Report for the Grenfell Tower Inquiry

The application for Building Regulations approval (Part B Fire) in relation to the refurbishment of Grenfell Tower - extent of control, the Building Control process adopted, the referenced guidance and practices adopted

Report by

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October 2019 (Amended April 2020)

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This is the report of Beryl Anne Menzies FCABE PPBEng CBuildE CABE MRICS for Phase 2 of the Grenfell Tower Inquiry relating to the application for building regulation approval (Part B Fire) in relation to the works undertaken at Grenfell Tower – extent of control, the building control process adopted, the referenced guidance and practices adopted.

Specialist field: Fire safety in buildings and Part B (fire safety) of the Building Regulations

Instructing solicitor: Cathy Kennedy

Prepared for: The Grenfell Tower Inquiry

Inspection dates: 27th June 2018 and 30th July 2018

Professional qualifications

Fellow of the Chartered Association of Building Engineers (CABE)

Past President of the Association of Building Engineers (PPBEng) (President May 2009 – May 2010)

Member of the Royal Institution of Chartered Surveyors (MRICS)

Experience

Director Menzies Partners Ltd

Independent Fire Consultant since 1991

Consultant in fire safety and fire related building services. Involved in some of the most significant projects in the UK over recent years as part of the design team formulating fire and life safety strategies or reviewing fire and life safety strategies. Also, providing general advice in relation to Building Regulations compliance.

Carrying out fire risk assessments of a wide range of building uses. Working for local authorities, major property developers and investors.

The work has involved close contact with statutory authorities, public bodies, development corporations, fire brigades, health authorities, and specialist consultants, including the Building Research Establishment.

London Borough of Tower Hamlets 1985 - 1990

A Chief Engineer implementing the Building Regulations and the London Building Acts with responsibility for specialist officers dealing with innovative new buildings under construction.

Greater London Council - Building Regulations Division 1973 - 1985

Trained and promoted through grades within Division to become Group Officer responsible for the Fire Precautions Act and building legislation; and Deputy Senior Surveyor responsible for entertainment and sports licensing in Greater London.

Membership

Fellow of the Chartered Association of Building Engineers (formerly the Association of Building Engineers)

Member of the Royal Institution of Chartered Surveyors

Formerly a member of a British Standard Committee involved with the drafting of fire precaution codes (BS 5588); past chair Fire Safety and Means of Escape Subcommittee of the London District Surveyors Association. Member (former) of the Review Panel of the Building Regulations Advisory Committee of the Department for Communities and Local Government for Approved Document B 2006.

Currently a member of the Building Control Performance Standards Advisory Group (BCPSAG) and the Construction Industry Council Approved Inspectors Register (CICAIR) standing panels (chair of complaints panel; vice chair of policy panel). Board member of CICAIR.

Preamble

1) I have prepared this report on the instructions of the Grenfell Tower Inquiry. My instructions were set out in a letter dated 21st May 2018 signed by Ms Holly Waldron Assistant Solicitor to the Inquiry.

2) My instructions require that I prepare a report that addresses the following issues –
   (a) Which aspects of the recent refurbishment of Grenfell Tower required building control approval;
   (b) What was the system of inspection and approval adopted by the Royal Borough of Kensington and Chelsea in respect the recent refurbishment and did it comply with the relevant legislation, regulations, guidance and industry practice; and
   (c) Recommendations about what, if any, changes could be made to the Royal Borough of Kensington and Chelsea's practices, and regulatory regime and industry practice to address any shortcomings you may find as a result with your work on issues one and two above.

3) My instructions also require that my report –
   (a) reviews all relevant documents regarding the application for building control approval; and,
   (b) makes recommendations (if necessary) as to –
      (i) any further investigations to be carried out, and;
      (ii) any further documents that should be obtained.

4) I confirm that I have made clear which facts and matters are referred to in this report are within my knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

5) My report is based on the information available to date. If and as additional information is disclosed my report will be amended as necessary to reflect that information, and I will inform the Inquiry of any change in my opinion as a result of the information and as to why that information results in the change.

6) During my career I have encountered employees of Max Fordham. Before 1985, when an employee of the Greater London Council, Terry Ashton of Exova was a colleague in the Building Regulations Division and he is a personal friend although we have not met or spoken for over 5 years; and I believe I may have encountered Paul Hanson and John Hoban of the Royal Borough of Kensington Chelsea Building Control Department when I was in the Building Regulations Division. I also know Lynsey Seal of the London Fire Brigade from my work on projects located in London. My report and views expressed therein had not been influenced in any way by any of the above relationships. I have informed the Inquiry of these relationships as the involvement of those above have been made known to me.

7) This report relates only to the role of the Royal Borough of Kensington and Chelsea Building Control Department in the Building Regulations process of the works at Grenfell Tower – the pre application submission, the full plans application and inspections - up to and including the issue of the completion certificate.

8) The report does not consider the fire of 14 June 2017 and its events and outcome; this is the subject of reports by others.

9) This report is based on disclosed information from numerous sources. Where reference is made to specific information in a disclosed document, the unique identification number of that document is shown in brackets { }.

10) The commentary in the sections of the report relating to statutory control - the Building Act and Building Regulations - is addressed in the past tense as is the commentary relating to Approved Document B.

11) The legislation applicable to the full plans application for the refurbishment of Grenfell Tower was –
    (a) Building Act 1984
    (b) The Building Regulations 2010, as amended.

12) The edition of the Approved Document relevant to the full plans application was Volume 2 - buildings other than dwellinghouses, 2006 edition incorporating 2007, 2010 and 2013 amendments {CLG00000224}.

13) Following the fire the Building Regulations 2010 were further amended by the Building Regulations (Amendment) Regulations 2018, which came into force on 21 December 2019. These regulations further restrict the use of combustible materials in external walls in certain residential buildings having a storey at 18.0m above ground level. Consequential to the regulation changes, Approved Document B (Fire safety) was amended: Volume 1 now relates to dwellings (which includes blocks of flats); and, Volume 2 deals with all other types of buildings.

14) To address the specific issues required by my instructions, the report is divided into the following sections:
    (a) Section A - Legislation and guidance
        (i) A(i) Building legislation applicable to the works at Grenfell Tower
        (ii) A(ii) Standards, codes of practice and guidance adopted for the works at Grenfell Tower
    (b) Section B - The Building Regulations process
        (i) B(i) The building control system
        (ii) B(ii) The Building Regulations route
        (iii) B(iii) The full plans application for the works undertaken at Grenfell Tower
    (c) Section C - Installation of the gas riser in the stair
    (d) Appendix A : Drawings/plans/sections

15) Recommendations for changes and requests for additional information will be addressed separately in another report.

16) My analysis of the actions of the BCB with regards to the smoke vent system will be addressed in a separate report.

Introduction

17) The Tenant Management Organisation (TMO) responsible for Grenfell Tower, states within its Position Statement that the Royal Borough of Kensington and Chelsea (RBKC), decided to undertake alterations and refurbishment works at Grenfell Tower that involved the alteration of the lower levels (ground, mezzanine, Walkway and Walkway+1)) and the over cladding of the existing external walls. The TMO Position Statement {TMO00837466} sets out that the regeneration works ultimately included –

(a) window renewal;
(b) thermal external cladding to the building;
(c) new entrance lobby;
(d) communal redecoration;
(e) new communal heating system (with individual control);
(f) seven new flats;
(g) relocation of the boxing club, nursery and office accommodation; and
(h) fire safety and ventilation works.

(I will refer to these in my report as the "Building Works")

18) As will be explained in my report, the Building Works required Building Regulations approval. The submission of the Building Regulations application had to be in the form of a "full plans application". This was because the common parts of the building were places of work and subject to legislation (the Regulatory Reform (Fire Safety) Order 2005 - the Order) that addressed fire safety in an occupied workplace. The workplace use also required formal consultation between the Building Control Body and the Fire Authority.

19) A full plans application is the formal submission of an application in the prescribed manner with plans and details of the proposed works.

20) The Building Control Department of the Royal Borough of Kensington and Chelsea undertook the role of the Building Control Body (BCB) to carry out the building control function. The TMO Position Statement states that "it was determined by RBKC that the same contractors and consultants should be engaged for the proposed Grenfell refurbishment works" as had rebuilt the Kensington Area Leisure Centre. The BCB had overseen that project. In his witness statement, Bruce Sounes (Studio E architect) {SEA00014273} paragraph 143, states "On 25 October 2012 Dale Hunter (Artelia) said Mark Anderson (KCTMO) confirmed that building control must be used and not an Approved Inspector."

21) The TMO appointed a design team led by the architects, Studio E Architects Ltd, who had pre application discussions with Building Control. The form of contract for the refurbishment was "design and build" and the contractor, Rydon Maintenance Ltd, became the lead with continued input from the architect. In due course a full plans application was made, and the building control process began.

22) The Inquiry has requested the records relating to the full plans application. RBKC has responded that they are not able to provide the original records. In his witness statement {RBK00033910}, Mr Graham Stallwood, Executive Director of Planning and Borough Development, states that on completion of the works and the issue of

the completion certificate the paperwork relating to the project was, in accordance with the Building Control Department's formal procedure, "weeded". Only documents perceived as relevant were retained, and these were then sent to the RBKC Building Control administrative team to arrange for the scanning of the documents and their electronic retention. However, there is no record of the documents ever having been received by the external scanning contractor (Data Planit) and no record of the scanned information ever having been returned to RBKC {DAT00000001}.

23) Following the request for a copy of the "Acolaid" record for the refurbishment works, a print out of the record has been received {RBK00044876}. Acolaid is a management software program used at the time of the Grenfell Tower works.

24) In the absence of the full records relating to the full plans application, I have as best I can to date, pieced together the building control process from other documentation. That has included the disclosures of other parties involved in the works, including statutory consultees, the witness statements of the parties involved and the Acolaid printout. Further documents and information continues to be made available to the Inquiry. I have amended my initial report and will do so again if necessary or appropriate should further documents be disclosed. It should be noted that the BCB would not have seen all the documents that have been disclosed: many documents relate to design and other matters that were outside their scope of involvement.

25) To allow a full understanding of the building control process at the relevant time (i.e. between 2012 and 2016), I have set out the legislation that governed it and details of the relevant guidance at that time against which compliance should have been assessed.

26) Initial discussions between the architect for the refurbishment and building control began in the fourth quarter of 2012; pre-application comments in relation to means of escape were issued by building control in November 2012 and December 2013 {RBK00027290}. The full plans application was made 4 August 2014 {RYD00014379} and acknowledged by RBKC on 5 August 2014 {RBK00027424}; the final inspection was carried out on 7 July 2016 {RBK00044876} and a Completion Certificate of the same date was issued {RBK00014255}.

27) Appendix A contains a selection of some of the drawings which the BCB received, together with other key drawings which are relevant to my analysis.

28) A synopsis of the site inspections undertaken by building control has been compiled. This has been compiled from the Acolaid records, disclosed periodic reports by the various contractors and consultants and witness statements.

29) Throughout the report I use the terms fire resistant/fire resistance, non-combustible and limited combustibility. These terms are defined in Dr Barbara Lane's report for Phase 1 {BLAR00000001}.

Summary of my opinion

30) In this section I summarise my opinion on the actions of the BCB.

The Building Control Body

31) I have not seen sufficient evidence that the relevant individuals within the BCB were up to date with their CPD.

32) Disclosures to date indicate that the building Control Department lacked a strategic policy to support the legal obligations of RBKC to achieve and enforce compliance with the Building Act 1984 and the Building Regulations.

33) I have also not seen any reference within the witness statement of any Building Control surveyor to a quality control system or quality audits being undertaken

34) I consider it a failure on the part of RBKC not to have used the valuable asset of a qualified fire engineer (Paul Hanson) to the benefit of the Building Control Department as a whole.

35) It appears to me that the working relationship between the Means of escape group and the other part of the Building Control Department was undefined and unclear to those involved; and did not necessarily support project surveyors reaching the most appropriate decisions in relation to Part B of Schedule 1 of the Building Regulations 2010.

36) I am also critical of the failure by the BCB to adhere to statutory timescales in issuing its decision notice and the failure of John Hoban to check whether the decision notice had in fact been issued.

Checking compliance with the Building Regulations

37) In my opinion, the information submitted to the BCB at the time of the full plans application was insufficient to demonstrate compliance with the Building Regulations. The BCB ought to have requested further information about the proposed works, and, in particular the cladding panels and insulation. The BCB also failed to acknowledge that some information was out of date and contradictory. For example, the fact that the Exova fire strategy did not address the actual proposals indicated on the submitted plans was not mentioned in Paul Hanson's response.

38) The Exova fire strategy did not reflect the proposals described within the full plans application; did not demonstrate compliance with the proposals and it made no reference to the overcladding or any alterations to the external walls at any level. In my view an updated/new fire strategy should have been requested from the applicant to reflect the full extent of the works, including the alterations to the external walls. Or, the applicant should have been informed that the strategy was not relevant and would not be taken into consideration; that the decision would be based on the submitted drawings alone.

39) As far as I have been able to ascertain an in depth review of the cladding was not undertaken. The disclosures to date indicate that no comprehensive details of the cladding systems were submitted to the BCB for review and the BCB does not

appear to have sought details from the applicant or sought to ascertain or corroborate that the materials individually or the cladding system as a whole were in accordance with the recommendations of AD B or BS 9991 for a building of this height and use. The failure to ask for detailed information about the cladding system was, in my opinion, a fundamental failing on the part of the BCB.

40) Due to the number of issues found in respect of requirement B1 alone, the full plans application should have been rejected when first received. The plans should have been reviewed within the five week statutory time limit. This would have been a simple exercise based on comparison with the P1 annotations.

41) As to the individual requirements B1-B5:
    (a) The review of the S2 proposals in relation to Requirement B1 by the BCB was, subject to some particular issues I have identified in the body of this report, adequate and appropriate.
    (b) I am of the view that the fact that the wall and ceiling linings were not recorded as compliant with B2 was a procedural failing. I do not know if the linings were reviewed on site to ascertain compliance.
    (c) In terms of B3:
        (i) the failure to note the omission of the cavity barriers around the openings in the walls on the plans was a fundamental failing on the part of the BCB.
        (ii) the failure to check any window or other openings for cavity barriers on site fell below the standard of a reasonably competent BCB and certainly below a BCB with extensive experience.
        (iii) the decision to accept 30FR cavity barriers within the cladding system was within the range of reasonable responses.
        (iv) If the BCB had seen cavity barriers in the wrong orientation or cavity barriers that were not continuous on site, I would have expected this to be raised and for corrective action to be required.
    (d) In terms of B4:
        (i) In my opinion, paragraph 12.7 of ADB generally recommends that the key components of the external wall should be of limited combustibility.
        (ii) I would not have automatically assumed that the ACM panels were not of limited combustibility. However, I would have required details of the panels and the whole wall as a composite construction. The BCB when inspecting the cladding and having identified that the core of the ACM panels was exposed ought to have asked for details and justification for its use.
        (iii) In my opinion, the BCB ought to have asked for more information and evidence of compliance in respect of the insulation at the stage of the full plans application and, failing that, following visits to site.
        (iv) In terms of the window infill panels, I would have expected a reasonably competent BCB to query this as the materials proposed in this location were not of limited combustibility.
        (v) See B3 above in respect of cavity barriers.
    (e) See paragraphs 451 to 460 below in respect of B5.

42) Mr Hoban appears to have relied on the unsubstantiated word of the contractors that the cladding achieved Class 0 classification for fire surface spread of flame and met the criteria within AD B for cladding incorporating combustible materials for a building exceeding 18.0m in height. This was a fundamental failing on the part of the BCB.

Record Keeping

43) In my opinion the RBKC policy of weeding hard copy files is an unacceptable policy as there is no means of checking what was accepted historically and as such it cannot be assessed if an alteration would cause a situation to be worse or allow it to be established if the situation was non-compliant before or would be less compliant than before. A building may be altered without building control approval subsequent to the issue of a completion certificate and the BCB records may be the only record of the accepted arrangements. The records are also the only means a building control body has to demonstrate it carried out its statutory function.

44) The records retained on the Acolaid system do not allow for an overview to be taken of compliance of the project as a whole. It was the BCB's policy to weed job files, even to the point of removing all paperwork. I consider this to be contrary to good practice if full details of the project and the building control role are not retained electronically. The BCB did not make full use of the facilities within Acolaid to retain adequate records which could support an action for non-compliance at any stage.

45) I believe the notes should have been retained until the building was demolished; or for a minimum of 15 years. As the retention was electronic, retention until demolition was feasible.

Regulation 38

46) I have not seen any records of fire safety information being passed to the Responsible Person. In my opinion, it is reasonable to infer that the persons carrying out the work contravened Regulation 38. In my opinion, the BCB's failure to ascertain if the relevant information had been passed to the responsible person indicates a procedural failure on their part and a lack of rigour in their processes.

47) A completion certificate should only be issued by a BCB if it is satisfied that the fire safety information required by Regulation 38 has been given to the person defined as the responsible person under the Order and that the Building Works within the scope of Schedule 1 of the Regulations have been complied with. In the absence of evidence that Regulation 38 had been complied with I can only determine that a completion certificate should not have been issued.

Section A: Legislation and guidance

A(i) Building legislation applicable to the works at Grenfell Tower

48) In this section of the report I have set out the legislation applicable to building works at the time of the submission to the building control body (BCB) and explain why I consider approval was required.

49) In my opinion, the Building Works at Grenfell Tower were within the scope of the Building Act 1984 and the Building Regulations 2010 as amended. This means that the works were controllable in relation to requirements B1 (means of warning and escape), B2 (Internal fire spread – linings), B3 (Internal fire spread – structure), B4(1) (External walls); and B5 (Access and facilities for the fire service). Other requirements of the Building Regulations also applied (such as Part L and Part M), but these are not the focus of my report.

50) The applicability of the Building Regulations depends on whether the Building Works are "building work", "a material alteration" or "a material change of use".

51) There was and is no requirement within the Building Act 1984 or the Building Regulations to retrospectively require the improvement of fire safety measures and installations in a building that is unaltered in total or part. The extent to which Building Regulations apply to building works and / or building extensions is limited by the Building Regulations. However, if the fire safety measures in an occupied workplace are inappropriate to the use, the Fire Authority may take action under the Regulatory Reform (Fire Safety) Order 2005, to remove or reduce the risk. I explain this further within the report.

52) It is important to recognise that the role of a Building Control Body is only to check for compliance with the requirements of the Building Act and the Building Regulations. A BCB has no role in the design: it checks submitted proposals and inspects works on site to ascertain compliance.

53) It should also be recognised that guidance issued by Government in support of compliance with the requirements for fire safety aims to achieve a reasonable standard but it is effectively the minimum acceptable standard. It is not the role of a BCB to advise/inform an applicant that their proposal exceeds the minimum acceptable standard.

54) The manner in which the "checking" is undertaken is defined and informed by the Building Act and the Building Regulations. There are procedures to be undertaken by the applicant and the BCB that are set down in legislation. These include the form a submission must take, consultation with statutory bodies, the issuing of a decision and issuing a completion certificate.

The Building Act 1984 and the Building Regulations 2010 as amended

Overview

55) The primary legislation was, and remains, the Building Act 1984. Section 91(2) of the Act states that it is the function of local authorities to enforce Building

Regulations in their areas subject to sections 5(3) (exempt bodies), 48(1) (effect of initial notice[1] in force) and 53(2) (effect of initial notice ceasing to be in force).

56) Building Regulations may be made by the Secretary of State under Section 1 of the Building Act 1984. The regulations may be made for specific purposes that include securing the health, safety, welfare and convenience of persons in or about buildings and all others who may be affected by buildings or matters connected with buildings (Section 1(1)(a)).

57) The power to make Building Regulations is exercisable by statutory instrument and these have been made at various times since 1984.

58) The requirements set out in Schedule 1 of the Building Regulations, may make provisions for building safety and this includes fire precautions including –
    (a) Structural measures to resist the outbreak and spread of fire and to mitigate its effect;
    (b) Services, fittings and equipment designed to mitigate the effects of fire or to facilitate firefighting; and
    (c) Means of escape in case of fire and means of securing that such means of escape can be safely and effectively used at all material times.

    Other regulations relating to such matters as installations for fuel and heating also address fire safety.

59) The Building Act 1984 (Section 6) allows the Secretary of State or a designated body to issue practical guidance in the form of Approved Documents. These Approved Documents, with the agreement of the Secretary of State, may be revised or replaced from time to time and the Secretary of State may also withdraw the documents. The amendment of an Approved Document may be consequential to an amendment within the Building Act itself or an amendment to the Building Regulations by statutory instrument. The Approved Document relating to fire safety is Approved Document B.

60) Heads of Building Control departments are informed of new Approved Documents and changes to existing Approved Documents by circulation letters issued by the relevant government department, which is currently the Ministry of Housing, Communities and Local Government. Professional consultants and contractors are generally informed of new Approved Documents by their professional bodies or industry press.

61) Failure to comply with the recommendations of an Approved Document does not, of itself, render someone liable to criminal or civil proceedings (Section 7 of the 1984 Act) but if it is alleged (in criminal or civil proceedings) that a contravention of a Building Regulation has taken place, failure to comply with an Approved Document relevant at that time may be relied upon as tending to establish liability and proof of compliance with such an Approved Document, may be relied on as tending to negative liability.

[1] An Initial Notice is part of the process applicable to the building control procedure when undertaken by an Approved Inspector. The process is different to that undertaken by local authority building control but the role of checking for compliance is the same.

62) Section 16 of the Building Act 1984 requires a local authority to pass deposited plans unless they are defective or show a contravention of the Building Regulations, when they must reject the plans. If the applicant is mutually agreeable, the BCB may pass the plans subject to conditions. The decision is required to be issued within five weeks of the deposit, or two months if the applicant is agreeable.

63) A person alleged to have contravened the Building Regulations is liable on summary conviction to a fine. A local authority may by a notice served under Section 36 of the Building Act require an owner to pull down or remove the work or carry out alterations to comply with the Regulations. A Section 36 notice cannot be issued in respect of works shown on approved plans.

64) It has been suggested in the context of Grenfell Tower that deposited plans are considered "deemed approved" if a decision is not issued within the statutory time period - see paragraph 14 of John Allen's witness statement dated 25 November 2018 {RBK00033930}. It is my opinion that deposited plans are not "deemed to satisfy" if a decision is not issued within the statutory period.

65) Section 36(5) of the 1984 Act prohibits the service of a notice where plans were deposited, and the work was shown on them, if the plans were passed or if notice of their rejection was not given within the relevant period and if the work was executed in accordance with the plans and any requirement made as a condition of passing the plans. Section 36(6) states that "This section does not affect the right of a local authority ….. to apply for an injunction for the removal or alteration of any work on the grounds that it contravenes any regulation or any provision of this Act; but if the work is one in respect of which plans were deposited ….. and the work has been executed in accordance with the plans … the court may on granting an injunction order the local authority to pay compensation."

66) In my opinion, the effect of these provisions is that had building control determined that the works as executed on site did not comply with the substantive requirements of the Building Regulations they had means of taking action in an attempt to remove the contravention. While the financial penalty may deter action under Section 36, I believe it should act as an incentive to issue a decision or reject an application within the prescribed period. Importantly, nowhere in the 1984 Act does it state that plans are "deemed to satisfy" and that no enforcement action can be taken if no decision is issued within the required time period. On the contrary, Section 36(6) makes clear that such action can be taken.

67) Article 45 of the Regulatory Reform (Fire Safety Order 2005 (the Order) requires a local authority in receipt of an application for a building (or part thereof) that will be within the scope of the Order on completion of the works to consult with the fire Authority before passing the plans. I comment on the duty imposed by Article 45 later in the report.

The Building Regulations 2010 as amended

Building work, material alterations and material change of use

68) As I have explained above, the application of the Building Regulations depends on the nature of work being undertaken. The key concepts are "building work", "material alterations" and "a material change of use".

69) Definitions of these terms are set out in Regulation 2 Interpretation, of the Building Regulations 2010 as amended, by reference to other regulations within the Building Regulations 2010.

70) I have quoted extensively from the Regulations below. Those aspects that are not relevant to the Building Works at Grenfell Tower are shown in grey.

Meaning of building work

3.—(1) In these Regulations "building work" means—
- (a) the erection or extension of a building;
- (b) the provision or extension of a controlled service or fitting in or in connection with a building;
- (c) the material alteration of a building, or a controlled service or fitting, as mentioned in paragraph (2);
- (d) work required by regulation 6 (requirements relating to material change of use);
- (e) the insertion of insulating material into the cavity wall of a building;
- (f) work involving the underpinning of a building;
- (g) work required by regulation 22 (requirements relating to a change of energy status);
- (h) work required by regulation 23 (requirements relating to thermal elements);
- (i) work required by regulation 28 (consequential improvements to energy performance).

(2) An alteration is material for the purposes of these Regulations if the work, or any part of it, would at any stage result—
- (a) in a building or controlled service or fitting not complying with a relevant requirement where previously it did; or
- (b) in a building or controlled service or fitting which before the work commenced did not comply with a relevant requirement, being more unsatisfactory in relation to such a requirement.

(3) In paragraph (2) "relevant requirement" means any of the following applicable requirements of Schedule 1, namely—

Part A (structure)
paragraph B1 (means of warning and escape)
paragraph B3 (internal fire spread—structure)
paragraph B4 (external fire spread)
paragraph B5 (access and facilities for the fire service)

Part M (access to and use of buildings).

Requirements relating to building work

4.—(1) Subject to paragraph (2) building work shall be carried out so that—

(a) it complies with the applicable requirements contained in Schedule 1; and

(b) in complying with any such requirement there is no failure to comply with any other such requirement.

(2) Where—

(a) building work is of a kind described in regulation 3(1)(g), (h) or (i); and

(b) the carrying out of that work does not constitute a material alteration,

that work need only comply with the applicable requirements of Part L of Schedule 1.

(3) Building work shall be carried out so that, after it has been completed—

(a) any building which is extended or to which a material alteration is made; or

(b) any building in, or in connection with, which a controlled service or fitting is provided, extended or materially altered; or

(c) any controlled service or fitting,

complies with the applicable requirements of Schedule 1 or, where it did not comply with any such requirement, is no more unsatisfactory in relation to that requirement than before the work was carried out.

Meaning of material change of use

5. For the purposes of paragraph 8(1)(c) of Schedule 1 to the Act and for the purposes of these Regulations, there is a material change of use where there is a change in the purposes for which or the circumstances in which a building is used, so that after that change—

(a) the building is used as a dwelling, where previously it was not;

(b) the building contains a flat, where previously it did not;

(c) the building is used as an hotel or a boarding house, where previously it was not;

(d) the building is used as an institution, where previously it was not;

(e) the building is used as a public building, where previously it was not;

(f) the building is not a building described in classes 1 to 6 in Schedule 2, where previously it was;

(g) the building, which contains at least one dwelling, contains a greater or lesser number of dwellings than it did previously;

(h) the building contains a room for residential purposes, where previously it did not;

(i) the building, which contains at least one room for residential purposes, contains a greater or lesser number of such rooms than it did previously; or

(j) the building is used as a shop, where previously it was not.

Requirements relating to material change of use

6.—(1) Where there is a material change of use of the whole of a building, such work, if any, shall be carried out as is necessary to ensure that the building complies with the applicable requirements of the following paragraphs of Schedule 1—

(a) in all cases, B1 (means of warning and escape)
B2 (internal fire spread—linings)
B3 (internal fire spread—structure)
B4(2) (external fire spread—roofs)
B5 (access and facilities for the fire service)
C2(c) (interstitial and surface condensation)
F1 (ventilation)
G1 (cold water supply)
G3(1) to (3) (hot water supply and systems)
G4 (sanitary conveniences and washing facilities)
G5 (bathrooms)
G6 (kitchens and food preparation areas)
H1 (foul water drainage)
H6 (solid waste storage)
J1 to J4 (combustion appliances)
L1 (conservation of fuel and power)
P1 (electrical safety);

(b) in the case of a material change of use described in regulation 5(c), (d), (c) or (f), A1 to A3 (structure);

(c) in the case of a building exceeding fifteen metres in height, B4(1) (external fire spread—walls);

(d) in the case of a material change of use described in regulation 5(a), (b), (c), (d), (g), (h), (i) or, where the material change provides new residential accommodation, (f), C1(2) (resistance to contaminants);

(e) in the case of a material change of use described in regulation 5(a), C2 (resistance to moisture);

(f) in the case of a material change of use described in regulation 5(a), (b), (c), (g), (h) or (i), E1 to E3 (resistance to the passage of sound);

(g) in the case of a material change of use described in regulation 5(c), where the public building consists of or contains a school, E4 (acoustic conditions in schools);

(h) in the case of a material change of use described in regulation 5(a) or (b), G2 (water efficiency) and G3(4) (hot water supply and systems: hot water supply to fixed baths);

(i) in the case of a material change of use described in regulation 5(c), (d), (e) or (j), M1 (access and use).

(2) Where there is a material change of use of part only of a building, such work, if any, shall be carried out as is necessary to ensure that—

(a) that part complies in all cases with any applicable requirements referred to in paragraph (1)(a);

(b) in a case in which sub-paragraphs (b), (e), (f), (g) or (h) of paragraph (1) apply, that part complies with the requirements referred to in the relevant sub-paragraph;

(c) in a case to which sub-paragraph (c)of paragraph (1) applies, the whole building complies with the requirement referred to in that sub-paragraph; and

(d) in a case to which sub-paragraph (i) of paragraph (1) applies—

(i) that part and any sanitary conveniences provided in or in connection with that part comply with the requirements referred to in that sub-paragraph; and

(ii) the building complies with requirement M1(a) of Schedule 1 to the extent that reasonable provision is made to provide either suitable independent access to that part or suitable access through the building to that part.

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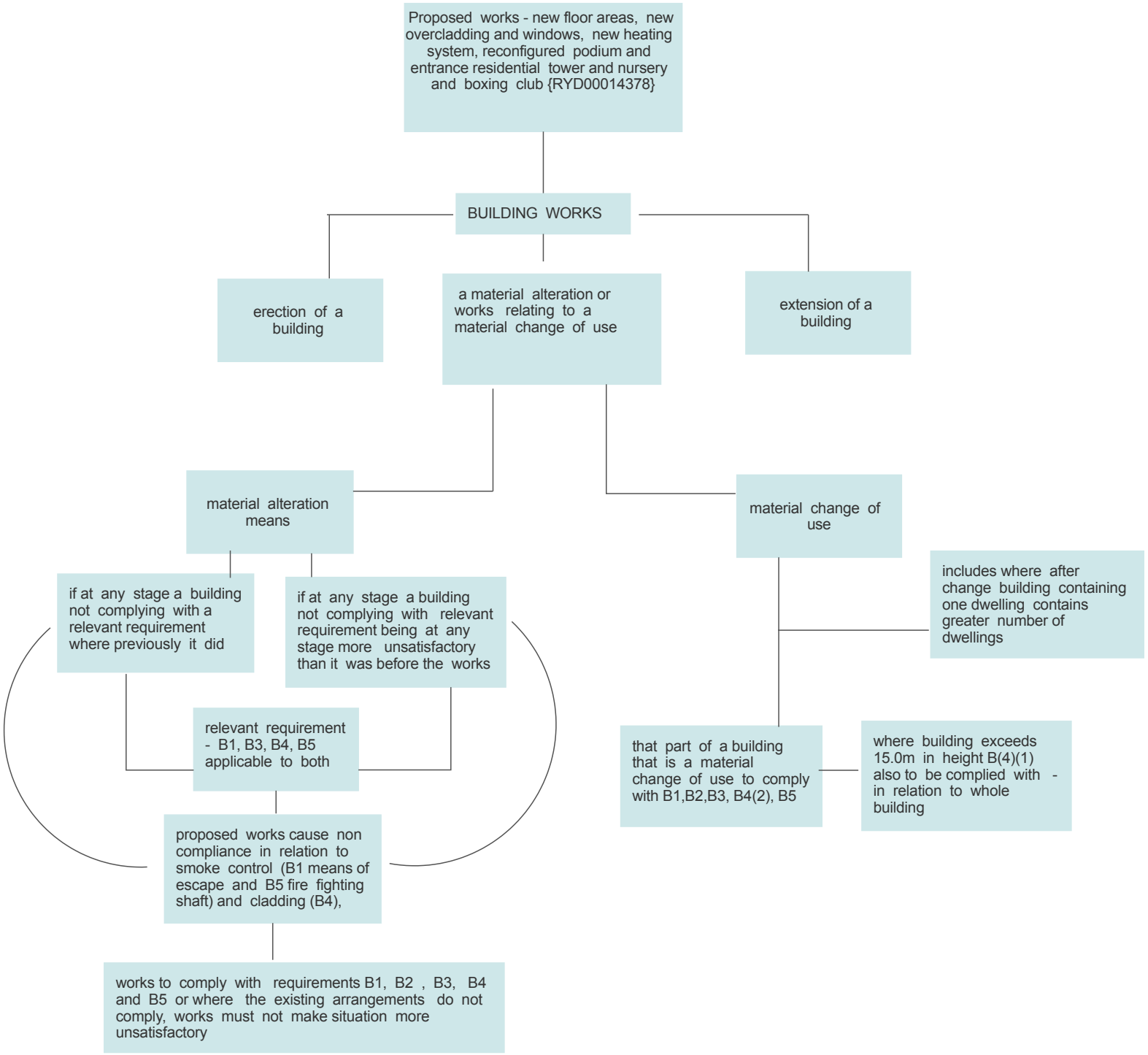
71) All the Building Works undertaken at Grenfell Tower came within the scope of Part B (Fire safety) of Schedule 1 of the Building Regulations: by definition the works included material alterations resulting from the cladding and insulation and changes to the smoke control system that supported the means of escape and firefighting; and the changes at the lower levels to form new flats was a material alteration and a material change of use.

72) In the diagram below I have attempted to illustrate that generally building works are required to comply with Part B; the regulations relating to material alterations allow a “no worse” situation; all Part B requirements relate to a material change of use for a building exceeding 18.0m in height.



BMER000004/19

Materials and workmanship

7. Building work shall be carried out—

(a) with adequate and proper materials which—
(i) are appropriate for the circumstances in which they are used,
(ii) are adequately mixed or prepared, and
(iii) are applied, used or fixed so as adequately to perform the functions for which they are designed; and
(b) in a workmanlike manner.

73) This requirement relates to all work undertaken that is within the scope of the Building Regulations.

Limitation on requirements

8. Parts A to D, F to K, N and P (except for paragraphs G2, H2 and J7) of Schedule 1 shall not require anything to be done except for the purpose of securing reasonable standards of health and safety for persons in or about buildings (and any others who may be affected by buildings, or matters connected with buildings).

74) Regulation 8 means that a Building Control Body cannot require a person carrying out works to achieve more than a reasonable standard of health and safety.

75) The Building Regulations 2010 as amended, imposed the following procedural requirements on the person carrying out the works and the Building Control Body.

Giving of a building notice or deposit of plans

12. (1) This regulation applies to a person who intends to—
(a) carry out building work;
(b) replace or renovate a thermal element in a building to which the energy efficiency requirements apply;
(c) make a change to a building's energy status; or
(d) make a material change of use.

(2) Subject to the following provisions of this regulation, a person to whom this regulation applies shall—
(a) give to the local authority a building notice in accordance with regulation 13; or
(b) deposit full plans with the local authority in accordance with regulation 14.

(3) A person intending to carry out building work in relation to a building to which the Regulatory Reform (Fire Safety) Order 2005 applies, or will apply after the completion of the building work, shall deposit full plans.

(4) A person intending to carry out building work which includes the erection of a building fronting onto a private street shall deposit full plans.

(5) A person intending to carry out building work in relation to which paragraph H4 of Schedule 1 imposes a requirement shall deposit full plans.

(6) A person intending to carry out building work is not required to give a building notice or deposit full plans where the work consists only of work—

(a) described in column 1 of the Table in Schedule 3 if the work is to be carried out by a person described in the corresponding entry in column 2 of that Table; or

(b) described in Schedule 4.

(7) Where regulation 19 of the Building (Approved Inspectors etc) Regulations 2010 (local authority powers in relation to partly completed work) applies, the owner shall comply with the requirements of that regulation instead of with this regulation.

(8) Where—

(a) a person proposes to carry out building work which consists of emergency repairs;

(b) it is not practicable to comply with paragraph (2) before commencing the work; and

(c) paragraph (6) does not apply,

the person shall give a building notice to the local authority as soon as reasonably practicable after commencement of the work.

(9) In this regulation—

"fronting" has the meaning given in section 203(3) of the Highways Act 1980; and

"private street" has the meaning given in section 203(2) of the Highways Act 1980.

Full plans

14.—(1) Full plans shall be accompanied by a statement that they are deposited for the purpose of regulation 12(2)(b).

(2) (a) Full plans shall be deposited in duplicate, of which the local authority may retain one copy; and

(b)where Part B of Schedule 1 (fire safety) imposes a requirement in relation to proposed building work, an additional two copies of

any such plans as demonstrate compliance with that requirement shall be deposited, both of which may be retained by the local authority.

