

IN THE MATTER OF THE INQUIRIES ACT 2005

AND IN THE MATTER OF THE INQUIRY RULES 2006

THE GRENFELL TOWER INQUIRY

**WITNESS STATEMENT OF MR RUSSELL DAY ON BEHALF OF
ASSOCIATION OF COMPOSITE DOOR MANUFACTURERS**

I, **Russell Colin Day**, will state as follows:

1. I am the Chief Executive Officer of the Association of Composite Door Manufacturers (“ACDM”) of Temple Court, 13A Cathedral Road, Cardiff, South Glamorgan, CF11 9HA. I am duly authorised to make this witness statement on behalf the ACDM.
2. I make this witness statement in response to the request from the Grenfell Tower Inquiry dated 25 March 2020 to provide factual evidence for the purpose of Phase 2 of the Inquiry.
3. The facts and matters set out in this statement are within my own knowledge and I believe them to be true. Where I refer to information supplied by others, the source of the information is identified; facts and matters derived from other sources are true to the best of my knowledge and belief.
4. There is now produced and shown to me a paginated bundle of true copy documents marked “RD1”. All references to documents in this statement are to Exhibit “RD1” unless otherwise stated. In doing so I indicate the relevant exhibit number and also the unique reference number used by the Inquiry.

My Background

5. I have worked in the timber and PVC-u window and door industry since 1981. I held various roles including Commercial Director and Technical Director within manufacturer and distributor businesses; and led a team developing products for specific markets e.g. window and door systems for national house builders.
6. From 2004 to 2010 I was employed by the Acell Group where my main role was to develop composite building products and support our licensees in marketing these products. In the UK this involved composite doors with thermoplastic and GRP faces using Acell's unique moulding technology based on mineral filled structural phenolic foams.
7. I was a Technical Officer and later Director of Home Improvements for the Glass and Glazing Federation from April 2010 until my retirement in March 2019. During that time, I was the Secretary to various member only technical groups including the Fire-Resistant Glazing Group, Insulating Glass Manufacturers and Glazing Component Groups, Systems House Group and Hardware Group. I also represented the Federation as a member of various BSI committees. I produced various Technical Datasheets; Guidance on the Building Regulations and Approved Documents; and Guidance on the Construction Products Regulations for the Federation, which were accessible by the members.
8. I joined the Association of Composite Door Manufacturers in July 2019 as their part-time CEO. I exhibit my curriculum vitae under reference RD1.

Question: Please set out when the ACDM was formed, its purpose and who is eligible for membership.

ACDM (Company Information)

9. The ACDM was formed as a Trade Association and incorporated under Company Registration Number 0437942 on 22 February 2002. ACDM is a private limited company by guarantee without share capital use of 'Limited' exemption.

ACDM (Purpose)

10. The ACDM is a trade association formed between commercially competitive manufacturers of composite doors, who have a common interest in ensuring that the product concept is maintained at the highest level and is not denigrated by poor performance alternatives, or by manufacturing companies who do not maintain the highest standards of operational professionalism and thereby risk bringing the industry into disrepute.
11. ACDM issued a Constitution on 13th September 2002 (RD2) (“the Constitution”). The Constitution, amongst other things, stated that the aims of ACDM were:
 - 11.1 To create a separate identity for Composite Door Manufacturers;
 - 11.2 Raise the profile of Composite Door Systems within all market sectors including public housing, retail and new build; and
 - 11.3 Establish a presence on all key decision-making bodies.
12. The ACDMs aim in 2002 was to assist:
 - 12.1 With the development of PAS 23 (General performance requirements for door assemblies. Single leaf, external door assemblies in dwellings) and PAS 24 (Enhanced security performance requirements for door assemblies. Single and double leaf, hinged external door assemblies for dwellings).
 - 12.2 The ACDM’s primary objective was to ensure that Composite Door Systems were represented on the British Standards Institute committee panel that was responsible for these standards.
 - 12.3 To develop a British Standard for Composite Doorsets. This was published in 2010 as BS 8529:2010 Composite doorsets. Domestic external doorsets and revised in 2017.
13. To achieve these objectives a Technical Committee was formed under the chairmanship of an ACDM Technical Director, elected from the membership.
14. The ACDM wanted to be represented on those organisations involved in the specification of doorsets whether replacement or new build; and to promote the use of Composite

Doorsets.

