All three experts acknowledge the alarmingly low</p> <p>19 temperature at which uPVC loses mechanical stiffness.</p> <p>20 These uPVC surrounds demonstrate the complexity of fire</p> <p>21 engineering design. On the one hand, the material is</p> <p>22 fire retardant with a high ignition temperature. On the</p> <p>23 other hand, it deforms at very low temperature. Whilst</p> <p>24 Dr Lane will be more concerned about what lay beneath</p> <p>25 the uPVC than the material itself, Professor Bisby noted</p> <p style="text-align: center;">Page 67</p>
<p>1 classes B to F products undoubtedly matters in terms of</p> <p>2 the ease of ignition and rate of burning.</p> <p>3 At Grenfell, the insulation should, by reference to</p> <p>4 ADB, have been minimum A2-s3 d2. The insulation</p> <p>5 products in fact used were not in the same league, and</p> <p>6 ranged from European classes D down to F, where test</p> <p>7 evidence was even available.</p> <p>8 The ACM cladding panel surfaces should've been</p> <p>9 class 0, national system, or European class B-s3 d2 or</p> <p>10 better, but there is no valid certificate supporting any</p> <p>11 such grading.</p> <p>12 Arconic's Reynobond PE 55 cassette system was</p> <p>13 European class E, but even then, only when tested with</p> <p>14 a class A2 substrate. That means being tested up</p> <p>15 against a piece of A2. Absent that protection -- and at</p> <p>16 Grenfell, that protection was absent -- one assumes that</p> <p>17 Reynobond would have achieved a yet lower classification</p> <p>18 than class E.</p> <p>19 As I said in opening, G4 will submit in Phase 2 that</p> <p>20 the core of the panels should have been of limited</p> <p>21 combustibility, given the functional requirement of the</p> <p>22 Building Regulations and ADB.</p> <p>23 At Grenfell, the core of the panels equated, as</p> <p>24 Professor Bisby in his first presentation showed us, to</p> <p>25 diesel or lighter fuel, and is openly referred to by</p> <p style="text-align: center;">Page 66</p>	<p>1 if you are relying on this material to provide any sort</p> <p>2 of performance in a fire, you ought to be deeply</p> <p>3 suspicious of the ability to provide it.</p> <p>4 The uPVC surrounds acted by default as cavity</p> <p>5 barriers between the interior of the window and the</p> <p>6 cavity of the cladding. UPVC is wholly unsuitable as</p> <p>7 a cavity barrier given its propensity to melt and should</p> <p>8 not have been used. No proper cavity barrier was</p> <p>9 designed, even though they are required at windows.</p> <p>10 Accordingly, the window assembly was not compliant</p> <p>11 with ADB, nor functional requirement B3.(4) of the</p> <p>12 regulations, which requires that the building shall be</p> <p>13 designed and constructed so that the unseen spread of</p> <p>14 fire and smoke within the concealed spaces in its</p> <p>15 structure and fabric is inhibited.</p> <p>16 The BRE report of 1992 to government following the</p> <p>17 Knowsley Heights fire cautioned against the use of uPVC</p> <p>18 near polymeric materials such as the polyethylene or</p> <p>19 insulation. Given the known toxicity of uPVC,</p> <p>20 sufficient at Grenfell to intoxicate within</p> <p>21 approximately 13 minutes, according to</p> <p>22 Professor Purser's estimation, it is remarkable that</p> <p>23 they are used at a recognised point of fire re-entry,</p> <p>24 namely the windows. What is clear at Grenfell is that</p> <p>25 the material was being relied on as a cavity barrier,</p> <p style="text-align: center;">Page 68</p>

17 (Pages 65 to 68)

<p>1 even though incapable of being one.</p> <p>2 There were five key failings in the design of the</p> <p>3 window assemblies according to Dr Lane:</p> <p>4 1. The window were pushed outward compared to the</p> <p>5 originals. This brought two specific gaps within the</p> <p>6 internal wall construction, both of which were</p> <p>7 a potential path of fire spread.</p> <p>8 2. The infill panels between the windows were clad</p> <p>9 with Aluglaze insulating panels containing Styrofoam.</p> <p>10 Given that this is insulation, it should have been</p> <p>11 limited combustibility, or A2. The evidence suggests,</p> <p>12 in fact, it was as low as class E.</p> <p>13 3. A void was left between the original concrete</p> <p>14 and the Aluglaze infill panels, which provided a route</p> <p>15 for fire spread.</p> <p>16 4. The windows were reduced in size, leaving a 30</p> <p>17 to 120-millimetre gap between the sides of the windows</p> <p>18 and the column, which was covered with an EPDM membrane</p> <p>19 backed with insulation. The insulation materials were</p> <p>20 classed E and F instead of limited combustibility. The</p> <p>21 EPDM led directly onto the insulation in the cladding</p> <p>22 cavity and could be burned rapidly through.</p> <p>23 5. The window surrounds contained highly</p> <p>24 combustible materials, including the original wooden</p> <p>25 sills and internal wood lining, and the purlboard above</p> <p style="text-align: center;">Page 69</p>	<p>1 since the 1980s. Its behaviour cannot be considered</p> <p>2 surprising by any competent fire safety professional.</p> <p>3 Professor Bisby considered the role of the polyethylene</p> <p>4 as particularly important, overshadowing the effect of</p> <p>5 the insulation.</p> <p>6 Professor Torero observed that due to the</p> <p>7 polyethylene being thermally thin, once ignited, it will</p> <p>8 spread at a much faster rate than PIR insulation. The</p> <p>9 aluminium skins, which melt in typical fire</p> <p>10 temperatures, provided no protection against the</p> <p>11 polyethylene within it, due to the extensive exposed</p> <p>12 polyethylene edges and given that polyethylene melting</p> <p>13 causes splitting of the aluminium.</p> <p>14 When considering the behaviour of the Reynobond</p> <p>15 panels, it's important to consider the role of the PIR</p> <p>16 insulation. There were two types of insulation used on</p> <p>17 the facade: Celotex RS5000, class D, and Kingspan</p> <p>18 Kooltherm K15, for which there was no test evidence.</p> <p>19 The Celotex product was PIR. The Kingspan product was</p> <p>20 phenolic foam, but Professor Bisby considers its</p> <p>21 behaviour in flames similar to PIR. Neither were</p> <p>22 anything approaching limited combustibility.</p> <p>23 While the experts were clear on the primacy of</p> <p>24 polyethylene as a means for fire spread, the insulation</p> <p>25 clearly did have a contribution, but the extent is more</p> <p style="text-align: center;">Page 71</p>
<p>1 and below the windows.</p> <p>2 In summary, as Dr Lane said, the type of reveal</p> <p>3 lining materials and how they were arranged provided no</p> <p>4 means to control the spread of fire and smoke. They had</p> <p>5 no or, at best, very little fire-resisting performance.</p> <p>6 Turning back to the facade as a whole, it's</p> <p>7 important to bear in mind that the components of the</p> <p>8 facade function together. The materials interact in</p> <p>9 ways that are not predictable, and this may be</p> <p>10 exacerbated further by geometry, to create what Dr Lane</p> <p>11 described as a perfect combustion process. This means</p> <p>12 that, when considering the facade, we cannot view the</p> <p>13 materials in isolation. It does not, however, absolve</p> <p>14 any of the materials; each played their role.</p> <p>15 I now consider the role of Arconic's Reynobond PE 55</p> <p>16 smoke silver aluminium panels.</p> <p>17 The polyethylene within Arconic's aluminium panels,</p> <p>18 which, as I have said, equates to lighter fuel, had</p> <p>19 devastating consequences for vertical and horizontal</p> <p>20 flame spread around the crown. The experts agree on</p> <p>21 particular dangers posed by this product.</p> <p>22 Dr Lane considered it contributed to the most rapid</p> <p>23 of the observed fire spread. Professor Bisby noted the</p> <p>24 reaction to fire of thermoplastic polymers, including</p> <p>25 polyethylene, is well known and documented and has been</p> <p style="text-align: center;">Page 70</p>	<p>1 difficult to measure. Professors Torero and Bisby were,</p> <p>2 however, clear that the low thermal inertia of PIR,</p> <p>3 which was lower than the other elements of the cladding,</p> <p>4 will lead to much faster ignition of the PIR.</p> <p>5 The PIR also performed a very effective supporting</p> <p>6 role to the polyethylene. First, because its mass was</p> <p>7 greater than the polyethylene or the other combustibles,</p> <p>8 hence it represented a large amount of fuel and could</p> <p>9 burn for longer than other materials. Second, the</p> <p>10 combustion of polyethylene and PIR is mutually</p> <p>11 supportive through a process called radiative feedback.</p> <p>12 That meant the PIR's insulating capability prevented</p> <p>13 heat loss, and its release of pyrolysis products</p> <p>14 assisted acceleration of upward flame spread, even</p> <p>15 though polyethylene was the main driver of upward</p> <p>16 spread.</p> <p>17 In short, whereas polyethylene determines the speed</p> <p>18 at which the fire propagates, the role of the PIR</p> <p>19 dictates speed of ignition and duration of burning.</p> <p>20 While both products pose their own particular dangers,</p> <p>21 these dangers were amplified by their interaction with</p> <p>22 each other.</p> <p>23 As I have said, the insulation should all have been</p> <p>24 A2, or limited combustibility, but in fact ranged</p> <p>25 between classes D down to F.</p> <p style="text-align: center;">Page 72</p>

<p>1 Given the extent of the inferno which ensued, it may</p> <p>2 be suggested that, as a matter of causation, it was</p> <p>3 irrelevant whether the insulation was of limited</p> <p>4 combustibility because it would've burned anyway. That</p> <p>5 argument overlooks the fundamental point of</p> <p>6 Professor Torero's convergence of timescales. Had the</p> <p>7 insulation used been of limited combustibility, it would</p> <p>8 not have ignited or burned as quickly, particularly at</p> <p>9 the outset, potentially enabling the Brigade to</p> <p>10 extinguish the fire before it took hold in the facade</p> <p>11 and/or enabling residents to evacuate in time.</p> <p>12 The particular properties and classification of</p> <p>13 materials, not merely the binary question of whether</p> <p>14 they are combustible or not combustible, is important.</p> <p>15 This is obvious in many ways. For example, materials</p> <p>16 such as aluminium are not combustible, but they do melt.</p> <p>17 So you cannot design safely for fire merely by focusing</p> <p>18 on combustibility.</p> <p>19 An example of that point is the cavity barriers.</p> <p>20 While there were a number of defects in the way the</p> <p>21 SIDERISE cavity barriers were installed, evidencing</p> <p>22 appalling workmanship, that is a secondary issue to the</p> <p>23 real problem; namely fundamentally flawed design.</p> <p>24 Cavity barriers would never have assisted in a facade</p> <p>25 system of this nature given the outer wall of the cavity</p> <p style="text-align: center;">Page 73</p>	<p>1 an existing building. The regulations only apply if the</p> <p>2 works are a material alteration, namely either they have</p> <p>3 the effect of making work non-compliant where previously</p> <p>4 it complied, or making a previously non-compliant system</p> <p>5 yet more unsatisfactory.</p> <p>6 Starting with the doors, there is clear evidence</p> <p>7 that doors may have failed to provide the degree of</p> <p>8 compartmentation required, since very significant smoke</p> <p>9 spread was experienced at a relatively early stage,</p> <p>10 including the possible movement of smoke through two</p> <p>11 compartments.</p> <p>12 Dr Lane has assessed both flat and stair doors. As</p> <p>13 to flat doors, 106 were replaced in 2011, but 14 were</p> <p>14 not. These 14 were all lost in the fire and Dr Lane is</p> <p>15 unaware of their specification, so cannot confirm</p> <p>16 whether they complied with the applicable requirements.</p> <p>17 The 2011 replacement doors were Masterdor Suredoors,</p> <p>18 but Dr Lane finds they didn't comply with the then</p> <p>19 current standard because the test did not demonstrate</p> <p>20 30 minutes' integrity.</p> <p>21 A critical failing of the doors was the lack of</p> <p>22 functioning self-closers. The DCLG sleeping guide and</p> <p>23 LGA guide both require self-closers. Yet Dr Lane</p> <p>24 identifies a systemic problem of malfunctioning</p> <p>25 self-closing devices. The evidence suggests an alarming</p> <p style="text-align: center;">Page 75</p>
<p>1 contains combustible polyethylene and the aluminium</p> <p>2 itself will deflect and melt.</p> <p>3 What is worse, in an illustration of the complexity</p> <p>4 of fire engineering in facade systems, cavity barriers</p> <p>5 could actually have been a mechanism of fire spread, in</p> <p>6 that they created ledges on which the fires could sit.</p> <p>7 I now turn to my fourth topic, the internal active</p> <p>8 and passive safety measures.</p> <p>9 The purpose of active and passive safety measures</p> <p>10 was to protect the stairs and lobby and the residents of</p> <p>11 other flats. As we've heard from the residents, the key</p> <p>12 passive and active systems failed drastically, even when</p> <p>13 one considers that they were only designed to mitigate</p> <p>14 a fire on a single floor. The abject failure of the</p> <p>15 design of Grenfell Tower is evidenced by, first, the</p> <p>16 doors which failed to close or prevent smoke spread,</p> <p>17 thereby undermining compartmentation; second, the sheer</p> <p>18 perversity of a ventilation system which appears</p> <p>19 designed to suck smoke into the lobbies, the very thing</p> <p>20 it is supposed to protect; third, a lift which bore the</p> <p>21 hallmarks of a fire lift, but which in fact was, to all</p> <p>22 intents and purposes, an ordinary lift.</p> <p>23 In each case, it should be remembered that the</p> <p>24 Building Regulations do not automatically apply to the</p> <p>25 carrying out of replacement of such systems within</p> <p style="text-align: center;">Page 74</p>	<p>1 failure by the TMO to repair or replace door-closers.</p> <p>2 Dr Lane will investigate the precise nature of smoke</p> <p>3 spread through the flat doors per flat and lobby to</p> <p>4 ascertain the contribution of each door.</p> <p>5 Turning to the stair doors, these are the originals,</p> <p>6 but Dr Lane has established that they were not the</p> <p>7 type 2 door required by CP3 1971. Instead, they were</p> <p>8 British Standard fire check doors, which provided only</p> <p>9 20 minutes' integrity as opposed to the 30 minutes</p> <p>10 required of type 2 doors.</p> <p>11 Fire risk assessments carried out in 2016 identified</p> <p>12 instances of self-closing devices on stair doors not</p> <p>13 functioning. Dr Lane has seen no evidence that such</p> <p>14 issues were resolved before the fire.</p> <p>15 The second issue I'm going to consider is the smoke</p> <p>16 ventilation system.</p> <p>17 Dr Lane hasn't yet reached a conclusion on whether</p> <p>18 the system was compliant or not, but will do so in</p> <p>19 Phase 2.</p> <p>20 The system was a depressurisation system which</p> <p>21 should've extracted smoke from the flats themselves. In</p> <p>22 fact, it appears the design would pull smoke from the</p> <p>23 flats into the lobbies.</p> <p>24 Thirdly, the lift.</p> <p>25 The original lifts were required by CP3 1971 to be</p> <p style="text-align: center;">Page 76</p>

<p>1 fire lifts. These were replaced in 2005, by which time 2 ADB 2000 required the provision of firefighting shafts 3 with firefighting lifts in buildings over 18 metres. It 4 is only firefighting lifts which can be used for 5 evacuation. Fire lifts do not have the requisite 6 emergency power source or protection.</p> <p>7 Despite the requirements of ADB 2005, the lifts were 8 not upgraded to firefighting lifts. Furthermore, they 9 were not even fire lifts, they merely masqueraded as 10 fire lifts, because Dr Lane has found no evidence that 11 the lifts were ever connected to fire control switches 12 in 2005, when upgraded, and neither of the two fire 13 control switches functioned on the night.</p> <p>14 This is all the more astonishing given the TMO's 15 policy expressed in its fire safety strategy of 16 upgrading lifts to fire lifts. Equally shocking is the 17 misdescription in that document of the Grenfell lifts as 18 firefighting lifts.</p> <p>19 Dr Lane makes no conclusive finding of 20 non-compliance of the lift. But her provisional view, 21 given the failure to provide firefighting lifts under 22 ADB 2000 is that functional requirement B5 was not met.</p> <p>23 My final topic is toxic smoke conditions generated 24 by the burning of the polymeric materials or flat 25 contents.</p> <p style="text-align: right;">Page 77</p>	<p>1 He concludes that polyethylene at Grenfell did not 2 produce sufficient carbon monoxide to be toxic, but 3 would generate dense smoke, so being able to see only 4 25 centimetres ahead of you in the flat and, by 5 inference, in the lobbies.</p> <p>6 2. Professor Purser considers dense, toxic smoke 7 followed by flames from the exterior PIR around the 8 windows would rapidly penetrate flats through voids. 9 The PIR would've produced large quantities of carbon 10 monoxide and hydrogen cyanide, and likely resulted in 11 collapse after 23 minutes.</p> <p>12 3. The uPVC window surrounds might have yielded 13 sufficient carbon monoxide and hydrogen cyanide to cause 14 collapse within 13 minutes.</p> <p>15 This sequence leads Professor Purser to conclude 16 that toxic gases penetrating a flat in the minutes 17 before the flat contents became involved presented 18 a substantial hazard. Although Professor Purser's 19 evidence is necessarily tentative, it is rooted in data 20 applied by him conservatively. It is reasonable to 21 conclude that conditions in flats, lobbies and stairs 22 were highly toxic, and that toxicity in the first 23 few minutes of each flat fire was driven by the 24 materials from the cladding and window surrounds.</p> <p>25 As Professor Purser tells us, even if smoke is not</p> <p style="text-align: right;">Page 79</p>
<p>1 First, irritant and asphyxiant gases likely to have 2 been produced. As Professor Purser stressed, his 3 analysis is purely indicative at this stage. There is 4 limited data from the fire beyond the fatalities, 5 including the toxicology records from 15 of the 6 deceased, all of whom showed high levels of 7 carboxyhaemoglobin described as COHB. COHB levels in 8 human tissue evidences inhalation of carbon monoxide.</p> <p>9 Professor Purser considers those who died at 10 Grenfell are likely to have died from toxic gases, not 11 burns.</p> <p>12 The two people who may have fallen also showed COHB 13 levels which indicated they had had a significant dose 14 of carbon monoxide, and quite significant smoke over 15 a long period.</p> <p>16 Professor Purser identifies three fuel packages of 17 interest based on generic polymer materials in the 18 cladding, windows and flat contents. He has calculated 19 the yields of asphyxiant gases, carbon monoxide and 20 hydrogen cyanide which he thinks are likely to have been 21 produced. Professor Purser suggests a tentative 22 three-stage, sequence of how toxic gases may have 23 penetrated flats:</p> <p>24 1. He suggests a slow, minor infiltration of smoke 25 from the exterior smoke plume derived from the cladding.</p> <p style="text-align: right;">Page 78</p>	<p>1 toxic at all, it influences behaviour and determines 2 whether people live or die.</p> <p>3 To conclude, the facade which included the crown 4 patently did not adequately resist and, on the contrary, 5 promoted flame spread, and so was in breach of the 6 Building Regulations. The facade, including its crown, 7 lack of cavity barriers around windows, which could've 8 prevented initial fire escape, together with the doors, 9 and lifts are all contributors to the scale of the 10 disaster and, therefore, to lives lost.</p> <p>11 The G4 seeks findings on behalf of those who have 12 lost their loved ones, those who have survived the fire 13 and all those for whom Grenfell was their home, that the 14 facade and window assemblies did not comply with the 15 Building Regulations.</p> <p>16 The inquiry is able to and should make these 17 findings at Phase 1 on the clear evidence of the 18 experts, particularly Dr Lane and also Professors Torero 19 and Bisby regarding the building.</p> <p>20 Many of the corporate CPs agree that findings of 21 non-compliance of the facade should be made. RBKC, TMO 22 and Kingspan all invite such findings. LFB, FBU and FOA 23 assert non-compliance, and CS Stokes says it does not 24 dispute that the facade was non-compliant.</p> <p>25 The inquiry should not be deterred from making</p> <p style="text-align: right;">Page 80</p>

<p>1 findings of non-compliance on the basis of exhortations 2 from Rydon, Arconic and Celotex not to make such 3 findings on the grounds they would be premature. These 4 corporates simply wish, despite the 72 deaths, to keep 5 kicking the can down the road.</p> <p>6 The inquiry has long made clear that Dr Lane's 7 Phase 1 report would express a preliminary view as to 8 the tower's compliance with regulations. Dr Lane has 9 expressed the unequivocal opinion, based on extensive 10 investigations, that the facade and each of its 11 components were not compliant.</p> <p>12 Attempts by Arconic, Rydon and Celotex to the 13 undermine that clear finding by suggesting that the 14 evidence to date is too provisional, or that the cause 15 of the fire, nature and routes of fire spread are not 16 entirely clear, should be ignored.</p> <p>17 An example of the corporates' obfuscation is that 18 Arconic's position appears to have inexplicably changed 19 from its opening statement. At that time, it admitted 20 that if the prescriptive route to compliance applied, 21 then its panels should, on one view, have been of 22 limited combustibility and, it said, patently were not.</p> <p>23 It is now clear that the prescriptive route was 24 adopted by default and, in any case, given the evidence, 25 that far from resisting flame spread, the facade</p> <p>Page 81</p>	<p>1 and window assembly was non-compliant with the Building 2 Regulations.</p> <p>3 Those are my submissions.</p> <p>4 SIR MARTIN MOORE-BICK: Good, thank you very much indeed.</p> <p>5 MS BARWISE: Thank you.</p> <p>6 SIR MARTIN MOORE-BICK: Yes, Mr Friedman, you take up the 7 baton at this point.</p> <p>8 Closing submissions on behalf of G4 by MR FRIEDMAN</p> <p>9 MR FRIEDMAN: Sir, if I may, the plan is to be 45 minutes, 10 so can I ask you and your shorthand writers if you might 11 sit a little into the luncheon adjournment?</p> <p>12 SIR MARTIN MOORE-BICK: They are very willing and I expect 13 they won't mind too much. If it enables you to finish, 14 that would be sensible, I agree.</p> <p>15 MR FRIEDMAN: I'm grateful.</p> <p>16 Sir, what the bereaved and surviving residents want 17 and need from this inquiry is a fearless reckoning with 18 what went wrong and what must be different in the 19 future.</p> <p>20 I'm going to deal with inquiry law, an overview of 21 the emergency response, which my other colleagues will 22 develop in more detail today and tomorrow, and conclude 23 with the residents.</p> <p>24 The purpose of any public inquiry lies in the 25 statutory trigger for its establishment. This is dealt</p> <p>Page 83</p>
<p>1 promoted it. It is demonstrably non-compliant with 2 Building Regulations.</p> <p>3 Arconic, however, now avoids recognising the 4 non-compliance of its product, and instead complains 5 that it was not only its product which caused the 6 disastrous fire. Arconic submits it was only the use of 7 ACM PE in combination with the other materials that 8 created the conditions for the catastrophe.</p> <p>9 We submit it is clear that Arconic's Reynobond PE 10 panel was primarily responsible for the rapidity of fire 11 spread but, equally clearly, the insulation and other 12 components of the cladding played a role.</p> <p>13 In order to reach a finding that the cladding system 14 was non-compliant, it is not necessary for the inquiry 15 to know the precise contribution of each material to the 16 catastrophe.</p> <p>17 We also note that, even now, Rydon does not submit 18 that its work was compliant with the Building 19 Regulations, and, indeed, no one suggests the facade 20 complied.</p> <p>21 Given Dr Lane's unequivocal evidence that the facade 22 did not comply, the silence of Rydon and others on this 23 point is tantamount to an admission that its facade was 24 non-compliant.</p> <p>25 Accordingly, we invite you to find that the facade</p> <p>Page 82</p>	<p>1 with in section 1 of the Inquiries Act 2005. It 2 requires an event that has caused such public concern, 3 in the words of the statute, as to make a minister 4 conclude that an independent process of fact-finding and 5 recommendations is the only viable means to restore 6 public confidence.</p> <p>7 The ensuing process of accountable learning in 8 public is a major feature of any democracy when things 9 go profoundly wrong. It constitutes a recognition that 10 neither the ordinary processes of Parliament or 11 government, nor conventional forms of justice through 12 the courts, would be sufficient to vindicate the 13 interests of the immediate victims and wider society.</p> <p>14 For the bereaved and survivors and residents, the 15 force of that imperative has not lessened since this 16 inquiry began, it has only grown stronger.</p> <p>17 Inquiries are tribunals of truth and responsibility, 18 not liability. The distinction is reflected with great 19 nuance in section 2 of the Inquiries Act. It first 20 declares that:</p> <p>21 "(1) An inquiry panel is not to rule on, and has no 22 power to determine, any person's civil or criminal 23 liability."</p> <p>24 Then it adds the following subsection:</p> <p>25 "(2) But an inquiry panel is not to be inhibited in</p> <p>Page 84</p>

<p>1 the discharge of its functions by any likelihood of 2 liability being inferred from facts that it determines 3 or recommendations that it makes." 4 From that we take that just because the inquiry is 5 not a trial does not mean that matters of law are 6 irrelevant to the justice it delivers. Importantly, for 7 Phase 1, if there are breaches of public law and 8 regulatory duties that are relevant to the terms of 9 reference, then the inquiry must declare them. Nothing 10 in section 2 indicates otherwise; in fact, it would 11 frustrate the public interest not to do so, because 12 Parliament and others need to know where the causative 13 conduct, acts and omissions, was compatible with the 14 existing law and policy or not. 15 We have provided you with the relevant test for 16 causation and the flexible standard of proof that 17 operates in this investigatory context. Based on that 18 legal framework for these proceedings, can I make clear 19 at the outset that our overarching submission is that 20 the inquiry is in a position to say now that multiple 21 and fundamental breaches of legal duty contributed to 22 this disaster, and that all of these deaths were 23 preventable. 24 Our submissions on the proposed findings are set out 25 in detail at the end of the relevant sections of the G4</p> <p>Page 85</p>	<p>1 evacuation when compartmentation fails. There was 2 national guidance, known as Generic Risk Assessment 3.2, 3 and the London policy number 633, and Mr Weatherby QC, 4 who follows on from me, is going to deal with the 5 background and content of these two policies, including 6 what we all say, that there was a terrible gulf between 7 paper and practice. 8 What can undoubtedly be concluded by 2017 is that 9 the LFB was aware of the prospect of a high-rise fire 10 involving breach of compartmentation as a risk to life 11 to be prepared for, including specifically as a result 12 of flammable facades. 13 The inquiry now knows very well the signposts on the 14 way. The LFB's response to the Lakanal House coroner in 15 2013 said it would prepare for fires that behaved 16 inconsistently with the compartmentation principle, 17 develop contingency plans for when it did and review 18 inspection regimes and information-gathering to identify 19 risks before they arose. The two big policies that 20 I just mentioned were updated in 2015. A training 21 package on at-risk buildings was produced to educate on 22 cladding fire between the summer and autumn of 2016, and 23 RBKC, with other councils across London, were 24 specifically warned by the LFB in a letter of April 2017 25 that cladding panels could be in breach of Building</p> <p>Page 87</p>
<p>1 written submissions. In short, we say that the inquiry 2 can and should say now: 3 First, the patent failure to comply with Building 4 Regulations materially contributed to all the deaths. 5 Second, the London Fire Brigade unreasonably failed 6 to take steps that offered a realistic prospect of 7 preventing these deaths. It breached its policies and 8 legal duties under the Fire and Rescue Services Act and 9 Human Rights Act in failing to plan or train for the 10 foreseeable event of a fire of this nature. It should 11 also have pursued immediate full evacuation on the night 12 once it was clear that compartmentation of the building 13 had so comprehensively failed. 14 Third, the emergency response of the category 1 15 responders fell short of the joint operation 16 requirements of the Civil Contingencies Act 2004. 17 Now, Ms Barwise has just dealt with the building; 18 let me now outline the position on the emergency 19 response. 20 The evidence that the LFB failed to adequately train 21 and plan for a fire like the one at Grenfell Tower is 22 overwhelming. On paper, its policies and executive 23 statements embrace the need to keep pace with common 24 construction methods and the risks they pose, including 25 departing from stay-put advice and implementing</p> <p>Page 86</p>	<p>1 Regulations. 2 The state of corporate knowledge gives rise, we say, 3 to five conclusions from the Phase 1 evidence that are 4 inescapable and which various counsel will follow on to 5 address you about. 6 First, this knowledge had not filtered down to 7 station level through basic update or even operational 8 training. No Phase 1 firefighter witness could recall 9 being specifically trained about the risks of external 10 cladding fires, the revision of a stay-put policy or 11 what to do in the event of a failure of compartmentation 12 in a high-rise building fire. 13 Second, despite acknowledging the need for partial 14 or full evacuation of a high-rise building, the inquiry 15 has received no evidence of any doctrine or training on 16 this, and no witness was able to give any operational 17 insight into how to achieve it beyond unplanned, 18 door-to-door deployments as the need arose. 19 Third, the first firefighting responders gave 20 evidence that demonstrated a drastic failure to 21 appreciate the breach of compartmentation occurring 22 before their eyes. They failed to comprehend that 23 immediate evacuation was the only option and that entire 24 building failure was inevitable. 25 Fourth, certain senior personnel, including the</p> <p>Page 88</p>

<p>1 incident commanders who arrived before 2.00 am, 2 continued to mischaracterise the nature of the fire, 3 despite the obvious risk of mass fatality. 4 Fifth -- and I know that Mr Stein and Mr Mansfield 5 will look at this closely -- before the fire, 6 notwithstanding the obligations under section 7(2)(d) 7 and the various policies, Grenfell Tower was 8 a chronically underassessed building. 9 The evidence of Commissioner Cotton in response to 10 these matters brought her and her organisation into 11 disrepute. Everyone who has followed this inquiry will 12 recall the woefully ill-judged and defensive statements 13 that she wouldn't develop a training package for a space 14 shuttle to land on the Shard and that she wouldn't 15 change anything about what her firefighters did on that 16 night. Not only were those comments insulting to the 17 BSR, but they were irresponsible. They send a wholly 18 negative message about the LFB's capacity as 19 an organisation to acknowledge its shortcomings and to 20 make any real change in the future. 21 Cladding fires are rare but notorious, because they 22 bear the highest prospect of catastrophe in a high-rise 23 building. On that basis, they plainly should have been 24 planned for, but were not. 25 This is also no time to patronise, either the</p> <p style="text-align: center;">Page 89</p>	<p>1 systematic evacuation. That is why we describe their 2 operational failures as more institutional than 3 personal. Put simply, the evidence shows that this was 4 a devastating episode of looking without seeing and 5 hearing without listening. 6 As to looking without seeing, Dowden was unable to 7 register the obvious implications of breach of 8 compartmentation across the building. However, his 9 actions indicate more than he was ultimately willing or 10 able to concede in evidence. 11 You do not start to deploy a covering jet and order 12 the more aggressive hydraulic pump all before 01.13 13 unless you know you are fighting an external fire of 14 substance. His movements to pumps six before 01.14 and 15 pumps eight at 01.19 say the same. By 01.26, he made 16 pumps 10 and at 01.28 he made pumps 15, requested aerial 17 times 2 and declared persons reported. He did this 18 because the fire was, in his own words to the peer 19 review, "halfway up the building and now getting into 20 flats". This was as early as 01.28. What he saw and 21 what he did reflected an obvious breach of 22 compartmentation. This was not a sector fire. Yet none 23 of this translated into the full evacuation that was 24 required. 25 As to hearing without listening, Watch Manager</p> <p style="text-align: center;">Page 91</p>
<p>1 organisation by consoling it that there were 2 firefighters who acted heroically, or the BSR by 3 continuously reminding them that that was the case. As 4 one of our bereaved clients has pressed upon us 5 succinctly, "What my family needed was not heroes, but 6 well-trained professionals working to a well-structured 7 plan." 8 Ultimately, this is an issue of institutional 9 culture. If the LFB is serious about making change, 10 then it needs to learn from its errors on the night of 11 this fire. Its failure to do so is damning. At the 12 moment, its leadership remains in denial. If the 13 Phase 1 report does not disabuse them of that, who will? 14 The inquiry can and should, therefore, make findings and 15 recommendations that identify the way in which the LFB 16 breached its own policies and failed to discharge its 17 legal duties of training, resourcing and risk 18 assessment. 19 Without proper training or practice, Watch Manager 20 Dowden and others were therefore left to approach the 21 fire based solely on past experience, and that doomed 22 them to error when faced with the unfamiliar. They 23 could not conceive of a fire that breached the 24 compartmentation of the building in such a horrendous 25 way, and they were blind to the obvious need for</p> <p style="text-align: center;">Page 90</p>	<p>1 Dowden was quickly informed that the smoke and fire had 2 spread internally across the buildings at floors 5 to 7, 3 and then, we say importantly, onto floor 16. Yet very 4 little of this registered. This was absolutely 5 a situation where audio and visual information could be 6 overwhelming. But that is why individual human 7 judgement and rules of thumb alone cannot command major 8 fires. Dowden had no assistance from doctrine, training 9 or experience to guide him to process the information 10 that was so overwhelming. 11 What he needed to do was evacuate. Instead, the 12 only available conceptual anchor that he could resort to 13 was the concept of fire survival guidance, and that 14 proved to be fatally unhelpful. It meant individual 15 deployments to rescue particular occupants as the need 16 arose, rather than a strategy to just get everybody out. 17 The experts confirm what the BSR witnesses made 18 clear, that before 2 o'clock, the means of exiting the 19 building still allowed people to get out. As a matter 20 of fact, the stairwell remained tolerably free of smoke 21 before 01.30 and, indeed, for some time thereafter. 22 Even when most lobbies were filling up with dense smoke, 23 the staircase remained viable for 31 people to escape 24 from 01.31 to 01.47. They followed the 110 people who 25 had escaped before that. Professor Purser calculated</p> <p style="text-align: center;">Page 92</p>

<p>1 that simultaneous entry into the staircase of the full 2 cohort of 293 people across 23 storeys could have 3 resulted in evacuation within 7 minutes.</p> <p>4 The sceptics on this need to particularly consider 5 the evidence of Petra Doulova and her partner descending 6 from the 20th floor at 01.42 and passing multiple 7 firefighters in equipment on the way, just as they 8 should consider the case of Branislav Lukic carrying 9 Clarita Ghavimi over his shoulder, followed by his 10 flatmate, as they came down from the 11th floor at 11 01.47.</p> <p>12 The evidence points to what is no more than 13 common sense. From 01.15, the incident command ought to 14 have confronted the clear dangers to occupants if they 15 were to remain the building. Before 01.30, it ought to 16 the have been obvious that this fire was going to 17 jeopardise its entire occupancy. On this, Dr Lane has 18 agreed. Evacuation should then have been instigated by 19 sending firefighters to the top of the building and 20 immediately changing the control room advice.</p> <p>21 Loudhailers could have been used in the stairwell. 22 The intercom system could've at least been used to wake 23 some people up. Mr Weatherby is going to develop this 24 matter.</p> <p>25 But let me make a point abundantly clear that hasn't</p> <p style="text-align: center;">Page 93</p>	<p>1 diversions. Residents who had been told to stay put and 2 await firefighting assistance were left without any 3 realistic prospect of being reached. Eventually, 4 opportunity to access them was lost.</p> <p>5 Second, the bridgehead was starved of timely 6 information. To take powerful examples of delay from 7 among our clients, Mariem Elgwahry and Naomi Li both 8 called the control room at 01.30 to tell them that there 9 was a fire on the 22nd floor. The 22nd floor was 10 immediately mentioned in a radio service request at 11 01.32. The 23rd floor, where Mariem and her mother, 12 Eslah, had now moved to, was communicated in the 13 telephone conversation between Operation Manager Norman 14 and one of the CU staff at 01.35. The first known FSG 15 list at the fire ground contained flat 195 on the 16 22nd floor and flats 205 and 204 on the 23rd floor. 17 Based on its detail, we can time that list being written 18 after 01.47.</p> <p>19 Yet despite the red flagging of these flats and 20 floors, there was no FSG deployments to floor 23 until 21 02.08, and then no further deployments until 02.24 and 22 02.51. Even worse, for a fire that was reported to have 23 broken out on the 22nd floor as early as 01.30, no one 24 was deployed to the 22nd floor until 03.03. No 25 firefighter ever reached the 23rd floor, and although</p> <p style="text-align: center;">Page 95</p>
<p>1 perhaps had the attention it should've had to date: the 2 ensuring evacuation would not have involved a crowd of 3 strangers in a public place, but neighbours and families 4 navigating the stairs of their own home.</p> <p>5 Even after 2 o'clock, there was never a point when 6 it was impossible to descend without breathing 7 apparatus. Everything depended, therefore, on 8 maintaining and optimising the staircase and 9 co-ordinated BA deployments. The failure of the 10 bridgehead throughout the night was that it dogmatically 11 stuck to an ad-hoc rescue strategy and never 12 contemplated facilitating escape in a systematic way.</p> <p>13 Other counsel who follow will look at the markedly 14 questionable results achieved by the BA deployments from 15 the bridgehead that night, regardless of the effort that 16 was put in.</p> <p>17 We summarise this subject under five points: 18 First, the bridgehead never evacuated residents. In 19 Watch Manager O'Keeffe's language, it tried to flood the 20 building to undertake multiple rescues. This is 21 individual rescues from individual flats in response to 22 individual requests for assistance. In doing that, it 23 pursued a strategy that could not work. There was never 24 going to be time to evacuate the entire building by this 25 means; it involved too many flats and too many</p> <p style="text-align: center;">Page 94</p>	<p>1 Firefighter Roberts made it up to the 22nd, he searched 2 neither the lobby nor the flats.</p> <p>3 So reports of a fire at 01.30. No response at all 4 before 02.08. Thereafter, no systematic approach.</p> <p>5 The fires on those two floors claimed the lives of 6 36 people, half the number of all the deceased in that 7 fire.</p> <p>8 Third, scarce resources to respond to FSG calls were 9 wasted. Two examples illustrate the point. There are 10 several. But consider the Paddington FRU team, the 11 first specialist EDBA rescue unit to attend the scene, 12 sent on a hopeless mission to the roof at 01.56 to sling 13 ropes over the top of it to try and spray water down the 14 side.</p> <p>15 They saved Fadumo Ahmed's life, but this was 16 a specialist team, able to operate at the highest 17 floors, and had they been deployed in a co-ordinated 18 relay, without the extra weight of unnecessary 19 equipment, it must be likely that they could've done 20 more to save others.</p> <p>21 Most inexplicable of all is the delay in deploying 22 the available extended duration breathing apparatus 23 crews.</p> <p>24 The statements of the EDBA crew members described 25 being held outside to get bottles of water and general</p> <p style="text-align: center;">Page 96</p>

24 (Pages 93 to 96)

<p>1 supplies of hoses and breaking-in devices. The sobering</p> <p>2 schedules available to the inquiry show that the delay</p> <p>3 in deploying these desperately needed crews into the</p> <p>4 tower exceeded between one and one and a half hours.</p> <p>5 Fourth, no one questioned the individual rescue</p> <p>6 approach. The majority of evacuations were either</p> <p>7 without any assistance or only partially assisted</p> <p>8 towards the bottom of the stairs. The number of</p> <p>9 successful assisted evacuations directly from a flat or</p> <p>10 lobby throughout the night was few indeed, and on the</p> <p>11 most generous interpretation, our estimate comes to 12</p> <p>12 flats and/or lobbies involving 28 people. The</p> <p>13 bridgehead did not learn from the low return and</p> <p>14 ineffectiveness of its own strategy.</p> <p>15 Fifth, the bridgehead also did not learn from</p> <p>16 successes. For instance, fewer deployments but with the</p> <p>17 benefit of spare BA masks and sets for the use by</p> <p>18 residents might have produced better results, like the</p> <p>19 evacuation of Sharon Laci and her daughter.</p> <p>20 Equally, no one apparently registered the</p> <p>21 implications of significant numbers of self-evacuations</p> <p>22 after 3 o'clock in the morning. These survivors were</p> <p>23 not just young and fit adults, Mr and Mrs Macit came</p> <p>24 down from the 16th floor at 03.47. They were not young</p> <p>25 and, in the later case, suffered from mobility issues.</p> <p style="text-align: center;">Page 97</p>	<p>1 the building.</p> <p>2 The inquiry has evidence from officers Beale,</p> <p>3 Mulholland, Harrison and Leaver that this was completely</p> <p>4 obvious, as it was to a number of rank and file</p> <p>5 firefighters and, indeed, police officers.</p> <p>6 Third, the lost first hour was compounded by the</p> <p>7 drifting decision-making in the second hour. Incident</p> <p>8 command still did not establish the extent to which</p> <p>9 individual flats were in jeopardy, the failures of the</p> <p>10 bridgehead were not appreciated, a major incident was</p> <p>11 called without co-ordinating with the the other</p> <p>12 emergency services -- still no one picked up the phone</p> <p>13 to Brigade command.</p> <p>14 Fourth, just after 2.00 am a watch manager,</p> <p>15 Mr Harrison, intervened at the door to the command unit</p> <p>16 to press for revision of the stay-put advice and related</p> <p>17 measures to aid evacuation. He referred to the matter</p> <p>18 in his notes the next day. It is highly likely, we</p> <p>19 submit, having seen him give evidence, that this man did</p> <p>20 intervene at the door of a crowded, tense command unit</p> <p>21 but was not heard.</p> <p>22 We say that this intervention and the officers'</p> <p>23 reaction was symptomatic of something bigger, and it is</p> <p>24 a shame that it is not seen that way by the LFB. It</p> <p>25 draws parallels with other sectors that had to address</p> <p style="text-align: center;">Page 99</p>
<p>1 Ann Chance escaped with her 55-year-old mother and</p> <p>2 62-year-old aunt from the 10th floor at 04.20. One</p> <p>3 child was lost on the staircase in the worse possible</p> <p>4 circumstances, and an unborn child died. But nine</p> <p>5 children aged 3 to 12 years old escaped from</p> <p>6 Grenfell Tower between 03.00 and 04.00 and many of them</p> <p>7 had to come down unaided.</p> <p>8 Finally, there is no evidence to indicate that the</p> <p>9 Goulbourne system, introduced after about 03.20, made</p> <p>10 things particularly better. Under the direction of</p> <p>11 Group Managers Goulbourne and Welch, a substantial</p> <p>12 number of EDDBA crews were wastefully diverted to the</p> <p>13 lower floors instead of to the FSG calls on higher</p> <p>14 floors. These were crucial missed opportunities,</p> <p>15 notably including for the remaining residents on</p> <p>16 floor 14.</p> <p>17 I turn to overall command of the fire ground.</p> <p>18 Our headline point is that for much of the night,</p> <p>19 the incident had hierarchy but it lacked proper command.</p> <p>20 First, Dowden should never have been left there that</p> <p>21 long; he knew it, others knew it, DC O'Loughlin couldn't</p> <p>22 understand it.</p> <p>23 Second, all three of the incoming commanders before</p> <p>24 2.00 am inexplicable failed to appreciate or discover</p> <p>25 that the fire had broken into individual flats across</p> <p style="text-align: center;">Page 98</p>	<p>1 the difficulty of the junior ranks pointing matters out</p> <p>2 to command when it really is a matter of life and death.</p> <p>3 I'm talking about the experienced nurse in the operating</p> <p>4 theatre, the navigator in the jet plane and the junior</p> <p>5 officer and subaltern on the battlefield.</p> <p>6 Fifth, a specific criticism of Assistant</p> <p>7 Commissioner Roe is that he found no means to influence</p> <p>8 the drift of command once he was aware of the magnitude</p> <p>9 of the fire, but prior to his arrival. From the picture</p> <p>10 of the fire sent by Station Manager Cook at 01.43, he</p> <p>11 understood that 100 per cent of the building was alight</p> <p>12 and that this was an undeclared major incident. But Roe</p> <p>13 had no strategic input before it was far too late. That</p> <p>14 said, neither did his assumption of command result in</p> <p>15 a change of the doomed strategy at the bridgehead or</p> <p>16 improve communications with the control room.</p> <p>17 Now, the failure of incident command to brief the</p> <p>18 control room undoubtedly impacted on the quality of</p> <p>19 advice given by its operators on the night. However,</p> <p>20 the BSR view the control room as bearing its own very</p> <p>21 significant failures.</p> <p>22 During the Lakanal House fire, CROs had assumed</p> <p>23 wrongly that compartmentation would not fail and that</p> <p>24 the fire crews would reach callers quickly. An adequate</p> <p>25 post-Lakanal response needed to: (1) identify</p> <p style="text-align: center;">Page 100</p>