(3) Full plans shall consist of—

(a) a description of the proposed building work, renovation or replacement of a thermal element, change to the building's energy status or material change of use, and the plans, particulars and statements required by paragraphs (1) and (2) of regulation 13;

(b) where paragraph H4 of Schedule 1 imposes a requirement, particulars of the precautions to be taken in building over a drain, sewer or disposal main to comply with the requirements of that paragraph; and

(c) any other plans which are necessary to show that the work would comply with these Regulations.

(4) Full plans shall be accompanied by a statement as to whether the building is a building in relation to which the Regulatory Reform (Fire Safety) Order 2005 applies, or will apply after the completion of the building work.

F1(5) . . . . . .

(6) Paragraph (2)(b) shall not require the deposit of additional copies of plans where the proposed building work relates to the erection, extension or material alteration of a dwelling-house or flat.

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76) The common areas (lift lobbies and stair) and the non- residential lower level areas of Grenfell Tower were within the scope of The Regulatory Reform (Fire Safety) Order 2005. This is further discussed later in the report.

Notice of commencement and completion of certain stages of work

16.—(1) Subject to paragraphs (8) and (9), a person who proposes to carry out building work shall not commence that work unless—

(a) that person has given the local authority notice of intention to commence work; and

(b) at least two days have elapsed since the end of the day on which the notice was given.

(2) Subject to paragraph (8), a person carrying out building work shall not—

(a) cover up any excavation for a foundation, any foundation, any damp-proof course or any concrete or other material laid over a site; or

(b) cover up in any way any drain or sewer to which these Regulations apply, unless that person has given the local authority notice of intention to commence that work, and at least one day

has elapsed since the end of the day on which the notice was given.

(3) Subject to paragraph (8), a person who has laid, haunched or covered any drain or sewer in respect of which Part H of Schedule 1 (drainage and waste disposal) imposes a requirement shall give notice to that effect to the local authority not more than five days after the completion of the work.

(4) Subject to paragraph (8), a person carrying out building work shall, not more than five days after that work has been completed, give the local authority notice to that effect.

(5) Where a building is being erected, and that building (or any part of it) is to be occupied before completion, the person carrying out that work shall give the local authority at least five day's notice before the building or any part of it is occupied.

(6) A person who fails to comply with paragraphs (1) to (3) shall comply within a reasonable time with any notice given by the local authority requiring that person to cut into, lay open or pull down so much of the work as prevents them from ascertaining whether these Regulations have been complied with.

(7) If the local authority have given notice specifying the manner in which any work contravenes the requirements in these Regulations, a person who has carried out any further work to secure compliance with these Regulations shall within a reasonable time after the completion of such further work give notice to the local authority of its completion.

(8) Paragraphs (1) to (4) apply only to a person who is required by regulation 12 to give a building notice or deposit full plans.

(9) Paragraph (1) does not apply where regulation 12(8) applies.

Completion certificates

17.— (1) A local authority shall within the specified period give a completion certificate in all cases (including a case where a certificate has already been given under regulation 17A) where they are satisfied, after taking all reasonable steps, that, following completion of building work carried out on it, a building complies with the relevant provisions.

(2) The specified period referred to in paragraph (1) is eight weeks starting from the date on which the person carrying out the building work notifies the local authority that the work has been completed.

(2A) The relevant provisions referred to in paragraph (1) are any applicable requirements of the following provisions—

(a) regulation 25A (high-efficiency alternative systems for new buildings),
(b) regulation 26 (target CO^2 emission rates for new buildings),
(c) regulation 29 (energy performance certificates),
(d) regulation 36 (water efficiency of new dwellings),
(e) regulation 38 (fire safety information), and
(f) Schedule 1.

(4) A certificate given in accordance with this regulation shall be evidence (but not conclusive evidence) that the requirements specified in the certificate have been complied with.

(5) The certificate must include a statement describing its evidentiary effect, in terms substantially the same as paragraph(4).

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77) Regulation 17 required the BCB to issue a completion certificate within eight (8) weeks of having been notified of completion of the works, if satisfied that the "relevant" provisions had been complied with. These provisions included Regulation 38 (Fire safety information) and Schedule 1 of the Building Regulations, which included Part B (Fire safety).

78) The means by which a BCB ascertains compliance with Regulation 38 is not specified.

79) A completion certificate should not be issued if a BCB is not satisfied the fire safety information required by Regulation 38 has been passed to the responsible person.

Regulation 38 - Fire safety information

38.— (1) This regulation applies where building work—
(a) consists of or includes the erection or extension of a relevant building; or
(b) is carried out in connection with a relevant change of use of a building,
and Part B of Schedule 1 imposes a requirement in relation to the work.

(2) The person carrying out the work shall give fire safety information to the responsible person not later than the date of completion of the work, or the date of occupation of the building or extension, whichever is the earlier.

(3) In this regulation—
(a) "fire safety information" means information relating to the design and construction of the building or extension, and the services, fittings and equipment provided in or in connection with the building or extension which will assist the responsible

person to operate and maintain the building or extension with reasonable safety;

(b) a "relevant building" is a building to which the Regulatory Reform (Fire Safety) Order 2005 applies, or will apply after the completion of building work;

(c) a "relevant change of use" is a material change of use where, after the change of use takes place, the Regulatory Reform (Fire Safety) Order 2005 will apply, or continue to apply, to the building; and

(d) "responsible person" has the meaning given by article 3 of the Regulatory Reform (Fire Safety) Order 2005.

80) Later in the report I set out an explanation of Regulation 38, its impact on Regulation 17 (completion certificate) and the BCB's related processes. Regulation 38 applies where the building work is either the erection or extension of a building and/or where there is a change of use and in both cases Part B imposes a requirement in relation to the works and the Regulatory Reform (Fire Safety) Order 2005 applies or will apply on completion of the works. It does not apply to a material alteration.

The Building Act 1984

Breach of Building Regulations

Section 35 - Penalty for contravening Building Regulations

If a person contravenes any provision contained in building regulations, other than a provision designated in the regulations as one to which this section does not apply, he is liable on summary conviction to a fine not exceeding level 5 on the standard scale and to a further fine not exceeding £50 for each day on which the default continues after he is convicted.

81) Section 35 Notices are usually but not solely served on a contractor. The section refers to "a person" who contravenes.

Section 36 Removal or alteration of offending work

(1) If any work to which building regulations are applicable contravenes any of those regulations, the local authority, without prejudice to their right to take proceedings for a fine in respect of the contravention, may by notice require the owner—

(a) to pull down or remove the work, or

(b) if he so elects, to effect such alterations in it as may be necessary to make it comply with the regulations.

(2) If, in a case where the local authority are, by any section of this Part of this Act other than section 16, expressly required or authorised to reject plans, any work to which building regulations are applicable is executed—

(a) without plans having been deposited,

(b) notwithstanding the rejection of the plans, or

(c) otherwise than in accordance with any requirements subject to which the authority passed the plans,

the authority may by notice to the owner—

(i) require him to pull down or remove the work, or

(ii) require him either to pull down or remove the work or, if he so elects, to comply with any other requirements specified in the notice, being requirements that they might have made under the section in question as a condition of passing plans.

(3) If a person to whom a notice has been given under subsection (1) or (2) above fails to comply with the notice before the expiration of 28 days, or such longer period as a magistrates' court may on his application allow, the local authority may—

(a) pull down or remove the work in question, or

(b) effect such alterations in it as they deem necessary,

and may recover from him the expenses reasonably incurred by them in doing so.

(4) A notice under subsection (1) or (2) above (called a "section 36 notice") shall not be given after the expiration of 12 months from the date of the completion of the work in question.

(5) A section 36 notice shall not be given, in a case where plans were deposited and the work was shown on them, on the ground that the work contravenes any building regulations or, as the case may be, does not comply with the authority's requirements under any section of this Act other than section 16, if—

(a) the plans were passed by the authority, or

(b) notice of their rejection was not given within the relevant period from their deposit,

and if the work has been executed in accordance with the plans and of any requirement made by the local authority as a condition of passing the plans.

(6) This section does not affect the right of a local authority, the Attorney General or any other person to apply for an injunction for the removal or alteration of any work on the ground that it contravenes any regulation or any provision of this Act; but if—

(a) the work is one in respect of which plans were deposited,

(b) the plans were passed by the local authority, or notice of their rejection was not given within the relevant period from their deposit, and

(c) the work has been executed in accordance with the plans, the court on granting an injunction has power to order the local authority to pay to the owner of the work such compensation as the court thinks just, but before making any such order the court shall in accordance with rules of court cause the local authority, if not a party to the proceedings, to be joined as a party to them.

82) Section 36 notices are served on the owner.

The Regulatory Reform (Fire Safety) Order 2005 (the Order)

Article 45 Duty to consult enforcing authorities before passing of plans

45.—(1) Where it is proposed to erect a building, or to make any extension of or structural alteration to a building and, in connection with the proposals, plans are, in accordance with building regulations, deposited with a local authority, the local authority must, subject to paragraph (3), consult the enforcing authority before passing those plans.

(2) Where it is proposed to change the use to which a building or part of a building is put and, in connection with that proposal, plans are, in accordance with building regulations, deposited with a local authority, the authority must, subject to paragraph (3), consult with the enforcing authority before passing the plans.

(3) The duty to consult imposed by paragraphs (1) and (2)—

(a) only applies in relation to buildings or parts of buildings to which this Order applies, or would apply following the erection, extension, structural alteration or change of use;
(b) does not apply where the local authority is also the enforcing authority.

83) Article 45 of the Regulatory Reform (Fire Safety) Order 2005 requires a local authority in receipt of a full plans application for a building (or part of a building) that will be subject to the Order on completion of the works, to consult the Fire Authority before passing the plans.

84) Those parts to which the Order applied in Grenfell Tower was any place where a person worked. The plant rooms, amenity areas, the common lift lobbies and stairs, boxing club, nursery and office accommodation are workplaces where maintenance staff, contractors, cleaners and similar personnel work from time to time. A detailed commentary on the Fire Safety Order, including Responsible Persons is set out in the Inquiry report Legislation, Guidance and Enforcing Authorities Relevant to Fire Safety Measures at Grenfell Tower by Colin Todd {CTAR00000001}.

85) The enforcing authority under the Order at the time was the London Fire and Emergency Planning Authority (LFEPA). This has now been abolished (Policing and Crime Act 2017) and replaced by the London Fire Commissioner, which is the fire and rescue authority for London and is a functional body of the Greater London Authority.

Building Regulations 2010 as amended, Schedule 1 Part B Fire Safety

86) Fire safety is addressed in Part B of Schedule 1 to the Building Regulations 2010. There are five functional requirements within Part B. The requirements current at the time of the refurbishment works at Grenfell Tower are reproduced in full below.

B1 Means of warning and escape

The building shall be designed and constructed so that there are appropriate provisions for the early warning of fire, and appropriate means of escape in case of fire from the building to a place of safety outside the building capable of being safely and effectively used at all material times.

B2 Internal fire spread (linings)

(1) to inhibit the spread of fire within the building the internal linings shall– (a) adequately resist the spread of flame over their services; and (b) have, a rate of heat release or a rate of fire gross, which is reasonable in the circumstances.

(2) in this paragraph "internal linings" mean the materials and products used in lining any partition, wall, ceiling or other internal structure.

B3 Internal fire spread (structure)

(1) The building shall be designed and constructed so that, in the event of fire, its stability will be maintained for a reasonable period.

(2) A wall common to two or more buildings shall be designed and constructed so that it adequately resist the spread of fire between those buildings. For the purposes of this subparagraph a house in a terrace semi-detached house are each to be straightened as a separate building.

(3) Where reasonably necessary to inhibit the spread of fire within the building, measures shall be taken, to an extent appropriate to the size and intended use of the building, comprising either or both of the following-

subdivision of the building with fire resistant construction;

installation of suitable automatic fire suppression systems.

(4) The building shall be designed and constructed so that the unseen spread of fire and smoke within concealed spaces its structure and fabric is inhibited.

B4 External fire spread

(1) The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use and position of the building.

(2) The roof of the building shall adequately resist the spread of fire over the roof and from one building to another, having regard to the use and position of the building.

B5 Access and facilities for the fire service

(1) The building shall be designed and constructed so as to provide reasonable facilities to assist firefighters in the protection of life.

(2) Reasonable provision shall be made within sight of the building to enable fire appliances to gain access to the building.

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87) A revised version of AD B was issued in 2006. It was further amended in 2013, and incorporated amendments made in 2007, 2010 and 2013 to address changes in legislation and standards and guidance.

Responsibility for compliance with the Building Act and Building Regulations

88) The "person carrying out the works" is responsible for compliance with the Building Act and the Building Regulations. This term is not defined in the Building Act 1984 or the Building Regulations 2010.

89) Opinions are divided as to who the "person carrying out the works" is. While I accept that the meaning of the statute and the regulations is a question of law for the Chairman to decide, I have given my opinion below based on my professional experience. I am also aware of a judgment that deals with the point: R v Blaenau Gwent Borough Council, Sabz Ali Khan (High Court, unreported, 21 April 1993). In this case, the judge found that the "person carrying out the works" includes, although it is not limited to, the owner of the building.

90) In my opinion, the building owner can be the person carrying out the works and therefore be responsible for compliance. My view is based on the following.

91) A contractor who is not the owner of a building does not decide to carry out works: it is usually the owner of the building who makes this decision.

92) My training was, and my understanding is, that the aim of the relevant legislation is to achieve a building with a reasonable standard of safety avoiding legal action via the courts where possible. It is therefore important that a Local Authority Building Control Body (LABCB) is able to take enforcement action that will be effective i.e. that the person who the LABCB enforces against is the person who is able to take action to correct any deficiencies.

93) A building owner may employ a person to act on his behalf to physically carry out the works i.e. a contractor. This invariably occurs on other than a small residential project. There will be contractual obligations between the owner and those carrying out the works on site. The results of the failure to fulfil such obligations under the contract is a matter between the owner and the people he has employed to carry out the work. It is not a matter for building control.

94) Requirement 14(3) requires that the full plans application states the name and address of the person intending to carry out the works and is signed by that person or on that person's behalf. It is good practice for a LABCB to obtain all the relevant information as to ownership and contractor when receiving or reviewing a full plans application so as to avoid any delay or dispute should it be necessary to serve a notice for contraventions of the Building Regulations.

95) A LABCB can take action under Sections 35 of the Building Act 1984 against a person who contravenes the Building Regulations. This action is generally taken against the contractor.

96) At the same time or alternatively, the LABCB can serve a notice on the owner of a building requiring the alteration or removal of works that contravene the Building Regulations under Section 36 of the Building Act 1984. If the owner fails to carry out remedial works, the local authority can carry out the works and charge the owner to recover costs.

97) The aim is to achieve a safe building rather than gain a fine or conviction whilst the building remains unsafe/in contravention. The ultimate responsibility for compliance lies with the owner who has a permanent connection with the building and gains benefit from it.

98) Regulation 17 (completion certificates) does not specify to whom a completion certificate should be addressed; it does not specify that the contractor should be named.

99) On the Government web site planningportal.co.uk it currently (August 2019) states –

"Your responsibilities

With all building work, the owner of the property (or land) in question is ultimately responsible for complying with the relevant planning rules and

Building Regulations (regardless of the need to apply for planning permission and/or Building Regulations approval or not).

Therefore, failure to comply with the relevant rules will result in the owner being liable for any remedial action (which could go as far as demolition and/or restoration). The general advice is to always discuss your proposals with the relevant local planning authority and building control service before starting work."

100) This then refers you to a separate heading of "Building regulations" which states before moving to a new page -

"Meeting the requirements of the building regulations is the responsibility of the person carrying out the works and if they are not the same person, the owner of the building.

101) Moving to the indicated page, the site states –

"If you are carrying out building work personally, it is very important that you understand how the building regulatory system and material applies to your situation as you are responsible for making sure that the work complies with the building regulations.

If you are employing a builder, the responsibility will usually be theirs - but you should confirm this at the very beginning. You should also bear in mind that if you are the owner of the building, it is ultimately you who may be served with an enforcement notice if the work does not comply with the regulations."

102) I am not aware of a similar statement at the time of the full plans submission but have no reason to suppose there was a different government view at that time.

103) "Owner" is defined in Section 126 of the Building Act 1984 as the person receiving the rackrent for the building whether on his own account or as agent or trustee for another person, or who would so receive it if those premises are let at a rackrent. Rackrent is defined as:

"a rent that is not less than two-thirds of the rent at which a property might reasonably be expected to let from year to year, free from all usual tenant's rates and taxes, and deducting from it the probable average annual costs of the repairs, insurance and other expenses (if any) necessary to maintain the property in a state to command such rent."

104) I am not able to determine whether it is the TMO or RBKC who is the "owner" (as defined in the Building Act) of Grenfell Tower. I note that in its position statement, RBKC describes itself as the owner of the Tower {RBK00018794} but it is not clear whether RBKC had the definition of "owner" in the Building Act in mind when it drafted its statement. The TMO's position statement states that the TMO acted on an agency basis for matters such as rent collection, tenants repairs and maintenance {TMO00837466}. I also note that the full plans application named Claire Williams of the TMO as the owner.

Regulation 38 Fire safety information

105) In this section I explain how Regulation 38 imposed a procedural requirement on the "person carrying out the work" and on the BCB in relation to fire safety information. Later in my report I will also give my opinion as to whether Regulation 38 was applicable to the works at Grenfell Tower and if Regulation 38 was complied with.

106) A contravention of Regulation 38 is committed by the person carrying out the works.

107) Regulation 38(1) applied where building work (a) consisted of or included the erection or extension of a relevant building, or (b) in connection with a relevant change of use of a building, and Part B of Schedule 1 imposed a requirement in relation to the work.

108) As seen earlier Part B did impose such a requirement by virtue of requirements 5(a) (meaning of material change of use) and 6(2) (material change of use of part of a building). A "relevant change of use " as defined in Regulation 38 was "where after the use takes place, the Regulatory Reform (Fire Safety) Order 2005 will apply or continue to apply to the building". Whilst Regulation 38 refers to a relevant 'building' and change of use of a "building" in my opinion and experience Regulation 38 applies where works only affect part of a building if that building is subject to the Order. Grenfell Tower continued to be within the scope of the Order as it incorporated workplaces. I am also of the opinion that it was the intent of Regulation 38 to apply to a building or part of a building so that the necessary fire safety information would be available to the "responsible person" under the Order.

109) Appendix G of Approved Document B 2006 edition sets out guidance as to what fire safety information should be provided based on whether a building is "simple" or "complex" but adds that the necessary detail should be considered on a case by case basis. Whether in relation to a simple or complex building, the recommended information encompasses the definition within Regulation 38 -

> *"fire safety information" means information relating to the design and construction of the building or extension, and the services, fittings and equipment provided in or in connection with the building or extension which will assist the responsible person to operate and maintain the building or extension with reasonable safety.*

110) The guidance states that the required information should be of adequate detail to assist the responsible person to operate and maintain the life safety measures within that building highlighting that the information should include details relevant to the specific building and in particular any assumptions made that influenced the final level or extent of the safety measures.

111) A BCB is required by Regulation 17 to issue a completion certificate if they are satisfied that the relevant provisions, which include Regulation 38, have been complied with. For ease I have repeated Regulation 17 below:

Regulation 17

(a) A local authority shall within the specified period give a completion certificate in all cases (including a case where a certificate has already been given under regulation 17A) where they are satisfied, after taking all reasonable steps, that, following completion of building work carried out on it, a building complies with the relevant provisions.

(b) The specified period referred to in paragraph (1) is eight weeks starting from the date on which the person carrying out the building work notifies the local authority that the work has been completed.

(2A) The relevant provisions referred to in paragraph (1) are any applicable requirements of the following provisions—

(i) regulation 25A (high-efficiency alternative systems for new buildings),
(ii) regulation 26 (target CO^2 emission rates for new buildings),
(iii) regulation 29 (energy performance certificates),
(iv) regulation 36 (water efficiency of new dwellings),
(v) regulation 38 (fire safety information), and
(vi) Schedule 1.

112) As such a completion certificate should only be issued by a BCB if it is satisfied that the fire safety information required by Regulation 38 has been given to the person defined as the responsible person under the Order.

113) Regulation 47 of the Building Regulations 2010 states –

"Contravention of certain regulations not to be an offence

47. Regulations 17, 27, 29, 37, 41, 42, 43 and 44 are designated as provisions to which section 35 of the Act (penalty for contravening building regulations) does not apply."

114) The Building Act 1984 Sections 35 and 36 (part) state –

"35 Penalty for contravening building regulations.

If a person contravenes any provision contained in building regulations, other than a provision designated in the regulations as one to which this section does not apply, he is liable on summary conviction to a fine not exceeding level 5 on the standard scale and to a further fine not exceeding £50 for each day on which the default continues after he is convicted."

"36 Removal or alteration of offending work.

If any work to which building regulations are applicable contravenes any of those regulations, the local authority, without prejudice to their right

to take proceedings for a fine in respect of the contravention, may by notice require the owner—

(a) to pull down or remove the work, or

(b) if he so elects, to affect such alterations in it as may be necessary to make it comply with the regulations."

115) A local authority BCB was/is the body that takes action for contraventions of the Building Regulations. Regulation 47 states that a contravention of Regulation 17 is not an offence in relation to which a penalty for contravention would apply (a Section 35 notice). Action for a contravention of Regulation 38 is not excluded. It is a breach of Regulation 17 to issue a completion certificate if Regulation 38 has not been complied with.

116) A section 36 notice requires the removal or alteration of offending work. Such a notice cannot be served in relation to Regulation 38 which imposes a procedural requirement.

A(ii) Standards codes of practice and guidance relevant to the works at Grenfell Tower

117) In this section of the report I set out the various guidance a BCB should or could have taken into consideration when reviewing Part B of the full plans application:
- (a) Approved Document B
- (b) BS 9990 2006: Code of practice for non - automatic fire fighting systems in buildings (published 31/5/2006)
- (c) BS 9990: 2015: Non - automatic fire fighting systems in buildings. Code of practice. (31/10/2015)
- (d) BS 9991 2011: Fire safety in the design, management and use of residential buildings - Code of practice. (31/12/2011)
- (e) BS 9991 2015: Fire safety in the design, management and use of residential buildings - Code of practice (31/10/15)
- (f) Smoke Control Association Guidance on Smoke Control to Common Escape Routes in Apartment Buildings (Flats and maisonettes) Revision 1 June 2012
- (g) Smoke Control Association Guidance on Smoke Control to Common Escape Routes in Apartment Buildings (Flats and maisonettes) Revision 2 October 2015
- (h) Building Control Alliance Technical Guidance Note 18 Use of combustible materials on residential buildings Issue 0 June 2014
- (i) Building Control Alliance Technical Guidance Note 18 Use of combustible materials on residential buildings Issue 1 June 2015
- (j) Centre for Window and Cladding Technology (CWCT) Technical Notes Nos .73 (March 2011) and 98 (April 2017)
- (k) Building Regulations and Fire Safety Procedural Guidance
- (l) Part B of Schedule 1 to the Building Regulations 2010 makes provision for the five substantive requirements:
  - (i) B1 Means of warning and escape
  - (ii) B2 Internal fire spread (linings)
  - (iii) B3 Internal fire spread (structure)
  - (iv) B4 External fire spread
  - (v) B5 Access and facilities for the fire service

Approved Documents

118) There is no obligation to adopt Approved Document B or any other document but as the guidance is based the assumption that compliance will be achieved in relation to the various aspects of fire safety (B1 to B5), the guidance as a whole should be adopted and "cherry picking" from each to achieve a goal should not be adopted. All the requirements and recommendations within AD B are interrelated and interdependent: adequate structural fire resistance allows time for occupants to escape and for firefighting and if necessary search and rescue by the Fire Service; warning informs of a fire and prompts people to evacuate; control of linings deters fire spread allowing time to reach an exit, as do cavity barriers by protecting against the unseen spread of fire within the structure; limiting the combustible content of external walls and adequate space separation deters fire spread between buildings; and fire service access and facilities assists firefighting.

119) Approved Documents (AD's) in the section "Use of guidance" contain the statement that "This document is one of a series that has been approved and issued by the Secretary of State for the purpose of providing practical guidance with respect to the requirements of Schedule 1 to and Regulation 7 of the Building Regulations 2010 (SI 20000/2214) for England and Wales."

120) The amendment of an Approved Document requires consultation with Building Regulations Advisory Committee (BRAC), and if significant/fundamental changes are proposed, public consultation. This takes time. Amendments of an Approved Document cannot always maintain parity with technological developments or changes in design preferences. Approved documents address what the AD states to be "some of the more common building situations." Guidance provided by industry or technical bodies can address the less common situations. These documents also respond quicker to changes and developments in design and construction. To be used in demonstrating compliance with the Building Regulations they must address and satisfy the functions of the Building Regulations.

121) An applicant is at liberty to choose how he achieves compliance. He may choose to adhere to the recommendations of Approved Document B where requirements B1 to B5 are individually addressed or the relevant British Standards for fire safety; but may also choose to apply fire engineering principles or another method of indicating compliance. The requirements are substantive not prescriptive.

Approved Document B Fire safety 2013 Edition incorporating 2007, 2010 and 2013 amendments

122) Approved Document B Fire Safety addresses the five requirements of Part B . The details of the functional requirements are set out above

123) The 2006 edition of Approved Document B was current at the time of the full plans application for the works at Grenfell Tower {CLG00000224}.

124) Approved Document B (AD B) was issued in two volumes: Volume 1 Dwellinghouses, 2006 edition incorporating 2010 and 2013 amendments; and Volume 2 Buildings other than dwellinghouses, 2006 edition incorporating 2010 and 2013 amendments. Only Volume 2 was relevant to the Building Works

125) AD B Volume 2 makes recommendation to achieve compliance, including by reference to many other documents and guidance, to supplement the recommendations such as BS 5839 - 6 (fire detection and alarm systems for residential accommodation) and Building Research Establishment (BRE) Report BR 135 Fire performance of external thermal insulation for walls of multi-storey buildings 2003. AD B guidance in relation to mechanical smoke control systems (clause 2.27 - Smoke control of common escape routes by mechanical ventilation) refers to the BS EN 12101-6[2] for guidance on smoke control systems based on pressure differentials.

[2] BS EN 12101-6:2005 Smoke and heat controls. Specification for pressure differential systems. Kits

126) AD B contains a statement under the heading "Performance" as to how compliance can be achieved for each requirement.

"In the Secretary of State's view the Requirement of B1 will be met if:

(a) there are routes of sufficient number and capacity, which are suitably located to enable person to escape replace and safety in the event of fire;
(b) the routes are sufficiently protected from the effects of fire where necessary;
(c) the routes are adequately lit;
(d) the exits are suitably signed; and
(e) there are appropriate facilities to either limit the ingress of smoke to the escape route(s) or to restrict the fire and remove smoke;
(f) all to an extent necessary that is dependent on the use of the building, its size and height; and
(g) there is sufficient means of giving early warning of fire for persons in the building."

"In the Secretary of State's view the Requirement of B2 will be met if:
The surface spread of flame over the surface of internal linings is low, with in some cases, a restricted heat release rate to limit the contribution to fire growth. The extent of the limitation is dependent on the location of the lining."

"In the Secretary of State's view the Requirement of B3 will be met if:

(a) structural elements have an appropriate level of fire resistance
(b) the building is sub-divided into compartments of fire resisting construction
(c) openings in fire separating elements are suitably protected to maintain continuity of fire separation
(d) hidden voids in construction are sealed and subdivided to inhibit the unseen spread of fire and combustion products in order to reduce fire spread and risk of structural collapse"

"In the Secretary of State's view the Requirement of B4 will be met if:

(a) external walls are constructed to resist ignition from external sources and to resist the spread of fire over their surfaces is restricted by making provision for them to have low rates of heat release
(b) the unprotected area of a building is restricted to limit the amount of thermal radiation that can pass through the wall, having regard to the distance between the wall and boundary
(c) the roof is constructed so that the risk of spread of flame and penetration from an external fire source is restricted.

In each case this is to limit the limit fire spread between buildings across the boundary."

"In the Secretary of State's view the Requirement of B5 will be met if:

(a) There is sufficient means of external access to enable fire appliances to be brought near to the building for effective use;

(b) There is sufficient means of access into and within the building of the firefighting personnel to effect search and rescue and fight fire;
(c) if the building is provided with sufficient internal fire mains and other facilities to assist fire fighters in their tasks; and
(d) if the building is provided with adequate means for venting heat and smoke from a fire in a basement."

127) AD B addresses each of the functional requirements and makes recommendations as to how that can be achieved.

BS 9990 2006: Code of practice for non - automatic fire fighting systems in buildings

128) This code included recommendations relating to fire mains, water supplies and dry and wet rising mains.

129) The 2006 version of this code was applicable when the full plans application was made and pre-application discussions took place. It was also current at the time the discussions relating to alterations to the existing dry riser took place on 2 September 2014 {RBK00033902}. The 2015 version was published 31 October 2015 prior to completion of the works.

BS 9991: Fire safety in the design, management and use of residential buildings - Code of practice: 2011

130) The current version of BS 9991 is dated 2015 and superseded the earlier version 2011, on 31 October 2015.

131) The full plans application for the refurbishment was made in August 2014. The 2011 edition of the code was relevant at that time.

132) BS 9991 is a code of practice. It addresses fire safety as a whole - holistically. Its recommendations primarily address life safety, but it does include references to property protection (throughout and specifically in Annex A - Additional considerations for property and business continuity protection) which goes beyond the requirements of the Building Regulations.

133) BS 9991 effectively addresses the same issues as AD B but in more detail and provides detailed technical guidance relevant to larger and complex buildings as well as setting out acceptable variations of the guidance where there are compensatory features, such as automatic fire suppression to allow open plan living accommodation and extension of travel distance within a common escape route to a storey exit.

134) BS 9991 guidance in relation to mechanical smoke control systems also refers to BS EN 12101-6 and provides further information in Annex E Methods of smoke control, where pressure differential systems and mechanical smoke ventilation systems are discussed. Clause 26.2.5 of the BS states in relation to the choice of smoke control systems (natural or mechanical) "a mechanical smoke ventilation system should

demonstrate equivalent or better conditions than the natural ventilation system that it replaces. Note 1 This is usually shown by a comparative computational fluid dynamics analysis."

135) The note at the end of Annex E Clause E.6 states that there are numerous types of fan assisted systems and that further information can be found in "the Smoke Control Association publication Guidance on smoke control to common escape routes in apartment buildings (flats and maisonettes)".

136) BS 9991 addressed the construction of external walls and external fire spread over the external faces of buildings in exactly the same way as AD B, including reference to BR 135.

Smoke Control Association: Guidance on Smoke Control to Common Escape Routes in Apartment Buildings (Flats and Maisonettes)

137) The first edition of this document was published June 2012 {LFB00059241}; the second edition is dated 2 October 2015 {RBK00001778}.

138) The discussions relating to smoke control in the lift lobbies was part of the pre-application discussions in 2012 {CCL00002355}.

Building Control Alliance Technical Guidance Note 18 Use of combustible materials on residential buildings Issue 0, June 2014

139) This is one of a series of readily available documents issued by the Building Control Alliance[3]. Issue 0 of the document was dated June 2014 {CEL00003615}; Issue 1 is dated June 2015 {CEL00002347}.

140) Issue 0 was relevant at the time of the full plans submission. The note states it is "to provide information, promote good practice and encourage consistency of interpretation"; adding it is "advisory in nature, and in all cases the responsibility for determining compliance with the Building Regulations remains with the building control body concerned."

141) Issue 0 of Guidance Note 18 (GN 18) relates to the use of combustible cladding materials on residential buildings and suggests three options as ways of achieving compliance with Requirement B4. The Note reiterates the two recommendations in paragraph 12.7 of Section 12 of AD B that materials of limited combustibility are used for all key components of the external cladding system; or that the complete proposed external cladding system meets the performance criteria in the BRE Report Fire performance of external thermal insulation for walls of multi storey

[3] Building Control Alliance (BCA) represents the building control sector and produces guidance on the application and interpretation of the building regulations; it also offers a mediation service. It comprises representatives from local authority building control, Approved Inspectors, professional bodies, clients and others involved in building control in England and Wales.

buildings for cladding systems using full scale test data from BS 8414 -1 or BS 8414 - 2.

142) The Note also suggests that where no actual fire test data exists for a particular system, a desktop study from a suitable UKAS[4] accredited testing body assessing whether the BR135 criteria would be met by the proposed system. The assessment should be supported by test data from other systems, and reference such tests.

143) Issue 1 June 2015 of the Guidance Note {CEL00002347} added a fourth option to achieve compliance - a holistic fire engineered approach taking into account amongst other things, building geometry, ignition risk, barriers to fire spread. It added the report should follow a recognised design code such as BS 7974 Application of fire safety engineering principles in the design of buildings.

Centre for Window and Cladding Technology Technical Notes Nos .73 and 98

144) The Centre for Window and Cladding Technology produced a Technical Note No.73 Fire performance of curtain walls and rainscreens in March 2011 {CWCT0000019}. This technical note relates to walls that are not required to be fire resistant.

145) Technical Note No. 98 2017 superseded note No. 73 and was titled Fire performance of facades - Guide to the requirements of UK Building Regulations {CWCT0000024}.

146) In my experience these documents have not been used by a BCB in relation to compliance with Part B of the building Regulations.

147) Note 73 is referenced in the specification documents that have been disclosed. As far as I can ascertain the specification was not seen by building control.

Fire Safety Procedural Guidance

148) Detailed comments in relation to Regulation 38 are made elsewhere in the report. For ease of reference parts of that section are repeated here.

149) The Explanatory Note attached to the Building and Approved Inspectors (Amendment) (No.2) Regulations 2006 stated that two new approved documents would be issued providing practical guidance with respect to Regulation 16B (that became Regulation 38). A revised edition of AD B was issued in 2006, that was further amended in 2013 incorporating amendments made in 2007, 2010 and 2013 to address changes in legislation and standards and guidance.

150) The document providing practical guidance with respect to the requirements of Regulation 38 was an updated version of "Building Regulations and Fire Safety Procedural Guidance" which set out a procedure involving pre-application advice

[4] UKAS - UK National Accreditation Body, responsible for determining the technical competence and integrity of organisations such as those offering testing, calibration and certification services.

and the required consultation between Building Control Bodies and Fire Authorities with a view to avoiding the need on occupation of a building to undertake significant additional fire safety measures relevant to the building in use and to provide the "responsible person" under the Order with the information necessary to operate and maintain the life safety measures and installations {CLG00000690}.

151) The Guidance clearly differentiated between the responsibilities of the relevant enforcement authorities – the BCB under the Building Act and the Building Regulations and the Fire Authority under The Regulatory Reform (Fire Safety) Order 2005.

152) The Guidance (clause 2.31) outlined the type of information that should be provided to the "responsible person" on completion of the works and refers to Appendix G of Approved Document B Volume 2 Buildings other than dwellings for additional guidance.

> *"The information provided should include all fire safety design measures in appropriate detail and with sufficient accuracy to assist the Responsible Person to operate and maintain the building in reasonable safety. Where a fire safety strategy or a preliminary fire risk assessment has been prepared these should also be included.*
>
> *The exact amount of information and level of detail necessary will vary depending on the nature and complexity of the building's design (further guidance on what information should be provided is given in Appendix G of Approved Document B – Volume 2).*
>
> *Where the package of information includes design details of complex fire protection systems, maintenance schedules or other extensive documentation, it may not be necessary to provide copies for the building control body.*
>
> *Applicants should agree with the building control body what information it requires.*
>
> *Although the purpose of the provision of this information is to enable the Responsible Person to meet the duties imposed by the Fire Safety Order, it may also assist the building control body in assessing the completed building."*

153) The document was first published in 1992 and updated and revised to accommodate changes in legislation with versions dated 2001, 2006 and 2007 (fourth (4th) edition) {CLG00000690}.

154) It was published for the Department of Communities and Local Government with Crown copyright.

155) Approved Document B in the section "Use of guidance" contains the statement that "This document is one of a series that has been approved and issued by the Secretary of State for the purpose of providing practical guidance with respect to

the requirements of Schedule 1 to and Regulation 7 of the Building Regulations 2010 (SI 20000/2214) for England and Wales."

156) The Procedural Guidance was not listed amongst the standards and other publications referred to in the 2006/2013 edition of AD B.

157) The Procedural Guidance made no reference to Section 6 or Section 7 of the Building Act 1984. It does not have the same status as an Approved Document.

158) In March 2015, the Local Authority Building Control and Fire Sector Federation (LABC/FSF)[5] issued a revised version of the document, the fifth (5th) edition {LFB00054548}. There is no reference within the document to it having been endorsed by the Government or issued under Section 7 of the Building Act 1984; there is no such endorsement on the LABC web site. The Government Planning Portal (planningportal.co.uk) provides an external link to the LABC website, and states that the guide explains the steps involved in approving the fire safety aspects of building work. Although the document is not listed on the Portal as "an approved document" it would be reasonable for a BCB or other professional having searched and found this link to consider this to be the latest version of the original Government publication.