ACDM (Membership)

15. In 2002, Membership was limited to companies manufacturing composite door sets. These companies were required to:
- 15.1 provide evidence of their products achieving a successful test report against PAS 23 and PAS 24 by a UKAS accredited test facility and
 - 15.2 be certified to ISO 9001 or ISO 9000 (existing members were required to achieve certification by 31st March 2003).
16. ACDM expanded membership to include affiliate members. Such affiliate members include manufacturers and suppliers of door components (hardware, seals etc.) and this is reflected in the ACDM constitution revision of 25th January 2005 (RD3).
17. At the time of incorporation (2002), there were 9 members of ACDM:
- Birtley Building Products Ltd.
 - County Doors Ltd.
 - IG Doors
 - Intron Ltd.
 - Lindman Ltd.
 - SBP Ltd. c/o Permadoor
 - Premdor
 - Securidor Ltd.
 - Sentinel Doors Ltd.
18. We currently have 14 full members and 13 affiliate members. I have listed these below:

Full Members

Ashford Commercial Ltd
Birtley Building Products Ltd
Britdoors by System
Capstone
Distinction Doors

Affiliate Members

Fullex Locks Ltd
HOPPE (UK) Ltd
Lorient Polyproducts Ltd
Metsa Wood
MILA

DoorCo	Pyroguard
Hurst Plastics Ltd	Reddiplex
Ian Firth Hardware Ltd	Rehau
IG Doors	Roto Frank Ltd
ODL Europe Ltd	Sealed Tight Solutions Ltd
Nationwide Windows	SFS Group Fastening Technology
Permadoor	Winkhaus Ltd
Solar Windows Ltd	Yale Door and Window Solutions
Solidor	

Question - Please confirm whether Manse Masterdor Limited, LB Plastics Limited or Distinction Doors were at any time members or are current members. If any of these firms were members, please confirm their respective dates of membership.

Manse Masterdor Limited, LB Plastics Limited or Distinction Doors

19. There is no record of Manse Masterdor Limited or LB Plastics Limited being a member of ACDM.
20. Distinction Doors became an affiliate member of ACDM in 2008 and continues to be a member to date. They became a full member in 2019 as a Systems House. (copy of application attached) (RD4).

Testing before 14 June 2017 (Between January 2007 and July 2017)

Question - please set out any guidance or information published by ACDM in relation to the manufacture of fire doors which concerned the requirements for fire resistance and smoke leakage;

21. ACDM did not publish any guidance or information in relation to manufacture of fire doors which concerned the requirements for fire resistance and smoke leakage between January 2007 and July 2017.
22. ACDM's focus at that time was on the security requirements for doors and writing a

standard for composite doors.

23. ACDM did not have the experience or expertise necessary to provide guidance or information on this subject because as a small organisation it was reliant on its members to assist the part-time technical officer to discuss and draft suggested clauses for the PAS and BS standards; and then debate these with other organisations to secure an agreed performance standard.
24. Having completed this work, ACDM now accepts that it should have moved on to consider other general guidance for manufacturers, which should have included fire safety. Unfortunately, the ACDM did not have the resources to provide technical interpretation of the requirements in terms of testing or Approved Documents.

Question - please identify any guidance or information published by any other industry or other authoritative body that was available to assist manufacturers of fire doors and which considered the requirements for fire resistance and smoke leakage;

25. The Building Regulations Approved Document B would be the primary source of information for any fire door manufacturer alongside the British Standards BS 476: Part 22 for fire-resistance and BS 476: Part 31.1 for smoke leakage.
26. Manufacturers relied on the guidance of the test house or certification body undertaking the testing or producing an accompanying assessment as to the testing requirements for composite fire doors, which would include the requirements for fire resistance and smoke leakage.
27. Members who wished to manufacture fire-resistant doorsets either carried out their own Research and Development, and consulted with component suppliers who had experience in the use of their products in fire-resistant doorsets such as intumescent manufacturers or they would obtain guidance and information from the Testing Bodies involved in the testing and certification of fire-resistant doorsets (usually UKAS accredited bodies).
28. We are not aware of any specific guidance published to assist manufacturers of composite fire doors.

