In the matter of the
Grenfell Tower Public Inquiry

Rule 9
Witness Statement

Kevin Lamb

Introduction

1. By letters dated 5th June 2018 and 22nd August 2018, I was formally requested under rule 9 of the Inquiry Rules 2006 to provide a written witness statement addressing a number of questions set out in those letters.

2. I have met with the legal representatives of Harley Facades and they have assisted me in producing this statement on behalf of the Public Inquiry. In particular they have drawn to my attention a number of Harley Facades emails and documents which I understand have all been disclosed to the Public Inquiry.

3. Notwithstanding the above, this statement sets out my evidence in relation to the questions asked and is true to the best of my knowledge and belief.

Background


5. I entered the glazing and cladding industry in 1988. I started as a window installer in a small company called ASAP Shop Fronts Ltd. Because of my engineering background I was also involved in manufacturing work in the factory, glazing on site and minor design and estimating in relation to shop fronts.
6. In 1991, I was employed by FAS Ltd, a large domestic PVC and aluminium window company, as a design and estimating manager. The company was expanding into commercial work and employed me to assist in setting up its commercial division. To help me do this I was sent on two Datech Autocad training courses. Whilst at FAS Ltd I designed windows and curtain walling.

7. In 1992, I was employed as a design manager by MetFab Systems Ltd, a commercial aluminium company specialising in glazing, air traffic control towers and rainscreen cladding.

8. In 1996, I was employed as a technical architectural advisor at Schuco International KG, a major aluminium systems company specialising in glazing and rainscreen cladding systems.

9. In 2000, I began working as a freelance designer trading under the name Bespoke Design. For a few years I had a limited company trading under the name Bespoke Design (UK) Limited. Depending on volumes of work over the years, I employed other designers to work on projects with me. This is how I came to know Daniel Anketell-Jones who I employed as a designer for around 3 years from the end of 2003.

10. To date, I have a total of 30 years' experience in design and manufacture within the cladding industry. I have worked on numerous projects of varying sizes, larger examples include: rainscreen cladding of a commercial tower in Ealing Broadway, Aluminium Composite Material (ACM) rainscreen cladding of a car park in Hemel Hempstead, curtain walling of two residential tower blocks on Tower Bridge Road and a new build involving a mixture of glazing and louvre screens and complete curtain walling for Kingston University.

**Email Material**

11. At Harley Curtain Wall Limited and later Harley Facades Limited (Harley), I used a Harley email address whilst working on the Grenfell Tower refurbishment project. Prior to my appointment as the project designer and in the immediate days afterwards as well as on a few other occasions, I also used my Bespoke Design email address to correspond with those at Harley and others such as Rydon and Studio E. Within my statement I refer to and exhibit the relevant correspondence relating to the Grenfell Tower refurbishment project.

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12. In mid-August 2014, I was approached by Daniel Anketell-Jones who was working as a Design Manager at Harley Curtain Wall Limited (‘Harley’) about providing a design service for Harley. Prior to this I had provided a design service for the company on one other project, albeit limited to producing design details for a project proposal.

13. I attended a meeting with Ray Bailey (the director of Harley) and Daniel Anketell-Jones on 12th August 2014. In advance of that meeting, I was sent the following: the Grenfell Contract Programme, a 3D computer model of the Grenfell Project and two CAD models. The first model, Sketches for Bespoke 001.dwg [KL/1], contained drawing number E3317 Mock Up. As indicated on the model this represented a temporary mock up structure to show panel positions and colours for visual purposes only. The second model, Sketches for Bespoke 002.dwg [KL/2], contained two drawings C1042-304 D and C1042-305 E from another Harley project, Ferrier Point, and showed window cill and head details for a face fixed rainscreen wall.

14. At the meeting, we discussed the project and the scope of works. I was told that the design was going to be a hook on, cassette configuration (rather than face fixed) and that Aluminium Composite Material (ACM) cladding was going to be used. I also remember discussing the specially extruded aluminium profiles which were going to be used (and which were shown on the drawing for Ferrier Point sent to me, see KL/2). These profiles were priority items as they had a long lead in or manufacturing time and were therefore identified as a key programme risk to the project. In other words, if the profiles were not designed and ordered in good time this would delay the progress of the works. We also discussed my attendance at a design team meeting on site at Grenfell Tower the next day.

15. After the meeting at Harley, I provided a quotation for the scope of works based on our discussions and the material I had been sent [KL/3]. I was then sent a zip file of all the architects’ drawings Harley had, Harley’s quotation for the project and a purchase order for the design [KL/4] but I could not access and download the drawings until the 19th August 2014 [KL/5].