<p>1 compartmentation failure as a paradigm shifting event in 2 a high-rise fire; (2) speedily revoke stay-put advice; 3 (3) maximise intelligence to aid immediate evacuation; 4 and (4) operate effectively at overflow call capacity. 5 None of this happened for the callers from 6 Grenfell Tower.</p> <p>7 First, operators could again not conceive of breach 8 of compartmentation within a tower block. Instead, they 9 repeatedly told callers that the fire was on the 10 4th floor or on another lower floor, even when the 11 caller was telling them that it was not.</p> <p>12 Operators reassured people that they were safest 13 staying in their property, despite very early reports of 14 smoke and fire spread across the building, and they 15 continuously told people that the firefighters were on 16 their way when there was no way of knowing that this was 17 the case.</p> <p>18 Second, there was no shared interpretation of what 19 it meant to advise callers to remain in their properties 20 on the grounds that they were, in the words of 21 policy 790, "not affected by fire, heat or smoke". Some 22 operators thought the word "affected" required there to 23 be fire in the flat. Others thought smoke was enough. 24 A fire outside or next door counted for some operators 25 but not for others.</p> <p>Page 101</p>	<p>1 revocation of the stay-put advice was not relayed 2 effectively to some residents for whom English was not 3 a first language and, more generally, that some 4 operators failed to communicate effectively with such 5 residents and terminated calls with them rather than 6 staying on the line. Until there is organised access to 7 the tapes of the calls, we will not know.</p> <p>8 Until then, we do say, as a matter of law, 9 section 149 of the Equality Act 2010 required the 10 proactive consideration by the LFB of how to remove or 11 minimise disadvantage connected to protected 12 characteristics, including race and disability. We have 13 seen no evidence of the formal discharge of that duty 14 yet, and the inquiry must get to the bottom of this 15 issue in Phase 2 in relation to the control room, just 16 as it must consider the compliance of others.</p> <p>17 Fourth, the residents' calls should have acted as 18 an early warning of building failure, but the control 19 room and the incident command failed to grasp this. At 20 01.24, CRO Duddy heard a female caller, who it can be 21 established to be Damiana Lewis on the 12th floor 22 shouting for help that the fire was in her kitchen and 23 that she could not breathe.</p> <p>24 At 01.25, OM Norman received a report from 25 Denis Murphy describing smoke-logging on the 14th floor</p> <p>Page 103</p>
<p>1 Third, as with the firefighters, these operators 2 were denied proper training and, bluntly, therefore were 3 not qualified to do the job they needed to do on the 4 night. Experience of giving any type of FSG advice was 5 rare. No one had practised or even contemplated the 6 role of counselling escape by telephone during 7 a high-rise mass evacuation. When the time came to give 8 such advice, the operators had to improvise in what was 9 essentially an alien discipline.</p> <p>10 Consequent problems included callers being offered 11 the choice whether to stay or go when there was none; 12 being told they needed to leave but simultaneously 13 advised that efforts were still being made to get to 14 them; being unable to say in the plainest possible terms 15 that pleas for helicopters and high ladders were never 16 going to be met; and failing to carry out callbacks to 17 inform residents who had been told to stay put in 18 circumstances where the strategy had changed and they 19 now needed to get out.</p> <p>20 Despite provision in national policy GRA 3.2, 21 neither LFB policy or training required callers to be 22 asked about mobility or disability issues. There was 23 also no training on how to build empathy and trust with 24 people from different cultural, religious and language 25 backgrounds. There remains significant concern that the</p> <p>Page 102</p>	<p>1 lobby that was preventing him from leaving. She told 2 him that if leaving meant using the stairwells, which 3 she asserted wrongly were filled with smoke, he was 4 better off staying where he was.</p> <p>5 At 1.26, Kasia Dabrowska from flat 95, also on the 6 12th floor, informed CRO Fox that her neighbour had told 7 her there was a fire in her kitchen and that smoke was 8 entering her own flat through the main door. When told 9 that the fire was only in flat 16, she emphatically 10 corrected the CRO, stating that the fire had already 11 reached her floor.</p> <p>12 There was then a series of calls at 01.30 that 13 indicated that the fire had internally reached the top 14 floors of the building.</p> <p>15 At precisely 01.30, CRO Duddy was informed by 16 Mariem Elgwahry of the fire in her kitchen on the 22nd 17 floor. She had fled to the 23rd floor. She corrected 18 his assurance that the fire was on the 5th floor and 19 made it plain that smoke was present in her new location 20 at the very top of the tower.</p> <p>21 At 01.30.02, Helen Gebremeskel from the 21st floor 22 told OM Norman that there was fire in the floor below 23 and that smoke was coming up into her flat.</p> <p>24 At 01.30.08, CRO Russell began the call with Jessica 25 Urbano Ramirez, situated on the top floor, who</p> <p>Page 104</p>

<p>1 immediately told her that there was a fire in the 2 kitchen and smoke was coming through the floor. 3 Also at 01.30.08, CRO Fox was informed by 4 Anthony Disson that the conditions on the 22nd floor 5 were terrible and he could not see his hand in front of 6 him. 7 At 01.30.38, Naomi Li, who had first identified 8 smoke on the 22nd floor at 01.21, was now able to inform 9 CRO Gotts that there was a fire in her neighbour's 10 kitchen and they could smell smoke. She was told, 11 "Obviously I can't really advise you, but I'll let the 12 firemen know you're there." 13 Thereafter, Biruk Haftom, a child, calling from the 14 top floor, told CRO Howson at 01.32 that there was lots 15 of smoke in the flat and the window was burning up. 16 During the call, an adult could be heard saying "Oh my 17 God, the fire is coming through". 18 At 01.33, a caller from the 11th floor could be 19 heard shouting "Please, please, the fire is in my flat, 20 the fire is in my flat." 21 We say the residents were the source of situational 22 awareness that incident command so sorely lacked and did 23 itself not provide. 24 Yet the first contact that OM Norman had with the 25 command unit at 01.35 passed on some detail, but did so</p> <p style="text-align: center;">Page 105</p>	<p>1 night to address. 2 Under the Civil Contingencies Act 2004, various 3 so-called category 1 responders are required to plan for 4 emergencies and work together when they arise. Our 5 basic observation, which we develop in writing, is that 6 you cannot have major incidents separately declared by 7 each service at different times, without the knowledge 8 of the other's declaration, with no co-ordination on 9 critical changes of strategy, especially here the change 10 to the stay-put advice, and sensibly call it a joint 11 operation. Of some importance in this respect was the 12 role of the police in giving FSG guidance and passing on 13 to LFB information from members of the public regarding 14 their family and friends still in the tower. 15 Having said that, I want to address the role of RBKC 16 and, therefore, by extension, the TMO. 17 RBKC, as the local authority, fundamentally breached 18 its duty under regulation 11(2)(b) of the regulations 19 for the 2004 Act. It failed to provide reasonably 20 obtainable information to the LFB in relation to 21 residents, plans and known deficiencies in the fire 22 prevention mechanisms of the building. On all these 23 matters, it delegated to the TMO, which was not subject 24 to clear, equivalent statutory duties under the 2004 Act 25 or its regulations. The management contract is silent</p> <p style="text-align: center;">Page 107</p>
<p>1 only as one-dimensional FSG calls, flats and doors 2 requiring individual search and rescue response. 3 What was needed was a high-level intervention 4 between control and incident command to identify and 5 dramatically act upon the clear overall picture of 6 building failure, and that did not occur. 7 Our final point for the calls is that although this 8 was a fire in London, the control room response needed 9 to be nationwide. Despite having resources available, 10 non-LFB control rooms lacked intelligence regarding the 11 situation at the fire ground and only belatedly learnt 12 about the change to the stay-put advice. As of 13 June 2017, every Brigade knew of the risk of overflow 14 calls and the need for buddy control rooms, but there 15 were no protocols or joint policies in place either 16 between the Brigades or with BT. 17 A simple conclusion follows from all these failures. 18 The shortcomings in the control room service 19 undeniably contributed to people dying, and will 20 continue to do so in similar circumstances until the 21 system acquires the training and technical capacity to 22 offer informed strategic advice to mass volume callers, 23 including the capacity to recontact them through 24 multimedia when the advice changes. 25 There is then a last feature of the response on the</p> <p style="text-align: center;">Page 106</p>	<p>1 on the point, and we do not know yet what the 2 understanding between the two organisations was, if 3 there was any. On that, for the time being, I can make 4 no further concessions. 5 But there clearly is something to be concerned about 6 when the evidence for the night shows that the local 7 authority was looking to the TMO and the TMO was looking 8 to the local authority. In other words, there was 9 an operational gap, potentially facilitated by the 10 current state of our social housing law. 11 For the TMO officers to say that their own emergency 12 plan was irrelevant to the Grenfell fire because of the 13 scale of the emergency meant that there was no plan at 14 all. 15 The TMO's plan, in any event, was redundant. It 16 dated back 15 years, did not reflect the refurbishment 17 and assumed 8 to 12 vulnerable residents without 18 meaningful definition or detail. 19 The senior management of the TMO say that, as of the 20 night of the fire, they had no knowledge of the 21 wholesale defects in fire safety. If that is correct, 22 their evidence to date can only mean that they did not 23 know about the statutory notice sent by the fire 24 authority in November 2016 identifying defects in 25 self-closing doors, that they did not know of or</p> <p style="text-align: center;">Page 108</p>

<p>1 appreciate the significance of the letter sent to RBKC 2 by the LFB in April 2017 warning about cladding not 3 built in accordance with Building Regulations, and it 4 must also mean that they had no knowledge of the litany 5 of patent defects identified by the inquiry's experts, 6 some of which, from a non-expert perspective, were 7 posited and pointed out by residents before the fire. 8 Either these witnesses were not telling the truth 9 about the extent of their knowledge, or they led 10 a dysfunctional organisation, incapable of ensuring fire 11 safety, or, of course, both. 12 The BSR look forward to the inquiry investigating 13 and making conclusive findings on this in Phase 2. 14 Finally, the residents. 15 The evidence of the BSR, both oral and written, were 16 significant in multiple respects. 17 First, it commemorated the loss of Grenfell Tower 18 and its community, just as the opening hearings 19 commemorated the loss of its people. 20 Second, it provided critical detail and insight into 21 the problems with the building, the spread of the fire 22 and the response to it. Prior to the fire, residents 23 identified many of the causes of the disaster to 24 come: doors that did not close, windows and cladding 25 with gaps, a smoke ventilation system that likely did</p> <p style="text-align: center;">Page 109</p>	<p>1 deceased needs to be given its due regard. 2 It will also be necessary to investigate how so many 3 people with disabilities, rendering them unable to 4 independently evacuate, came to be housed on upper 5 floors. 6 Sir, we say that all of these deaths were 7 preventable. By way of generic submission, can we end 8 by emphasising four points. 9 First, the events on floor 16 prior to 01.30 10 foreshadowed the prospect of disaster. By that time 11 Firefighters Hippel, Stern and O'Beirne on the landing 12 were able to convey to the bridgehead that a 4th floor 13 kitchen fire now posed a mortal danger 12 floors up. 14 Acting on that information could and should have changed 15 everything. 16 Second, the lift could not be controlled via 17 a firefighters' override switch and was not otherwise 18 disabled to prevent it from being called by residents. 19 One person definitely, but probably three, died because 20 of that lift: Ali Yawar Jafari, Mohamednur Tuccu and 21 Khadija Khalloufi. 22 Third, the four deaths on floor 14 -- Denis Murphy, 23 Mohammad Alhajali, Zainab Deen and Jeremiah Deen -- 24 involved a catalogue of failures. Four people were left 25 to die who had been reached by firefighters three times.</p> <p style="text-align: center;">Page 111</p>
<p>1 not ventilate, and significant shortcomings in preparing 2 residents to respond to a fire and, if necessary, 3 self-evacuate. 4 Third, the near-death experience of survivors 5 provides a further human rights context. They, too, 6 require an investigation into truth that will respect 7 their human dignity and restore their sense of security. 8 But it doesn't stop there. By courageously giving 9 evidence, oral and written, regarding their harrowing 10 experiences, the survivors have added vastly to the 11 understanding of human behaviour in fire, as well as 12 acting as the informed eyes and ears of the fire's 13 progress. Their invaluable testimony must educate 14 further thinking on design, evacuation, search and 15 rescue, disability access and so much more. 16 If one looks, then, to those who died, we should 17 mention, first, that the inquiry has stated that it will 18 not deal with the details of individual deaths today, 19 but that special hearings will take place in the New 20 Year. 21 When we do get to Phase 2, it will also be important 22 to reflect on how and why and the implications of the 23 fact that a very high proportion of black and minority 24 ethnic Londoners came to be housed together and died at 25 Grenfell Tower. That figure of 90 per cent of the</p> <p style="text-align: center;">Page 110</p>	<p>1 The fact that eight residents had been congregated into 2 one room was written into multiple places, but the teams 3 that went up on the final occasion were not briefed that 4 they needed to rescue eight people. In breach of 5 policy, the flat was not properly searched. Four 6 residents were left. 7 We will return at the subsequent hearing to outline 8 why we say that Firefighter Herrera's account is untrue 9 and, in any event, unreasonable. But then two further 10 EDBA teams were deployed to 14 with slips in their 11 hands, only to be told by officers to divert to 12 firefighter duties on the lower floors. Taking all 13 these factors together, floor 14 stands as a paradigm of 14 preventable death. 15 Fourth, the higher floors were never a lost cause. 16 The accounts of the late escapes, both sole and 17 assisted, indicate that death was preventable for some 18 time, which is why the continuing delays and confusion 19 over the stay-put advice, even after its change at some 20 point between 02.35 and onwards, are matters of grave 21 concern to the bereaved families of those higher floors. 22 Finally, the fate of those higher floors is bound 23 out with migration of people from lower floors. Several 24 people went onto the staircase just before 01.30, when 25 safe evacuation was entirely possible, but ultimately</p> <p style="text-align: center;">Page 112</p>

<p>1 went upstairs. We cannot stress enough that there were 2 enough firefighters in the building to unequivocally 3 call them down, call out, prompt, pursue and usher them 4 down. That is what was available at that time.</p> <p>5 Our conclusion, then, from six months of hearings 6 and 18 months of your work, the interim report of this 7 inquiry needs to contain a clear finding that none of 8 these deaths from the fire at Grenfell Tower were the 9 product of accident. They occurred because the building 10 as refurbished was made into a deathtrap.</p> <p>11 The inquiry can work out in due course the hierarchy 12 of causation, as well as other contribution. But the 13 way the building was refurbished, including its patent 14 non-compliance with the Building Regulations, cost 15 lives. All of that can and should be said in the 16 Phase 1 report.</p> <p>17 Of course, if that is what you have discovered, then 18 I am bound to observe that just one other reason why 19 this inquiry is so important going forward to Phase 2 is 20 that it is investigating the potential unlawful killing 21 of 72 people.</p> <p>22 Additionally, the inquiry should find that the LFB 23 failed to take steps that could've changed matters in 24 the way that I have summarised and my colleagues are 25 going to now develop.</p> <p style="text-align: right;">Page 113</p>	<p>1 SIR MARTIN MOORE-BICK: Well, now it's time for me to invite 2 Mr Weatherby to speak on behalf of what we call the G3. 3 Yes, Mr Weatherby.</p> <p>4 Closing submissions on behalf of G3 by MR WEATHERBY</p> <p>5 MR WEATHERBY: Thank you very much.</p> <p>6 I am going to address you on three areas, if I may: 7 Firstly, some general comments on the disaster, and 8 the high-level general conclusions that the Phase 1 9 expert evidence unquestionably points towards in terms 10 of fundamental non-compliance with Building Regulations, 11 and the reckless disregard for human lives that is 12 represented by the multiple failures in design, 13 materials, fabrication, build, oversight of the 14 refurbishment and the maintenance of the building 15 itself.</p> <p>16 Secondly, I'll pick the baton up from Danny Friedman 17 regarding the London Fire Brigade and candour, and the 18 comments of Dany Cotton in particular, and the nature 19 and prevalence of institutional defensiveness more 20 generally and how we say the inquiry should deal with 21 it.</p> <p>22 Thirdly and most substantially, I'll turn to the two 23 main themes regarding the LFB emergency response: the 24 lack of any contingency planning, in particular the 25 failure to have or to improvise a plan B to evacuate the</p> <p style="text-align: right;">Page 115</p>
<p>1 Finally, it is important to record the facts and 2 explain the reasons for the non-compliance with the 3 Civil Contingencies Act. The great value of this 4 process is that it is a once in a generation opportunity 5 to consider how to better prepare for urban disasters.</p> <p>6 But in order for that to happen, the various agencies, 7 especially the LFB, have to confront the truth of how 8 they could have done better on the night.</p> <p>9 These findings are required to fulfil the inquiry's 10 statutory duties, they are inescapable on the evidence 11 and there is an overwhelming societal interest in 12 publicly declaring them as soon as possible.</p> <p>13 Sir, as to those we act for, only time may heal what 14 you have heard about. But people are here today because 15 they want justice. They look to your first report as 16 the beginnings of that endeavour.</p> <p>17 Thank you.</p> <p>18 SIR MARTIN MOORE-BICK: Thank you very much, Mr Friedman.</p> <p>19 Well, that's a point at which I think we should 20 break for some lunch. We'll stop now and come back at 21 2.15, please.</p> <p>22 Thank you.</p> <p>23 (1.15 pm)</p> <p>24 (The short adjournment)</p> <p>25 (2.15 pm)</p> <p style="text-align: right;">Page 114</p>	<p>1 tower, and the failure of the FSG process actually on 2 the fire ground itself. These were, in our submission, 3 the key systemic failures on the part of the LFB, which 4 almost certainly led to a greater loss of life.</p> <p>5 In doing so, I'll endeavour to remain within my one 6 hour. I hope you won't be too annoyed if I stray 7 slightly over it.</p> <p>8 As has already been stated, the Grenfell fire was 9 certainly a preventable calamity -- designed, 10 manufactured and built, not accidental -- and we join 11 with others in urging you to make that clear in the 12 interim report. There was no natural cause, no "Act of 13 God". No matter how many times certain witnesses and 14 core participants repeat terms like "unprecedented" and 15 "unique", which we've heard this morning, or "perfect 16 storm", it's impossible to get away from the catalogue 17 of failures that the inquiry experts, in particular, 18 have already spoken to.</p> <p>19 I'm not going to repeat that evidence; 20 Stephanie Barwise has already addressed you 21 comprehensively on that. But a particular feature of 22 the expert evidence is the fact that there is such 23 a high degree of agreement between the various experts 24 with only minor shades of difference.</p> <p>25 Also, although there is some challenge to the</p> <p style="text-align: right;">Page 116</p>

<p>1 Phase 1 expert evidence in written closings by one or 2 two of the corporate CPs, the areas of challenge are 3 relatively narrow, and there does not appear to have 4 been any provision of contrary expert opinion, as no 5 doubt that would have been disclosed more generally. 6 The expert evidence provides a long list of 7 failures, gross failures. Not just the combustible 8 cladding, both outer rainscreen and insulation, but the 9 altered window position, creating dangerous voids packed 10 with combustible foam, membranes and insulation, uPVC 11 window surrounds, polystyrene infill panels -- all 12 highly combustible. The lack of cavity barriers, front 13 doors without closers, different from those tested for 14 fire resistance, the lack of firefighter lifts, no plans 15 for evacuating vulnerable residents and no mitigation of 16 those risks -- just some of the obvious and gross 17 deficiencies with the building and its management. 18 A building, let no one forget, with one staircase, 19 no sprinklers and no general alarm, a building populated 20 with many elderly people and children, those with 21 disabilities and mobility issues, those particular 22 features being well known to relevant public 23 authorities, such as the owner and landlord, RBKC and 24 the TMO, and also those who designed and undertook and 25 signed off the refurbishment and those who were supposed</p> <p>Page 117</p>	<p>1 should be brought into play in considering life safety, 2 not a blueprint for safe design. To view ADB otherwise 3 is to ignore the complexity of modern cladding systems 4 and the obvious known risks they posed. 5 Although there will be much more work to do in 6 Phase 2, you have commissioned and published, called and 7 heard considerable and detailed evidence about the 8 comprehensive and gross non-compliance with any 9 reasonable standard, and we join with all of the other 10 bereaved and survivors and displaced residents' teams in 11 urging that you set out headline conclusions in the 12 interim report so that Phase 2 can focus on just where 13 those gross failures were, who is accountable for them 14 and why it was all allowed to happen, a community turned 15 into a war zone, in prosperous Kensington and Chelsea, 16 in a country in a position to have high regulatory and 17 health and safety standards. 18 The detail of the failures and who did what, just 19 when and why, may be the subject of close consideration 20 of e-mails and contracts and technical drawings. But 21 the broad picture is clear for all to see. As I address 22 you now, many bereaved and survivors, the victims, 23 suffer severe psychological effects of the night. Many 24 lost family and friends and all lost community. Many of 25 my clients, no doubt others too, are still to settle in</p> <p>Page 119</p>
<p>1 to regulate it. And, indeed, the fire service for 2 today's purposes. 3 Let me pose a shorter list, and I do it as 4 a question. 5 On the evidence, what parts of the refurbishment 6 were done to anything approaching a reasonable fire 7 safety standard? Which active or passive fire safety 8 provisions were appropriate and functioning on the 9 night? 10 That is a very short list, if it's a list at all. 11 Dr Lane referred to fundamental non-compliance with 12 BR B4 in her report. We would take that opinion further 13 and submit that such a catalogue of failure shows 14 a reckless disregard for human life by those involved in 15 the design and build of the refurbishment project, those 16 who manufactured and marketed the products and those who 17 undertook the works, and those who failed to qualify 18 assure and properly sign it off. 19 We would also add, and a point we'll press in 20 Phase 2, that while there was fundamental non-compliance 21 with building regs and shocking disregard for the 22 guidance in ADB, no reasonable designer or procurer in 23 our submission would, in any event, see ADB is providing 24 all the answers. Properly viewed, it's a risk 25 assessment tool, a list of the considerations that</p> <p>Page 118</p>	<p>1 new homes. They're looking for answers. 2 18 months has passed. No one has taken any 3 responsibility for the disaster. That is a major open 4 sore for the bereaved and the survivors. 5 All of the corporate and public authority 6 institutions are big on condolences and sympathy but, as 7 a generality repeated in the recent written closings, 8 they say, in effect, it was all a series of unfortunate 9 and unforeseen events. It was not their fault because 10 their product was not used correctly. It was for 11 someone else to check the specification, the build 12 quality, to sign the work off, the regulations weren't 13 clear. So far the inquiry has only had a book of 14 excuses. I've made this point before, but I need to 15 repeat it. 16 The written closing arguments are more of the same. 17 Arconic point at the insulation, not the ACM. They 18 state the Phase 1 expert evidence: 19 "... establishes it was a confluence of unfortunate 20 circumstances, and not the mere presence of ACM PE, 21 which created the conditions for the Grenfell Tower 22 fire." 23 Kingspan point at the configuration but, since the 24 fire, they've been marketing the same product for use on 25 high-rise residential buildings.</p> <p>Page 120</p>

<p>1 Celotex say what amounts to nothing.</p> <p>2 Studio E and Harley's, the cladders, actually say</p> <p>3 nothing, no closing at all.</p> <p>4 Whirlpool say there's not enough evidence to find</p> <p>5 the fire started in their appliance, fridge freezer.</p> <p>6 Rydon say the fire must have escaped only through</p> <p>7 the open window, not via the menu of combustible</p> <p>8 products that they arranged to be packed around the</p> <p>9 windows or the voids.</p> <p>10 Phase 2 will not be concerned so much with what</p> <p>11 actually happened -- the fire and the dangerous state of</p> <p>12 the building on the night -- but why it was allowed to</p> <p>13 happen, who was responsible for the overarching failures</p> <p>14 of design, procurement, compliance, build quality,</p> <p>15 quality control, sign-off, lack of maintenance, who is</p> <p>16 accountable for the particular aspects of the building</p> <p>17 failure.</p> <p>18 So not much help from the corporate CPs on this so</p> <p>19 far or, indeed, public authorities either, as I'll come</p> <p>20 to in a minute.</p> <p>21 Candour.</p> <p>22 Mr Friedman has spent some time on the culture of</p> <p>23 the London Fire Brigade and the disappointing view of</p> <p>24 Dany Cotton, who concluded in her evidence, "I wouldn't</p> <p>25 change anything we did on the night."</p> <p style="text-align: center;">Page 121</p>	<p>1 that the introduction of smoke hoods and a few changes</p> <p>2 behind the scenes to some of their policies will suffice</p> <p>3 at some point undetermined in the future?</p> <p>4 We say that's a very disappointing stance, which not</p> <p>5 only ignores the reality of the evidence but comes from</p> <p>6 an ingrained culture of denial. It's also dangerous,</p> <p>7 because those who fail to learn the lessons of the past</p> <p>8 are going to repeat their failures in the future.</p> <p>9 In the face of a terrible tragedy, the response</p> <p>10 appears to be that it's the duty of senior managers to</p> <p>11 defend the institution in the face of the facts, rather</p> <p>12 than act with candour, accepting the stark reality of</p> <p>13 what the evidence shows.</p> <p>14 Did LFB learn the lessons from Lakanal? Why was</p> <p>15 there no evacuation contingency plan? Why did the FSG</p> <p>16 process fail so badly on the night?</p> <p>17 A culture of denial or institutional defensiveness</p> <p>18 not only prevents us all, the victims and the wider</p> <p>19 public as well from learning what actually did and</p> <p>20 didn't happen, not only does it make accountability more</p> <p>21 difficult to determine, but it also means that mistakes</p> <p>22 of the past will happen again and lives will be</p> <p>23 endangered.</p> <p>24 Danny Friedman spoke about the culture of the LFB.</p> <p>25 I'm not going to repeat that submission, but I want to</p> <p style="text-align: center;">Page 123</p>
<p>1 I just want to pick that particular baton up and run</p> <p>2 with it a little further.</p> <p>3 Firstly, though, a very important clarification, and</p> <p>4 so important that I make no apology whatsoever for</p> <p>5 repetition. LFB did not put manifestly dangerous</p> <p>6 cladding on Grenfell Tower. They didn't cause the fire.</p> <p>7 I join with most others in recognising the courage of</p> <p>8 the many firefighters who risked their lives to save</p> <p>9 others. And that isn't just a trite statement.</p> <p>10 Although others raise a number of issues regarding the</p> <p>11 conduct of particular firefighters or the control room,</p> <p>12 the context is that firefighters going into the tower</p> <p>13 must have had images of collapsing buildings in their</p> <p>14 minds, and they went into conditions where they could</p> <p>15 not see anything because of the smoke. We've actually</p> <p>16 seen that on various videos during the course of the</p> <p>17 evidence, a truly horrific fire ground scenario.</p> <p>18 To borrow a phrase from Sid Ali Atmani from level 15,</p> <p>19 I direct my comments at the suits and not the helmets.</p> <p>20 Were LFB correct in their opening -- indeed, in</p> <p>21 their closing -- in effect to say there was little that</p> <p>22 they could've done other than try to put the fire out</p> <p>23 and rescue individuals? Are they correct to say that</p> <p>24 valid criticisms are either to points of detail or from</p> <p>25 hindsight and were impossible to foresee? Is it right</p> <p style="text-align: center;">Page 122</p>	<p>1 widen it, because it will continue to be relevant to the</p> <p>2 other public authority and corporate CPs in this</p> <p>3 inquiry. I've already demonstrated that by referring to</p> <p>4 the complete absence of anybody accepting either any</p> <p>5 wrongdoing or any failures to date.</p> <p>6 This isn't some unique or novel problem; it's well</p> <p>7 known, well documented by a series of inquiry reports</p> <p>8 and notorious cases that denial and defensiveness is the</p> <p>9 default position, not the exception of many, perhaps</p> <p>10 most institutions, both public and private.</p> <p>11 Sir Robert Francis recognised this as an endemic</p> <p>12 problem in his report into the Mid Staffordshire NHS</p> <p>13 Foundation Trust. His recommendation led to a legal</p> <p>14 duty of candour being imposed on healthcare providers by</p> <p>15 the 2014 regulations.</p> <p>16 In February 2015, the equality and human rights</p> <p>17 commission report, "Preventing Deaths in Detention of</p> <p>18 Adults with Mental Health Conditions", recognised</p> <p>19 exactly the same problem in the deprivation of liberty</p> <p>20 sector.</p> <p>21 Dr Kirkup's March 2015 report into failures of the</p> <p>22 Morecambe Bay NHS Trust picked up the same mantle, again</p> <p>23 recognising the need for a duty of candour, specifically</p> <p>24 in the way institutions presented their evidence at</p> <p>25 inquests and, in a recommendation, indicated a specific</p> <p style="text-align: center;">Page 124</p>

<p>1 need for regulation in that area.</p> <p>2 July 2015, the Harris review, report of the</p> <p>3 Independent Review into self-inflicted deaths in custody</p> <p>4 of 18 to 24-year-olds, the theme again arose, specific</p> <p>5 mention of "institutional defensiveness".</p> <p>6 The Bishop's report into Hillsborough, with which</p> <p>7 I'm sure you're familiar, recognised repeatedly the</p> <p>8 problems of institutional lack of candour and</p> <p>9 promulgated the charter for public authorities to sign</p> <p>10 to promise to act with integrity and candour. That</p> <p>11 report was, of course, with respect to a process that</p> <p>12 took nearly 30 years to achieve a just outcome.</p> <p>13 Incidentally, whilst most people remember the role</p> <p>14 of the police at Hillsborough, it's worth remembering</p> <p>15 that a substantial secondary issue in that disaster</p> <p>16 concerned the emergency response, both by the police and</p> <p>17 the ambulance service. The context of Grenfell is, of</p> <p>18 course, very different, but the parallels are there for</p> <p>19 all to see. No one sought to criticise the individual</p> <p>20 police and ambulance staff battling to save lives, but</p> <p>21 the new inquest jury concluded that the failures</p> <p>22 promptly to declare a major incident, to establish</p> <p>23 command and control, to co-ordinate and communicate, in</p> <p>24 effect to follow long-established major incident</p> <p>25 principles, delayed an effective response and</p> <p style="text-align: right;">Page 125</p>	<p>1 reports, but I've made my point.</p> <p>2 There's a widespread clamour for transparency and</p> <p>3 candour to be addressed through substantive changes to</p> <p>4 the law. Parliament has already considered one such</p> <p>5 bill, and there is cross-party support for such change.</p> <p>6 But in the context of these proceedings, the rules and</p> <p>7 processes already allow for this problem to be taken on</p> <p>8 head on to a significant degree.</p> <p>9 You've listened to our submissions at the outset of</p> <p>10 the inquiry and you've begun to utilise position</p> <p>11 statements and required Rule 9 statements. In the light</p> <p>12 of the lack of meaningful responses setting out</p> <p>13 acknowledged failings, we submit that those requirements</p> <p>14 must now be ramped up. 18 months down the line, the</p> <p>15 inquiry, the survivors and bereaved, the community, are</p> <p>16 all entitled to expect full and unequivocal assistance</p> <p>17 from institutional and corporate CPs. And now, not in</p> <p>18 a year's time or even later than that, with the repeated</p> <p>19 indication that this is a matter for Phase 2 and that's</p> <p>20 a matter to be reviewed down the line.</p> <p>21 One of the imperatives in undertaking a public</p> <p>22 inquiry is cost and efficiency. The reason some public</p> <p>23 inquiries and iconic inquests have taken so long isn't</p> <p>24 because of complicated subject matter, it's because of</p> <p>25 an inability or unwillingness to confront this endemic</p> <p style="text-align: right;">Page 127</p>
<p>1 contributed to the death toll.</p> <p>2 The other parallel is that, throughout the process,</p> <p>3 the police and the ambulance service flatly refused to</p> <p>4 accept that their command and control failures had</p> <p>5 materially affected the emergency response.</p> <p>6 Institutional defensiveness that we say is being</p> <p>7 repeated here by the LFB.</p> <p>8 In these proceedings, RBKC have signed up to the</p> <p>9 Bishop's charter, as indeed has the Mayor, but we're</p> <p>10 unaware of any other public authority CP having done so</p> <p>11 or, indeed, private corporations promising to act within</p> <p>12 its spirit. Although RBKC have publicly announced their</p> <p>13 commitment to the charter and, indeed, discussed</p> <p>14 adherence to it with us, we make clear that we still</p> <p>15 await, 18 months down the line, anything approaching</p> <p>16 a full statement regarding their role in the disaster.</p> <p>17 We make clear to them that candour must be demonstrated,</p> <p>18 not announced. It's not a public relations tool.</p> <p>19 RBKC, owner, responsible person, responsible for the</p> <p>20 planning committee, responsible for building control,</p> <p>21 involved at all levels, and they know many of the legal</p> <p>22 responsibilities stop with them, they must have a lot to</p> <p>23 tell us. The bereaved and survivors do not understand</p> <p>24 the 18-month delay in RBKC coming forward.</p> <p>25 I could go on referring to other inquiries and</p> <p style="text-align: right;">Page 126</p>	<p>1 lack of institutional or corporate candour.</p> <p>2 I started by saying that this was a disaster made by</p> <p>3 human beings. The inquiry has powerful weapons at its</p> <p>4 disposal to require candour. If it develops them, this</p> <p>5 process will reach robust conclusions far more swiftly</p> <p>6 to the benefit of all.</p> <p>7 Both the public authority and private corporation</p> <p>8 CPs here have had disclosure of the detailed expert</p> <p>9 reports. They've had the opportunity of posing</p> <p>10 questions through CTI to those experts. Although</p> <p>11 there's more investigation to be done, additional expert</p> <p>12 opinion to be obtained, none of the public or private</p> <p>13 institutions and corporations can be in any doubt</p> <p>14 whatsoever what the issues are that affect them, the</p> <p>15 issue with which this inquiry, all of us, requires</p> <p>16 assistance.</p> <p>17 They should be unequivocally asked to set out what</p> <p>18 went wrong in the areas of product promotion, design</p> <p>19 procurement, fabrication, build, site work, maintenance,</p> <p>20 management, regulation for which they were responsible</p> <p>21 or in which they were engaged.</p> <p>22 As Mr Friedman made clear this morning, this isn't</p> <p>23 a process of determining liability, but it does involve</p> <p>24 getting to the truth, and that includes accountability</p> <p>25 and it includes judgemental conclusions. In approaching</p> <p style="text-align: right;">Page 128</p>

<p>1 the investigation in this way, the inquiry will be able</p> <p>2 to focus its work far more efficiently.</p> <p>3 We urge you to address candour in the Phase 1</p> <p>4 report, not only with respect to what we say is the</p> <p>5 institutional defensiveness of the LFB, but also with</p> <p>6 an eye to the public authorities and corporate CPs, who</p> <p>7 will enter the spotlight more in Phase 2. This is a key</p> <p>8 issue and, respectfully, it should not be ducked.</p> <p>9 The LFB -- systemic failings.</p> <p>10 For the rest of my submissions, I'm going to focus</p> <p>11 on the LFB, because that's where the evidence has mainly</p> <p>12 been, and what we say are the systemic failings that</p> <p>13 contributed to the disaster.</p> <p>14 Given the imperative to try and complement rather</p> <p>15 than repeat submissions, I'm directing my approach to</p> <p>16 contingency planning and response to emergency calls,</p> <p>17 evacuation and FSG calls respectively, because they're</p> <p>18 central to the failures.</p> <p>19 In its recent 24 October position statement, where</p> <p>20 it purports to set out lessons learned or, more</p> <p>21 precisely, the actions it's taken since the fire, and</p> <p>22 today in oral submissions, LFB says it's an organisation</p> <p>23 committed to improvement and learning. It asserts that</p> <p>24 its review team has 30 dedicated staff.</p> <p>25 There are some sensible nods, which we applaud, to</p> <p style="text-align: center;">Page 129</p>	<p>1 plan, rather than a plan B evacuation, then outcomes</p> <p>2 would doubtless have been different. Many more lives</p> <p>3 would've been saved.</p> <p>4 In the written closing, LFB has a whole section</p> <p>5 headed "Evacuation" and at paragraph 85 makes the</p> <p>6 following assertion:</p> <p>7 "85. While it is still the Brigade's position that</p> <p>8 the statutory guidance makes no provision within the</p> <p>9 type of building design used in Grenfell Tower for</p> <p>10 anything other than a 'stay put' strategy, the Brigade</p> <p>11 is considering amendments to these policy notes to</p> <p>12 provide additional guidance to crews, officers and</p> <p>13 control room operators. That said, the Brigade wishes</p> <p>14 to emphasise that there is no simple and expedient</p> <p>15 'Plan B' for implementing a full scale simultaneous</p> <p>16 evacuation plan when a catastrophic failure of a</p> <p>17 building's fire safety provision occurs ..."</p> <p>18 The perplexing thing about this assertion is that</p> <p>19 the statutory guidance, of course, relates to the</p> <p>20 Building Regulations. The real issue for the Fire</p> <p>21 Brigade shouldn't be whether that guidance helps, but</p> <p>22 whether the national guidance for fire and rescue</p> <p>23 services on firefighting in high-rise buildings mentions</p> <p>24 evacuation when stay put breaks down, and unremarkably,</p> <p>25 it most certainly does.</p> <p style="text-align: center;">Page 131</p>
<p>1 practical changes, such as the rolling out of smoke</p> <p>2 hoods, consideration of the greater use of drones, smoke</p> <p>3 curtains, for example. But other than fleetingly, LFB</p> <p>4 failed to address the two central issues we focused upon</p> <p>5 and to which I'm going to turn: the lack of contingency</p> <p>6 planning for when stay put breaks down or, in the</p> <p>7 language of the national guidance I'm going to turn to</p> <p>8 in a minute, became "untenable", and the fact that the</p> <p>9 FSG process was not fit for purpose for a significant</p> <p>10 incident with more than a handful of FSGs and,</p> <p>11 critically, that this was a fact that was known to LFB</p> <p>12 before the fire.</p> <p>13 Why are these central issues notable really by their</p> <p>14 absence from the position statement of the LFB? Of</p> <p>15 course they refer to reviews to their policy 633 and</p> <p>16 790, high-rise firefighting and FSG policies</p> <p>17 respectively, but if they're included in those reviews,</p> <p>18 why are these issues not expressly highlighted and taken</p> <p>19 on head on? They are obvious and they've been</p> <p>20 repeatedly referred to by us on behalf of the bereaved</p> <p>21 and the survivors and taken up in questions by your</p> <p>22 counsel.</p> <p>23 Let there be no misunderstanding, I mean that had</p> <p>24 there been proper contingency planning in place, had it</p> <p>25 not adhered to an obviously failed stay put and rescue</p> <p style="text-align: center;">Page 130</p>	<p>1 However, not only do the Fire Brigade fail to</p> <p>2 mention GRA 3.2 in the section on evacuation, they fail</p> <p>3 to mention it at all in the whole of their closing</p> <p>4 submissions.</p> <p>5 I'm going to come to GRA 3.2 in a moment, but first</p> <p>6 contingencies more generally.</p> <p>7 What do we mean by contingencies and contingency</p> <p>8 planning? As a general proposition the stay-put</p> <p>9 strategy has been effective, as we've heard, in</p> <p>10 high-rise residences. Whereas certainly there's</p> <p>11 a discussion to be had as to whether stay put has had</p> <p>12 its day, it was not unreasonable as at 14 June to have</p> <p>13 stay put as a strategy for many high-rise residences, so</p> <p>14 long as they didn't have dangerous cladding and</p> <p>15 effective fire safety layers. However, emergency</p> <p>16 services, by their nature, do not live in the world of</p> <p>17 the general, the normal and the ordinary.</p> <p>18 Of course, there are many types of fire that fire</p> <p>19 brigades will see as a matter of routine: chip pan</p> <p>20 fires, kitchen fires, fires in bins. But, equally, the</p> <p>21 emergency services know they must deal with the</p> <p>22 unexpected: the plane or train crash, explosions,</p> <p>23 suicide bombings, sink holes, bridges collapsing,</p> <p>24 natural disasters, extreme weather -- all of these</p> <p>25 require not just default planning, but contingency</p> <p style="text-align: center;">Page 132</p>

<p>1 planning, and versatile and rapid imposition of control 2 and command decision-making.</p> <p>3 Although stay put has been an effective strategy in 4 many high-rise residences, breakdown in compartmentation 5 and large-scale facade fires are hardly unheard of. 6 Lakanal and a host of other disasters and near disasters 7 have been referred to already, fires both in the UK and 8 internationally.</p> <p>9 Indeed, in the evidence, we've seen the tall 10 building fires presentation provided by LFB itself, 11 distinguished, we might add, by its lack of circulation. 12 But it certainly recognised the phenomenon of dangerous 13 high-rise fires and fire spread across facades with new 14 building materials.</p> <p>15 Of course, we can all distinguish, as has been 16 attempted, between these fires and Grenfell, and, of 17 course, the loss of life here was, indeed, unprecedented 18 in UK terms. But that stay put was not infallible was 19 well known. We don't need the LFB presentation on that, 20 on spectacular high-rise fires, or even Lakanal for that 21 fact, we just need to look at GRA 3.2.</p> <p>22 GRA 3.2 is national guidance for the fire and rescue 23 services from central government. The generic risk 24 assessments are produced to minimise inconsistencies of 25 approach and outcome across different fire and rescue</p> <p style="text-align: center;">Page 133</p>	<p>1 to expect the unexpected, react to the particular 2 circumstances and that's why they have tools like the 3 decision-making model, which trains/guides commanders to 4 gather, evaluate, set objectives and tactics, 5 communicate them, continually re-assess and re-evaluate.</p> <p>6 It's equally clear in this context, high-rise 7 residential buildings, that national policy requires 8 actual operational contingency planning in advance, and 9 expressly contemplates that there will be a circumstance 10 where stay put is "untenable" and the fire and rescue 11 service will have to move to actual full or partial 12 evacuation, whether simultaneous or staged. That's 13 expressly set out in this national guidance document.</p> <p>14 The possibility of stay put becoming untenable was 15 real, contemplated, expressly referred to in guidance, 16 not some fantasy so far from reality that no one could 17 reasonably expect to countenance it, not some spacecraft 18 crashing into the Shard.</p> <p>19 GRA 3.2's matrix included and itemised the 20 eventualities that in fact materialised on 14 June. It 21 provided control measures, mitigation in relation to 22 them. Let me pick up some of the key points.</p> <p>23 Firstly, page 8, the caution that poor maintenance 24 may mean that fire engineered solutions might not 25 actually work. At Grenfell, this was the case, although</p> <p style="text-align: center;">Page 135</p>
<p>1 services, and to assist in meeting the requirements of 2 the Management of Health and Safety at Work Regulations 3 1999. That's expressly asserted in the document I'm not 4 sure we've looked at, but it's the GRA introduction 5 document on open source. It introduces the whole 6 series.</p> <p>7 More than that, page 6 of GRA 3.2 acknowledges that 8 the guidance was issued consequent to a number of 9 improvement notices, issued by the health and safety 10 executive to fire and rescue services regarding 11 high-rise firefighting systems -- and I emphasise the 12 word -- and equipment.</p> <p>13 Thus, these central government generic risk 14 assessments are key documents underpinning and informing 15 local services and policies.</p> <p>16 From Assistant Commissioner Roe's evidence, it's 17 clear that the LFB were key stakeholders in the drafting 18 of GRA 3.2.</p> <p>19 We've set out in writing in the submissions the key 20 passages from GRA 3.2. Indeed, we noted some of them in 21 opening as well. What GRA 3.2 does is set out the 22 definition and basis for stay put evacuation strategy -- 23 for that's what it was, an evacuation strategy -- but 24 makes it completely clear that contingency planning is 25 required. It's axiomatic that emergency services have</p> <p style="text-align: center;">Page 134</p>	<p>1 we might add poor compliance to poor maintenance, 2 specifically with relation to the lifts and other 3 installations, fire doors for example.</p> <p>4 Secondly, page 9, clear reference to rapid fire and 5 smoke spread, virtually up and down and horizontally, 6 and breach of compartmentation with fire spreading to 7 multiple floors. That's exactly what happened on the 8 night and that's a factor that we referred to this 9 morning as if it was something that couldn't have been 10 foreseen.</p> <p>11 Thirdly, page 10, mention of smoke stacking and how 12 this can mislead as to location and size of the fire.</p> <p>13 Fourthly, pages 16 and 17 of the guidance, both the 14 need to understand the evacuation protocol for the 15 building, and also to have an operational evacuation 16 plan as a contingency where stay put becomes untenable, 17 as clear a reference as could be to the known 18 possibility of the default strategy becoming 19 ineffective. Of course, on the night, just such an 20 eventuality arose, stay put became untenable, 21 compartmentation broke down, but there was no plan B for 22 the likes of Mr Dowden to operate.</p> <p>23 Fifthly, page 18, local fire and rescue services 24 required to have effective arrangements to deal with 25 fire safety guidance calls, and also to deal with the</p> <p style="text-align: center;">Page 136</p>