29. Most fire-resistant door set testing is now being carried out to the European standards as the fire-resistant doorsets produced are identical whether being installed as an external or an internal doorset and an external fire-resisting doorset must comply with the requirements of the Construction Products Regulations and EN 16034 that requires testing to the European Standards EN 1634-1 for fire resistance and EN 1634-3 for smoke leakage.

Question please set out ACDM's knowledge of manufacturers' approach to the testing of fire doors for fire resistance including:

whether it was considered necessary to test exposure to each side of the door assembly separately and if not, why not;

30. Manufacturers would consider the Building Regulations Approved Document B Volume 2 (buildings other than dwelling houses). This confirms in Appendix B Fire Doors that performance fire testing: *"The requirement is for test exposure from each side of the door separately except in the case of lift doors which are tested from the landing side only."* They would then refer to their accredited testing house for guidance under the appropriate British Standards.
31. The ACDM understands from our members, based on advice received from the UKAS accredited test houses or certification bodies, that it was not considered necessary to test exposure to each side of the door assembly separately. The testing houses are relying on the exemption found in BS 476: Part.22 1987 Clause 8.2.1.
32. This exemption appears to have become the industry norm, since it is the testing houses who advised the manufacturers which testing was required.
33. Test houses and certification bodies would provide our members with the testing requirements based on the range of sizes and styles of doorsets that the manufacturer wished to market. Based on this advice, testing was generally carried out from the internal side (opening into the furnace) only, this being considered the most onerous direction by the test houses or certification bodies. Testing was almost exclusively based on BS 476-22 and BS 476-31.1, not the European test standard EN 1634-1 and EN 1634-3.
34. Manufacturers would defer to the knowledge and guidance of the testing house.

35. Having had the opportunity of reviewing the Approved Document B and BS 476: Part 22, ACDM considers that the exemption which allowed for single sided testing which became ‘the standard test’ may have been wrongly applied. We recognise, with the benefit of hindsight, that this industry wide interpretation may have been incorrect.

Question - when and in what form expert opinion was sought to enable variations to the surrounding structure or wall/partition from that as tested with the complete installed assembly;

36. When testing to BS 476-22, testing was generally carried out with the doorset installed in a generic fire resisting structural wall as shown in BS 476-22, Clause 8.3.1. This result was then read across to other fire resisting wall constructions.

Question - what was the nature and purpose of field of application reports and when were they relied upon;

37. In the case of Composite Fire Doorsets the term ‘Field of Application’ was not used, Global Assessments were the norm.
38. ‘Field of Application’ is a term usually used in relation to an assessment based on European Standard (EN 1634-1 & 2) test evidence. Testing prior to 2018 was usually based on British Standards test evidence and the assessments were usually referred to as Global Assessments.
39. The terms ‘Field of Application’ and ‘Global Assessment’ are different terms for the same process of expanding the application of specific test results based on a set of standard principles and carried out by suitably qualified personnel. The Passive Fire Protection Federation (PFPF) produced a ‘Guide to undertaking Assessments in Lieu of Fire Tests’ in 2000 giving details of assessor qualifications required to carry out assessments and my understanding is that all UK bodies carrying out assessments complied with this guide. The guide was revised in 2019 and again, all assessment bodies in the UK comply with the requirements contained in the guide.

Question - what was the nature and purpose of global assessments and when were they relied upon;

40. Global assessments are used to enable a manufacturer to produce a doorset that is not identical to the original door tested, e.g. variation in size, variation of glazing design, substitution of some components etc.
41. A global assessment will collate the primary fire resistance test evidence and uses established extrapolation and interpretation techniques to extend the scope of application to determine the limits for the design. It is based on the tested constructions and performances. I attach a typical global assessment which has been provided to me by one of our members Distinction Doors. This was prepared by BMTRADA (RD5).
42. The assessments are carried out by test houses/ certification bodies such as Chiltern Fire/ BMTRADA, Warrington Fire to extend the application of the primary test evidence available. They are based on primary test evidence and also consider secondary test evidence where available, and the expertise/knowledge of the assessor undertaking the assessment.
43. Global assessments are not 'desktop studies'.