16. I attended a design team meeting on site on 13th August 2014 with Daniel Anketell-Jones, the Design Manager for the Grenfell Project. I have been shown the minutes of
that meeting which I exhibit [KL/6]. Also in attendance were Simon Lawrence (Rydon Contracts Manager) and Simon O'Connor (Rydon Project Manager), Bruce Sounes (Studio E Lead Architect), Neil Crawford (Studio E Project Architect) as well as a number of individuals from JS Wright who were dealing with the mechanical engineering aspects of the project as well as an engineer from Curtins Consulting.

17. As this was the first design team meeting everyone was keen to get across their particular issues or concerns. We discussed the type of rainscreen wall which was going to be constructed, which was a cassette configuration, and the joints to the column cladding. From my perspective, the whole point of the meeting was to get a feel for the architects' requirements, the overall scope of work and to discuss the key design elements for Harley, which were the specially extruded aluminium profiles which formed the head and cill window details. We may also have discussed the extruded cladding rails for the columns, although I do not have a specific memory of this.

18. A few days after the meeting, on 19th August 2014, I was sent a current, full set of Studio E drawings. I was also sent some drawings which I was told that Sam Anketell-Jones (Harley) and Ray Bailey had been working on 'to give me a head start' [KL/7] [KL/8].

19. In terms of the Studio E drawings I was sent, I believe I would have paid most attention to the following drawings:

   a. Proposed East, West, South and North Elevation drawings (1279 PL 313 01, 312 01, 314 01, 315 01)
   b. Proposed East, West, South and North Elevation drawings (1279 (05) 102 00, 103 00, 100 00, 101 00)
   c. Proposed West Elevation drawing (1279 PL 312 01)
   d. Proposed Sections drawing (1279 PL 200 01)
   e. Proposed Walkway drawings (1279 (04) 104 00, 104 04)
   f. RCP Walkway drawing (1279 (35) 104 A)
   g. Fire Strategy (1279 (06) 101 02)
   h. Detail Section Sheet 1 (1279 (06) 120 00)
   i. Detail Sections Sheet 2 Main Entrance (1279 (06) 121 00)
j. Detail Sections Sheet 3 (1279 (06) 122 00)
k. Proposed Residential Plan (1279 (04) 105 00)
l. Proposed Roof Plan (1279 (04) 109 00)
m. Proposed Typical Bay Plans, Section & Elevation (1279 (06) 110 00)

20. The key aspects of the external façade design came from Studio E drawing 1279 (06) 110 Revision 00, ‘Proposed Typical Bay Plans, Section & Elevation’, dated 24th September 2013 [KL/9]. This drawing showed what the architects wanted to achieve, specifically, the panel and window layout, location of gaps or grooves, sloping cills and recess joints on the columns. It also provided proportions for the external facade. It had been decided, prior to my involvement in the project, that the cladding was going to be cassette and that ACM was the material to be used. The other key drawing from my perspective was the Detail Section Sheet 1 1279 (06) 120 00. This drawing showed the variations on the other non-typical floors and how they related to the typical floors [KL/10].

21. The drawings which I understood had been worked on by Sam Anketell-Jones and Ray Bailey were of a typical window detail in three revisions [KL/8]. Revision 1 was a face fixed arrangement and therefore I did not look at this in great detail. Revision 2 was a cassette configuration with ACM panelling, implying a hook on detail. I could see that the bracketry was visible in the head detail in this revision. Revision 3 included two options: Option 1 ‘Panel tied into window option’ and Option 2 ‘Pressing to overlap onto panel’. In both options of Revision 3 the design had been refined to cover the bracketry in the head detail by the cladding panel coming right over the top of it. In Option 1, the design of the cill detail showed the ACM panel directly fixed to the window frame with no level of tolerance. In Option 2, the design of the cill detail had been developed further to include an aluminium pressing to tie in the window frame to the panel which allowed for tolerance between the cladding and the face of the window frame.

22. Studio E drawing 1279 (06) 110 Revision 00 [KL/9], Detail Section Sheet 1 1279 (06) 120 00 [KL/10] and Revision 3 Option 2 [from KL/8] formed the basis of my design along with discussions with both Daniel Anketell-Jones and Ray Bailey. I sent preliminary, key concept general assembly drawings on 20th August 2014 to Daniel Anketell-Jones for his input and approval to issue to Rydon and Studio E [KL/11].
Looking at my emails, I believe that following a discussion or comments from Daniel Anketell-Jones, I revised the preliminary drawings which I then issued to Rydon and Studio E on 22\textsuperscript{nd} August 2014 [KL/12].