<p>1 evacuation of the disabled, mobility challenged, ill, 2 injured residents. 3 FSG arrangement must include consideration of how 4 advice will be reevaluated in the light of calls and how 5 the information loop between caller, control and 6 incident command will be achieved, something I'll return 7 to in a moment. 8 On the night, of course, there were multiple FSG 9 calls, but, as we'll submit later, arrangements were 10 neither effective nor did they lead to any re-evaluation 11 of tactics until far too late. Furthermore, no plan, no 12 policy to assist vulnerable residents to get out and no 13 firefighter lift by which to do so. Of course, you've 14 heard first-hand evidence from some of those mobility 15 and disabled, challenged residents, including my client 16 Maher Khoudair. 17 Sixthly, at page 20, express mention that incident 18 commanders should be trained to identify when evacuation 19 should prevail where stay put is the default strategy. 20 It's apparent from the evidence that this didn't happen 21 at the London Fire Brigade. 22 Seventh, page 21, incident commanders should review 23 and change the plan when new information becomes 24 available at the incident or from control. Vital that 25 incident commanders utilise functional commanders to the</p> <p style="text-align: right;">Page 137</p>	<p>1 equip incident commanders to evaluate the necessity for 2 abandoning the stay-put policy and invoke any 3 contingency plan to evacuate. Indeed, LFB do not have 4 any contingency planning policy for high-rise 5 residential blocks where there's a breach of 6 compartmentation at all. 7 Policy 633 repeatedly refers to rescue and multiple 8 rescue, and only at paragraph 7.45 does it refer to the 9 possibility of evacuation, and then only to point at the 10 difficulty of so doing. No contingency plan, no plan B, 11 no guidance on how an incident commander should evaluate 12 abandoning the default position, no guidance on how 13 evacuation might be achieved, what factors would assist, 14 such as immediately informing control so that advice can 15 be changed, and the specific measures referred to in 16 GRA 3.2. As we've heard in evidence, compounding the 17 lack of policy around contingencies, absolutely no 18 training on evacuation from high-rise blocks. 19 In our submission, paragraph 85 of the written 20 closing by LFB is somewhat disingenuous when it states 21 that the statutory guidance makes no reference to 22 evacuation as a required contingency to stay put when it 23 fails. The LFB know full well that the national 24 guidance most applicable is GRA 3.2, not least because 25 of the part they played in drafting it.</p> <p style="text-align: right;">Page 139</p>
<p>1 full. 2 Eighthly, incident commanders must recognise where 3 building design and materials may be impacting on fire 4 spread. Specific mention made of plastic or aluminium 5 window frames and panels. 6 It's apparent that there was no awareness on the 7 night. 8 Ninthly, section 2 of the summary to the guidance 9 document at point 23, reference again made to the 10 evacuation of the building made necessary by reason of 11 stay put becoming untenable due to unexpected fire 12 spread, and control measures raised, including 13 "utilis[ing] other emergency services to aid movement of 14 casualties/public to safe areas" and relying upon "all 15 means of contacting persons within the building, such as 16 intercom telephones, loud hailer etc". 17 Interestingly, GRA 3.2 raises just the points we've 18 looked at in evidence and to which I'll return, but 19 which are dismissed by the London Fire Brigade. 20 The approach envisaged in GRA 3.2 is classic 21 contingency planning. It contemplates a practical 22 workaround to a default safety strategy which has 23 failed. 24 In contradistinction, LFB's high-rise residential 25 building firefighting policies do not follow through and</p> <p style="text-align: right;">Page 138</p>	<p>1 The lack of reference to GRA 3.2 in the submissions 2 speaks volumes. Is this a public authority which is 3 trying to assist the inquiry, or is this a public 4 authority which is avoiding obvious and serious failings 5 in its systems and in its operations on the night? Yes, 6 there's reference to welcome positive changes and some 7 policy reviews, but nowhere does LFB properly grapple 8 with the key issues. 9 Given that the GRAs are not only national guidance 10 to assist in the saving of life, but they were expressly 11 promulgated to assist fire and rescue services to 12 discharge their duties under health and safety 13 regulations, the failure of LFB to follow through with 14 appropriate policies and training is, in our submission, 15 a clear breach of the general article 2 duty to have 16 a reasonable policy to minimise the life threatening 17 risks of a known dangerous scenario. Both G4 and G3 18 have referred to this in written submissions, and we've 19 footnoted a whole host of authorities regarding that 20 proposition if it's thought to be in any way 21 controversial. We urge you to clearly identify the 22 systemic failures in the interim report. 23 The LFB position and that of some of its senior 24 officers is that evacuation was not possible or 25 "virtually impracticable". Essentially we say that's</p> <p style="text-align: right;">Page 140</p>

<p>1 an attempt to avoid the question. We've heard that the 2 building was "not built for evacuation". No means of 3 communication, conditions deteriorating. Difficult it 4 might have proved, problematic a single staircase and no 5 general alarm might have been, but facing the inferno 6 that the tower rapidly became, there was simply no 7 option. The success of evacuation would've been 8 directly related to how soon it was put into effect and 9 how efficient it was. But can it really be disputed 10 that early evacuation would've saved many lives? We 11 asserted as much in opening. We underline that 12 submission following the evidence.</p> <p>13 Before I turn to the evidence, I note in passing the 14 recent opinions of Professor Purser, supporting the work 15 of Dr Lane regarding evacuation times. Would it have 16 been possible and how long would it have taken? 17 Mr Friedman has referred to the 7-minute point. At 18 another place in a slightly different context, 19 Professor Purser refers to 15 minutes.</p> <p>20 We fully understand the difficulties of 21 an evacuation of Grenfell Tower. The single staircase, 22 the conditions, would not have been ideal. But there 23 was no absolute safety issue with simultaneous 24 evacuation. It was not impossible to do. And it 25 would've been unlikely to have impacted or been impacted</p> <p>Page 141</p>	<p>1 course, opines that stay put was untenable from at least 2 this point.</p> <p>3 But the key is when, subjectively, the incident 4 commanders should've realised that the building was 5 compromised on different levels, and the fire was out of 6 control. In our submission, this was not a binary 7 moment. The realisation should've begun to form soon 8 after 01.08, as the fire rapidly spread and as 9 the minutes went by. Incident command should've had 10 well in mind that the fire was reaching a stage where it 11 was not safe for residents to remain, and should've 12 formed a decisive plan which would've commenced 13 a determined evacuation at the very least by 01.26. 14 Every minute thereafter is relevant when we speak of the 15 LFB's institutional failure to get residents to safety.</p> <p>16 Sure enough, we've heard evidence that, with 17 a facade fire, it might burn off without re-entering. 18 Given this was a densely populated high-rise residential 19 block, one stairwell and the height of summer, when 20 windows would naturally be open, with a fire rapidly 21 spreading, with information available coming from 22 firefighters inside the building that fire and smoke has 23 spread internally, and with calls starting to come in 24 from imperilled residents, the point when it should've 25 been obvious that stay put was no longer tenable must</p> <p>Page 143</p>
<p>1 by the operations of the firefighters.</p> <p>2 Obviously the firefighters would've played 3 an important role in facilitating the evacuation, 4 particularly of the elderly and the vulnerable. It was 5 a matter of organising it. It's an unattractive 6 position for the LFB to speak of virtual 7 impracticability when, that morning, they appear to have 8 given it scant consideration and no policy 9 consideration.</p> <p>10 To the evidence.</p> <p>11 Stephanie Barwise and Danny Friedman have set out 12 the facts and chronology. Therefore, I'm simply going 13 to cherry-pick a few times.</p> <p>14 From 01.08, objectively, according to the experts, 15 the fire had escaped or was about to escape onto the 16 cladding, objectively. Within a short time -- a very 17 short time -- any chance of stopping the fire was 18 impossible.</p> <p>19 From Professor Bisby's compilation number 1, we can 20 see by observation that the fire is raging out of 21 control certainly by 01.15.</p> <p>22 By 01.26, the fire was almost the whole height of 23 the building, from level 4 to level 23, along B5 column, 24 at a height of over 50 metres. Compartmentation had 25 been breached on a number of levels, and Dr Lane, of</p> <p>Page 142</p>	<p>1 have been very early. If that wasn't 01.15 or 2 thereabouts, when the fire was plainly spreading out of 3 control it was most certainly by 01.26.</p> <p>4 We reject the suggestion that this is based on 5 hindsight. It should have followed from observation, 6 gathering information from the fire ground and from 7 applying the DMM. Gather, assess, re-evaluate, 8 determine objectives, make plans, communicate them, 9 control the activity. If it was obvious to police 10 officers like PC Sangha at 01.28 approaching the tower, 11 who radioed that the police should prepare for 12 evacuation, why was it not obvious to the LFB?</p> <p>13 Mr Friedman has alluded to the invidious position 14 Mr Dowden was in. Within minutes of his arrival, the 15 fire had escalated well beyond that which a watch 16 manager is expected to command. The practical fact that 17 senior officers were not on the ground for some time was 18 not mitigated by remote advice or support, something 19 that was envisaged not only within the mobilising policy 20 412, but was also something that would've been triggered 21 by an early declaration of a major incident by the LFB 22 through the strategic response arrangements in policy 23 699, which would've immediately stood up Gold Command 24 and the Commissioner's Group. There is scant evidence 25 of any attempt by senior managers to assist before</p> <p>Page 144</p>

<p>1 arrival, which meant that a watch manager was left in 2 charge for almost the whole of the golden hour of 3 emergency response opportunity.</p> <p>4 Indeed, as has been stated, it was not until Mr Roe 5 arrived at 02.43 when any proper command control was 6 established. Why, therefore, no mention in the LFB 7 closing statements of how they intend to ensure they 8 never put a watch manager in that position again? Why 9 indeed.</p> <p>10 Policy, including 424, did provide for a monitoring 11 officer, and although that post was assumed, no support 12 was in fact given by Mr Walton, who was the monitoring 13 officer designate until he arrived at the incident 14 ground around 01.50.</p> <p>15 With rapid escalation directed by Mr Dowden, a DAC 16 assisted by an AC should've taken over at ten pumps, but 17 nothing of the kind happened. In the meantime, no 18 effective command and control support, no contingency 19 policy or training, the default strategies of stay put 20 and defend in place were continued in the face of 21 overwhelming evidence that they weren't working. Why? 22 Because as we've seen, policy and training did not equip 23 the responders to consider or change to a contingency 24 evacuation because no external command control support 25 was provided to Mr Dowden and because a watch manager</p> <p>Page 145</p>	<p>1 thought evacuation would follow.</p> <p>2 On assuming command, Mr Roe took no convincing at 3 all that it was "absolutely unsustainable to continue 4 with stay put".</p> <p>5 So much for what happened, but what could've 6 happened?</p> <p>7 Are the LFB correct that evacuation was virtually 8 impracticable? Given the reality that there was really 9 no alternative, had the default position been abandoned 10 by or around 01.26, and determined evacuation imposed, 11 attention would then have been focused on how to 12 overcome the difficulties of a single staircase and no 13 general alarm and a raging fire, not if.</p> <p>14 First, the bridgehead would've been informed all 15 efforts would be made to evacuate. This would've meant 16 resources would not have been wasted trying to get onto 17 the roof and moving firefighting media around. Every 18 effort could've been made to maintain the integrity of 19 the stairs.</p> <p>20 BA crews would've been deployed to systematically 21 clear floors as soon as they'd arrived, using high-rise 22 kit to mark those flats and floors cleared rather than 23 awaiting debriefs for ad hoc rescues.</p> <p>24 Secondly, control would've been informed to change 25 advice to callers, "Get out if you can", and to bang on</p> <p>Page 147</p>
<p>1 was left in charge of a fire that was so far beyond his 2 capability that he didn't want to do.</p> <p>3 We've set out the facts relating to Mr Dowden at 4 paragraph 19 of our written submissions and I don't 5 repeat them here.</p> <p>6 The two incident commanders following Mr Dowden, 7 Mr Walton and Mr O'Loughlin, fared little better. Until 8 relieved at 02.43, Mr O'Loughlin indicated that he had 9 no expectation that flats other than on the north-east 10 side would be affected or that compartmentation had 11 failed. He turned his Airwave off as he approached the 12 tower and he didn't consider he needed details of the 13 FSG calls to formulate a plan. Indeed, shortly before 14 the position was taken by Mr Roe, Mr O'Loughlin noted 15 his surprise at being told the number of persons 16 reported.</p> <p>17 It was for the incident commander to change from 18 stay put to evacuation and to determine that FSG callers 19 were to be advised to get out if they could. A further 20 45 minutes were wasted because Mr O'Loughlin failed to 21 get situational awareness such that he could properly 22 evaluate what to do.</p> <p>23 Of course, other officers, as has been mentioned, 24 did have such awareness: Mr Harrison, Mr Egan, 25 Mr Goodall, all of whom, on arrival, expressed that they</p> <p>Page 146</p>	<p>1 neighbours' doors if possible.</p> <p>2 Control could've been asked to ring previous callers 3 back and tell them too, to immediately contact RBKC and 4 the TMO to see whether they could recruit some sensible 5 assistance with lists of vulnerable residents in 6 particular.</p> <p>7 Thirdly a firefighter or a police officer could've 8 been stationed on the intercom. I appreciate the 9 problem with falling debris has been raised, but the 10 reality is the immediate area near the entrance had no 11 such falling debris for a considerable period, but it 12 was covered by a canopy. It wasn't compromised for 13 a considerable time into the night. From CCTV camera 4, 14 this was certainly after 02.30. From Professor Bisby's 15 video number 5, it was probably after 02.40. So plenty 16 of time, in our submission, to have a person safely 17 stationed at the buzzers.</p> <p>18 Firefighters or police officers could've been 19 stationed around the block with loudhailers or, as 20 Mr Friedman's already mentioned, inside the block too.</p> <p>21 Despite some assertions to the contrary, there is 22 open source YouTube footage from the night illustrating 23 that a loudhailer at the base of the tower could be 24 heard from the 23rd floor. We've referred to that in 25 our written submissions at paragraph 35. It indicates</p> <p>Page 148</p>

<p>1 that loudhailers could've been effective, at least to 2 some degree.</p> <p>3 Incidentally, the YouTube clip is apparently picking 4 up the loudhailer used by Firefighter Murray, 5 a firefighter that has been read but not called to give 6 evidence, and at a time of 01.40. So, in our 7 submission, it was perfectly possible from an early 8 point to use tools such as loudhailers.</p> <p>9 Furthermore, NPAS evidence about aerial support 10 indicates that helicopters were equipped with PA systems 11 which could also have been deployed for this purpose. 12 At least such efforts would've alerted residents to the 13 fire before it directly affected them, even if they'd 14 had trouble hearing the particular advice itself.</p> <p>15 Fifthly, the bridgehead or a small group of 16 dedicated officers could've been tasked to identify 17 which floors were clear, who had been evacuated and 18 where remaining residents, particularly the vulnerable, 19 might be.</p> <p>20 Sixthly, a major incident declaration and consequent 21 co-ordination with the blue-light services, the police 22 and ambulance service in particular, could've been 23 deployed to identify who had evacuated but remained from 24 enquiry at the base of the tower, even corralling 25 evacuees to confirm their position and who was left in</p> <p style="text-align: center;">Page 149</p>	<p>1 facilitate individual rescues. Policies 539 and 790 2 deal with the handling of 999 calls and FSG calls 3 respectively.</p> <p>4 As we know, where the building evacuation strategy 5 is stay put, the caller will be told to get out if they 6 become directly affected by fire or advised to stay put 7 otherwise, underpinned by confidence in compartmentation 8 and the ability to put the fire out.</p> <p>9 But the FSG policy is to feed information from 999 10 callers where residents believe they're trapped as well 11 to the fire ground to facilitate rescue, whilst advising 12 callers to consider escape routes or otherwise remain 13 safe.</p> <p>14 So the aims of the policy are to provide the best 15 informed life safety advice on the one hand and, on the 16 other, to provide optimum details to the fire ground to 17 facilitate rescue.</p> <p>18 Neither of those aims was achieved on the night nor 19 was any information loop. On the one hand, resources 20 were being wasted on other efforts which only 21 exacerbated the problems, whilst many residents who 22 still had a window of opportunity to self-evacuate were 23 being told to stay put.</p> <p>24 Had stay put been abandoned at or before 01.26, all 25 the callers between then and when the advice actually</p> <p style="text-align: center;">Page 151</p>
<p>1 the tower.</p> <p>2 As I noted earlier, the intercom and loudhailer 3 points are specifically mentioned in the national 4 guidance.</p> <p>5 The statistics show that half of the residents of 6 the tower self-evacuated by 01.42. Dr Lane reviewed the 7 evidence and indicates that the stairs were largely 8 clear prior to that time. Although there may have been 9 some difficulties passing the "hot zone" between 13 and 10 16, between 02.00 and 02.30, there were multiple 11 self-evacuations and assisted rescues up to and beyond 12 4 o'clock, including from above level 16 until around 13 03.55.</p> <p>14 Although conditions undoubtedly deteriorated and, at 15 times, particular levels became more difficult to pass, 16 evacuation was possible for several hours. What was 17 missing was a co-ordinated plan or, indeed, a plan at 18 all.</p> <p>19 FSGs.</p> <p>20 As incident command persisted with firefighting and 21 failed to re-evaluate or abandon stay put, a parallel 22 and almost unconnected process dealt with the 999 calls. 23 Without steer from incident command the control room 24 continued blind with a process based on advice to stay 25 put and providing information to the fire ground to</p> <p style="text-align: center;">Page 150</p>	<p>1 was changed sometime after 02.35, would've been advised 2 to get out if they could.</p> <p>3 From our schedules the schedules we provided last 4 week, this translates in our submission to around 57 999 5 calls relating to 25 different flats.</p> <p>6 Instead, what happened? Residents were told to stay 7 put because no one had told control room of a change of 8 policy and no one had told them compartmentation had 9 been breached. Inquiries were not consistently made as 10 to whether residents were becoming affected by heat fire 11 or smoke and whether they could leave.</p> <p>12 The operation of the process was, on any rational 13 view, hopeless. Control operated blind from the 14 incident command, scraps of paper, whiteboards 15 a mishmash of radio messages, mobile phone and landline 16 were used to communicate with the fire ground.</p> <p>17 At the fire ground, messages were not initially 18 picked up by the incident command appliance and they 19 were diverted to a fire appliance en route.</p> <p>20 The first FSG messages were received at the fire 21 ground by the CU8 at around 01.43. But just how they 22 were collated there -- assuming they were -- remains 23 unclear. And, likewise, how they were passed on.</p> <p>24 Mr Meyrick in CU8 gave evidence that he communicated 25 messages on to Mr Kentfield and it may be some messages</p> <p style="text-align: center;">Page 152</p>

<p>1 were forwarded directly to Watch Manager De Silvo by 2 radio. 3 There's scant physical record of what was happening 4 to the information at this time, save for the notes made 5 by Mr Meyrick apparently as he received them. 6 We know -- and I reference the G3 BA deployment 7 schedule here -- that no BA crew was deployed to any 8 flat as a result of a 999 call or the FSG process while 9 Mr Dowden was incident commander, nearly an hour into 10 the fire. The average delay through the night in 11 deploying crews to flat to which crews actually were 12 deployed on our analysis was an hour and 10 minutes from 13 the time of the first 999 call. I stress to flats to 14 which deployments were actually made, because almost 15 half of them, there weren't such deployments. 16 At 02.13, Mr Sadler apparently started his car 17 bonnet staging post, literally with notes made on the 18 back of an envelope. We time that because of the 19 picture he took of the envelope so he could pass it onto 20 the tower. It's not until 02.23, an hour and a half 21 into the fire, that the dedicated CU7 became operational 22 for FSG management, far, far too late. By that point, 23 about 24 of the 33 flats from which FSG calls were made 24 had called 999 at least once. 25 Standing back from all of this, what was happening</p> <p>Page 153</p>	<p>1 Where there's one or a small number of calls, the 2 control room will liaise with the incident command 3 appliance and, no doubt, the incident commander direct 4 and remain on the line. At a multi-call incident, 5 a dedicated unit to deal with calls will have to get to 6 the incident, will have to set up, communication will 7 have to be established between the commander, the 8 bridgehead, the command unit, control. The policy 9 requires a loop where information comes from the caller 10 to the incident ground, it's acted upon and a debrief 11 goes back. 12 As we've seen from the evidence, the FSG process on 13 the incident ground was shambolic. It took nearly 14 20 minutes from the first FSG calls for them to be 15 notified to the incident ground. No information was 16 ever fed back to the control room. If, as policy 17 intended, the IC was reliably kept informed as a pivot 18 point within the loop of information, this in turn 19 would've brought earlier and clearer focus upon the need 20 to abandon stay put. But, in reality, the incident 21 commanders remained quite independent of the process, at 22 least until Mr Roe took over, far too late. 23 On our analysis of the evidence up to 04.15, in the 24 schedules, again, which we provided to the inquiry team 25 last week, we indicate that only three deployments of</p> <p>Page 155</p>
<p>1 was efforts being made, best efforts being made, but 2 chaos resulting. Staging posts popping up at car 3 bonnets and the entrance to the tower by Mr Williams and 4 on the mezzanine, scraps of paper, backs of envelopes, 5 walls, whiteboards used at these points and at the 6 bridgehead to record information that then had to be 7 moved about. 8 The fact that the FSG process failed should not be 9 a surprise to anybody. It certainly shouldn't have been 10 a surprise to the LFB. We know that from the evidence 11 of Mr Johnson, who told senior policy officers whilst he 12 served on the dedicated command unit section, what 13 better place could he have been, at Islington in 2014, 14 that policy 790 was not effectively fit for purpose for 15 multi-call incidents, and he demonstrated it through 16 a training package. 17 But, regrettably, his criticisms and proposals for 18 change were not heeded. Babcocks declined to take the 19 training forward. The package demonstrated that it 20 would be impossible to pass information on within the 21 timescales of what was felt to be a realistic 22 progression of a high-rise incident. In effect, the 23 training package showed that it was impossible to meet 24 reasonable timescales and, of course, that was proved by 25 the incident itself.</p> <p>Page 154</p>	<p>1 firefighters resulting directly from FSG calls led to 2 fully successful outcomes, with another two which were 3 partially successful. Out of 33 flats from which 999 4 calls were made, no rescue deployments at all were made 5 in almost half of them. 6 Of course, in some of those cases residents 7 eventually self-evacuated, and some were met and 8 assisted by firefighters in the lobbies and on the 9 stairwell. The point made is that the FSG process on 10 the night was successful in only a handful of cases. 11 The fact that firefighters assisted residents in lobbies 12 and on the stairs supports the proposition that 13 deployment to search and clear floors would've been far 14 more effective. 15 Neither does there seem to have been any correlation 16 between calls which were noted as priorities in CU7 on 17 the grid that you may recall, where the LFB had 18 information that trapped residents were elderly or 19 children, immobile or ill, and the deployments. Among 20 the 16 999 calls where there were apparently no 21 deployments at all, 11 were noted as priorities on the 22 grid. 23 Finally, in terms of the statistics, we note that 22 24 emergency calls had been received from 15 flats where 25 the caller identified the flat number by 01.45. 21 of</p> <p>Page 156</p>

<p>1 those were passed to the fire ground as FSG calls. The 2 significance of that is by 01.25, all 999 calls 3 identifying particular flats were being passed on to the 4 fire ground, and by 01.45, there were a huge number of 5 them.</p> <p>6 The fire was out of control, the control room was 7 overrun, the FSG policy was not producing results, and 8 that continued through the incident. There was 9 a disconnect between command and the control room.</p> <p>10 Critically, information flow was one way, from 11 control to the fire ground, and much of the information 12 out of date by the time it got to the bridgehead or 13 because of a lack of feedback from the tower. Some 14 information fell between the cracks and was not passed 15 on, despite callers being told that rescue was on its 16 way. Incident command failed to appreciate the volume 17 of calls.</p> <p>18 I'm conscious of time, but I would like to finally 19 move on to an example, and that's the example of 20 flat 142 on level 17. Just how unfit for purpose the 21 FSG policy was is illustrated by reference to flat 142.</p> <p>22 As I stated from Mr Johnson's evidence, we know LFB 23 were aware of how it wouldn't cope with multiple calls. 24 Whether it's possible to have a workable FSG process to 25 deal with multiple calls remains in question, but its</p> <p style="text-align: center;">Page 157</p>	<p>1 appear on the second floor bridgehead wall. We can be 2 clear about that extent of time because that's when the 3 bridgehead was moved to the 3rd floor, so it's 4 a reasonable conclusion that, somehow, the information 5 had gone from control to CU8 to the bridgehead before 6 that time.</p> <p>7 There's no evidence that the flat 142 information 8 passed through Mr Sadler's car bonnet staging post or, 9 indeed, Mr William's post at the entrance to the tower. 10 There's no evidence at all that the information went 11 from the 2nd floor to the 3rd floor when the bridgehead 12 moved, and it appears that the information passed on 13 from this first call was lost. So had been the best 14 chance of rescuing the family.</p> <p>15 When no one came, the family made a second call, 16 almost an hour later at 02.27. At 02.30, the control 17 room officer who took the call passed the information to 18 CU7. Mr Peckham noted the radio transmission on 19 a control information form, so we know that was 20 received. We know it was added to the laminated board 21 in CU7. There's no evidence, however, that that second 22 call was communicated to the tower until much later on, 23 when Mr Furnell took a photograph of the laminated board 24 to the tower sometime after 03.15. Again, the family 25 waited and no one came.</p> <p style="text-align: center;">Page 159</p>
<p>1 known deficiencies should've underlined the need for 2 a general evacuation.</p> <p>3 The residents of flat 142 were the family of my 4 client Mohammed Hakim. You may not be immediately 5 familiar with 142 as there has been so little evidence 6 about it. It will feature in the next phase when we 7 deal with what happened to each deceased, because the 8 five members of the family in the flat perished in the 9 fire. But I'm not referring to 142 now for that 10 purpose, but to illustrate how information fell between 11 the cracks.</p> <p>12 There were three 999 calls from flat 142: at 01.29, 13 reporting smoke coming into the flat; at 02.27 reporting 14 by then the fire was right next to the window; and at 15 03.18. I just want to spend a moment tracing the 16 evidence that we know about that.</p> <p>17 The first call was actually taken by the police at 18 01.29, and they passed it on to the Fire Brigade at 19 01.38. Control passed the information to the fire 20 ground as an FSG by radio. The incident command 21 appliance didn't respond and the information had to be 22 intercepted by CU8 in the process of setting up at 23 01.43. There doesn't appear to have been any system, as 24 I've said, at CU8, certainly at that point. But at some 25 time before 02.17, the legend "17th fl, 142, FSG", did</p> <p style="text-align: center;">Page 158</p>	<p>1 At 03.18, the family made the third call, spoke to 2 the same CRO. A control information form again was 3 generated at 03.23, so we know the information was 4 passed on. CU7 were also informed independently by the 5 police, PC Jacobs, that five people were trapped in 6 flat 142 just after this time at 03.35. That too was 7 recorded on a CIF.</p> <p>8 This information did appear to go to the tower 9 because it ended up on the bridgehead on the ground 10 floor, but by the time of this third 999 call, it was 11 too late, because the last crew to successfully reach 12 level 17 had been deployed there somewhat earlier.</p> <p>13 Despite three 999 calls, information being passed to 14 CU8, twice to CU7, independent police information going 15 to CU7, no rescue crew was ever deployed to flat 142. 16 Lost between the cracks.</p> <p>17 Conclusions.</p> <p>18 Long before the firefighters could've been deployed 19 onto the fire in flat 16, it had escaped onto the 20 cladding. From a very early stage, it was obvious that 21 no means of firefighting was going to extinguish or slow 22 the progress of the fire. The Fire Brigade failed to 23 react appropriately because of a series of systemic 24 errors.</p> <p>25 We urge the inquiry not to confuse effort with</p> <p style="text-align: center;">Page 160</p>

40 (Pages 157 to 160)

<p>1 outcome. Very brave attempts were being made to save 2 lives, but commanders were following the wrong plan, 3 with policies that were plainly not fit for purpose. 4 633, mention made of the possibility of the need to 5 evacuate where stay put was the default policy, but no 6 contingency or operational plan for how that could be 7 approached. This compounded by the complete absence of 8 training. 9 Given the scale of the disaster, it's apparent that 10 the FSG system never got off the ground, at no stage 11 worked efficiently and was ineffective in saving lives. 12 In fact, in adhering to a plan that was plainly 13 inappropriate from the outset, the FSG process hindered 14 rather than helped. 15 The LFB are right to highlight the courage of 16 individual firefighters, but they do them a disservice 17 when they fail to acknowledge the obvious systemic 18 errors which placed those firefighters as well as 19 residents at greater risk to life and limb. Those 20 systemic failures are all the more serious because LFB 21 had been involved in drafting the national guidance. It 22 knew post-Lakanal the policy fix with the FSG policy 23 simply didn't work for an incident with more than 24 a handful of trapped persons. 25 We urge you to carefully consider the following</p> <p style="text-align: center;">Page 161</p>	<p>1 SIR MARTIN MOORE-BICK: Now, Mr Stein, your turn to make 2 a statement. 3 Before you start, can I just say that we're probably 4 starting at an hour which you hadn't originally expected 5 to start at. I don't want you to feel rushed. It would 6 be probably good for us and for you to hear the whole of 7 your statement at once, but if we get to a time when you 8 feel it's not going to work, you tell me. 9 MR STEIN: Sir, I understand that. I've already spoken to 10 our stenographer about the need to keep to a reasonable 11 pace as well, so I'll bear those matters in mind. 12 SIR MARTIN MOORE-BICK: All right. We'll see how we go, 13 shall we? 14 Closing submissions on behalf of G3 by MR STEIN 15 MR STEIN: Sir, the London Fire Brigade let down the 16 firefighters who attended the Grenfell Tower fire, as 17 well as the residents of the Grenfell Tower. Quite 18 simply, the LFB was not able to take on a fire of this 19 magnitude, as it had had insufficient training, 20 inadequate equipment and no leadership capable of 21 tackling this fire. The London Fire Brigade was 22 a disorganised organisation. 23 The evidence before this inquiry has demonstrated 24 that the London Fire Brigade has a cultural inability to 25 plan for a major disaster in any high-rise block,</p> <p style="text-align: center;">Page 163</p>
<p>1 findings: 2 Firstly, that there was a systemic failure to have 3 any contingency plan to safeguard life where a stay-put 4 strategy became untenable or training to evaluate or 5 operate such a plan. 6 Secondly, there was a systemic failure to properly 7 gather, collate, make available sufficient information 8 concerning Grenfell Tower to allow for such contingency 9 planning and operation. 10 Thirdly, those systemic failures led to the failure 11 to take decisive action to safeguard life by evacuating 12 the tower from about 01.26. 13 Lastly, that the FSG policy, 790, was known to be 14 unfit for purpose prior to the fire and, indeed, failed 15 on the night. 16 Those are our submissions. 17 SIR MARTIN MOORE-BICK: Well, thank you very much indeed. 18 That might be a convenient point, I think, to have 19 a 10-minute break, give the transcribers' fingers 20 a rest. So we'll break now and come back to start again 21 at 3.35, please. Thank you. 22 Thank you very much. 23 (3.25 pm) 24 (A short break) 25 (3.35 pm)</p> <p style="text-align: center;">Page 162</p>	<p>1 whether residential or office or any large building. It 2 has completely failed to train or test equipment such as 3 radio and other communication systems under true-to-life 4 conditions. The majority of the equipment which is 5 meant to allow the London Fire Brigade to communicate, 6 analyse and assess a fire ground did not work, and the 7 London Fire Brigade has demonstrated an inability to be 8 able to grasp and learn from mistakes. 9 Instead, what we have from the commissioner at the 10 end of her evidence on 27 September this year is the 11 much quoted comment that she would not change anything 12 we did on the night. 13 The commissioner, Dany Cotton, should have been well 14 aware of the dreadful failings within the Fire Brigade 15 which had been identified before this inquiry by the 16 time she came to give her evidence. 17 We suggest that there has been a failure to consider 18 the unfolding evidence before this inquiry by both the 19 commissioner and her leadership team. We suggest that 20 they are not fit to run the London Fire Brigade. 21 This condemnation of the leadership of the Fire 22 Brigade for London should not be taken to be an insult 23 to those on the front line. No one can or should forget 24 the sheer bravery and determination of the individual 25 firefighters who risked their lives within the</p> <p style="text-align: center;">Page 164</p>

<p>1 Grenfell Tower.</p> <p>2 I refer to quotes now from two of those brave</p> <p>3 firefighters.</p> <p>4 Crew Manager Christopher Secrett.</p> <p>5 In his evidence, he referred to the struggle to get</p> <p>6 out of the bin store. He was hot, disorientated and</p> <p>7 stressed:</p> <p>8 "Eventually we got out and got to stairwell. The</p> <p>9 smoke was thick in the stairwell and I could not see my</p> <p>10 hand in front of my face. We had all lost our energy.</p> <p>11 We struggled to get down the stairs and it was a mixture</p> <p>12 of stumbling, falling and crawling trying to get down.</p> <p>13 After coming down 3-4 floors I realised we had lost FF</p> <p>14 Chris DORGU. I asked for FF BADILLO to shout for FF</p> <p>15 DORGU because I had no energy to do it. Neither did he.</p> <p>16 We sat there. I looked at my gauge and saw I only had</p> <p>17 15 bar left; I was in big trouble. I put myself in a</p> <p>18 corner of the stairwell because I did not want to be in</p> <p>19 anyone else's way if I didn't make it out."</p> <p>20 In fact, Firefighter Dorgu appeared, grabbed his</p> <p>21 arm, and was able to help him out.</p> <p>22 Let's not forget the evidence from Watch Manager</p> <p>23 Louisa De Silvo. You'll recall she was deployed at the</p> <p>24 bridgehead. Faced there with the job of making sure</p> <p>25 that firefighters were going correctly into the tower,</p> <p>Page 165</p>	<p>1 replace training and bravery is no substitute for</p> <p>2 equipment. Nor should any of us forget the astonishing</p> <p>3 courage of the residents of the tower, both those who</p> <p>4 made it out and those who died in the fire.</p> <p>5 In the last part of the evidence read before this</p> <p>6 inquiry on 3 December, the words of Mrs Emanuela Disaro,</p> <p>7 the mother of Gloria Trevisan who lost her life</p> <p>8 alongside her boyfriend Marco Gottardi and two others in</p> <p>9 flat 202 on the 23rd floor, should be remembered.</p> <p>10 Gloria's mother said:</p> <p>11 "You could tell she was having problems talking.</p> <p>12 Her throat was burning, she was starting to feel unwell</p> <p>13 and she wanted to go quicker. At a certain point she</p> <p>14 told me fire was coming through the window.</p> <p>15 A moment later she said:</p> <p>16 "... she couldn't breathe. She told me again what</p> <p>17 she felt for us and that we have to say goodbye and we</p> <p>18 had to be strong. At that point Gloria said she was</p> <p>19 cutting off the phone because she didn't want me to hear</p> <p>20 anything and she said goodbye to us ..."</p> <p>21 Firefighters and residents have no doubt about the</p> <p>22 bonds that have been made amongst themselves. They know</p> <p>23 what they saw, what they witnessed and they have built</p> <p>24 up strong relationships of friendship and respect.</p> <p>25 That is why, when the residents and survivors march</p> <p>Page 167</p>
<p>1 the question was asked of her by counsel to the inquiry,</p> <p>2 referred to two West Hampstead BA wearers, Martin Hoare</p> <p>3 and Matthew Tanner, being deployed at roughly 02.55.</p> <p>4 She was asked what her recollection was about that</p> <p>5 particular deployment, and she said this:</p> <p>6 "What I remember about that is I recognised them,</p> <p>7 like I say, because of my time at Kentish Town. So they</p> <p>8 were firefighters who were familiar to me.</p> <p>9 "What I do remember is Firefighter Tanner asking me</p> <p>10 if there would be water there when he gets there. Any</p> <p>11 firefighter going near or into a fire will take water;</p> <p>12 that is our baseline for our own safety. And I remember</p> <p>13 him asking and I remember having to say that it was</p> <p>14 unlikely that there would be any water for him to take</p> <p>15 with him into those conditions.</p> <p>16 "These are firefighters who have seen the building</p> <p>17 that they're entering, and I remember having to say to</p> <p>18 him that it was unlikely there would be water and that</p> <p>19 he was to try and effect rescues ..." [Day 30, 26 July</p> <p>20 2018, page 36]</p> <p>21 Ms De Silvo was sending firefighters into an inferno</p> <p>22 and she and they knew it.</p> <p>23 But this inquiry needs to avoid the mistake being</p> <p>24 made by the London Fire Brigade, which is to confuse</p> <p>25 bravery with adequacy of response. Bravery cannot</p> <p>Page 166</p>	<p>1 on the 14th of a month, the firefighters line the march</p> <p>2 and they meet and greet each other with dignity, warmth</p> <p>3 and respect.</p> <p>4 But there are difficulties for residents and family</p> <p>5 members from the tower. Residents and family members</p> <p>6 from the tower and survivors from this fire, even when</p> <p>7 they don't always believe that individual firefighters</p> <p>8 either did their best or have even given their evidence</p> <p>9 honestly because of the dire peril everyone was in, they</p> <p>10 thank firefighters for the saving of lives. An example</p> <p>11 of this is Seun Talabi. He said:</p> <p>12 "As well, I'd like to speak about the Fire Brigade,</p> <p>13 if I can.</p> <p>14 "No one should ever have to go to work and not</p> <p>15 return back to their family, no one, whether you're Fire</p> <p>16 Brigade, whether you're a firefighter, whatever job you</p> <p>17 do. But at the end of the day, it will be easier</p> <p>18 sometimes if you just say the truth, because that way</p> <p>19 people will forgive you. It will be easier for people</p> <p>20 to forgive you." [Day 59, 16 October 2018, page 153]</p> <p>21 He went on to say:</p> <p>22 "But you shouldn't lie on residents that are going</p> <p>23 through enough as it is and say you did rescue missions</p> <p>24 that you didn't do."</p> <p>25 Of this position, which is difficult for Mr Talabi,</p> <p>Page 168</p>

<p>1 we suggest, he says:</p> <p>2 "I would like to thank Peter Herrera for opening</p> <p>3 that door, because if he didn't open that door,</p> <p>4 I probably would've gone through the window and</p> <p>5 I probably would've died. Maybe, maybe not. But at the</p> <p>6 same time, Peter Herrera made loads of mistakes that</p> <p>7 night.</p> <p>8 "... All he had to say was, 'I tried my best, I was</p> <p>9 scared'."</p> <p>10 Where we suggest that the London Fire Brigade has</p> <p>11 failed as an organisation, from a starting point, is in</p> <p>12 failing to assess the potential for risk, in planning to</p> <p>13 deal with the risk and, therefore, in failing to train</p> <p>14 or equip to cope with such risks.</p> <p>15 The London Fire Brigade is assisted and sets out by</p> <p>16 the London Safety Plan, which was approved and as yet</p> <p>17 unamended on 30 March 2017. It refers to the question</p> <p>18 of risk management, setting out matters in this</p> <p>19 way: what does London Fire Brigade mean by risk, it</p> <p>20 asks? And it answers its own question: the London Fire</p> <p>21 Brigade's understanding of risk is based on the</p> <p>22 likelihood of an incident occurring and its</p> <p>23 consequences. Well, the most likely incidents that may</p> <p>24 occur may be a fire in a house, a fire that does not</p> <p>25 breach compartmentation, and if you base your planning</p> <p>Page 169</p>	<p>1 disaster, multiple FSG calls and high population risk,</p> <p>2 then we await the next disaster, which will yet again</p> <p>3 lead to casualties and death without an adequate</p> <p>4 response from the LFB.</p> <p>5 But the truth from other submissions made today, and</p> <p>6 from the background history from other fires, is that</p> <p>7 far from the Grenfell Tower being an unrealistic</p> <p>8 scenario, the risk of a cladding fire was well known to</p> <p>9 the LFB. In 1999, after the Garnock Court fire in</p> <p>10 Irvine, the Environment, Transport and Regional Affairs</p> <p>11 Committee examined the potential risk of fire spreading</p> <p>12 in buildings via external cladding systems. This is</p> <p>13 1999.</p> <p>14 The Fire Brigade Union, in their submissions,</p> <p>15 observed that there are a number of risks posed by the</p> <p>16 use of combustible or badly installed external cladding</p> <p>17 systems, and went on to make further submissions that</p> <p>18 the primary risk, therefore, of the cladding system is</p> <p>19 that it provides a vehicle for assisting uncontrolled</p> <p>20 fire spread up the outer face of the building, with the</p> <p>21 strong possibility of the fire re-entering the building</p> <p>22 at higher levels, via windows or other unprotected areas</p> <p>23 in the face of the building. This is, in turn, a threat</p> <p>24 to the life safety of the residents above the fire</p> <p>25 floor. 1999.</p> <p>Page 171</p>
<p>1 upon such level of risk, you'll never have adequate</p> <p>2 resources capable and able of helping people in such</p> <p>3 a fire as at the Grenfell Tower.</p> <p>4 On 27 September of this year, Mr Millett QC, counsel</p> <p>5 to the inquiry, asked Commissioner Cotton whether there</p> <p>6 had been a structural or cultural failure by the LFB to</p> <p>7 respond to new hazards. The response from the</p> <p>8 commissioner was to deny that there had been such</p> <p>9 a failure. During the course of the commissioner's</p> <p>10 evidence, she stated that training about fires on</p> <p>11 building facades would not have helped, and I quote, she</p> <p>12 said:</p> <p>13 "But I truly don't think it would've benefited</p> <p>14 anyone to have had any more detailed knowledge about</p> <p>15 cladding to respond to the fire at Grenfell because it</p> <p>16 wouldn't have enabled them to extinguish the fire."</p> <p>17 [Day 50, 27 September 2018, page 69]</p> <p>18 We suggest that it is imperative for the safety of</p> <p>19 Londoners that the LFB review their management of risk.</p> <p>20 The consequences of not planning within an emergency</p> <p>21 service to deal with a known risk is precisely why the</p> <p>22 London Fire Brigade was outclassed by the Grenfell Tower</p> <p>23 fire.</p> <p>24 Without making sure that the London Fire Brigade has</p> <p>25 the resilience and resources to cope with a major</p> <p>Page 170</p>	<p>1 In her evidence, Commissioner Cotton was asked --</p> <p>2 this is on 27 September -- whether she'd been shown the</p> <p>3 LFB slideshow with the title "Tall building facades".</p> <p>4 Her answer was no, despite her background, being the</p> <p>5 director of safety and assurance at the time. Whilst</p> <p>6 the circulation list contained her senior fire safety</p> <p>7 officers, she did not know if any had actually seen the</p> <p>8 presentation. She accepted eventually that the</p> <p>9 conclusions from the slideshow demonstrated that there</p> <p>10 had been an emerging consciousness within the LFB that</p> <p>11 facades of high risk buildings created risks of fire</p> <p>12 spread.</p> <p>13 Now, the key question is whether and how that</p> <p>14 information had been disseminated to front-line</p> <p>15 operational firefighters. Well, we know repeatedly,</p> <p>16 from the questions asked by counsel to the inquiry, that</p> <p>17 the answer from the front-line firefighters is they had</p> <p>18 no knowledge, other than one or two who referred to</p> <p>19 having seen it themselves online or on television.</p> <p>20 The commissioner's response to the document in</p> <p>21 relation to whether the information had been given out</p> <p>22 to the operational firefighters, she said this:</p> <p>23 "I don't think it has been because I wasn't familiar</p> <p>24 with this document beforehand. But the normal procedure</p> <p>25 would be if there was deemed to be something that was</p> <p>Page 172</p>

<p>1 a risk that needed to be shared, it would be developed 2 into a training package that could be shared more 3 widely." [page 50] 4 Asked if she knew why such a training package had 5 not been undertaken: 6 "No, I don't." [page 51] 7 Asked why the presentation was only provided to 8 a limited number of specialists and not been seen: 9 "No idea." 10 It was suggested by counsel to the inquiry that her 11 evidence indicated both structural and cultural failings 12 within the LFB, a failure to more widely disseminate key 13 elements of fire safety. Her response: 14 "... nobody would expect an incident like Grenfell, 15 where the building would fail so spectacularly and be 16 covered in such a highly flammable product, would be 17 allowed to exist." 18 Whilst ultimately accepting that the Grenfell Tower 19 fire was not a negligible risk and that the risk of such 20 a fire had been on the London Fire Brigade's radar for 21 at least nine months, the commissioner argued that 22 training would make no difference. 23 Of course, we have the memorable part of the 24 evidence from the commissioner addressing the 25 unrealistic scenario that had unfolded at</p> <p>Page 173</p>	<p>1 Natural curiosity. 2 Forgive me if this seems judgemental, commissioner, 3 but does this seem the right way for the London Fire 4 Brigade commissioner to be reviewing documents about 5 cladding fire risk, or is there something we are 6 missing? We have the largest ever civil disaster since 7 World War II, the largest call-out of firefighters and 8 appliances that anyone, it seems, has ever heard about, 9 and we have the deaths of 72 people from the vertical 10 community that was the Grenfell Tower building. But 11 when does the commissioner decide to look at documents 12 that relate to high-rise blocks and cladding fires? 13 Well, it seems only when it is shown before this 14 inquiry. 15 We ask this question: why did the commissioner not 16 say within hours if not days of the Grenfell Tower fire, 17 "I want to see everything the LFB has on high-rise block 18 fires and cladding fires"? Why did she not say, "Give 19 me every piece of academic research on cladding fires 20 and let me understand what happened and see how we can 21 improve"? 22 The fact is that the commissioner for the LFB did 23 not ask for this material immediately. The fact is that 24 that defies belief. Why is the commissioner of the 25 London Fire Brigade not taking the lead in examining</p> <p>Page 175</p>
<p>1 Grenfell Tower, as she put it, where she explained: 2 "... I wouldn't develop a training package for 3 a space shuttle to land on the Shard, we would respond 4 to it and deal with it in the same manner we do. That 5 is an incident of that scale, so I wouldn't expect us to 6 be developing training or response to something that 7 simply shouldn't happen." [page 52] 8 But does not the commissioner understand that 9 aeroplanes fly into towers, concerts in large buildings 10 are bombed and towers are vulnerable to fire? 11 But in her evidence, we also learnt one further 12 thing about the "Tall building facades" document. She 13 explained that the only reason she had looked at the 14 "Tall building facades" presentation is that she was 15 going to be questioned before this inquiry. Asked by 16 counsel to the inquiry: 17 "Question: Have you studied this document since 18 Grenfell? 19 "Answer: The tall building facades one? 20 "Question: Yes. 21 "Answer: I've looked through it, yes. I have not 22 studied it in detail. I have looked through it. 23 "Question: Who asked you to do that? 24 "Answer: Once you'd shown it here in this inquiry, 25 my natural curiosity led me to go and look at it."</p> <p>Page 174</p>	<p>1 what happened and why? 2 But it's worse than that, because it also tells us 3 that her senior management team did not brief her on 4 what was available in the months leading up to the 5 inquiry. London has approximately 1,600 high-rise 6 blocks, both residential and office. The London Fire 7 Brigade has not trained to fight a compartment breaching 8 fire in any of these blocks. This cultural blindness to 9 risk means that the very organisation which we rely upon 10 and pay for, which we all believed before the 11 Grenfell Tower fire was in the business of disaster 12 management and solution, is quite incapable of dealing 13 with a fire ground of this complexity. 14 This is like the army and navy saying, "We're pretty 15 good at dealing with a minor skirmish, but we have no 16 plan and we've given no thought to fighting a battle." 17 Because of the abject failure by the LFB to plan for 18 this known risk, no one single person was capable, it 19 seems, of appreciating the growth of this disaster. 20 Mr Weatherby has examined the GRA 2014 and its 21 contents. I only say this: it is clear that the London 22 Fire Brigade has failed to comply with its duty under 23 GRA 2014. 24 Therefore, without such planning, the firefighters 25 were left with inadequate equipment and no overall</p> <p>Page 176</p>