Question - whether hardware that had been tested to 800° and provided with the relevant certifications from the ironmongery manufacture, was deemed suitable for use on a fire door, without being tested for fire resistance as part of a complete installed assembly;

44. A majority of door manufacturers relied on the hardware allowed within the Global Assessments, some of these would have undergone fire testing during a BS 476-22 door test but some substitution may have been allowed within a Global Assessment based on being of similar or lesser dimensions and have been proven to work in a fire test or made from high melting point materials (over 800°C). The guidance on use of materials with melting points above 800°C was repeated in Global Assessments in consideration of interchangeability of components like hinges provided the general size and configuration were within the limits shown in the Global Assessment.

45. ACDM view is that the use of untested components manufactured from materials with a melting point above 800°C is allowed in Approved Document B but we would only consider it appropriate if it was an approved substitution by the organisation providing the Global Assessment.

Question whether the style of glazing on a tested assembly was varied, without requiring re-testing for fire resistance (for example where the amount of glazing used was reduced from the tested style);

46. The variations in the style of glazing was usually based on the Global Assessment, these being based on primary fire tests of certain glazing configurations. I understand that it was originally based on the assessor's opinion that if testing of the maximum size glazed apertures was undertaken (half glazed door leaves), this provided the necessary evidence and a reduction in the glazed area, from that tested, was considered less onerous and was allowed under Global Assessments.
47. My understanding is that this opinion was changed, and it was decided that multiple glazed openings were more onerous than a single large opening and it became the norm to test twin vertical openings and then allow variation in size of glazing apertures based on this result.

48. **But did a varied style of glazing result in retesting for fire resistance?**

The ACDM's opinion is that provided the variation in door style, glazing size or style of glazing used has either been fire tested in a doorset or included as options within the Global Assessment, these variations could be manufactured, and the fire-resistance claim would be justified.

Question - what requirements were required of a fire door marked FD30S, in addition to those placed on a door marked FD30?

49. FD 30 doorsets are tested and classified under BS 476-22:1987 Fire tests on building materials and structures: Method for determination of the fire resistance of non-loadbearing elements of construction. This testing determines the fire-resistance of the

doorset in terms of integrity only.

50. In addition to BS 476-22 testing, FD 30S doors are also tested and classified under BS 476-31.1 Fire tests on building materials and structures. Methods for measuring smoke penetration through doorsets and shutter assemblies. Method of measurement under ambient temperature conditions. FD 30S shows the doorset also prevents an unacceptable level of smoke leakage at ambient temperature. Smoke leakage testing of specific doorsets may have been replaced by the use of proprietary smoke seals using cascaded test evidence from the seal manufacturers. A majority of composite fire-resistant doorsets also incorporate a weatherseal and the doorset tested in accordance with 'BS 6375-1:2015 – Performance of windows and doors. Classification for weathertightness and guidance on selection and specification'. This standard established the air tightness of the doorset using significantly higher test pressures than that used for smoke leakage testing in either BS 476-31.1 or EN 1634-3.
51. Some doorset manufacturers have tested weatherseals to BS 476-31.1 or EN 1634-3 to demonstrate compliance with the smoke leakage requirements. Where this was the case, separate smoke seals may have been omitted as the weatherseals provided this function.

Question - where variations to:

the glazing specification;

the letter plate specification;

intumescent strips specifications; or

the door closer specification.

were made to a tested door assembly, in what circumstances were variations not deemed to require a re-testing for fire resistance of the complete door assembly

52. Variations to the various components used in the original primary testing of fire-resistant doorsets may be for the following reasons:
- Identical components manufactured by different manufacturers with test evidence to demonstrate equivalence to the original component
 - Similar components with variations in size or materials used in their manufacture where the test house or certification body allowed the variation in the Global Assessment
 - Components such as fire-resistant glass where the performance of the substitute glazing

is demonstrated to be the same or better than the original glass tested, e.g. the original test was carried out with an integrity only glass and the substitution is an insulating glass with similar declared integrity to the original glass and was allowed in the Global Assessment

53. The substitution of components such as glazing, letter plates, intumescent strips and door closer specification detailed in the original primary test evidence should only have been made when included in the Global Assessment provided by the test house or certification body. If the substitution component did not appear in the Global Assessment either additional testing should have taken place or the originator of the Global Assessment should have been consulted on the substitution and that component, if allowed by the originator of the Global Assessment, should have been added to scope of the Global Assessment.
54. It should be understood that a manufacturer should not have varied the specification of the tested doorset unless additional test evidence is available or the variation is included in their Global Assessment.