23. These drawings were discussed with Studio E and internally at Harley and further developed, taking into account the architects' comments. The aim was to 'get these basic principles wrapped up before steaming into the rest of the detailing' [KL/13].

24. I should add that on 20\textsuperscript{th} August, I telephoned and spoke with Neil Wilson from CEP Limited, the suppliers and fabricators of the ACM cladding panels, in relation to the specific manufacturing dimensions for the hook on slot detail on the side of the panels. He came back to me with details and photographs of a different system that they had produced on another project. However, it was not suitable for Grenfell Tower as the configuration was not hook on and was partially face fixed [KL/14] [KL/15/1-7].

25. I attended a further design meeting on 2\textsuperscript{nd} September 2014 on site with Daniel Anketell-Jones [KL/16]. In attendance were Simon Lawrence (Rydon Contracts Manager), Simon O’ Conner (Rydon Project Manager), Neil Crawford (Studio E Project Architect) and Suleyman Ekingen (Curtins Consulting Project Engineer). I recall that a particular issue raised by us related to the specially extruded aluminium angles and the fact that they needed to be approved by the architects by the week commencing 8\textsuperscript{th} September to avoid any delay to the work programme. There was also further discussion about the 'Birdsmouth' detail to the corners of the columns. I also remember that Rydon raised an issue about the size of the windows as drawn by Studio E and it was agreed to increase the size to let in as much light as possible which had an impact on the set out of the extruded aluminium angles. I also asked for clarification in relation to a number of dimensions.

26. On 12\textsuperscript{th} September 2014, Simon Lawrence (Rydon) wrote to Neil Crawford (Studio E) as well as myself and Daniel Anketell-Jones saying that he had 'just been speaking with Ray from Harley's and they are in pretty much at their deadline for needing to order the dies to produce the window head and cill support angles’ and asking if he has any further comments on these components. Neil Crawford replied saying that he had ‘no further comments’ in relation to the preliminary cladding drawings ‘beyond those already made and discussed (attached)’ [KL/17].
27. On 22nd September 2014, I sent Simon Lawrence (Rydon) the latest drawings 'as raised in issue for final approval, based upon the architects comments and discussions at our last meeting' (referring to the design team meeting on 2nd September) [KL/18]. These drawings also took into consideration further comments and discussions with Studio E which occurred following that meeting. On 24th September 2014, Neil Crawford (Studio E) sent me further marked up drawings in response [KL/18]. On 25th September 2014, I sent Simon Lawrence (Rydon) further revised drawings in accordance with our discussions at the last meeting and recent comments from the architects [KL/19].

28. Looking back now, by 25th September 2014, the fundamentals of the design had been approved by the architects and were reflected in the following revisions:

a. C1059-300 Revision A (Issued on 22nd September 2014)

b. C1059-301 Revision A (Issued on 22nd September 2014)

c. C1059-303 Revision A (Issued on 22nd September 2014)

d. C1059-304 Revision C (Issued on 25th September 2014)

e. C1059-305 Revision B (Issued on 25th September 2014)

f. C1059-306 Revision B (Issued on 25th September 2014)

The fundamentals of the design are the shelf angles, cill and head details and cladding panel configuration and set out.

29. In relation to drawing C1059 302, the fundamentals of this design drawing were reflected by Revision D issued on 13th January 2015, this was due to ongoing discussions with Studio E about the cladding gap between the column cladding and the spandrel cladding.

30. In terms of the process of design development referred to above, generally speaking, after I had issued the general assembly drawings to Rydon and Studio E, I would then receive the architects’ comments. They would either mark a drawing status A, B or C. If a drawing was marked as status A that meant that the drawing was approved for construction. If a drawing was marked as status B that meant that fabrication could proceed, taking into account the revision. Status C meant that the design had to be re-done and re-submitted. Once drawings were approved for construction, I would then produce fabrication drawings for the specific components. There were, however, times
when a drawing had been approved for construction and the architects or Rydon changed their mind about an aspect of the external façade (such as the window configuration, e.g. Drawings C1059-200 and C1059-201) and there would be further revisions to the drawings.