159) The General Introduction of both the 4th and 5th editions states –

> *"Although this guide has no legal force it is intended that all building control bodies and fire safety enforcement authorities should use the consultation procedures described in the guide as a model for arrangements they make, so that procedures will be similar throughout England and Wales."*

160) The full plans application for the Grenfell Tower refurbishment was submitted in August 2014 {RYD00014378}. The works were subject to the Building Regulations 2010 as amended, and the 2007 (4th) edition of the Procedural Guidance was the relevant guidance.

161) The 5th version of the Procedural Guidance was published prior to the completion of the refurbishment works in July 2016. It is generally accepted that the documents current at the time of a submission are applicable to the application until completion unless legislation requires otherwise, as it would be unreasonable to require a major change in a project that has been discussed in detail prior to submission and based on legislation and guidance that is subsequently amended. This accepted approach is supported by the transitional provisions found in building legislation such as that in Regulation 50 of the Building Regulations 2010.

[5] LABC - the membership organisation for building control

A(iii) Standards, codes of practice and guidance adopted for the works at Grenfell Tower

162) In this section of the report I list the guidance referenced in the submissions relating to the works:
   (a) Approved Document B Volume 2 - Buildings other than dwellinghouses
   (b) BS 9990 2006: Code of practice for non - automatic fire fighting systems in buildings
   (c) BS 9991: Fire safety in the design, management and use of residential buildings - Code of practice: 2011
   (d) Smoke Control Association Guidance on Smoke Control to Common Escape Routes in Apartment Buildings (Flats and maisonettes) Revision 1 June 2012

163) The disclosed documents indicate that AD B Volume 2 was the main document against which compliance was checked. The 2006 edition of Approved Document B was current at the time of the full plans application for the Building Works.

164) The full plans submission was made in August 2014. The first technical submission of the Lobby Smoke Control Systems Rev 1 was submitted attached to an email dated 19 January 2015 {ART00003423}. The discussions relating to the proposed smoke control system were concluded in January 2016, when Revision 3 (dated 12 June 2015) of the Smoke Ventilation Technical submission from PSB was "considered satisfactory" subject to conditions {RBK00002981}. Revision 6 of the Technical submission was dated 15 March 2016 {RBK00003775}.

Smoke Control Association Guidance

165) In his email of 4 May 2016 regarding the required witnessing criteria for the smoke control system, Paul Hanson referenced Section 9 of the attached SCA guidance which was Revision 2 dated October 2015 {RYD00076682}.

166) The Inquiry should note that Paul Hanson of RBKC Means of Escape section is acknowledged in the 2015 revision as having contributed to the guidance. I suggest it is likely therefore that his review of the smoke control proposal drew on both documents. In my experience this document was (and is) widely accepted as practical guidance on providing smoke control for the purpose of compliance with the Building Regulations.

167) The Introduction states "This document covers information and requirements on the design, calculation methods, installation and testing of systems intended for smoke control within the common escape routes within apartment buildings."

168) All these documents were recognised guidance at the time of the works. In my view they were all relevant and appropriate. The full plans submission and the review by the BCB adopted the recommendations of AD B as the basis for achieving compliance; together with the Smoke Control Association guidance specifically in relation to the smoke control measures protecting the escape/firefighting stair.

169) The review of the smoke control system at Grenfell Tower will form the subject of a separate report.

Section B The Building Regulations process

170) In this section I will provide a brief general overview of the systems available and the local authority process specifically. I will then review the building control process undertaken in respect of the Grenfell Tower works.

B(i) The building control system

171) There were two forms of Building Control body that could have been employed - the Local Authority or an Approved Inspector. Then, as now, both bodies carry out the same functions except that the procedure is different - for example a full plans application is not required if an Approved Inspector is employed but the Fire Service must be consulted. An Approved Inspector has no powers of enforcement. If a contravention of the Building Regulations occurs, the regulatory role must revert to the local authority for enforcement action to be pursued.

172) A local authority building control body was not and is not required to employ professionally qualified staff or to be a member of any officially recognised body such as Local Authority Building Control (LABC). Nor is it required to adhere to the guidance issued by bodies such as LABC or the Building Control Alliance (BCA) or to submit the annual statistical returns requested by the Building Control Performance Standards Group (BCSPAG)[6].

173) The Inquiry has been advised that the BCB was a member of LABC.

174) LABC now has a code of conduct. Its constitution allows LABC to require its members to comply with the code of conduct.

175) The performance procedures and conduct of local authority building control are not reviewed by any external regulatory body, unless they are externally audited to attain and retain for example ISO 9001 (Quality Management Systems) certification, which requires an organisation to be audited and compelled to adopt recommendations for change and improvement to retain its certification. Auditing of the systems of a building control body is good practice and to be advocated whether to an ISO 9001 standard or similar. Such an audit should review if systems are appropriate to deliver the statutory functions, and are effective and consistently administered. Recommendations for change and/or improvement that are not implemented render an audit ineffective. BCBs may also have their own internal audit procedures.

176) I have seen job descriptions for both a senior and a principal building control surveyor {RBK00052484} and {RBK00052485} respectively, which were current at the time of the Building Works. The job description for the principal building control surveyor refers to a "Quality Assurance System" and "Quality Manager". This suggests that RBKC may have had its own internal audit processes and quality

[6] BCPSAG is a sub-committee of BRAC , the Building Regulations Advisory Committee (BRAC), which advises on the performance of building control bodies.

assurance procedures. I have been unable to trace a disclosure that sets out the system or the role of the Quality Manager.

177) An Approved Inspector (an individual or a company) is an approved and monitored building control body, regulated by CICAIR[7] under the Building Act 1984. To attain registration an Approved Inspector (AI) is required to demonstrate amongst other things, specified levels of competency and have a minimum knowledge base, is expected to employ personnel and assistants with (or in the process of attaining) professional qualifications appropriate to the roles undertaken, retain indemnity insurance; undertake Continuing Professional Development (all staff) and undergo a re-licensing process every five years to retain registration. An Approved Inspector is required by condition of their registration to adhere to the CICAIR Code of Conduct which requires amongst other things an Approved Inspector to provide an appropriate level of service, act with professional skill, care and diligence, work within its capabilities and resources, maintain its skill base in accordance with the CICAIR Knowledge Base, comply with the Building Control Performance Standards and pay regard to industry best practice, technical and professional standards and the Code of Conduct Guidance Notes, and be accountable for its decisions. Adherence to these standards is monitored by periodic audits conducted by CICAIR in the office of the AI when records, work practices and procedures are reviewed, and staff are interviewed.

Building Control Performance Standards July 2014

178) The Building Control Performance Standards Advisory Group (BCPSAG) was/is a standing subcommittee of the Building Regulations Advisory Committee (BRAC) and produces and monitors the Building Control Performance Standards. The standards aimed to guard against market forces (competition between LABC and Approved Inspectors) and the risk of inconsistent application of building control functions. The standards and supporting guidance set out the expected minimum level of performance of a building control body in discharging its duties and responsibilities. The Standards current at the time of the works at Grenfell Tower were dated July 2014. The standards addressed -
    (a) Policy, performance and management systems: create and publish a business policy that complies with the Building Control Performance standards; and have a formal documented Quality Management System.
    (b) Resources: sufficient experienced and qualified staff, with competencies appropriate to the type of work undertaken; arrangements for CPD shall be provided.
    (c) Consultation: statutory consultations shall be taken in a timely manner and observations of consultees communicated in writing to clients.
    (d) Pre-application contact and provision of advice: arrangements shall be in place for this. BCBs shall establish a single point of contact for both procedural and technical enquiries.
    (e) Assessment of plans: the findings of an assessment shall be communicated to the client in writing, together with the views of statutory consultees, conditions pertaining to the approval or passing of plans. Records shall be

[7] Construction Industry Approved Inspectors Register

kept of the design assessment and consultations for future reference and continuity of control.

(f) Site inspections: BCBs shall deliver a site inspection plan matched to client and project needs; records of each inspection shall be maintained; contraventions shall be made known to clients; consultees shall be notified of any significant departures from plans.

(g) Communications and records: communications should be in writing; all records shall be stored in a retrievable format for a minimum of 15 years.

(h) Business and professional ethics: BCBs and their consultants shall observe best practice professional standards and ethics.

(i) Complaints procedure: shall be published and maintained.

179) Local Authority BCBs are invited to periodically return the Building Control Performance Indicators (the survey) to allow the government and themselves to assess the quality of service. Approved Inspectors are required to return the survey as part of the conditions of their registration.

180) The BCPSAG report 2015/16 lists RBKC as having responded to the survey for that period.

181) Later in my report I refer to the Building Control Performance Standards in relation to site inspections.

The Royal Borough of Kensington and Chelsea Building Control Body

182) John Allen, the Building Control Manager at RBKC at the time of the works at Grenfell Tower has attached to his Witness Statement {RBK00033930} the current CICAIR Code of Conduct stating that it describes the role of building control and adding that it is the responsibility of the building owner to comply with the Building Regulations and for building control to "check" Building Regulations. Mr Allen goes on in his statement to say that he met his surveyors on a monthly basis to confirm their workload was manageable and if help or assistance was required but had "great confidence in the team" as he "found them all to be good and competent".

The building control personnel and management structure

183) The building control personnel at the time of the works at Grenfell Tower were:

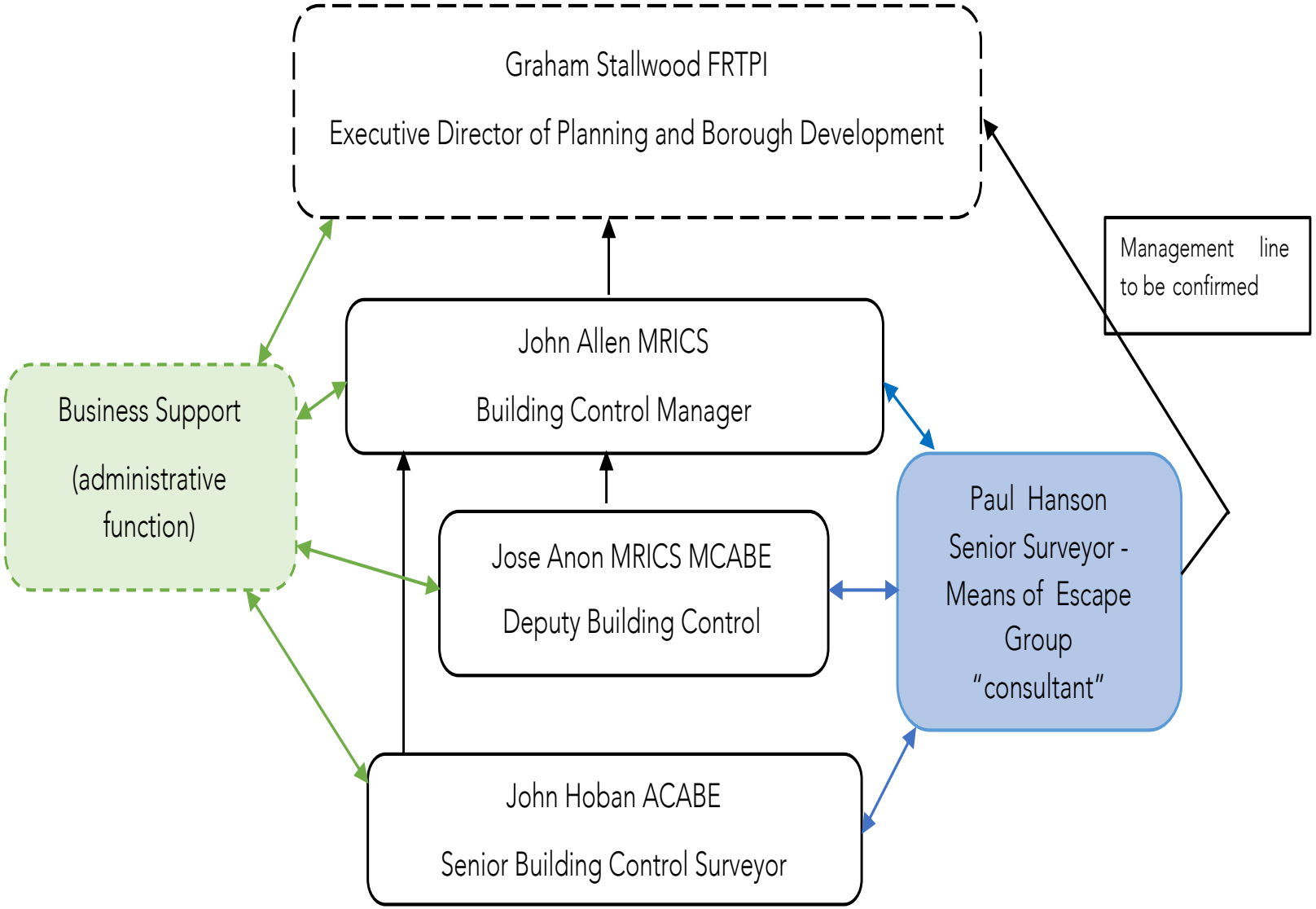
(a) Graham Stallwood: Head of Development Management

(b) John Allen: Building Control Manager (from September 1993)

(c) Jose Anon Deputy Building Control Manager

(d) John Hoban: Senior Building Control Surveyor

184) Paul Hanson, a Senior Building Control Surveyor in the "Means of escape group", describes himself in his witness statement {RBK00033894) as a consultant to the BCB providing advice in relation to means of escape (Requirement B1).


Graham Stallwood FRTPI
Executive Director of Planning and Borough Development
Management line to be confirmed
John Allen MRICS
Building Control Manager
Business Support
(administrative function)
Jose Anon MRICS MCABE
Deputy Building Control
Paul Hanson
Senior Surveyor - Means of Escape Group
"consultant"
John Hoban ACABE
Senior Building Control Surveyor

Graham Stallwood

185) Graham Stallwood was designated Executive Head of Development Management and Conservation at the time the building control process commenced in 2012 and was responsible for the Building Control Department. He has stated in his witness statement {RBK00033910} that he was not personally involved in the Building Regulations application.

John Allen

186) John Allen, the Building Control Manager, was a chartered building surveyor – RICS.[8] . He was responsible for the building control department, reporting to Graham Stallwood.

187) In his Witness Statement {RBK00033930} he has indicated he –
(a) had effectively no involvement in the process of checking for compliance;
(b) had no knowledge of what details were initially submitted;
(c) was not consulted about the cladding and had no knowledge of its specification; and states
(d) there is no standard relating to inspections - frequency and objective of inspections being agreed by the Area Surveyor with the relevant parties;
(e) he was not aware of any issues arising in relation to the works;
(f) he was not involved in the issue of the completion certificate; and
(g) stated that he is not aware of any service provision plan between the applicant and building control relating to the Grenfell Tower works.

188) A service provision plan would have set out a site inspection plan for a minimum number of inspections.

189) RBKC has provided a Building Control Service Plan for 2016/2017 dated July 2016, that was produced subsequent to the full plans submission {RBK00033982}. It is not known if a service plan existed for 2014/15.

190) Mr Allen attached to his Witness Statement a document P6 (exhibit JA/1), reproduced later in the report, that he describes as a flow chart Full Plans Application process. This document, which he prepared, is Issue 7 dated 03/16. In the last box of the chart it states, "Inspections are made in accordance with the site inspection policy." As far as I am aware the inspection policy that was current at the time of the full plans submission has not been made available to the Inquiry.

191) He carried out an inspection of the cladding on 24th March 2016. His note of the inspection as recorded on Acolaid {RBK00044876} states that "cladding nearly complete"; "ensure thermal insulation completely fills voids"; and lists various issues relating to the works at the lower levels; and a note that may only refer to lower levels – "Firestopping being carried out to a high standard including in between voids in steel deck."

[8] RICS Royal Institution of Chartered Surveyors.

192) As a member of the RICS at that time, Mr Allen would have been expected to have undertaken CPD (continuous professional development) totalling 20 hours every calendar year, of which 10 hours was formal training, to retain his professional membership.

193) Information relating to the training and competence of the building control personnel has been provided by RBKC and the solicitors acting for the individual Building Control officers at RBKC. The Training record of John Allen {RBK00050382} details the RBKC in-house training undertaken from 2002 until May 2017; there are some 270 entries of which (from the available detail) 70 appear to be technical topics. John Allen's solicitors have also provided Mr Allen's RICS CPD records for the years 2013 to 2017 {ALL00000001}. The records for 2014 and 2016 are annotated "Your CPD recording requirements have not been met." However, as membership continued in 2015 and 2017 respectively, I assume the RICS was subsequently satisfied that adequate CPD was undertaken.

Jose Anon

194) Jose Anon was Deputy Building Control Manager at the time of the full plans application. In his Witness Statement paragraph 10, {RBK00029897} he states, "Before the fire at Grenfell Tower, the way that work would be allocated is that a surveyor would be allocated a geographic area in the borough, a "patch", and they would generally be responsible for any work that came within that area". In paragraph 11 he states, "Since the fire, the process of work allocation has changed, such that work is allocated dependent on the complexity of the job." Mr Anon outlines the current training and procedures of the BCB which are not relevant to the period when the works were undertaken.

195) In relation to Grenfell Tower Mr Anon states in paragraph 39 of his Witness Statement that "I did not know of any details relating to the Grenfell Tower refurbishment works". He states in paragraph 40 that the only visit he made was on 17 April 2015 to inspect a metal deck and reinforcement and concrete depth; he cannot recall at which level of the building he inspected. This visit was not recorded on Acolaid; it was shown in the RBKC chronology {RBK00026859}; and the site note entered on his Blackberry appears to be the disclosure {RBK00027407} in addition to exhibit JA1 attached to his Witness Statement.

John Hoban

196) John Hoban was a Senior Building Control Surveyor. In his witness statement {RBK00033934} he states he was an Associate Member of the Chartered Association of Building Engineers (CABE). The current CABE website describes associate membership as recognition of an ability to practice at higher technician level and requires a minimum of two years relevant experience.

197) The absence of a professional qualification does not, in my opinion, mean that a person is not competent. From his Witness Statement it appears that John Hoban had over 30 years relevant experience, yet he did not pursue full professional membership of a recognised professional body. His RBKC training records

{RBK00050382} indicate that between November 2010 and November 2016 (the last entry on the record) he undertook no technical training. In his second Witness Statement {RBK00050416} Mr Hoban states in paragraph 3 that he attended privately a number of technical seminars; the subject of one was BS 9999 (Fire safety in the design, management and use of buildings - Code of practice) which relates to non- residential buildings.

198) Johan Hoban reported to John Allen {RBK00052482} (Jago Williams' Second Witness Statement).

199) John Hoban was appointed as the surveyor for the refurbishment works at the time the full plans application was deposited. He states in his first Witness Statement {RBK00033934} that -
   (a) Paragraphs 1 and 4, 36 and 37 - he was responsible for the works
   (b) Paragraph 84 - carried out inspection of all works in conjunction with Paul Hanson, John Allen, Parvinder Virdee and another colleague.
   (c) Paragraphs 17, 30 ,41, 42 and 112 - reviewed submitted details and made decisions;
   (d) Paragraphs 65 and 66 – he discussed the works with the architect and the specialist fire consultant dealing with fire matters, and the engineer on site. It is not clear who the engineer referred to was.

200) He states in Paragraph 12 of his second Witness Statement {RBK00050416} that he drafted a decision notice but did not know if it was ever issued.

201) The Acolaid site inspection note for 7 July 2016 {RBK00044876} and the recorded site notes {RBK00013223} in his name state "works controllable under the building regulations now complete. Clear job". This was the final inspection and preceded the decision by Mr Hoban to instruct the completion certificate to be issued.

Paul Hanson

202) Paul Hanson was a Senior Building Control Surveyor (fire regulations). He states in his first Witness Statement {RBK00033894} and PHD-01 he was a Corporate Member of the Institution of Fire Engineers (IFE) and a Corporate Member of the Chartered Association of Building Engineers (CABE). Mr Hanson's CABE CPD records for the years 31 December 2013 to 6 December 2017 have been disclosed at {RBK00052249} and {HAN00000002} (2015 to 2017). In an internal RBKC email dated 10 January 2018 {RBK00052250} Mr Hanson states that he has been a full member of the IFE since 2004. Membership of the IFE (according to its website) currently requires 25 hours of formal study each year. As far as I am aware, Mr Hanson's IFE CPD records have not been disclosed to date.

203) Mr Hanson's RBKC Training Log {RBK00033179} dates from May 1995 through to September 2015 (the last recorded entry). This indicates that in May 2012, he undertook a LABC Fire Risk Assessor exam. In the Personal Development Planner {RBK00048623} Mr Hanson states under the section "My main areas of responsibility are …. To advise a Building Control body regarding means of escape and fire engineering matters for major projects within the Borough" and "To carry

out fire risk assessments". I have not been able to ascertain from the disclosed documents what proportion of Mr Hanson's work was supporting RBKC Building Control in the period between January 2013 to July 2016 and what proportion was giving advice to other boroughs and undertaking fire risk assessments.

204) Paul Hanson worked within the Means of escape group (formerly known as Fire Regulations Group) within RBKC and acted as a consultant to the Building Control Department, providing advice to John Hoban in matters relating to Requirement B1 (means of warning and escape) and Requirement B5 (Access and facilities for the fire service). He provided advice in relation to the refurbishment on submitted details, including the fire strategy, attended meetings in relation to B1 and B5 and visited site to attend meetings.

205) He adds that -
   (a) requests for advice from the Means of escape group could extend to Requirement B5 (Access and facilities for the fire service); observations could be requested in relation to Requirements B2- B5 but this is not standard and rarely done, except for B5 on new buildings;
   (b) the "Means of escape group has received one request other than B1 and B5 in 30 years"; and
   (c) "As a consultant I have no power to take direct action (following the repeal of Section 20 from the London Building Acts)."[9]
   (d) A paper dated 1 June 2012, titled "Performance Targets" names Paul Hanson as having the job title "Senior Building Control Surveyor (Fire Safety Group)" within the Section "Building Control" {RBK00048619}.

206) Whilst the RBKC training details indicate a lack of CPD being taken by John Allen, John Hoban and Paul Hanson, they would have had to individually and independently undertaken CPD to maintain their professional memberships.

207) To date I have not seen any reference within the witness statement of any Building Control surveyor to a quality control system or quality audits being undertaken.

208) It is notable that the Building control Department did not make full use of Mr Hanson's abilities as a qualified fire engineer to support other surveyors within the Department. However, I also note that after the fire Mr Hanson in response to a RBKC internal request for information regarding cladding stated "I am not an expert regarding B4 but I know a bit about it." {RBK00031215}

Business Support

209) A description of the role of the Business Support Group is set out in paragraphs 56 -58 of Jago Williams' first witness statement {RBK00050399}, which I summarise as:
   (a) Entering administrative data (only) onto Acolaid; data relating to technical or policy issues is entered by case officers; and

[9] London Building Acts (Amendment) Act 1939: Section 20 Limits of height and cubical extent. Repealed 9 January 2013 – Building (Repeal of provisions of Local Acts) Regulations 2012.

(b) Manually uploading material into the building control location on the data management system; adding, deleting, redacting and replacing documents.

Job descriptions for Senior and Principal Building Control Surveyors

210) The job descriptions provided by RBKC are those current at the time of the works to Grenfell Tower. I therefore assume that these job descriptions related to John Hoban and Paul Hanson and Jose Anon respectively.

211) Senior Building Control Surveyor {RBK00052484}: the relevant parts of the job description state that -
   (a) Purpose is to administer the Building Act 1984, the Building Regulations and London Building Acts within an area of the borough;
   (b) Responsible to Principal Building Control Surveyor.
   (c) To deal with full plans applications and building notices: in accordance with our Quality Assurance system and customer charter".
   (d) To undertake routine inspections on building sites to ensure , as far as is practicable, compliance with the regulations and to meet departmental targets.
   (e) "To deal with means of escape issues on a variety of building types".
   (f) "To undertake quality audits in a timely manner as directed by the Quality Manager".
   (g) Person Specification: "for more experienced applicants qualification or course of study may be waived but you will be expected to work towards obtaining a professional qualification following successful appointment".
   (h) Knowledge/Skills:
      (i) "understands fundamental principles with regards to means of escape and how to apply them.
      (ii) Has a thorough approach when dealing with details and actively checks to ensure accuracy.
      (iii) Able to demonstrate a flexible approach to technical issues whilst still meeting legal requirements.
      (iv) Understanding of the commercial environment that department is working in and the contribution that individuals can make."
   (i) Communication skills: "able to listen actively, ask questions, clarify points and rephrase other people's statements to check mutual understanding."
   (j) Other requirements: "commitment to undertake training and take responsibility for own Continuous Professional Development".

212) Principal Building Control Surveyor {RBK00052485}: the relevant parts of the job description state that:
   (a) Main Purpose of the Job: to assist the Building Control manager to implement and enforce the Building Regulations, and allied legislation, including local legislation, ensuring all work meets required statutory legislation, departmental performance targets and quality management systems, and to undertake the duties of the Building Control Manager when necessary.
   (b) Main duties and responsibilities:
   (c) Deputise for the Building Control Manager.

(d) Examine, evaluate and process deposited plans for Building Regulations compliance and "respond accordingly within the timeframe of the departments local performance indicators".
(e) Undertake site inspections to ensure as far as is practicable compliance with the Building Regulations and take appropriate action where necessary all within the time frame of the departments local performance indicators".
(f) Lead on major and complex projects allocated by the Building Control Manager.
(g) "Make accurate records of all inspections using the departments information management system."
(h) "Undertake quality audits in a timely manner as directed by the Building Control manager."
(i) Person specification (essential):
    (i) Full member of relevant building professional body ;
    (ii) Thorough knowledge of relevant legislation and statutory framework, including enforcement of the regulations;
    (iii) "Thorough understanding of fundamental principles with regard to means of escape and how to apply them."

213) John Hoban did not achieve full membership of the Chartered Association of Building Engineers as required by his job description. The longevity of his service may have had something to do with this; no explanation has been given.

The relationship between the BCB and the Means of escape group

214) The Means of escape group (formally the Fire Regulations Group) provided advice to the BCB when it was requested by the BCB.

215) The Group comprised solely of Paul Hanson, a Senior Building Control Surveyor within the Building Control Department.

216) The relationship/interaction between the BCB and the Means of Escape Group was, in my opinion, somewhat muddled when reviewed by reference to the Witness Statements of Mr Hoban and Mr Hanson.

217) In his two Witness Statements Mr Hoban sets out his understanding of the relationship.

218) First statement {RBK00033934} –
(a) Paragraph 30: "I provided observations under B2 and B3 of the Building Regulations 2010 as amended in consultation with Paul Hanson as necessary."
(b) Paragraph 36: "I made decisions in relation to B2, B3 and B4 and where necessary after consultation with Paul Hanson and John Allen. Paul Hanson made decisions in relation to B1 and B5."
(c) In response to a question regarding decision making, communication and responsibility, Mr Hoban states in Paragraph 42 "In relation to decisions I made, some were made without reference to Paul Hanson and/or John Allen and others were made following discussions with them. Communication would be by face to face discussions and email."

(d) Paragraph 84: "Inspections were carried out by myself, Paul Hanson, John Allen, Parvinder Virdee."

219) Second Witness Statement {RBK00050416} –
   (a) Paragraph 9(a): Mr Hoban clarifies he made decisions relating to B4 "where necessary after consultation with Paul Hanson and John Allen."
   (b) Paragraph 9(b): In response to a question relating to division of responsibility, Mr Hoban stated "in relation to matters under B1 and B5 I would defer to Paul Hanson's experience and, in effect, decisions were made by him in respect of these areas."
   (c) Paragraph 9(c): "I was not obliged to follow advice provided by the Fire Regulations group (aka means of escape group)". "I was not aware of any management directive/protocol".
   (d) JEH/1: evidence: emails Hanson/Hoban where Paul Hanson states B3 and B4 are matters for John Hoban.

220) Mr Hanson states in his first Witness Statement {RBK00033894} –
   (a) Paragraph 31:
      (i) "RBKC has a "Means of escape group", which provide consultancy advice on larger projects for the following: -
         (1) B1 Means of warning and escape under the Building Regulations;
         (2) B5 Access and facilities for the fire service for new buildings.
      (ii) Observations can be requested on other aspects of B – 2-5 but this is not standard and has rarely been done. Except for B5 on new buildings."
      (iii) "As a consultant I have no power to take direct action."
   (b) Paragraph 35: "An Area Surveyor can choose whether to follow the advice given or not as the Means of escape group acts as consultants. Normally the advice is followed."
   (c) Paragraphs 46 and 47 – provided advice in respect of Requirement B1 only.
   (d) Paragraph 71: "consideration was not given to B4 External fire spread when reviewing B1 means of escape."
   (e) Paragraph 85: in relation to Dry/wet riser "This is covered under B5 of the regulations, which was not my reference".
   (f) Paragraph 128: "in this case my consideration of B5 was limited to the smoke control system when it was decided to replace the system".
   (g) Paragraphs 124 – 136: Mr Hanson sets out the "Chain of decision making" reiterating the points above and in paragraph 136 stating "In the case of the Grenfell Tower refurbishment; B2-5 was not requested as is normal practice. In the later stages of the project when the new smoke control system was proposed, I dealt with this under B1 and B5 as it has firefighting reference, under B5 (to stop the stairway being affected by smoke from a fire on one floor)".

221) From the above it would appear that a BCB surveyor could request advice from the Means of escape group on any aspect of Part B of the Building Regulations but it was "normal" for a request to only relate to B1, means of warning and escape and B5, access and facilities for the fire service, but only for a new building.

222) Within the "Knowledge/Skills" section of the job descriptions of a Senior and Principal Building Control Surveyor, there is an emphasis on an understanding of means of escape. I would expect this of any Building Control Surveyor at senior or principal level. It is not clear to me why RBKC made use of the "Means of escape Group" effectively only for means of escape advice (and fire service access and facilities on new builds). This indicates to me a failure on the part of RBKC within the Building Control Department to use the valuable asset of a qualified fire engineer within the Means of escape group for all fire issues.

223) Paul Hanson was a qualified fire engineer who I believe should have had detailed knowledge of Requirements B1 to B5 inclusive, by virtue of his qualification and extensive experience in the Building Control Department. This raises the question in my mind as to who reviewed those fire safety requirements for complex/fire engineered developments within the borough. I consider it a failure on the part of RBKC not to use the valuable asset of a qualified fire engineer to the benefit of the Building Control Department as a whole.

224) Mr Hoban by email dated 29 September 2014, requested "Please may I have your observations under Part B of the Building Regulations for the attached proposals for the Grenfell Tower Redevelopment." {RBK00048693}. The referenced proposals were those first submitted following the full plans application received on 24 September 2014 {RYD00018742}.

225) The response by Paul Hanson was by email dated 14 November 2014 {RBK00003802}, to which was attached the S1 submission observations; but this only contained "B1- Means of escape observations", which stated that the scheme has been sent for fire authority consultation. The S1 observations made reference to the "Fire strategy document by Exova Warrington ref MTY14652R" which was the Exova Warringtonfire Grenfell Tower Outline Fire Safety Strategy Issue No. 03 dated 7 November 2013 {EXO00001107} which addressed Requirements B1 to B5.

226) As far as I can ascertain Mr Hoban did not seek further observations regarding B2 -B5 inclusive, albeit the proposals affected the firefighting stair (which was also the escape stair) and were therefore subject to Requirement B5.

227) Although Mr Hanson describes himself as a "consultant" who has no power to take direct action, he made the decision to undertake the statutory consultation with the Fire Authority without reference to Mr Hoban and without establishing that the proposals in relation to B5 (Access and facilities for the Fire Service) were acceptable.

228) It appears to me that the working relationship between the Means of escape group and the other part of the Building Control Department was undefined and unclear to those involved; and did not necessarily support project surveyors reaching the most appropriate decisions in relation to Part B.

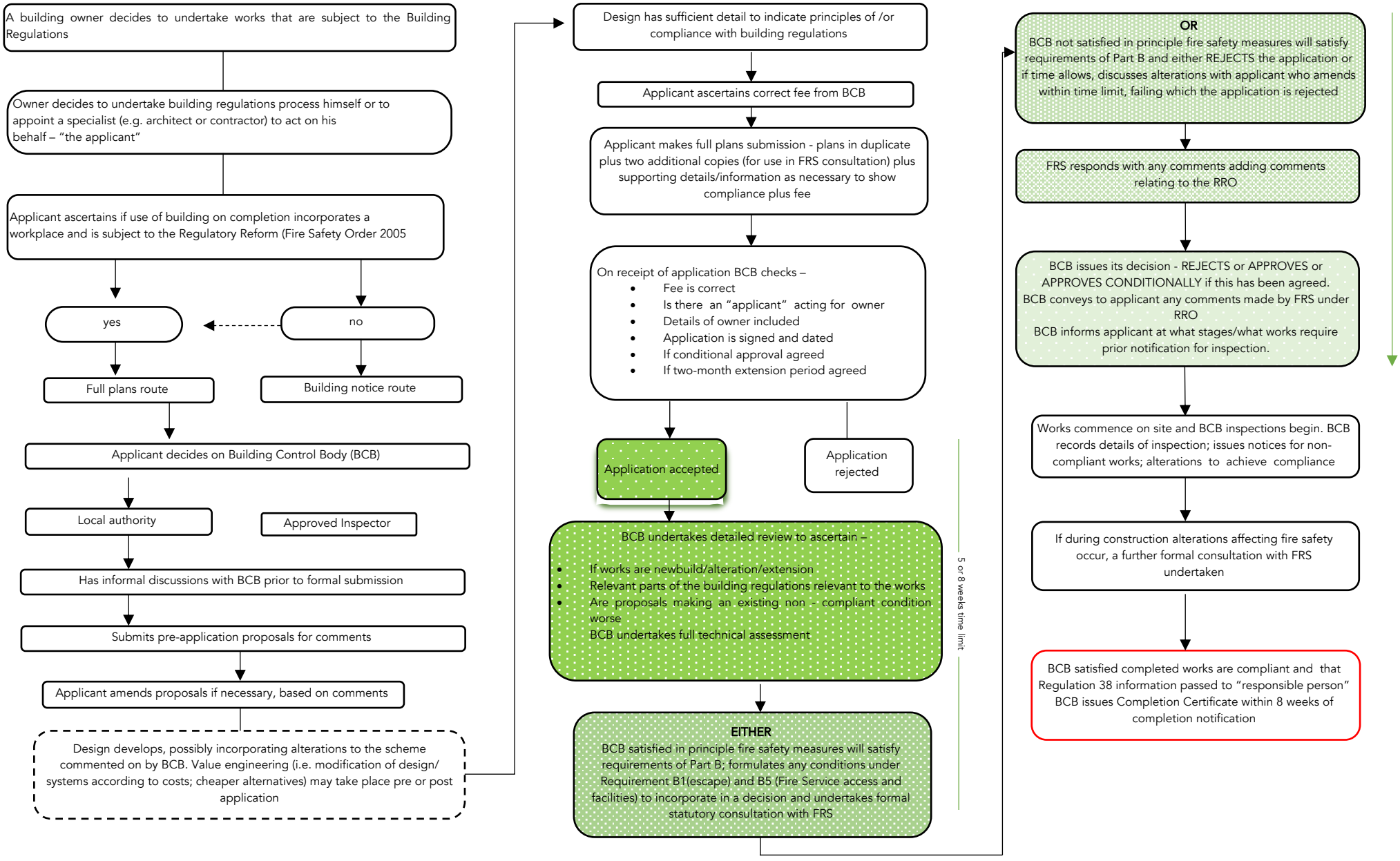
B(ii) The Building Regulations route

229) Building Control was required to adhere to various statutory requirements as part of the building control process; these were –
   (a) To accept or reject the deposit of a full plans application (Building Act 1984: Section 16)
   (b) To consult with the Fire Authority (Regulatory Reform (Fire Safety) Order 2005: Article 45)
   (c) To issue a decision within the specified time scale (Building Act 1984: Section 16(12))
   (d) To issue a completion certificate within the specified period (Building Regulations 2010 as amended: Regulation 17).