<p>1 ability to make an assessment of all of the information 2 available from FSG calls, 999 calls, from people at the 3 scene, CCTV photographs or other images sent down, 4 drone, helicopter, television, Airwave, mobile phone, or 5 the handheld radios. Nor was there the equipment 6 available which might have supported communications, 7 such as the Vector computer-based simulation system 8 described by SM Johnson as not working for nine years, 9 or the other not working or useless equipment, such as 10 the striker camera, Toughbooks, mesh nodes and CSS. 11 The FSG call centres were blind to the events of the 12 fire ground, and the command units didn't have reports 13 from the firefighters within the block and no way to 14 bring together an assessment of the FSG information. 15 So no wonder we have the discrepancy in time and the 16 communication of the abandonment of stay put. Because 17 there were no information feeds, and no real 18 communications, we in fact have two separate 19 determinations that the stay-put policy should be 20 changed to an evacuation. 21 On 26 September, in the questions asked by counsel 22 to the inquiry of AC Andy Roe, he was asked about his 23 decision to abandon stay put. Two important pieces of 24 information arose. 25 First, Mr Roe's ignorance as to Watch Manager</p> <p style="text-align: right;">Page 177</p>	<p>1 emergency service is reliant on runners with pieces of 2 paper, this is fit only to just about on occasions 3 convey emergency rescue information. But as regards the 4 equally important need to use that information to assess 5 the situation, it is simply not fit for purpose. 6 I'm going to move on to the radios and the problems 7 with those at the tower. 8 The handheld radios used by the firefighters at the 9 Grenfell Tower fire operated on 10 a most-powerful-signal-gets-through line-of-sight 11 principle, which means that a standard high-rise 12 building, with an inevitable iron steel structure, 13 reinforced concrete components, will block radio waves 14 attempted by communication to be made up and down the 15 tower. The limitations of that equipment used resulted 16 in very significant failings on the night. 17 You'll recall the evidence of Firefighter O'Beirne, 18 one of the first firefighters to arrive. Mr O'Beirne 19 witnessed flats on fire one and two levels above the 20 fire. He spoke to individuals coming from flats. He 21 also noted heavy smoke-logging in flats on the 6th 22 floor. He attempted to radio Mr Dowden using his 23 handheld radio and he heard nothing back. He said this: 24 "... I radioed down to WM DOWDON[sic], using my 25 handheld radio, and said something along the lines of</p> <p style="text-align: right;">Page 179</p>
<p>1 Johnson's pilot exercise which had demonstrated the 2 operational difficulties which arose once fire survival 3 guidance call numbers rose above seven. 4 Second, that whilst Mr Roe had abandoned the 5 stay-put policy as of 02.47, in fact, by 02.35, Jo 6 Smith, within one of the FSG centres, was advising that 7 callers evacuate, get out, this could be the last 8 chance. How is it that we have a situation where the 9 call centre assessment, without sight of the tower on 10 fire, is that stay put has to be abandoned, yet this has 11 not managed to communicate itself to Mr O'Loughlin, who 12 had been in charge at that time, and, therefore, not 13 onwards to Mr Roe? 14 Wouldn't lives have been saved if someone in 15 a command position to make the call to abandon stay put 16 could have had an understanding of the volume and 17 factual content of the FSG calls, as well as effective 18 communications with firefighters in the tower, plus 19 sight of the tower? 20 Marcio Gomes put it this way: 21 "The decisions, or better yet the lack of decisions, 22 at the time cost lives, and I truly believe that a lot 23 more lives would've been saved if things were done 24 quicker." [Day 71, 9 November 2018, page 151 to 152] 25 It becomes obvious that where a 21st century</p> <p style="text-align: right;">Page 178</p>	<p>1 'the flat above the fire floor is on fire, their kitchen 2 is alight. We need a BA crew and breaking in gear.' I 3 only radioed once. 4 "I don't remember hearing any other radio traffic at 5 that time. I didn't get a reply but I believed my 6 message had been transmitted and that I had spoken 7 clearly." 8 Again, once on the 6th floor: 9 "I radioed down to the Governor, WM DOWDON, again 10 but I didn't get any reply. I didn't get a reply to any 11 of the radio messages I sent to the governor but I 12 assumed he was still very busy but that he could hear 13 me." 14 But was this vital evidence from Mr O'Beirne, who 15 was the individual that had decided that it would be 16 a good idea to go up the stairs of the tower and see how 17 farce were progressing, received and acted upon or 18 understood at these early stages? 19 Mr Dowden's evidence in this regard was given on 20 27 June of this year. He said that he received no 21 information from Mr O'Beirne as to what Mr O'Beirne was 22 discovering concerning the conditions on the floors 23 above the 4th floor. 24 The evidence from Mr O'Beirne and Mr Dowden is 25 entirely compatible. Mr O'Beirne recalls trying to</p> <p style="text-align: right;">Page 180</p>

45 (Pages 177 to 180)

<p>1 transmit the messages but received no acknowledgement or</p> <p>2 reply. Mr Dowden does not recall getting these</p> <p>3 messages, and given that we know where he was standing,</p> <p>4 which was close to the base of the tower, it is likely</p> <p>5 that he simply didn't receive the radio traffic as the</p> <p>6 tower structure itself would've been blocking the radio</p> <p>7 transmission.</p> <p>8 If these calls had been made by a mobile phone, as</p> <p>9 was demonstrated by the harrowing long call, yet another</p> <p>10 testament to courage and bravery by Marcio Gomes as he</p> <p>11 spoke to Ms Fox at the call centre, then in all</p> <p>12 likelihood, the call and information to Mr Dowden</p> <p>13 would've got through.</p> <p>14 Now, the ability to use a mobile telephone in fire</p> <p>15 conditions without question is difficult and it requires</p> <p>16 an individual phone call to be made. The point is that</p> <p>17 type of technology will allow a call to be made in and</p> <p>18 out of a tower. It may be that you can't just or should</p> <p>19 not rely upon your personal mobile phones, but the</p> <p>20 technology is there.</p> <p>21 Perhaps it's obvious that communications are vital.</p> <p>22 But let's remind ourselves of some more of the evidence.</p> <p>23 Ms De Silvo at the bridgehead.</p> <p>24 "The sheer volume of FSG calls coming in meant I was</p> <p>25 receiving information by small pieces of paper ...</p> <p style="text-align: center;">Page 181</p>	<p>1 crew, as well as where they are firefighting, where they</p> <p>2 think they are, where they are finding casualties, what</p> <p>3 rescues are taking place. We're not able to get any of</p> <p>4 that information back either." [Day 29, 25 July 2018,</p> <p>5 page 233]</p> <p>6 Firefighter Morrison, Amanda Morrison, she put it</p> <p>7 this way:</p> <p>8 "For me the comms is a massive issue as a game</p> <p>9 changer for that job. Not having comms is a bit like</p> <p>10 being disabled in the job. You can't talk to each</p> <p>11 other, you can't tell each other what you need, you're</p> <p>12 trying to grab peoples helmets and talk to each other</p> <p>13 through our sets, you can't talk to downstairs to see if</p> <p>14 they've got anyone coming up, whether they've got any</p> <p>15 news on us getting water."</p> <p>16 Firefighter Foster, Katie Foster:</p> <p>17 "I attempted to use my radio to pass on the</p> <p>18 information that we had found and especially as there</p> <p>19 were residents inside."</p> <p>20 In fact, she and her colleague had come across</p> <p>21 a male who told us there were five people inside a flat.</p> <p>22 She remembered trying to radio through around seven</p> <p>23 times but was unsuccessful. Greg, the partner she was</p> <p>24 with, also tried but was also unsuccessful.</p> <p>25 Now, all of this evidence was given before the</p> <p style="text-align: center;">Page 183</p>
<p>1 runners and also by radio with just the floors and flat</p> <p>2 numbers. The volume of FSG calls was very high."</p> <p>3 She went on to say:</p> <p>4 "Another problem was the BA crews normally use</p> <p>5 channel 6 to communicate with entry control. However</p> <p>6 this channel was proving difficult throughout the</p> <p>7 incident. There was so much feedback on the channel</p> <p>8 that it was very difficult to use. Someone tried to lay</p> <p>9 a repeater on the ground floor bridgehead which is a</p> <p>10 kind of booster to help with the signal, but that didn't</p> <p>11 help at all. I've never experienced communications</p> <p>12 problems on that scale before."</p> <p>13 She went on:</p> <p>14 "The BA channel wasn't working well so crews</p> <p>15 couldn't tell me what they had or hadn't done through</p> <p>16 that means either. Some were committed to a specific</p> <p>17 FSG, but before they got there they came across</p> <p>18 casualties who they needed to help there and then."</p> <p>19 In her evidence on 25 July, again asked about</p> <p>20 communications:</p> <p>21 "So for a lot of the time we were unable to get any</p> <p>22 communications from them [firefighters] at all, which is</p> <p>23 worrying in terms of safety, because we want to monitor</p> <p>24 their air, we want to know their location, if they get</p> <p>25 in trouble, we need to know where to send an emergency</p> <p style="text-align: center;">Page 182</p>	<p>1 commissioner gave her evidence. Do they not have</p> <p>2 someone within the London Fire Brigade that might have</p> <p>3 been tasked with listening to what was being said before</p> <p>4 this inquiry? How can the commissioner say that she</p> <p>5 wouldn't have changed a thing? Floor 14, we suggest, is</p> <p>6 a demonstration of these communications problems leading</p> <p>7 to loss of life.</p> <p>8 Inability of firefighters to communicate within the</p> <p>9 tower, both amongst themselves and with the bridgehead,</p> <p>10 led, amongst other things, to the tragic failure to</p> <p>11 rescue occupants of flat 113: Omar Alhajali,</p> <p>12 Denis Murphy, Zainab Deen and Jeremiah Deen.</p> <p>13 Firefighters Cornelius, Merrion, Murphy and Sanders</p> <p>14 were the first crew to visit floor 14. They were unable</p> <p>15 to notify anyone by radio about the number of residents</p> <p>16 at flat 133 and the need for additional crews to rescue</p> <p>17 them with secondary BA kits. It was only on return to</p> <p>18 the bridgehead that Firefighter Cornelius was able to</p> <p>19 convey that information.</p> <p>20 Back at the bridgehead:</p> <p>21 "I informed him that we needed more BA set wearers</p> <p>22 and more people to go up there and rescue the 8 people."</p> <p>23 He added:</p> <p>24 "I tried constantly to contact the bridgehead,</p> <p>25 anyone downstairs, telling them that we needed second</p> <p style="text-align: center;">Page 184</p>

<p>1 sets and what we had found, and that we wasn't going to 2 be able to bring the people down the stairs. This is on 3 both of my radios. And Firefighter Murphy tried as 4 well. But at no point we had anything -- we didn't hear 5 any chatter over the radio or anything at all." [Day 38, 6 6 September 2018, page 81] 7 They tried again, there was no ready communications 8 with the BARIE sets or with handhelds, says Firefighter 9 Cornelius. 10 Firefighters Herrera and Firefighter Orchard 11 ultimately effected a rescue of only four of the eight 12 residents from flat 113. Firefighter Herrera recollects 13 being tasked to rescue three people, Firefighter Orchard 14 to rescue six. 15 Firefighter Herrera said he was tasked to look for 16 a family, an adult male, female and child. Firefighter 17 Orchard: 18 "She called us forward and told us that there are, I 19 think she said six people in Flat 113 on level Fourteen. 20 She said, 'They were alright, they're not alright now. 21 We need to get them out.' 22 Now, we know that Firefighter Herrera contends he 23 was told -- this is his evidence -- by Omar Alhajali 24 that there were no more occupants in the flat and that, 25 while he conversed with Mr Alhajali in the lounge of</p> <p>Page 185</p>	<p>1 required for a particular floor. Well, we suggest 2 that's right, but an understatement of the 3 participation. 4 Since the fire, where have we got to? 5 The absence of substantive change following this 6 incident gives rise to concerns that the same will 7 happen post-Grenfell. Has the communication equipment 8 failure been addressed since the fire? Sadly, we 9 suggest that the LFB's response has been piecemeal at 10 best. Sir, you'll have noted our submissions in this 11 regard at pages 24 and 25 of the written submissions. 12 The London Fire Brigade's 24 October 2018 updated 13 position statement -- in other words, updating what 14 they've done since the fire -- entitled "Actions since 15 the Grenfell Tower document", made reference to some 16 steps to address some of the communication issues 17 identified. Reference made to the, as an example, 18 introduction of improved BARIE equipment to be 19 undertaken there referred to, but not until 2020 or 20 2021. Also referring to the command unit replacement 21 project, acknowledging the ongoing issues regarding the 22 reliability of the CSS, is still over two years from 23 completion. 24 Now, of course, such steps as those are welcome, but 25 notable omissions include the failure to address the</p> <p>Page 187</p>
<p>1 flat 113, he, Mr Herrera, states he was not aware of the 2 residents in the first bedroom. The credibility of 3 those assertions is strongly challenged, and the chair 4 is invited to determine this matter. 5 Notwithstanding those issues, it is plain that the 6 inability of Firefighters Herrera and Orchard to 7 communicate with the bridgehead denied them the 8 opportunity to confirm the expected numbers of persons 9 in the flat. 10 Firefighter Cornelius. Asked the question: 11 "Question: One question that's arisen is: what 12 difference would radio contact have made for you at that 13 stage? 14 "Answer: For me, it was a big factor. It would 15 have given me confidence in what I was telling the 16 people, that we could send another crew of firefighters 17 up, or more crews, multiple crews, with second sets. 18 That to me would've been a key element in saving them 19 ..." 20 The Fire Officers Association submissions set out by 21 Mr Browne QC and Mr Wall, dated 6 December 2018, 22 understandably observe at paragraph 103 that 23 communication problems were one of the factors impacting 24 upon ability to undertake an evacuation, since it meant 25 that crews could not communicate how many BA were</p> <p>Page 186</p>	<p>1 following: 2 (a) the problems of communicating using the existing 3 handheld radio system within a concrete, steel and glass 4 building and at incidents where there is a significant 5 volume of radio traffic. 6 (b) the apparent lack of effectiveness of the 7 repeater and/or leaky feeder equipment. 8 (c) the need for realistic training to overcome 9 communications in what are known to be challenging 10 circumstances. 11 (d) the failure to instruct an expert in the field 12 of communications to overcome problematic communication 13 within buildings and built environments. 14 (e) the need for funding and policy change to enable 15 the deployment of Airwave Firelink radios directly on 16 the fire ground. 17 This piecemeal approach, undertaken at a glacial 18 pace, is typified by the fact that the London Fire 19 Brigade's written closing submissions simply state that 20 the Brigade is aware of a range of incident 21 communication challenges, both in relation to the fire 22 ground radio and the breathing apparatus equipment, and 23 capacity that occurred at Grenfell Tower. 24 Going on to say in respect of the Brigade's fire 25 ground and BA radio equipment provision, both systems</p> <p>Page 188</p>

<p>1 are scheduled for replacement in the financial year 2 2019/20.</p> <p>3 Moving on, the LFB there sets out the lessons learnt 4 and experienced from the Grenfell Tower fire will be 5 considered as part of the development of the technical 6 specification for these replacement radio projects.</p> <p>7 So instead of setting out in detail for this inquiry 8 what the LFB has done and proposes, we are left to look 9 through their announcements. The London Fire Brigade 10 document titled "Replacement of incident ground 11 communications update" dated 21 May 2018 sets out in, 12 frankly, a confused document a decision that has been 13 named to consider the purchase of radio sets, and it 14 looks like the purchase is from a company called Intel, 15 the cost assessment being 1.6 million.</p> <p>16 But if that is what the London Fire Brigade is 17 setting itself out as needing to do, as we understand 18 it, the problem is that such radios from Intel will be 19 simplex only, simplex meaning only one person can talk 20 at a time. This means that even if a firefighter is 21 communicating a relatively routine message, so long as 22 this is more powerful, this will block the communication 23 from another firefighter on the same channel or cut out 24 that call. The person with the strongest signal will 25 generally be the person closest to the receiver radio or</p> <p style="text-align: right;">Page 189</p>	<p>1 building.</p> <p>2 In summary, the ability to communicate, receive and 3 process information within the London Fire Brigade 4 structure was appalling. The firefighters response to 5 the fire and overall attitude was a commendable "keep 6 going regardless", but it was undermined by the 7 inability to pass communications from firefighter to 8 firefighter and firefighters to decision-makers.</p> <p>9 The reaction from the London Fire Brigade has been 10 far too slow, and we suggest that the LFB's leadership 11 remains incapable of making decisions that adequately 12 react to the dangers faced by the people under its care.</p> <p>13 Sir, if I may, I would suggest I have another 14 10 minutes.</p> <p>15 SIR MARTIN MOORE-BICK: You keep going, if you're content.</p> <p>16 MR STEIN: I am.</p> <p>17 Let me move on to then the views of people from the 18 tower regarding equipment failures, because some have 19 addressed this.</p> <p>20 Rosemary Oyewole, 15 October.</p> <p>21 She says:</p> <p>22 "I would also like to say that we lost beautiful, 23 beautiful, beautiful people that night, innocent 24 children. Everyone that passed away that night was 25 innocent and nobody deserved that. And if events might</p> <p style="text-align: right;">Page 191</p>
<p>1 with the least obstructions. Radios of this type are 2 also low powered and, therefore, signals will be easily 3 obstructed by reinforced concrete.</p> <p>4 So we doubt whether the LFB is on the right track.</p> <p>5 As these types of handheld radios will not penetrate 6 a building such as the Grenfell Tower itself, the issue 7 is not just whether there was too much radio traffic, 8 but whether communications can be established up and 9 down a building.</p> <p>10 We know a radio that is contained within a mobile 11 telephone, as demonstrated by Marcio Gomes, will call up 12 and down a tower, and that is because it is transmitting 13 a signal outside of the tower to a cell site mast and 14 then back to a recipient.</p> <p>15 A simple radio can transmit to an outside signal 16 repeater and then back into the building, as long as 17 they are line of sight, one to another.</p> <p>18 The New York system could be adopted, which allows 19 for a hardwired -- it's called an arc system which could 20 be installed in high-rise buildings that allows there 21 inter-floor communications.</p> <p>22 The London Fire Brigade and this inquiry need to 23 have the assistance of a communications expert to advise 24 us what the best solution is to these types of 25 communications issues within a fire ground in a large</p> <p style="text-align: right;">Page 190</p>	<p>1 have played out differently, then I probably wouldn't be 2 sitting here today myself.</p> <p>3 "So I just think the people that came back that 4 night, or the firemen that came back that night, they 5 were -- you know, on many occasions people came back, 6 people had the chance to see how many people were 7 brought into our flat, people had the chance to see the 8 state of the people that were brought into our flat, and 9 for there not to be any precautions taken into place 10 and, you know, the right equipment being given to people 11 to come and get people out of our flat -- I think if 12 they did have the correct equipment, then I personally 13 think that the people that passed away in our flat 14 possibly wouldn't have passed away.</p> <p>15 "And that's all I'd like to say." [Day 58, 16 15 October 2018, page 90]</p> <p>17 Helen Gebremeskel, 6 November:</p> <p>18 "We've seen failings and failings -- I've been 19 failed so many times -- you know, failings and failings 20 and failings with other fires and other lessons not 21 learnt.</p> <p>22 "So Grenfell has to stand for something, and it's to 23 stop here about how people are treated and how the 24 loopholes in the system need to be closed, you know. 25 "...</p> <p style="text-align: right;">Page 192</p>

<p>1 "Justice for me is that, you know, this never 2 happens again, you know, we have a fair system. We've 3 got a lot to deal with, especially in this environment 4 at the moment, but it has to stop here." [Day 68, 5 6 November 2018, page 89 to 91] 6 The London Fire Brigade needs a shake-up from the 7 top down. The Grenfell Tower fire marks a point in 8 history where the Brigade should have said, "We need to 9 change, we need to review our resources to be able to 10 undertake realistic planning for what are the known 11 risks to high-rise towers from cladding fires". We do 12 not see that the commissioner or her office have 13 recognised this need to change. 14 Within days if not weeks of this fire, the London 15 Fire Brigade should have been calling for a radical 16 change to resources and a dedicated discussion with the 17 Mayor's office and the Cabinet Office regarding funding 18 to cope with major disasters. 19 That discussion should have been directed at the 20 question: what value do we place on the lives of our 21 citizens, and how far are we prepared to pay for the 22 protection of our people? In essence, that is the same 23 discussion which lies at the heart of this inquiry and 24 we will be examining in Phase 2. 25 The question there, as we continue into Phase 2,</p> <p style="text-align: right;">Page 193</p>	<p>1 Thank you all very much, 10 o'clock tomorrow, 2 please. 3 Thank you. 4 (4.30 pm) 5 (The hearing adjourned until Tuesday, 11 December 2018 6 at 10.00 am) 7 8 I N D E X 9 Closing submissions on behalf of1 10 London Fire Brigade 11 by MR WALSH 12 Closing submissions on behalf of G452 13 by MS BARWISE 14 Closing submissions on behalf of G3115 15 by MR WEATHERBY 16 Closing submissions on behalf of G3163 17 by MR STEIN 18 19 20 21 22 23 24 25</p> <p style="text-align: right;">Page 195</p>
<p>1 is: what price are we prepared to pay as a society to 2 protect our own people from commercial greed, local 3 authority cost-cutting and institutional apathy? 4 Unless we change our approach to the assessment of 5 risk, and include within that risk assessment the very 6 people who will suffer the risk, when we come to the 7 question of the expenditure of resources on equipment 8 and training within such organisations as the LFB, then 9 no doubt we will be here again at some point in the 10 future, confronting these same issues. 11 The families we represent say stop and change. On 12 their behalf, we say stop and change. No more fires 13 that the LFB cannot deal with, fund the emergency 14 services properly, and have leaders of these services in 15 place that can exercise leadership, not denial. 16 Sir, those are our submissions. 17 SIR MARTIN MOORE-BICK: Well, thank you very much, Mr Stein. 18 You have done very well to finish by 4.30. 19 MR STEIN: Thank you, sir. 20 SIR MARTIN MOORE-BICK: Thank you very much. 21 Well, that's obviously a good point to finish for 22 today, so we'll break in just a moment. 23 We resume tomorrow with some more closing 24 statements. According to my running order, we shall be 25 hearing from Mr Menon first thing in the morning. Good.</p> <p style="text-align: right;">Page 194</p>	

A	accept 57:15 126:4	82:7 120:17,20	Additionally	100:19 101:2
A1 65:15,17,21,22	accepted 2:25 57:3	acquires 106:21	113:22	102:4,8 103:1
65:25	58:23 172:8	act 84:1,19 86:8,9	address 12:4,24	106:12,22,24
A2 65:16,17,21,22	accepting 123:12	86:16 103:9 106:5	19:4 37:13 46:10	107:10 112:19
65:24,25 66:14,15	124:4 173:18	107:2,19,24 114:3	49:17 52:15 88:5	137:4 139:14
69:11 72:24	accepts 40:4 46:16	114:13 116:12	99:25 107:1,15	144:18 147:25
A2-s3 66:4	48:14	123:12 125:10	115:6 119:21	149:14 150:24
abandon 26:4 27:8	access 27:10 95:4	126:11	129:3 130:4	151:15,25
34:18 35:9 150:21	103:6 110:15	acted 9:15 60:14	187:16,25	advise 37:18
155:20 177:23	accident 113:9	68:4 90:2 103:17	addressed 12:15	101:19 105:11
178:15	accidental 116:10	155:10 180:17	18:21 29:24 48:19	190:23
abandoned 147:9	accommodate	acting 110:12	116:20 127:3	advised 102:13
151:24 178:4,10	29:12	111:14	187:8 191:19	146:19 151:6
abandoning 139:2	accommodated	action 162:11	addressing 34:21	152:1
139:12	29:9	actions 4:23 6:13	173:24	advising 151:11
abandonment	account 12:22 20:4	6:18 7:18 8:11	adds 84:24	178:6
177:16	112:8	11:5 13:25 32:2,2	adequacy 166:25	aerial 26:22 27:14
ability 29:6 53:12	accountability	43:14 45:25 46:4	adequate 100:24	27:18,18 91:16
68:3 151:8 177:1	123:20 128:24	46:9,10 49:14	170:1 171:3	149:9
181:14 186:24	accountable 84:7	91:9 129:21	adequately 12:15	aeroplanes 174:9
191:2	119:13 121:16	187:14	64:18 80:4 86:20	aesthetic 61:9
object 74:14	accounts 1:20 9:6	active 8:7,9 15:23	191:11	Affairs 171:10
176:17	24:17 37:14 38:16	17:5 20:13 22:25	adhere 30:5	affect 128:14
able 20:16 24:12	46:6 112:16	23:23 32:21 53:8	adhered 130:25	aged 98:5
45:21 47:1 79:3	achieve 65:24	74:7,9,12 118:7	adherence 8:14	agencies 114:6
80:16 88:16 91:10	88:17 125:12	activities 63:23	17:4 126:14	aggressive 91:12
96:16 105:8	achieved 15:22	activity 34:5 144:9	adhering 161:12	aggressively 26:8
111:12 129:1	17:20 44:9,14,15	acts 85:13	adjacent 19:18	agree 9:7 11:2 54:2
163:18 164:8	48:3 58:25 64:13	actual 135:8,11	adjourned 195:5	55:8,10,14 57:3
165:21 170:2	64:22 66:17 67:6	acute 63:19	adjournment 83:11	70:20 80:20 83:14
183:3 184:18	94:14 137:6	ad 147:23	114:24	agreed 56:22 93:18
185:2 193:9	139:13 151:18	ad-hoc 94:11	admission 82:23	agreement 116:23
absence 23:16	acknowledge 10:20	adamant 67:5	admitted 81:19	agrees 31:6
124:4 130:14	40:8 46:7 67:18	ADB 57:22 58:1,1	adopt 20:19 45:18	ahead 79:4
161:7 187:5	89:19 161:17	64:23,24 66:4,22	49:16	Ahmed's 96:15
absent 21:4 66:15	acknowledged	67:3 68:11 77:2,7	adopted 3:24 65:5	aid 39:23 99:17
66:16	46:19 47:7 127:13	77:22 118:22,23	81:24 190:18	101:3 138:13
absolute 9:5 141:23	acknowledgement	119:2	adopts 44:20	aims 151:14,18
absolutely 92:4	181:1	add 118:19 133:11	adult 105:16	air 36:13 37:19
139:17 147:3	acknowledges	136:1	185:16	38:7 182:24
absolve 70:13	38:23 134:7	added 110:10	adults 97:23	Airwave 48:20
abundantly 93:25	acknowledging	159:20 184:23	124:18	146:11 177:4
AC 145:16 177:22	11:10 88:13	addition 4:16 44:24	advance 135:8	188:15
academic 175:19	187:21	additional 128:11	advice 42:14 86:25	alarm 15:13 117:19
acceleration 72:14	ACM 44:5 66:8	131:12 184:16	93:20 99:16	141:5 147:13

alarming 75:25	analyse 164:6	appear 46:1 52:25	approximately	145:13 147:21
alarmingly 67:18	analyses 56:1,2,4	60:18 117:3 142:7	59:16 68:21 176:5	article 140:15
alarms 44:15	analysing 6:5	158:23 159:1	April 87:24 109:2	articulated 41:4
alert 44:12	analysis 7:17 19:10	160:8	arc 190:19	ascertain 40:16
alerted 30:21	24:6,12 27:15	appeared 165:20	architectural 20:24	76:4
149:12	36:18 44:3 46:12	appears 59:5 63:15	32:18 61:8	asked 8:13 13:11
Alhajali 111:23	78:3 153:12	74:18 76:22 81:18	Arconic 56:17	41:14 102:22
184:11 185:23,25	155:23	123:10 159:12	61:15 62:8,15	128:17 148:2
Ali 111:20 122:18	anchor 92:12	applaud 129:25	81:2,12 82:3,6	165:14 166:1,4
alien 102:9	and/or 73:11 97:12	appliance 27:19	120:17	170:5 172:1,16
alight 100:11 180:2	188:7	121:5 152:18,19	Arconic's 66:12	173:4,7 174:15,23
allow 15:7 26:7	Andy 177:22	155:3 158:21	70:15,17 81:18	177:21,22 182:19
35:6 127:7 162:8	Ann 98:1	appliances 26:22	82:9	186:10
164:5 181:17	announced 126:12	45:3 175:8	area 15:21 125:1	asking 166:9,13
allowed 27:9 92:19	126:18	applicable 5:20	148:10	asks 169:20
119:14 121:12	announcements	75:16 139:24	areas 21:22 36:23	aspects 121:16
173:17	189:9	applied 26:15 27:2	56:19 115:6 117:2	asphyxiant 78:1,19
allowing 54:22	annoyed 116:6	79:20 81:20	128:18 138:14	assemblies 64:11
63:1	answer 11:25 22:12	applies 16:2	171:22	69:3 80:14
allows 190:18,20	172:4,17 174:19	apply 9:25 14:15	arguably 13:15	assembly 33:7
alluded 144:13	174:21,24 186:14	16:8 74:24 75:1	argued 173:21	68:10 83:1
alongside 167:8	answered 22:11	applying 144:7	argument 73:5	assert 80:23
alright 185:20,20	answers 51:15 53:2	appreciate 88:21	arguments 120:16	asserted 104:3
alter 58:19	118:24 120:1	98:24 109:1 148:8	arisen 36:20	134:3 141:11
alteration 75:2	169:20	157:16	186:11	assertion 131:6,18
altered 117:9	Anthony 105:4	appreciated 99:10	arises 42:24	assertions 2:10
alternative 22:10	anticipate 19:9	appreciating	arising 22:22	148:21 186:3
56:6 57:7,20	27:4	176:19	arm 165:21	asserts 129:23
147:9	anybody 124:4	appreciation 13:25	army 176:14	assess 144:7 164:6
alternatives 22:16	154:9	approach 55:25	arose 33:3 87:19	169:12 179:4
altogether 26:6	anyway 73:4	90:20 96:4 97:6	88:18 92:16 125:4	assessed 41:18
Aluglaze 69:9,14	apathy 194:3	129:15 133:25	136:20 177:24	47:14 54:7 75:12
aluminium 56:11	apology 16:23	138:20 188:17	178:2	assessing 4:20
56:17 70:16,17	122:4	194:4	arranged 70:3	31:15 38:10
71:9,13 73:16	appalling 73:22	approached 146:11	121:8	assessment 4:5
74:1 138:4	191:4	161:7	arrangement 32:17	24:21 40:22 44:3
Amanda 183:6	apparatus 6:15	approaching 71:22	62:19 137:3	65:2 87:2 90:18
ambulance 125:17	23:21 36:4,8	118:6 126:15	arrangements 34:6	118:25 177:1,14
125:20 126:3	37:24 45:14 48:11	128:25 144:10	39:23 136:24	178:9 189:15
149:22	94:7 96:22 188:22	appropriate 54:4	137:9 144:22	194:4,5
amendments 48:3	apparent 137:20	118:8 140:14	arrival 100:9	assessments 47:18
131:11	138:6 161:9 188:6	appropriately	144:14 145:1	76:11 133:24
amount 72:8	apparently 97:20	160:23	146:25	134:14
amounts 121:1	149:3 153:5,16	approved 64:23	arrive 179:18	assist 39:22 134:1
amplified 72:21	156:20	169:16	arrived 89:1 145:5	137:12 139:13

140:3,10,11 144:25 assistance 6:3,24 10:19 49:21 92:8 94:22 95:2 97:7 127:16 128:16 148:5 190:23 Assistant 100:6 134:16 assisted 30:22 31:21 36:10 72:14 73:24 97:7,9 112:17 145:16 150:11 156:8,11 169:15 assisting 4:16 5:11 171:19 associated 29:11 Association 186:20 assume 18:24 25:5 54:24 assumed 57:23 100:22 108:17 145:11 180:12 assumes 66:16 assuming 27:3 147:2 152:22 assumption 50:19 100:14 assurance 104:18 172:5 assure 118:18 astounding 77:14 167:2 at-risk 87:21 Atmani 122:18 attack 26:8,14 34:24 attempt 37:20 141:1 144:25 attempted 133:16 179:14,22 183:17 attempts 26:13 35:6 41:8 81:12 161:1	attend 45:3 50:8 96:11 attendance 7:4 18:8,9 27:17 45:1 attended 1:17 3:16 7:3 11:13 18:20 18:21 163:16 attends 18:4 attention 94:1 147:11 attitude 191:5 audio 92:5 August 20:3 aunt 98:2 authorities 117:23 121:19 125:9 129:6 140:19 authority 107:17 108:7,8,24 120:5 124:2 126:10 128:7 140:2,4 194:3 automatically 74:24 autumn 87:22 availability 12:23 available 23:19 27:24 29:10 45:14 66:7 92:12 96:22 97:2 106:9 113:4 137:24 143:21 162:7 176:4 177:2 177:6 average 153:10 averaged 59:17 avoid 141:1 166:23 avoiding 140:4 avoids 82:3 await 13:9 95:2 126:15 171:2 awaiting 147:23 aware 15:1,16 17:11 18:15 23:7 27:16 44:13 51:8 87:9 100:8 157:23	164:14 186:1 188:20 awareness 105:22 138:6 146:21,24 axiomatic 134:25 <hr/> B b 64:23 65:17,22 66:1 115:25 131:1 136:21 139:10 188:6 B' 131:15 B-s3 66:9 B3 68:11 B4 64:15,17 67:5 118:12 B5 59:22 77:22 142:23 BA 94:9,14 97:17 147:20 153:6,7 166:2 180:2 182:4 182:14 184:17,21 186:25 188:25 Babcocks 154:18 back 21:7,16 33:14 39:5 41:10 49:23 70:6 108:16 114:20 148:3 153:18,25 155:11 155:16 162:20 168:15 179:23 183:4 184:20 190:14,16 192:3,4 192:5 backed 69:19 background 87:5 171:6 172:4 backgrounds 102:25 backs 154:4 bad 41:21 BADILLO 165:14 badly 123:16 171:16 balance 38:6 bang 147:25	bar 165:17 BARIE 185:8 187:18 barrier 55:12 68:7 68:8,25 barriers 33:9 68:5 73:19,21,24 74:4 80:7 117:12 Barwise 52:12,13 52:14,15 83:5 86:17 116:20 142:11 195:11 base 148:23 149:24 169:25 181:4 based 78:17 81:9 85:17 90:21 95:17 144:4 150:24 169:21 baseline 166:12 basic 88:7 107:5 basically 42:9 basis 8:15 10:17 15:2 20:19 25:15 32:7 51:4 57:25 81:1 89:23 134:22 baton 83:7 115:16 122:1 battle 176:16 battlefield 100:5 battling 125:20 Bay 124:22 Beale 99:2 bear 13:16 50:17 54:19 70:7 89:22 163:11 bearing 100:20 beautiful 191:22,23 191:23 becoming 59:13 135:14 136:18 138:11 152:10 bedroom 186:2 began 60:25 61:1 84:16 104:24 beginnings 114:16	begun 127:10 143:7 behalf 1:14 41:20 52:14,25 80:11 83:8 115:2,4 130:20 163:14 194:12 195:9,11 195:12,14 behaved 3:14 8:10 35:22 87:15 behaving 10:13 behaviour 32:13 71:1,14,21 80:1 110:11 behavioural 64:3 beings 128:3 belatedly 106:11 belief 175:24 believe 151:10 168:7 178:22 believed 176:10 180:5 beneath 67:24 benefit 4:18 7:22 97:17 128:6 benefited 170:13 bereaved 2:4,15 5:2 51:13 52:21 52:25 83:16 84:14 90:4 112:21 119:10,22 120:4 126:23 127:15 130:20 best 70:5 151:14 154:1 159:13 168:8 169:8 187:10 190:24 better 66:10 97:18 98:10 104:4 114:5 114:8 146:7 154:13 178:21 beyond 2:9,20,24 4:8,12 5:7 19:21 40:23 55:18 58:2 78:4 88:17 144:15
---	--	--	---	---

146:1 150:11 big 41:20 87:19 120:6 165:17 186:14 bigger 53:19 99:23 biggest 2:21 bill 127:5 bin 165:6 binary 73:13 143:6 bins 132:20 Biruk 105:13 Bisby 55:10,24 56:2 57:15 61:7 66:24 67:4,10,25 70:23 71:3,20 72:1 80:19 Bisby's 142:19 148:14 Bishop's 125:6 126:9 bit 183:9 black 41:13 110:23 blind 90:25 150:24 152:13 177:11 blindness 176:8 block 101:8 143:19 148:19,20 163:25 175:17 177:13 179:13 189:22 blocking 181:6 blocks 139:5,18 175:12 176:6,8 blue-light 149:21 blueprint 119:2 bluntly 102:2 board 159:20,23 body 6:6 38:15 boiling 25:24 bombed 174:10 bombings 132:23 bonds 167:22 Bonifacio 35:19 43:4 bonnet 153:17 159:8	bonnets 154:3 book 120:13 booster 182:10 bore 74:20 borne 38:13 borrow 122:18 bottles 96:25 bottom 97:8 103:14 bound 53:21 112:22 113:18 box 5:3 boyfriend 167:8 BR 118:12 Branislav 93:8 brave 161:1 165:2 bravery 164:24 166:25,25 167:1 181:10 BRE 68:16 breach 18:25 55:1 57:8,20 58:17 63:12 80:5 87:10 87:25 88:21 91:7 91:21 101:7 112:4 136:6 139:5 140:15 169:25 breached 55:3 57:1 57:4,5,11,17,23 57:25 58:2,6,8,22 59:1 86:7 90:16 90:23 107:17 142:25 152:9 breaches 18:22 19:5 85:7,21 breaching 27:9 28:15 176:7 break 25:7,9 52:4,4 52:7 114:20 162:19,20,24 194:22 breakdown 133:4 breaking 180:2 breaking-in 97:1 breaks 130:6 131:24	breathe 103:23 167:16 breathing 6:15 23:20 36:4,8 37:24 45:13 48:11 94:6 96:22 188:22 bridgehead 37:2,9 94:10,15,18 95:5 97:13,15 99:10 100:15 111:12 147:14 149:15 154:6 155:8 157:12 159:1,3,5 159:11 160:9 165:24 181:23 182:9 184:9,18,20 184:24 186:7 bridges 132:23 brief 100:17 176:3 briefed 112:3 briefly 8:18 37:22 47:5 brigade 1:12,14 2:2 2:10,12,21 3:23 3:24 4:18 5:4,25 6:4,19,23 7:4 8:21 9:1,5 10:5 12:2 13:20,25 14:12 17:10 18:4 19:23 19:23 20:15 21:14 23:8 24:11 30:1,8 30:19 31:6,12,19 32:1,22 33:22 34:1,12 36:6 38:17,23 39:4,8 39:20,25 40:4 41:6,10,25 43:15 43:19 44:9,20,24 45:7,16 46:9,16 46:19,21 47:8 48:7,13,14 49:10 49:13,20,22 51:8 51:12,17 58:17 59:10 73:9 86:5 99:13 106:13	115:17 121:23 131:10,13,21 132:1 137:21 138:19 158:18 160:22 163:15,21 163:24 164:5,7,14 164:20,22 166:24 168:12,16 169:10 169:15,19 170:22 170:24 171:14 175:4,25 176:7,22 184:2 188:20 189:9,16 190:22 191:3,9 193:6,8 193:15 195:9 Brigade's 8:15 12:18 13:14 27:16 29:24 30:9 42:22 46:2,23 131:7 169:21 173:20 187:12 188:19,24 brigades 106:16 132:19 bring 177:14 185:2 bringing 63:23 British 76:8 broad 119:21 broke 30:25 136:21 broken 35:11 95:23 98:25 brought 69:5 89:10 119:1 155:19 192:7,8 Browne 186:21 BS 65:14,23 BSR 89:17 90:2 92:17 100:20 109:12,15 BT 106:16 buddy 106:14 build 102:23 115:13 118:15 120:11 121:14 128:19 building 3:8 8:6,10	9:17 10:15 11:16 14:13,20,23 15:9 15:15,18,21 16:1 16:2,9,14,20,25 17:13,15,18,19 18:12,17 19:2,13 20:5,8,10 21:14 21:20,23 22:2,19 23:2,4,8,13,18,25 24:8 28:2,12,18 28:19,24 29:9,19 30:13 33:15,21 35:4,14,17 36:3,5 36:11,17 38:1,22 43:10,10,11 44:12 44:12,16 45:21 50:3,4 51:3 53:7 54:3,21,23 61:5,8 62:2 64:14,17,20 65:2 66:22 67:4 68:12 74:24 75:1 80:6,15,19 82:2 82:18 83:1 86:3 86:12,17 87:25 88:12,14,24 89:8 89:23 90:24 91:8 91:19 92:19 93:15 93:19 94:20,24 99:1 100:11 101:14 103:18 104:14 106:6 107:22 109:3,21 113:2,9,13,14 115:10,14 117:17 117:18,19 118:21 121:12,16 126:20 131:9,20 133:10 133:14 136:15 138:3,10,15,25 141:2 142:23 143:4,22 151:4 164:1 166:16 170:11 171:20,21 171:23 172:3 173:15 174:12,14
---	--	--	--	---

174:19 175:10 179:12 188:4 190:6,9,16 191:1 building's 131:17 buildings 13:22 14:4,18 15:3,5,17 16:22 17:2,6,17 17:22 18:3,5 20:17 21:18 22:7 23:1,22 28:5 30:6 30:20 31:8,13,17 34:7 43:23 44:2,4 44:10,17 45:1 47:14,24 48:6 50:12,23 51:5 77:3 87:21 92:2 120:25 122:13 131:23 135:7 171:12 172:11 174:9 188:13 190:20 built 12:21 17:22 50:19 109:3 116:10 141:2 167:23 188:13 burn 53:24 72:9 143:17 burned 55:19 69:22 73:4,8 burning 62:2,5 66:2 72:19 77:24 105:15 167:12 burns 78:11 business 176:11 busy 180:12 buzzers 148:17 <hr/> C <hr/> c 188:8 Cabinet 193:17 calamity 116:9 calculated 78:18 92:25 calculates 53:19 call 41:25 42:10 64:23 101:4	104:24 105:16 107:10 113:3,3 115:2 153:8,13 158:17 159:13,15 159:17,22 160:1 160:10 177:11 178:3,9,15 181:9 181:11,12,16,17 189:24 190:11 call-out 175:7 callback 41:12 callbacks 102:16 called 41:6,10 45:5 72:11 95:8 99:11 111:18 119:6 149:5 153:24 185:18 189:14 190:19 caller 40:24 101:11 103:20 105:18 137:5 151:5 155:9 156:25 caller's 40:23 callers 40:16 100:24 101:5,9,19 102:10,21 106:22 146:18 147:25 148:2 151:10,12 151:25 157:15 178:7 calling 105:13 193:15 calls 38:25 39:9,12 39:18,20,24 43:2 48:15 96:8 98:13 103:5,7,17 104:12 106:1,7,14 129:16 129:17 136:25 137:4,9 143:23 146:13 150:22 151:2,2 152:5 153:23 155:1,5,14 156:1,4,16,20,24 157:1,2,17,23,25 158:12 160:13	171:1 177:2,2 178:17 181:8,24 182:2 camera 148:13 177:10 candour 9:5 115:17 121:21 123:12 124:14,23 125:8 125:10 126:17 127:3 128:1,4 129:3 canopy 148:12 capabilities 38:9 capability 72:12 146:2 capable 29:20 163:20 170:2 176:18 capacity 89:18 101:4 106:21,23 188:23 capture 47:1 captures 42:19 car 153:16 154:2 159:8 carbon 78:8,14,19 79:2,9,13 carboxyhaemogl... 78:7 care 25:25 26:17 191:12 carefully 161:25 carried 36:8 45:13 76:11 carry 6:5 14:24 15:3 50:11 102:16 carrying 24:11 40:21 47:16,17 74:25 93:8 case 16:7 17:7 28:17,21 30:12 31:1 32:2 44:11 48:22 74:23 81:24 90:3 93:8 97:25 101:17 135:25	cases 5:16 10:4,6 17:21 26:23 34:23 35:1 36:12 37:7 38:8 124:8 156:6 156:10 cassette 66:12 casualties 171:3 182:18 183:2 casualties/public 138:14 catalogue 111:24 116:16 118:13 catastrophe 82:8 82:16 89:22 catastrophic 1:24 11:16 131:16 catastrophically 67:13 catch 55:21 category 86:14 107:3 causation 73:2 85:16 113:12 causative 85:12 cause 25:24 33:5 56:10 62:16,25 64:10 79:13 81:14 112:15 116:12 122:6 caused 61:13 62:10 82:5 84:2 causes 2:7 53:7 64:8 71:13 109:23 caution 135:23 cautioned 68:17 cavities 60:14 cavity 33:11 60:2,3 60:8,11,13,15 68:4,6,7,8,25 69:22 73:19,21,24 73:25 74:4 80:7 117:12 CCTV 6:16 148:13 177:3 cell 190:13	Celotex 71:17,19 81:2,12 121:1 cent 18:7,9 100:11 110:25 centimetres 79:4 central 16:3 129:18 130:4,13 133:23 134:13 centre 178:9 181:11 centres 177:11 178:6 century 53:3 178:25 certain 4:23 8:14 9:8 10:16 20:1 23:4 33:3 39:15 44:1 46:24 88:25 116:13 167:13 certainly 25:8 31:2 44:7 116:4,9 131:25 132:10 133:12 142:21 144:3 148:14 154:9 158:24 certainty 24:13 37:13 certificate 66:10 certificates 65:10 65:10 chair 186:3 Chairman 5:1 challenge 2:21 42:19 116:25 117:2 challenged 3:3 137:1,15 186:3 challenges 10:3 23:8 46:25 50:14 50:15 188:21 challenging 5:16 5:24 51:6 188:9 chance 9:24 15:8 98:1 142:17 159:14 178:8
--	---	---	--	--