31. As can be seen from the drawings themselves, revisions to drawings were marked up with a letter, dated and described as they were made. These revisions generally reflected comments from the architects. However, there were revisions made later on in the process that were not submitted to the architects or Rydon for their comment. An example of this was Revision D of drawing C1059-302 [KL/20]. I believe that in around February 2015, I had a discussion about this drawing. I believe it was in the context of drawing up the fabrication drawings for the cladding panels. It looked to me that the drawing could be improved aesthetically. I recall discussing this with Ray Bailey. It was decided to remove the return on the cladding facing the window and include an aluminium angle instead. I remember the order for the additional angle being rushed through by Ben Bailey, the project manager. The window vent profile was also changed but I cannot remember why. I added in the detail of the adhesive foam and removed the local fixing straps to reflect things as they had been built. I did not mark these changes up as a further revision as this drawing was not submitted to Rydon or Studio E, which is why there are two versions of Revisions D of C1059-302 [See KL/24/2]. This drawing was not submitted for further approval as I was concentrating on the fabrication drawings. I recall that at this point in time the focus of work was on producing the fabrication drawings for the fabricators and suppliers, which is probably why this revision was not submitted. Whilst I should have issued this for the architects’ approval I do not believe that this would have made a difference, as all that was being done was replacing one aesthetic view with another.

32. At the beginning of the project I tended to go into the Harley offices around once a week and attend meetings (on site or in the office) as and when was required. Towards the end of the project I went in less frequently subject to any issues arising. In the infancy of the design, I would meet with Ray Bailey and/or Daniel Anketell-Jones and talk about the design and how to set things out. Ray Bailey would tend to provide ‘conceptual’ input (for example, suggesting the extruded special profiles to make the installation easier) and Daniel Anketell-Jones would give more technical, structural and engineering input, such as the fixings and thermal values. My usual practice following
discussions at Harley was to send drawings to Rydon and Studio E and copy in someone from the internal Harley team. Both Ray Bailey and Daniel Anketell-Jones were more actively involved at the beginning of the design process (including for the first few revisions of each drawing). Later on, if there was a significant change, or an issue came up, I would speak to Ray Bailey about this. In particular, I recall Daniel Anketell-Jones becoming less involved quite early on in the job, as he was working on other Harley projects.

33. In relation to the cavity barriers, they were not items that needed to be dealt with immediately, as they did not have lengthy lead in times as the shelf angles, cill and head details and cladding panels did. On 3rd March 2015, I emailed Simon Lawrence (Rydon) attaching drawings (C1059-200 Revision I, C1059-201 Revision D, C1059-202 Revision C, C1059-204 Revision A, C1059-205 Revision A, C1059-301 Revision E and C1059-305 Revision D) showing firebreaks, both horizontal and vertical assuming a requirement of 90 minutes integrity and 30 minutes insulation, asking that he advise if this was not correct [K/21]. This proposal was based on advice I had received from Siderise [KL/22]. Thereafter, there was a large amount of email correspondence around what the requirement was, involving Studio E, Rydon, Harley, Siderise and Building Control. I recall being told in April that the initial proposal made on 3rd March met the relevant requirement. The only revisions I made in addition to those made on 3rd March was to correctly show the dimensions of the cavity barriers from on the columns. This change was made on 25th March and is reflected in Revision D of C1059-304 and Revision D of C1059-305.

34. In terms of the location of the cavity barriers on the spandrels, this was drawn above the aluminium fixings at the head of the window, as it was thought it was more effective to have them above these fixings, directly against the concrete and located within the span of the concrete floor slab.

35. In terms of the architectural crown, the design for this feature was left until quite late on, as we were focused on the twenty floors of the cladding zone. Drawings C1059-216, C1059-217, C1059-218, C1059-330, C1059-333, C1059-334, C1059-335, C1059-336, C1059-337 represent my translation of the architects' design intent for the Crown reflected in Studio E drawings 1279 PL 312, 1279 PL 313, 1279 PL 314 and 1279 PL 315 as well as discussions with Neil Crawford (Studio E) at one of the site meetings.
which was held sometime in May 2015. At this meeting I talked with Neil Crawford (Studio E) about what he wanted for the architectural crown. I remember he talked about wanting different coloured stripes and for one colour to sit behind the other colour. The design for the Crown was accepted by the architects without revision (save for a query about a panel joint which was in fact a concealed, rear fixing).

36. In so far as the positioning of a cavity barrier beneath the Crown is concerned, the typical bay drawings (Drawings C1059-200, C1059-201, C1059-202) show cavity barriers above all windows. The Crown drawings (C1059-216, C1059-217, C1059 218) do not show cavity barriers above the windows nor does the specific detail (C1509-332). A screenshot from the CAD model for the project representing drawings C1059-330 and C1059-332 show a blue annotation stating ‘firebreak’ [KL/23]. I made this note to remind myself to consider the requirement. This did not happen because I never revisited the drawings to revise further or raise for construction as I had expected to. To be clear, the annotation does not appear in printed copies of the drawings. It only appears on screen when you are working on CAD because it is on a non-printing layer.