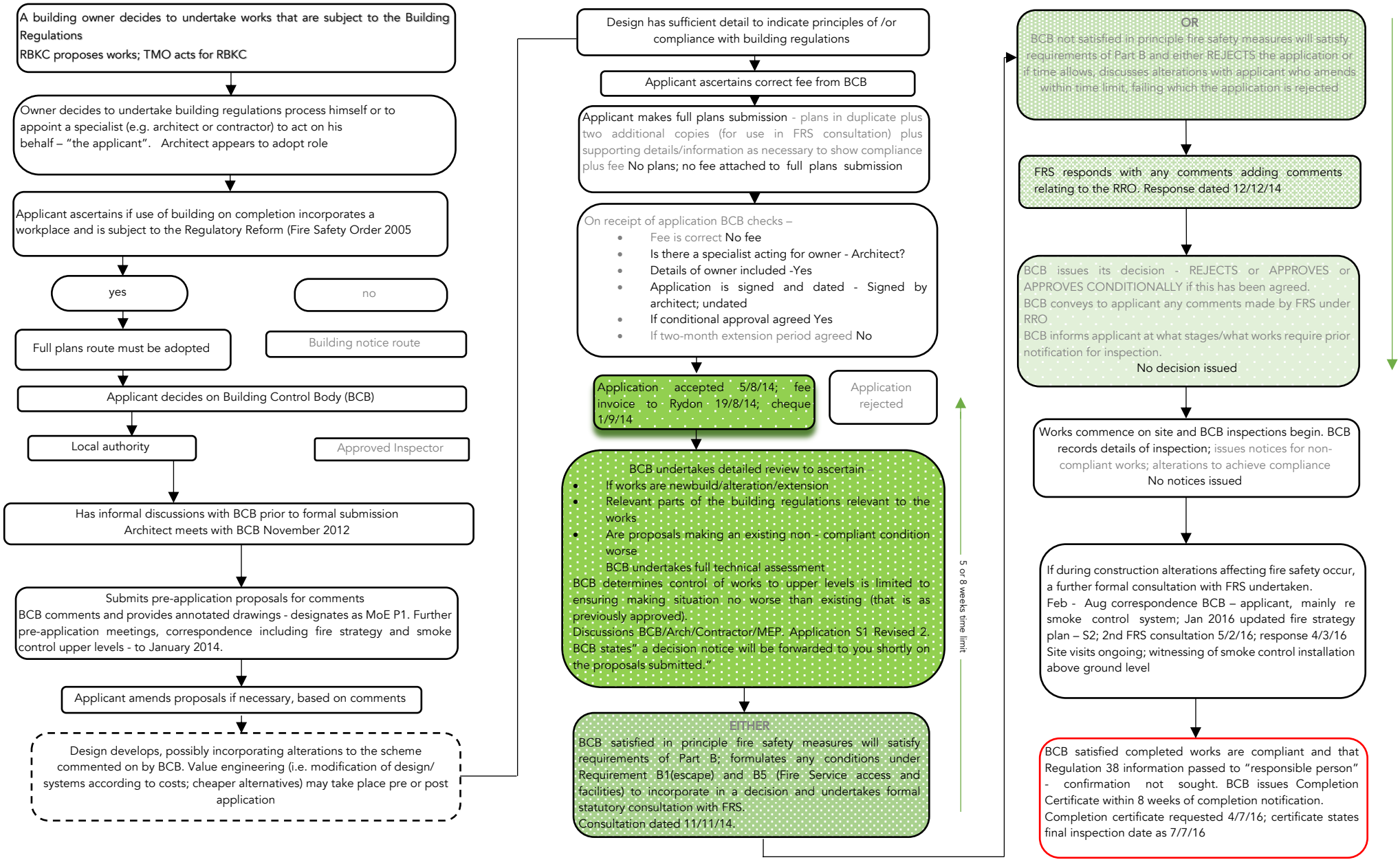
230) In this section of my report I have used diagrams to indicate the route of processing a Building Regulations application from initial receipt to completion of the works.

231) In the first diagram I have set out the route I would have expected a full plans application to have undergone; and then by comparison in the second diagram I have indicated the route undertaken by the RBKC process.

Building Control Process



Building Control Process as undertaken by RBKC Building Control



232) There are several points in the process that warrant further explanation.

233) On anything other than a small project, all the details required to show full compliance with the Building Regulations will not be available at the point a full plans application is deposited. The initial details submitted should indicate that the means of escape proposal is generally compliant in principle and that the fire service access is or remains adequate. If the applicant and the BCB agree, a "conditional" approval can be issued. The conditions of the approval set out any minor amendments that are required, aspects that require further justification, those matters where further details are required, what installation commissioning/test certificates are required, advice that confirmation to the effect that the information required by Regulation 38 has been passed to the "responsible person" will be required and highlights those points in the work when notification to the BCB is required.

234) The technical details required to indicate compliance may necessitate the appointment of contractors and sub-contractors so information may be submitted intermittently as the design develops and the works progress.

235) In my experience BCBs vary in their approach to issuing approvals: some will not issue conditional approvals; some will issue conditional approvals with a small number of conditions; others will issue an approval with an extensive list of conditions.

236) If any project shows contraventions the BCB must reject the application. If the application lacks information to the extent that it is not shown/indicated compliance can be achieved, the BCB should reject the application.

237) I am of the opinion that only an approval relating to a large or complicated/complex project should be given an approval with an extensive number of conditions.

238) If plans are rejected no further application need be made and works on site can proceed. An applicant can continue to submit details for review and approval.

239) If the works on site are found to contravene the Building Regulations, action can be taken under Section 35 and/or Section 36 of the Building Act 1984.

240) Once building control is satisfied in principle that the fire safety measures will satisfy the relevant requirements of Part B and has formulated any conditions under Requirements B1 (escape) and B5 (Fire Service access and facilities) to incorporate in a decision, formal statutory consultation with the Fire Authority is undertaken.

241) The Fire Authority formally responds with any comments, adding any comments it wishes to make relating to the Order that may influence the fire risk assessment that will need to be carried out on occupation of the building. The

Fire Authority is at liberty to make any fire related comment. Building control is not obliged to accept them but should take cognisance of such comments.

242) Building Control is required to issue a decision. It either approves outright; approves conditionally; or rejects, all within the prescribed period (5 weeks or 2 months if this has been agreed by both the applicant and building control). Building control conveys to the applicant any comments from the Fire Authority relating to the Order or other matters.

243) A conditional decision will detail the necessary amendments to achieve compliance and details of those certificates indicating compliance from third parties, for example fire doors, fire stopping, fire barriers and cavity barriers, secondary (emergency lighting), dry riser tests, smoke control commissioning tests. When conditional to an approval, the production of the certification is a requirement.

244) A conditional decision will also request details of elements/installations that may not be available at the time of the initial submission. Any request for details of the over cladding should have at the same time or following their receipt, required the submission of any fire tests or assessments to attest to whether the relevant materials were of limited combustibility, surface spread of flame, fire resistance of the individual materials and/or assembly forming the overcladding.

245) At the time of the Grenfell Tower works my experience was that third party certification of fire stopping, fire barriers and cavity barriers was generally a recommendation rather than a requirement, although some major contractors adopted it as a general practice.

246) Building Control also informs the applicant as to what stages/specific works require prior notification to allow inspections to take place at key points. These are unlikely to be the only inspections. The inspection regime is generally based on matters such as the extent and complexity of the works; knowledge of the site (poor ground conditions for example) and any prior knowledge of the contractor and their capabilities and standards of work.

247) Design details are issued to building control as and when available. They are reviewed and responses made.

248) It is not unusual for the applicant or building control to run a tracker detailing/based on the conditions of the approval to monitor submissions, responses and outcomes and to which the subsequent submissions are added. As far as I have been able to ascertain the BCB did not use any form of tracker to monitor the refurbishment.

249) When building works start on-site inspections by building control begin. These may precede the formal response, as the commencement of works on site is not subject to the passing of plans/application approval. Building Control is not required to carry out inspection of the works. However, as a contravention of the requirements of the Building Regulations can only occur on site, inspections are,

in my experience invariably undertaken. Photographs are accepted by some BCBs as evidence of compliance but in my opinion this should only relate to minor matters or where for any reason a visit cannot be made before works are covered up. The photograph should be electronically date and time stamped and it should be possible from the photograph to determine that the photograph relates to that particular site. Photographs should not be the only form by which a BCB ascertains compliance.

250) Building Control inspects the works, records details of the inspections and their outcome; issues notices for works that are not compliant - to pull down or remove the work or if the owner opts, to alter the works so as to comply.

251) If as design/works progress there are significant changes to the original proposals that affect fire safety, the FRS will be consulted again.

252) When building control is satisfied that the controllable completed works (i.e. the works within the scope of the Building Regulations) are compliant, the necessary third party certificates have been received, and the required fire safety information has been provided to the owner, they must issue a completion certificate within eight weeks of being notified of completion of the works.

253) Building Control also had a responsibility in relation to the demolition works at Grenfell Tower and visited to inspect the demolition prior to commencement of the refurbishment works. Demolition is not a matter controllable under the Building Regulations.

RBKC Building Control processes in relation to the full plans application for the Building Works

254) As part of his Witness Statement {RBK00033930} John Allen produced a document (JA/1) titled “Building Regulations Applications Ref P6”, which John Hoban describes in his second Witness Statement {RBK00050416} as the formal policy for dealing with a full plans application. As can be seen from the screenshot of the document below, it is dated March 2016. The process requires administrative support from “Business Support” to process fees and issue a full plans application decision notice. Reference is also made to a “site inspection policy”; this has not been disclosed. Any P6 document current at the time of the full plans application has not been disclosed to date.

JA/1

Title: Building Regulation Applications

Ref.	P6
Issue	7
Date	03/16
Prepared by:	John Allen
Amended by	John Allen
Approved by:	John Allen
Page number	1

All Building Notice, Full Plan (FPA) or Regularisation Certificate application received and date stamped, including those received electronically. Check that address is in Borough and staple any cheque to the application form.

Cash is banked the same day at the cashier counter. Cash and amount is written on application form.
Cheques put on cheque list and entered into Agresso
Credit cards On screen credit card authorisation used.

Principal Building Control Surveyor to check that the application is valid and that the correct charge has been paid. Details recorded on Form 20 and e-mailed to Business Support. Charges for schemes over £5m to be countersigned. Applications are held until payment is received

Business Support to check Acolaid to see if there is a duplicate application. Information entered onto Acolaid, including fee checkers initials, and appropriate letters generated. Application to be acknowledged within 2 days. If duplicate application or Initial Notice Business Support to return application to Principal Building Control Surveyor to resolve.

Surveyor to assess information. Structural calculations can be sent to consultants for checking (Form 26). For FPA if LFEPA need to be consulted (Regulatory Reform (Fire Safety) order 2005) use Form 23 and covering letter. If means of escape is to be dealt with by the fire regulations group pass forms and plans to them. If new building, underpinning or lateral extension check for building over sewers (Consult Thames Water if this is the case) or over or near London Underground (Consult Transport for London if this is the case). Notify Environmental Health and Highways as appropriate. For FPA meaningful response made to applicant within 10 working days from receipt of application and noted in Acolaid.

For FPA, Form 60 to be fully completed and signed and passed to Business Support. Information entered into Acolaid and appropriate decision generated.

Inspections are made in accordance with the site inspection policy.
Details of site inspections are entered onto Acolaid.
Following a satisfactory completion inspection and receipt of certificates and notifications, a completion certificate is sent within 5 days.

255) John Hoban in paragraph 11 of his second witness statement {RBK00050416} said he was aware of the formal policy set out in document P6. In paragraphs 50 and 51 he states that he was not aware of any policy relating to site inspections; that he would "try to work in accordance with the Building Control Performance Standards July 2014."

256) The P6 policy document makes reference to Form 60 {RBK00052487} which was to be "fully completed and signed and passed to Business Support. Information entered into Acolaid and appropriate decision generated". No time scale is associated with this instruction.

257) John Hoban states in paragraphs 12-14 of his second witness statement in response to questions relating to a decision notice that -
   (a) He completed the standard form (Form 60) and "a schedule of conditions and informatives in order for the decision notice to be processed by the Building Control Support Team";
   (b) The decision notice would have been directed to "the Agent", Studio E;
   (c) He did not know if a decision notice was ever issued;
   (d) "At the time Building Control would not have necessarily known had the decision notice, for some reason or other, not have been issued." "if it was not then I do not know why not."

257A) The Acolaid disclosure sheet 69 {RBK00044876/69} contains an (undated) entry where the "Action" item is listed as "Meaningful Response". The notes section states: "requested details of the works john e hoban". In my opinion the note does not describe a meaningful response to a Building Regulations application.

258) Form P60 is reproduced below. As can be seen it is a "full plans decision tick sheet". I note there is no "tick box" for "conditions attached".

FULL PLANS DECISION TICK SHEET

Premises: _____

Application No: _____

Proposed Building Work or Material Change of use:

_____

Applicant`s Plan Nos _____

_____

Passed ☐

Copy of passed plans enclosed ☐

Conditional ☐

Condition **1.** (Amend deposited plans) ☐

Condition **2.** (Further plans required) ☐

Rejected ☐

Reason **1.** (Work does not comply with Regulation 4) ☐

Reason **2.** (Work would contravene Regulation 4) ☐

Signed. Date.

259) In Paragraph 18 of his second witness statement, John Hoban states he was not aware of any formal protocol for recording receipt of, and the information within amendments to a full plans application. He adds he did not adopt a tracker; he used a plan record sheet and notes. "This would have been placed on a file and likely to have weeded out."

260) This indicates the RBKC BCB weeding policy may have removed all records of what had been accepted as compliant. In my opinion this is an unacceptable policy as there is no means of checking what was accepted and as such it cannot be assessed if an alteration would cause a situation to be worse or allow it to be established if the situation was non-compliant before or would be less compliant than before. A building may be altered without building control approval subsequent to the issue of a completion certificate and the BCB records may be the only record of the accepted arrangements. The records are also the only means a building control body has to demonstrate it carried out its statutory function.

B(iii) The full plans application for the Building Works undertaken at Grenfell Tower

261) A very large number of documents have been disclosed to the Inquiry by various bodies and companies. Building Control would not have seen or had access at the time of the full plans application to the majority of these documents.

262) As far as I have been able to ascertain, Building Control did not participate in the design and tender processes (that is the choice of materials, the design of layouts, standards adopted, contractual matters and choice of contractor and subcontractors) during the pre-application and application periods. Nor was it involved in the internal meetings between the TMO, its employees and contractors and sub-contractors involved in the contract. There is also no indication that there was any interaction between RBKC Building Control Department and RBKC Planning Department.

263) In my report I will not make reference to documents not seen by the BCB in connection with the full plans application unless they assist in understanding the role or actions of the BCB.

264) I have compiled from the disclosed documentation a chronology of the building control process. This can be seen below; it lists the correspondence seen by the BCB.

265) After the chronology below I expand and comment on the various actions by the BCB from the pre-application submissions and the full plans submission up to when the completion certificate was issued. In the chronology the following terms are used –

(a) BCB - building control body
(b) Studio E – architect (SEA)
(c) Rydon - the contractor
(d) JS Wright - mechanical and electrical engineers
(e) TMO - Tenant Management organisation
(f) Exova - Exova Warringtonfire - fire consultant
(g) MF - Max Fordham consultant services engineers
(h) FRS - Fire and Rescue Service
(i) PSB - sub consultant for smoke control system
(j) JRP - John Rowan and Partners – Clerk of Works/site supervision
(k) AOV - automatic opening vent/smoke control system
(l) MOE - means of escape
(m) ACOLAID – building control document management system

DATE	RELATIVITY ID REFERENCE	SUBJECT/COMMENT
29/08/12	{SEA00000046}	Email from Max Fordham to BCB outlining their interpretation of which sections of Part L apply to the project and requesting comments.
5/11/12	{RBK00003044}	This is a pre application communication. BCB response to "BRegs" application Stage P1 -SEE 15/8/12 Drawing nos. MT13779R. ISS01-GRENFELL TOER-Fss, 1279 RE110 REV05, RE111_REV04, RE112_REV04, RE113_REV04, RE114_REV03
6/11/12	{EXO00001371} {LBI00000880}	Meeting minutes of 6/11/12 BCB and Exova
4/2/13	{LBI00002449}	By email John Allen sent marked up plans to Leadbitter - 1279_RE110_Proposed Floor Plans_Rev05.pdf (681.45 kB); MOE General Floor Plans P1 1279_RE110_Proposed Floor Plans_Rev05.pdf (726.83 kB)
17/8/13	{RBK00026859} {SEA00000097}	Pre application meeting Studio E and Building Control Exova invitation to Studio E for BCB meeting
25/10/13	{RBK00027290} {SEA00000121} {MAX00004179} {SEA00000149}	Email of this date Studio E to BCB, referencing meeting on 17/8/13 and forwarding proposed fire strategy drawings, Exova fire strategy document and description of AOV upgrade.

		Email chain starts with email above {SEA00000121} on 25/10/13 and ends 8/1/14.
7/11/13	{SEA00000154}	Studio E TO BCB (Hanson) re fire shutter across concierge
7/11/13	{RBK00003017}	MF to BCB (Hanson) response to queries raised regarding MF draft report re smoke control system
11/11/13	{SEA00009809}	BCB Allen to Studio E – insufficient information to consult FRS. Providing proposed smoke vent system is no worse than existing it will be acceptable. Outlines way forward if no data on existing system.
3/12/13	{RBK00003806} {SEA00000121} {SEA00003112}	BCB Hanson to Studio E - query re escape route. Email has attachment - 1279 SEA (08)101 P2 Quest. Follows on from Studio E submission 25/10/13 {RBK00027290}
3/12/13	{RBK00003832}	Email Studio E to Hanson - updated Ground Level plan as discussed. Attachment - 1279 SEA (08) 100- fire access.pdf and fire strategy
3/12/13	{RBK00003835}	Studio E to BCB Hanson in response to Hanson's query re final exit from stair. Attachment 1279 SEA (08) 101 Fire strategy pdf; 3D.pdf
6/12/13	{TMO10004759} {TMO10047784}	Internal memo BCB Hanson to Allen MoE (means of escape) observations
6/12/13	{MAX00001399} {MAX00001365} {TMO10004759}	Email BCB Hanson to Allen - MoE observations - refers to marked up plans P2.

31/12/13	{RBK00003864}	BCB - Hoban introduces himself as project surveyor and attaches P2 observations.
6/1/14	{SEA00000159} {EXO00000214}	Email chain BCB response to Studio E response setting out P2 comments - see 6/1/14 – all part of this email chain. And Studio E to BCB regarding P2 matters
8/1/14	{RBK00048649}	BCB internal email regarding advice to provide to Studio E
8/1/14	{RBK00027302}	Email BCB Hoban to Studio E re their requested consultation with LFB regarding smoke vent system
24/5/14		BCB responds to DEM/14/02401 with 10 conditions (demolition)
2/6/14		REFURBISHMENT WORKS START
17/7/14	{RBK00003810}	BCB forwards to Studio E BCB email of 8/1/14
24/7/14	{RYD00013323}	Studio E to BCB Allen regarding full plans fee
29/7/14	{SEA00011395}	BCB to STUDIO E confirming BRegs fee
4/8/14	{RYD00014378} {RYD00014379}	Building Regulations SUBMISSION Email Studio E to BCB – "please see attached" the completed full plans application form. Email dated 4/8/14 with full plans application attached. The relevant Core Participants have been unable to locate a copy of the full plans application.
5/8/14		TMO submits BRegs application for new floor areas, new over - cladding and windows, new heating system, reconfiguration of podium and entrance REF FP/14/03563

		(Taken from RBKC chronology)
5/8/14	{RBK00027308}	Letter BCB to Studio E acknowledging receipt of "your" full plans application.
19/8/14	{RYD00015810}	Email BCB to Rydon – invoice for building control fees.
29/8/14	{RBK00013223}	BCB VISITS SITE. John Hoban. Pre-start visit. Satisfactory.
1/9/14	{RYD00016868}	Letter Rydon to BCB with cheque for BC fees.
2/9/14	{RYD00016976}	JS Wright to Hoban at BCB requesting discussion re dry riser.
3/9/14	{RYD00016990} {SEA00000189}	Email 3/9/14 from Rydon (Simon Lawrence) TO BCB requesting engagement re design element for dry riser and stating Studio E will forward relevant drawings in future.
3/9/14	{RYD00016976} {RYD00016986} {RBK00003777}	Email exchange JS Wright and BCB (Hanson); BCB states cannot require improvements to dry riser. Hanson states his reference relates to B1; but in an email {RYD00017255} Hoban informs Rydon Hanson's role is B1 and B5.
5/9/14	{RBK00013223}	BCB visit. John Hoban. Interim visit. UNSATISFACTORY shown in notes. This is a RBKC disclosure document detailing the BCB site visits. From the subsequent Acolaid disclosure, this would appear to be information from Acolaid where the entry is the email dated 6/9/14.
24/9/14	{RYD00018742}	Email Studio E to BCB forwarding package of drawings for GT. States

		"is only part of package rather than swamping you". THIS WILL BE REFERENCED AS S1 BY RBKC - FIRST SUBMISSION OF FULL PLANS APPLICATION. The package included elevations indicating – • Aluminium faced insulated panels • Ceramic coated insulated glass units • Zinc spandrel panel cladding - residential floors • Aluminium rainscreen cladding - walkway, walkway+1, mezzanine • Zinc crown elements • Zinc column cladding fixed to existing columns • GRC column cladding • Curtain walling - reception lobby No additional insulation was indicated; no cavity barriers were indicated.
24/9/14 to 21/11/14	{RBK00002633}	Emails BCB and Studio E and Exova, includes BCB.
29/9/14	{RBK00048693}	Hoban requests observations from Hanson under Part B for proposals submitted 24/9/14 (i.e. {RYD00018742}).
29/9/14	{RBK00013223}	BCB VISITS SITE. John Hoban. Satisfactory. Pre - start visit.
29/9/14	{RYD00018989}	Email Studio E to BCB (Hoban). Headed: fire strategy drawings - minor revisions.
29/9/14	{RYD00018963}	Email BCB (Hoban) to Rydon with attachments of emails relating to scheme to date. Headed - fire

		strategy P2. Provides information to contractor.
17/10/14	{RYD00021548}	Email JS Wright to BCB requesting meeting re proposed smoke ventilation system.
11/11/14	{RBK00027326} {RBK00027560}	BCB formal consultation request to FRS; 1st LFEPA consultation FP/14/03563.
14/11/14	{RBK00003802}	Hanson to Hoban giving S1 observations noting significant difference due to omission of vented lobbies to single escape stair. Hanson suggested text that became S1 response to applicant - RBK00013226.
18/11/14	{RYD00024038}	Email Studio E to BCB with drawings indicating proposed reduced window openings.
18/11/14	{SEA00000223} {SEA00000215} {EXO00000206} {RBK00013226}	BCB responds to BRegs application S1 Revised 2. Email John Hoban to Studio E referring to submission S1. States "A decision notice will be forwarded to you shortly on the proposals submitted". No Reference to cladding materials. Subject of email "Grenfell Tower, Grenfell Road Regeneration Project MOE Obs Submission 1 Revised 2".
21/11/14	{SEA00012200} {RYD00024337}	Email chain ending 21/11/14 between BCB/ Studio E /Exova re submission.
24/11/14	{RYD00023970}	JS Wright to various including BCB to discuss AOV system.
24/11/14	{RBK00013223}	BCB VISITS SITE. John Hoban and Paul Hanson. Satisfactory.

27/11/14	{RBK00013223}	BCB VISITS SITE. John Hoban. Satisfactory.
12/12/14	{LFB00000290}	Email FRS response to BCB request for consultation dated 11/11/14. Actual response letter not attached.
19/1/15	{RYD00034060} {SEA00000247} {RBK00003838}	Email JS Wright to BCB - PSB AOV technical submission. Attachments - PSB Tech Sub Lobby Smoke Control Systems Rev01; KEY-1pdf; osr Brochure pdf; pressure transmitter 1240 415 Rev F pdf; sc series{1}pdf; smoke vent slcs.pdf; Apollo smoke heads pdf.
22/1/15	{RBK00002400} {RBK00002401} (LFB letter)	Email 22/1/15 internal - John Allen to staff regarding issues in FRS letter (dated 5/1/15) re poor compartmentation, fire stopping, missing fire safety measures.
26/2/15	{RBK00003790}	Emails Hoban to BCB Hanson requesting observations for attached proposals – 1279SEA (08) 101 Rev 04 Fire strategy with comment.dgn.pdf; 100 Rev05- Fire access with comment.dgn.pdf. As part of chain – email 23/2/15 SEA to BCB drawings had queries marked by red boxes. See {RBK00003791}and {RBK00003792} for drawings.
6/3/15	{SEA00000252}	Email Studio E to BCB Hanson with Harleys drawings indicating cavity barriers. Attachments – drawings 855 C 1059 GA Model 33 201D (west/east elevation Levels 1-20 Approved for construction; 202 C south elevation, typical bay levels 1-20 Approved for Construction; 200I east and west elevations, Approved for construction; 100 A

		Specification Notes Issued for Approval; register Sheet; 305 C jamb joint upper levels Issued for Approval; 301 E window heads upper levels Approved for Construction.
6/3/15	{RYD00034060} {SEA00000247}	Email Rydon to BCB and JS Wright with preliminary plans for lower floors and discussing AOV; adding still formalising AOV duct route and requesting acceptance of AOV proposal submitted by JS Wright email to BCB 19/1/15.
10/3/15	{RYD00034397}	Email JS Wright to BCB Hanson confirming AOV meeting 17/3/15. Meeting request by Hanson to discuss.
10/3/15	{RYD00034377}	BCB Hanson to Studio E confirming apartment wall fire resistance requirement.
11/3/15	{RBK00048732}	Email Hanson to Hoban – "B4 matter can you deal with it."
17/3/15	{RBK00048733}	Email chain starts 26/2/15 Studio E to BCB revision to fire strategy drawings. Hanson responds 17/3/15 - doors lobby /flats can be FD30s; ground floor highlighted door is to stairway and needs to beFD60s.
18/3/15	{SEA00012953}	Harley email to BCB relating to fire breaks
20/3/15	{SEA00012963} {RYD00037401}	Email from BCB Hoban to Studio E - new structural elements 120FR and highlighting ADB Dia 33 re fire stopping.
11/3/15 and 27-30/3/15	{HAR00003947} {RYD00034595}	Email string regarding cavity and fire barriers in relation to window openings.

		{HAR00006586} - 27/3/15 Hoban "to discuss FR with Hanson".
31/3/15	{SEA00000265}	Studio E email to BCB re difference between fire "break" and cavity barrier
1/4/15	{HAR00006596}	BCB Hoban email - no adverse comments re cladding proposals as shown re compliance with B2 and B3. Same chain as {SEA00000269} below.
1/4/15	{SEA00000269} {RYD00037836}	Penultimate email in chain BCB John Hoban - no adverse comments relating to the proposals shown on drawing 1279 (6) 110 rev 00 regards compliance with B2 and B3. Requests drawings for external walls of lower floor to review prior to making further comments re cladding.
14/4/15	{RYD00038873} {JSW00001675}	Email JS Wright to BCB re mech AOV. Attached amended technical submission i.e. PSB Rev 02 dated 14/4/15. Amended following meeting.
17/4/15	{RBK00027407}	BCB VISITS SITE; Jose Anon email site notes.
22/4/15	{JRP00000171}	JRP "Site Inspection Report" dated 24 April 2015 stating last Building Control visit was 22nd April. Not shown on Acolaid record {RBK00044876}.
7/5/15	{RBK00027408} {RBK00010787}	BCB VISITS SITE: Hoban note. Subject: GT checking framework for cladding.

15/5/15	{RBK00013223}	BCB VISITS SITE. John Hoban. Inspection to check framework for cladding. Satisfactory.
11/6/15	{RBK00027396}	PSB email to BCB amongst others with attached Smoke Control System Rev03. The smoke control system to the stair is the subject of a separate report; the matter is not addressed in this report.
24/6/15	{JSW00001675} {RBK00003853}	Email BCB response to submission S1a AOV SYSTEM - Hanson to Hoban- "the proposals for which are satisfactory".
24/6/15	{RBK00027391}	Email chain BCB Hanson to Studio E minor modification required to ground floor store room. – chain 24/6/15 – 6/7/15.
25/6/15	{RYD00045572} {RYD00044651}	Email BC (Hanson) to Studio E querying if particular partition was fire resisting 25 /6/15 - 3/7/15, when amendment accepted by BCB.
2/7/15	{RYD00045533}	Email Studio E to BC (Hanson) re screen and door.
3/7/15	{RYD00045572}	Email BC (Hanson) to Studio E accepting screen and door to store at ground level.
6/7/15	{RBK00029088}	BCB is copied email Studio E to Rydon with attached plans that have been amended as result of BCB email 24/6/15
17/8/15	{RBK00003041} {RBK00044876}	BCB VISITS SITE. John Hoban. Satisfactory. Visit to look at new cladding.
19/8/15	{RYD00049708}	Email Rydon to BCB regarding slab penetrations and fire stopping.

30/10/15	{RYD00056059}	Rydon to BCB requesting site visit
2/11/15	{RBK00013223}	BCB VISITS SITE. Inspected cladding. Satisfactory.
2/11/15	{RBK00010778} {RBK00044893}	From John Hoban: CP-Plan May be a note to self - states cladding inspection and meeting with new project manager
2/11/15	{RBK00010782}	Similar note as above - is either own record of visit or is to be part of Acolaid input. Last line is - "Works progressing steadily no adverse comments to make !!!!!!!!!!!!!"
3/11/15	{RYD00056424}	BCB (Hoban) to Curtains - cannot open information. Curtains responded that re-send via next day delivery.
11/11/15	{RBK00013223}	BCB VISITS SITE. Inspected cladding. Satisfactory.
18/11/15	{RBK00013223}	BCB VISITS SITE. Inspected cladding. Satisfactory.
18/12/15	{RYD00062356}	BCB (Hoban) to Dave Hughes confirming he and Hanson would visit 7/1/16.
7/1/16	{JSW00002374}	RE Meeting today and information re exit signs.
7/1/16	{TMO00831200}	Rydon minutes of meeting with Building Control.
7/1/16	{SEA00013781}	“Accepted site meeting “ Meeting accepted for 7/1/16 From Studio E: required attendees- Hoban.
7/1/16	{SEA00000342}	BCB Email (Hanson) to Studio E providing information re fire signage and fire alarms for boxing club.

		Response email of 11/1/16 has attached updated fire strategy drawings and refers to Johns cladding inspection tomorrow.
11/1/16	{SEA00000345}	Email chain. Rydon to BCB re minutes and comments re fire stopping wall and floor penetrations. BCB adds that fire stopping to penetrations through walls and floors should be added.
11/1/16	{RYD00063599}	Rydon to BCB (Hoban) requesting earlier meeting tomorrow.
11/1/16 to 26/1/16	{RBK00001685} {RBK00002978}	Email chain Studio E to BCB (Hanson and Hoban). 11/1/16 provides requested updated fire strategy drawings – reflects final smoke vent solution, partitions etc... See {RBK00002978} dated 26/1/16 as next in chain Refers to BCB (Hoban) inspection of cladding "tomorrow".
12/1/16	{RBK00001122}	SITE VISIT Email Hoban to Allen stating he visited 5 sites on 12/1/16 with Kas; included GT – checking new external cladding to existing tower block, identifying defects (controllable under the Building Regulations) on new panels, brief introduction on fire breaks/fire cavity barriers, including location of where cavity barriers on cladding panels should be provided for this particular project.
12/1/16	{SEA00000345}	Email Rydon to BCB re minutes re fire stopping around wall and floor penetrations.
13/1/16	{RYD00063884}	BCB Hanson to Rydon re minutes and his reference to fire stopping particularly above door frames.

26/1/16	{SEA00000340}	Minutes of meeting with BCB.
26/1/16	{RBK00002978}	BCB (Hanson) to Studio E cc Hoban – Regard this a [sic] submission 2 and attach comments. Relates to updated Drawings marked as S2 have drawing no. 1309 and titled James Allen's Community Music Centre ({RBK00002979} and {RBK00002980}).
26/1/16	{RBK00002981}	Memo Hanson to Hoban giving B1 Means of escape observations in relation to APP No.: Submission 2; Submission No.: S2 Drawing No: 1279 SEA (08) 101 Rev 5- Fire Strategy, and 1279 SEA (08) 100 Rev 06 - Fire access. Also lists JS Wright Smoke ventilation Technical Submission PSBUK1143-12 Rev 3, 12/6/2014 (for submission S1a).
5/2/16	{RBK00001413}	Internal BCB email initiated by Paul Hanson requesting instigation of FRS consultation - instruction to Business Support.
5/2/16	{LFB00000096}	Joint Consultation procedure with FRS documentation. RBKC ref - FP/14/03563. States date application received as 5/8/2014; states statutory time limit is 9/9/14. Consultation request is dated 5/2/16.
5/2/16	{RYD00067237}	Email Studio E to BC (Hoban) inviting comments re glass balustrade.
8/2/16	{RYD00067338}	Response to above re balustrade glazing.
8/2/16	{RBK00013223}	BCB VISITS SITE - inspected cladding. Satisfactory.

3/3/16	{RYD00069703}	Rydon to BCB Hoban requesting site visit next week.
4/3/16	{LFB00000291} (4/3/16)	FRS response to consultation. FRS satisfied with proposals as shown. Scope described as New works to Grenfell Tower. No drawings or documents listed.
22/3/16	{RBK00002711}	John Allen - SITE NOTES. On Acolaid notes for inspection on 24/3/16 are almost exactly the same. Not clear if inspection was on 22/3/16 or 24/3/16.
24/3/16	{RBK00013223} {RYD00072245} {RBK00044876}	BCB VISITS SITE. John Allen Cladding nearly complete. Satisfactory On this date Acolaid {RBK00044876} sets out a list of outstanding issues but does not indicate who it was sent to/directed at. Response by email that detector not required in hub room.
1/4/16	{SEA00014148} {SEA00014150}	Email BCB Hanson to Studio E with LFB "positive" consultation response. (cc Hoban) Studio E email thanking BCB for copy of FRS consultation - attachments not attached to disclosed document.
25/4/16	{RYD00075492} {RYD00075511} {RYD00075492}	Email invite to BC (Hanson and Hoban) to witness AOV system on 28 April. Neither could attend {RYD00075511}. Emails Hanson/Rydon re smoke vent commissioning and witnessing.
28/4/16	{RBK00003047}	Invitation to BCB and others to attend witnessing of smoke

		extract system on 28/4/16. The smoke control system to the stair is the subject of a separate report; the matter is not addressed in this report.
29/4/16	{RBK00048815}	Rydon to BCB requesting meeting on Thursday morning re smoke control system. The smoke control system to the stair is the subject of a separate report; the matter is not addressed in this report.
3/5/16	{RYD00076380}	BC acceptance of AOV demonstration.
3/5/16	{RYD00076415} {RBK00048816}	BC Hanson queries test results from AOV demo he did not attend. Is response to previous email that had Tech. submission Rev06 and C&E 04. The smoke control system to the stair is the subject of a separate report; the matter is not addressed in this report.
3/5/16	{RBK00003781}	Email Rydon to BCB Hanson. Air speed readings for AOV. Attachments - GT readings in environmental mode, pdf,: sign off sheet; readings in fire pdf GT Rev02.
3/5/16	{RYD00076725} {RBK00003778}	Emails 3/5/2016 and 5/5/2016, BCB (Hanson) and JS Wright GT Building Control Demo attaching schematics and etc. ATTACHMENTS - GT readings in fire, PDF,; E75015-800E,pdf; 75015AG1 GT Cause and EffectRev04.pdf.
4/5/16	{RBK00048818}	Email Hanson to Rydon stating readings should be m^3/s and follow SCA guidance.
4/5/16	{RBK00003773}	JSW to BCB setting out what will be demonstrated in relation to the smoke control system. Has PSB

		Smoke Control System Rev06 attached. The smoke control system to the stair is the subject of a separate report; the matter is not addressed in this report.
12/5/16	{RYD00077614}	BCB visits site; email Rydon to BCB Hoban confirming outstanding issues.
12/5/16	{RBK00044894}	Hoban Outlook entry - Grenfell Tower.
25/5/16	{TMO10045172}	Emails 8/1/16 - 25/5/16 Stokes/BCB/Rydon re accepted FA in flats.
25/5/16	{RBK00048828}	Email Rydon to BCB attaching electrical certificate for all flats except No 6.
25/5/16	{RBK00048830} {RBK00048834} {RBK00048836}	Emails Rydon to BCB attaching electrical certificates for Boxing Club, additional communal supplies and the door entry commissioning certificate. These relate to Part P of the Building Regulations.
25/5/16	{RBK00048842}	Rydon to BCB with queries pre visit
1/6/16	{RBK00013224}	Rydon to BCB requesting letter of comfort.
1/6/16	{RBK00013223}	BCB VISITS SITE John Hoban. Satisfactory.
2/6/16	{RBK00013224}	Letter BCB FP/14/03563 to Rydon Maintenance: matters requiring attention following inspection yesterday afternoon.
2/6/16	{TMO10045448} {TMO10045455} {RYD00079917} {JSW00002901}	BCB letter of comfort.