192:6,7 change 58:15 89:15 89:20 90:9 100:15 106:12 107:9 112:19 121:25 127:5 137:23 145:23 146:17 147:24 152:7 154:18 164:11 187:5 188:14 193:9,13,16 194:4 194:11,12 changed 56:17 81:18 102:18 111:14 113:23 139:15 152:1 177:20 184:5 changer 183:9 changes 2:12 4:24 40:10 50:3,24 106:24 107:9 123:1 127:3 130:1 140:6 changing 7:19 10:22 12:22 23:25 37:11 93:20 channel 182:5,6,7 182:14 189:23 chaos 154:2 characteristic 54:21 characteristics 103:12 charge 145:2 146:1 178:12 charter 125:9 126:9,13 chatter 185:5 check 35:15 76:8 120:11 Chelsea 119:15 cherrypick 142:13 chiefly 20:9 Chiefs 43:20 child 45:20 98:3,4	105:13 185:16 children 98:5 117:20 156:19 191:24 chimneys 60:14 chip 132:19 choice 102:11 choices 9:10 37:15 50:21 chose 59:3 Chris 165:14 Christopher 165:4 chronically 89:8 chronology 142:12 CIF 160:7 circulation 133:11 172:6 circumstance 135:9 circumstances 11:3 17:3 20:1 23:4 29:15 32:23 33:25 37:13 38:12 40:10 67:12 98:4 102:18 106:20 120:20 135:2 188:10 citizens 193:21 civil 84:22 86:16 107:2 114:3 175:6 clad 54:3 69:8 cladders 121:2 cladding 26:8,16 27:1,5 30:25 31:14 32:16 33:7 33:21 34:2 44:5 53:23 54:3,6 55:5 55:13 56:3,17,24 57:10,12,18 58:4 59:19 61:15 62:14 66:8 67:9,11 68:6 69:21 72:3 78:18 78:25 79:24 82:12 82:13 87:22,25 88:10 89:21 109:2 109:24 117:8	119:3 122:6 132:14 142:16 160:20 170:15 171:8,12,16,18 175:5,12,18,19 193:11 claimed 96:5 clamour 127:2 clarification 122:3 Clarita 93:9 class 66:9,9,13,14 66:18 69:12 71:17 classed 69:20 classes 65:15,17,22 66:1,6 72:25 classic 138:20 classification 65:13 66:17 73:12 clean 36:13 37:19 clear 34:16 38:15 44:20 54:5 58:7 68:24 71:23 72:2 75:6 80:17 81:6 81:13,16,23 82:9 85:18 86:12 92:18 93:14,25 106:5 107:24 113:7 116:11 119:21 120:13 126:14,17 128:22 134:17,24 135:6 136:4,17 140:15 147:21 149:17 150:8 156:13 159:2 176:21 cleared 147:22 clearer 10:21 155:19 clearest 2:3 5:5 6:7 clearly 5:1 41:3 62:15 67:5 71:25 82:11 108:5 140:21 180:7 client 137:15 158:4 clients 54:16 90:4	95:7 119:25 clip 149:3 close 16:17 43:20 63:14 74:16 109:24 119:19 181:4 closed 192:24 closely 12:16 89:5 closers 117:13 closest 189:25 closing 1:6,12,14 8:19 52:10,14 83:8 115:4 120:16 121:3 122:21 131:4 132:3 139:20 145:7 163:14 188:19 194:23 195:9,11 195:12,14 closings 117:1 120:7 co-ordinate 125:23 co-ordinated 94:9 96:17 150:17 co-ordinating 99:11 co-ordination 107:8 149:21 co-ordinator 49:8 49:9 COHB 78:7,7,12 coherently 32:7 cohort 93:2 cold 7:21 collapse 79:11,14 collapsing 122:13 132:23 collate 162:7 collated 152:22 colleague 183:20 colleagues 9:21 83:21 113:24 collective 31:15 36:6 colossal 5:8	column 55:24 59:22 60:2 69:18 142:23 combination 32:15 54:13 64:3 82:7 combinations 34:3 combined 32:20 combustibility 65:17 66:21 69:11 69:20 71:22 72:24 73:4,7,18 81:22 combustible 33:20 34:1 55:16 69:24 73:14,14,16 74:1 117:7,10,12 121:7 171:16 combustibles 72:7 combustion 33:10 60:2 70:11 72:10 come 3:22 8:24,25 10:23 21:16 24:13 34:15 37:6 38:14 39:5 98:7 109:24 114:20 121:19 132:5 143:23 162:20 183:20 192:11 194:6 comes 97:11 123:5 155:9 coming 5:22 24:23 35:24 104:23 105:2,17 126:24 143:21 158:13 165:13 167:14 179:20 181:24 183:14 command 49:6 92:7 93:13 98:17 98:19 99:8,13,15 99:20 100:2,8,14 100:17 103:19 105:22,25 106:4 125:23 126:4 133:2 137:6 143:9 144:16,23 145:5
---	---	--	--	--

145:18,24 147:2 150:20,23 152:14 152:18 154:12 155:2,8 157:9,16 158:20 177:12 178:15 187:20 commander 49:10 139:11 146:17 153:9 155:3,7 commanders 4:7 7:15 9:19 22:4 34:10 37:2,9 38:11 48:2 89:1 98:23 135:3 137:18,22,25,25 138:2 139:1 143:4 146:6 155:21 161:2 commemorated 109:17,19 commemorative 1:18 commenced 143:12 commendable 191:5 comment 164:11 comments 89:16 115:7,18 122:19 commercial 194:2 commission 124:17 commissioned 119:6 commissioner 4:22 6:2 46:20 89:9 100:7 134:16 164:9,13,19 170:5 170:8 172:1 173:21,24 174:8 175:2,4,11,15,22 175:24 184:1,4 193:12 commissioner's 144:24 170:9 172:20 commitment 50:25	51:13 126:13 committed 36:2 37:3 129:23 182:16 committee 126:20 171:11 committing 37:9 common 15:12 16:3 36:23 86:23 93:13 comms 183:8,9 Communal 63:4 communicate 21:22 23:17 48:21 103:4 125:23 135:5 144:8 152:16 164:5 178:11 182:5 184:8 186:7,25 191:2 communicated 95:12 152:24 159:22 communicating 188:2 189:21 communication 39:1 46:13 48:16 48:22 141:3 155:6 164:3 177:16 179:14 186:23 187:7,16 188:12 188:21 189:22 communications 48:7,8,10 100:16 177:6,18 178:18 181:21 182:11,20 182:22 184:6 185:7 188:9,12 189:11 190:8,21 190:23,25 191:7 communities 52:22 community 2:6 109:18 119:14,24 127:15 175:10 company 189:14	compared 69:4 comparisons 31:5 compartment 15:6 19:16,18,22 25:20 25:24 26:10,19 28:24 55:1,3 57:1 57:4,5,8,9,11,17 57:20,24 58:3,5 176:7 compartmentation 15:19 17:4 18:19 18:22,25 19:5 20:11 27:10 32:13 53:16 54:1 57:23 57:25 58:2,6,8,18 58:22,23 59:1 63:13,16 74:17 75:8 86:12 87:1 87:10,16 88:11,21 90:24 91:8,22 100:23 101:1,8 133:4 136:6,21 139:6 142:24 146:10 151:7 152:8 169:25 compartments 25:15 75:11 compatible 85:13 180:25 competent 50:21 71:2 competing 12:22 38:6 57:2 compilation 6:9 142:19 complains 82:4 complement 129:14 complementary 56:1 complemented 53:16 complete 25:6 124:4 161:7 completely 34:18	99:3 134:24 164:2 completion 187:23 complex 6:5 7:1 12:7,25 24:9 32:16 54:6 55:15 60:4 complexity 60:9 67:20 74:3 119:3 176:13 compliance 64:12 64:24 65:4,9 81:8 81:20 103:16 121:14 136:1 compliant 67:3 68:10 76:18 81:11 82:18 complicated 127:24 complied 67:3 75:4 75:16 82:20 comply 75:18 80:14 82:22 86:3 176:22 components 55:13 62:24 70:7 81:11 82:12 179:13 compounded 99:6 161:7 compounding 139:16 comprehend 88:22 comprehensive 119:8 comprehensively 86:13 116:21 compromise 60:24 compromised 20:24 30:15 32:13 61:21 143:5 148:12 computer-based 177:7 concealed 68:14 concede 91:10 conceive 90:23	101:7 concept 92:13 conceptual 92:12 concern 3:23 46:21 84:2 102:25 112:21 concerned 67:24 108:5 121:10 125:16 concerning 8:1 46:10 47:23 49:4 162:8 180:22 concerns 8:4 187:6 concerts 174:9 concessions 3:25 108:4 conclude 24:12 25:8 53:10 79:15 79:21 80:3 83:22 84:4 concluded 87:8 121:24 125:21 concludes 79:1 concluding 43:13 conclusion 24:24 49:13 76:17 106:17 113:5 159:4 conclusions 10:24 31:6 88:3 115:8 119:11 128:5,25 160:17 172:9 conclusive 77:19 109:13 concrete 53:15,17 69:13 179:13 188:3 190:3 condemnation 164:21 condition 14:17 20:25 21:17 33:10 41:19 conditions 10:14 10:22 23:6,25 24:2 36:14,17
---	---	--	---	---

38:5 40:16,22 41:9,21 53:9 63:3 64:4,4 77:23 79:21 82:8 105:4 120:21 122:14 124:18 141:3,22 150:14 164:4 166:15 180:22 181:15 condolences 120:6 conduct 5:21 85:13 122:11 conducted 2:8 6:17 7:7,20 24:21 47:10 confidence 84:6 151:7 186:15 confident 50:7,9 configuration 120:23 confirm 75:15 92:17 149:25 186:8 conflict 63:23 confluence 120:19 confront 114:7 127:25 confronted 93:14 confronting 194:10 confuse 160:25 166:24 confused 189:12 confusion 112:18 congregated 112:1 connected 28:22 29:2 33:12 77:11 103:11 connection 49:2 conscience 42:11 conscious 19:8 30:8 45:12 157:18 consciousness 172:10 consequences 67:7 70:19 169:23	170:20 consequent 102:10 134:8 149:20 conservatively 79:20 consider 13:16 24:22 31:15 33:19 70:15 71:15 76:15 93:4,8 96:10 103:16 114:5 145:23 146:12 151:12 161:25 164:17 189:13 considerable 4:19 7:22 14:6 26:21 119:7 148:11,13 consideration 4:6 4:25 24:8 40:2 103:10 119:19 130:2 137:3 142:8 142:9 considerations 9:25 12:25 118:25 considered 5:19 7:11 10:15 19:20 43:7 56:5 60:3 70:22 71:1,3 127:4 189:5 considering 70:12 71:14 119:1 131:11 considers 55:23 67:2 71:20 74:13 78:9 79:6 consistent 59:11 consistently 152:9 consoling 90:1 constant 1:22 constantly 10:1 12:21 184:24 constitutes 84:9 constructed 16:10 21:10 23:14 68:13 construction 8:2 13:21 14:5,13	16:1 21:13 29:8 50:4,22 69:6 86:24 contact 105:24 148:3 184:24 186:12 contacting 138:15 contain 15:6 113:7 contained 69:23 95:15 172:6 190:10 containing 69:9 contains 74:1 contemplate 20:11 28:7 contemplated 23:2 28:8 29:15 53:14 94:12 102:5 135:15 contemplates 135:9 138:21 contends 185:22 content 87:5 178:17 191:15 contents 77:25 78:18 79:17 176:21 context 5:19 10:9 13:17 17:25 39:15 43:7 52:17 53:7 85:17 110:5 122:12 125:17 127:6 135:6 141:18 contingencies 30:3 86:16 107:2 114:3 132:6,7 139:17 contingency 12:3 30:22 31:21 87:17 115:24 123:15 129:16 130:5,24 132:7,25 134:24 135:8 136:16 138:21 139:3,4,10 139:22 145:18,23	161:6 162:3,8 continually 135:5 continue 35:3 49:14,21 106:20 124:1 147:3 193:25 continued 35:8,15 35:15 89:2 145:20 150:24 157:8 continues 6:5,20 continuing 51:13 112:18 continuously 90:3 101:15 contract 107:25 contractors 65:6 contracts 119:20 contradistinction 138:24 contrary 80:4 117:4 148:21 contrast 7:20 17:22 contribute 30:1 contributed 70:22 85:21 86:4 106:19 126:1 129:13 contribution 56:16 61:10 71:25 76:4 82:15 113:12 contributors 80:9 control 4:7 5:14 6:17,19 9:2 10:1 11:5,13,22 33:4 38:14,16,17,19,23 39:8,16,23 40:8 40:15,20 41:1,11 41:15,25 42:1 43:5,21 48:9,13 48:21 49:10 50:4 70:4 77:11,13 93:20 95:8 100:16 100:18,20 103:15 103:18 106:4,8,10 106:14,18 121:15 122:11 125:23	126:4,20 131:13 133:1 135:21 137:5,24 138:12 139:14 142:21 143:6 144:3,9 145:5,18,24 147:24 148:2 150:23 152:7,13 155:2,8,16 157:6 157:6,9,11 158:19 159:5,16,19 160:2 182:5 controlled 34:17 111:16 controversial 140:21 convenient 52:3 162:18 conventional 84:11 converge 54:23 convergence 63:18 73:6 conversation 95:13 conversed 185:25 convey 111:12 179:3 184:19 convinced 42:6 convincing 147:2 Cook 100:10 cope 157:23 169:14 170:25 193:18 core 1:6 8:19 22:6 66:20,23 116:14 Cornelius 184:13 184:18 185:9 186:10 corner 165:18 coroner 87:14 corporate 80:20 88:2 117:2 120:5 121:18 124:2 127:17 128:1 129:6 corporates 81:4 corporates' 81:17
---	---	--	--	--

corporation 128:7 corporations 126:11 128:13 corralling 149:24 correct 57:3 108:21 122:20,23 147:7 192:12 corrected 104:10 104:17 correctly 29:21 120:10 165:25 correlation 156:15 corridors 16:3 cost 113:14 127:22 178:22 189:15 cost-cutting 194:3 Cotton 89:9 115:18 121:24 164:13 170:5 172:1 could've 80:7 93:22 96:19 113:23 122:22 147:5,18 148:2,7,18 149:1 149:16,22 160:18 Council 43:20 councils 87:23 counsel 41:14 88:4 94:13 130:22 166:1 170:4 172:16 173:10 174:16 177:21 counselling 102:6 counted 101:24 countenance 135:17 counter-intuitive 17:14 country 11:21 19:24 40:1,9 45:18 50:11 119:16 coupled 54:14 courage 5:10 122:7 161:15 167:3 181:10	courageously 110:8 course 3:23 4:3,9 7:23,25 8:24 9:25 11:25 14:14 23:3 26:3,11 28:10,16 34:14 38:4 39:6 40:2 43:7 47:20 109:11 113:11,17 122:16 125:11,18 130:15 131:19 132:18 133:15,17 136:19 137:8,13 143:1 146:23 154:24 156:6 170:9 173:23 187:24 Court 20:2 171:9 courts 84:12 cover 51:24 covered 51:24 69:18 148:12 173:16 covering 91:11 CP 126:10 CP3 76:7,25 CPs 80:20 117:2 121:18 124:2 127:17 128:8 129:6 cracks 157:14 158:11 160:16 crash 132:22 crashing 135:18 crawling 165:12 create 24:1 70:10 created 32:21 33:10,15 35:4 74:6 82:8 120:21 172:11 creating 117:9 creation 16:24 credibility 186:2 crew 96:24 153:7 160:11,15 165:4 180:2 183:1	184:14 186:16 crews 18:8,21 37:9 96:23 97:3 98:12 100:24 131:12 147:20 153:11,11 182:4,14 184:16 186:17,17,25 criminal 84:22 critical 10:6 13:12 17:6 75:21 107:9 109:20 critically 130:11 157:10 criticise 125:19 criticism 100:6 criticisms 8:21 122:24 154:17 CRO 103:20 104:6 104:10,15,24 105:3,9,14 160:2 CROs 100:22 cross-party 127:5 cross-referenced 6:15 crowd 94:2 crowded 99:20 crown 20:24 32:18 56:21 61:2,3,6,14 61:15,17,19,24,25 62:1,3,10,15,17 70:20 80:3,6 crucial 13:20 14:22 15:18 98:14 Crucially 16:7 cruel 26:25 CS 80:23 CSS 177:10 187:22 CTI 128:10 CU 95:14 CU7 153:21 156:16 159:18,21 160:4 160:14,15 CU8 152:21,24 158:22,24 159:5 160:14	cultural 102:24 163:24 170:6 173:11 176:8 culture 90:9 121:22 123:6,17,24 curiosity 174:25 175:1 current 5:19 75:19 108:10 currently 21:23 curtains 130:3 custody 125:3 cut 189:23 cutting 167:19 cyanide 78:20 79:10,13 <hr/> D <hr/> d 66:6 71:17 72:25 188:11 195:8 d2 66:4,9 Dabrowska 104:5 DAC 145:15 Damiana 103:21 damned 9:13,14 damning 90:11 danger 111:13 dangerous 54:2 117:9 121:11 122:5 123:6 132:14 133:12 140:17 dangers 70:21 72:20,21 93:14 191:12 Danny 115:16 123:24 142:11 Dany 115:18 121:24 164:13 data 47:8 78:4 79:19 database 47:18 date 81:14 94:1 108:22 124:5 157:12 dated 108:16	186:21 189:11 daughter 97:19 day 7:21 21:24 41:22 44:11 99:18 132:12 166:19 168:17,20 170:17 178:24 183:4 185:5 192:15 193:4 days 175:16 193:14 DC 98:21 DCLG 75:22 De 153:1 165:23 166:21 181:23 deal 12:5 19:6 28:23 30:10 40:1 50:8 83:20 87:4 110:18 115:20 132:21 136:24,25 151:2 155:5 157:25 158:7 169:13 170:21 174:4 193:3 194:13 dealing 39:22 176:12,15 dealt 83:25 86:17 150:22 death 100:2 112:14 112:17 126:1 171:3 deaths 81:4 85:22 86:4,7 110:18 111:6,22 113:8 124:17 125:3 175:9 deathtrap 54:16 113:10 debrief 155:10 debriefs 147:23 debris 62:3,5 148:9 148:11 decades 17:21 18:12 20:17 39:16 deceased 78:6 96:6
---	--	---	---	--

111:1 158:7 December 1:1,23 167:6 186:21 195:5 decide 175:11 decided 42:3 180:15 decision 34:17 43:9 177:23 189:12 decision-makers 191:8 decision-making 99:7 133:2 135:3 decisions 4:14 38:11 178:21,21 191:11 decisive 143:12 162:11 declaration 107:8 144:21 149:20 declare 85:9 125:22 declared 91:17 107:6 declares 84:20 declaring 114:12 declined 154:18 dedicated 48:19 129:24 149:16 153:21 154:12 155:5 193:16 deemed 172:25 Deen 111:23,23 184:12,12 deeply 68:2 defamation 55:9 default 65:6 68:4 81:24 124:9 132:25 136:18 137:19 138:22 139:12 145:19 147:9 161:5 defective 33:9 defects 73:20 108:21,24 109:5	defend 58:12 59:8 123:11 145:20 defensive 89:12 defensiveness 115:19 123:17 124:8 125:5 126:6 129:5 deficiencies 107:21 117:17 158:1 defies 175:24 define 64:2 defined 57:11 58:13 defining 54:20 definitely 111:19 definition 57:20 58:4 108:18 134:22 definitions 57:7 deflect 74:2 deforms 67:23 degree 2:25 18:23 29:5 58:23 75:7 116:23 127:8 149:2 delay 95:6 96:21 97:2 126:24 153:10 delayed 125:25 delays 112:18 delegated 107:23 delivers 85:6 demand 39:23 51:15 demands 38:6 democracy 84:8 demonstrably 82:1 demonstrate 24:18 30:3 67:20 75:19 demonstrated 30:24 51:11 88:20 124:3 126:17 154:15,19 163:23 164:7 172:9 178:1 181:9 190:11	demonstrating 43:23 demonstration 184:6 denial 90:12 123:6 123:17 124:8 194:15 denied 102:2 186:7 Denis 103:25 111:22 184:12 dense 79:3,6 92:22 densely 143:18 deny 170:8 departed 34:13 departing 86:25 departure 27:7 depended 53:25 94:7 depending 19:21 depends 56:14 58:11 59:9 deploy 91:11 deployed 3:7 6:2 26:20 36:4,22 95:24 96:17 112:10 147:20 149:11,23 153:7 153:12 160:12,15 160:18 165:23 166:3 deploying 9:21 96:21 97:3 153:11 deployment 25:19 153:6 156:13 166:5 188:15 deployments 88:18 92:15 94:9,14 95:20,21 97:16 153:14,15 155:25 156:4,19,21 depressurisation 76:20 deprivation 124:19 derived 42:20 78:25	descend 94:6 descending 93:5 describe 36:17 38:5 54:15,16 91:1 described 3:15 5:7 17:12 33:6 36:15 40:25 41:5 53:18 61:6 65:15 70:11 78:7 96:24 177:8 describes 60:20 describing 103:25 descriptions 36:19 deserved 191:25 design 8:2 13:21 14:5,13,18,23 15:9,17,18 16:21 16:25 17:13,18 20:10 21:13,17 22:2,17,20,23,25 28:5 29:9 30:5 31:9 35:4 43:10 48:6 50:4 53:14 65:6 67:21 69:2 73:17,23 74:15 76:22 110:14 115:12 118:15 119:2 121:14 128:18 131:9 138:3 designate 145:13 designed 15:6 16:9 22:7 23:14 28:12 29:19 45:8 62:24 68:9,13 74:13,19 116:9 117:24 designer 118:22 desktop 65:3 desperately 97:3 despite 77:7 81:4 88:13 89:3 95:19 101:13 102:20 106:9 148:21 157:15 160:13 172:4 detail 8:13 46:1	47:23 83:22 85:25 95:17 105:25 108:18 109:20 119:18 122:24 174:22 189:7 detailed 3:25 4:25 6:12 24:7 31:25 119:7 128:8 170:14 details 6:18 45:4 46:10 110:18 146:12 151:16 Detention 124:17 deteriorated 150:14 deteriorating 141:3 determination 164:24 determinations 177:19 determine 13:13 56:3 84:22 123:21 144:8 146:18 186:4 determined 143:13 147:10 determines 72:17 80:1 85:2 determining 60:13 128:23 deterred 80:25 devastating 52:18 61:11 62:9 70:19 91:4 develop 27:9 30:3 44:8 83:22 87:17 89:13 93:23 107:5 113:25 174:2 developed 24:1 35:7 173:1 developing 30:22 42:20,25 174:6 development 8:16 17:1 19:21 35:15 47:19 189:5
--	---	---	---	--

develops 128:4 devices 75:25 76:12 97:1 devoted 6:22 14:6 diagram 58:1 dictate 12:14 dictates 14:23 72:19 die 80:2 111:25 died 1:18 2:16 52:20 78:9,10 98:4 110:16,24 111:19 167:4 169:5 dies 60:16 diesel 66:25 difference 4:4 39:13 116:24 173:22 186:12 different 14:3,3 31:7,8,9 48:20,21 56:1 83:18 102:24 107:7 117:13 125:18 131:2 133:25 141:18 143:5 152:5 differently 16:7 192:1 difficult 4:14 9:10 30:3 37:12 38:20 42:24 72:1 123:21 141:3 150:15 168:25 181:15 182:6,8 difficulties 25:25 33:4 35:4 37:10 40:8,12,19 141:20 147:12 150:9 168:4 178:2 difficulty 3:17 37:15 42:24 100:1 139:10 dignity 1:21 110:7 168:2 dilemmas 36:1	38:21 dire 168:9 direct 37:7 122:19 155:3 directed 12:19 145:15 193:19 directing 129:15 direction 98:10 directly 8:10 16:16 69:21 97:9 141:8 149:13 151:6 153:1 156:1 188:15 director 172:5 disabilities 111:3 117:21 disability 102:22 103:12 110:15 disabled 111:18 137:1,15 183:10 disabuse 90:13 disadvantage 103:11 disappointing 121:23 123:4 Disaro 167:6 disaster 2:13 48:23 54:8 80:10 85:22 109:23 111:10 115:7 120:3 125:15 126:16 128:2 129:13 161:9 163:25 171:1,2 175:6 176:11,19 disasters 114:5 132:24 133:6,6 193:18 disastrous 82:6 discharge 85:1 90:16 103:13 140:12 discipline 102:9 disclosed 45:6 117:5	disclosure 128:8 disconnect 157:9 discover 98:24 discovered 113:17 discovering 180:22 discrepancy 177:15 discussed 126:13 discussion 132:11 193:16,19,23 disingenuous 139:20 dismissed 138:19 disorganised 163:22 disorientated 165:6 displaced 119:10 disposal 128:4 dispute 80:24 disputed 141:9 disregard 115:11 118:14,21 disrepute 89:11 disseminate 32:6 173:12 disseminated 31:21 46:23 47:13 172:14 disservice 161:16 Disson 105:4 distinction 7:17 84:18 distinguish 133:15 distinguished 133:11 distress 37:5 distressing 10:4 38:20 diversions 95:1 diversity 52:23 divert 112:11 diverted 98:12 152:19 DMM 144:7 doctrine 88:15 92:8 document 43:25	45:5 64:23 77:17 134:3,5 135:13 138:9 172:20,24 174:12,17 187:15 189:10,12 documented 31:4 70:25 124:7 documents 134:14 175:4,11 dogmatically 94:10 doing 4:11 12:11 22:4 29:21 52:16 94:22 116:5 139:10 doomed 90:21 100:15 door 76:4,7 99:15 99:20 101:24 104:8 169:3,3 door-closers 76:1 door-to-door 88:18 doors 15:24 63:14 74:16 75:6,7,12 75:13,17,21 76:3 76:5,8,10,12 80:8 106:1 108:25 109:24 117:13 136:3 148:1 doors' 63:14 doorways 28:13 Dorgu 165:14,15 165:20 dose 78:13 doubt 17:8 117:5 119:25 128:13 155:3 167:21 190:4 194:9 doubtless 131:2 Doulova 93:5 Dowden 90:20 91:6 92:1,8 98:20 136:22 144:14 145:15,25 146:3,6 153:9 179:22 180:24 181:2,12	Dowden's 180:19 DOWDON 180:9 DOWDON[sic] 179:24 downstairs 183:13 184:25 downward 20:22 32:11 Dr 4:8 7:13 14:16 21:6 33:6 54:9 55:23 57:22,25 58:13,21 59:5,11 65:12,19 67:2,24 69:3 70:2,10,22 75:12,14,18,23 76:2,6,13,17 77:10,19 80:18 81:6,8 82:21 93:17 118:11 124:21 141:15 142:25 150:6 drafting 134:17 139:25 161:21 dramatically 106:5 drastic 88:20 drastically 74:12 draw 31:5 drawing 6:13 38:8 drawings 119:20 drawn 7:17 draws 99:25 dreadful 164:14 drift 100:8 drifting 99:7 dripping 61:13,25 62:12 driven 79:23 driver 72:15 drone 177:4 drones 130:2 drove 62:1 dry 28:19,20 29:3 ducked 129:8 Duddy 103:20 104:15
---	--	--	---	---

<p>due 3:22 4:2 8:24 39:6 53:15 71:6 71:11 111:1 113:11 138:11 duration 72:19 96:22 duties 4:10 85:8 86:8 90:17 107:24 112:12 114:10 140:12 duty 5:17 44:10 85:21 103:13 107:18 123:10 124:14,23 140:15 176:22 dying 106:19 dynamic 7:19 9:9 37:11 63:4 dynamics 56:2 dysfunctional 109:10</p> <hr/> <p style="text-align: center;">E</p> <hr/> <p>e 66:13,18 69:12,20 121:2 188:14 195:8 e-mails 119:20 earlier 42:21 48:5 63:19 150:2 155:19 160:12 early 21:25 22:25 24:19 26:7,17 27:4 38:19 58:11 58:14,14 59:20 60:21 63:10 75:9 91:20 95:23 101:13 103:18 141:10 144:1,21 149:7 160:20 180:18 ears 110:12 ease 66:2 easier 168:17,19 easily 53:15,24 190:2 east 59:15 61:1</p>	<p>63:9 economical 51:22 EDBA 96:11,24 98:12 112:10 edges 56:16 59:21 71:12 educate 87:21 110:13 effect 4:13 19:1 26:24 36:24 71:4 75:3 120:8 122:21 125:24 141:8 154:22 166:19 effected 29:14 185:11 effective 72:5 125:25 132:9,15 133:3 136:24 137:10 145:18 149:1 156:14 178:17 effectively 9:14 23:17 48:22 61:21 101:4 103:2,4 154:14 effectiveness 188:6 effects 16:5 52:21 62:9 119:23 efficiency 127:22 efficient 141:9 efficiently 129:2 161:11 effort 4:19 6:7 34:19 43:16 58:14 94:15 147:18 160:25 efforts 26:23 35:3 102:13 147:15 149:12 151:20 154:1,1 Egan 146:24 egregious 54:12 egress 27:11 eight 91:15 112:1,4 185:11</p>	<p>Eighthly 138:2 either 9:12 28:21 55:5 60:15 64:24 75:2 89:25 97:6 106:15 109:8 121:19 122:24 124:4 168:8 182:16 183:4 elderly 117:20 142:4 156:18 element 14:23 20:11 186:18 elements 3:4 72:3 173:13 Elgwahry 95:7 104:16 elongate 60:5 else's 165:19 Emanuela 167:6 embrace 86:23 emerged 3:21 7:16 11:1 emergencies 107:4 emergency 12:9,17 36:7 39:21 77:6 83:21 86:14,18 99:12 108:11,13 115:23 125:16 126:5 129:16 132:15,21 134:25 138:13 145:3 156:24 170:20 179:1,3 182:25 194:13 emerging 172:10 empathy 102:23 emphasise 7:14 14:9 17:16 131:14 134:11 emphasised 21:6 emphasising 111:8 emphatically 104:9 en 65:14 152:19 enable 48:20 188:14</p>	<p>enabled 170:16 enables 83:13 enabling 73:9,11 encounter 37:5 encountered 36:10 36:23 37:18 encourage 37:19 encouraged 20:22 endangered 123:23 endeavour 114:16 116:5 ended 160:9 endemic 124:11 127:25 energy 65:21 165:10,15 engaged 7:24 20:3 36:7 45:20 128:21 engineered 135:24 engineering 67:21 74:4 Engineers 32:5 engines 18:10 England 21:18 English 103:2 enormous 5:3 6:22 43:8 enquiry 149:24 ensued 73:1 ensuing 84:7 ensure 2:13 21:11 50:5,22 145:7 ensured 4:22 ensuring 7:3 94:2 109:10 enter 129:7 entered 55:5 entering 104:8 166:17 enters 57:9,21 entire 18:11 19:1 23:18 43:11 88:23 93:17 94:24 entirely 31:12 34:4 40:4 81:16 112:25</p>	<p>180:25 entirety 61:5 entitled 127:16 187:14 entrance 148:10 154:3 159:9 entry 93:1 182:5 envelope 16:8 32:12 153:18,19 enveloped 53:22 61:5 envelopes 154:4 environment 12:21 37:20 50:19 171:10 193:3 environments 45:10 188:13 envisaged 138:20 144:19 EPDM 69:18,21 episode 91:4 equal 5:21 equality 103:9 124:16 equally 35:2 38:20 50:9 67:4 77:16 82:11 97:20 132:20 135:6 179:4 equated 66:23 equates 70:18 equip 139:1 145:22 169:14 equipment 46:11 93:7 96:19 134:12 163:20 164:2,4 167:2 176:25 177:5,9 179:15 187:7,18 188:7,22 188:25 191:18 192:10,12 194:7 equipped 149:10 equivalent 107:24 error 90:22 errors 90:10</p>
---	---	--	---	--

160:24 161:18 escalated 144:15 escalation 145:15 escape 10:24 15:14 28:16 35:5,10 36:11 37:21 45:8 54:25 56:9 60:22 63:24 80:8 92:23 94:12 102:6 142:15 151:12 escaped 55:4 92:25 98:1,5 121:6 142:15 160:19 escapes 64:6 112:16 Eslah 95:12 especially 15:11 107:9 114:7 183:18 193:3 essence 42:19 50:1 193:22 essential 14:1 24:23 28:11 35:8 35:13 40:7 essentially 61:7 102:9 140:25 establish 5:5 99:8 125:22 established 34:12 39:22 76:6 103:21 145:6 155:7 190:8 establishes 5:5 120:19 establishing 19:13 establishment 83:25 estimate 97:11 estimation 68:22 ethnic 110:24 European 65:9,14 66:6,9,13 evacuate 58:16 63:21 73:11 92:11 94:24 111:4 115:25 139:3	147:15 161:5 178:7 evacuated 19:19 21:23 94:18 149:17,23 evacuating 117:15 162:11 evacuation 10:16 10:17 15:11,16 16:20 19:1,19,25 20:5,9 22:24 23:2 23:3,7,11 28:18 44:8,13,16,21 47:24 48:3 58:6,8 58:25 77:5 86:11 87:1 88:14,23 91:1,23 93:3,18 94:2 97:19 99:17 101:3 102:7 110:14 112:25 123:15 129:17 131:1,5,16,24 132:2 134:22,23 135:12 136:14,15 137:1,18 138:10 139:9,13,18,22 140:24 141:2,7,10 141:15,21,24 142:3 143:13 144:12 145:24 146:18 147:1,7,10 150:16 151:4 158:2 177:20 186:24 evacuations 23:15 97:6,9 evacuees 149:25 evaluate 135:4 139:1,11 146:22 162:4 event 16:13 21:12 21:15 22:19 30:2 33:11,20,23 53:20 56:22 84:2 86:10 88:11 101:1	108:15 112:9 118:23 events 1:24 2:18 4:20 6:8 7:8,9,19 9:10 30:16 32:6 33:16 34:4 53:6 54:17 111:9 120:9 177:11 191:25 eventualities 135:20 eventuality 136:20 eventually 95:3 156:7 165:8 172:8 everybody 92:16 evidence 3:9 5:1,14 5:17,22 6:6 7:5,23 8:1 9:3,9,20 10:9 11:1 12:10 14:16 19:7,9 21:7,9 24:20,22 30:15 32:9 36:1,17 38:15 41:1 42:5 46:20 49:11 51:11 54:5 59:12 65:4 66:7 69:11 71:18 75:6,25 76:13 77:10 79:19 80:17 81:14,24 82:21 86:20 88:3,15,20 89:9 91:3,10 93:5 93:12 98:8 99:2 99:19 103:13 108:6,22 109:15 110:9 114:10 115:9 116:19,22 117:1,6 118:5 119:7 120:18 121:4,24 122:17 123:5,13 124:24 129:11 133:9 134:16 137:14,20 138:18 139:16 141:12,13 142:10 143:16 144:24 145:21 149:6,9	150:7 152:24 154:10 155:12,23 157:22 158:5,16 159:7,10,21 163:23 164:10,16 164:18 165:5,22 167:5 168:8 170:10 172:1 173:11,24 174:11 179:17 180:14,19 180:24 181:22 182:19 183:25 184:1 185:23 evidenced 20:21 74:15 evidences 78:8 evidencing 73:21 evolution 63:3 exacerbated 70:10 151:21 exactly 124:19 136:7 exaggeration 7:6 54:15 examinations 7:8 examine 12:10 49:19 examined 11:6 13:18 59:19 171:11 176:20 examining 175:25 193:24 example 8:1 15:12 18:2 35:18 73:15 73:19 81:17 130:3 136:3 157:19,19 168:10 187:17 examples 31:10 95:6 96:9 exceeded 97:4 excellent 10:19 exception 124:9 exchange 48:22 exclusive 34:23 50:17	excuses 120:14 executive 86:22 134:10 exercise 6:16 178:1 194:15 exhortations 81:1 exist 12:21 173:17 existence 20:23 existing 33:8 75:1 85:14 188:2 exit 54:22 exited 55:23 exiting 92:18 expect 67:13 83:12 127:16 135:1,17 173:14 174:5 expectation 146:9 expected 4:9 14:24 16:9 33:22 46:19 49:19 60:7 144:16 163:4 186:8 expedient 131:14 expenditure 194:7 experience 5:15 12:19 39:16 40:6 90:21 92:9 102:4 110:4 experienced 3:19 75:9 100:3 182:11 189:4 experiences 5:23 38:17 110:10 expert 13:8 115:9 116:22 117:1,4,6 120:18 128:8,11 188:11 190:23 expertise 31:24 experts 3:9 8:4 10:18 14:6 15:10 20:23 24:7 30:15 31:2,3 32:9,14 54:2 55:8,14 56:22 57:3 60:4 67:18 70:20 71:23 80:18 92:17 109:5
--	--	--	--	--

116:17,23 128:10 142:14 experts' 11:17 54:5 explain 60:11 114:2 explained 13:2 26:18 35:20 174:1 174:13 explanation 31:25 explanations 13:4 exploration 48:19 explored 40:14 explosions 132:22 exponential 29:4 exponentially 60:23 exposed 25:24 56:16 71:11 exposing 55:15 express 16:12 81:7 137:17 expressed 16:8 77:15 81:9 146:25 expression 49:24 expressly 15:5 130:18 134:3 135:9,13,15 140:10 extend 51:2 extended 20:4 96:22 extension 60:6 107:16 extensive 7:7 24:6 24:11 71:11 81:9 extent 8:24 10:11 20:11 22:20 28:1 28:15 30:16 31:19 32:11,12 36:20 40:15,24 60:13 71:25 73:1 99:8 109:9 159:2 exterior 27:2 31:17 78:25 79:7 external 16:8 25:20	26:7,15 27:5,23 30:25 32:12 33:8 33:12,14 34:5 59:11,13 62:21 64:17 65:8 88:9 91:13 145:24 171:12,16 externally 26:14,20 27:13 extinction 58:11,14 64:1 extinguish 15:8 29:6 34:25 58:19 73:10 160:21 170:16 extinguished 20:7 extra 96:18 extract 29:19 32:5 63:1 extracted 76:21 extractor 55:7 extreme 132:24 extremely 5:15 43:2 eye 38:6 129:6 eyes 88:22 110:12 F F 65:18,22 66:1,6 69:20 72:25 F.4 65:19 fabric 68:15 fabrication 115:13 128:19 facade 53:17 64:11 64:13 67:3 70:6,8 70:12 71:17 73:10 73:24 74:4 80:3,6 80:14,21,24 81:10 81:25 82:19,21,23 82:25 133:5 143:17 facades 87:12 133:13 170:11 172:3,11 174:12 174:14,19	face 12:20 40:9 42:20 59:15 61:1 63:9 123:9,11 145:20 165:10 171:20,23 faced 2:21 7:19 10:2 23:8 33:5 34:10 36:2 38:20 38:21 41:9 90:22 165:24 191:12 faces 36:13 37:25 facilitate 15:10 23:15 28:12 151:1 151:11,17 facilitated 108:9 facilitating 7:1 55:16 94:12 142:3 facing 5:10 141:5 fact 3:2 9:6 11:12 13:13 16:19 17:11 19:8 22:14 26:13 28:11 30:8 31:13 40:5 42:10,16 43:8 45:19 58:16 59:7 66:5 69:12 72:24 74:21 76:22 85:10 92:20 110:23 112:1 116:22 130:8,11 133:21 135:20 144:16 145:12 154:8 156:11 161:12 165:20 175:22,23 177:18 178:5 183:20 188:18 fact-finding 84:4 factor 32:18 136:8 186:14 factored 16:20 factors 12:14 23:12 29:23 31:15 32:15 38:13 112:13 139:13 186:23 facts 7:15 33:1 85:2	114:1 123:11 142:12 146:3 factual 12:10 178:17 Fadumo 96:15 fail 22:9 54:24,25 59:2 100:23 123:7 123:16 132:1,2 161:17 173:15 failed 58:15,22 59:9 74:12,16 75:7 86:5,13,20 88:22 90:16 98:24 103:4,19 107:19 113:23 118:17 130:4,25 138:23 146:11,20 150:21 154:8 157:16 160:22 162:14 164:2 169:11 176:22 192:19 failing 63:20 75:21 86:9 102:16 169:12,13 failings 11:16 13:14 43:23,24 69:2 127:13 129:9 129:12 140:4 164:14 173:11 179:16 192:18,18 192:19,19,20 fails 20:13,14 22:19 87:1 139:23 failure 20:12 23:23 30:5 59:7 62:25 63:14 64:8,10 74:14 76:1 77:21 86:3 88:11,20,24 90:11 94:9 100:17 101:1 103:18 106:6 115:25 116:1 118:13 121:17 131:16 140:13 143:15 162:2,6,10 164:17	170:6,9 173:12 176:17 184:10 187:8,25 188:11 failures 91:2 99:9 100:21 106:17 111:24 115:12 116:3,17 117:7,7 119:13,18 121:13 123:8 124:5,21 125:21 126:4 129:18 140:22 161:20 162:10 191:18 fair 193:2 fairly 57:14 fall 34:4 46:8 fallen 55:6 78:12 falling 55:9,14 62:5 148:9,11 165:12 familiar 125:7 158:5 166:8 172:23 familiarisation 47:3,9 families 2:16 94:3 112:21 194:11 family 90:5 107:14 119:24 158:3,8 159:14,15,24 160:1 168:4,5,15 185:16 fan 55:7 fans 63:1 fantasy 135:16 far 3:23 5:6 10:19 11:17 24:12 27:5 39:24 40:12 81:25 100:13 120:13 121:19 128:5 129:2 135:16 137:11 146:1 153:22,22 155:22 156:13 171:7 191:10 193:21 farce 180:17
--	---	--	---	--

fared 146:7	figure 65:19 110:25	23:1,9,23,25 24:5	79:23 80:8,12	164:5,6,7,14,20
faster 56:14,18	file 99:4	25:17 26:7,8,12	81:15,15 82:6,10	164:21 166:11,24
71:8 72:4	filled 104:3	26:14,15,24 27:4	86:5,8,10,21 87:9	167:4,14 168:6,12
fatalities 78:4	filling 92:22	27:9,13,23 28:7	87:22 88:12 89:2	168:15 169:10,15
fatality 89:3	filtered 88:6	28:24 30:7,12,14	89:5 90:11,21,23	169:19,20,24,24
fatally 92:14	final 43:13 77:23	30:16,19,20 31:16	91:13,18,22 92:1	170:3,15,16,22,23
fate 112:22	106:7 112:3	31:16 32:5,10,13	92:13 93:16 95:9	170:24 171:8,9,11
fault 120:9	finally 50:17 63:25	32:21 33:2,11,11	95:15,22 96:3,7	171:14,20,21,24
favour 34:18 55:25	98:8 109:14	33:12,14,16,22,23	98:17,25 100:9,10	172:6,11 173:13
favourable 23:6	112:22 114:1	34:1,12,16,25	100:22,24 101:2,9	173:19,20,20
FBU 80:22	156:23 157:18	35:5,7,16 36:7	101:14,21,23,24	174:10 175:3,5,16
fearless 83:17	financial 189:1	38:17,19,25 39:1	103:22 104:7,9,10	175:25 176:6,8,11
feature 61:9 63:8	find 53:4 82:25	39:4,10,11,17,21	104:13,16,18,22	176:13,22 177:12
84:8 106:25	113:22 121:4	39:24 40:1,20	105:1,9,17,19,20	178:2,10 179:9,19
116:21 158:6	finding 77:19 81:13	41:5,6,10 42:19	106:8,11 107:21	179:20 180:1,1
features 61:4	82:13 113:7 183:2	43:2,8,15,20,22	108:12,20,21,23	181:14 184:2
117:22	findings 11:17	44:6,9,11,15,20	109:7,10,21,22	186:20 187:4,8,12
February 124:16	13:12,13,15 53:10	44:21 45:2,3,8,11	110:2,11 111:13	187:14 188:16,18
fed 155:16	80:11,17,20,22	45:17,17,20 46:6	113:8 115:17	188:21,24 189:4,9
feed 151:9	81:1,3 85:24	46:13,18,20,25	116:2,8 117:14	189:16 190:22,25
feedback 72:11	90:14 109:13	47:15,16 48:9,10	118:1,6,7 120:22	191:3,5,9 193:6,7
157:13 182:7	114:9 162:1	48:15,17,20,25,25	120:24 121:5,6,11	193:14,15 195:9
feeder 188:7	finds 75:18	49:8,18,24 50:8	121:23 122:6,17	fire's 110:12
feeds 177:17	fingers 51:9 162:19	50:10,18,24 51:2	122:22 129:21	fire-resisting 70:5
feel 42:8 51:23,25	finish 83:13 194:18	51:4 52:18 53:2,5	130:12 131:17,20	fire-stopping 15:24
163:5,8 167:12	194:21	53:8,11,13,18,19	131:22 132:1,15	firefighter 24:22
feeling 38:2	fin 61:16 62:11	53:24 54:2,13,24	132:18,18 133:13	45:13 88:8 95:25
fell 46:18 62:3,13	fire 1:12,14,19 2:2	55:4,7,21,23 56:2	133:22,25 134:10	96:1 112:8,12
86:15 157:14	2:7,17,21,22 3:2,7	56:10,22,24 57:4	135:10,24 136:3,4	117:14 137:13
158:10	3:8,10,12,14,16	57:9,12,16,17,21	136:6,12,23,25	148:7 149:4,5
felt 43:2 154:21	4:22,23 5:9,21,25	58:3,12,14,19	137:21 138:3,11	165:20 166:9,11
167:17	6:1,11 7:4,8 8:7,9	59:4,14,21,24	138:19 140:11	168:16 179:17
female 103:20	10:13 11:1,13,21	60:8,15,21,22	142:15,17,20,22	183:6,16 184:18
185:16	12:11,20 13:7	61:1,4,10,23	143:5,8,10,17,20	185:3,8,10,12,13
fewer 97:16	14:1,2,12,14,22	62:16,20,21,22	143:22 144:2,6,15	185:15,16,22
FF 165:13,14,14	14:24,25 15:2,6,7	64:2,18 65:1,12	146:1 147:13	186:10 189:20,23
field 188:11	15:12,21,23,24,25	67:8,10,10,20,22	149:13 150:25	191:7,8
Fifth 89:4 97:15	16:5,13,16,24	68:2,14,17,23	151:6,8,11,16	firefighters 4:7,11
100:6	17:1,5,7,15 18:7,8	69:7,15 70:4,23	152:10,16,17,19	5:14 6:13 7:3,18
Fifthly 136:23	18:10,24 19:4,10	70:24 71:2,9,24	152:20 153:10,21	8:11,13 9:2,13
149:15	19:13,17,20,21	72:18 73:10,17	157:1,4,6,11	11:5,12,22 12:25
fight 28:7 29:3	20:3,4,7,13,15,18	74:4,5,14,21	158:9,14,18,19	22:3 23:20 24:16
50:11 176:7	20:20,20 21:1,3,5	75:14 76:8,11,14	160:19,22,22	25:23 26:10,19,21
fighting 91:13	21:10,12,14,15	77:1,5,9,10,11,12	162:14 163:15,16	33:3 34:9,16,24
176:16	22:8,13,18,22	77:15,16 78:4	163:18,21,21,24	35:19,21,23 36:1