**Issue 3 Modifications to the interior of the building 2012-2016**

38. I do not feel that I can assist with information relating to the internal modifications, as my involvement was limited to the design for the internal glazed screen to the ground floor. I was aware that Harley were involved in the glass balustrades to the lower stairs in the atrium, however, I was not involved in this, as they were a site applied solution that did not require drawings or input from myself. I understand that these elements are not relevant to the Public Inquiry’s investigation, as they relate to modifications on the ground level.

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Issue 4 Modifications to the exterior of the building 2012-2016 (including cladding and insulation)

4a What was the purpose of the cladding/insulation to the exterior of the building?

39. I would assume that the purpose of the cladding and insulation was to improve the aesthetic and thermal properties of the building. My remit did not involve choice of materials or specifications for the cladding or insulation. The requirements were laid down by the architects, Studio E, in their drawings, the NBS Specification and subsequent discussions and revisions to the drawings. As stated above, I was appointed as project designer in mid-August 2104, when decisions about the cladding and insulation materials had already been made. The Harley Specification drawing C1059-100 [HAR00008991_0001] which sets out what products are to be used reflects the evolution of the Studio E specifications by the design team, namely Harley, Rydon and Studio E. As with design drawings revisions to the specification drawing were either approved or revised according to what the architects wanted.

4b What was its design, manufacture, composition and method of fixing to the building?

40. The design of the external facade was a hook on, ventilated, Reynobond ACM rainscreen cassette with integrated insulation, cavity barriers, and glazed aluminium windows. The ACM panels (aluminium composite material) were fabricated into shape (the hook on cassette configuration) by CEP Limited.

41. In terms of fixings, the aluminium rail brackets were fixed back with mechanical fixings and then the fabricated cassettes were hooked on. The cassettes were all further secured with one anti-lift screw.

42. The insulation was Celotex RS5000 rigid slabs, and was cut to suit on site. However, I am aware that some Kingspan was used because of an interruption in supply of the Celotex.

43. The windows were a 5-20 Hi thermally broken aluminium window system by Metal Technology, fabricated into finished form by CEP Limited. The infill panels were supplied by Panel Systems and another supplier but I cannot recall which. The windows were retained and bonded to the shelf angles which were mechanically anchored to concrete. The windows were membraned all around using EPDM and fire

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rated adhesive foam. The insulation was mechanically affixed using large head (mushroom) fixings, with taped joints.

44. The cavity barriers were Siderise Lamatherm. The vertical cavity barriers were Siderise Lamatherm RVG, supplied in stock slabs and cut to suit on site. The horizontal cavity barriers were Siderise Lamatherm RH25G ventilated intumescent cavity barriers and were pre-cut (oversize) by Siderise and trimmed to suit on site. In terms of fixing, cleats supplied by Siderise would have been mechanically fixed at recommended centres then insulation pushed onto these, only the horizontal would have been twisted over to secure it in place and the vertical would have been held on by compression and partial penetration of the cleat. The joints would then have been taped.

45. For the typical specification and lay out please refer to Harley drawings C1059-100 I (Specification Sheet), C1059-200 I (a typical bay elevation), C1059-300 E (window base), C1059-301 F (window head), C1059-302 D (window jam).

46. The design of the architectural crown is reflected in drawings C1059-216, C1059-217, C1059-218, C1059-333, C1059-334, C1059-335, C1059-336, C1059-337 which was my translation of the architects' design intent for the Crown. It was made of ACM panels.

4c To what extent did the design and construction of the modifications to the exterior of the building take account of the design and construction of the interior of the building?
If it did not, in what respects did it not and why not?

47. The design of the exterior came from the architects, Studio E. I assumed that they would have consulted a number of specialists such as acoustic specialists, structural engineers and fire specialists when taking account of the design and construction of the modifications of the exterior of the building and the interior of the building.

48. As far as Harley were concerned, the design and construction of the interior of the building was considered in relation to the location of the internal partition walls as it was critical for us to align the cavity barriers to these.
4d Was the exterior of the building (including the cladding, insulation, fixings and windows) compliant with relevant building regulations, fire regulations, other legislation, British Standards (including testing requirements), guidance and industry practice?

49. To my knowledge and in my experience, the exterior of the building including the windows and fixings was compliant with the relevant regulations, guidance and consistent with industry practice. In particular, the cladding was Class 0, the insulation was suitable for use on buildings over 18m (according to the Celotex Rainscreen Cladding Compliance Guide), the fixings were generally made out of stainless steel and the windows were industry standard aluminium, non-fire rated and are widely used.