Testing after 14 June 2017

Question - What concerns (if any) does the ACDM have about the adequacy of current regulations and/or guidance available in relation to fire doors, particularly in relation to fire resistance and smoke leakage testing.

55. ACDM has the following concerns about the adequacy of current regulations and/ or guidance available in relation to fire doors, practically in relation to fire resistance and smoke leakage testing:
- 55.1 The need to fire test Glass Reinforced Plastic (GRP) flat entrance doors from both sides given these doors open onto a common corridor, lobby or stair. Approved Document B (CLG00000224/1) does require these common areas to be protected and as stated in Clause 30 of Annex A -Advice for Building Owners (RD6) on assurance and assessment of flat entrance fire doors, single sided testing is acceptable on existing installed flat entrance fire doorsets subject to the conditions stated in Clause 31(RD6). This advice/interpretation should also apply to new doorsets being installed as replacement or in new build where the direction from

which a doorset would be subjected to a fully developed fire can be determined (BS 476-22, clause 8.2.1)

- 55.2 ACDM does not have any other issues relating to the adequacy of current regulations but would like to see life safety characteristics, such as fire resistance, to be mandated to have independent third party certification which includes regular audit testing of the doorset at time intervals determined by the Certification Body (note: The Construction Products Regulations (CPR) does not require audit testing for a characteristic determined to be an AVCP System 1 characteristic).
- 55.3 Currently there is no published standard which specifies the core criteria required to be incorporated in a third-party certification scheme. Schemes should be UKAS accredited to 'ISO/IEC 17065:2012 Conformity Assessment – Requirement for bodies certifying products, processes and services' but this standard does not specify the core criteria for the certification of fire-resistant products. The criteria currently used in the certification process are determined by individual certification bodies and although usually similar in nature may have some significant variations.
- 55.4 The ACDM also has concerns relating to the competency of fire-resistant doorset installers. At present when installing a non-fire-resistant replacement doorset through a Competent Persons Scheme, at least one of the installation team is required to hold a Minimum Technical Competency (MTC) card or have an appropriate NVQ or similar qualification to demonstrate their competency in installing the replacement doorset. There is no such specific requirement for that installer to have demonstrated their ability to install a fire-resistant doorset in the correct manner. A requirement for installers of fire-resistant doorsets to demonstrate their competency should be introduced.
- 55.5 Maintenance of Fire-resisting doorsets of any material are also a matter of concern to the ACDM, in particular the replacement of components when required and whether these replacements may affect the performance of the doorset. Again, we believe that those involved in maintenance should also be able to demonstrate their understanding of how components can affect the fire performance of doorsets to ensure they do not compromise the integrity of the doorset when carrying out maintenance.

Question - Please set out any changes to the general practice in relation to fire resistance and smoke leakage testing that have occurred among ACDM members since 14 June 2017.

56. Following the MHCLG GRP fire door test program in 2018, ACDM members have undertaken the following actions:

56.1 ACDM members withdrew their fire doors from the market in the Summer of 2018 unless they had test evidence from both sides, this included the suppliers of fire-resistant door leaves who were ACDM members.

56.2 Some ACDM fire-resistant door leaf suppliers have implemented a condition of supply that a senior person within their client's organisation must confirm in writing that they have conducted testing (to either BS or EN standards) to both sides of the doorset and they have achieved a positive result for 30 minutes. Without this confirmation the door leaf supplier member will not supply fire-resistant door leaves.

56.3 Extensive testing of GRP composite fire doorsets has taken place where all testing has been based on testing from both sides.

56.4 The ACDM requires all members to have or be working towards third-party certification of their composite doorsets. At present we are only aware of one certification body providing certification of GRP composite fire doorsets and although they will accept the cascading of test evidence from a systems house/designer, they will also require the doorset manufacturer being certified, to carry out at least one fire test (two doorsets exposed from both sides), carried out on at least one door style, determined by the certification body, to be incorporated in the range to be certified.