36:4,8,21,22 37:3 37:14 38:11,21 42:17 48:2 59:6,7 63:23 89:15 90:2 93:7,19 99:5 101:15 102:1 111:11,25 113:2 122:8,11,12 142:1 142:2 143:22 148:18 156:1,8,11 160:18 161:16,18 163:16 164:25 165:3,25 166:8,16 166:21 167:21 168:1,7,10 172:15 172:17,22 175:7 176:24 177:13 178:18 179:8,18 182:22 184:8,13 185:10 186:6,16 191:4,8 firefighters' 37:23 111:17 firefighting 2:7 4:13 15:12 19:14 19:24 25:11,13 26:5 27:7,8,22 28:1,6,10,22 29:14 30:4 34:5,6 34:18,22 35:3,8 35:14 46:11 49:5 59:11,13 63:22 77:2,3,4,8,18,21 88:19 95:2 130:16 131:23 134:11 138:25 147:17 150:20 160:21 183:1 Firelink 188:15 firemen 105:12 192:4 fires 3:16 14:3 18:4 18:19,22 25:15,18 27:17 28:8 29:3,6 30:9,10,24,25	31:4,7,13 35:2,10 35:12 42:21 50:8 50:11 59:19,25 61:13 62:4 74:6 87:15 88:10 89:21 92:8 96:5 132:20 132:20,20 133:5,7 133:10,13,16,20 170:10 171:6 175:12,18,18,19 192:20 193:11 194:12 firm 13:15 firmly 30:1 first 6:10 9:4 14:11 18:14,21 22:24 34:3 43:12,18 45:3,17 53:11 55:1,3,15,21 56:13,25 57:8 58:13 61:21 64:12 66:24 72:6 74:15 78:1 79:22 84:19 86:3 88:6,19 94:18 95:14 96:11 98:20 99:6 101:7 103:3 105:7,24 109:17 110:17 111:9 114:15 132:5 147:14 152:20 153:13 155:14 158:17 159:13 177:25 179:18 184:14 186:2 194:25 first-hand 137:14 firstly 34:21 115:7 122:3 135:23 162:2 fit 21:11 97:23 130:9 154:14 161:3 164:20 179:2,5 fitted 28:19 33:8 five 18:5 52:16 53:5	60:7 69:2 88:3 94:17 158:8 160:5 183:21 fix 40:13 161:22 fixed 30:19 31:19 fl 158:25 flagging 95:19 flame 16:11 56:15 57:24 59:22,22 60:6 63:2,10 70:20 72:14 80:5 81:25 flames 60:5 71:21 79:7 flammability 65:25 flammable 87:12 173:16 flat 16:2 26:9,17,20 33:12 35:20 37:4 37:4 41:8,13 42:16 55:2,3,5 56:10 57:13,18,21 60:17 75:12,13 76:3,3 77:24 78:18 79:4,16,17 79:23 95:15 97:9 101:23 104:5,8,9 104:23 105:15,19 105:20 112:5 153:8,11 156:25 157:20,21 158:3,8 158:12,13 159:7 160:6,15,19 167:9 180:1 182:1 183:21 184:11,16 185:12,19,24 186:1,9 192:7,8 192:11,13 flatly 126:3 flatmate 93:10 flats 16:13 19:17 20:5 36:9,21,24 37:10 40:17,23 43:3 59:4 61:21 61:22,24 62:22	74:11 76:21,23 78:23 79:8,21 91:20 94:21,25 95:16,19 96:2 97:12 98:25 99:9 106:1 146:9 147:22 152:5 153:13,23 156:3 156:24 157:3 179:19,20,21 flawed 73:23 fled 60:17 104:17 fleetingly 130:3 flexible 85:16 flood 94:19 floor 19:15,16,17 29:2 41:6 45:21 61:11 74:14 92:3 93:6,10 95:9,9,11 95:16,16,20,23,24 95:25 97:24 98:2 98:16 101:10,10 103:21,25 104:6 104:11,17,17,18 104:21,22,25 105:2,4,8,14,18 111:9,12,22 112:13 148:24 159:1,3,11,11 160:10 167:9 171:25 179:22 180:1,8,23 182:9 184:5,14 187:1 floors 28:2,8,11 29:3,7,13,22 35:10,11 60:1 61:12 92:2 95:20 96:5,17 98:13,14 104:14 111:5,13 112:12,15,21,22 112:23 136:7 147:21,22 149:17 156:13 165:13 180:22 182:1 flow 157:10	fluxes 62:22 fly 174:9 FOA 80:22 foam 71:20 117:10 focus 49:11 119:12 129:2,10 155:19 focused 130:4 147:11 focusing 73:17 follow 88:4 94:13 125:24 138:25 140:13 147:1 followed 54:8 65:5 79:7 89:11 92:24 93:9 144:5 following 4:23 5:25 23:12 24:6 68:16 84:24 131:6 141:12 146:6 161:2,25 187:5 188:1 follows 14:22 87:4 106:17 footage 148:22 footnoted 140:19 force 84:15 forcefully 54:9 forensic 7:8 foresee 122:25 foreseeable 53:20 86:10 foreseen 136:10 foreshadowed 111:10 forget 117:18 164:23 165:22 167:2 forgive 22:1 23:13 168:19,20 175:2 form 44:4 64:22 143:7 159:19 160:2 formal 103:13 formed 143:12 forms 6:3 84:11
---	--	--	---	--

formulate 146:13 forward 109:12 113:19 126:24 154:19 185:18 forwarded 153:1 Foster 183:16,16 fought 25:15 27:13 found 5:15 9:15 22:13 40:11 41:8 45:4 52:20 77:10 100:7 183:18 185:1 Foundation 124:13 four 45:11 54:18 111:8,22,24 112:5 185:11 Fourteen 185:19 fourth 24:4 63:25 65:3 74:7 88:25 97:5 99:14 103:17 112:15 Fourthly 136:13 Fox 104:6 105:3 181:11 frames 138:5 framework 85:18 Francis 124:11 frankly 46:7 189:12 free 92:20 freezer 121:5 fresh 1:21 fridge 121:5 Friedman 83:6,8,9 83:15 114:18 115:16 121:22 123:24 128:22 141:17 142:11 144:13 Friedman's 148:20 friends 2:16 17:9 52:24 107:14 119:24 friendship 167:24 front 63:11 105:5	117:12 164:23 165:10 front-line 172:14 172:17 FRU 96:10 frustrate 85:11 frying 53:19 FSG 49:8 95:14,20 96:8 98:13 102:4 106:1 107:12 116:1 123:15 129:17 130:9,16 137:3,8 146:13,18 151:2,9 152:20 153:8,22,23 154:8 155:12,14 156:1,9 157:1,7,21,24 158:20,25 161:10 161:13,22 162:13 171:1 177:2,11,14 178:6,17 181:24 182:2,17 FSGs 130:10 150:19 fuel 60:6 66:25 70:18 72:8 78:16 fuel-rich 60:8 fulfil 4:17 114:9 full 13:17 19:1 23:3 23:10 28:17 36:18 47:20 51:25 86:11 88:14 91:23 93:1 126:16 127:16 131:15 135:11 138:1 139:23 full-scale 20:9 fully 11:6,9 13:2 24:10 30:17 33:22 141:20 156:2 function 8:23 32:14 61:9 70:8 functional 64:15,21 66:21 67:5 68:11 77:22 137:25 functioned 77:13	functioning 75:22 76:13 118:8 functions 3:5 15:3 50:19 85:1 fund 194:13 fundamental 2:12 15:2 27:6 32:17 50:3 58:19 60:13 73:5 85:21 115:10 118:11,20 fundamentally 3:10 73:23 107:17 funding 12:23 188:14 193:17 Furnell 159:23 further 19:19 27:9 29:1 34:3 35:5,9 45:4,25 46:10 49:20 51:20 56:15 63:17 70:10 95:21 108:4 110:5,14 112:9 118:12 122:2 146:19 171:17 174:11 Furthermore 77:8 137:11 149:9 fuse 61:7 future 83:19 89:20 123:3,8 194:10	47:12 gathering 144:6 gauge 165:16 gear.' 180:2 Gebremeskel 104:21 192:17 general 25:12 96:25 115:7,8 117:19 132:8,17 140:15 141:5 147:13 158:2 generality 120:7 generally 103:3 115:20 117:5 132:6 189:25 generate 79:3 generated 35:12 62:22 77:23 160:3 generation 114:4 generic 78:17 87:2 111:7 133:23 134:13 generous 97:11 genuine 42:24 geometry 70:10 getting 91:19 128:24 181:2 183:15 Ghavimi 93:9 give 5:22 9:3,22 36:13 52:10 88:16 99:19 102:7 149:5 162:19 164:16 175:18 given 1:20 5:1 9:8 16:19 23:5 24:17 33:1 34:25 37:14 38:16 46:7 51:25 54:11,13 56:12,19 64:22 66:21 68:7 68:19 69:10 71:12 73:1,25 77:14,21 81:24 82:21 100:19 111:1 129:14 140:9	142:8 143:18 145:12 147:8 161:9 168:8 172:21 176:16 180:19 181:3 183:25 186:15 192:10 gives 88:2 187:6 giving 19:9 102:4 107:12 110:8 glacial 188:17 glass 188:3 glazing 62:25 Gloria 167:7,18 Gloria's 167:10 go 25:5 29:25 41:19 42:7 46:1 84:9 102:11 126:25 160:8 163:12 167:13 168:14 174:25 180:16 184:22 God 105:17 116:13 goes 155:11 going 1:5,9 4:2 21:8 24:25 25:1 27:24 45:25 49:25 52:9 76:15 83:20 87:4 93:16,23 94:24 102:16 113:19,25 115:6 116:19 122:12 123:8,25 129:10 130:5,7 132:5 142:12 160:14,21 163:8 165:25 166:11 168:22 174:15 179:6 185:1 188:24 191:6,15 Gold 144:23 golden 60:21 145:2 Gomes 178:20 181:10 190:11 good 1:3,16 14:8
--	--	--	---	--

22:8 83:4 163:6 176:15 180:16 194:21,25 Goodall 146:25 goodbye 167:17,20 Gottardi 167:8 Gotts 105:9 Goulbourne 98:9 98:11 govern 13:21 16:21 governed 50:20 government 68:16 84:11 133:23 134:13 governor 180:9,11 governs 47:11 GRA 102:20 132:2 132:5 133:21,22 134:4,7,18,20,21 135:19 138:17,20 139:16,24 140:1 176:20,23 grab 183:12 grabbed 165:20 grading 66:11 grapple 140:7 GRAs 140:9 grasp 103:19 164:8 grateful 52:1 83:15 grave 112:20 great 19:6 25:25 60:15 84:18 114:3 greater 62:23 72:7 116:4 130:2 161:19 greatest 3:6 greed 194:2 greet 168:2 Greg 183:23 Grenfell 1:19 2:5 8:2 15:5 18:7 20:18 21:1 22:10 22:20 28:10,21 32:10 35:7 39:4 39:10 41:4 42:21	43:8,24 44:6 46:17 49:18 51:2 51:14 52:19,23 53:13,22 54:9 57:15 59:16,18 61:4 65:6 66:3,16 66:23 67:6 68:20 68:24 74:15 77:17 78:10 79:1 80:13 86:21 89:7 98:6 101:6 108:12 109:17 110:25 113:8 116:8 120:21 122:6 125:17 131:9 133:16 135:25 141:21 162:8 163:16,17 165:1 170:3,15,22 171:7 173:14,18 174:1 174:18 175:10,16 176:11 179:9 187:15 188:23 189:4 190:6 192:22 193:7 grid 156:17,22 gross 117:7,16 119:8,13 ground 39:1 40:21 48:9,10,17 49:9 95:15 98:17 106:11 116:2 122:17 144:6,17 145:14 150:25 151:11,16 152:16 152:17,21 155:10 155:13,15 157:1,4 157:11 158:20 160:9 161:10 164:6 176:13 177:12 182:9 188:16,22,25 189:10 190:25 ground-control 46:13	grounds 81:3 101:20 group 32:4 98:11 144:24 149:15 grown 84:16 growth 176:19 guidance 14:19 21:19 38:25 39:10 39:18 43:25 48:2 48:16,25 49:1 64:21 87:2 92:13 107:12 118:22 130:7 131:8,12,19 131:21,22 133:22 134:8 135:13,15 136:13,25 138:8 139:11,12,21,24 140:9 150:4 161:21 178:3 guide 75:22,23 92:9 gulf 87:6 <hr/> H <hr/> Haftom 105:13 hailers 138:16 Hakim 158:4 half 24:5 61:17 96:6 97:4 150:5 153:15,20 156:5 halfway 91:19 hallmarks 74:21 Hampstead 166:2 hand 67:21,23 105:5 151:15,19 165:10 handed 54:10 handful 39:17 130:10 156:10 161:24 handheld 177:5 179:8,23,25 188:3 190:5 handhelds 185:8 handle 39:8,17 handling 38:24 48:15 151:2	hands 112:11 happen 27:25 53:3 53:21 114:6 119:14 121:13 123:20,22 137:20 174:7 187:7 happened 2:4 5:6 11:11 22:14 23:5 32:24 39:14 40:3 42:7,14 101:5 121:11 136:7 145:17 147:5,6 152:6 158:7 175:20 176:1 happening 11:10 24:14 33:1 153:3 153:25 happens 2:14 193:2 hardwired 9:23 190:19 Harley's 121:2 Harris 125:2 Harrison 99:3,15 146:24 harrowing 5:16 110:9 181:9 hazard 54:12 79:18 hazardous 37:20 hazards 170:7 head 67:16 127:8 130:19 headed 131:5 heading 37:4 headline 98:18 119:11 heal 114:13 health 54:12 119:17 124:18 134:2,9 140:12 healthcare 124:14 hear 1:6 25:2 163:6 167:19 180:12 185:4 heard 9:20 15:19 15:22 19:6,7 20:2	25:19 26:17 30:9 43:1 74:11 99:21 103:20 105:16,19 114:14 116:15 119:7 132:9 137:14 139:16 141:1 143:16 148:24 175:8 179:23 hearing 1:4 91:5,25 112:7 149:14 180:4 194:25 195:5 hearings 1:18,21 3:22 26:3 37:15 109:18 110:19 113:5 heart 193:23 heat 16:17 35:12 55:16 62:22 72:13 101:21 152:10 heating 61:24 heavy 37:24 179:21 heeded 154:18 height 64:19 142:22,24 143:19 Heights 68:17 held 96:25 Helen 104:21 192:17 helicopter 177:4 helicopters 102:15 149:10 helmets 122:19 183:12 help 51:20 103:22 121:18 165:21 182:10,11,18 helped 161:14 170:11 helping 170:2 helps 5:5 131:21 heroes 90:5 heroically 90:2 heroism 9:16
--	---	--	---	--

Herrera 169:2,6 185:10,12,15,22 186:1,6 Herrera's 112:8 hierarchy 98:19 113:11 high 33:21 44:18 56:23 58:23 67:22 78:6 102:15 110:23 116:23 119:16 171:1 172:11 182:2 high-level 106:3 115:8 high-rise 13:22 14:18 18:3 19:2 21:18 25:21 27:7 27:17 28:5 30:6 34:7 43:23 44:2 49:5 50:6 51:5 54:21 87:9 88:12 88:14 89:22 101:2 102:7 120:25 130:16 131:23 132:10,13 133:4 133:13,20 134:11 135:6 138:24 139:4,18 143:18 147:21 154:22 163:25 175:12,17 176:5 179:11 190:20 193:11 higher 98:13 112:15,21,22 171:22 highest 89:22 96:16 highlight 43:14 161:15 highlighted 46:24 50:15 130:18 highlighting 42:23 highly 10:3 27:19 58:25 69:23 79:22 99:18 117:12 173:16	Hillsborough 125:6 125:14 him' 42:14 hindered 161:13 hindsight 3:21 4:6 4:18 22:16 122:25 144:5 Hippel 111:11 history 43:12 171:6 193:8 Hoare 166:2 hoc 147:23 hold 73:10 holes 132:23 holistic 65:1 home 17:9 80:13 94:4 homeless 52:21 homes 52:19 120:1 honest 10:5 honestly 168:9 honour 1:18 honouring 5:12 hood 45:22 hoods 45:8 123:1 130:2 hope 51:23 116:6 hopeless 96:12 152:13 hopes 6:23 horizontal 61:5 62:1,6 70:19 horizontally 136:5 horrendous 90:24 horrific 122:17 horrors 5:11 hoses 26:19 29:1,2 29:12 97:1 host 133:6 140:19 hot 60:8 150:9 165:6 hour 24:25 25:1 42:1 99:6,7 116:6 145:2 153:9,12,20 159:16 163:4	hours 6:11 25:2 44:10 61:6 97:4 150:16 175:16 house 87:14 100:22 169:24 housed 110:24 111:4 housing 44:7 108:10 Howson 105:14 huge 6:6 157:4 human 5:7,8 42:24 78:8 86:9 92:6 110:5,7,11 115:11 118:14 124:16 128:3 hundreds 7:2 hydraulic 59:10 91:12 hydrogen 78:20 79:10,13 <hr/> I <hr/> IC 155:17 iconic 127:23 idea 173:9 180:16 ideal 141:22 identified 44:18 47:1 49:14 51:17 65:12 76:11 105:7 109:5,23 156:25 164:15 187:17 identifies 63:25 75:24 78:16 identify 56:20 87:18 90:15 100:25 106:4 137:18 140:21 149:16,23 identifying 4:21 108:24 157:3 ignite 53:24 56:13 56:14,18 ignited 59:25 67:11 71:7 73:8 igniting 62:4	ignition 55:17 56:3 56:6 66:2 67:22 72:4,19 ignorance 177:25 ignore 119:3 ignored 58:17 81:16 ignores 123:5 II 175:7 ill 137:1 156:19 ill-judged 89:12 illustrate 96:9 158:10 illustrated 157:21 illustrating 148:22 illustration 74:3 images 56:2 122:13 177:3 immediate 23:10 37:16 40:17 84:13 86:11 88:23 101:3 148:10 immediately 5:25 40:22 43:19 93:20 95:10 105:1 139:14 144:23 148:3 158:4 175:23 immobile 156:19 impact 8:6,8 22:18 25:11 40:4 impacted 100:18 141:25,25 impacting 27:10 138:3 186:23 impassable 63:7 impede 67:9 imperative 84:15 129:14 170:18 imperatives 127:21 imperilled 143:24 implemented 12:5 19:20 implementing 86:25 131:15	implicates 62:15 implications 4:15 91:7 97:21 110:22 implies 58:1 importance 5:4 11:20 13:20 21:5 34:24 55:20 107:11 important 7:16 10:20 16:19 17:16 17:19 19:12 22:2 22:17 23:12,22 31:14 32:17 34:5 34:22 35:2 36:16 47:6 50:17 62:20 70:7 71:4,15 73:14 110:21 113:19 114:1 122:3,4 142:3 177:23 179:4 importantly 21:8 30:2 31:12 33:18 45:7,16 85:6 92:3 impose 62:23 imposed 65:21 124:14 147:10 imposition 133:1 impossible 10:4 11:8,15 20:19 41:8 56:20 94:6 116:16 122:25 141:24 142:18 154:20,23 impracticability 142:7 impracticable 23:11 140:25 147:8 improve 46:12 47:19 100:16 175:21 improved 187:18 improvement 129:23 134:9 improvise 102:8
--	--	--	--	---

115:25 inability 127:25 163:24 164:7 184:8 186:6 191:7 inadequacy 3:6 inadequate 29:6 163:20 176:25 inappropriate 161:13 incapable 69:1 109:10 176:12 191:11 incident 3:1,18 4:6 7:14 12:4 36:5 38:18 39:2 45:15 48:7,17 49:6,10 89:1 93:13 98:19 99:7,10 100:12,17 103:19 105:22 106:4 125:22,24 130:10 137:6,17 137:22,24,25 138:2 139:1,11 143:3,9 144:21 145:13 146:6,17 149:20 150:20,23 152:14,18 153:9 154:22,25 155:2,3 155:4,6,10,13,15 155:20 157:8,16 158:20 161:23 169:22 173:14 174:5 182:7 187:6 188:20 189:10 Incidentally 125:13 149:3 incidents 107:6 154:15 169:23 188:4 include 8:21 18:6 27:18 48:19 137:3 187:25 194:5 included 6:9 80:3 102:10 130:17 135:19	includes 32:2 128:24,25 including 2:12 10:21 21:14 32:15 47:11,13 69:24 70:24 75:10 78:5 80:6 86:24 87:5 87:11 88:25 98:15 103:12 106:23 113:13 137:15 138:12 145:10 150:12 incoming 98:23 inconsistencies 133:24 inconsistently 87:16 incorporates 19:15 increase 21:22 44:25 increased 47:16 increases 45:2 independent 84:4 125:3 155:21 160:14 independently 111:4 160:4 indicate 56:12 91:9 98:8 112:17 155:25 indicated 78:13 104:13 124:25 146:8 173:11 indicates 85:10 148:25 149:10 150:7 indication 127:19 indicative 78:3 individual 8:14 9:2 11:4 13:14 36:24 92:6,14 94:21,21 94:22 97:5 98:25 99:9 106:2 110:18 125:19 151:1 161:16 164:24	168:7 180:15 181:16 individuals 8:25 10:1,12 11:14,24 12:1 50:21 122:23 179:20 industry 65:2 67:1 ineffective 136:19 161:11 ineffectiveness 97:14 inertia 56:14 72:2 inescapable 88:4 114:10 inevitability 53:11 54:14 57:16 inevitable 53:5,20 88:24 179:12 inevitably 7:10 10:10 12:12 34:10 62:25 inexorably 54:8 inexplicable 96:21 98:24 inexplicably 81:18 infallible 133:18 inference 79:5 inferno 73:1 141:5 166:21 inferred 85:2 infill 69:8,14 117:11 infiltration 78:24 influence 100:7 influences 80:1 inform 102:17 105:8 information 6:14 31:3 46:14,17,22 47:1,12 92:5,9 95:6 107:13,20 111:14 137:5,23 143:21 144:6 150:25 151:9,19 153:4 154:6,20	155:9,15,18 156:18 157:10,11 157:14 158:10,19 158:21 159:4,7,10 159:12,17,19 160:2,3,8,13,14 162:7 172:14,21 177:1,14,17,24 179:3,4 180:21 181:12,25 183:4 183:18 184:19 191:3 information-gath... 87:18 informed 34:1 92:1 104:6,15 105:3 106:22 110:12 147:14,24 151:15 155:17 160:4 184:21 informing 134:14 139:14 ingrained 123:6 inhalation 78:8 inhibit 15:20 inhibited 68:15 84:25 initial 3:14 7:13 18:8 27:14,16 34:25 80:8 initially 152:17 injured 137:2 innocent 191:23,25 input 100:13 inquest 125:21 inquests 124:25 127:23 inquiries 84:1,17 84:19 126:25 127:23 152:9 inquiry 2:1 4:16 5:4,12,15,22 6:4 6:24 7:4,6,10 8:23 10:19 11:8 13:5 16:18 25:19 27:15	30:8 35:25 40:14 41:2,14 43:1 45:6 49:19 53:10 80:16 80:25 81:6 82:14 83:17,20,24 84:16 84:21,25 85:4,9 85:20 86:1 87:13 88:14 89:11 90:14 97:2 99:2 103:14 109:12 110:17 113:7,11,19,22 115:20 116:17 120:13 124:3,7 127:10,15,22 128:3,15 129:1 140:3 155:24 160:25 163:23 164:15,18 166:1 166:23 167:6 170:5 172:16 173:10 174:15,16 174:24 175:14 176:5 177:22 184:4 189:7 190:22 193:23 inquiry's 3:9 8:3 10:18 11:17 13:7 14:6 20:23 24:7 30:15 31:3 32:9 109:5 114:9 inside 38:21 143:22 148:20 183:19,21 insight 88:17 109:20 insofar 13:11 18:15 27:1 inspection 87:18 installation 33:20 54:5 installations 136:3 installed 32:20 34:2 73:21 171:16 190:20 instance 45:4 97:16 instances 9:16
--	---	--	--	---

<p>45:23 76:12 instigated 93:18 instinct 36:22 Institute 32:5 institution 123:11 institutional 90:8 91:2 115:19 123:17 125:5,8 126:6 127:17 128:1 129:5 143:15 194:3 institutions 120:6 124:10,24 128:13 instruct 42:2 188:11 instruction 6:1 instructions 9:18 insufficiency 3:5 insufficient 29:12 56:10 163:19 insulating 69:9 72:12 insulation 33:8 60:9,10 61:16 62:11,13 65:7 66:3,4 68:19 69:10,19,19,21 71:5,8,16,16,24 72:23 73:3,7 82:11 117:8,10 120:17 insult 164:22 insulting 89:16 integrity 35:17 75:20 76:9 125:10 147:18 Intel 189:14,18 intelligence 101:3 106:10 intend 145:7 intended 15:9,20 155:17 intense 1:25 intention 11:8 16:12</p>	<p>intents 74:22 inter-floor 190:21 interact 70:8 interacted 60:10 interaction 72:21 intercepted 158:22 intercom 93:22 138:16 148:8 150:2 interest 2:9 50:2 78:17 85:11 114:11 Interestingly 138:17 interests 84:13 interim 43:18,21 44:25 45:1 113:6 116:12 119:12 140:22 interior 36:2 55:13 60:24 67:17 68:5 intermittently 63:6 internal 25:13,20 26:5 27:8,9 28:6 32:12,20 33:11,16 34:6 58:11 59:25 69:6,25 74:7 internally 25:16 35:16 92:2 104:13 143:23 international 32:6 59:19 internationally 133:8 interpretation 97:11 101:18 interrogate 40:16 intervene 99:20 intervened 99:15 intervention 99:22 106:3 intoxicate 68:20 introduced 45:8 98:9 introduces 134:5</p>	<p>introduction 47:14 123:1 134:4 187:18 invalid 54:1 invaluable 110:13 invested 4:18 investigate 76:2 111:2 investigating 109:12 113:20 investigation 63:17 110:6 128:11 129:1 investigations 81:10 investigatory 85:17 invidious 144:13 invite 52:10 53:10 80:22 82:25 115:1 invited 186:4 inviting 1:11 invoke 139:2 involve 31:14 128:23 involved 9:11 67:14 79:17 94:2 94:25 111:24 118:14 126:21 161:21 involvement 32:18 involves 19:12 involving 3:18 19:16 35:1 37:16 87:10 97:12 iron 179:12 irony 26:25 irrelevant 73:3 85:6 108:12 irresponsible 89:17 irritant 78:1 Irvine 171:10 Islington 154:13 isolation 70:13 issue 12:24 16:17 31:22 40:18 41:3</p>	<p>48:8 73:22 76:15 90:8 103:15 125:15 128:15 129:8 131:20 141:23 183:8 190:6 issued 134:8,9 issues 8:20 9:8 10:20 11:6,25 12:12 13:1 22:22 24:6 31:24 33:3 34:9 36:20 40:14 42:25 46:24 47:6 47:21,23 49:3,11 49:16,20,24 51:6 76:14 97:25 102:22 117:21 122:10 128:14 130:4,13,18 140:8 186:5 187:16,21 190:25 194:10 itemised 135:19</p> <hr/> <p style="text-align: center;">J</p> <hr/> <p>Jacobs 160:5 Jafari 111:20 jeopardise 93:17 jeopardy 99:9 Jeremiah 111:23 184:12 Jessica 104:24 jet 26:7,15 91:11 100:4 jets 25:20 28:22 Jo 178:5 job 27:1 29:22 102:3 165:24 168:16 183:9,10 Johnson 154:11 177:8 Johnson's 157:22 178:1 join 116:10 119:9 122:7 joint 86:15 106:15 107:10</p>	<p>judgement 11:4 92:7 judgemental 128:25 175:2 judgements 10:16 11:9 judging 38:10 judgment 13:3 July 125:2 166:19 182:19 183:4 June 1:25 18:14 21:7,9,24 27:17 43:19 49:23 51:19 52:18 106:13 132:12 135:20 180:20 junior 100:1,4 jury 125:21 justice 84:11 85:6 114:15 193:1 justifiable 51:15</p> <hr/> <p style="text-align: center;">K</p> <hr/> <p>K15 71:18 Kasia 104:5 Katie 183:16 keep 81:4 86:23 163:10 191:5,15 keeping 38:6 Kensington 119:15 Kent 45:16 Kentfield 152:25 Kentish 166:7 kept 60:8 155:17 key 6:14 12:24 13:24 14:13 18:8 22:2 40:25 62:6 63:8,15 69:2 74:11 116:3 129:7 134:14,17,19 135:22 140:8 143:3 172:13 173:12 186:18 Khadija 111:21 Khalloufi 111:21 Khoudair 137:16</p>
--	---	--	---	--

kick 81:5	170:14 172:18	75:12,14,18,23	learn 21:25 46:5	lesson 21:25 29:16
killing 113:20	known 7:15 10:14	76:2,6,13,17	51:9 90:10 97:13	lessons 2:11 3:20
kind 2:14 3:14 15:4	15:18 36:3 58:12	77:10,19 80:18	97:15 123:7,14	4:5,21 11:20
16:22 17:2 18:22	65:16 68:19 70:25	81:8 93:17 118:11	164:8	31:17 32:24 39:3
20:17 23:2,22	87:2 95:14 107:21	141:15 142:25	learned 3:21 4:5,21	40:5,7 42:21 43:5
37:13 42:25	117:22 119:4	150:6	11:20 29:17 31:18	43:17 46:5 49:17
145:17 182:10	124:7 130:11	Lane's 4:8 57:22	39:4 42:21 43:5	51:1,9,16 123:7
Kingdom 3:19	133:19 136:17	65:19 81:6 82:21	46:6 49:17 51:1	123:14 129:20
Kingspan 71:17,19	140:17 158:1	language 94:19	51:18 129:20	189:3 192:20
80:22 120:23	162:13 170:21	102:24 103:3	learning 12:19 32:4	let's 42:6 165:22
Kirkup's 124:21	171:8 176:18	130:7	32:5,7 39:5 40:7	181:22
kit 147:22	188:9 193:10	large 2:25 12:7	43:16 84:7 123:19	lethal 24:1
kitchen 103:22	knows 87:13	40:24 72:8 79:9	129:23	letter 87:24 109:1
104:7,16 105:2,10	Knowsley 68:17	164:1 174:9	learnt 2:11 8:12	level 33:13 39:13
111:13 132:20	Kooltherm 71:18	190:25	32:25 39:19 40:5	61:22 63:6 88:7
180:1		large-scale 64:25	106:11 174:11	122:18 142:23,23
kits 184:17	L	133:5	189:3 192:21	150:12 157:20
knew 10:12,13	Laci 97:19	largely 150:7	leave 41:8,13,16	160:12 170:1
41:22 98:21,21	lack 75:21 80:7	largest 3:2 175:6,7	42:2,11 43:3	185:19
106:13 161:22	115:24 117:12,14	Lastly 162:13	45:21 102:12	levels 62:4,7 63:5
166:22 173:4	121:15 125:8	late 35:23 100:13	152:11	78:6,7,13 126:21
know 4:10 6:9 15:1	127:12 128:1	112:16 137:11	Leaver 99:3	142:25 143:5
17:9 22:5 30:23	130:5 133:11	153:22 155:22	leaves 57:9	150:15 171:22
36:16 41:21,22	139:17 140:1	160:11	leaving 69:16 104:1	179:19
42:12 43:1 55:18	157:13 178:21	lateral 20:21 32:11	104:2	Lewis 103:21
60:4,5 82:15	188:6	61:10,17,18,19	led 54:8 69:21	LFB 80:22 86:20
85:12 89:4 91:13	lacked 98:19	62:10,15	109:9 116:4	87:9,24 90:9,15
103:7 105:12	105:22 106:10	laterally 59:23 61:2	124:13 156:1	99:24 102:21
108:1,23,25	ladder 27:14,18	law 83:20 85:5,7,14	162:10 174:25	103:10 107:13,20
126:21 132:21	45:23	103:8 108:10	184:10	109:2 113:22
139:23 151:4	ladders 102:15	127:4	ledges 74:6	114:7 115:23
153:6 154:10	Lakanal 87:14	lay 67:24 182:8	left 69:13 90:20	116:3 122:5,20
157:22 158:16	100:22 123:14	layers 20:12 21:2	95:2 98:20 111:24	123:14,24 126:7
159:19,20 160:3	133:6,20	63:12 132:15	112:6 145:1 146:1	129:5,9,11,22
167:22 172:7,15	laminated 159:20	lead 72:4 137:10	149:25 165:17	130:3,11,14 131:4
181:3 182:24,25	159:23	171:3 175:25	176:25 189:8	133:10,19 134:17
185:22 190:10	land 89:14 174:3	leaders 194:14	legal 85:18,21 86:8	139:3,20,23 140:7
192:5,10,19,24	landing 111:11	leadership 90:12	90:17 124:13	140:13,23 142:6
193:1,2	landline 152:15	163:20 164:19,21	126:21	144:12,21 145:6
knowing 101:16	landlord 117:23	191:10 194:15	legend 158:25	147:7 154:10
knowledge 9:21	Lane 7:13 14:16	leading 60:6 176:4	legitimate 8:22	156:17 157:22
26:18 30:9,20	21:6 33:6 54:9	184:6	22:11 26:5	161:15,20 163:18
31:16,20 47:16	55:23 57:25 58:13	leads 79:15	lengths 60:7	170:6,19 171:4,9
88:2,6 107:7	58:21 59:5,11	league 66:5	lent 26:21	172:3,10 173:12
108:20 109:4,9	65:12 67:2,24	leaky 188:7	lessened 84:15	175:17,22 176:17
	69:3 70:2,10,22			

189:3,8 190:4 194:8,13 LFB's 87:14 89:18 138:24 143:15 187:9 191:10 LGA 75:23 Li 95:7 105:7 liability 84:18,23 85:2 128:23 liaise 155:2 liaison 43:20 liberty 124:19 lie 168:22 lies 83:24 193:23 life 9:11,23 35:14 42:15 87:10 96:15 100:2 116:4 118:14 119:1 133:17 140:10,16 151:15 161:19 162:3,11 167:7 171:24 184:7 lift 74:20,21,22 76:24 77:20 111:16,20 137:13 lifts 76:25 77:1,3,4 77:5,7,8,9,10,11 77:16,16,17,18,21 80:9 117:14 136:2 light 7:21 40:5 127:11 137:4 lighter 66:25 70:18 likelihood 23:24 85:1 169:22 181:12 likes 136:22 likewise 152:23 limb 161:19 limitations 179:15 limited 10:10 20:5 65:16 66:20 69:11 69:20 71:22 72:24 73:3,7 78:4 81:22 173:8 limiting 63:21	limits 2:24 4:12 38:8 65:20,22 line 103:6 126:15 127:14,20 155:4 164:23 168:1 190:17 line-of-sight 179:10 lines 179:25 lining 69:25 70:3 linings 67:16 linked 12:16 list 95:15,17 117:6 118:3,10,10,25 172:6 listened 127:9 listening 91:5,25 184:3 lists 148:5 litany 109:4 literally 38:2 153:17 little 70:5 83:11 92:4 122:2,21 146:7 158:5 live 17:17 42:15 80:2 132:16 lived 41:6 lives 4:10 52:19 61:11,12 62:17 80:10 96:5 113:15 115:11 122:8 123:22 125:20 131:2 141:10 161:2,11 164:25 168:10 178:14,22 178:23 193:20 living 2:22 loads 62:23 169:6 lobbies 10:14 16:4 28:13 38:3 60:18 63:4,5,22 74:19 76:23 79:5,21 92:22 97:12 156:8 156:11 lobby 29:20 74:10	76:3 96:2 97:10 104:1 local 2:6 53:1 107:17 108:6,8 134:15 136:23 194:2 localised 19:5 20:6 20:20 location 104:19 136:12 182:24 London 1:12,14 2:2 4:21 6:1 18:2,3 20:16 39:13 43:6 44:19,24 46:20 53:3 86:5 87:3,23 106:8 115:17 121:23 137:21 138:19 163:15,21 163:24 164:5,7,20 164:22 166:24 169:10,15,16,19 169:20 170:22,24 173:20 175:3,25 176:5,6,21 184:2 187:12 188:18 189:9,16 190:22 191:3,9 193:6,14 195:9 Londoners 110:24 170:19 long 1:17 12:18 34:12 35:13 78:15 81:6 98:21 117:6 127:23 132:14 141:16 160:18 181:9 189:21 190:16 long-established 125:24 long-term 3:15 longer 54:4 58:4 72:9 143:25 look 42:14 89:5 94:13 109:12 114:15 133:21	174:25 175:11 185:15 189:8 looked 40:14 48:4 49:6,7 134:4 138:18 165:16 174:13,21,22 looking 8:8 91:4,6 108:7,7 120:1 looks 47:23 110:16 189:14 loop 137:5 151:19 155:9,18 loopholes 192:24 loses 55:10 67:19 loss 63:15 72:13 109:17,19 116:4 133:17 184:7 lost 52:23 61:12 62:17 75:14 80:10 80:12 95:4 98:3 99:6 112:15 119:24,24 159:13 160:16 165:10,13 167:7 191:22 lot 126:22 178:22 182:21 193:3 lots 105:14 loud 138:16 loudhailer 148:23 149:4 150:2 loudhailers 93:21 148:19 149:1,8 Louisa 165:23 lounge 185:25 loved 80:12 low 55:11 56:13 65:20 67:18,23 69:12 72:2 97:13 190:2 lower 62:4,6 66:17 72:3 98:13 101:10 112:12,23 Lukic 93:8 lunch 114:20 luncheon 83:11	M Macit 97:23 magnitude 62:23 100:8 163:19 Maher 137:16 main 19:14 28:23 29:11 45:11 72:15 104:8 115:23 maintain 35:16 147:18 maintained 21:11 51:5 maintaining 94:8 maintains 30:1 32:22 maintenance 13:22 16:1 21:13 115:14 121:15 128:19 135:23 136:1 major 3:18 7:8 45:15 48:23 84:8 92:7 99:10 100:12 107:6 120:3 125:22,24 144:21 149:20 163:25 170:25 193:18 majority 17:20 97:6 164:4 making 50:21 75:3 75:4 80:25 90:9 109:13 165:24 170:24 191:11 male 183:21 185:16 malfunctioning 75:24 man 99:19 managed 20:16 58:18 178:11 management 107:25 108:19 117:17 128:20 134:2 153:22 169:18 170:19 176:3,12 manager 90:19
--	---	---	--	--

91:25 94:19 95:13 99:14 100:10 144:16 145:1,8,25 153:1 165:4,22 177:25 managers 98:11 123:10 144:25 manifestly 122:5 manner 2:7 8:5 31:20 32:19 38:10 174:4 Mansfield 89:4 mantle 124:22 manufactured 116:10 118:16 march 124:21 167:25 168:1 169:17 Marcio 178:20 181:10 190:11 Marco 167:8 Mariem 95:7,11 104:16 mark 147:22 markedly 94:13 marketed 118:16 marketing 120:24 marks 193:7 Martin 1:3 25:3,5 51:21 52:2,9 83:4 83:6,12 114:18 115:1 162:17 163:1,12 166:2 191:15 194:17,20 masks 36:13 37:24 97:17 masqueraded 77:9 mass 72:6 89:3 102:7 106:22 massive 183:8 mast 190:13 Masterdor 75:17 material 7:22 26:24 56:12,15 67:21,25 68:1,25	75:2 82:15 175:23 materialised 135:20 materially 86:4 126:5 materials 15:25 31:14 32:16 50:22 53:23 55:16,19 56:20 61:13 62:14 62:18,19 67:2,12 67:14 68:18 69:19 69:24 70:3,8,13 70:14 72:9 73:13 73:15 77:24 78:17 79:24 82:7 115:13 133:14 138:3 matrix 135:19 matter 40:10 48:5 73:2 92:19 93:24 99:17 100:2 103:8 116:13 127:19,20 127:24 132:19 142:5 186:4 matters 7:11 13:4 52:16 66:1 85:5 89:10 100:1 107:23 112:20 113:23 163:11 169:18 Matthew 166:3 maximise 101:3 Mayor 126:9 Mayor's 193:17 McGuirk 13:8 mean 13:12 85:5 108:22 109:4 130:23 132:7 135:24 169:19 meaning 5:19 58:13 189:19 meaningful 2:11 6:24 11:20 51:16 108:18 127:12 means 15:13 21:21 21:21 40:21 56:8	61:2 62:21 66:14 70:4,11 71:24 84:5 92:18 94:25 100:7 123:21 138:15 141:2 160:21 176:9 179:11 182:16 189:20 meant 28:13 72:12 92:14 101:19 104:2 108:13 145:1 147:15 164:5 181:24 186:24 measure 5:21 44:22,25 72:1 measures 3:24 8:7 8:9 15:23 17:5 20:13 21:2,6,10 23:1,24 30:12 32:21 43:18,22 47:25 48:18 49:2 49:16 74:8,9 99:17 135:21 138:12 139:15 mechanical 55:11 67:19 mechanism 23:16 60:5 62:6 74:5 mechanisms 107:22 media 6:16 147:17 meet 51:15 154:23 168:2 meeting 134:1 melt 68:7 71:9 73:16 74:2 melting 61:24 62:2 62:12 71:12 members 45:9 96:24 107:13 158:8 168:5,5 membrane 69:18 membranes 117:10 memorable 173:23	memory 1:21 2:22 36:6 Menon 194:25 Mental 124:18 mention 110:17 125:5 132:2,3 136:11 137:17 138:4 145:6 161:4 mentioned 87:20 95:10 146:23 148:20 150:3 mentions 131:23 menu 121:7 mere 120:20 merely 42:23 73:13 73:17 77:9 Merrion 184:13 mesh 177:10 message 89:18 180:6 189:21 messages 152:15 152:17,20,25,25 180:11 181:1,3 met 65:13 77:22 102:16 156:7 methods 50:22 86:24 metre 61:17 metres 59:17 77:3 142:24 Metropolitan 6:4 7:2 Meyrick 152:24 153:5 mezzanine 154:4 Mid 124:12 mid-2017 30:18 mid-morning 25:9 migration 112:23 Millett 41:15 170:4 million 189:15 mind 8:18 38:13 50:18 54:19 59:5 70:7 83:13 143:10 163:11	minds 122:14 minimise 103:11 133:24 140:16 minimum 66:4 minister 84:3 minor 78:24 116:24 176:15 minority 110:23 minute 59:17 121:20 130:8 143:14 minutely 6:11 minutes 25:1 52:4 55:12 59:17 68:21 76:9 79:11,14,16 79:23 83:9 93:3 141:19 143:9 144:14 146:20 153:12 155:14 191:14 minutes' 45:11 75:20 76:9 mischaracterise 89:2 misdescription 77:17 mishmash 152:15 mislead 136:12 missed 98:14 missing 33:9 150:17 175:6 mission 96:12 missions 168:23 mistake 166:23 mistakes 123:21 164:8 169:6 misunderstanding 18:24 130:23 mitigate 33:22 43:22 74:13 mitigated 144:18 mitigation 117:15 135:21 mixture 165:11 mobile 152:15
--	--	---	---	--