50. I recall consulting the following when considering the requirement for cavity barriers:
   (1) Approved Document B; (2) the Centre for Window and Cladding Technology (CWCT) standard for systemised building envelopes Part 6–Fire performance; (3) CWCT technical note TN73 Fire performance of curtain walls and rainscreens; (4) Siderise technical literature for RH and RV cavity barriers. As far I was concerned the cavity barriers used were compliant and correctly specified by Siderise.

4e To the extent that it was compliant with such regulations, legislation, British Standards, guidance etc. were any of those inadequate and if so in what respects, so far as relevant to the nature and immediate causes of the fire and its spread?

51. As I have stated above, as far as I was aware the exterior of the building was fully compliant. Until the fire I did not know, or have any reason to believe, that it was not compliant. It appears that the legislation is totally inadequate. Speaking with the benefit of hindsight, it seems to me that Approved Document B is open to interpretation and not specific enough.

4f If not compliant in any respect, what elements or aspects of the exterior of the building at the time of the fire failed to comply with what elements or aspects of what regulations, legislation, British Standards, guidance, industry practice, and in each case to what extent?

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52. Please see my answer to question 4d.

4g Who was responsible for such failures?

53. Referring back to the inadequacy of the legislation, I believe that the governing authorities should bear an element of responsibility for what happened at Grenfell.

4h What advice or information was available, and what assessments were made, about the components that comprised the exterior of the building, their fire safety, fire-resistance and compliance with safety standards (including information or advice from manufacturers of relevant components)?

54. My involvement came after the choices had already been made about the cladding and insulation materials and I cannot comment on advice, information or assessments about these. Although, as stated above, I do recall reading the Celotex Rainscreen Cladding Compliance Guide.

55. In relation to cavity barriers I do recall having seen Siderise product literature. I was also involved in email discussions in relation to the fire barrier requirement which I explain at paragraph 33 above.

4i Was specific consideration given to the combination of the exterior components (e.g. cladding, insulation, windows, and methods of fixing) and the fire safety, fire-retardancy and compliance with safety standards of the same?

56. As stated above, prior to me joining the project, the material selection had taken place and the basic design (i.e. the cassette configuration) had been decided upon. The Reynobond ACM was Class 0 and the insulation was suitable to be used on buildings over 18 metres. The cavity barriers were purchased from reputable manufacturers and used, as far as I am aware, according to their advice. I had no reason to be concerned about the fire safety of the rainscreen walling. It was consistent with my experience on previous projects and in line with what I considered to be good working practice.

4j How commonly used are: (i) these particular cladding panels; (ii) this type of insulation; (iii) any other relevant parts of the exterior e.g. fixings/windows in the UK
and elsewhere and are there relevant lessons to be learned from the use/regulation of such matters elsewhere?

How commonly used are: (i) these particular cladding panels in the UK and elsewhere?

57. Based on news reports since the fire, I believe that these panels and insulation types have been used in combination on hundreds of other similar buildings over the past few decades.

How commonly used are: (ii) this type of insulation in the UK and elsewhere?

58. I believe that this type of insulation was commonly used in the UK following the stringent upgrade to Approved Document L for thermal requirements.

How commonly used are (iii) any other relevant parts of the exterior e.g. fixings/windows in the UK and elsewhere?

59. In my experience, the fixings used on Grenfell Tower are used commonly throughout the industry in the UK. The windows are also common. Virtually all glazing in high rise buildings use non fire rated aluminium windows and glass, except for specific localised protection such as alongside fire routes.

60. It seems from media reports following the fire that some of these materials are regarded as unsuitable in other parts of the world, so maybe we in the UK should study the regulations of other countries and incorporate them into our own regulations in a way that makes the current regulations more robust and easier to understand.

Are there relevant lessons to be learned from the use/regulation of such matters elsewhere?

61. Please see my answer to question 4j(iii) above.

4k What decisions about the exterior of the building (i.e. cladding, insulation, fixings and windows) were made, by whom and when?

62. As I have explained above, I became involved after the cladding, insulation and window system were specified by the architects and/or project client.

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63. In relation to the infill panels, I was told that we were using products from Panel Systems. As can be seen from drawings C1059-100, C1059-200, C1059-201 and C1059-202 the two panels used in the window system within a typical bay from floor 4 to the top of the building (which I understand are the areas of interest for the Public Inquiry) are referred to as P1 and P2. I cannot now recall how the infill panels were selected but I do recall that for P1 the typical Panel Systems specification was used, which was aluminium skinned, 25MM Styrofoam. For P2, dual colour was specified by the architects, in other words a different colour on each face. I cannot remember why but Panel Systems were not able to provide the dual colour panels at that time which was why another fabricator was used but I cannot remember who. The use of the Kingspan TPIO for P2 was my decision as I have used this product over many years without issue.