3/6/16	{RYD00080025} {RBK00003037} {RYD00080024}	Email exchange BCB (Hanson) and JS Wright re AOV test results queries. Email dates are 26/5/2016, 2/6/2016 and 3/6/2016.
16/6/16	{RBK00002964} {RBK00003024}	Email chain starts 2/6/2016 various parties including internal BCB (Hanson to Hoban) RE AOV, in particular vents at lower level. Email subject - linking environmental AOV's to smoke extract.
20/6/16	{RYD00081016}	BCB and Rydon agree amendment to smoke ventilation system.
22/6/16	{TMO10045448}	Emails re outstanding issues and smoke vent – BCB, Max Fordham's and Rydon.
27/6/16	{RYD00081525} {RBK00044889} {RBK00044890}	Rydon query re time of meeting Hoban and Rydon on 30th June 2016 for final walk around. Hoban Outlook entry - from Rydon 27/6/2016 to Hoban - subject BC Completion Walkaround.
1/7/16	{RYD00081891} {RBK00000132}	Rydon email to BCB Hoban - photos re fire door signs and rubber ramp following meeting previous day.
4/7/16	{RYD00082020}	Rydon to BCB Hoban - please issue completion certificate ASAP
5/7/16	{RYD00082205} {RBK00002982}	Email Rydon to BCB Hanson confirming intumescent seals and not smoke seals had been fitted to stair/lobby doors smoke seals at lift lobby doors ;Hanson had stated the new powered lobby ventilation system needs to draw air from the stairway and recommended omission of smoke seals to stair/lobby door Rydon

		responds that intumescent strips were fitted in lieu of smoke seals.
6/7/16	{RBK00003000}	Rydon to BCB Hoban: photo of finished ramp to community room - please issue completion certificate ASAP.
7/7/16	{RBK00044876}	SITE VISIT John Hoban - Works complete; clear job. Satisfactory.
7/7/16	{RBK00018811} {TMO10014007}	BCB final inspection; Certificate for FP/14/03563 signed off.
8/7/16	{RYD00082435}	Email Rydon to BCB Hoban following up on completion certificate as we require it to achieve practical completion today.

Before the full plans submission

266) The architect, Studio E, acting initially for the TMO made contact with RBKC building control. Two pre – application submissions were made, to which building control responded with comments and marked up plans (P1) 5 November 2012 {RBK00033904} and (P2) 6 December {RBK00033901}. The first issue of the Fire Strategy document, MT13779 (31 October 2012) is referenced in the P1 observations by the Means of escape group; the second issue MT14634R was issued by Studio E to the BCB on 25 October 2013 but is not referred to or referenced in the P2 observations dated 6 December 2013.

267) It should be noted that the reference to fire strategy by Studio E relates to their plan not the Outline Fire Strategy Report issued by Exova Warringtonfire.

268) The proposed works were described as ground storey new reception, nursery, office, new stair to boxing club and a level of office accommodation; at mezzanine level a new boxing club and office accommodation; Walkway +1 level, the creation of new residential apartments; and general improvements to building services. There was no mention of cladding in the pre-application submissions.

269) RBKC has explained that the RBKC annotation “P1, P2” etc” refers to a pre full plans submission; “S” refers to a formal full plans application submission which if followed by a subsequent amendment is designated as S1(a) etc. A major or complete alteration would be designated S2. As far as I am aware this is a mode of referencing submissions/information that is unique to the RBKC BCB and appears to emanate from the way in which the “Means of Escape Group” chose to

differentiate between/tag its responses to requests for advice throughout the duration of a project.

270) The pre-application submissions do not form part of the full plans application. The full plans submission details varied from those at the pre-application stage.

The full plans application - Overview of the process undertaken by RBKC

The application

271) By email dated 4th August 2014, {RYD00014378} Studio E submitted the signed (but undated) full plans application {RYD00014379}; no plans or details were attached to the submission which was by email; no fee was paid at this time - it was to be paid separately by the contractor Rydon. The works were described on the form as –

> *"New floor areas, new over cladding and windows, new heating system, reconfigured podium and entrance residential tower and nursery and boxing club."*

272) In my experience a BCB would generally not have accepted a full plans application as being valid without the fee and/or information being attached.

273) Building Control invoiced Rydon for the fee {RYD00015810}. This was paid by cheque attached to a letter dated 1 September 2014 {RYD00016868}. Building Control, by letter dated 5 August 2014 acknowledged receipt of the full plans application {RBK00027424}. This acknowledgement of the full plans application, in my opinion, was the date from which the statutory time limit for a decision began.

274) The full plans application was made using the RBKC pro-forma. This contained in the statement section "Agree to the plans being passed with conditions"; the applicant did not disagree. There was no section that invited the applicant to agree to an extension of time for a decision from within 5 weeks to two months from the deposit of the full plans application.

Initial submission of details relating to escape

275) By email dated 24 September 2014 {RYD00018742} Studio E issued drawings of the proposed refurbishment works to RBKC building control. In my opinion this constituted the substantive part of the full plans application. In that e-mail Studio E referred to the pre - application discussions and initial appraisal and comments (P1) made regarding the proposed changes to the lower levels and stated that the comments had been incorporated. The email highlighted that there had been a "simplification of the arrangements on these floors". I understand this to mean a simplification of the design at the lower floors as there were no details of the upper floor levels or the smoke control system at the time

of the "P1" submission. The email from Neil Crawford of Studio E to John Hoban (BCB) stated –

> *"Following our conversation on site looking whilst looking at the Academy on Tuesday, I am forwarding a pack of drawings for the Grenfell Tower Project as mentioned.*
>
> *I believe yourself and Paul Hanson sat down earlier in the year and did an initial appraisal of the proposed layout changes to the lower level with Bruce Sounes from our office. I have included Pauls initial mark-ups of the fire strategy from this time as well as a new set which shows that there has been some simplification to the arrangement on these floors. I know you like to go through the drawings on an agreed process of release rather than just being swamped with everything at once so I am just sending the following to start with –*
>
> *Fire strategy drawings from previous meeting with Paul Hanson's mark up. 1279 SEA(08) 100 – Fire access*
>
> *1279 SEA(08) 101 – Fire strategy*
>
> *New fire strategy drawings that show modifications to office area and omission on internal office stair*
>
> *1279 SEA(08) 100b – Fire access-A1-000 [100 01]*
>
> *1279 SEA(08) 101b – Fire strategy -A1-000 [101 01]*
>
> *Basic plans sections and elevations GA set-*
>
> *1279 SEA (06) 100 - Section A*
>
> *1279 SEA (06) 100 - Section A*
>
> *1279 SEA (06) 100 - Section A*
>
> *1279 SEA (06) 100 - Section A*
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> *1279 SEA (06) 100 - Section A*
>
> *1279 SEA (05) 100 - Proposed south elevation Rev01[00]*
>
> *1279 SEA (05) 101 - Proposed north elevation Rev01[00]*
>
> *1279 SEA (05) 102 - Proposed east elevation Rev01 [00]*
>
> *1279 SEA (05) 103 - Proposed west elevation Rev01[00]*
>
> *1279 SEA (04) 100 - Proposed basement plan*

1279 SEA (04) 101 Rev01 - Proposed ground floor plan

1279 SEA (04) 102 Rev01 - Proposed mezzanine plan

1279 SEA (04) 103 Rev01 - Proposed walkway plan

1279 SEA (04) 105 - Proposed residential plan (W+2)

1279 SEA (04) 108 - Proposed roof plant plan

1279 SEA (04) 100 - Proposed roof plan"

276) The BCB designated this submission as S1.

277) The Inquiry will note that drawing 1279 SEA (06) 100 - Section A is listed 5 times; in my opinion this is a drafting error. The drawings in the zip file attached to the email were drawings (06) 100 00 (Section A), 101 00 (Section B), 103 00 (Section E), 104 00 (Section F) and 105 00 (Section G).

278) The drawings downloaded from the zip file do not include the drawings exactly as listed in the email above. I have reproduced the zip file drawings as submitted in Appendix A. Where the drawing revision number differs from that stated in the covering email, I have identified this in square brackets []. On some drawings, there is an additional table above the TMO logo which appears to indicate where subsequent revisions to drawings have been made.

279) Fire access plan 1279 SEA (08) 100b was not included – it is 1279 (08) 100 Rev1 Fire access; Fire strategy 1279 SEA 101 is 1279 101 Rev01;1279 SEA (08) 101b is not included. Drawing 1281 (08) 101 Fire strategy is included but has the title Heston Leisure Centre albeit it is the Grenfell Tower layout.

280) As far as I have been able to ascertain the difference in the listed drawings from that in the zip file was not remarked on which suggests to me that all the drawings were not looked at in detail. The two "RBKC MOE S1" drawings annotated by Mr Hanson were drawings 1279 (08) 100 01 (fire access plan) and 1279 (08) 101 01 (fire strategy) that were in the zip file.

281) The zip file did not contain the Paul Hanson annotated drawings referred to in the email. The two that are listed, together with the other drawing Mr Hanson annotated, I have reproduced from disclosures -
    (a) {RBK00023058}: 1279 RE110 05 Proposed floor plans
    (b) {TMO10004763}: 1279 (08) 100 00 Fire access plan
    (c) {TMO10004968}: 1279 (08) 100 00 Fire access plan (but is actually floor plans).

282) The drawings listed above are in Appendix A of this report.

The second submission of details relating to escape

283) The second submission S1a was the Smoke Ventilation Technical submission for Lobby Smoke Control Systems Revision 3 {RBK00027392}.

The third submission of details relating to escape

284) The third submission S2, was "updated fire strategy drawings" "reflecting the final smoke venting solution, partition layouts etc." {SEA00000342}

285) Submissions made other than in relation to B1 have been found in the disclosures of others. These relate to the dry riser and cavity barriers.

286) RBKC has been unable to produce records of the building control review of the full plans application other than those that the "Means of escape group" has retained. In effect this means that the only BCB records provided by building control relate to Requirement B1 means of warning and escape. In the absence of records from RBKC, I have had to piece together the details of how the BCB reviewed the full plans application from other documents, primarily email correspondence.

287) To address the various requirements that should have been focused on as part of the building control process I will later in this section address my comments under the individual headings of Requirements B1, B2, B3, B4 and B5.

288) Paul Hanson reviewed the submissions at the request of John Hoban. The first submission request S1 can be seen at {RBK00048693}. The Hanson review resulted in a memo to which were attached plans annotated with comments by Mr Hanson suggesting alterations to achieve compliance. Mr Hanson had similarly annotated the pre-application submissions (P1 and P2).

289) The annotation on the plans is detailed and extensive. This response is far more than I would have expected from a BCB. In my opinion the extent of the non-compliant issues was significant in number and the application should have been rejected. Alternatively, the applicant should have been encouraged to withdraw the application and re-submit following a review of the proposals by their fire safety consultant.

290) In my opinion Paul Hanson wrongly took it upon himself to effectively re-design the fire strategy. This is not specifically precluded in legislation for Local Authority Building Control but the role of a BCB is to check for compliance. It is possible that such annotation could have been considered as "design" under the CDM[10] Regulations, which was not the role of the BCB. It is noteworthy that

[10] CDM: Construction (Design and Management) Regulations 2007. These placed specific duties on a designer regarding health and safety from project inception through to demolition and removal, requiring consideration of maintenance and welfare of the associated workforce; and it required co-operation with

Approved Inspector Regulations prohibit their involvement in design work in which they have a role as a BCB.

291) In a document disclosed by RBKC, the draft RBKC Building Control Guidance Note "Advice for submissions and early consideration of means of escape in case of fire" {RBK00002265}, the marking up of plans is referred to in paragraph 5.

> *"5. Marking up of plans for means of escape purposes*
>
> *It is recommended that plans are marked up identifying protected routes. RBKC building control are currently the only building control body who mark-up submitted plans identifying protected routes and other elements and other elements to assist in the design meeting the minimum standards of the building regulations."*

292) The note is annotated as "draft" and it is not known if it was adopted within the Building Control Department.

Submission of outline fire strategy report

293) By email dated 29 September 2014 Studio E {RYD00018989} submitted the Exova Outline Fire Safety Strategy (Issue No.3 dated 7 November 2013) adding that it was written prior to the Fire Strategy Rev B changes. I take this to mean the amended fire strategy plan submitted on 24 September, which are the plans listed above and formed the first issue of details by Studio E following the full plans application and which refer to drawings 1279 SEA (08) 100b Fire access and 101b Fire strategy.

294) On 29 September 2014, John Hoban sought {RBK00048693} the observations of Paul Hanson regarding Part B who returned his comments as a memorandum {RBK00033895} dated 10 November 2014 and annotated plans all with the designation S1.

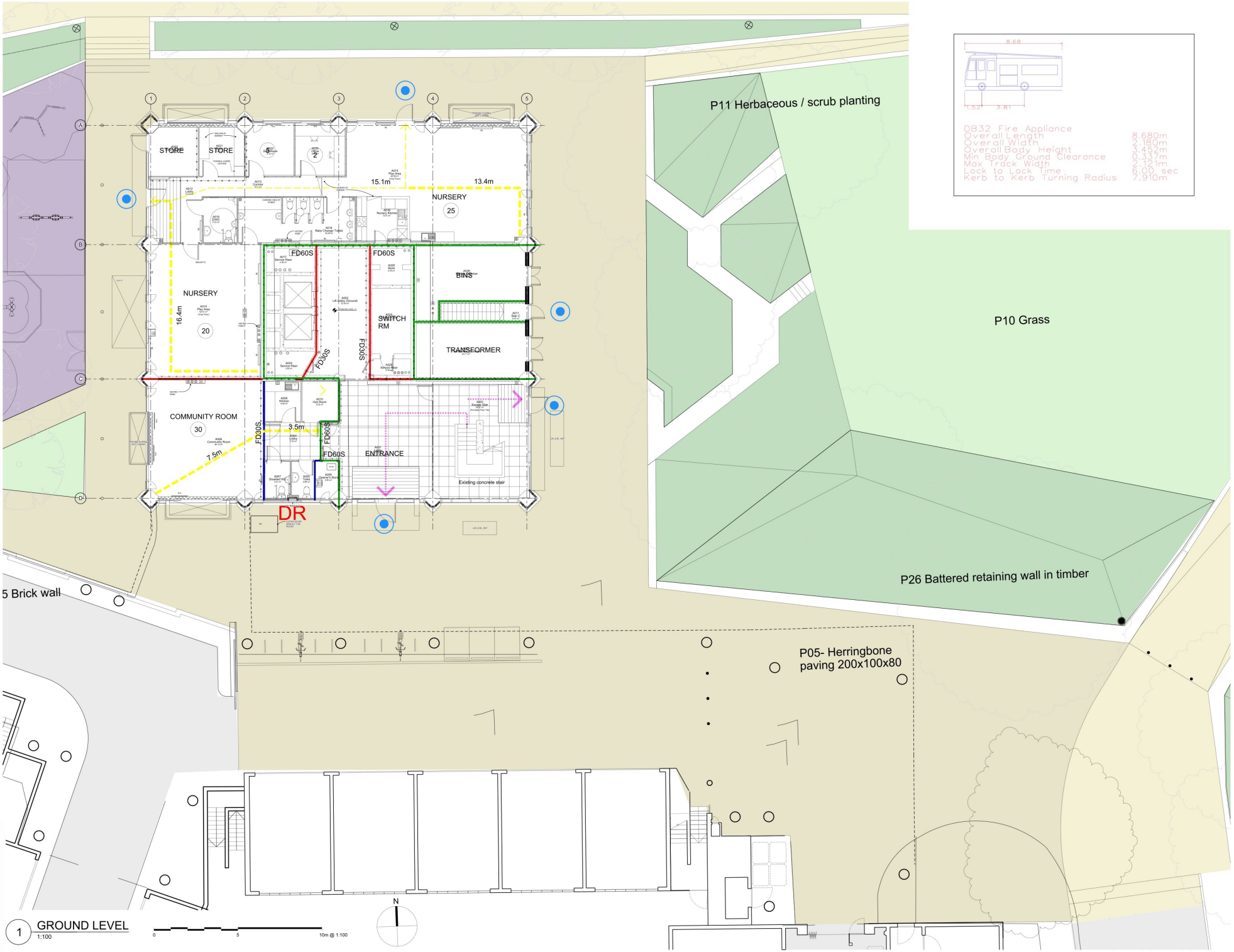
295) The comments listed unsatisfactory matters and suggestions for amendment together with detailed comments in relation to the mechanical smoke ventilation system serving the upper levels and its extension to serve the new level of residential accommodation. It also listed comments in relation to the Exova Warrington fire strategy document "MTY14652R". This appears to be a typing error as the Exova document reference for revision 03 of the Outline Fire strategy is MT14652R. Comments relevant to the fire authority consultation were included.

296) Below I have reproduced the submitted plans and the plans annotated as RBKC MOE - S1. As can be seen the annotation is extensive: some is phrased as a question; some as informative ("should"); some as a statement that could be

the CDM co-ordinator. The 2007 regulations were superseded by the Construction (Design and Management) Regulations 2015.

wrongly interpreted as a proposal by the applicant. When read with the associated memoranda from the Means of escape Group it can be seen it is RBKC annotation of necessary amendments.

297) The annotation by RBKC fails to indicate that the new stair doors above ground level (at levels 1-3) should be 60 minute fire resisting smoke seal doors (FD60s).



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KEY

- 30 minute rated construction line
- 60 minute rated construction line
- 120 minute rated construction line
- Final Exit
- Escape route in one direction
- Escape route in multiple directions
- 1hr Fire Curtain
- DR Dry Riser
- 32 Room Occupancy
- AOV vented lobby
- Mech vented lobby (re-used ducts)

Kensington & Chelsea TMO

EMPLOYER'S REQUIREMENTS

STUDIO E ARCHITECTS LTD
310 Linton House, 164/180 Union Street London SE1 0LH

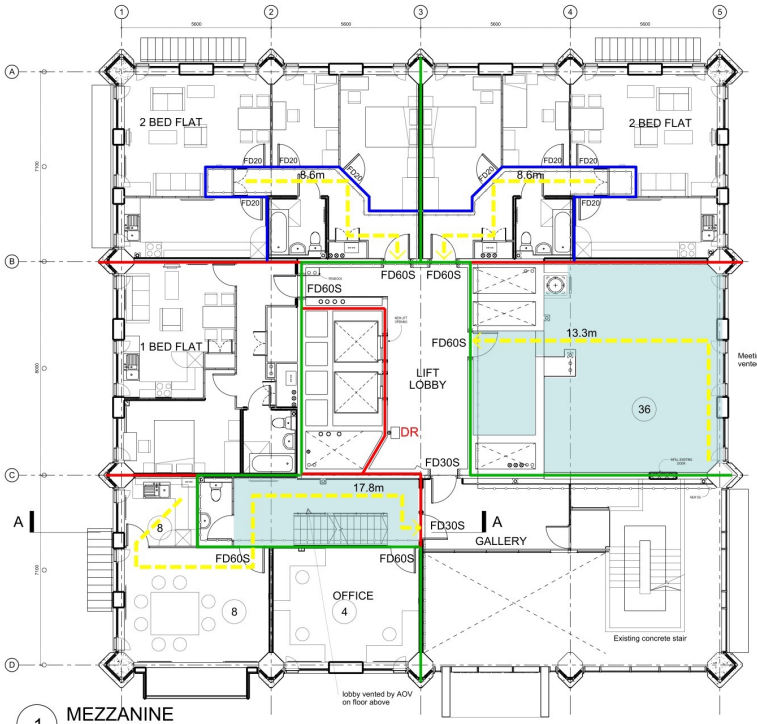
GRENFELL TOWER REGENERATION PROJECT
PROJECT

FIRE ACCESS PLAN
DRAWING

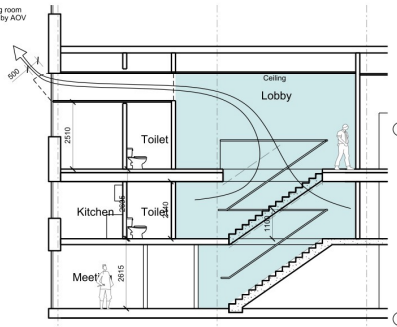
1:100@A1	24/10/13
SCALE	DATE

1279 (08)100	01	BS
DWG. NO.	ISSUE	CHECKED

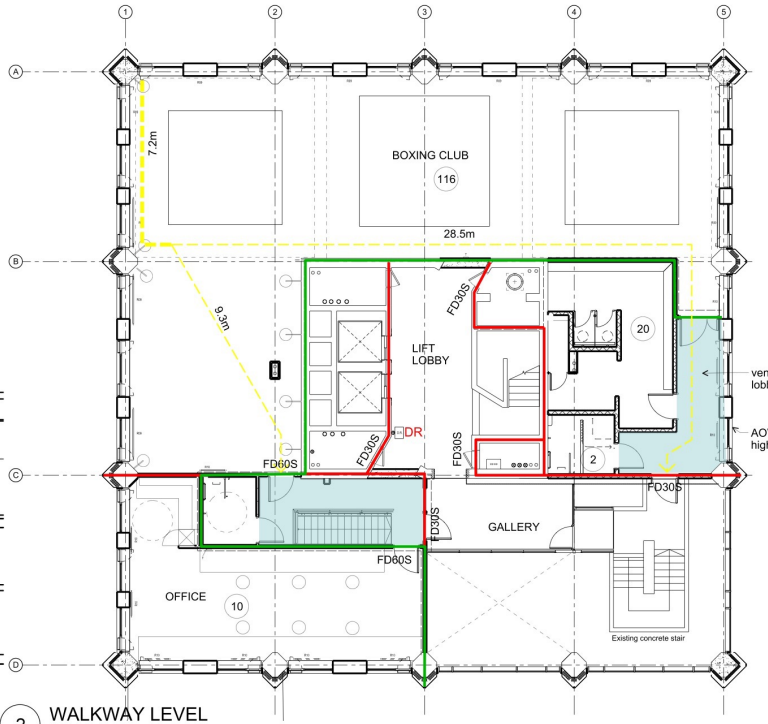
BMER000004/92



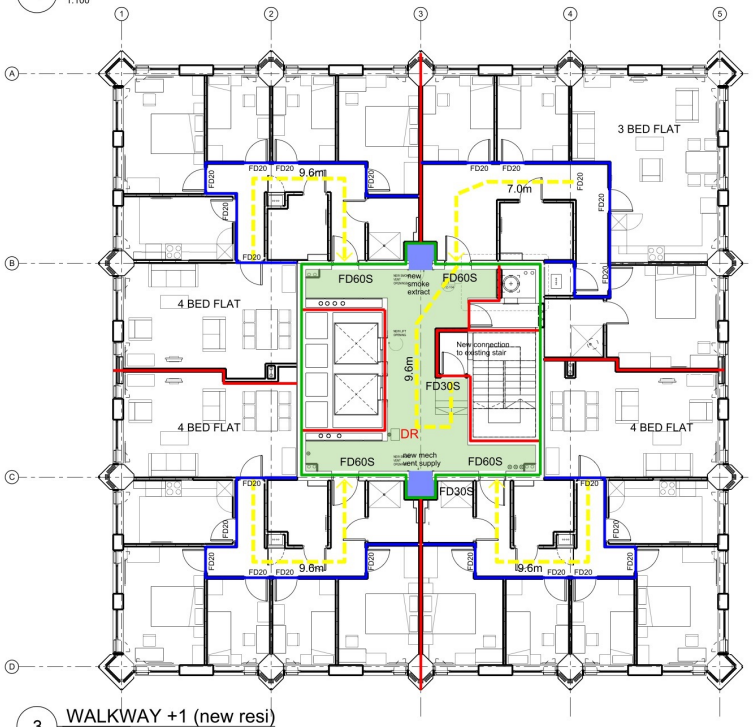
1 MEZZANINE
1:100



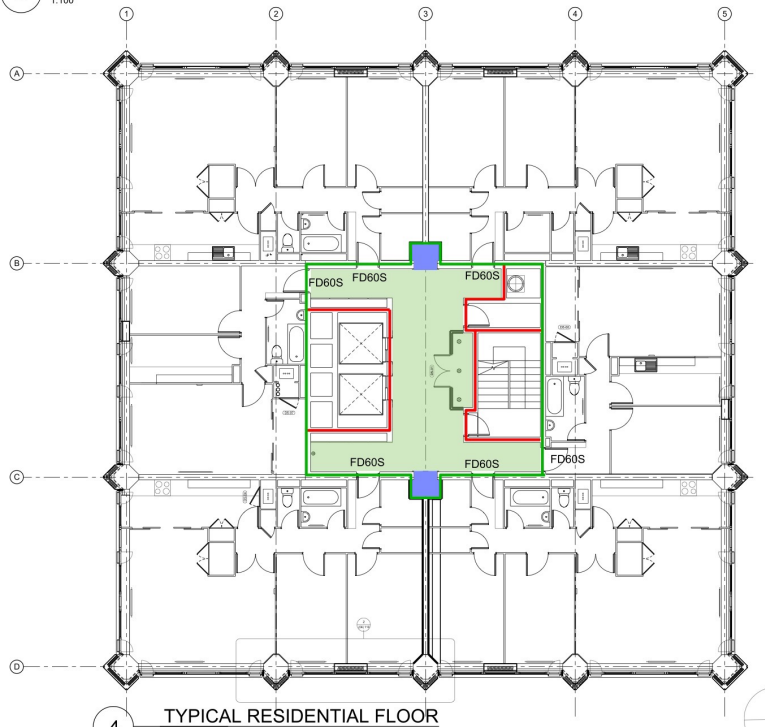
A Office Stair
1:100



2 WALKWAY LEVEL
1:100



3 WALKWAY +1 (new resi)
1:100



4 TYPICAL RESIDENTIAL FLOOR
1:100

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- Escape route in multiple directions
- 1hr Fire Curtain
- DR Dry Riser
- 32 Room Occupancy
- AOV vented lobby
- Mech vented lobby (re-used ducts)

EMPLOYER'S REQUIREMENTS

STUDIO E LLP
Palace Wharf, Rainville Road, London, W6 9HN.
Tel. 020 7385 7126
Fax. 020 7381 4995

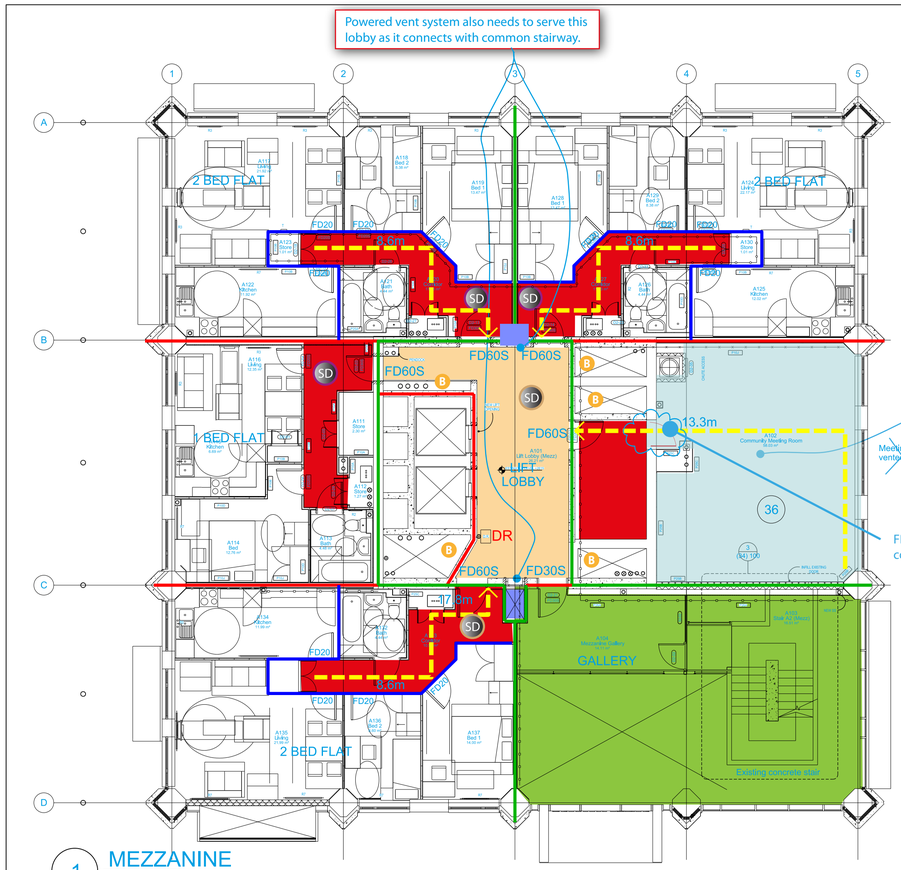
HESTON LEISURE CENTRE
PROJECT

FIRE STRATEGY
DRAWING

1:100@A1 24/10/13
SCALE DATE

1281 (08) 101 00 BS
DWG. NO. REV CHECKED

BMER000004/93



This is a room. Venting the room would not provide the same level of protection as venting a lobby thereto.

Provided that the lift lobby is vented - in this case an additional unvented (red) lobby separation to the residential escape is considered appropriate. The lobby in red should be completed with inner and outer FD30S doors.

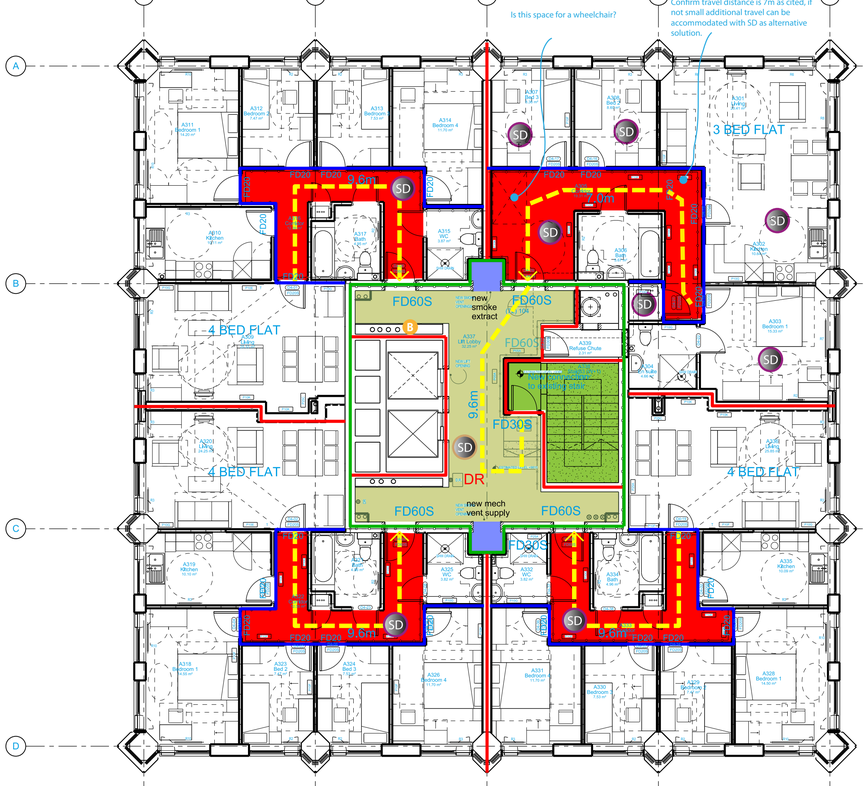
1 MEZZANINE
1:100

Smoke Detection
System complying with BS 5839-1

To activate powered vent and natural vent systems

Smoke Detection
System complying with BS 5839-6 Grade D Category LD3

Exit signs
To BS 5499: Part 1 or BSEN 7010 and sized to BS 5499: Part 4



3 WALKWAY +1 (new resi)
1:100

Protected Stairway
Fire resisting enclosure with FD30S doors
Doors on escape routes provided with simple fastenings - without the use of a key

Common Lobbies
Fire resisting enclosure with FD60S doors
Existing powered ventilation system - Powered inlet and outlet.
Existing extract rate ? m^3/s
Existing supply ? m^3/s

No details of existing extract / supply rates are given therefore no consideration could be given of adverse affect on existing system. If system designers wish to redesign the system without consideration of adverse affect, justification for the proposed extract rate needs to be submitted, including performance modelling.

Doors on escape routes provided with simple fastenings - without the use of a key

Common Lobbies accessing non residential uses
Fire resisting enclosure with FD60S doors

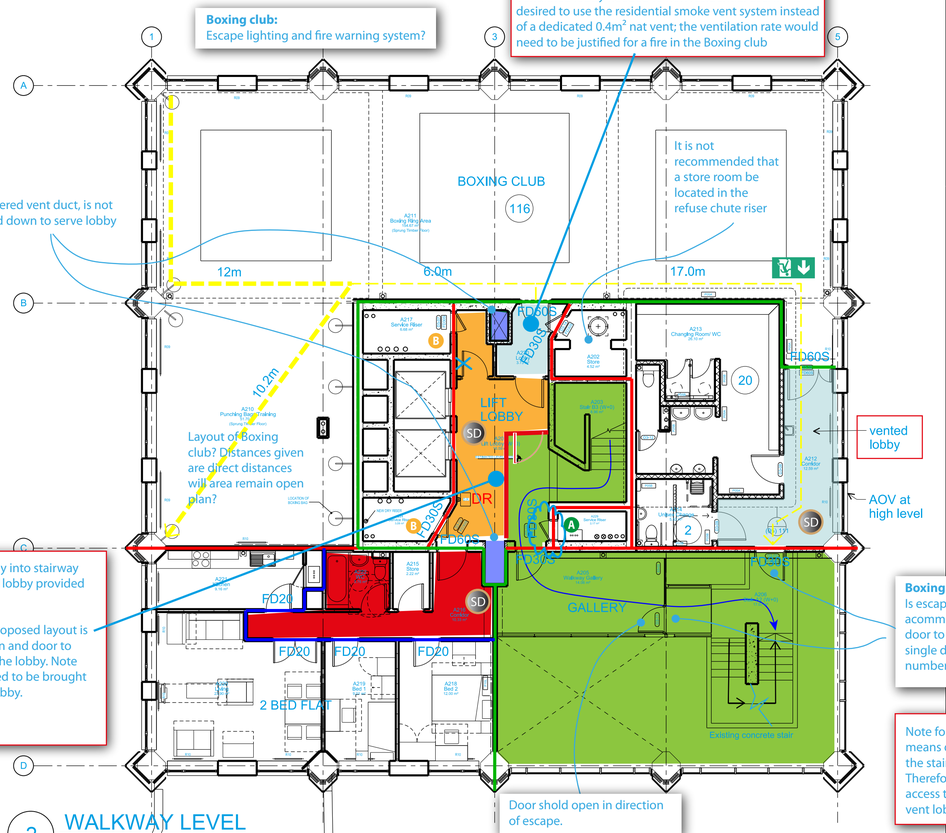
Natural vent 0.4m².

Doors on escape routes provided with simple fastenings - without the use of a key

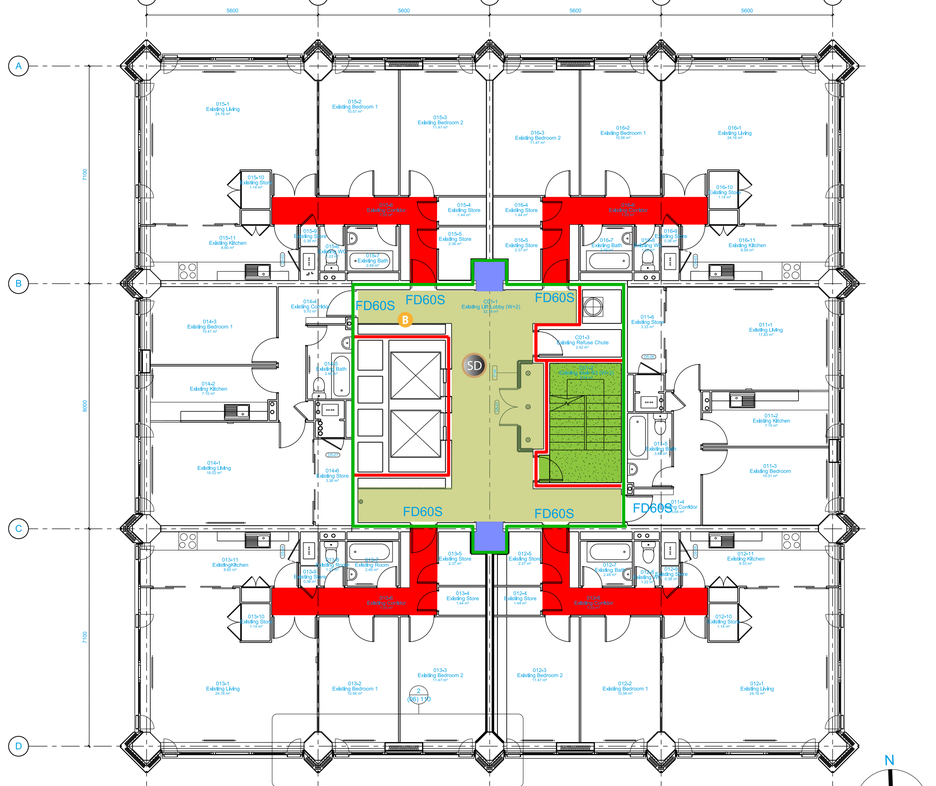
Inner Hall
Fire resisting enclosure with FD20 doors
SD provided for flat warning (not interlinked between flats)
System complying with BS 5839-6 Grade D Category LD3

Risers accessed from Stairway
Access should not be provided to services from the single stairway. (Hot and cold water/dry riser services are acceptable in metal pipes with suitable fire stopping). (Note in the existing building these risers were in the lobby). Can these access panels be sealed at this level?