177:4 181:8,14,19 190:10 mobilising 144:19 mobility 97:25 102:22 117:21 137:1,14 model 135:3 modern 5:19 119:3 Mohamednur 111:20 Mohammad 111:23 Mohammed 158:4 molten 62:3 moment 4:8,15 7:18 37:10 50:10 53:22 57:9,11,17 58:22 90:12 132:5 137:7 143:7 158:15 167:15 193:4 194:22 Monday 1:1 monitor 182:23 monitoring 145:10 145:12 monoxide 78:8,14 78:19 79:2,10,13 month 168:1 months 7:21,24 10:25 15:20 113:5 113:6 120:2 126:15 127:14 173:21 176:4 MOORE-BICK 1:3 25:3,5 51:21 52:2,9 83:4,6,12 114:18 115:1 162:17 163:1,12 191:15 194:17,20 Morecame 124:22 morning 1:3,16 35:23 42:17 58:17 97:22 116:15 128:22 136:9 142:7 194:25	Morrison 183:6,6 mortal 111:13 most-powerful-si... 179:10 mother 95:11 98:1 167:7,10 move 59:14 135:11 157:19 179:6 191:17 moved 95:12 154:7 159:3,12 movement 75:10 138:13 movements 91:14 moving 147:17 189:3 Mulholland 99:3 multi-call 154:15 155:4 multimedia 106:24 multiple 3:1,11 12:20 24:6 28:2,8 28:11 29:7,12,13 29:22 35:1 36:1 85:20 93:6 94:20 109:16 112:2 115:12 136:7 137:8 139:7 150:10 157:23,25 171:1 186:17 Murphy 103:25 111:22 184:12,13 185:3 Murray 149:4 mutual 39:22 mutually 34:23 50:16 72:10 myriad 12:14 <hr/> N <hr/> N 195:8 named 189:13 Naomi 95:7 105:7 narrative 6:12 12:11 narrow 117:3	national 18:16 32:3 43:20 65:8,16 66:9 87:2 102:20 130:7 131:22 133:22 135:7,13 139:23 140:9 150:3 161:21 nationally 40:20 43:22 49:25 nationwide 32:7 106:9 natural 116:12 132:24 174:25 175:1 naturally 143:20 nature 12:14 32:15 39:14 48:6 67:14 73:25 76:2 81:15 86:10 89:2 115:18 132:16 navigating 94:4 navigator 100:4 navy 176:14 near 56:23 68:18 133:6 148:10 166:11 near-death 110:4 nearby 2:17 nearly 125:12 153:9 155:13 necessarily 28:15 65:24 79:19 necessary 18:11 19:19 34:11 39:20 44:7 45:15 46:15 58:9 59:13 82:14 110:2 111:2 138:10 necessity 139:1 need 2:3 12:24 19:1 21:22 29:14 45:9 46:3 48:1 63:24 83:17 85:12 86:23 88:13,18 90:25 92:15 93:4 106:14	120:14 124:23 125:1 133:19,21 136:14 155:19 158:1 161:4 163:10 179:4 180:2 182:25 183:11 184:16 185:21 188:8,14 190:22 192:24 193:8,9,13 needed 18:9 58:23 59:1 90:5 92:11 97:3 100:25 102:3 102:12,19 106:3,8 112:4 146:12 173:1 182:18 184:21,25 needing 189:17 needs 90:10 111:1 113:7 166:23 193:6 negative 89:18 negligible 173:19 neighbour 104:6 neighbour's 105:9 neighbours 94:3 neighbours' 148:1 neither 71:21 77:12 84:10 96:2 100:14 102:21 137:10 151:18 156:15 165:15 never 2:14 3:19 11:22 18:10 34:1 54:10,13 60:4 73:24 94:5,11,18 94:23 98:20 102:15 112:15 145:8 161:10 170:1 182:11 193:1 new 32:3,19 47:19 48:19 104:19 110:19 120:1 125:21 133:13	137:23 170:7 190:18 news 183:15 NFCC 43:21 44:1 44:19 NHS 124:12,22 night 1:24 2:4,18 2:20 4:20 5:6,11 5:20 6:8,19 7:3 8:11 10:2,12 12:11 14:1 18:13 22:4,13 23:9 25:12 30:16 33:2 33:4 34:10 37:12 38:17 39:11,15,24 40:3 41:4,7 46:6 51:18 53:7,9 54:17 77:13 86:11 89:16 90:10 94:10 94:15 97:10 98:18 100:19 102:4 107:1 108:6,20 114:8 118:9 119:23 121:12,25 123:16 136:8,19 137:8 138:7 140:5 148:13,22 151:18 153:10 156:10 162:15 164:12 169:7 179:16 191:23,24 192:4,4 nine 98:4 173:21 177:8 Ninthly 138:8 nodes 177:10 nods 129:25 non-combustibility 65:23 non-combustible 65:15 non-compliance 67:7 77:20 80:21 80:23 81:1 82:4 113:14 114:2 115:10 118:11,20
--	--	---	--	--

119:8 non-compliant 3:10 50:12 53:23 75:3,4 80:24 82:1 82:14,24 83:1 non-expert 109:6 non-LFB 106:10 Non-mandatory 64:21 normal 132:17 172:24 normally 182:4 Norman 95:13 103:24 104:22 105:24 north-east 146:9 Northleigh 6:3 northwards 59:23 notable 130:13 187:25 notably 98:15 note 48:1 82:17 141:13 156:23 noted 67:25 70:23 134:20 146:14 150:2 156:16,21 159:18 179:21 187:10 notes 99:18 131:11 153:4,17 notice 108:23 notices 134:9 notified 155:15 notify 184:15 notorious 89:21 124:8 notwithstanding 28:11 35:3 89:6 186:5 novel 124:6 November 108:24 178:24 192:17 193:5 NPAS 149:9 nuance 84:19	number 3:6,16 4:22 8:21 9:9 37:17 39:7,11,20 39:24 41:7 45:2 73:20 87:3 96:6 97:8 98:12 99:4 122:10 134:8 142:19,25 146:15 148:15 155:1 156:25 157:4 171:15 173:8 184:15 numbers 97:21 178:3 182:2 186:8 numerous 10:3 28:13 nurse 100:3 O O'Beirne 111:11 179:17,18 180:14 180:21,21,24,25 o'clock 35:23 42:17 92:18 94:5 97:22 150:12 195:1 O'Keeffe's 94:19 O'Loughlin 98:21 146:7,8,14,20 178:11 obfuscation 81:17 objective 40:21 67:5 objectively 142:14 142:16 objectives 135:4 144:8 obligations 89:6 observation 54:20 107:5 142:20 144:5 observe 64:4 113:18 186:22 observed 70:23 71:6 171:15 obstructed 190:3 obstructions 190:1	obtainable 107:20 obtained 128:12 obvious 9:6 17:3 57:14 73:15 89:3 90:25 91:7,21 93:16 99:4 117:16 119:4 130:19 140:4 143:25 144:9,12 160:20 161:17 178:25 181:21 obviously 3:20 12:7 16:17 18:6 24:23 31:22 41:19 48:11 50:16 57:5 105:11 130:25 142:2 194:21 occasion 112:3 occasions 39:7 41:7 179:2 192:5 occupancy 93:17 occupants 16:13 21:14 23:17 30:14 44:12,13 63:7 92:15 93:14 184:11 185:24 occupied 54:13 occur 7:10 106:6 169:24 occurred 17:23 18:14 20:1 22:9 30:17 37:11 55:15 57:13 113:9 188:23 occurring 88:21 169:22 occurs 57:8,21 131:17 October 41:23 129:19 168:20 187:12 191:20 192:16 odd 9:8 offer 106:22 offered 86:6 102:10	office 164:1 176:6 193:12,17,17 officer 100:5 145:11,13 148:7 159:17 officers 6:18 11:13 38:20 39:16 41:1 99:2,5 108:11 112:11 131:12 140:24 144:10,17 146:23 148:18 149:16 154:11 172:7 186:20 officers' 99:22 Oh 42:13 105:16 old 98:5 old-fashioned 5:18 OM 103:24 104:22 105:24 Omar 184:11 185:23 omissions 85:13 187:25 once 9:12 54:2 55:6 58:3,6,8,14 67:8 71:7 86:12 100:8 114:4 153:24 163:7 174:24 178:2 180:3,8 one-dimensional 106:1 ones 80:12 ongoing 6:21 21:13 32:8 187:21 online 172:19 onwards 112:20 178:13 open 10:5,6 28:14 120:3 121:7 134:5 143:20 148:22 169:3 opening 2:11 13:19 18:1 49:23 63:14 66:19 81:19 109:18 122:20	134:21 141:11 169:2 openly 66:25 operate 96:16 101:4 136:22 162:5 operated 152:13 179:9 operates 85:17 operating 100:3 operation 6:3 17:14 35:24 86:15 95:13 107:11 152:12 162:9 operational 6:10 17:1 19:13 32:3 46:14,17 47:8,18 88:7,16 91:2 108:9 135:8 136:15 153:21 161:6 172:15,22 178:2 operations 2:8 14:25 19:14 27:22 34:23 35:8,14 140:5 142:1 operator 41:15 42:1 operators 38:16,19 40:15 100:19 101:7,12,22,24 102:1,8 103:4 131:13 opines 143:1 opinion 81:9 117:4 118:12 128:12 opinions 141:14 opportunities 63:21 98:14 opportunity 24:22 26:11 27:24 31:24 35:1 51:25 95:4 114:4 128:9 145:3 151:22 186:8 opposed 25:12 76:9
---	---	---	---	--

<p>optimising 94:8</p> <p>optimum 151:16</p> <p>option 22:18 26:4 58:7,10 88:23 141:7</p> <p>oral 1:7 7:5 35:25 46:20 109:15 110:9 129:22</p> <p>Orchard 185:10,13 185:17 186:6</p> <p>ORD 46:14</p> <p>order 26:14 31:5 62:23 82:13 91:11 114:6 194:24</p> <p>ordered 59:10</p> <p>ordinary 4:9 74:22 84:10 132:17</p> <p>organisation 8:22 9:1 12:3,8 46:23 89:10,19 90:1 109:10 129:22 163:22 169:11 176:9</p> <p>Organisational 45:5</p> <p>organisations 108:2 194:8</p> <p>organised 103:6</p> <p>organising 142:5</p> <p>origin 15:7 19:16 19:18,22 58:3,5</p> <p>original 69:13,24 76:25</p> <p>originally 53:16 163:4</p> <p>originals 69:5 76:5</p> <p>other's 107:8</p> <p>ought 59:6 68:2 93:13,15</p> <p>out.' 185:21</p> <p>outclassed 170:22</p> <p>outcome 55:21 56:18 125:12 133:25 161:1</p> <p>outcomes 131:1</p>	<p>156:2</p> <p>outer 65:7 73:25 117:8 171:20</p> <p>outlets 29:2,13</p> <p>outline 54:19 86:18 112:7</p> <p>outlined 51:18</p> <p>output 65:21</p> <p>outset 73:9 85:19 127:9 161:13</p> <p>outside 34:4 40:17 40:22 41:21 57:12 57:18 96:25 101:24 190:13,15</p> <p>outstretched 39:25</p> <p>outward 69:4</p> <p>overall 55:20 98:17 106:5 176:25 191:5</p> <p>overarching 85:19 121:13</p> <p>overcome 40:11 147:12 188:8,12</p> <p>overcoming 51:2</p> <p>overflow 101:4 106:13</p> <p>overlooks 73:5</p> <p>override 111:17</p> <p>overrun 157:7</p> <p>overseas 52:22</p> <p>overshadowing 71:4</p> <p>oversight 115:13</p> <p>overview 45:5 83:20</p> <p>overwhelmed 3:4 38:18 53:6,14</p> <p>overwhelming 86:22 92:6,10 114:11 145:21</p> <p>owner 15:15 23:8 117:23 126:19</p> <p>oxygen 60:6</p> <p>Oyewole 191:20</p> <hr/> <p>P</p>	<p>PA 149:10</p> <p>pace 61:18 86:23 163:11 188:18</p> <p>package 87:21 89:13 154:16,19 154:23 173:2,4 174:2</p> <p>packages 78:16</p> <p>packed 117:9 121:8</p> <p>Paddington 96:10</p> <p>page 21:24 33:16 34:8 41:23 42:15 134:7 135:23 136:4,11,23 137:17,22 166:20 168:20 170:17 173:3,6 174:7 178:24 183:5 185:6 192:16 193:5</p> <p>pages 136:13 187:11</p> <p>pains 7:14</p> <p>pan 53:19 132:19</p> <p>panel 56:19 66:8 82:10 84:21,25</p> <p>panels 56:11,17 61:15 62:9,16 66:20,23 69:8,9 69:14 70:16,17 71:15 81:21 87:25 117:11 138:5</p> <p>paper 86:22 87:7 152:14 154:4 179:2 181:25</p> <p>paradigm 101:1 112:13</p> <p>paragraph 131:5 139:8,19 146:4 148:25 186:22</p> <p>paragraphs 46:2</p> <p>parallel 126:2 150:21</p> <p>parallels 99:25 125:18</p>	<p>paramount 34:24</p> <p>Parliament 84:10 85:12 127:4</p> <p>part 8:22,23 17:12 33:9 116:3 139:25 167:5 173:23 189:5</p> <p>partial 19:25 88:13 135:11</p> <p>partially 97:7 156:3</p> <p>partially-sighted 35:20</p> <p>participants 1:7 8:20 22:6 116:14</p> <p>participation 187:3</p> <p>particular 10:24 24:4 37:3 47:2 54:3,6 61:20 70:21 72:20 73:12 92:15 115:18,24 116:17,21 117:21 121:16 122:1,11 135:1 148:6 149:14,22 150:15 157:3 166:5 187:1</p> <p>particularly 5:16 12:8 16:18 17:17 23:6 33:25 43:6 44:5 46:25 49:7 50:5 63:19 71:4 73:8 80:18 93:4 98:10 142:4 149:18</p> <p>partner 93:5 183:23</p> <p>parts 54:23,25 118:5</p> <p>pass 11:4 13:3 24:3 37:6 65:23 150:15 153:19 154:20 183:17 191:7</p> <p>passage 21:8 42:18 42:18</p> <p>passages 134:20</p>	<p>passed 105:25 120:2 152:23 157:1,3,14 158:18 158:19 159:8,12 159:17 160:4,13 191:24 192:13,14</p> <p>passing 93:6 107:12 141:13 150:9</p> <p>passive 8:7,9 15:23 17:5 20:13 23:1 23:23 32:21 53:8 74:8,9,12 118:7</p> <p>patent 86:3 109:5 113:13</p> <p>patently 53:23 80:4 81:22</p> <p>path 69:7</p> <p>patronise 89:25</p> <p>pattern 24:18</p> <p>pause 37:22</p> <p>pay 176:10 193:21 194:1</p> <p>paying 9:16</p> <p>PC 144:10 160:5</p> <p>PDA 27:17,19</p> <p>PE 66:12 70:15 82:7,9 120:20</p> <p>Peckham 159:18</p> <p>peer 91:18</p> <p>penetrate 79:8 190:5</p> <p>penetrated 61:22 78:23</p> <p>penetrating 79:16</p> <p>people 17:8 26:2 52:20 54:22 60:21 78:12 80:2 92:19 92:23,24 93:2,23 96:6 97:12 101:12 101:15 102:24 106:19 109:19 111:3,24 112:4,23 112:24 113:21 114:14 117:20</p>
--	---	---	--	---

125:13 160:5 168:19,19 170:2 175:9 177:2 183:21 184:22,22 185:2,13,19 186:16 191:12,17 191:23 192:3,5,6 192:6,7,8,10,11 192:13,23 193:22 194:2,6 peoples 183:12 perceived 59:6,8 perfect 70:11 116:15 perfectly 18:18 26:5 53:20 149:7 performance 3:4 54:7 68:2 70:5 performed 18:18 72:5 peril 168:9 perilous 9:22 64:5 period 28:15 45:2 60:21 64:5 78:15 148:11 perished 5:13 158:8 perplexing 131:18 persisted 150:20 person 42:6,8,15 44:4 52:9 111:19 126:19 148:16 176:18 189:19,24 189:25 person's 84:22 personal 10:3 91:3 181:19 personally 192:12 personnel 36:7 45:2 46:25 88:25 persons 44:10 45:12 91:17 138:15 146:15 161:24 186:8 perspective 30:14	57:22 109:6 perversity 74:18 Peter 169:2,6 Petra 93:5 petrol 67:1 phase 2:1 3:22 7:7 7:11,12 8:17 10:10 11:7 12:10 12:12,13 13:1,9 13:10,18 19:8,10 27:15 30:23 31:23 34:15 49:12,20 51:7,11 60:17,18 62:20 63:3,8,16 63:20 66:19 76:19 80:17 81:7 85:7 88:3,8 90:13 103:15 109:13 110:21 113:16,19 115:8 117:1 118:20 119:6,12 120:18 121:10 122:18 127:19 129:3,7 158:6 193:24,25 phases 62:20 phenolic 71:20 phenomenon 62:5 133:12 phone 99:12 152:15 167:19 177:4 181:8,16 phones 181:19 photograph 159:23 photographs 177:3 phrase 4:8 5:18 9:13 physical 153:3 physiological 4:12 38:9 64:3 pick 115:16 122:1 135:22 picked 99:12 124:22 152:18 picking 149:3	picture 5:6 6:8 10:21 18:16 100:9 106:5 119:21 153:19 piece 6:7 66:15 175:19 piecemeal 187:9 188:17 pieces 177:23 179:1 181:25 pilot 178:1 PIR 71:8,15,19,21 72:2,4,5,10,18 79:7,9 PIR's 72:12 pivot 155:17 place 12:4 16:14 19:15 21:2 34:3 47:25 48:24 53:4 58:12 59:8 94:3 106:15 110:19 130:24 141:18 145:20 154:13 183:3 192:9 193:20 194:15 placed 11:14,23 22:8 161:18 places 112:2 plain 104:19 186:5 plainest 102:14 plainly 89:23 144:2 161:3,12 plan 15:16 28:25 50:11 83:9 86:9 86:21 90:7 107:3 108:12,13,15 115:25 123:15 131:1,1,15,16 136:16,21 137:11 137:23 139:3,10 139:10 143:12 146:13 150:17,17 161:2,6,12 162:3 162:5 163:25 169:16 176:16,17	plane 100:4 132:22 planned 22:10 89:24 planning 31:22 50:14 115:24 126:20 129:16 130:6,24 132:8,25 133:1 134:24 135:8 138:21 139:4 162:9 169:12,25 170:20 176:24 193:10 plans 12:4 30:22 87:17 107:21 117:14 144:8 plastic 138:4 platform 59:10 play 119:1 played 62:18 63:15 70:14 82:12 139:25 142:2 192:1 pleas 102:15 please 52:5 105:19 105:19 114:21 162:21 195:2 plenty 148:15 plume 78:25 plus 178:18 pm 114:23,25 162:23,25 195:4 poignant 5:9 point 10:8 18:9 24:4 34:22 38:19 52:3 58:10 59:5 68:23 73:5,19 82:23 83:7 93:25 94:5 96:9 98:18 106:7 108:1 112:20 114:19 118:19 120:14,17 120:23 123:3 127:1 138:9 139:9 141:17 143:2,24 149:8 153:22	155:18 156:9 158:24 162:18 167:13,18 169:11 181:16 185:4 193:7 194:9,21 pointed 7:13 8:4 31:2 109:7 pointing 51:9 100:1 points 31:7 46:21 93:12 94:17 111:8 115:9 122:24 135:22 138:17 150:3 154:5 police 6:4 7:2 99:5 107:12 125:14,16 125:20 126:3 144:9,11 148:7,18 149:21 158:17 160:5,14 policies 2:23 8:15 8:16 12:18 14:2 19:23 34:11 38:24 46:8 47:2 48:14 86:7,22 87:5,19 89:7 90:16 106:15 123:2 130:16 134:15 138:25 140:14 151:1 161:3 policy 4:24 12:16 12:17 17:2 18:24 19:23 20:3,16 25:17 42:20,25 44:19 47:11 48:1 48:25 49:4,5 50:25 54:4,11,14 77:15 85:14 87:3 88:10 101:21 102:20,21 112:5 130:15 131:11 135:7 137:12 139:2,4,7,17 140:7,16 142:8 144:19,22 145:10 145:19,22 151:9
---	--	---	--	---

151:14 152:8 154:11,14 155:8 155:16 157:7,21 161:5,22,22 162:13 177:19 178:5 188:14 polyethylene 56:16 60:10 61:25 62:3 62:13 68:18 70:17 70:25 71:3,7,11 71:12,12,24 72:6 72:7,10,15,17 74:1 79:1 polymer 78:17 polymeric 68:18 77:24 polymers 70:24 polystyrene 117:11 poor 135:23 136:1 136:1 popping 154:2 populated 117:19 143:18 population 171:1 pose 72:20 86:24 118:3 posed 49:23 70:21 111:13 119:4 171:15 poses 50:1 posing 128:9 posited 109:7 position 13:15 35:22 44:17 47:7 51:10 64:19 81:18 85:20 86:18 117:9 119:16 124:9 127:10 129:19 130:14 131:7 139:12 140:23 142:6 144:13 145:8 146:14 147:9 149:25 168:25 178:15 187:13	positioned 27:20 positive 140:6 possibility 23:10 29:13 35:10 44:8 135:14 136:18 139:9 161:4 171:21 possible 2:13 5:5 6:7,13 10:17,23 13:24 19:2 23:5 36:25 64:6 75:10 98:3 102:14 112:25 114:12 140:24 141:16 148:1 149:7 150:16 157:24 possibly 20:22 192:14 post 145:11 153:17 159:8,9 post-Grenfell 187:7 post-Lakanal 100:25 161:22 posts 154:2 potential 69:7 113:20 169:12 171:11 potentially 24:1 27:10 73:9 108:9 power 51:15 77:6 84:22 powered 190:2 powerful 95:6 128:3 189:22 practical 22:21 23:16 46:24 49:16 130:1 138:21 144:16 practicality 19:25 practically 31:1 practice 19:4,11 87:7 90:19 practised 102:5 precautions 192:9	precise 55:19 60:4 76:2 82:15 precisely 24:14 35:19 54:7 104:15 129:21 170:21 predetermined 27:16 44:25 predicated 25:14 predictable 70:9 prejudiced 35:9 preliminary 81:7 premature 81:3 premises 3:7,18 25:22 35:2 47:17 50:5,6 preparation 6:17 6:25 prepare 13:8 87:15 114:5 144:11 prepared 87:11 193:21 194:1 preparing 110:1 prescriptive 64:25 65:5 81:20,23 presence 120:20 present 32:1 51:12 104:19 presentation 66:24 133:10,19 172:8 173:7 174:14 presented 37:1,8 40:19 79:17 124:24 press 99:16 118:19 pressed 90:4 pressing 2:3 pressure 29:5 pressures 29:11 pretty 176:14 prevail 137:19 prevalence 115:19 prevent 26:14 35:5 74:16 111:18 preventable 85:23 111:7 112:14,17	116:9 prevented 72:12 80:8 preventing 86:7 104:1 124:17 prevention 107:22 prevents 123:18 previous 39:12 148:2 previously 75:3,4 price 194:1 primacy 71:23 primarily 12:10 82:10 primary 10:8 33:5 51:4 171:18 principal 64:24 principle 14:13 15:18 16:2,25 17:4 19:10 25:16 53:25 87:16 179:11 principles 13:21,24 14:7,10 16:8,15 17:21 20:10 22:2 22:6,18,23 25:12 30:5 58:20 125:25 prior 100:9 109:22 111:9 150:8 162:14 priorities 156:16 156:21 private 124:10 126:11 128:7,12 proactive 103:10 probability 53:21 56:23 probable 55:4,8 probably 55:22 111:19 148:15 163:3,6 169:4,5 192:1 problem 37:2 41:3 73:23 75:24 124:6 124:12,19 127:7	148:9 182:4 189:18 problematic 141:4 188:12 problems 33:5 40:25 102:10 109:21 125:8 151:21 167:11 179:6 182:12 184:6 186:23 188:2 procedure 9:5 10:5 14:12 27:7 32:3 172:24 procedures 2:23 8:15 10:16 14:2 34:11 38:24 46:8 48:15 proceedings 85:18 126:8 127:6 process 6:21 7:1 14:23 20:19 32:4 33:10 43:16 44:1 44:13,16 47:9 70:11 72:11 84:4 84:7 92:9 114:4 116:1 123:16 125:11 126:2 128:5,23 130:9 150:22,24 152:12 153:8 154:8 155:12,21 156:9 157:24 158:22 161:13 191:3 processes 84:10 127:7 procurement 121:14 128:19 procurer 118:22 produce 79:2 produced 43:25 78:2,21 79:9 87:21 97:18 133:24 producing 157:7
---	--	--	---	---

product 12:18 65:10,13 70:21 71:19,19 82:4,5 113:9 120:10,24 128:18 173:16 products 65:15,16 66:1,5 72:13,20 118:16 121:8 professional 71:2 professionals 90:6 Professor 24:20 53:18 54:18,20 55:20 56:1,2,4,8 57:10,15 58:7 59:20 60:12,20 61:7 63:25 66:24 67:4,10,25 68:22 70:23 71:3,6,20 73:6 78:2,9,16,21 79:6,15,18,25 92:25 141:14,19 142:19 148:14 Professors 55:10 55:24 64:2 72:1 80:18 profoundly 9:19 84:9 progress 110:13 160:22 progressed 3:8 progressing 180:17 progression 61:23 154:22 project 118:15 187:21 projects 46:4 189:6 promise 125:10 promising 126:11 promoted 80:5 82:1 promotion 128:18 prompt 113:3 promptly 125:22 promulgated 125:9 140:11	proof 65:9 85:16 propagated 59:23 62:4 propagates 72:18 propagating 59:24 propagation 61:18 propensity 68:7 proper 68:8 90:19 98:19 102:2 130:24 145:5 properly 7:24 13:2 13:17 22:5 54:7 112:5 118:18,24 140:7 146:21 162:6 194:14 properties 56:12 73:12 101:19 property 45:21 101:13 proportion 110:23 proposals 154:17 propose 52:15 proposed 48:9 85:24 proposes 189:8 proposition 132:8 140:20 156:12 prospect 86:6 87:9 89:22 95:3 111:10 prosperous 119:15 protect 35:5,19 36:14 74:10,20 194:2 protected 16:5 103:11 protecting 35:22 protection 17:5 21:1,5,10 23:1,24 24:3 28:16 32:21 45:11 53:8 66:15 66:16 71:10 77:6 193:22 protocol 136:14 protocols 106:15 proved 45:19 92:14	141:4 154:24 provide 6:2,11 19:24 27:14 28:6 31:25 39:2 45:10 48:2,17 49:21 68:1,3 75:7 77:21 105:23 107:19 131:12 145:10 151:14,16 provided 2:4 6:24 10:18 14:17 15:13 15:14 21:12,17 23:7 28:2,16,21 43:10 44:24 47:15 62:21 65:11 69:14 70:3 71:10 76:8 85:15 109:20 133:10 135:21 145:25 152:3 155:24 173:7 providers 124:14 provides 15:2 110:5 117:6 171:19 providing 20:12 118:23 150:25 proving 182:6 provision 14:19 21:19 28:21 38:25 48:15 50:13 77:2 102:20 117:4 131:8,17 188:25 provisional 77:20 81:14 provisions 118:8 proximity 56:19 psychological 119:23 public 2:9 5:23 45:9 50:2,7 83:24 84:2,6,8 85:7,11 94:3 107:13 117:22 120:5 121:19 123:19 124:2,10 125:9	126:10,18 127:21 127:22 128:7,12 129:6 140:2,3 publicly 114:12 126:12 published 119:6 pull 76:22 pump 91:12 pumps 91:14,15,16 91:16 145:16 purchase 189:13 189:14 pure 13:13 purely 61:15 78:3 purlboard 69:25 purports 129:20 purpose 4:20 5:11 12:9 13:1 15:13 17:20 21:11 43:21 52:11 74:9 83:24 130:9 149:11 154:14 157:20 158:10 161:3 162:14 179:5 purposes 13:10 36:16 74:22 118:2 Purser 24:20 60:20 64:2 78:2,9,16,21 79:6,15,25 92:25 141:14,19 Purser's 68:22 79:18 pursue 49:14 113:3 pursued 86:11 94:23 pushed 4:11 69:4 put 16:15 17:25 43:16 47:25 52:16 54:9 58:11,21 59:2,3,7,8 91:3 94:16 95:1 102:17 122:5,22 130:6,25 131:24 132:11,13 133:3,18 134:22 135:10,14 136:16	136:20 137:19 138:11 139:22 141:8 143:1,25 145:8,19 146:18 147:4 150:21,25 151:5,6,8,23,24 152:7 155:20 161:5 165:17 174:1 177:16,23 178:10,15,20 183:6 put' 131:10 puts 59:18 putting 26:1 pyrolysis 72:13
Q				
QC 87:3 170:4 186:21 qualified 44:4 102:3 qualify 118:17 quality 46:16 100:18 120:12 121:14,15 quantities 7:22 79:9 quarter 24:25 question 2:20 22:11 49:22 50:1 50:2 56:25 64:12 73:13 118:4 141:1 157:25 166:1 169:17,20 172:13 174:17,20,23 175:15 181:15 186:10,11,11 193:20,25 194:7 questionable 94:14 questioned 97:5 174:15 questions 22:12 50:16 51:16 128:10 130:21 172:16 177:21 quicker 167:13				

178:24 quickly 67:13 73:8 92:1 100:24 quite 7:24 21:25 78:14 155:21 163:17 176:12 quote 21:8 170:11 quoted 164:11 quotes 165:2 quoting 14:16	49:2 188:20 ranged 66:6 72:24 rank 99:4 ranks 100:1 rapid 15:21 20:21 31:16 53:8 62:10 62:16 67:8 70:22 133:1 136:4 145:15 rapidity 3:13 11:11 22:14 26:12 82:10 rapidly 3:8 7:19 10:21 23:24 27:5 53:24 69:22 79:8 141:6 143:8,20 rare 89:21 102:5 rate 59:17 61:17,22 61:23 66:2 71:8 rational 152:12 RBKC 80:21 87:23 107:15,17 109:1 117:23 126:8,12 126:19,24 148:3 re-assess 135:5 re-enforcement 49:8 re-enter 62:21 63:2 re-entering 143:17 171:21 re-entry 68:23 re-evaluate 135:5 144:7 150:21 re-evaluation 137:10 reach 34:4 82:13 100:24 128:5 160:11 reached 1:5 61:1 63:11 76:17 95:3 95:25 104:11,13 111:25 reaching 143:10 react 135:1 160:23 191:12 reaction 65:12	70:24 99:23 191:9 read 4:2 47:22 49:3 49:25 149:5 167:5 ready 185:7 real 6:24 40:8,19 73:23 89:20 131:20 135:15 177:17 realisation 143:7 realised 143:4 165:13 realistic 86:6 95:3 154:21 188:8 193:10 reality 37:23 51:10 123:5,12 135:16 147:8 148:10 155:20 really 32:22 100:2 105:11 130:13 141:9 147:8 reason 3:5 11:15,18 11:19 13:6,23 14:8 26:25 35:12 41:9 113:18 127:22 138:10 174:13 reasonable 27:3 33:19 79:20 118:6 118:22 119:9 140:16 154:24 159:4 163:10 reasonably 107:19 135:17 reasons 1:22 26:18 61:20 114:2 reassured 101:12 recall 9:12 88:8 89:12 156:17 165:23 179:17 181:2 recalls 180:25 receive 181:5 191:2 received 1:8 8:1 88:15 103:24	152:20 153:5 156:24 159:20 180:17,20 181:1 receiver 189:25 receiving 181:25 recipient 190:14 reckless 115:11 118:14 reckoning 57:18 83:17 recognise 22:17 37:22 138:2 recognised 2:2 48:1 68:23 124:11,18 125:7 133:12 166:6 193:13 recognises 31:12 recognising 82:3 122:7 124:23 recognition 59:12 84:9 recollection 166:4 recollects 185:12 recommendation 124:13,25 recommendations 13:16 84:5 85:3 90:15 recommending 43:21 recommends 44:1 44:19 recontact 106:23 record 114:1 153:3 154:6 recorded 46:17,22 47:12 160:7 records 78:5 recount 5:23 9:10 recounting 5:10 recruit 148:4 rectified 44:23 red 95:19 reduced 69:16 reduction 29:4	redundancy 20:12 21:3 redundant 108:15 reevaluated 137:4 refer 130:15 139:8 165:2 reference 4:17 65:8 65:14 66:3 85:9 136:4,17 138:9 139:21 140:1,6 153:6 157:21 187:15,17 references 30:23 referred 66:25 99:17 118:11 130:20 133:7 135:15 136:8 139:15 140:18 141:17 148:24 165:5 166:2 172:18 187:19 referring 124:3 126:25 158:9 187:20 refers 139:7 141:19 169:17 reflect 47:20 108:16 110:22 reflected 84:18 91:21 reflecting 52:23 refresher 49:1 refurbished 54:15 113:10,13 refurbishment 8:5 54:10 108:16 115:14 117:25 118:5,15 refurbishments 17:23 refused 126:3 regard 9:16 64:19 111:1 180:19 187:11 regarding 80:19
---	--	--	---	--

106:10 107:13 110:9 115:17,23 122:10 126:16 134:10 140:19 141:15 187:21 191:18 193:17 regardless 94:15 191:6 regards 179:3 regime 16:12 29:16 50:3 regimes 31:9 50:4 87:18 Regional 171:10 register 91:7 registered 92:4 97:20 regrettably 154:17 regs 118:21 regulate 118:1 regulated 21:23 regulation 34:7 50:3 51:3 107:18 125:1 128:20 regulations 17:19 20:10 28:3,9,24 43:11 50:20 64:14 64:15 66:22 67:4 68:12 74:24 75:1 80:6,15 81:8 82:2 82:19 83:2 86:4 88:1 107:18,25 109:3 113:14 115:10 120:12 124:15 131:20 134:2 140:13 regulatory 14:4 16:12,15 17:13 29:15 31:9 85:8 119:16 reinforced 179:13 190:3 reject 144:4 relate 175:12 related 99:16 141:8	relates 131:19 relating 146:3 152:5 relation 8:11 9:4 12:1,8 22:12 26:1 38:23 47:7,10,25 48:8,13 49:7,9 56:15 103:15 107:20 135:21 136:2 172:21 188:21 relations 126:18 relationships 167:24 relative 65:25 relatively 37:19 60:19 63:10 75:9 117:3 189:21 relatives 17:9 52:24 relay 96:18 relayed 103:1 release 72:13 relevance 24:5 relevant 8:10 31:23 32:6 47:3 85:8,15 85:25 117:22 124:1 143:14 reliability 187:22 reliably 155:17 reliance 22:7 reliant 40:23 179:1 relied 58:1 68:25 relieved 25:2,3 146:8 religious 102:24 relive 5:23 reluctant 43:3 rely 21:4,14 176:9 181:19 relying 40:18 68:1 138:14 remain 1:21 10:20 16:14 37:18 42:4 93:15 101:19	116:5 143:11 151:12 155:4 remained 92:20,23 149:23 155:21 remaining 98:15 149:18 remains 8:3 54:25 90:12 102:25 152:22 157:25 191:11 remarkable 68:22 remember 35:18 125:13 166:6,9,12 166:13,17 180:4 remembered 62:12 74:23 167:9 183:22 remembering 125:14 remind 181:22 reminder 1:22 14:11 reminding 90:3 remote 40:20 144:18 remove 103:10 removed 36:12 rendering 23:9 111:3 renders 29:6 repair 76:1 repeat 31:10 48:4 48:14 116:14,19 120:15 123:8,25 129:15 146:5 repeated 120:7 126:7 127:18 repeatedly 101:9 125:7 130:20 139:7 172:15 repeater 182:9 188:7 190:16 repeating 16:23 23:14 repeats 2:10 51:12	repetition 122:5 replace 76:1 167:1 replaced 75:13 77:1 replacement 74:25 75:17 187:20 189:1,6,10 reply 180:5,10,10 181:2 report 6:17 13:9,9 58:13 65:20 68:16 81:7 90:13 103:24 113:6,16 114:15 116:12 118:12 119:12 124:12,17 124:21 125:2,6,11 129:4 140:22 reported 91:17 95:22 146:16 reporting 158:13 158:13 reports 6:10,25 7:13 14:7 96:3 101:13 124:7 127:1 128:9 177:12 represent 194:11 representatives 52:11 represented 54:12 72:8 115:12 repulsed 27:2 request 95:10 requested 91:16 requests 94:22 require 75:23 110:6 128:4 132:25 required 4:14 13:8 15:3 17:18 24:2 28:7,14 37:15 39:8,17 45:1 46:9 63:17 65:24 68:9 75:8 76:7,10,25 77:2 91:24 101:22	102:21 103:9 107:3 114:9 127:11 134:25 136:24 139:22 187:1 requirement 64:15 64:22 66:21 68:11 77:22 requirements 3:11 14:5 16:21 25:11 25:14 28:4 65:7 75:16 77:7 86:16 127:13 134:1 requires 64:16 65:9 68:12 84:2 128:15 135:7 155:9 181:15 requiring 39:10 106:2 requisite 77:5 rescue 2:8 13:7 14:2,12,25 18:24 19:14,25 30:4 34:18,22 35:6,24 37:16 45:17,17 46:11 50:18 86:8 92:15 94:11 96:11 97:5 106:2 110:15 112:4 122:23 130:25 131:22 133:22,25 134:10 135:10 136:23 139:7,8 140:11 151:11,17 156:4 157:15 160:15 168:23 179:3 184:11,16,22 185:11,13,14 rescued 35:22 42:16 45:23 rescues 4:13 36:9 36:24 50:12 94:20 94:21 147:23 150:11 151:1 166:19 183:3
--	--	---	--	--

rescuing 45:9 159:14 research 175:19 reserve 45:14 residences 132:10 132:13 133:4 resident 41:4 residential 3:7,18 13:22 14:18 18:3 19:2 21:18 25:22 28:5 30:6 33:21 34:7 44:2 50:5 51:5 120:25 135:7 138:24 139:5 143:18 164:1 176:6 residents 2:5,18 3:15 5:2 15:11,16 17:7 21:3 23:6 24:2,16 25:23 36:9,10,14,23 37:5,17,18 38:4 39:9 50:6 51:14 52:19,23 53:1 58:9 60:17 63:21 73:11 74:10,11 83:16,23 84:14 94:18 95:1 97:18 98:15 102:17 103:2,5 105:21 107:21 108:17 109:7,14,22 110:2 111:18 112:1,6 117:15 137:2,12 137:15 143:11,15 143:24 148:5 149:12,18 150:5 151:10,21 152:6 152:10 156:6,11 156:18 158:3 161:19 163:17 167:3,21,25 168:4 168:5,22 171:24 183:19 184:15 185:12 186:2	residents' 63:24 103:17 119:10 resilience 170:25 resist 16:10 64:18 80:4 resistance 117:14 resistant 15:24,25 resisted 53:15 resisting 81:25 resolved 18:7 76:14 resort 92:12 resources 3:6 6:2 6:21 12:23 96:8 106:9 147:16 151:19 170:2,25 193:9,16 194:7 resourcing 90:17 respect 18:18 107:11 110:6 125:11 129:4 167:24 168:3 188:24 respectfully 129:8 respectively 129:17 130:17 151:3 respects 2:24 3:1 3:11 109:16 respiratory 24:3 respond 96:8 110:2 158:21 170:7,15 174:3 responders 86:15 88:19 107:3 145:23 response 6:10 36:8 83:21 86:14,19 87:14 89:9 94:21 96:3 100:25 106:2 106:8,25 109:22 115:23 123:9 125:16,25 126:5 129:16 144:22 145:3 166:25 170:7 171:4 172:20 173:13	174:6 187:9 191:4 responses 127:12 responsibilities 126:22 responsibility 31:23 41:20 84:17 120:3 responsible 61:3 62:9 82:10 121:13 126:19,19,20 128:20 rest 20:8 42:15 129:10 162:20 restate 14:1,10 restore 84:5 110:7 result 1:19 18:25 52:20 62:17 87:11 100:14 153:8 resulted 3:17 79:10 93:3 179:15 resulting 33:23 43:25 154:2 156:1 results 29:4 94:14 97:18 157:7 resume 52:4 194:23 retardant 67:22 return 49:22 97:13 112:7 137:6 138:18 168:15 184:17 returning 9:17 reveal 70:2 review 47:13,20 87:17 91:19 125:2 125:3 129:24 137:22 170:19 193:9 reviewed 127:20 150:6 reviewing 47:9 48:7 175:4 reviews 49:4 130:15,17 140:7 revision 48:24,24	88:10 99:16 revocation 103:1 revoke 101:2 Reynobond 66:12 66:17 70:15 71:14 82:9 right 8:23 9:1 25:3 48:13 52:12 122:25 158:14 161:15 163:12 175:3 187:2 190:4 192:10 rightly 1:25 rights 86:9 110:5 124:16 rigorous 50:20 rigorously 7:12 ring 148:2 rippled 52:21 rise 33:21 88:2 187:6 riser 29:2,12 risers 28:19,20 rising 28:23 29:11 risk 25:23 26:21 36:25 44:3,18 45:22 46:14,17 47:8,12,17 76:11 87:2,10 89:3 90:17 106:13 118:24 133:23 134:13 161:19 169:12,13,18,19 169:21 170:1,19 170:21 171:1,8,11 171:18 172:11 173:1,19,19 175:5 176:9,18 194:5,5 194:6 risked 4:10 122:8 164:25 risks 9:11 12:20,22 26:9 44:22 86:24 87:19 88:9 117:16 119:4 140:17	169:14 171:15 172:11 193:11 road 81:5 Robert 124:11 Roberts 96:1 robust 50:20 128:5 Roe 100:7,12 145:4 146:14 147:2 155:22 177:22 178:4,13 Roe's 134:16 177:25 role 49:8 62:18 63:15 70:14,15 71:3,15 72:6,18 82:12 102:6 107:12,15 125:13 126:16 142:3 rolling 130:1 Roncolato 41:5,12 41:24 42:16 roof 33:13 96:12 147:17 room 6:19 10:1 38:14,16,18,20,24 39:8,23 40:15 41:11 93:20 95:8 100:16,18,20 103:15,19 106:8 106:18 112:2 122:11 131:13 150:23 152:7 155:2,16 157:6,9 159:17 rooms 11:22 40:8 43:6 48:21 106:10 106:14 root 53:7 64:10 rooted 79:19 ropes 96:13 rose 178:3 Rosemary 191:20 roughly 166:3 route 28:16 54:25 55:8,25 56:6 65:1
---	--	--	--	---