64. As for fixings, these were specified and provided by the in-house team at Harley and incorporated into the drawings produced. Some changes may have been made to the fixings shown on drawings and would have been made when issues with fitting components came up on site. I can also remember the change of the M10 bolt that held the spandrel panel carrier rails to the shelf angle to four Tek screws, as installing an M10 bolt in this application was problematic. Prior to the full utilisation of fixings on site they were site tested in the actual substrate and true conditions, to ensure conformance to resist failure.

4l What was the chain of decision-making, communication and responsibility about the cladding, insulation, windows and fixings?

65. Please refer to my section ‘Involvement in the Grenfell Tower Refurbishment Project’ and my answer to question 4k.

4m What factors or motives influenced the decisions about the exterior of the building?

66. This is not a question I can answer. The architects or project client would be better placed to answer this.

4n What if any assessments were carried out to balance such factors or motives with the safety of the residents?

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67. See answer to question 4m above.

40 If such assessments were carried out, who carried them out, when and what did they conclude?

68. See answer to question 4m above.

Issue 5 The fire safety measures within the building at the time of the fire

69. I do not feel that I can assist with information relating to fire safety matters within the building, as I was not involved in work to the interior, except what I have referred to in my response to Issue 3.

Issue 6 Inspections

6a What fire and other relevant inspections (including building control inspections) were carried out: (i) During the recent renovations; and (ii) Between the completion of the recent renovations and the fire?

(i) During the recent renovations;

70. I do not have direct knowledge of any inspections carried out, as I was office-based. I would, however, expect regular inspections by the Clerk of Works and Rydon’s construction managers during the renovation period.

(ii) Between the completion of the recent renovations and the fire.

71. I have no knowledge of any other inspections which may have taken place. I would assume that regular building safety checks would be carried out whilst the building was in service, conducted by professionals instructed by the project client, as per any other tenancy type property.

6b What were the relevant conclusions/reports from those inspections and by whom were they carried out?

72. Please see my answer to question 6a.
6c Pursuant to what criteria were such inspections carried out, how frequently and by what personnel?

73. Please see my answer to question 6a.

6d Were the inspections compliant with all relevant standards?

74. Please see my answer to question 6a.

6e Were the fire and other safety inspections system (including any criteria applied) reasonably fit for purpose?

75. Please see my answer to question 6a.

6f Who carried out the Inspections, how were they trained and were they competent to do so?

76. Please see my answer to question 6a.

6g What was the system for implementing conclusions/recommendations following such inspections?

77. Please see my answer to question 6a.

6h Was that system operated poorly or at all?

78. Please see my answer to question 6a.

Additional Questions

1 Describe the nature of Harley’s involvement in the refurbishment of the Tower

79. Although I was not aware of the exact wording of the contract agreed between Rydon and Harley, I would assume it was to provide a complete façade envelope, consisting of replacement windows, improved insulation and decorative over-cladding as specified and designed by the architects. I assume it also included managing the operation and work teams to ensure works were completed in a timely fashion with
minimal disruption to the residents, always with a view to conforming to Health and Safety standards and good working practices.

2 Identify the parties with whom Harley entered into relationships in order to carry out its role, describing the purpose of those relationships.

80. Please see the table below for the main parties:

<table>
<thead>
<tr>
<th>Party</th>
<th>Role/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rydon</td>
<td>Direct client to Harley/Main contractor</td>
</tr>
<tr>
<td>Studio E</td>
<td>Architects</td>
</tr>
<tr>
<td>CEP</td>
<td>Window and cladding fabricators and suppliers</td>
</tr>
<tr>
<td>Panel Systems</td>
<td>Insulated/Infill panel supplier</td>
</tr>
<tr>
<td>Celotex</td>
<td>Insulation manufacturer</td>
</tr>
<tr>
<td>Siderise</td>
<td>Cavity barrier manufacturer</td>
</tr>
<tr>
<td>Metal Technology</td>
<td>Window system supplier</td>
</tr>
<tr>
<td>Reynobond</td>
<td>Cladding material supplier to CEP</td>
</tr>
<tr>
<td>Accord</td>
<td>Sheet metalwork supplier</td>
</tr>
<tr>
<td>Osborne Berry</td>
<td>External façade installers</td>
</tr>
</tbody>
</table>

3 How did Harley come to be appointed as a sub-contractor to Rydon Maintenance Ltd and what was its scope of work?

81. I assume this was through a process of competitive tender. However, this was prior to my appointment at Harley.

82. As far as I was aware, the scope of works consisted of the supply and installation of an overall over-clad of the existing building to upgrade it according to the project client’s wishes. As previously stated, this included the following elements: (1) replacing and upgrading all of the existing windows to improve functionality and performance; (2) installing a rainscreen wall made of folded composite panels to
conceal the old concrete structure; and (3) installing insulation to improve thermal performance.