Risers accessed from common Lobbies
Fire resistance should be achieved from the riser side of the enclosure. Access to services from the lobby should be via an FD30S with 'Fire Door Keep Locked Shut' signage.



2 WALKWAY LEVEL
1:100



4 TYPICAL RESIDENTIAL FLOOR
1:100

N

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- 1hr Fire Curtain
- DR Dry Riser
- 32 Room Occupancy
- AOV vented lobby
- Mech vented lobby (re-used ducts)

RBKC MOE - S1
Comments in blue by RBKC Building control

Kensington & Chelsea TMO

EMPLOYER'S REQUIREMENTS

STUDIO E ARCHITECTS LTD
310 Linton House, 164/180 Union Street London SE1 0LH

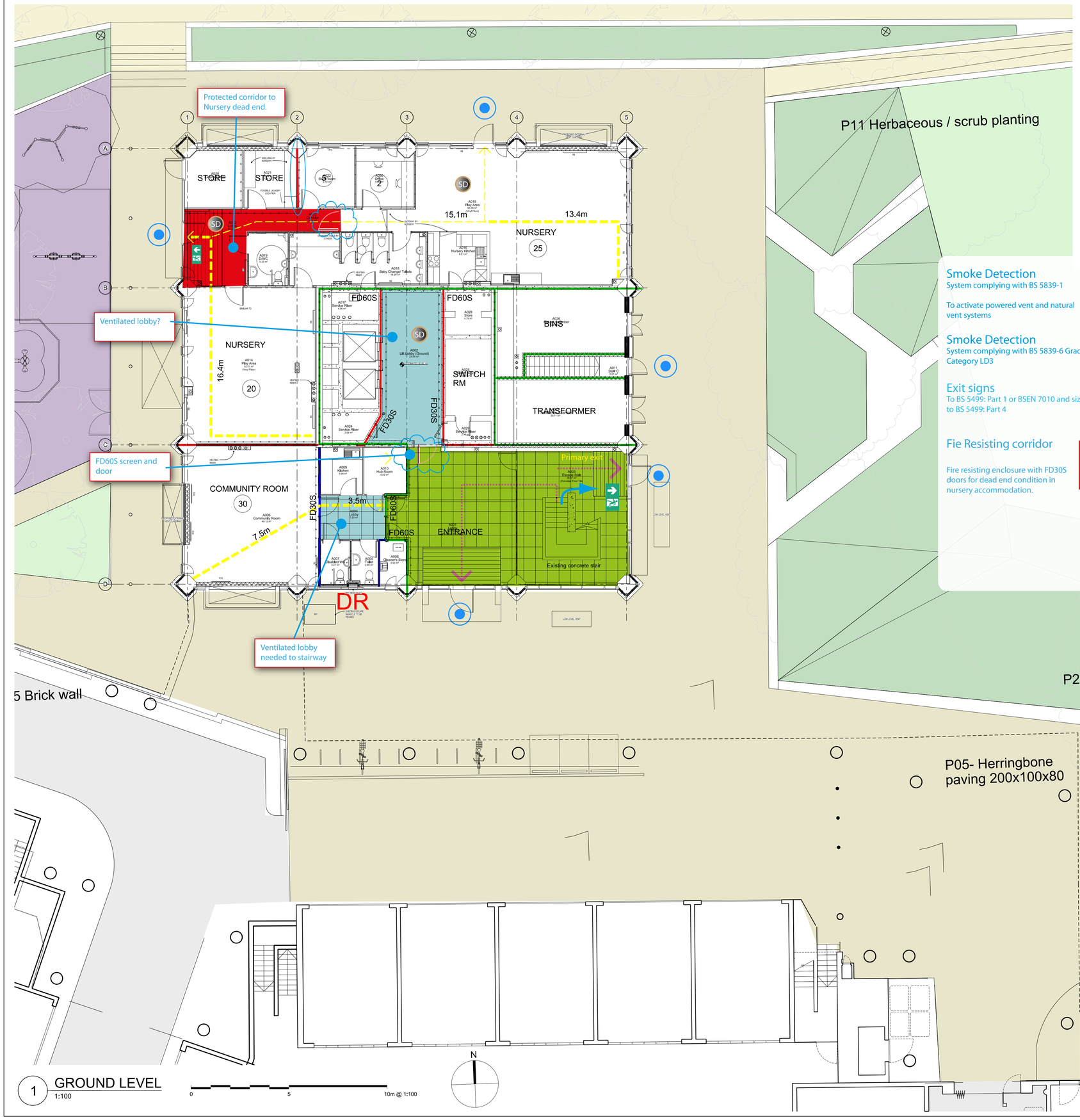
GRENFELL TOWER REGENERATION PROJECT
PROJECT

FIRE STRATEGY
DRAWING

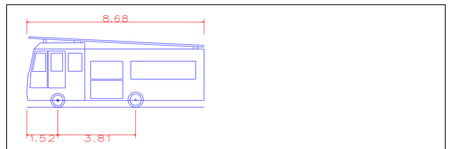
1:100@A1 24/10/13
SCALE DATE

1279 (08) 101 01 BS
DWG. NO. ISSUE CHECKED

BMER00000494



1 GROUND LEVEL
1:100



DB32 Fire Appliance	
Overall Length	8.680m
Overall Width	2.180m
Overall Body Height	3.452m
Min Body Ground Clearance	0.337m
Max Track Width	2.121m
Lock to Lock Time	6.00 sec
Kerb to Kerb Turning Radius	7.910m

Smoke Detection
System complying with BS 5839-1

To activate powered vent and natural vent systems

Smoke Detection
System complying with BS 5839-6 Grade D Category LD3

Exit signs
To BS 5499: Part 1 or BSEN 7010 and sized to BS 5499: Part 4

Fie Resisting corridor
Fire resisting enclosure with FD30S doors for dead end condition in nursery accommodation.

Protected Stairway
Fire resisting enclosure with FD30S doors
Doors on escape routes provided with simple fastenings - without the use of a key

Common Lobbies
Fire resisting enclosure with FD60S doors
Existing powered ventilation system - Powered inlet and outlet.
Existing extract rate ? m^3/s
Existing supply ? m^3/s

No details of existing extract / supply rates are given therefore no consideration could be given of adverse affect on existing system. if system designers wish to redesign the system without consideration of adverse affect, justification for the proposed extract rate needs to be submitted, including performance modelling.

Doors on escape routes provided with simple fastenings - without the use of a key

Common Lobbies serving non residential use
Fire resisting enclosure with FD60S doors

Natural vent 0.4m².

Doors on escape routes provided with simple fastenings - without the use of a key

Risers accessed from Stairway
Access should not be provided to services from the single stairway. (Hot and cold water/dry riser services are acceptable in metal pipes with suitable fire stopping). (Note in the existing building these risers were in the lobby). Can these access panels be sealed at this level?

Risers accessed from common Lobbies
Fire resistance should be achieved from the riser side of the enclosure. Access to services from the lobby should be via an FD30S with 'Fire Door Keep Locked Shut' signage.

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RBKC MOE - S1
Comments in blue by RBKC Building control

Kensington & Chelsea TMO

EMPLOYER'S REQUIREMENTS

STUDIO E ARCHITECTS LTD
310 Linton House, 164/180 Union Street London SE1 0LH

GRENFELL TOWER REGENERATION PROJECT
PROJECT

FIRE ACCESS PLAN
DRAWING

1:100@A1	24/10/13
SCALE	DATE

1279 (08)100	01	BS
DWG. NO.	ISSUE	CHECKED

BMER0000004/95

First fire service consultation

298) On 11 November 2014, the consultation request to the Fire Authority was issued {RBK00033896}. The LFB sent an email to building control on 12 December 2014 {LFB00000290} attaching a response dated 18 November 2014. The substantive response has not been disclosed; unfortunately the Inquiry has been informed by the LFB and RBKC that it cannot be located.

299) The Part B1 "consultation" submission comprised of a number of documents including the pro-forma document and a memorandum from Mr Hanson that included the S1 comments to the fire service. This document also included "Comments for Client", addressed to the applicant (Studio E). Appendix A to the submission was headed "Consultation with the Fire Authority regarding the lobby ventilation system". This document included comments addressed to the Fire Authority and comments for the "client" {RBK00033896}.

Decision

300) On 18 November 2014 building control advised Studio E by e-mail that "A decision notice will be forwarded to you shortly on the proposals submitted". As far as I can ascertain, no decision was ever issued.

301) John Hoban in his second witness statement {RBK00050416} states in paragraph 12 "I do not know if a decision notice was ever issued." There is nothing within the "Decision" screen of the Acolaid disclosure. He adds that "At the time Building Control would not have necessarily known had the decision notice, for some reason or other, not been issued." There is no indication that Mr Hoban checked for or monitored the issue of a decision on the project he was responsible for.

302) In parallel with the Fire Service consultation being undertaken and throughout the building works two particular issues were the subject of discussion with RBKC building control. Those were (1) the issue of the smoke ventilation installation serving the residential towers and (2) the fire resistance of cavity barriers/fire stops within the cladding.

The cladding

303) Importantly, I have not seen any documents or exchange of emails between any party and Building Control that refers to the compliance (or non-compliance) of the cladding system/external wall construction. As far as I have been able to ascertain the BCB made no request for details/information regarding the construction of the over cladding and/or new external walls at the lower levels and their ability to resist fire spread (internally or across their surfaces). Some limited information was provided by the applicant, piecemeal and not specifically related to compliance with Requirement B4. No comprehensive

cladding package was ever provided. I would have expected such a package to be provided, and if it was not then the BCB ought to have requested it.

304) Documents within the disclosures {RBK00033936}, {HAR00006596}, {HAR00003947}, {EXO00001434} and {SEA00000269} all refer to the location of fire breaks. No queries were raised regarding the un-named insulation shown between the existing external walls and new cladding.

305) The Exova fire strategy {EXO00001106} made no reference to alterations to the external walls of the building; it set out that the changes were thought not to adversely affect "external fire spread" but "this will be confirmed by an analysis in a future issue of this report". It was/is not unusual for a B4 "analysis" of external fire spread to be submitted after a conditional decision has been issued; however any decision should have requested submission of the details.

306) No further Exova report was provided. The BCB did not request the "external fire spread analysis". In my opinion, the BCB ought to have requested that the further analysis be provided.

307) John Hoban may not have seen the Curtins document Structural Performance Specification for the Design, Supply and Application of Over cladding System To Grenfell Tower {ART00005791} where it states that the over-cladding should comply with the recommendations of BRE Document Fire Performance of External Thermal Insulation of Walls of Multistorey Buildings, 2nd Edition 2003 and that the cladding system should meet the requirements of rainscreen cladding as specified in the standard for walls with ventilated rainscreens (CWCT 1998) which included fire performance and fire testing references.

308) The guidance issued by the CWCT has not in my experience been applied by BCBs in relation to Part B; I believe it is used widely in relation to Part A (structure).

309) BRE Document Fire Performance of External Thermal Insulation of Walls of Multistorey Buildings 2nd Edition 2003 (known as BR 135) is specifically referenced in AD B Volume 2 as setting the acceptable performance criteria for an external wall not composed of materials of limited combustibility. I will explain my views on the requirements of ADB with regard to external walls in my commentary on B4 below.

310) Both John Hoban and Paul Hanson should have been familiar with BR 135 but not necessarily the CWCT documents. Had John Hoban seen the Curtins document it may have caused him to refer to BR 135 and seek an assessment for the proposed over cladding.

311) The Curtins package may have been passed directly to the RBKC structural engineer who I would suggest would have been familiar with the CWCT structural guidance for cladding and rainscreen systems if not specifically the CWCT guidance relating to fire and the BR 135 document.

312) Paragraph 31 of John Hoban's second witness statement {RBK00050416} implies that the RBKC structural engineer reviewed the structural design. I would not expect a structural engineer to respond in relation to the fire safety aspect of a cladding system unless requested to. Mr Hoban could not confirm that the over cladding had been structurally assessed. No information is recorded in the structural engineering section within the Consultations pages of Acolaid (page 18 of the disclosure).

Smoke control system

313) RBKC building control in correspondence with the applicant stated the requirements in respect of the proposed alterations to the smoke control system were restricted by Building Regulations but that the system should provide no worse a level of protection on completion than the existing system. As the building control records were not available (having been destroyed) it was not possible to be sure what the original system achieved, and the applicant had to be relied on to provide information. Paul Hanson states in his witness statement that the smoke control system was ultimately replaced and implies it was regarded as a new system for regulatory control purposes (see paragraph 115 {RBK00033894}). If this was the case the installation (as new) should have complied with the guidance current at that time.

314) The smoke control system will be reviewed in a separate report.

The BCB review of Requirements B1 to B5

315) Earlier in my report I have set out the five substantive requirements of the Building Regulations, B1 to B5, and outlined the guidance that aims to achieve compliance. In this part of my report I consider the review of the submitted information undertaken by the BCB in relation to each requirement.

Generally

316) I had expected the BCB review of the full plans application to have been recorded and retained. A detailed checklist for Part B matters may have been adequate for a simple and/or small project. The disclosed P60 "tick list" would in my opinion have been an inadequate record.

317) The Part B review of the works at Grenfell Tower should have comprised–
   (a) a detailed scrutiny of the fire safety proposals as set out in the plans and documents provided by the applicant;
   (b) an assessment by the BCB as to whether there was adequate detail to allow an assessment to be made;
   (c) a record of the review noting any variations from recognised guidance;

(d) an assessment of whether the proposal was generally compliant as regards B1 and B5 to allow the Fire Authority consultation; and following a response to the consultation response;
(e) the issue of a decision notice as a record of the approved (or rejected) works.

318) A decision notice would have detailed those matters requiring amendment and/or further details necessary before compliance could be certified. In my experience a diligent BCB surveyor would then formulate a document (if the checklist was not sufficient) be it a tracker or otherwise, to monitor and record further submissions (or their absence) and assist with site inspections.

319) Often such a "tracker' is/was compiled by the applicant following receipt of the decision notice for similar purposes and shared with the BCB. The checklist generally has one administrator and is updated as works progress with amendments and additions added and meeting notes and decisions recorded. This keeps the information all in one place and available to all parties. As the record was invariably retained electronically sharing it is not an issue.

320) John Hoban in his second witness statement paragraphs 15 to 18 {RBK00050416} states that the process for reviewing a submission was as outlined in the P6 document and that the approved submission can be seen in the full plans application, with approval communicated in the decision notice. He also states that key variations and decisions were recorded on the file (physical file or Acolaid). He adds he was not aware of the process for recording a full plans application and its submissions/information and any subsequent amendments to the application. The Inquiry does not have a copy of the P6 document current at the time of the submission; the available one outlines only that full plans application was date stamped, a meaningful response given in 10 working days and noted on Acolaid. There is no reference to the received application being recorded.

321) Mr Hoban states he kept a plan check record sheet on which he would have recorded amendments and this would have been placed on file and likely weeded out. He added that he used Acolaid to draft letters, record important emails, meaningful responses, site visit notes, notes of telephone conversations, building control decisions and logging dangerous conditions and work practices on site.

Requirements B1 (means of warning and escape)

322) B1 compliance based on the recommendations of AD B should have addressed –
(a) The fire alarm in the residential and other areas;
(b) Means of escape appropriate for a single stair building exceeding 4.5m above ground level with a "stay in place" evacuation protocol;
(c) Protection of the escape route within the flats, between the flat and the stair, and within the stair to ground level and the final exit together with the smoke control measures to protect the escape routes;

(d) Exit signage;
(e) Fastenings on escape doors;
(f) Direction of escape door opening;
(g) Headroom in escape routes;
(h) Lighting of escape routes - primary and secondary;
(i) Refuse chutes - separation from escape routes;
(j) Secondary power supplies to life safety installations.

323) By email on 24 September 2014, Studio E submitted the details of the proposed works to support the full plans application {RYD00018742}. Attached was the "20140924 Building Control Set zip" of drawings. This package included:
(a) The BCB annotated plans P1;
(b) Amended fire strategy drawings that differed from the P1 submission, mainly in that the office accommodation had been replaced by additional flats.

324) On 29 September 2014, Studio E submitted by email {SEA00000215} the Exova Outline Fire Safety Report Issue 03, stating that the "Study" was "written prior to the Fire Strategy Revision B changes"; and also attached the correspondence with Exova relating to the Part B changes "which we will modify accordingly." {SEA00000217}. The email was titled "Grenfell Tower Regeneration Project Fire Strategy Drawings - minor revisions". No drawings were attached.

325) John Hoban requested of Paul Hanson "your observations under Part B of the Building Regulations" by email dated 29 September 2014 attaching the "20140924 Building Control Set zip" {RBK00048693}. Mr Hanson responded with his S1 observations {RBK00033895} by memorandum dated 10 November 2014, citing only drawings 1279 (08) 1010 01 BS and 100 01 BS, both dated 24 October 2013. (BS was the initial of the person who checked the drawing in Studio E; it was not normal practice to include this.) The observations also referred to the Exova fire strategy.

326) The observations were sought outside the statutory time limit for a decision, which was 10 September 2014. The first details of the work was received on 24 September 2014. It was not possible to have issued a decision within the statutory time limit. In my opinion this supports my view that the full plans submission should have been rejected.

327) The Exova strategy referred to the office accommodation as part of the works and addressed Requirements B1 to B5. The Paul Hanson S1 observations addressed B1 only and also referred to office use at ground level albeit none is shown on the ground floor drawing.

328) Mr Hanson states in his response that "RBKC is not in a position to approve the proposals at this stage due to the need for the design team to establish an acceptable extract rate for the powered lobby ventilation system and the provision of ventilated lobby protection to all stairway connections to residential and other uses." Further details were requested, including the fire alarm system,

escape lighting, mechanical ventilation, fire signage, the powered smoke shafts and the alternative power supplies to life safety systems. The formal consultation with the Fire Authority was undertaken contrary to the agreed policy of only consulting when the BCB was prepared to approve or conditionally approve an submission.

329) The Exova fire strategy, like the S1 observations, was based on AD B and/or BS 9991. The report was very basic, but it was described as an Outline Fire Safety Strategy. It comprised of 10 pages, the first two of which were not technical and the last page listed reference documents; it pre-dates the Studio E submission in September 2014. The strategy only related to the works in the ground, mezzanine, walkway and walkway+1 levels and "generally - improvements to the building services". The fact that the strategy did not address the actual proposals indicated on the submitted plans was not mentioned in Paul Hanson's response.

330) The Exova report did not reflect the proposals described within the full plans application; did not demonstrate compliance with the proposals; it made no reference to the overcladding or any alterations to the external walls at any level. In my view an updated/new fire strategy should have been requested from the applicant to reflect the full extent of the works, including the alterations to the external walls. Or, the applicant should have been informed that the strategy was not relevant and would not be taken into consideration; that the decision would be based on the submitted drawings alone.

331) The S1 and S2 observations conveyed to the applicant related to B1 only. In relation to the Exova strategy the only comment within the S1 observations (that were also part of the first Fire Service consultation) related to ventilated lobbies that had been omitted. There is no record that I have seen that states the Exova fire strategy was specifically accepted or rejected by the BCB.

332) The "Building Control zip" drawings did not indicate compliance with the basic principles of AD B or BS 9991 for escape; the S1 observations stated the BCB was not in a position to approve the proposals. The "comments for client" are not as explicit and recommendations are made for amendment of the drawings and additional information was required.

333) Overall I am of the opinion that those measures relevant to Requirement B1 were reviewed and addressed; I agree with Paul Hanson that the proposals were unacceptable at that stage.

334) I am also of the opinion that due to the number of issues found in respect of requirement B1 alone, the full plans application should have been rejected when first received. The plans should have been reviewed within the five week statutory time limit. This would have been a simple exercise based on comparison with the P1 annotation.

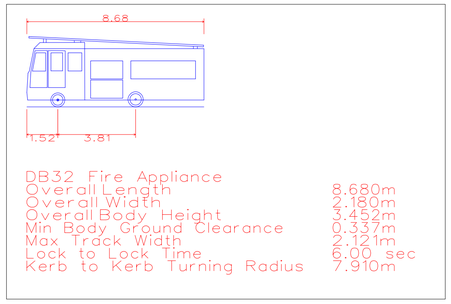
335) By email dated 23 February 2015 {SEA00000244} Studio E sought clarification as to the required fire resistance of the flat doors at the first floor level and stair door at ground level. Mr Hanson responded {RBK00048733} that the doors

should be 30FDs and 60FDs respectively (I consider this to be the correct advice).

336) Details of the mechanical smoke control system were submitted to BCB Paul Hanson by email 14 April 2015 for review {RBK00027392} and he responded that the proposal was "satisfactory" by email on 24 June 2015, to John Hoban with memorandum S1a.

337) By email dated 11 January 2016 Studio E submitted the "updated fire strategy drawings" 1279 SEA(08) 100 Rev 06 Fire access and 1279 SEA (08) Rev 05 Fire strategy {SEA00000342} to both Mr Hanson and Mr Hoban. These are reproduced below and in Appendix B.

1 GROUND LEVEL
1:100



DB32 Fire Appliance	
Overall Length	8.680m
Overall Width	2.180m
Overall Body Height	3.452m
Min Body Ground Clearance	0.337m
Max Track Width	2.121m
Lock to Lock Time	6.00 sec
Kerb to Kerb Turning Radius	7.910m

NOTE

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4. WHERE DISCREPANCIES EXIST BETWEEN REFERENCE OR ASSEMBLY DRAWINGS & DETAIL DRAWINGS, THE LATTER TAKE PREFERENCE.

KEY

- 30 minute rated construction line
- 60 minute rated construction line
- 120 minute rated construction line
- Final Exit
- Escape route in one direction
- Escape route in multiple directions
- 1hr Fire Curtain
- DR Dry Riser
- 32 Room Occupancy
- AOV vented lobby
- Mech vented lobby (re-used ducts)
- Mech vented lobby (existing ducts extended down)

06	11/01/16	Scheme Updated
05	23/02/15	Scheme Updated
04	13/02/15	Scheme Updated
03	10/11/14	Store Area Corrected
02	10/11/14	Scheme Update
01	24/10/14	Scheme Update

James Allen's Girls' School

jags

FOR CONSTRUCTION

STUDIO E ARCHITECTS LTD

310 Linton House, 164/180 Union Street London SE1 0LH

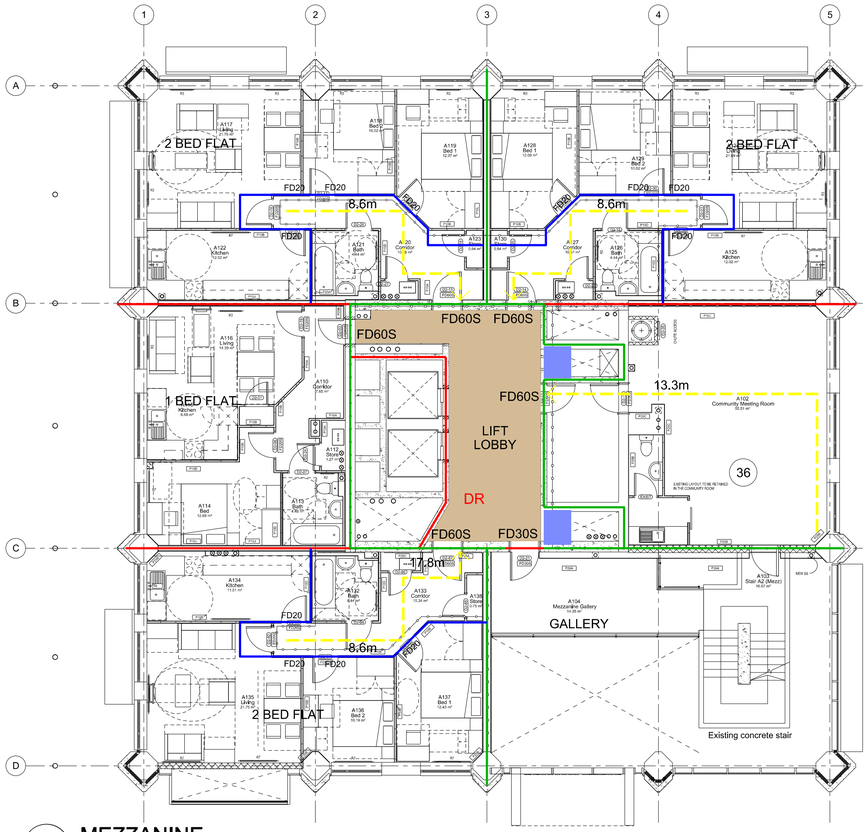
JAMES ALLEN'S COMMUNITY MUSIC CENTRE
JAMES ALLEN'S GIRLS' SCHOOL
PROJECT

FIRE ACCESS PLAN
DRAWING

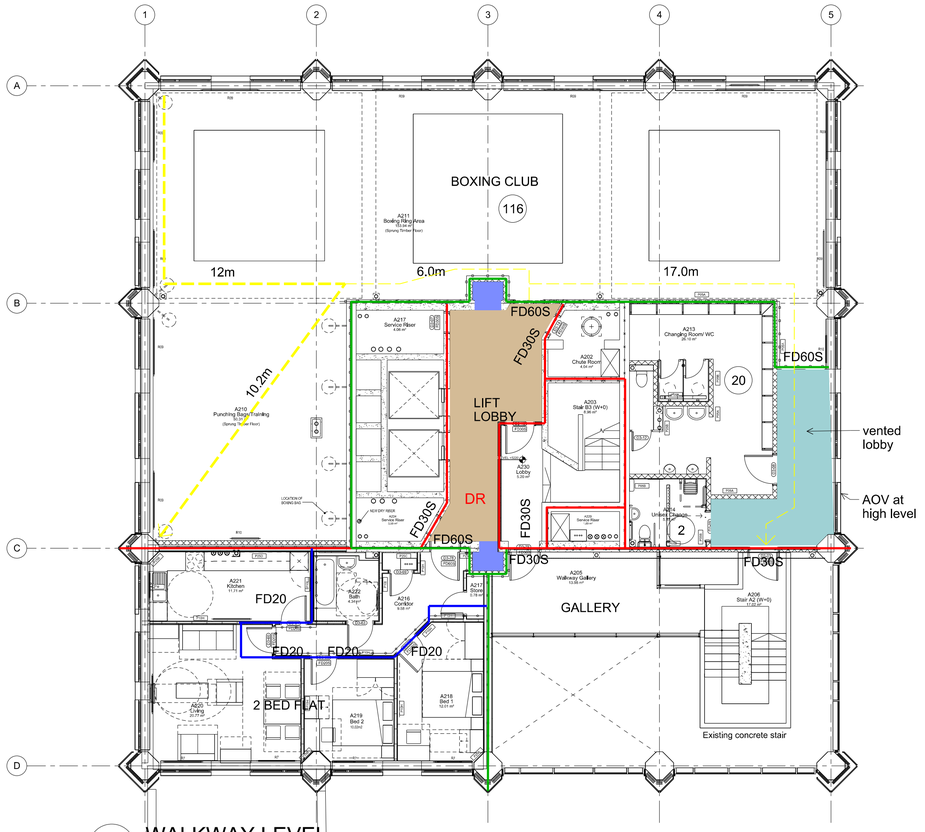
1:100@A1	24/10/13
SCALE	DATE

1309 (08)100	06	BS
DWG. NO.	REVISION	CHECKED

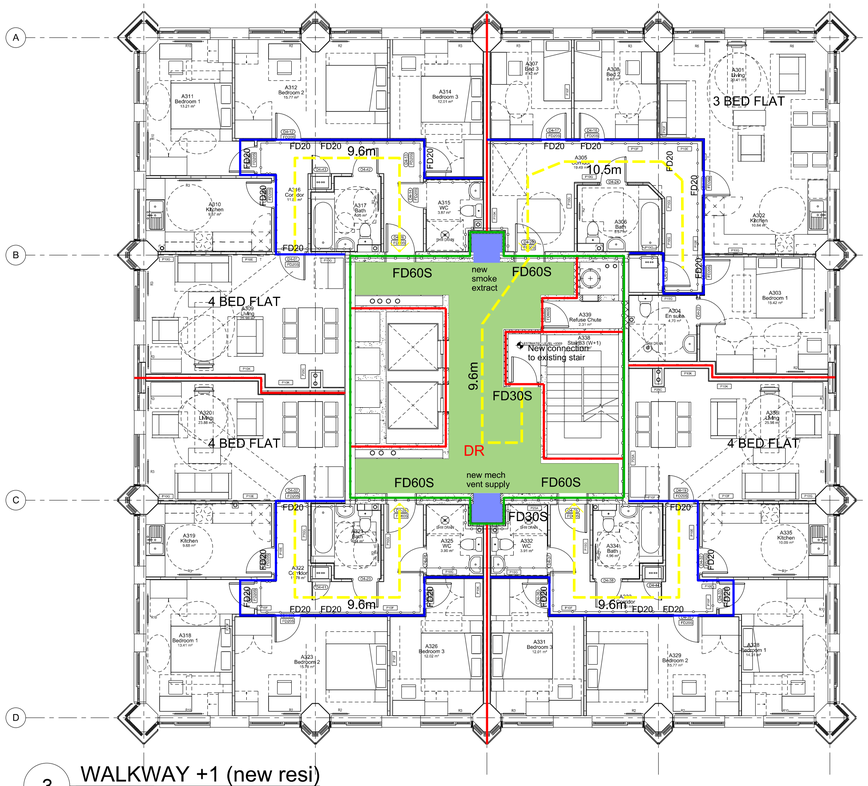
BMER00000041103



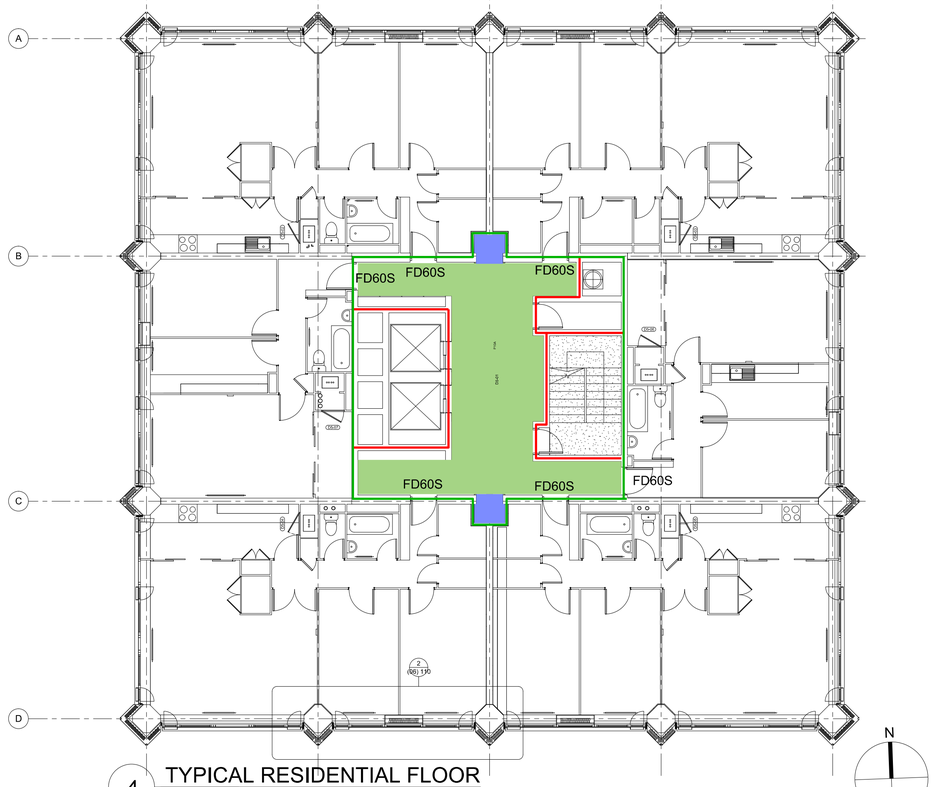
1 MEZZANINE
1:100



2 WALKWAY LEVEL
1:100



3 WALKWAY +1 (new resi)
1:100



4 TYPICAL RESIDENTIAL FLOOR
1:100

0 5 10m @ 1:100

NOTE

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KEY

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05	11/01/16	Scheme Updated
04	23/02/15	Scheme Updated
03	13/02/15	Scheme Updated
02	10/11/14	Scheme Updated
01	24/10/14	Scheme Updated

jags

FOR CONSTRUCTION

STUDIO E ARCHITECTS LTD

310 Linton House, 164/180 Union Street
London SE1 0LH

JAMES ALLEN'S COMMUNITY MUSIC CENTRE
JAMES ALLEN'S GIRLS' SCHOOL
PROJECT

FIRE STRATEGY
DRAWING

1:100@A1 | 24/10/13
SCALE | DATE

1309 (08) 101 | 05 | BS
DWG. NO. | REVISION | CHECKED

BMER000000A0104

338) The Inquiry will note that these drawings are titled James Allen's Community Music Centre James Allen's Girls School. I am surprised that this inaccuracy was not queried/mentioned in any correspondence as requiring correction.

339) By email 26 January 2016, Paul Hanson advised Studio E that the plans had been designated submission 2 (S2), that the scheme was "acceptable in principle with matters of detail left to resolve" and that he considered it appropriate to consult the Fire Authority again {RBK00002978}.

340) The Fire Authority consultation request stated that "subject to comments" the powered smoke control proposal was considered satisfactory and had attached to it drawings 1279 SEA(08) 100 Rev 06 Fire access and 1279 SEA (08) Rev 05 Fire strategy, together with the Smoke Ventilation Submission PSBUK1143-12 Rev 3 dated 12 June 2015 (submission 1a). The consultation also made reference to the BCB S1 annotated plans. The S2 observations related to B1 only.

341) I have reviewed the S2 drawings and the comments in the memoranda S2:
   (a) The suggested (S1) protected lobby in the nursery that would have reduced the dead end travel distance was not adopted on the S2 ground floor drawing. I have found no indication that the age of the children in the nursery was established; or the proposed staff: children ratio. As such in my opinion the longer travel distance (indicated on the S2 plan) is not adequately justified;
   (b) There was no indication what the BCB blue bubble refers to;
   (c) The doors to the tower escape stair at Walkway level (level one) were indicated as 30FDs rather than 60FDs as Mr Hanson had previously advised.

342) Although I have highlighted several issues above, I am of the opinion that the review of the S2 proposals in relation to Requirement B1 by the BCB was otherwise in its intent adequate and appropriate.

343) Both the S1 and S2 memorandum state "This submission proposed to use the residential ventilation system for the boxing club. This would be acceptable in principle provided that the fire loading in the boxing club is compatible with a residential type use". I have found no evidence that details were submitted to the BCB to indicate this; or that details of the installations listed - including the fire alarm system, escape lighting, mechanical ventilation, fire signage, the powered smoke shafts and the alternative power supplies to life safety systems, were submitted for review. Nor is there any indication that Mr Hanson or Mr Hoban pursued the submission of the details. This indicates a further lack of rigour on the part of the BCB and its processes.

344) Fire alarm completion certificates relating to some parts of Grenfell Tower have been disclosed.

345) The Acolaid disclosure {RBK00044876} has no record of certificates having been received by the BCB. The test results and certificates received section on page 67

under Completion, is blank.

Requirement B2 Internal fire spread (linings)

346) B2 compliance based on the recommendations of AD B should have addressed:
(a) Fire spread and lining materials.

347) Requirement B2 was addressed in the Exova Fire Strategy Issue No. 03 dated 7 November 2013 by reference to Approved Document B and/or BS 9991: 2011 stating that circulation and escape route linings would have Class 0 (national standard/ClassBs3,d2 (European) classification for surface spread of flame and elsewhere Class 1 (national standard/ClassCs3,d2 (European) classification). It fully reflected the recommendations of AD B and as such the proposal was compliant. However, as stated above, the strategy did not reflect the proposals.

348) As far as I can ascertain no details of the linings were requested or submitted, but in my opinion it would be reasonable to assume that the linings could be efficiently reviewed on site and readily accepted or rejected depending what the linings were. For example, if simple emulsion paint, no further details would be required; if anti-graffiti paint, details would be required; if any applied decorative finish was used, details would be required. The site notes do not contain any record of observations made on site in respect of linings.

349) As far as I could ascertain from my visits to the Tower only emulsion paint was used, but this has yet to be verified. In the belief that the linings at Grenfell Tower were compliant I am of the view that the fact that the wall and ceiling linings were not recorded as compliant was a procedural failing. It does not indicate that the linings were not reviewed on site to ascertain compliance.

Requirement B3 Internal fire spread (structure)

350) B3 compliance based on the recommendations of AD B should have addressed:
(a) The structural fire resistance of the structure. The recommended periods of fire resistance for a residential use are based on the type of use and height of the building above fire service access level;
(b) Compartmentation. A residential block of flats is required to be highly compartmented: each residential unit a separate compartment; all floors compartment floors and compartmentation should be provided between each residential unit and any other part of the building;
(c) Protected shafts (a stair, lift or other shaft passing between compartments);
(d) The subdivision of concealed spaces - cavity barriers; and
(e) The protection of openings in fire separating elements (ducts and pipes etc) and fire stopping.