56.5 Generally, most testing has been carried out using the European standards EN 1634-1 for fire-resistance and EN 1634-3 for smoke leakage. This has been done in preparation for CE marking of Fire-resistant doorsets. It should be noted that it became a requirement on 1st November 2019 that all external fire-resistant doorsets, as defined in EN 14351-1, must also be CE marked against EN 16034 from that date. Internal fire-resistant doorsets cannot be CE marked as the standard for internal doorsets, EN 14351-2, although published has not yet been cited in the Official Journal of the European Union (OJEU) and therefore the Construction

Products Regulation does not apply to these internal doorsets.

56.6 Fire-resistance and smoke control are Attestation and Verification of Constancy of Performance System 1 characteristics and therefore these products must be certified by a Notified Product Certification Body. However, the requirements of AVCP System 1 certification is not as comprehensive as the certification being developed in the UK for fire-resistant doorsets and these two different certification systems does cause some confusion in the market.

56.7 The ACDM amended its' Constitution such that all members manufacturing Composite Fire-resistant doorsets will undertake third-party certification of their production process and products. This is difficult as currently, to our knowledge, there is only one certification body offering certification of GRP Composite Fire-resisting doorsets although additional certification bodies are considering introducing schemes based on common core criteria.

56.8 The ACDM is working with certification bodies to encourage them to develop schemes for the certification of fire-resistant doorsets.

56.9 The ACDM is also developing guidance notes for their members on the requirements of the Building Regulations and Approved Documents in relation to Part B – Fire safety. (Draft copy attached) (RD7).

Question - Please give reasons for the industry-wide performance issue identified by the Independent Advisory Expert Panel:

***1. in the “Fire door testing: GRP composite test results” report published in February 2019
2. and evidenced by the results of the fire tests carried out on fire doors between February and August 2018, including:***

57. In regard to the test results of the MHCLG test program, no tests carried out (pre-installed Manse Masterdor testing between 13/02/2018 and 11/05/2018 or other manufacturers tests between 12/07/2018 and 11/08/2018) was a failure of either the door leaf, door frame or Fire-resistant Insulating Glass Unit observed.

58. Failures observed were due to:
- 58.1 retention of the Insulating Glass Units (IGU) within the glazed openings;
 - 58.2 failures of hardware components that are installed in perforations through the door leaf, e.g. letterplates;
 - 58.3 hardware interfaces between the door leaf and door frame where the intumescent seals around the perimeter gap between the door leaf and door frame are interrupted by hardware components;
 - 58.4 between the door leaf and door frame due to distortion; and
 - 58.5 between the door leaf and threshold.
59. The initial test program involved existing installed doorsets, manufactured by Manse Masterdor Ltd prior to their acquisition by Synseal in 2014, that were removed from properties and tested to BS 476-22.
60. The test results obtained did show significant inconsistency in the period of integrity achieved during testing.
61. It is difficult to draw conclusions from these results as to why this inconsistency was observed and the test reports (copies supplied to me at the Glass and Glazing Federation (GGF) as an independent third party) were not of sufficient detail to identify common causes of failure apart from where glazed doorsets were tested and the issue appears to be one of retention of the IGU in the aperture in the door leaf.
62. The second test program of newly manufactured Fire-resistant Composite Doorsets did show that:
- 62.1 Three sets of doors (inward and outward opening) did give an integrity result of 30 minutes plus.
 - 62.2 Two further sets of doors gave an integrity result of 30 minutes plus, when installed in an inward opening position.
 - 62.3 Failures were observed at letterplates on four occasions but no details of manufacturers or product identifications were included in the test report and therefore it cannot be determined whether these failures were the result of using the same letterplate.
 - 62.4 Failures were also observed at the interfaces between various components and it

has not been possible from the test reports to determine whether these failures were caused by specific component failures or a combination of circumstances that caused the failures.

Question - any testing practices that prevented fire resistance performance issues from emerging:

63. It is not possible to give reasons for the premature integrity failures observed during the MHCLG Composite Fire Door test program, copies of the test reports have been provided to the ACDM but these were provided on a confidential basis and therefore we have not been in a position to discuss the causes of premature failure with our members involved to identify any common causes. The test reports are also missing details of some of the actual components used and therefore it is not possible to identify whether similar failures involved the same component manufacturer. Many doorset manufacturers also consider their actual specification to be part of their IP and are therefore not prepared to provide specific details.