65:1,3,4,5,7 69:14 81:20,23 152:19 routes 27:11 35:6 55:4 64:24 81:15 151:12 routine 132:19 189:21 RS5000 71:17 rule 84:21 127:11 rules 92:7 127:6 run 45:22 122:1 164:20 runners 179:1 182:1 running 194:24 rushed 163:5 Russell 104:24 Rydon 81:2,12 82:17,22 121:6	138:22 140:12 141:23 143:15 151:15 166:12 169:16 170:18 171:24 172:5,6 173:13 182:23 Sanders 184:13 Sangha 144:10 sat 165:16 satisfied 56:8 savable 35:13 savage 3:8 save 9:23 96:20 122:8 125:20 153:4 161:1 saved 96:15 131:3 141:10 178:14,23 saving 140:10 161:11 168:10 186:18 saw 91:20 165:16 167:23 saying 18:1 51:10 105:16 128:2 176:14 says 14:19 21:16 57:13 80:23 129:22 169:1 185:8 191:21 scale 3:1,13,19 5:8 11:10 12:5 22:9 22:13 38:18 39:2 39:9,13 43:8 48:18 80:9 108:13 131:15 161:9 174:5 182:12 scant 9:16 142:8 144:24 153:3 scarce 96:8 scared' 169:9 scenario 56:7 122:17 140:17 171:8 173:25 scene 96:11 177:3 scenes 123:2	sceptics 93:4 schedule 153:7 scheduled 189:1 schedules 97:2 152:3,3 155:24 scheme 47:15,19 scope 10:10 scraps 152:14 154:4 scrutinised 7:12 51:6 scrutiny 2:1 5:24 16:18 search 49:9 106:2 110:14 156:13 searched 96:1 112:5 second 6:12,12 37:25 54:17 56:25 60:17,20 61:18 62:1 72:9 74:17 76:15 86:5 88:13 95:5 98:23 99:7 101:18 109:20 111:16 159:1,15 159:21 178:4 184:25 186:17 secondary 11:19 73:22 125:15 184:17 Secondly 115:16 136:4 147:24 162:6 Secrett 165:4 section 43:13 47:3 47:10 84:1,19 85:10 89:6 103:9 131:4 132:2 138:8 154:12 sections 85:25 sector 19:13,17,20 20:4,6,7 91:22 124:20 sectorisation 19:6 19:11 20:19 58:18	sectorised 19:24 sectors 99:25 secure 58:9 security 110:7 see 49:4 79:3 105:5 118:23 119:21 122:15 125:19 132:19 142:20 148:4 163:12 165:9 175:17,20 180:16 183:13 192:6,7 193:12 seeing 91:4,6 seek 53:3 60:6 seeking 53:2 seeks 80:11 seemingly 63:6 seen 22:20 43:24 65:19 76:13 99:19 99:24 103:13 122:16 133:9 145:22 155:12 166:16 172:7,19 173:8 192:18 self-closers 75:22 75:23 self-closing 15:24 75:25 76:12 108:25 self-evacuate 110:3 151:22 self-evacuated 150:6 156:7 self-evacuations 97:21 150:11 self-inflicted 125:3 seminal 53:6 54:17 send 89:17 182:25 186:16 sending 93:19 166:21 senior 88:25 108:19 123:10 140:23 144:17,25 154:11 172:6	176:3 sense 5:17 93:13 110:7 sensible 83:14 129:25 148:4 sensibly 107:10 sent 96:12 100:10 108:23 109:1 177:3 180:11 separate 177:18 separately 107:6 September 164:10 170:4,17 172:2 177:21 185:6 sequence 55:19 56:3 78:22 79:15 series 33:15 104:12 120:8 124:7 134:6 160:23 serious 90:9 140:4 161:20 served 30:13 55:12 154:12 service 2:22 3:17 11:21 14:12 15:7 19:10 25:17 36:7 39:18 40:1 45:17 50:24 95:10 106:18 107:7 118:1 125:17 126:3 135:11 149:22 170:21 179:1 services 3:3 12:9,17 12:20 14:2,14,24 15:2 16:24 19:4 20:15 21:3 22:8 22:19,22 28:7 30:19 31:16 39:21 39:21 42:20 43:22 45:18 48:20 49:24 50:8,10,18 86:8 99:12 131:23 132:16,21 133:23 134:1,10,15,25
S Sadler 153:16 Sadler's 159:8 Sadly 187:8 safe 16:14 50:6,7 50:23 54:22,25 60:22 112:25 119:2 138:14 143:11 151:13 safeguard 162:3,11 safely 25:21 73:17 148:16 safest 101:12 safety 3:10 8:7,9 9:17 12:24 14:17 14:22 15:23 17:1 17:6 21:17 22:20 30:12,14 37:1 43:18 47:16 50:13 51:4 53:24 54:24 58:9 63:20 65:1 71:2 74:8,9 77:15 108:21 109:11 118:7,7 119:1,17 131:17 132:15 134:2,9 136:25				

136:23 138:13 140:11 149:21 194:14,14 set 27:20 31:9 32:22 85:24 119:11 128:17 129:20 134:19,21 135:4,13 142:11 146:3 155:6 184:21 186:20 sets 32:19 45:14 65:7 97:17 169:15 183:13 185:1,8 186:17 189:3,11 189:13 setting 61:18 127:12 158:22 169:18 189:7,17 settle 119:25 Seun 168:11 seven 6:11 178:3 183:22 Seventh 137:22 severe 119:23 severely 3:3 shades 116:24 shafts 77:2 shake-up 193:6 shambolic 155:13 shame 99:24 shaped 61:16 Shard 89:14 135:18 174:3 shared 101:18 173:1,2 Sharon 97:19 sharply 49:11 she'd 172:2 sheer 3:1 11:10 22:13 74:17 164:24 181:24 Shepherds 20:2 shifting 101:1 shocking 77:16 118:21	short 26:13 27:23 29:10 42:18,18 44:4 52:3,7 72:17 86:1,15 114:24 118:10 142:16,17 162:24 shortcomings 51:3 89:19 106:18 110:1 shorter 118:3 shorthand 83:10 shortly 60:11 146:13 should've 21:2 34:17 66:8 76:21 94:1 143:4,7,9,11 143:24 145:16 158:1 shoulder 93:9 shout 165:14 shouting 103:22 105:19 show 97:2 150:5 showed 66:24 78:6 78:12 154:23 shown 172:2 174:24 175:13 shows 91:3 108:6 118:13 123:13 shuttle 89:14 174:3 Sid 122:18 side 96:14 146:10 SIDERISE 73:21 sides 67:16 69:17 sight 178:9,19 190:17 sign 118:18 120:12 125:9 sign-off 121:15 signal 182:10 189:24 190:13,15 signals 190:2 signed 117:25 126:8 significance 56:20	109:1 157:2 significant 4:4,15 14:10 23:9 28:14 31:22 36:25 37:2 37:10 39:3 40:2 43:15 50:14 55:22 60:11 61:19 62:16 75:8 78:13,14 97:21 100:21 102:25 109:16 110:1 127:8 130:9 179:16 188:4 signposts 87:13 silence 82:22 silent 107:25 sill 67:16 sills 69:25 silver 70:16 Silvo 153:1 165:23 166:21 181:23 similar 3:15 6:16 9:25 16:7 44:5 61:23 71:21 106:20 similarly 65:20 simple 15:17 40:13 48:5 50:1 106:17 131:14 190:15 simplex 189:19,19 simply 40:18 51:10 58:2 81:4 91:3 141:6 142:12 161:23 163:18 174:7 179:5 181:5 188:19 simulation 177:7 simultaneous 10:17 15:10,15 16:19 22:24 23:10 28:18 44:21 93:1 131:15 135:12 141:23 simultaneously 102:12 single 6:17 14:17 15:14 16:3 21:15	23:19 28:23 36:5 55:12 74:14 141:4 141:21 147:12 176:18 singular 30:2,7 sink 132:23 sir 1:3,16,17 2:20 4:4,16 5:25 6:9,23 7:6,23 8:18 9:12 10:8,18 11:3,18 13:6,11,19 14:22 24:25 25:3,5,10 27:12 29:23 32:9 33:2 38:10 43:13 46:2 47:7 49:13 50:17 51:5,20,21 52:1,2,9,15,25 83:4,6,9,12,16 111:6 114:13,18 115:1 124:11 162:17 163:1,9,12 163:15 187:10 191:13,15 194:16 194:17,19,20 sister-in-law 41:12 sit 74:6 83:11 site 128:19 190:13 sitting 192:2 situated 6:18 104:25 situation 92:5 106:11 178:8 179:5 situational 105:21 146:21 situations 9:15 11:15,23 37:11,23 six 18:10 91:14 113:5 185:14,19 Sixthly 137:17 149:20 size 69:16 136:12 skins 71:9 skirmish 176:15 slavishly 29:25	sleeping 75:22 slideshow 172:3,9 slightly 116:7 141:18 sling 96:12 slips 112:10 slow 78:24 160:21 191:10 slowest 59:18 SM 177:8 small 60:15 149:15 155:1 181:25 smell 105:10 Smith 178:6 smoke 10:22 16:6 16:16 24:8,15,18 29:19 35:12 38:3 41:14 45:22 55:16 56:6,9 63:9,16 67:10 68:14 70:4 70:16 74:16,19 75:8,10 76:2,15 76:21,22 77:23 78:14,24,25 79:3 79:6,25 92:1,20 92:22 101:14,21 101:23 104:3,7,19 104:23 105:2,8,10 105:15 109:25 122:15 123:1 130:1,2 136:5,11 143:22 152:11 158:13 165:9 smoke-filled 45:10 smoke-free 60:19 smoke-logging 103:25 179:21 so-called 64:25 107:3 sobering 97:1 social 44:7 108:10 societal 114:11 society 84:13 194:1 sole 15:13 61:9 112:16
---	---	--	--	--

<p>solely 62:8 90:21 solution 176:12 190:24 solutions 135:24 somewhat 139:20 160:12 soon 114:12 141:8 143:7 147:21 sore 120:4 sorely 105:22 sort 68:1 sorts 25:25 sought 125:19 source 77:6 105:21 134:5 148:22 southwards 59:23 space 14:7 89:13 174:3 spacecraft 135:17 spaces 68:14 spandrels 60:3 spare 97:17 speak 1:9,10 17:10 115:2 142:6 143:14 168:12 speaking 9:2 speaks 140:2 special 110:19 specialist 96:11,16 specialists 173:8 specific 31:6 37:9 48:2 69:5 100:6 124:25 125:4 138:4 139:15 182:16 specifically 87:11 87:24 88:9 124:23 136:2 150:3 specification 75:15 120:11 189:6 spectacular 133:20 spectacularly 173:15 speed 62:14 72:17 72:19</p>	<p>speedily 101:2 spend 158:15 spent 121:22 spirit 126:12 splitting 71:13 spoke 1:20 123:24 160:1 179:20 181:11 spoken 17:8 41:11 116:18 163:9 180:6 spotlight 129:7 spray 96:13 spread 15:8,21 16:10 20:4,20,22 24:8,14,18 26:12 26:15,24 27:5,23 30:20 31:1,17 32:11 33:14 35:1 35:5 53:8 55:8 56:24 57:16 58:2 59:14,16,18,21,22 61:2,5,10,17,19 62:2,6,10,15,17 63:9,16 64:18 67:8,8,9,13 68:13 69:7,15 70:4,20 70:23 71:8,24 72:14,16 74:5,16 75:9 76:3 80:5 81:15,25 82:11 92:2 101:14 109:21 133:13 136:5 138:4,12 143:8,23 171:20 172:12 spreading 20:8 136:6 143:21 144:2 171:11 sprinklers 117:19 stacking 136:11 staff 4:7 5:14 7:5 9:3 10:1 11:5,21 13:25 33:4 40:20 47:15 95:14</p>	<p>125:20 129:24 Staffordshire 124:12 stage 1:5 13:12 24:19 54:19 55:1 56:25 59:14 60:20 60:24,25 64:1,1 75:9 78:3 143:10 160:20 161:10 186:13 staged 135:12 stages 26:7,17 27:4 27:14 54:18 59:20 180:18 staging 153:17 154:2 159:8 stair 75:12 76:5,12 staircase 16:4 23:19 92:23 93:1 94:8 98:3 112:24 117:18 141:4,21 147:12 stairs 37:7,8,21 38:2 63:4,22 64:5 74:10 79:21 94:4 97:8 147:19 150:7 156:12 165:11 180:16 185:2 stairway 37:5 stairwell 15:14 28:14 36:12 60:18 92:20 93:21 143:19 156:9 165:8,9,18 stairwells 10:14 63:5 104:2 stakeholders 134:17 stance 123:4 stand 192:22 standard 46:9 65:14 75:19 76:8 85:16 118:7 119:9 179:11 standards 46:18</p>	<p>65:9 119:17 standing 153:25 181:3 stands 112:13 stark 3:2 123:12 start 91:11 162:20 163:3,5 started 121:5 128:2 153:16 starting 56:23 61:13 67:15 75:6 143:23 163:4 167:12 169:11 starved 95:5 state 88:2 108:10 120:18 121:11 188:19 192:8 stated 39:7 110:17 116:8 145:4 157:22 170:10 statement 1:12 2:11 4:1 13:19 18:1 25:6 29:25 31:10 46:2,7 47:22 49:3,15,23 52:10 81:19 122:9 126:16 129:19 130:14 163:2,7 187:13 statements 1:6,8,8 7:2 86:23 89:12 96:24 127:11,11 145:7 194:24 states 139:20 186:1 stating 104:10 station 46:25 47:15 88:7 100:10 stationed 148:8,17 148:19 statistics 150:5 156:23 statute 84:3 statutory 14:19 16:21 21:5,19 22:17 25:10,14</p>	<p>28:4 83:25 107:24 108:23 114:10 131:8,19 139:21 stay 16:15 17:15 58:11,21 59:2,7,8 95:1 102:11,17 130:6,25 131:10 131:24 132:11,13 133:3,18 134:22 135:10,14 136:16 136:20 137:19 138:11 139:22 143:1,25 145:19 146:18 147:4 150:21,24 151:5,6 151:23,24 152:6 155:20 161:5 177:16,23 178:10 178:15 stay-put 14:11,20 16:23 17:10,11 18:11,13 20:24 21:12,20 43:9 47:24 53:25 54:4 54:11,14 58:15,24 86:25 88:10 99:16 101:2 103:1 106:12 107:10 112:19 132:8 139:2 162:3 177:19 178:5 staying 101:13 103:6 104:4 steam 25:25 steel 179:12 188:3 steer 150:23 Stein 89:4 163:1,9 163:14,15 191:16 194:17,19 195:14 stenographer 163:10 Stephanie 116:20 142:11 steps 86:6 113:23 187:16,24</p>
--	--	---	--	---

Stern 111:11 stiffness 67:19 Stokes 80:23 stood 144:23 stop 110:8 114:20 126:22 192:23 193:4 194:11,12 stopped 27:22 stopping 142:17 store 165:6 storey 33:12,13 storeys 93:2 storm 116:16 straight 26:1 strained 2:23 strangers 94:3 strategic 100:13 106:22 144:22 strategies 54:24 145:19 strategy 14:11,21 16:24 17:10,12 18:11,13 20:25 21:12,21 23:7 43:9 44:21 47:24 53:25 58:15,24 77:15 92:16 94:11 94:23 97:14 100:15 102:18 107:9 131:10 132:9,13 133:3 134:22,23 136:18 137:19 138:22 151:4 162:4 Stratford 11:13 39:8 stray 116:6 strength 55:11 stress 113:1 153:13 stressed 56:4 78:2 165:7 strict 17:3 striker 177:10 strong 167:18,24 171:21	stronger 84:16 strongest 189:24 strongly 186:3 structural 35:16 170:6 173:11 structure 68:15 179:12 181:6 191:4 struggle 165:5 struggled 9:19 165:11 stuck 94:11 studied 10:21 174:17,22 Studio 121:2 study 65:3 studying 10:25 stumbling 165:12 Styrofoam 69:9 subaltern 100:5 subject 1:25 2:15 15:18 44:3,6 94:17 107:23 119:19 127:24 subjectively 143:3 submission 11:4 12:13 13:3 38:12 85:19 111:7 116:2 118:23 123:25 139:19 140:14 141:12 143:6 148:16 149:7 152:4 submissions 1:14 8:19 52:14,17 83:3,8 85:24 86:1 115:4 127:9 129:10,15,22 132:4 134:19 140:1,18 146:4 148:25 162:16 163:14 171:5,14 171:17 186:20 187:10,11 188:19 194:16 195:9,11	195:12,14 submit 66:19 82:9 82:17 99:19 118:13 127:13 137:9 submits 82:6 subsection 84:24 subsequent 112:7 substance 91:14 substantial 6:2 9:11 17:23 79:18 98:11 125:15 substantially 21:4 59:2 115:22 substantive 127:3 187:5 substitute 167:1 substrate 66:14 success 141:7 successes 97:16 successful 33:10 97:9 156:2,3,10 successfully 160:11 succinctly 90:5 suck 74:19 suffer 119:23 194:6 suffered 61:24 97:25 suffering 2:15 5:7 suffice 123:2 sufficient 15:7 27:21 28:23 68:20 79:2,13 84:12 162:7 sufficiently 16:5 suggest 164:17,19 169:1,10 170:18 184:5 187:1,9 191:10,13 suggested 12:2 26:4 34:14 64:24 73:2 173:10 suggesting 42:22 63:12 81:13 suggestion 26:6	34:19,20,21 144:4 suggestions 27:12 suggests 65:2 69:11 75:25 78:21,24 82:19 suicide 132:23 suitably 44:3 suits 122:19 summarise 94:17 summarised 49:15 113:24 summarises 33:17 summary 13:3 70:2 138:8 191:2 summer 87:22 143:19 supplied 29:10 supplies 38:7 97:1 support 58:24 127:5 144:18 145:11,18,24 149:9 supported 33:14 177:6 supporting 66:10 72:5 141:14 supportive 72:11 supports 25:17 156:12 suppose 18:8 supposed 74:20 117:25 sure 125:7 134:4 143:16 165:24 170:24 Suredors 75:17 surface 16:11 surfaces 65:8 66:8 surprise 146:15 154:9,10 surprising 71:2 surround 55:6,9 surroundings 9:22 surrounds 63:1 67:20 68:4 69:23	79:12,24 117:11 survival 38:25 39:10,17 48:16,25 48:25 92:13 178:2 survived 2:17 53:1 80:12 surviving 83:16 survivors 2:5 5:2 51:13 84:14 97:22 110:4,10 119:10 119:22 120:4 126:23 127:15 130:21 167:25 168:6 suspend 18:11 43:9 suspension 18:13 suspicious 68:3 swiftly 128:5 switch 111:17 switches 77:11,13 sympathy 120:6 symptomatic 99:23 system 17:18 19:5 29:18 33:21 34:2 39:1 44:6 47:11 47:19 48:16 51:3 54:3,6,11 55:14 55:15 65:16 66:9 66:12 67:11 73:25 74:18 75:4 76:16 76:18,20,20 82:13 93:22 98:9 106:21 109:25 158:23 161:10 171:18 177:7 188:3 190:18,19 192:24 193:2 systematic 91:1 94:12 96:4 systematically 147:20 systemic 13:14 75:24 116:3 129:9 129:12 140:22 160:23 161:17,20
--	---	---	---	---

162:2,6,10 systems 44:5 53:9 63:20 74:4,12,25 119:3 134:11 140:5 149:10 164:3 171:12,17 188:25	teams 112:2,10 119:10 technical 106:21 119:20 189:5 technology 181:17 181:20 telemetry 6:15 telephone 95:13 102:6 181:14 190:11 telephones 138:16 television 172:19 177:4 tell 95:8 126:23 148:3 163:8 167:11 182:15 183:11 telling 36:1 101:11 109:8 184:25 186:15 tells 60:12 79:25 176:2 temperature 56:9 67:19,22,23 temperatures 55:11 71:10 temporary 44:22 tempting 62:8 ten 39:12 60:7 145:16 tenable 143:25 tense 99:20 tentative 78:21 79:19 terminated 103:5 terms 4:17 5:9 15:17 24:14 36:15 62:17 66:1 85:8 102:14 115:9 116:14 133:18 156:23 182:23 terrible 87:6 105:5 123:9 test 64:25 65:23 66:6 71:18 75:19	85:15 164:2 testament 5:10 181:10 tested 66:13,14 117:13 testimony 110:13 testing 50:21 thank 51:21 52:2,5 83:4,5 114:17,18 114:22 115:5 162:17,21,22 168:10 169:2 194:17,19,20 195:1,3 thanked 51:23 theatre 100:4 theme 125:4 themes 115:23 thereabouts 144:2 thermal 56:13 62:23 65:20 72:2 thermally 71:7 thermoplastic 70:24 they'd 147:21 149:13 thick 38:3 41:13 165:9 thin 71:7 thing 55:21 74:19 131:18 174:12 184:5 194:25 things 8:5 24:18 28:25 84:8 98:10 178:23 184:10 think 1:11 25:8 36:3 42:13 51:20 52:11 62:8 114:19 162:18 170:13 172:23 183:2 185:19 192:3,11 192:13 thinking 42:13 110:14 thinks 78:20	third 38:1 60:24 63:3,8,19 64:8 65:1 74:20 86:14 88:19 96:8 99:6 102:1 110:4 111:22 160:1,10 Thirdly 76:24 115:22 136:11 148:7 162:10 thought 101:22,23 140:20 147:1 176:16 threat 171:23 threatening 140:16 three 33:13 54:2 55:7 57:3 67:18 78:16 98:23 111:19,25 115:6 155:25 158:12 160:13 185:13 three-stage 78:22 throat 167:12 thumb 92:7 time 1:17 4:11,13 4:19 9:18,18 14:6 15:7,11 18:12,14 23:5 24:13 27:21 29:4,8,20 34:8,15 38:1,7 43:12 46:18 54:22,23 57:11 59:9 63:10 73:11 77:1 81:19 89:25 92:21 94:24 95:17 102:7 108:3 111:10 112:18 113:4 114:13 115:1 121:22 127:18 142:16,17 144:17 148:13,16 149:6 150:8 153:4 153:13,18 157:12 157:18 158:25 159:2,6 160:6,10 163:7 164:16 166:7 169:6 172:5	177:15 178:12,22 180:5 182:21 189:20 timely 95:5 times 10:25 15:19 60:7 91:17 107:7 111:25 116:13 141:15 142:13 150:15 183:23 192:19 timescales 54:22 63:18 73:6 154:21 154:24 tip 59:21 tirelessly 10:2 tissue 78:8 title 172:3 titled 189:10 TMO 76:1 80:21 107:16,23 108:7,7 108:11,19 117:24 148:4 TMO's 77:14 108:15 today 50:15 83:22 110:18 114:14 129:22 171:5 192:2 194:22 today's 1:4 118:2 told 15:10 40:24 41:16 58:16 95:1 101:9,15 102:12 102:17 104:1,6,8 104:22 105:1,10 105:14 112:11 146:15 151:5,23 152:6,7,8 154:11 157:15 167:14,16 183:21 185:18,23 tolerably 92:20 tolerate 62:24 toll 126:1 tomorrow 83:22 194:23 195:1 tool 118:25 126:18
---	---	---	---	--

tools 135:2 149:8 top 55:23 61:1,7 93:19 96:13 104:13,20,25 105:14 193:7 topic 12:7 54:17 64:8 74:7 77:23 topics 53:5 Torero 53:18 55:10 55:20,24 56:1,4,8 58:7 59:20 60:12 63:25 64:2 71:6 72:1 80:18 Torero's 54:18,20 57:10 73:6 total 23:2 39:11 58:25 touch 4:2 7:11 8:18 8:20 12:12 13:23 22:1,21 33:2 46:3 touched 22:23 touching 47:5 Toughbooks 177:10 tower 1:19 2:5 8:2 15:5 18:7 20:18 21:1 22:10,20 28:10,21 32:10 35:7 39:4,10 41:4 42:21 43:8,24 44:6 46:17 49:18 51:2,14 52:19 53:6,22 54:9,12 54:15 55:13 63:9 63:11 64:9,10 67:6,17 74:15 86:21 89:7 97:4 98:6 101:6,8 104:20 107:14 109:17 110:25 113:8 116:1 120:21 122:6,12 131:9 141:6,21 144:10 146:12 148:23 149:24	150:1,6 153:20 154:3 157:13 159:9,22,24 160:8 162:8,12 163:16 163:17 165:1,25 167:3 168:5,6 170:3,22 171:7 173:18 174:1 175:10,16 176:11 178:9,18,19 179:7 179:9,15 180:16 181:4,6,18 184:9 187:15 188:23 189:4 190:6,12,13 191:18 193:7 tower's 53:12 63:20 81:8 towers 174:9,10 193:11 Town 166:7 toxic 24:1 36:14 37:20 53:9 77:23 78:10,22 79:2,6 79:16,22 80:1 toxicity 68:19 79:22 toxicology 78:5 tracing 158:15 track 190:4 traffic 180:4 181:5 188:5 190:7 tragedy 5:8 123:9 tragic 184:10 tragically 2:16 5:12 train 12:17 32:8 86:9,20 132:22 164:2 169:13 trained 44:9 88:9 137:18 176:7 training 2:23 9:4 12:5,7,14,18 25:17 40:19 42:25 46:8 47:20 48:12 49:1,6 87:20 88:8 88:15 89:13 90:17	90:19 92:8 102:2 102:21,23 106:21 139:18 140:14 145:19,22 154:16 154:19,23 161:8 162:4 163:19 167:1 170:10 173:2,4,22 174:2 174:6 188:8 194:8 trains/guides 135:3 transcribers' 162:19 translated 91:23 translates 152:4 transmission 159:18 181:7 transmit 181:1 190:15 transmitted 180:6 transmitting 190:12 transparency 127:2 Transport 171:10 trapped 151:10 156:18 160:5 161:24 traumatic 9:9 travesty 53:13 treated 192:23 Trevisan 167:7 trial 85:5 tribunals 84:17 tried 94:19 169:8 182:8 183:24 184:24 185:3,7 trigger 83:25 triggered 144:20 trite 122:9 trouble 149:14 165:17 182:25 true-to-life 164:3 truly 122:17 170:13 178:22 trust 53:4 102:23	124:13,22 truth 53:3 84:17 109:8 110:6 114:7 128:24 168:18 171:5 try 96:13 122:22 129:14 166:19 trying 4:12 22:1 40:3 140:3 147:16 165:12 180:25 183:12,22 Tuccu 111:20 Tuesday 195:5 turn 13:19 25:10 54:1 57:8 64:12 67:15 74:7 98:17 115:22 130:5,7 141:13 155:18 163:1 171:23 turned 119:14 146:11 Turning 28:1 53:11 70:6 76:5 twice 160:14 two 8:20 25:2 29:1 41:7 55:4 57:2,7 61:19 63:12 64:23 69:5 71:16 75:10 77:12 78:12 87:5 87:19 96:5,9 108:2 112:9 115:22 117:2 130:4 146:6 156:2 165:2 166:2 167:8 172:18 177:18,23 179:19 187:22 type 46:22 70:2 76:7,10 102:4 131:9 181:17 190:1 types 14:3,3 44:2 71:16 132:18 190:5,24 typical 71:9 typically 19:15	typified 188:18 <hr/> U <hr/> UK 2:22 16:24 31:16 43:6,12 52:22 133:7,18 ultimately 90:8 91:9 112:25 173:18 185:11 unable 91:6 102:14 111:3 182:21 184:14 unaided 98:7 unamended 169:17 unattractive 142:5 unaware 75:15 126:10 unborn 98:4 unclear 152:23 uncommon 18:23 unconnected 150:22 unconscious 45:12 uncontrolled 171:19 undeclared 100:12 undeniably 106:19 underassessed 89:8 underline 141:11 underlined 158:1 undermine 81:13 undermined 191:6 undermining 74:17 underpinned 14:4 151:7 underpinning 134:14 underpins 17:1 understand 10:23 11:7 13:7 14:14 18:16 19:12 20:22 22:3,15 29:20 40:3 98:22 126:23 136:14 141:20 163:9 174:8 175:20 189:17
---	---	--	---	--

understandable 27:12 34:20	unfortunate 120:8 120:19	136:16,20 138:11 143:1 162:4	usher 113:3 usually 31:1	77:20 81:7,21 100:20 119:2
understandably 12:2 22:5 43:3 186:22	unheard 133:5 unhelpful 92:14	untrue 112:8 unusual 32:10 61:4	utilis[ing] 138:13 utilise 127:10 137:25	121:23 152:13 viewed 118:24 views 10:5 57:2 191:17
understanding 2:3 4:19 8:14 108:2 110:11 169:21 178:16	Union 171:14 unique 3:12 30:2 32:22,23 116:15 124:6	unwell 167:12 unwilling 58:21 unwillingness 127:25	<hr/> V <hr/>	vindicate 84:12 virtual 142:6 virtually 23:11 136:5 140:25 147:7
understatement 187:2	uniqueness 20:20 unit 96:11 99:15,20 105:25 154:12 155:5,8 187:20	update 88:7 189:11 updated 87:20 187:12	vacuum 7:10 valid 66:10 122:24 valuable 24:17 value 114:3 193:20 variable 24:19 64:6 variety 15:23 various 20:12 47:2 88:4 89:7 107:2 114:6 116:23 122:16	visibility 38:4 visibly 59:4 visit 184:14 visits 47:3,4,10,17 47:18
undertake 27:21 50:18 94:20 186:24 193:10	units 177:12 unlawful 113:20 unnecessary 61:8 96:18	upgrading 187:13 upgrade 48:9 upgraded 77:8,12 upgrading 77:16 upper 111:4 upstairs 113:1 uPVC 55:6,9,10,15 63:1 67:15,19,20 67:25 68:4,6,17 68:19 79:12 117:10	vast 17:20 vastly 110:10 Vector 177:7 vehicle 171:19 ventilate 110:1 ventilation 29:18 74:18 76:16 109:25	visual 92:5 vital 10:22 137:24 180:14 181:21 vivid 36:15 visibly 41:5 void 69:13 voids 79:8 117:9 121:9
undertaken 4:23 7:9 8:6 36:19 46:12 49:1 173:5 187:19 188:17	unplanned 59:12 88:17 unprecedented 3:13 12:5 22:15 27:6 39:14 116:14 133:17	upward 72:14,15 upwards 62:5 urban 114:5 Urbano 104:25 urge 129:3 140:21 160:25 161:25 urgent 4:22 13:16 urgently 32:24 urging 116:11 119:11	ventilation 29:18 74:18 76:16 109:25 venting 56:6,9 venture 37:19 versatile 133:1 vertical 20:21 26:15,24 59:14,16 59:22 62:1 70:19 175:9	volumes 140:2 voluminous 39:19 vulnerability 37:17 vulnerable 108:17 117:15 137:12 142:4 148:5 149:18 174:10
undertaking 6:22 24:9 127:21	unprotected 171:22 unquestionably 115:9 unrealistic 171:7 173:25 unreasonable 112:9 132:12 unreasonably 86:5 unremarkably 131:24 unsatisfactory 75:5 unseen 68:13 unsuccessful 183:23,24 unsuitable 68:6 unsustainable 147:3 untenability 64:2 untenable 64:1 130:8 135:10,14	upward 72:14,15 upwards 62:5 urban 114:5 Urbano 104:25 urge 129:3 140:21 160:25 161:25 urgent 4:22 13:16 urgently 32:24 urging 116:11 119:11 use 4:8 15:25 29:1 29:5 45:18 46:11 64:19 68:17 82:6 97:17 120:24 130:2 149:8 171:16 179:4 181:14 182:4,8 183:17 useful 15:1 45:19 45:24 useless 177:9 User 32:4 uses 21:24 56:2	vertical 20:21 26:15,24 59:14,16 59:22 62:1 70:19 175:9 vertically 31:1,2 59:24 62:4 viability 10:24 37:16 viable 58:7,10 84:5 92:23 vicinity 26:16 40:17 victims 84:13 119:22 123:18 video 148:15 videos 122:16 view 33:24 57:2,10 57:22 59:1 70:12	<hr/> W <hr/>
undertook 117:24 118:17				wait 8:16 waited 159:25 wake 93:22 waking 44:11 wall 33:8 69:6 73:25 159:1 186:21 walls 64:17,18 65:8 154:5
underway 46:5 undetermined 123:3 undoubtedly 66:1 87:8 100:18 150:14 unenclosed 60:8 unequivocal 81:9 82:21 127:16 unequivocally 113:2 128:17 unexpected 132:22 135:1 138:11 unfair 11:4 unfamiliar 90:22 unfit 157:20 162:14 unfolded 2:19 173:25 unfolding 164:18 unforeseen 120:9				

Walsh 1:11,13,15 1:16 25:3,4,8 51:22,25 58:16 195:10 Walton 145:12 146:7 want 8:18 10:8 13:23 14:9 22:21 25:10 30:10 33:2 37:22 38:14 42:12 43:14 51:24 83:16 107:15 114:15 122:1 123:25 146:2 158:15 163:5 165:18 167:19 175:17 182:23,24 wanted 167:13 war 119:15 175:7 warmth 168:2 warned 87:24 warning 21:21 103:18 109:2 wasn't 23:14 28:12 144:1 148:12 172:23 182:14 185:1 wasted 96:9 146:20 147:16 151:20 wastefully 98:12 watch 90:19 91:25 94:19 99:14 144:15 145:1,8,25 153:1 165:22 177:25 watchers 44:11 water 25:20 26:1 27:2 29:5,10,11 96:13,25 166:10 166:11,14,18 183:15 waves 179:13 way 3:14 8:9 9:12 14:24 15:15 16:10 21:7 29:8 33:1	38:2 44:14 46:22 47:9,11,13 60:9 73:20 87:14 90:15 90:25 93:7 94:12 99:24 101:16,16 111:7 113:13,24 124:24 129:1 140:20 157:10,16 165:19 168:18 169:19 175:3 177:13 178:20 183:7 ways 70:9 73:15 we'll 52:4 114:20 118:19 137:9 162:20 163:12 194:22 we're 51:9,9 126:9 163:3 176:14 183:3 we've 1:5 74:11 116:15 122:15 132:9 133:9 134:4 134:19 138:17 139:16 140:18 141:1 143:16 145:22 146:3 148:24 155:12 176:16 192:18 193:2 weapons 128:3 wearers 166:2 184:21 wearing 37:24 weather 132:24 Weatherby 87:3 93:23 115:2,3,4,5 176:20 195:13 week 152:4 155:25 weeks 193:14 weight 96:18 Welch 98:11 welcome 1:3 140:6 187:24 well-structured	90:6 well-trained 90:6 went 4:8 5:6 33:18 42:4 83:18 112:3 112:24 113:1 122:14 128:18 143:9 159:10 168:21 171:17 182:3,13 weren't 120:12 145:21 153:15 west 63:9,11 166:2 wet 28:19,20 29:3 whatsoever 122:4 128:14 Whichever 57:2 whilst 56:13 62:14 67:23 125:13 151:11,21 154:11 172:5 173:18 178:4 Whirlpool 121:4 whiteboards 152:14 154:5 wholesale 108:21 wholly 20:24 50:12 61:8 68:6 89:17 widely 52:22 173:3 173:12 widen 124:1 wider 2:9 46:21 84:13 123:18 widespread 23:23 30:4 127:2 width 60:12,14 William's 159:9 Williams 154:3 willing 57:15 83:12 91:9 window 25:21 26:2 26:9,11,16,22 27:23 32:19 55:6 55:7,24 56:7,10 56:23 62:25 63:1 64:11 68:5,10	69:3,4,23 79:12 79:24 80:14 83:1 105:15 117:9,11 121:7 138:5 151:22 158:14 167:14 169:4 windows 33:15 62:19 64:13 67:15 67:16 68:9,24 69:8,16,17 70:1 78:18 79:8 80:7 109:24 121:9 143:20 171:22 wise 15:1 wish 1:7,10 31:5 47:22 49:19 81:4 wishes 131:13 withstand 53:12 witness 5:3 88:8,16 witnessed 2:18 167:23 179:19 witnesses 6:14 24:16 46:24 92:17 109:8 116:13 WM 179:24 180:9 woefully 89:12 wonder 177:15 wood 69:25 wooden 69:24 word 29:5 101:22 134:12 words 20:25 41:24 53:21 84:3 91:18 101:20 108:8 167:6 187:13 work 6:8 32:7 46:12 75:3 82:18 94:23 107:4 113:6 113:11 119:5 120:12 128:19 129:2 134:2 135:25 141:14 161:23 163:8 164:6 168:14 workable 157:24	workaround 138:22 worked 10:1 161:11 working 29:21 90:6 145:21 177:8,9 182:14 workmanship 73:22 works 75:2 118:17 world 3:3 30:10,21 30:24 31:8,14 132:16 175:7 worn 45:12 worrying 182:23 worse 60:23 74:3 95:22 98:3 176:2 worth 18:1 125:14 would've 27:6,8 41:19 73:4 79:9 131:3 141:7,10,25 142:2 143:12 144:20,23 147:14 147:15,20,24 149:12 152:1 155:19 156:13 169:4,5 170:13 178:23 181:6,13 186:18 wouldn't 41:21,22 89:13,14 121:24 157:23 170:16 174:2,5 178:14 184:5 192:1,14 wrestle 49:25 writers 83:10 writing 5:2 107:5 134:19 written 1:8 4:1 7:1 8:19 35:25 86:1 95:17 109:15 110:9 112:2 117:1 120:7,16 131:4 139:19 140:18 146:4 148:25
--	---	--	--	--

187:11 188:19 wrong 13:3 83:18 84:9 128:18 161:2 wrongdoing 124:5 wrongly 100:23 104:3	59:20 91:12 01.14 91:14 01.15 93:13 142:21 144:1 01.16 59:21 01.18 59:24 01.19 91:15 01.21 105:8 01.24 103:20 01.25 103:24 157:2 01.26 59:3 91:15 142:22 143:13 144:3 147:10 151:24 162:12 01.28 59:24 91:16 91:20 144:10 01.29 59:15 158:12 158:18 01.30 92:21 93:15 95:8,23 96:3 104:12,15 111:9 112:24 01.30.02 104:21 01.30.08 104:24 105:3 01.30.38 105:7 01.31 92:24 01.32 95:11 105:14 01.33 105:18 01.35 95:14 105:25 01.38 158:19 01.40 149:6 01.42 93:6 150:6 01.43 100:10 152:21 158:23 01.45 156:25 157:4 01.47 92:24 93:11 95:18 01.50 60:25 63:7 145:14 01.56 96:12 01.57 63:10 02.00 60:25 150:10 02.08 95:21 96:4 02.13 153:16	02.17 158:25 02.23 153:20 02.24 95:21 02.27 158:13 159:16 02.30 148:14 150:10 159:16 02.35 112:20 152:1 178:5 02.40 148:15 02.43 145:5 146:8 02.47 178:5 02.51 95:22 02.55 166:3 03.00 98:6 03.03 95:24 03.15 159:24 03.18 158:15 160:1 03.20 98:9 03.23 160:3 03.35 160:6 03.47 97:24 03.55 150:13 04.00 98:6 04.15 155:23 04.20 98:2	91:16 136:11 153:12 191:14 195:1 10-minute 162:19 10.00 1:2 195:6 100 100:11 103 186:22 106 75:13 10th 41:6 98:2 11 55:12 156:21 195:5 11(2)(b) 107:18 11.25 52:6 11.35 52:5,8 110 46:2 92:24 113 184:11 185:12 185:19 186:1 115 195:12 1182 65:23 11th 93:10 105:18 12 59:16,18 97:11 98:5 108:17 111:13 120-millimetre 69:17 12th 59:25 103:21 104:6 13 33:16 68:21 79:14 150:9 133 184:16 13501 65:14 14 1:25 18:14 34:8 43:19 51:19 52:18 63:5 75:13,14 98:16 111:22 112:10,13 132:12 135:20 184:5,14 142 157:20,21 158:3,5,9,12,25 159:7 160:6,15 149 103:9 14th 103:25 168:1 15 45:11 59:17 78:5 91:16 108:16 122:18 141:19	156:24 165:17 191:20 192:16 151 178:24 152 178:24 153 168:20 16 26:9,17,20 55:2 55:3,5 56:10 57:13,18 92:3 104:9 111:9 136:13 150:10,12 156:20 160:19 168:20 163 195:14 16th 97:24 17 136:13 157:20 160:12 17th 158:25 18 21:24 77:3 113:6 120:2 125:4 126:15 127:14 136:23 18-month 126:24 19 20:3 146:4 195 95:15 1960s 22:25 1971 76:7,25 1980s 71:1 1992 68:16 1999 134:3 171:9 171:13,25
X X 195:8				
Y				
Yawar 111:20 year 18:5 24:5 110:20 164:10 170:4 180:20 189:1 year's 127:18 years 12:19 17:24 18:5,20 30:13 34:12 39:12 98:5 108:16 125:12 177:8 187:22 yielded 79:12 yields 78:19 York 190:18 young 97:23,24 YouTube 148:22 149:3				
Z				
Zainab 111:23 184:12 zero 38:4 zone 119:15 150:9				
0		1		2
0 66:9 00.54 55:2 01.05 55:2 57:4,13 59:15 01.08 57:13 142:14 143:8 01.09 57:19 60:25 01.11 57:6,14 01.13 55:2 57:5,6 57:25 59:2,9,15	1 2:1 3:22 7:7 10:10 12:10 13:9 19:8 23:13 30:23 34:15 49:12 51:11 53:5 53:21 64:15,17 69:4 78:24 80:17 81:7 84:1,21 85:7 86:14 88:3,8 90:13 100:25 107:3 113:16 115:8 117:1 120:18 129:3 142:19 195:9 1,600 176:5 1.15 114:23 1.26 104:5 1.6 189:15 10 1:1 52:4 63:5		13 33:16 68:21 79:14 150:9 133 184:16 13501 65:14 14 1:25 18:14 34:8 43:19 51:19 52:18 63:5 75:13,14 98:16 111:22 112:10,13 132:12 135:20 184:5,14 142 157:20,21 158:3,5,9,12,25 159:7 160:6,15 149 103:9 14th 103:25 168:1 15 45:11 59:17 78:5 91:16 108:16 122:18 141:19	2 7:11 8:17 11:7 12:12,13 13:1,10 13:18 18:9 19:10 23:16 27:15 31:23 49:20 51:7 53:6 59:14 66:19 69:8 76:7,10,19 79:6 84:19,25 85:10 91:17 92:18 94:5 101:2 103:15 109:13 110:21 113:19 118:20 119:6,12 121:10 127:19 129:7

138:8 140:15 193:24,25 2.00 89:1 98:24 99:14 2.15 114:21,25 2.19.1 33:19 20 25:1 59:4 61:22 63:6 76:9 137:17 155:14 2000 77:2,22 2004 86:16 107:2 107:19,24 2005 77:1,7,12 84:1 2010 103:9 2011 75:13,17 2013 87:15 2014 124:15 154:13 176:20,23 2015 87:20 124:16 124:21 125:2 2016 20:3 76:11 87:22 108:24 2017 1:25 18:6,14 27:17 43:19 51:19 52:18 87:8,24 106:13 109:2 169:17 2018 1:1 21:24 41:23 166:20 168:20 170:17 178:24 183:4 185:6 186:21 187:12 189:11 192:16 193:5 195:5 2019/20 189:2 202 167:9 2020 187:19 2021 187:20 204 95:16 205 95:16 20th 93:6 21 137:22 156:25 189:11 21st 53:3 104:21	178:25 22 156:23 22nd 60:1 95:9,9 95:16,23,24 96:1 104:16 105:4,8 23 79:11 93:2 95:20 138:9 142:23 233 183:5 23rd 61:11 95:11 95:16,25 104:17 148:24 167:9 24 44:10 61:11 129:19 153:23 187:11,12 24-year-olds 125:4 25 79:4 152:5 182:19 183:4 187:11 26 166:19 177:21 27 164:10 170:4,17 172:2 180:20 28 97:12 29 183:4 293 93:2 2nd 45:21 159:11 <hr/> 3 3 23:19 41:23 53:7 61:6 69:13 79:12 97:22 98:5 101:3 167:6 3-4 165:13 3.00 64:7 3.2 87:2 102:20 132:2,5 133:21,22 134:7,18,20,21 138:17,20 139:16 139:24 140:1 3.2's 135:19 3.25 162:23 3.35 162:21,25 30 69:16 75:20 76:9 125:12 129:24 166:19 169:17 31 92:23 33 58:1 153:23	156:3 35 148:25 36 96:6 166:20 38 185:5 39 21:24 3rd 159:3,11 <hr/> 4 4 23:22 53:8 59:17 68:11 69:16 101:4 142:23 148:13 150:12 4.30 194:18 195:4 4.49 41:10 40 21:24 30:13 412 144:20 424 145:10 45 83:9 146:20 4th 101:10 111:12 180:23 <hr/> 5 5 21:24 53:9 55:11 69:23 92:2 148:15 5,000 18:2 5.05 42:1 50 142:24 170:17 173:3 51 173:6 52 41:22 174:7 195:11 539 151:1 55 66:12 70:15 55-year-old 98:1 57 152:4 58 192:15 59 168:20 5th 59:25 104:18 <hr/> 6 6 42:17 134:7 182:5 185:6 186:21 192:17 193:5 62-year-old 98:2 633 48:1 87:3 130:15 139:7	161:4 68 41:23 193:4 69 170:17 699 144:23 6s 60:17 6th 179:21 180:8 <hr/> 7 7 92:2 93:3 7-minute 141:17 7(2)(d) 47:3,10,17 89:6 7.45 139:8 700 18:4 36:6 71 178:24 72 52:19 81:4 113:21 175:9 75 46:2 77 42:15 790 48:25 101:21 130:16 151:1 154:14 162:13 <hr/> 8 8 35:23 108:17 135:23 184:22 81 185:6 85 131:5,7 139:19 89 193:5 <hr/> 9 9 127:11 136:4 178:24 90 7:4 110:25 192:16 91 193:5 94 18:7 95 104:5 999 150:22 151:2,9 152:4 153:8,13,24 156:3,20 157:2 158:12 160:10,13 177:2	
--	---	---	--	--