Structure

351) The requirement was partially addressed in Section 3.1.3 Compliance with B3 (internal fire spread (structure)) of the Exova Outline Fire Strategy Report Issue No. 3.

352) The strategy stated that all new elements of structure (that was the structural frame, beams and columns, load-bearing walls, floors, external walls and compartment walls) would achieve the same fire resistance as the existing elements, which was assumed to be 120 minutes for the structural frame and 60 minutes for the floors, with the exception of the structural steel supporting the galleries connecting to the boxing club stair that is in an area very low fire load where 30 minutes fire protection will be provided.

353) The strategy adds that compartment walls and floors will have 60FR unless they form part of the structural frame where they will have 120FR.

354) The actual fire resistance of the existing structural elements of Grenfell Tower were not established as far as I am aware. The BCB had no records of the original building and as far as I have been able to ascertain the applicant was not asked to provide details, which was a failing of the BCB.

355) A floor was/is defined in AD B as an element of structure. It was not excluded from the provisions for elements of structure by clause 7.4 of AD B; nor was the fire time for a floor reduced in Table A2 of AB B – Minimum periods of fire resistance. The new sections of floor should have attained 120FR. It is not clear whether the reference to 60FR in the Exova Outline Fire Strategy is simply an error or whether Exova was making a positive recommendation to reduce the fire resistance of the new sections of floor.

356) Had the applicant made an approach to reduce the fire resistance of the new floor construction to attain a standard comparable to the existing sections of floor at any level, in my opinion it would have been reasonable to have accepted such a proposal, provided it was justified with analysis. However, as far as I am aware, no approach was in fact made and no analysis was submitted.

357) In response to a query from Studio E dated 20 March 2015 {SEA00012963}, John Hoban confirmed that new elements of structure should be 120 FR. That was the correct advice.

358) In his response regarding cavity barriers dated 1 April 2015 {HAR00006596} John Hoban drew attention to the need for the new steelwork supporting the new gallery floors shown on drawing 1279 (06) 121 Rev 00 (drawing shown below) should be protected to 120 minutes fire resistance. There was no reference to the proposal to reduce the fire resistance to 30FR within the Exova fire strategy. It is therefore unclear whether the proposal in the Exova strategy formed part of the refurbishment works.

359) I have seen nothing in the disclosures or the site inspection notes that records the fire rating adopted for the gallery structure.

360) I am led to surmise from his lack of knowledge of the proposals regarding the structural elements that John Hoban did not review the Exova fire strategy. This has yet to be verified.

361) Paul Hanson's observations in relation to B1 should have involved the review of the fire strategy as a whole, particularly Requirement B3 as compartmentation is critical to an effective "stay in place" evacuation protocol. As a fire engineer and a "consultant" within the BCB I would have expected that unsubstantiated variations from guidance would have been drawn to the attention of his colleague, John Hoban.

362) The Exova strategy made no reference to protected shafts, the subdivision of extensive concealed cavities, cavity barriers, protection of openings in fire walls or fire stopping.

Cladding cavity barriers

363) As previously stated, email correspondence has been disclosed relating to the fire resistance of the cavity barriers in the cladding system. I have set out below a synopsis of the details of those emails from 6 March to 1 April 2015.

364) 6 March 2015: Studio E to Paul Hanson, cc Hoban. {SEA00000252}. Studio E queried the fire rating "we need to allow for within the wall build-up between apartments". Attached were Harley "section" details C1059 -301E, 305 C, 200 I, 201 D and 202 C. The details in the drawings indicated "firebreaks" horizontal and vertical at the compartment lines - horizontal Siderise Lamatherm RH25G – 90/30 ventilated breaks for 90 minutes integrity and 30 minutes insulation; vertical Siderise Lamatherm RVG90/30 full fill (non-ventilated), all as described in the specification notes. These were "firebreaks" specifically designed for use in a ventilated cavity to allow the necessary air circulation through the height of the facade. The horizontal barrier positioned in line with a compartment floor allowed the air to flow vertically within the cavity by use of what is known as an "open state" barrier - the barrier does not fill the cavity but there is an intumescent section on the leading edge of the barrier into the cavity which expands on attack by heat from a fire to fill the cavity and thereby stop fire spread. The vertical barriers are located at the line of compartment walls (typically between flats) but fully fill the cavity as there is no requirement for air to pass horizontally.

365) The specification also gave the details of the P1 glazing panels as having a Styrofoam core and the P2 glazing panels as having Kingspan TP10 rigid insulation (PIR), both of which are combustible insulation materials. The specification and drawings can be seen within Appendix A. I will comment on this in my analysis of B4 below.

366) There is no reference to/indication of cavity barriers around openings (doors/windows, vents etc) within the rainscreen cladding or other external wall area.

367) 10 March 2015: Hanson replied to Studio E {RYD00034377} "This is a B3 matter so it's really John Hoban's reference" "if you mean fire resistance the walls between apartments are compartment walls so the construction should achieve the same fire resistance as the elements of construction for the building".

368) 11 March 2014: Studio E to Hanson and Hoban {RBK00048732}. Studio E stated they wanted clarification for fire stopping within the wall build - up where the cladding cassettes are mounted over the old cladding.

369) 11 March 2015: Hanson to Hoban {RBK00048732} "not sure what is being referred to maybe that he means the external enclosure to the building – therefore it is a B4 matter can you deal with."

370) 20 March 2015: Hoban to Studio E cc Hanson {SEA00012963}. Advised fire resistance for new elements of structure was 120FR, adding "draw your attention to diagram 33 of AD B and highlight the detail between compartment floors and external cladding".

371) 6 March to 27 March 2015: emails between parties other than BCB (part of {HAR00006586}).

372) In an email dated 26 March 2015 Siderise gave their view that 30FR cavity barriers were required within the cladding (not 120FR). In support of their view, they included an extract from AD B Table A1, that set out the fire resistance required for a cavity barrier as 30 minutes integrity and 15 minutes insulation (each side separately). Siderise added that in a rainscreen cladding system the cavity barrier is deemed to be on the outside of the building; and that 120FR is the industry standard for fire stopping between a curtain wall and a concrete floor slab edge where the fire stop is located on the inside of the building and is considered to be a continuation of the floor slab.

373) 27 March 2015: Harley internal email {HAR00006585}. "There is no point in "fire stopping", as we all know; the ACM will be gone rather quickly in a fire!. The whole point is to stop "unseen" fire spreading in the cavity and moving to other parts of the building. Are we working to the NBS spec by Studio E?" As far as I am aware, this email was not seen by the BCB.

374) 30 March 2015 {RYD00037401}: In emails dated 26 and 30 March, Mr Hoban was copied in to the longer email chain (dated between 6 March and 1 April 2015) and saw the emails between Rydon, Siderise and Harley for the first time.

375) 30 March 2015: Hoban to other parties {RYD00037401}. Hoban stated his interpretation of diagram 33 "is that the detail between the compartment floors and external cladding is not a cavity barrier, therefore it must be fire stopped to at least the standard of the existing compartment floor (120 minutes). Therefore

the methods described in clause 9.13 would not be appropriate in the particular case."

376) 31 March 2015 Rydon to Hoban {HAR00006596}: "the relationship between the back of slab and cladding remains the same as the original cladding (concrete) is retained and therefore the integrity of this relationship at floor level has not been affected. The new cladding constitutes an additional layout applied on top not a new floor slab interface and therefore the interpretation is that this constitutes a cavity barrier and not a fire stop."

377) 1 April 2015: Hoban to Studio E cc Rydon {HAR00006596}. Having received attached drawing details "the matter has become more clearer".

378) 1 April 2015 Hoban to Studio E cc Rydon {HAR00006596}. "I have no adverse comments to make on the cladding proposals shown on your drawings 1279 (6)120 rev 00, 121 rev00 and Harleys drawing C1059 - 325 rev C with regards to compliance the parts B-2 and B3 in schedule 1 of the Building Regulations".

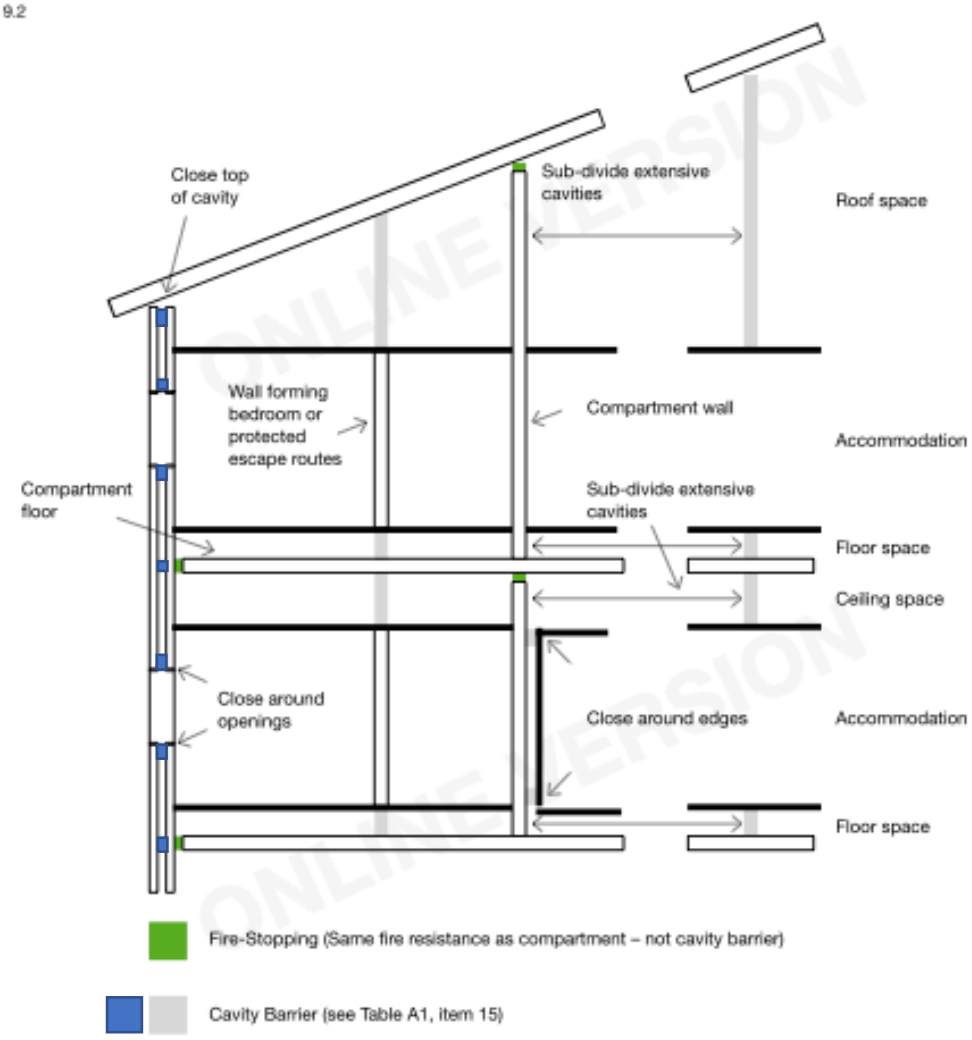
379) It should be noted that Requirement B2 (wall and ceiling linings within a building) was not relevant in this matter. The reference should have been B3 and B4.

380) In his second witness statement {RBK00050416} Mr Hoban states that following receipt of drawings and from discussions "it became clearer to me that the cavity barriers reflected what was shown in diagram 33 in section 9 of approved Document B3 and that this issue had been properly considered by the designers. Therefore I had no adverse comments to make at that stage."

381) The debate centred on Diagram 33 in AD B (provision of cavity barriers), where cavity barriers are shown within the cavity of the external wall in grey and fire stopping is separately shown in green at each compartment edge to be of the same fire resistance as the compartment itself. The diagram is reproduced below. The grey cavity barriers are not easy to see from this on-line version of AD B so I have indicated where the cavity barriers are located in blue.

Diagram 33 **Provisions for cavity barriers**

See para 9.2

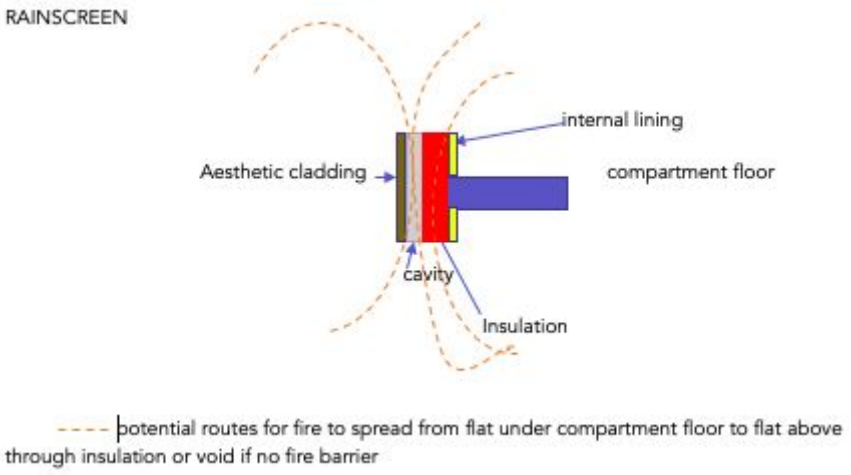


382) This diagram caused much debate in the industry at the time of the application and continues to do so. The debate centred on whether the required cavity barrier in a rainscreen cladding system should be 30FR or the same as the fire resistance of the compartment lines the cladding passed over. The compartment lines at Grenfell were between the flats and between the flats and any other areas.

383) In my opinion, Diagram 33 is only an indication of where in principle to locate cavity barriers and fire stopping to deter the unseen spread of fire. All recommendations in AD B (and BS 9991) assume that the guidance is adopted in full as individual recommendations are interrelated. For example, the recommendations for fire stopping and cavity barriers is based on the assumption that the external wall will attain the recommended fire resistance and/or limited combustibility that is recommended in AD B paragraphs 12.5-12.9 (B4). As I explain more fully below, in the case of Grenfell Tower this would in my view have meant that the materials in the external walls were constructed of materials of limited combustibility and cavity barriers and fire stopping was installed in accordance with the principles of diagram 33 to maintain compartmentation and subdivide the cavity. Alternatively, the cladding system (including cavity barriers) should have been assessed as meeting the criteria of BR 135. This assessment would have to be based on the results of appropriate fire tests to BS 8414 with the tested cladding system incorporating fire stopping and cavity barriers.

384) In my experience there is no controversy where curtain walling abuts a compartment line - the fire stopping has the same fire resistance of the compartment line - either 60FR, 90FR or 120FR depending on the fire resistance of the compartment separation.

385) Where rainscreen cladding is used it incorporates a ventilated/drained cavity. The outer cladding will not stop total penetration by rain or snow and any that enters or develops by condensation in the cavity needs to drain away. The cavity must be maintained open for drainage and ventilation. The thermal line and weather line is effectively within the cladding system stopping at the insulation where it abuts the cavity. The very simple diagram below illustrates the rainscreen principle (note this does not reflect the construction of the rainscreen system at Grenfell Tower). The possibility of a fire entering the cavity and insulation and transferring to the compartment above must be considered.



386) If I had been the building control officer on the Grenfell refurbishment, I would have required a 120FR fire stop at compartment lines to extend compartmentation out through the rainscreen system. This would have been the starting point and I would have required any proposals to use 30FR cavity barriers in these locations to be justified.

387) I accept that there is logic in questioning the rationale of a fire barrier in a cladding system that has no fire resistance and may, when attacked by fire, fail and collapse within 30 minutes thereby rendering any fire stopping or cavity barriers ineffective. This appears to be the position taken by Harley in their internal email, where they refer to the cladding system falling away quickly in a fire {HAR00006585}.

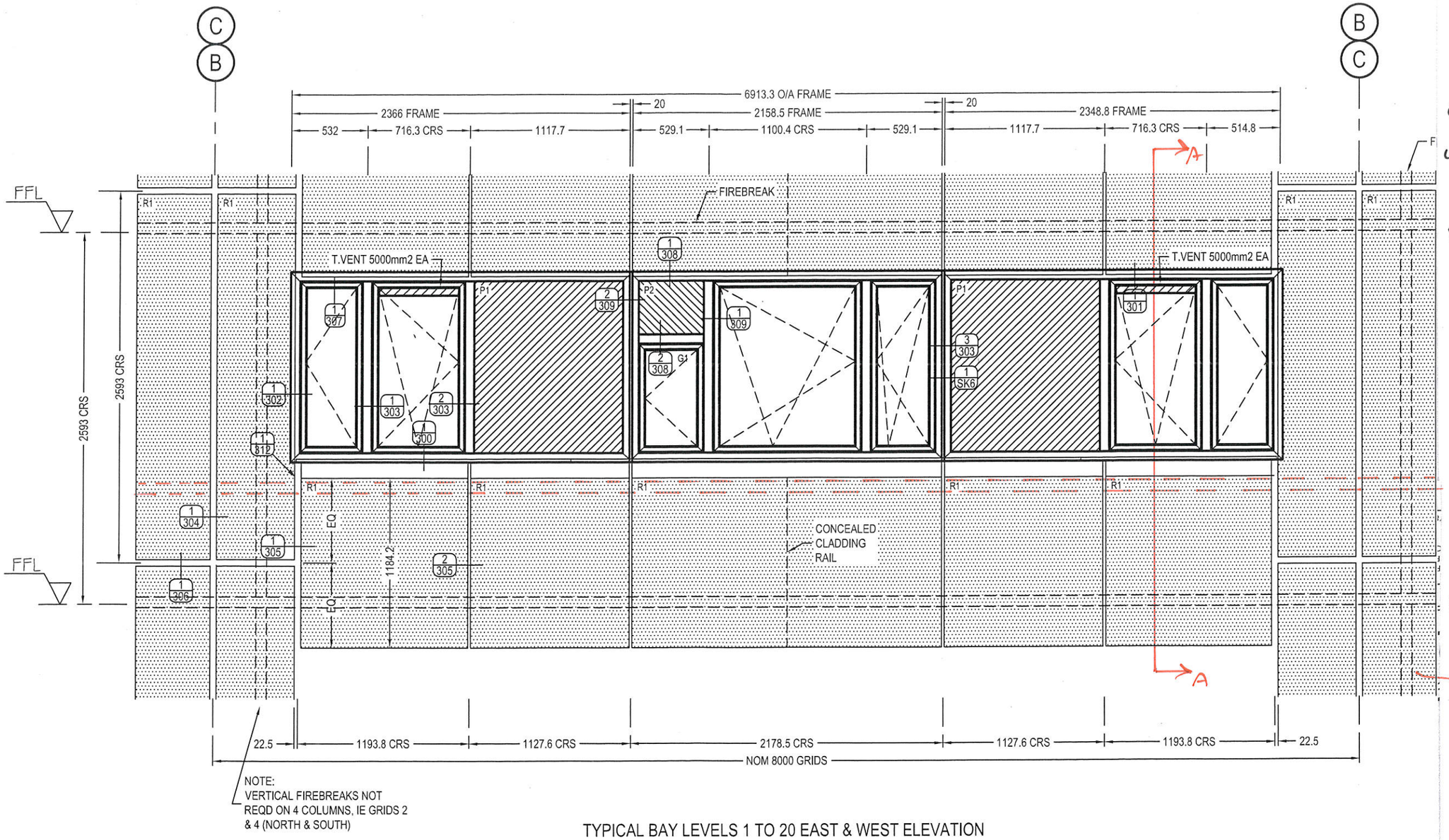
388) My view at that time was that the substantive requirements of Requirements B3 and B4(1) (they are inter-related/cannot be isolated) were to maintain compartmentation and deter the unseen spread of fire. If the void within the cavity would allow fire to spread and by-pass the compartmentation, it was a compartmentation issue requiring fire barriers of the appropriate fire resistance (120FR at Grenfell Tower) correctly fixed and supported and not simply a matter of subdividing a continuous cavity with cavity barriers. This was not and is not a view shared by all building control bodies and I believe it would have been within the range of reasonable responses for a BCB at the time to adopt the recommendations as indicated in Diagram 33 and to only require 30FR cavity barriers to subdivide the rainscreen cladding system.

389) In my opinion, the building control decision appears to have followed the guidance indicated in Approved Document B regarding the cavity barriers within the body of an external cavity wall on the mistaken assumption that the cladding and insulation would meet the relevant criteria for an external wall. As there is no documentation to support this view it is merely conjecture on my part and a view that may change if further information is revealed.

Cavity barriers around openings

390) Unrelated and irrespective of the BCB's position on cavity barriers within the rainscreen cladding system, the BCB failed to recognise that no cavity barriers had been indicated to seal the cavities at openings within the walls (for example, around the windows). The cavity barriers at openings are to deter the initial entry of fire and hot smoke into the cladding construction.

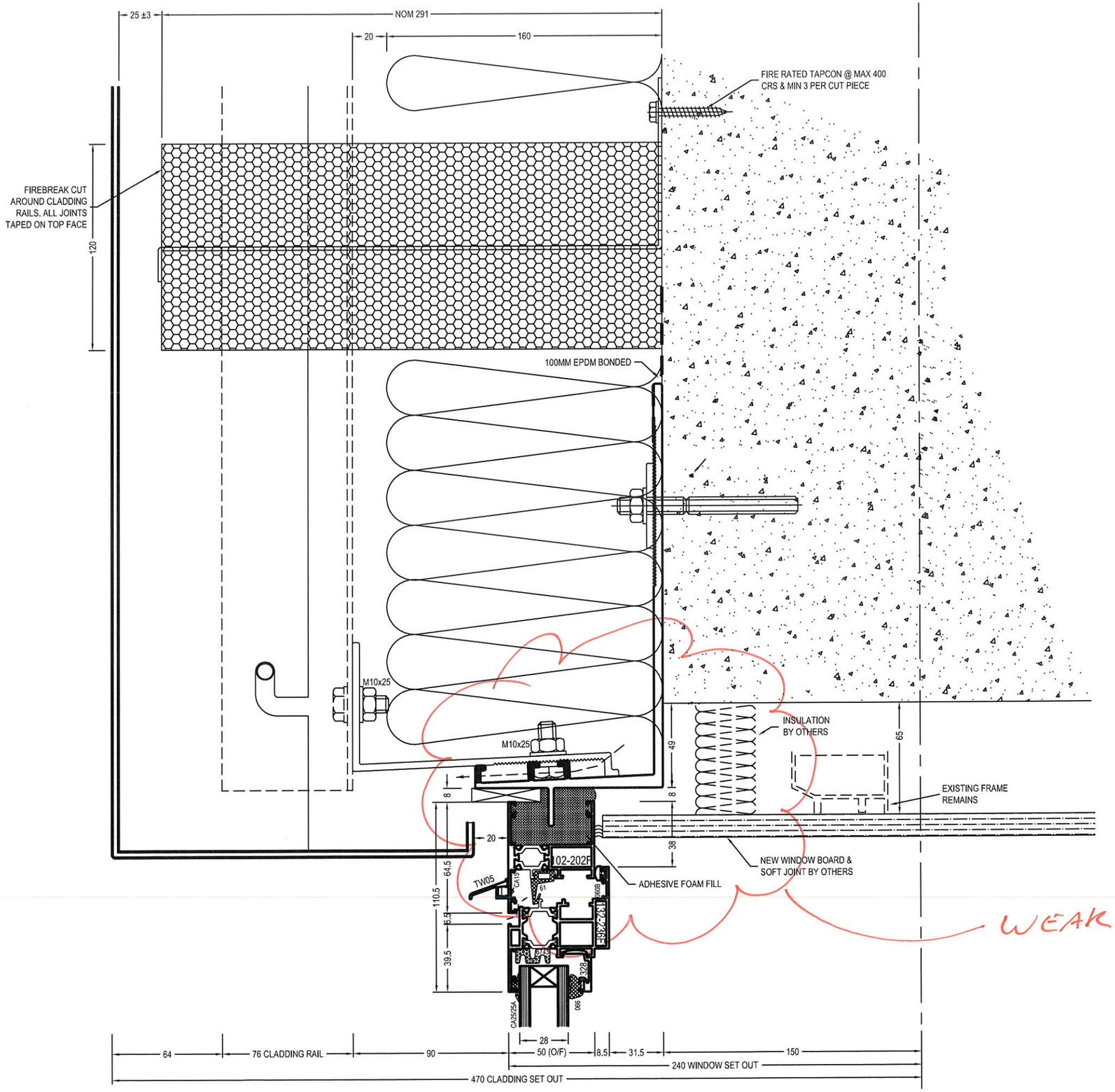
391) An email from Siderise dated 30 March 2015 {SIL00000024} Following their review of the Harley drawings, Siderise states "on the second page of the attachment I have highlighted the weak link in terms of fire and I think the BCO would have noticed this". The email goes on to state "The proposal requires the installation of RH25g 90/60 product in two layers one at the head of the window aligning with the compartment floor and the other at the top of the existing upstand, therefore two layers of 60 minutes protection that overall would provide if tested over 120 minutes protection at the window locations". The disclosure has not reproduced clearly but the email chain is repeated together with the attachments in {HAR00003947}. The sketches are shown below.



TYPICAL BAY LEVELS 1 TO 20 EAST & WEST ELEVATION

RH25G 90/60 x2 = 180/120

TR3003 2015 HCW 001



1
WINDOW HEAD
UPPER LEVELS

WEAK LINK FOR FIRE.

APPROVED FOR CONSTRUCTION

Rev	Date	Notes
F	25.03.15	FIRE BREAK INCREASED WAS 75MM
E	03.03.15	FIRE BREAK ADDED
D	13.01.15	CONSTRUCTION
C	25.11.14	SHELF ANGLE POSITION
B	28.10.14	WINDOW RAISED 20MM
A	29.08.14	DIM ADDED, PANEL SET OUT +20

FILE 855..

Description:
SECTIONS

Project:
GRENFELL TOWER
GRENFELL RD, LONDON. W11 1TQ

Drawn By: bd KVL
Date: 20.08.14
Scale: 1:2@A3

harley
HARLEY HOUSE
BROOKLANDS PARK
FARNINGHAM ROAD
CROWBOROUGH
EAST SUSSEX
TN6 2JD
Tel: 01892 669784

Drawing No: C1059-301
Rev: F

BMER000004/116

392) In these drawings, Siderise open state cavity barriers are located in the cladding at compartment wall and floor lines. The horizontal barriers in line with the floors are annotated as being RH25G 90/60, which are open state barriers incorporating an intumescent strip on the leading edge. Unusually, whilst shown as open state in the Harley detail, there is no intumescent strip indicated on the leading edge of the barrier.

393) No cavity barriers are indicated at the window openings. The cavity barrier indicated on the Harley section is remote from the head of the window.

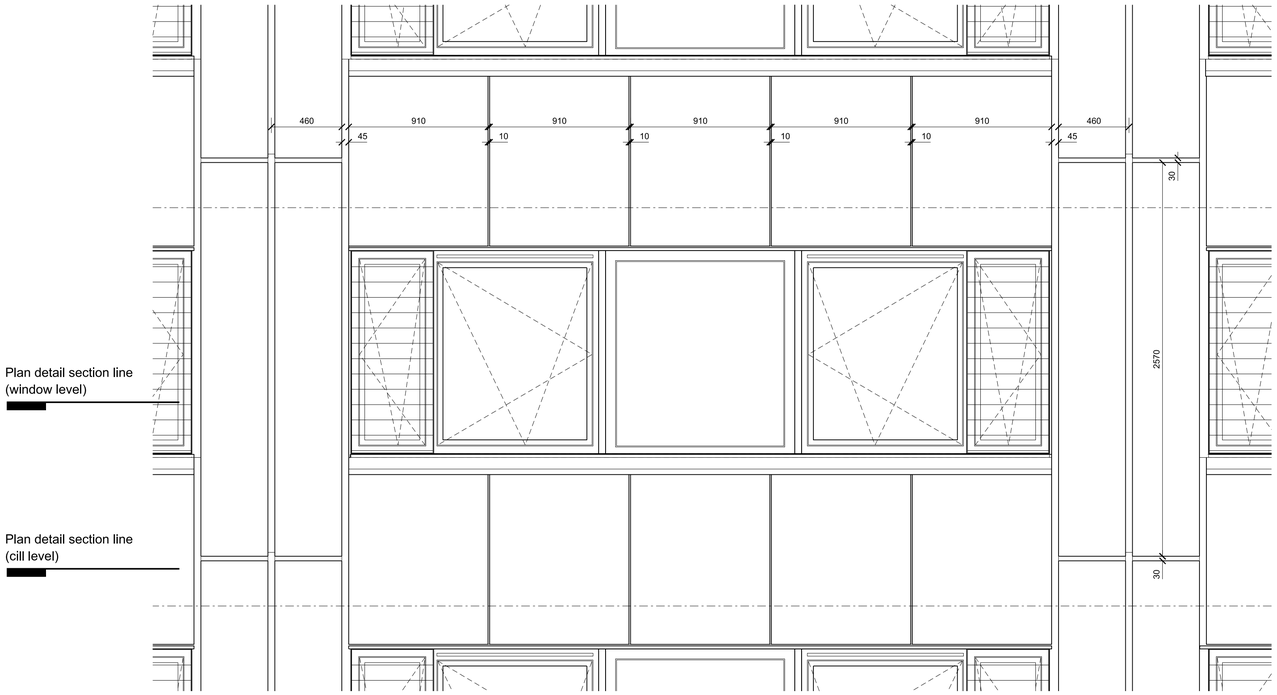
394) The sketch was hand annotated "weak link for fire". It was not stated what the weakness was, but its location suggests it could have been a missing cavity barrier at the window opening. There was a recommendation in clauses 9.2, 9.3 and diagram 33 of AD B for all openings within external wall cavity construction (i.e. at head, cill and jamb of the window) to incorporate vertical and horizontal cavity barriers to deter the entry of fire into the wall cavity where it could spread undetected and cause the ignition of any combustible materials. Fire in a flat or other area could break through the aluminium window frame and attack the insulation and other materials within the cladding system and spread.

395) In his second witness statement {RBK00050416} John Hoban states in paragraph 33 (a) when responding to a question relating to the windows that: "My belief is now that the framework supporting the windows and infill panels were not constructed of steel with a minimum thickness of 0.5mm". However, there is no disclosure or site note that I am aware of that indicates steel framing acting as a cavity barrier or was thought to act as a cavity barrier. In my opinion, on the basis of the information John Hoban had at the time, it was not reasonable to assume that the steelwork would act as a cavity barrier.

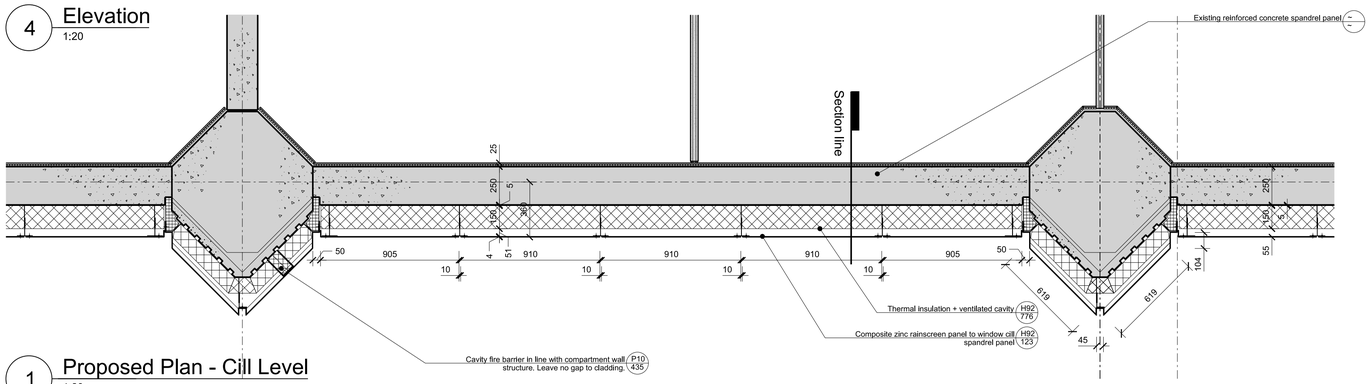
396) The details that were accepted by the BCB are shown in Studio E drawings 1279 (06) 110 rev 00 {HAR00006598}, 120 rev 00, 121 rev 00 {HAR00006597} and Harley's drawing C1059-325 rev C {HAR00006599} (covering email is {HAR00006596}). These are shown below. The Inquiry will note that the Studio E drawings did not include cavity barriers at the head, jamb or bottom of the windows. In the Studio E drawing 1279 (06) 120 00, there is a cavity barrier above the head of the window in line with the compartment floor. In principle, a BCB may have considered this cavity barrier to be effective as a window cavity barrier. However, I have seen no evidence that John Hoban adopted this approach. In the Harley drawings, the cavity barriers are only shown at compartment floor lines. There is therefore an inconsistency between the drawings. I have not seen any evidence that this inconsistency was queried.

397) I have also indicated with coloured arrows the fire barriers in the cladding as proposed. The inquiry will note that on drawing 1279 (06) 120 Rev00, (green arrow) there is reference to the location of the horizontal cavity barrier "TBC with Fire Engineer!!!". It is not known who the fire engineer was and whether this was intended to refer to someone at Harley, Exova or another company.

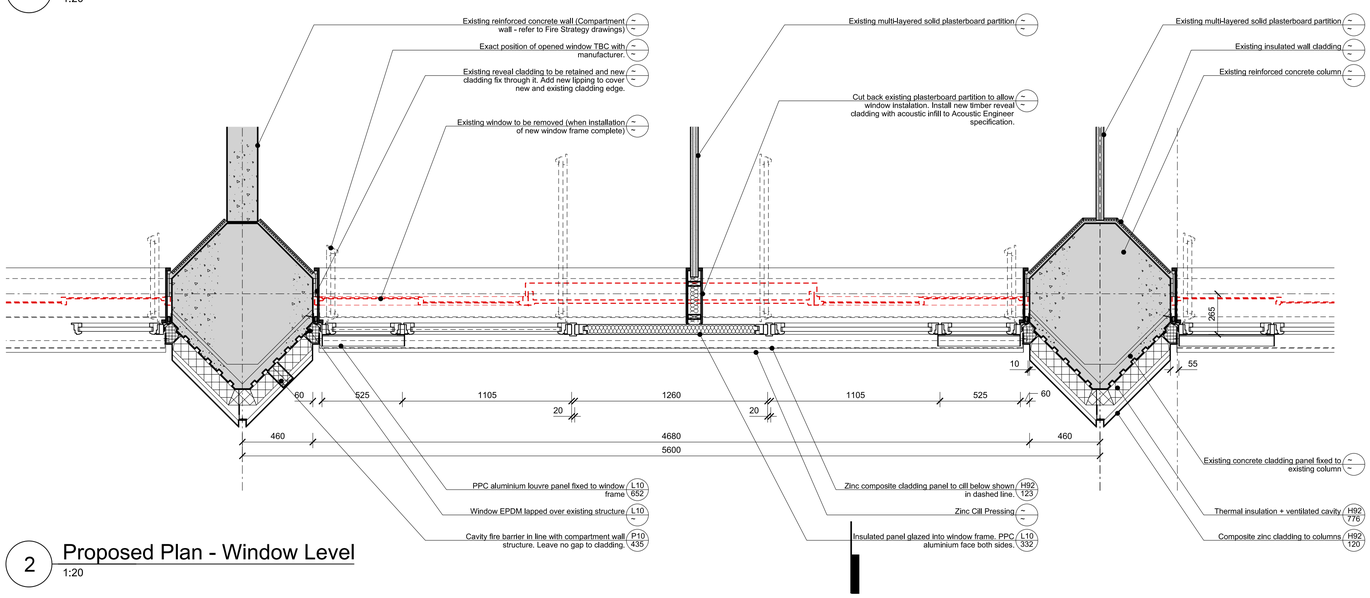
398) Drawing 1279 (06) 110 Rev 00 indicates a “Cavity fire barrier in line with compartment floor structure. Leave max 25mm gap to cladding for ventilation and drainage.”(Red arrow) This is not a cavity barrier to the window opening. The Inquiry will note that there is no cavity barrier at the base of the window above (blue arrow) where the floor is not coincident. The drawing refers to composite zinc rainscreen to window spandrel panel and is dated 24 September 2013.