Question - any regulations, government guidance or other information which resulted in failures to adequately test doors:

64. In terms of regulations, government guidance or other information which resulted in failures, prior to 2018, composite fire-resistant doorsets testing was based on advice from test houses and certification bodies. Manufacturers only tested in one direction, with the doorset opening into the furnace, this being considered to be the most onerous direction and in accordance with BS 476-22, clause 8.2.1 gives reasoning for single sided testing given the doors were intended to separate a dwelling from a common escape route. A fire of similar severity to that used in a fire test should not be experienced from the common escape route into the dwelling and single sided testing had become common practice.

Question - any inconsistencies, omissions or ambiguities within regulations or guidance which had an impact on testing or manufacturing processes:

65. In terms of failures of components, without a definitive list of actual components used and how they were originally tested, either in a full composite door test or the testing of

the individual component in another setting, it is not possible to make comment on the failure of these components. The ACDMs' view is that all components such as letterplates should have test evidence from a full fire test of a Composite Fire-resisting Doorset with a door leaf manufactured in a similar manner to that being produced, i.e. if a foam filled door leaf is being used, the test evidence for the components should also be based on a doorset with a foam filled door leaf.

Question - any failures of components in the supply chain (including but not limited to hardware, letter-boxes and self-closing devices) and the accuracy of the respective manufacturer's fire resistance certificates.

66. When fitted with an overhead, face mounted self-closer, this component is generally not a source of failure. However, if a concealed door closer is fitted to either the head or stile of the doorset, this would affect the fire performance of the doorset and specific testing in the doorset would be required to determine whether the removal of door leaf material had compromised the doorset performance. Door closers are within the scope of the harmonised European Standard (hEN) EN 1154:1997 Building hardware. Controlled closing devices. Requirements and test methods. Since 1st July 2013 door closers are now subject to the requirements of the Construction Products Regulations and if placed on the market for use on fire-resistant doorsets, this should be declared as the intended use on a Declaration of Performance and the door closer be certified by a Notified Product Certification Body and be CE marked accordingly.
67. It has not been possible to determine whether there is any correlation between similar types of failures observed during the MHCLG test program as the test reports, provided to us by MHCLG, do not provide specific detail of some of the components, product names or component manufacturers, to enable comparisons to be made. For example, there were failures of the letterplate on doors manufactured by 2 different manufacturers but the test reports do not detail the letterplate manufacturer or product details and therefore it is not possible to determine whether this was a failure of a specific letterplate or possibly a more widespread failure of letterplates, when installed in composite doorsets. It must be noted that other doorsets with letterplates when tested did not demonstrate failure at the letterplate and therefore, this points towards a specific letterplate failure or a manufacturing issue with those manufacturers rather than a generic

weakness of fire-resistant letterplates when installed in composite doorsets.

68. In general terms, while it is possible for components to be the cause of failure of the fire door “system” in themselves, it is more typically the interface between the components that is likely to be where the failure occurs. It is often impossible to determine the contribution of each product separately to the failure. For example, in an integrity failure between a door and frame, it would be difficult to isolate the contributions between the performance of the frame; the speed of the intumescent seal reaction; distortion of the door leaf; performance of the latch and the performance of the closer. While none of these individually might fail as a component, all of them have some influence on the door set performance as a whole and although one may not cause the failure, a combination of two or more may cause the door set to fail.
69. Locks & hinges would usually be considered low risk in terms of variation and provided sizes are comparable to those tested, are unlikely to cause failure (dependent on melting points of materials used).
70. Penetrative components such as glazing and letterplates have more risk associated with them. Provided test evidence or product certification is available and they are included in either the primary test evidence or Assessment should allow their use in the door set.
71. Variations in intumescent seals performance would directly affect the ability of the doorset to reach its performance standard as they are used extensively at component interfaces to provide fire resistance. Again, the various intumescents used in the door set should be as shown in the primary test report or included in the assessment.

I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

I am willing for this witness statement to form part of the evidence before the Inquiry and to be published on the Inquiry’s website.

Signed:

A handwritten signature in black ink, appearing to read 'R. Day', is placed on a light blue rectangular background.

Mr Russell Day

Dated: 30 June 2020