4 What steps did Harley take to survey and understand the existing construction and condition of the Tower as part of its design of the façade?

83. The architects’ drawings showed the general construction of the building. Dimensional surveys and exploratory drilling to check the structural build up between the concrete panels and the main structure were carried out by Osborne Berry Installations at Harley’s request. Visual checks were also undertaken by Osborne Berry Installations and myself in relation to areas not clarified by the architects, for example, the dimensions relating to where the old windows were positioned and in general when inconsistencies were identified on site. In addition, pull out tests were carried out to ensure structural stability of the substrates and main structure. This was arranged by the project manager, Ben Bailey.

5 Was any consideration given to fire safety of the existing construction at this time and/or how the refurbishment, in particular the façade, may affect fire safety of the Tower?

84. I would assume the building owner was fully responsible for the fire safety of the building prior to refurbishment. I would expect the architects to be considering the fire safety in their design for the refurbishment. As stated above, as far as I was aware all the materials and components in the rainscreen wall were compliant and suitable for use on Grenfell Tower.

6 Describe the original design of the façade, any relevant changes made to the design during the course of the refurbishment, by whom those changes were made and the reasons for those changes.

85. Please see my section entitled ‘Involvement in the Grenfell Tower Refurbishment Project’.

7 How and why were materials selected for the façade, including the windows and materials surrounding the window?

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86. As I have explained above, the cladding, insulation and window system were specified before my involvement. As far as I am aware, Harley were not involved in relation to the internal surrounds relating to the window. As described above, an EPDM membrane was used for weatherproofing which is standard practice across the industry and fire rated adhesive foam was used around the windows which is also standard practice in this scenario.

87. In relation to cavity barriers I have already explained this in paragraph 34 above.

8 What factors influenced the selection of materials, in particular the materials used in the façade/windows?

88. I cannot comment on what influenced the choice of cladding, insulation or window system, as these decisions were made prior to my involvement.

89. In relation to the infill panels, as explained previously at paragraph 63, for P1 the typical Panel Systems specification was used, which was aluminium skinned, 25MM Styrofoam and for P2, Kingspan TP10 for P2.

9 To what extent, if at all, was Harley involved in or aware of detailed design carried out by others, such as subcontractors for other work packages?

90. The only designed interface was the steelwork to the ground floor above the nursery. I met with the steel fabricators to mutually agree how interfacing details were best dealt with. I would expect the architects to be fully aware of, and responsible for, the liaison of design interfaces between subcontractors.

10 At the outset and throughout the façade works:

10a What consideration was given to compliance of the design with the relevant Building Regulations and associated guidance?

91. Please see my answer to question 4d.

10b Did anyone at Harley form a view as to whether the design of the façade complied with the relevant Building Regulations and associated guidance, in particular the parts of the Building Regulation’s relevant to fire safety?

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As far as I was concerned the design of the façade was fully compliant for the reasons set out in my answer to question 4d.

If not, why not?

Please see my answer to question 4d.

If so, what was that view?

Please see my answer to question 4d.

Did Harley rely on any advice from third parties about the compliance of the design of the façade of the Tower with the relevant Building Regulations and associated guidance, in particular the parts of the Building Regulations relevant to fire safety? If so, what was the nature of that advice?

As I have explained above, the architects reviewed Harley’s drawings and as part of that process I would expect any non-compliance with the Building Regulations and in particular parts related to fire safety to be picked up and flagged. I assumed that Studio E had the benefit of specialist advice from, amongst others, fire specialists.

Siderise advised on the requirements for cavity barriers, as I have detailed at paragraph 33.

What consideration was given to fire safety in the design of the façade?

In relation to my involvement in the design, described above, I sought and was given advice about the location and provision of cavity barriers within the rainscreen wall. As far as I was aware all the materials being used were suitable and safe for the refurbishment of Grenfell Tower.

Did Harley carry out any inspections of the Tower during the works or on or around the time that the façade works were completed?

Please see my answers to question 6.

If so, what was the outcome of those inspections?

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99. Please see my answers to question 6.

I believe that the facts stated in this witness statement are true, and I am willing for this witness statement to form part of the evidence before the Public Inquiry and to be uploaded onto the Public Inquiry’s website.

Dated: 04/12/2018