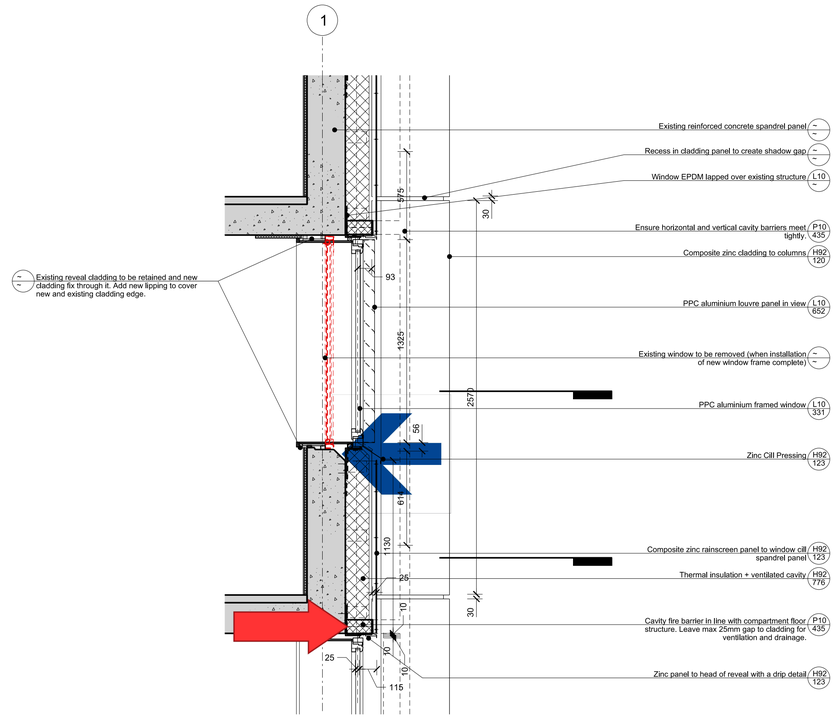
4 Elevation
1:20



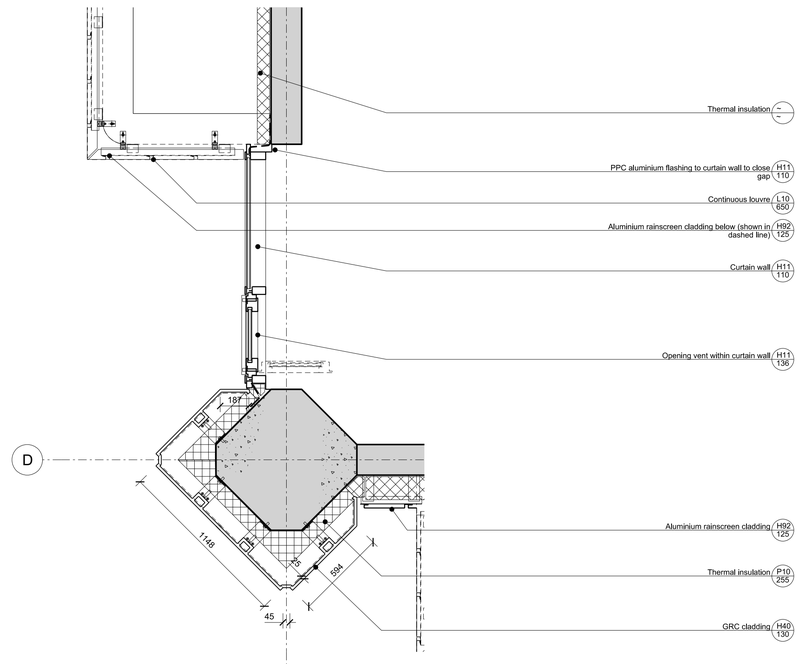
1 Proposed Plan - Cill Level
1:20



2 Proposed Plan - Window Level
1:20



3 Proposed Section - Typical Bay
1:20



5 Office Corner - Plan Details
1:20

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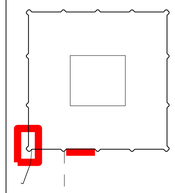

Kensington & Chelsea TMO

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London, W6 9HN.
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Fax. 020 7381 4995

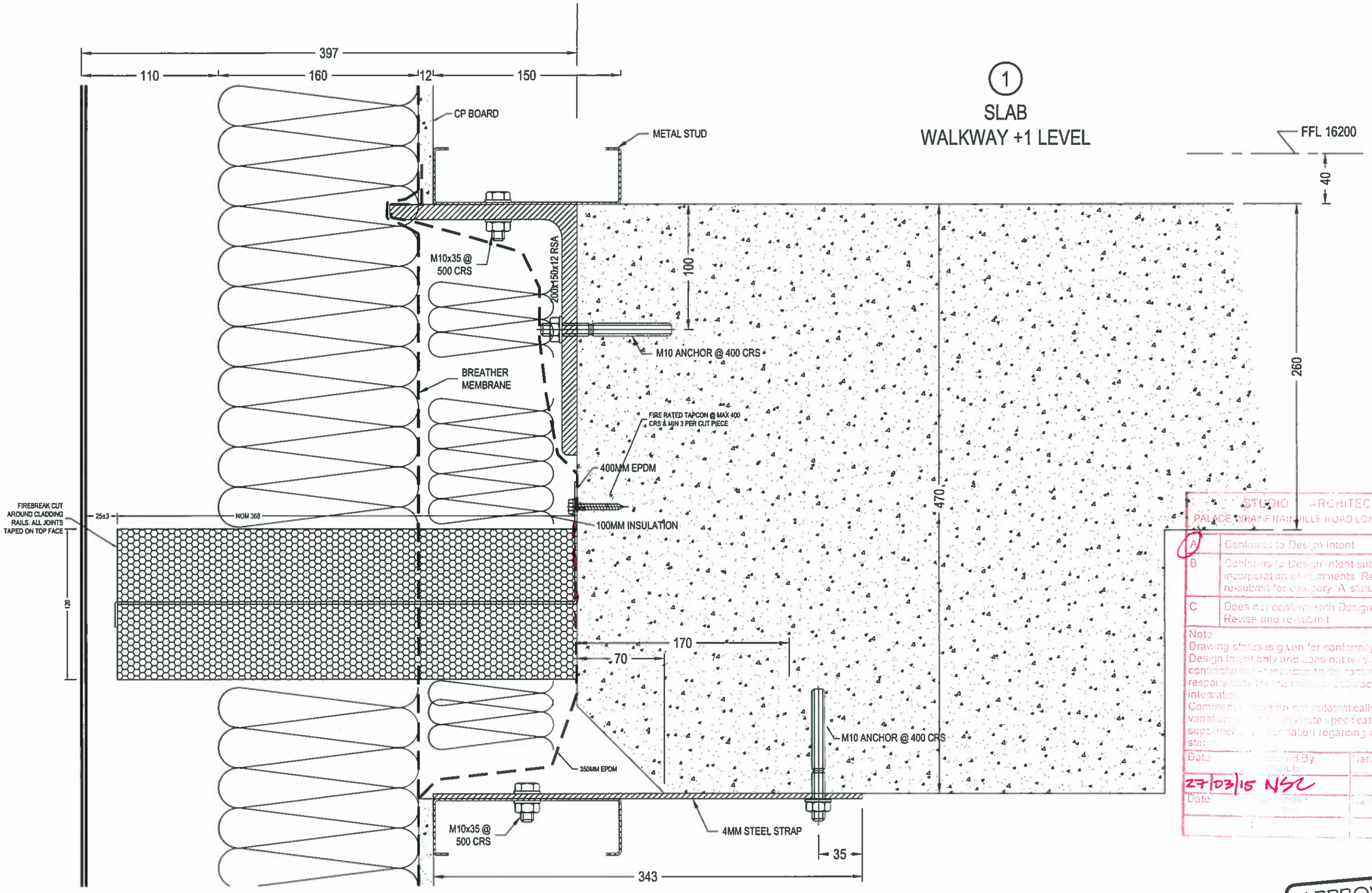
GRENFELL TOWER REGENERATION PROJECT
PROJECT

PROPOSED TYPICAL BAY PLANS, SECTION & ELEVATION
DRAWING

1:20@A1 — SCALE
24/09/13 — DATE

1279 (06) 110 — DWG. NO.
00 — REVISION
CHECKED

BMER00000041119



STUDIO ARCHITECTS
PALACE WHARF RAINVILLE ROAD LONDON W6 9HN

A	Conforms to Design Intent
B	Conforms to Design intent subject to incorporation of comments. Revise and re-submit for category 'A' status.
C	Does not conform with Design Intent. Revise and re-submit

Note
Drawing status is given for conformity with outline Design Intent only and does not relieve the contractor/sub-contractor/trade contractor from full responsibility for design accuracy and integration.
Comments made do not automatically constitute a variation to the appropriate specification clause for supplementary information regarding drawing status.

Date	Issued By	Name (Print)
27/03/15	NSC	
Date		Name (Print)

APPROVED FOR CONSTRUCTION

BMER000004/120

FILE 855..

Rev	Date	Notes
C	25.03.15	FIRE BREAK INCREASED WAS 75MM
B	03.03.15	MEMBRANE, INSULATION, CONST.
A	09.02.15	SET OUT TO SUIT SURVEY

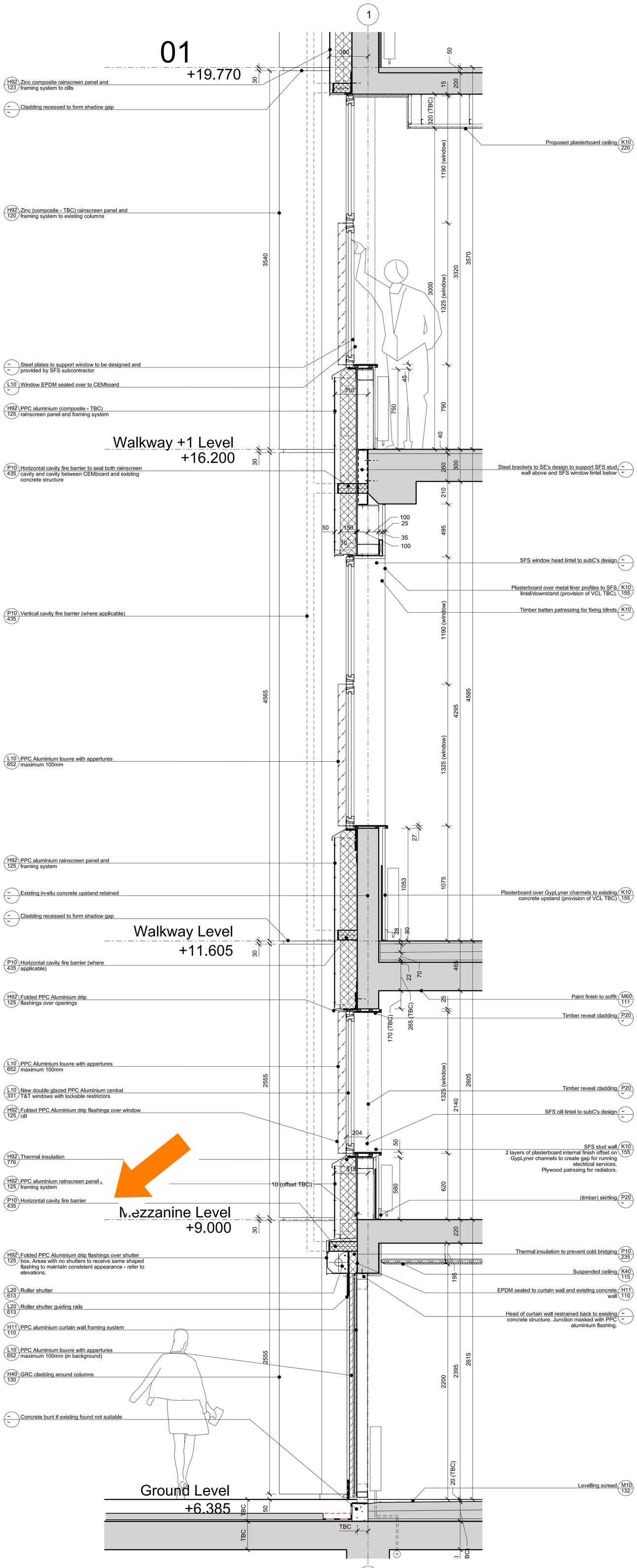
Description:
SECTIONS

Project:
GRENFELL TOWER
GRENFELL RD, LONDON. W11 1TQ

Drawn By: bd KVL | Date: 04.02.15 | Scale: 1:3@A3

harley
HARLEY HOUSE
BROOKLANDS PARK
FARNINGHAM ROAD
CROWBOROUGH
EAST SUSSEX
TN6 2JD
Tel: 01892 669784

Drawing No: C1059-325 | Rev: C



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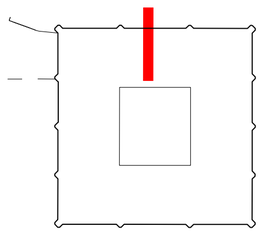
Key



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GRENFELL TOWER
REGENERATION PROJECT
PROJECT

DETAIL SECTION
SHEET1
DRAWING

1:20@A1
SCALE

26/09/13
DATE

1279 (06) 120
DWG. NO.

00
REVISION

CHECKED

1

H92 125 Aluminium rainscreen panel and framing system to cills

H92 120 Zinc composite rainscreen panel and framing system to existing columns

H92 490 Horizontal cavity fire barrier
Location (above OR below lift lobby intake)
TBC with Fire Engineer!!!

H92 125 Aluminium rainscreen panel and framing system. Perforated. Free area TBC.

~ ~ Damper to M&E spec (TBC)

~ ~ SFS window head lintel to subC's design

H92 125 PPC aluminium drip flashing

H11 110 Curtain Wall EPDM sealed over to CEMboard

H11 110 PPC aluminium drip flashing glazed into curtain wall

H92 125 PPC aluminium gutter

H92 120 Zinc composite rainscreen panel and framing system to canopy roof and canopy external sides

~ ~ Corrugated metal liner over steel beams to SE's specification

H92 125 PPC aluminium rainscreen panel and framing system to inside of canopy

~ ~ Steel frame to SE's design

~ ~ Luminaire to Engineer's spec

H92 125 Recess in PPC aluminium rainscreen Wall Plank panel (not an open joint). 300mm module on inside of canopy. 600mm module on outside skin of canopy.

~ ~ Existing screed over existing bitumen layer to be cut back to allow installation of new waterproofing over new concrete bunt

~ ~ Paving build up TBC by Landscape Architect

~ ~ Existing reinforced concrete structure

New RC upstand to SE's design ~ ~ (height TBC with SE)

Levelling screed M10 186

New RC slab to SE's design ~ ~

Ventilation duct to supply air to lift lobbies for smoke ventilation ~ ~
Fire rating TBC
Lagging TBC
Refer to Mech.Eng. design for fans and attenuators arrangement.

Proposed plasterboard ceiling K10 220

Head of curtain wall restrained back to new SFS structure ~ ~

Steel beam to SE's specification on grid line 3 shown dashed for better clarity of drawing ~ ~

Aluminium faced insulated infill panel glazed into curtain wall H11 110

Thermal insulation to prevent cold bridging. Include VCL. P10 235

Steel beam to SE's specification to restrain curtain wall and canopy ~ ~

K13 121 Birch plywood panelling

~ ~ Proposed lighting to Engineer's specification

~ ~ Proposed steel beam to SE's specification.

L20 411 Proposed timber doorset.

M20 210 Plaster to existing soffit

M10 186 Levelling screed on top of composite deck. Composite deck to SE's sepcification.

L30 550 Proposed stainless steel stanchions to support laminated glass balustrade and stainless steel handrail

~ ~ Proposed steel beam to SE's specification. Steel angle welded to top flange as indicated. All steel to receive intumscent paint (30min FR) (M61/110) and decorative paint. Colour and gloss TBC by Architect.

~ ~ Retained part of existing RC wall

K10 225 Plasterboard lining

Entrance matting N10 300

Proposed floating screed with underfloor heating M10 130

Proposed thermal insulation M10 291A

Proposed DPM over existing bitumen layer ~ ~

K13 121 Finished plywood panelling on studwork

M40 110 Skirting - tile to match floor tiling

M40 110 Proposed ceramic tiling

curtain wall

wall panelling

1 Proposed Section through Main Entrance
1:20

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4. WHERE DISCREPANCIES EXIST BETWEEN REFERENCE OR DETAIL DRAWINGS THE LATTER TAKE PREFERENCE.

Key

EMPLOYER'S REQUIREMENTS

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Palace Wharf, Rainville Road,
London W6 9HA
Tel 020 7385 7126
Fax. 020 7381 4996

GRENFELL TOWER
REGENERATION PROJECT
PROJECT

DETAIL SECTIONS
SHEET 2 - MAIN ENTRANCE
DRAWING

1:20@A1 16/10/13
SCALE DATE

1279 (06) 121 00
DWG. NO. REVISION CHECKED

0 0.5 1 1.5 2m @ 1:20

399) The Inquiry will note that in drawing 1279 (06) 110 00 {HAR00019412} "Proposed plan – window level" the "existing" window position abutted the solid concrete column and the new window location is outward and abuts the new cladding and combustible EDPM giving rise to a gap through which fire and smoke could spread. A cavity barrier was required in this location (but not shown on the drawing or I understand constructed on site).

400) The failure to note the omission of the cavity barriers around the openings in the walls on the plans was a fundamental failing on the part of the BCB.

401) In his second witness statement paragraph 33(f) {RBK00050416} in response to the question "did you inspect the fitting of the windows" John Hoban replied "No, I may have seen parts of the fitting process but did not inspect the actual fitting of the windows in its entirety."

402) In my experience the onsite checking of window/door openings for cavity barriers is a primary function of a BCB; if a contractor is seen to be installing the window/door cavity barriers diligently, a BCB may be inclined to inspect fewer of the window/door openings. This decision would also be influenced if there was a Clerk of Works on site. However, the Clerk of Works may be following supplied plans and detail and unless experienced in such work may only follow the detail indicated on a plan.

403) At this point I would highlight that none of the site inspection notes refer to cavity barriers around window and door or other openings. In my opinion, the failure to check any window or other openings for cavity barriers fell below the standard of a reasonably competent BCB and certainly below a BCB with extensive experience. Grenfell Tower was visited by two experienced surveyors - John Hoban and John Allen (the Building Control manager). John Allen's inspection note records the cladding was almost complete and his overall impression was the work was being carried out to a high standard. Protection against the spread of fire has potentially immediate life threatening consequences unlike many other matters that a BCB will inspect; for example, the lack of fall on a drain or flat roof or missing thermal insulation.

404) I am also surprised that a purportedly experienced façade contractor with "specialist engineer" did not incorporate cavity barriers around all openings in the façade.

405) Finally, as far as I can ascertain the BCB was not provided with any detail of how the crown of the Tower was to be constructed/clad. The initial submission of details in September 2014 indicated" zinc crown elements" but this was changed. I would expect that once the BCB saw the crown on site, he should have asked for further information. I have not seen any evidence that this was done. The site visit notes make no reference to the crown. I now know from inspections by others that no cavity barriers were installed at the junction between the rainscreen cladding system and the crown or within the crown itself. In my opinion, this ought to have been noted and questioned by the BCB.

Requirement B4(1) External fire spread – walls

406) B4 compliance for the works at Grenfell Tower based on the recommendations of AD B should have addressed in relation to the external walls:
   (a) fire resistance of external walls and the limitation of unprotected areas to deter spread of fire across the relevant boundaries;
   (b) construction to deter fire spread;
   (c) surfaces - restriction of surface spread of flame;
   (d) insulation materials to deter fire spread at a height of 18.0m or more above Fire Service access level;
   (e) cavity barriers to deter the entry into, and the unseen spread of fire within a wall (see my analysis in respect of B3 above).

407) AD B makes more restrictive recommendations in relation to buildings that are over 18.0m above Fire Service access level, as beyond this distance attacking a fire externally is difficult from standard firefighting appliances.

408) At the outset, I would like to note that the Inquiry may be anticipating extensive commentary regarding the cladding in this section of my report. In terms of the BCB review I regret there is little to say because as far as I have been able to ascertain an in depth review of the cladding was not undertaken. The disclosures to date indicate that no comprehensive details of the cladding systems were submitted to the BCB for review and the BCB does not appear to have sought details from the applicant or sought to ascertain or corroborate that the materials individually or the cladding system as a whole were in accordance with the recommendations of AD B or BS 9991 for a building of this height and use. The failure to ask for detailed information about the cladding system was, in my opinion, a fundamental failing on the part of the BCB.

409) AD B recommends -

> *"External wall construction*
>
> *12.5 The external envelope of a building should not provide a medium for fire spread if*
> *it is likely to be a risk to health or safety. The use of combustible materials in the cladding system and extensive cavities may present such a risk in tall buildings.*
>
> *External walls should either meet the guidance given in paragraphs 12.6 to 12.9 or meet the performance criteria given in the BRE Report Fire performance of external thermal insulation for walls of multi storey buildings (BR 135) for cladding systems using full scale test data from BS 8414-1:2002 or BS 8414-2:2005.*
>
> *The total amount of combustible material may also be limited in practice by the provisions for space separation in Section 13 (see paragraph 13.7 onwards)."*

"External surfaces

12.6 The external surfaces of walls should meet the provisions in Diagram 40. Where a mixed use building includes Assembly and Recreation Purpose Group(s) accommodation, the external surfaces of walls should meet the provisions in Diagram 40c."

"Insulation Materials/Products

12.7 In a building with a storey 18m or more above ground level any insulation product, filler material (not including gaskets, sealants and similar) etc. used in the external wall construction should be of limited combustibility (see Appendix A). This restriction does not apply to masonry cavity wall construction which complies with Diagram 34 in Section 9."

"Cavity barriers

12.8 Cavity barriers should be provided in accordance with Section 9.

12.9 In the case of an external wall construction, of a building which, by virtue of paragraph 9.10d (external cladding system with a masonry or concrete inner leaf), is not subject to the provisions of Table 13 Maximum dimensions of cavities in non-domestic buildings, the surfaces which face into cavities should also meet the provisions of Diagram 40."

410) Limited combustibility is defined in AD B as a material performance specification that includes non-combustible materials and for which the relevant test criteria are set out in Appendix A paragraph 9. It is essentially class A1 or A2-s3,d2 in accordance with BS EN 13501-1.

411) To fulfil thermal requirements, reduce loading or for economy, modern forms of external wall construction may incorporate materials that are not of limited combustibility and may incorporate voids to accommodate movement and deter water penetration. To address the development of non-traditional construction AD B recommends that walls that are not of limited combustibility should meet the performance criteria in BRE 135 - Fire performance of external thermal insulation for walls of multi storey buildings for cladding systems using full scale test data from BS 8414-1:2002 or BS 8414-2:2005.

412) Detailed descriptions and explanations of the BS 8414 testing regime and BR135 are given in reports to the Inquiry by others.

My interpretation of AD B

413) The Inquiry will be aware that there are a range of views within the industry about the interpretation of ADB paragraph 12.7 and how this applied to rainscreen cladding systems at the time of the Building Works at Grenfell Tower.

414) Paragraph 12.5 of AD B recommended that "external walls should either meet the guidance given in paragraphs 12.6 to 12.9 **OR** (my emphasis) meet the performance criteria given in the BRE Report", BR 135. Therefore an external wall system could in my opinion have incorporated combustible materials if that total wall construction had undergone a fire test in accordance with BS8414 -1 or BS 8414-2 as appropriate and the results when assessed met the performance criteria of BR 135.

415) Paragraph 12.6 of AD B addressed the external surfaces of walls recommending Class O or B-s3,d2 for surface spread of flame in a building the height of Grenfell Tower; 12.7 addressed insulation materials and other products recommending that where a building has a storey exceeding 18.0m in height above ground level any insulation product, filler material (except gaskets, sealants and similar etc) should be of limited combustibility; 12.8 addresses cavity barriers in non -residential premises.

416) Requirement B4(1) required that "The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use and position of the building." The requirement required resistance to the spread of fire over the walls and from one building to another. 12.7 of AD B referred to any insulation product, filler material (except gaskets, sealants and similar etc). I interpreted that as referring to elements of the wall but not the fabric protecting the building against the weather. In the AD B Introduction to Requirement B4 , paragraph B4.i states "The construction of external walls and the separation between buildings to prevent external fire spread are closely related." Throughout this part of AD B the emphasis was on "The external envelope of a building" not providing "a medium for fire spread" (AD B paragraph 12.5).

417) My interpretation of the recommendation of paragraph 12.7 was that for a building such as Grenfell Tower, the elements of the external wall, save for gaskets and sealants and similar, should be of limited combustibility as that interpretation reflects the overall functional requirement of B4. This view is also supported by BCA Technical Guidance Note 18, which I have referred to elsewhere in my report and which states that the "insulation, internal lining board and external facing material" should be of limited combustibility". In my view the December 2018 amendments to Regulation 7 supported and clarified this interpretation as Regulation 7(2) (Materials and Workmanship) clearly states all materials that become part of an external wall in a building with a storey 18.0m above ground level containing one or more dwellings shall be of European Classification A2-s1,d0 or Class A1, as classified in accordance with BS EN 13501 -1:2007 =A1:2009

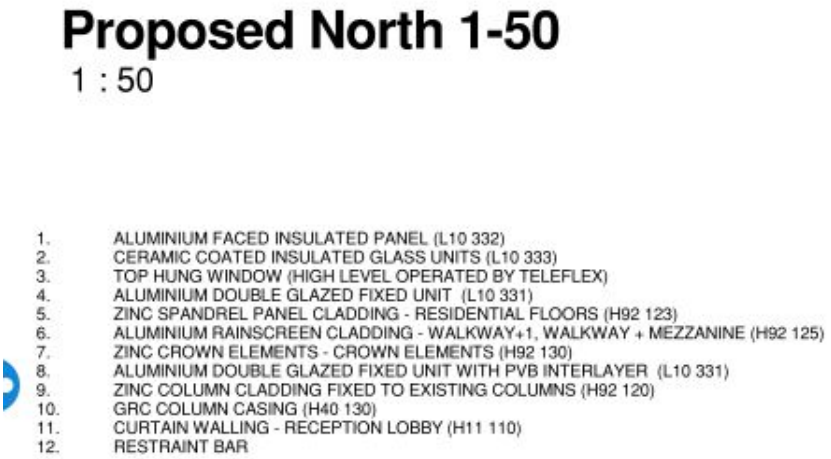
418) At the time of the Grenfell Tower works my understanding of filler material was that it did not include the core of a cladding panel such as ACM, which I understood provided little insulation and acted as a stiffener. Filler I took to mean a material that literally filled a gap, and/or formed features such as a shadow gap between panels. I believe this view is supported by the components listed in the brackets following "filler material" as none of these are components in a wall system similar or comparable to insulation in a panel.

419) As I have explained above, there were alternatives to ADB in terms of demonstrating compliance with the Building Regulations. If I had been provided with proposals to use materials that are not of limited combustibility in a rainscreen cladding system for a building over 18m, I would not have rejected them straight away as non-compliant with the Building Regulations. Instead I would have asked for the proposals to be justified by reference to the criteria in BR135 or alternatively the fire engineering approaches set out in BCA Technical Guidance Note 18 rev 1.

The details of the cladding system provided to the BCB

420) The proposal to over clad Grenfell Tower was set out in the full plans application. The initial submission of details included elevations and sections, together with plans; these are set out in Appendix A. The materials key on the elevations gave no information as to the whole composition of the walls at any point.

421) The elevations contain a numbered key shown in this screenshot -



422) The number on the elevation is the type of cladding at that point on the elevation. The letter and reference at the end of the line is the reference of the element within the NBS specification. At this point I reiterate that I have found no disclosure that suggests the BCB saw the NBS specification.

1. aluminium faced insulated panel
The aluminium faced insulated panel (No.1) is shown at levels 4 to 24.
This is the only "insulated panel". There is no reference to any other insulation between the panels and the existing external walls.

2. ceramic glass insulated units
This is shown below windows at Walkway +1 and below.

5. zinc spandrel panel cladding
This is beneath the windows on the residential floors above Walkway +1

6. aluminium rainscreen cladding
This is at Walkway +1 and below

8. aluminium double glazed fixed unit with pvb interlayer
This is at ground level. (PVB interlayer is polyvinyl butyral layer that is used in safety glass to hold the glass in place when it shatters.)

10. GRC column casing
GRC (glass reinforced concrete) column casing is shown beneath the Walkway level

11. curtain walling
This is to the reception lobby

423) The disclosures indicate very few details of the cladding system were issued to the BCB and none were requested/required by the BCB. There was no comprehensive package of information to indicate compliance with Requirement B4. I can find no reference to B4 in any submission other than the Exova Outline Fire Strategy report (please see below).

424) The details submitted as part of the debate in relation to the cavity barriers was limited but did indicate that the cladding proposals had changed from the original full plans submission on 24 September 2014. These indicated:

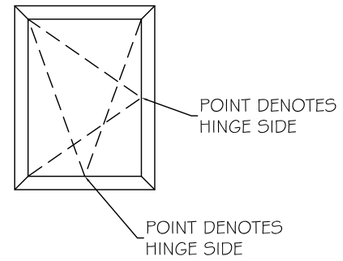
425) Insulation (un-named) behind the insulated panels. In the email chain {HAR00006596}, Mr Hoban references drawings 1279 (06) 120 rev 00, 121 Rev 00 and Harley's drawing C1059-325 rev C (shown below). These clearly indicate insulation behind the panels albeit the detail relates to the lower levels only.

426) On 6 March 2015, Mr Hanson was sent an email (cc Mr Hoban) {SEA00000252}. The email attached the Harley Specification Notes C1059 100A (reproduced below) which indicate Styrofoam and Kingspan cores in two panels and aluminium composite panels elsewhere.

427) There is no reference to cavity barriers at window or door openings. I note that the Harley Drawing Register issued with the email does not show the BCB as having received the details.

SPECIFICATION NOTES

WINDOW NOTATION
(UK STANDARD)



SYSTEM
METAL TECHNOLOGY 5-20 Hi THERMALLY BROKEN ALUMINIUM WINDOWS.
REYNOBOND COMPOSITE RAINSCREEN CASSETTES.

FINISH - WINDOW OUTER & CILL FLASHING
ALL VISIBLE ALUMINIUM FACES POLYESTER POWDER COATED RAL 7012 MATT (30% GLOSS) 40 MICRON.

FINISH - WINDOW INNER
ALL VISIBLE ALUMINIUM FACES POLYESTER POWDER COATED RAL 9010 MATT (30% GLOSS) 40 MICRON.

GLAZING - G1 - VISION
OUTER - 6MM CLEAR TOUGHENED SOFT COAT LOW E.
CAVITY - 16MM ARGON FILLED WITH SILVER SPACER BARS.
INNER - 6MM CLEAR TOUGHENED.
U VALUE = 1.1 W/m2K (CENTRE PANE).
G VALUE = 0.59
TOUGHENED GLASS NOT HEAT SOAK TESTED.

GLAZING - G2 - SPANDREL
OUTER - 6MM CLEAR TOUGHENED SOFT COAT LOW E.
CAVITY - 16MM ARGON FILLED WITH SILVER SPACER BARS.
INNER - 6MM CLEAR TOUGHENED, FULL PAINTED RAL 7012 TO FACE 4.
TOUGHENED GLASS NOT HEAT SOAK TESTED.

GLAZING - P1 - PANELS
OUTER - 1.5MM ALUMINIUM SKIN RAL 9010 MATT (30% GLOSS).
CORE - 25MM STYROFOAM.
INNER - 1.5MM ALUMINIUM SKIN RAL 9010 MATT (30% GLOSS).
U VALUE = 0.77 W/m2K (CENTRE PANE)

GLAZING - P2 - PANELS
OUTER - 1.5MM ALUMINIUM SKIN RAL 7012 MATT (30% GLOSS).
CORE - 25MM KINGSPAN TP10 RIGID INSULATION.
INNER - 1.5MM ALUMINIUM SKIN RAL 9010 MATT (30% GLOSS).
U VALUE = 0.77 W/m2K (CENTRE PANE)

CLADDING - R1
ALUMINIUM COMPOSITE PANEL, SMOKE SILVER METALLIC DURAGLOSS 5000 SATIN.

CLADDING - R2
ALUMINIUM COMPOSITE PANEL, RAL 9010.

FIRE BREAKS
HORIZONTAL - SIDERISE LAMATHERM RH25G-90/30 VENTILATED BREAKS FOR 90MIN INTEGRITY & 30MIN INSULATION.
VERTICAL - SIDERISE LAMATHERM RVG-90/30 FULL FILL (NON VENTILATED) BREAKS FOR 90MIN INTEGRITY & 30MIN INSULATION.

POINTING
ALL PERIMETER POINTING IN LOW MODULUS SILICON, BLACK.

HARDWARE - SIDE HUNG WINDOWS
GENERAL SYSTEM FITTINGS ALL IN SILVER FINISH.
CONCEALED HINGES.
LOCKING HANDLES IN SAA, FITTED MID VENT HEIGHT.
NO RESTRICTORS.

HARDWARE - TILT TURN WINDOWS
GENERAL SYSTEM FITTINGS ALL IN SILVER FINISH.
CONCEALED HINGES.
LOCKING HANDLES IN SAA, ALLOWING TILT BUT NOT TURN UNLESS UNLOCKED, FITTED MID VENT HEIGHT.
NO RESTRICTORS.

GENERAL
ALL DRAIN CAPS IN BLACK PLASTIC.
TRICKLE VENTS, SIMON AIRSTRIP 19000 WITH KNOB CONTROL.

ISSUED FOR APPROVAL

BMER000004/130

FILE 855..

Rev	Date	Notes
-	-	-
-	-	-
-	-	-
-	-	-
A	03.03.15	FIREBREAKS, G2 & R2 ADDED

Description:
SPECIFICATION

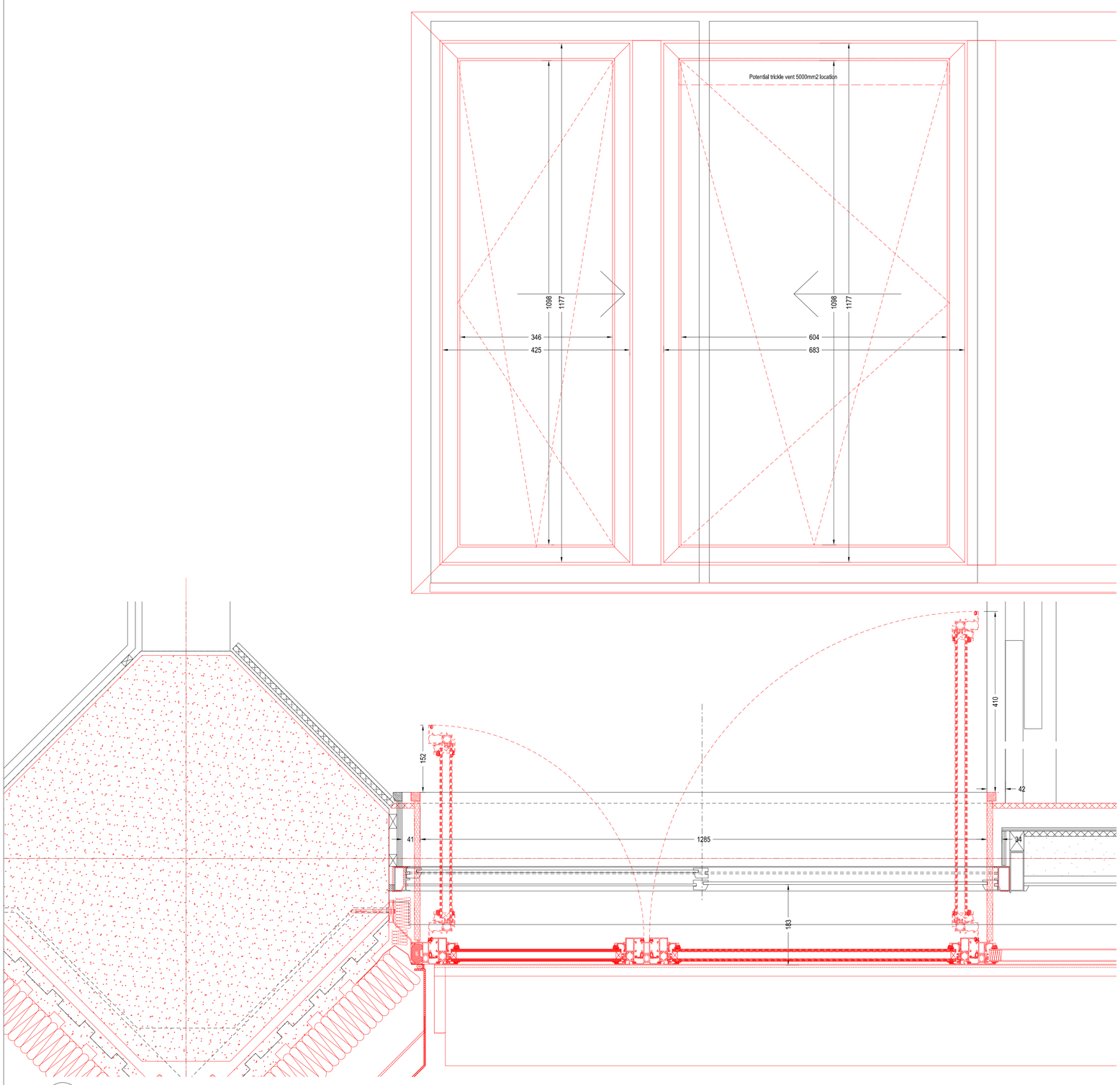
Project:
GRENFELL TOWER
GRENFELL RD, LONDON. W11 1TQ

Drawn By: bd KVL
Date: 15.01.15
Scale: 1:2@A3

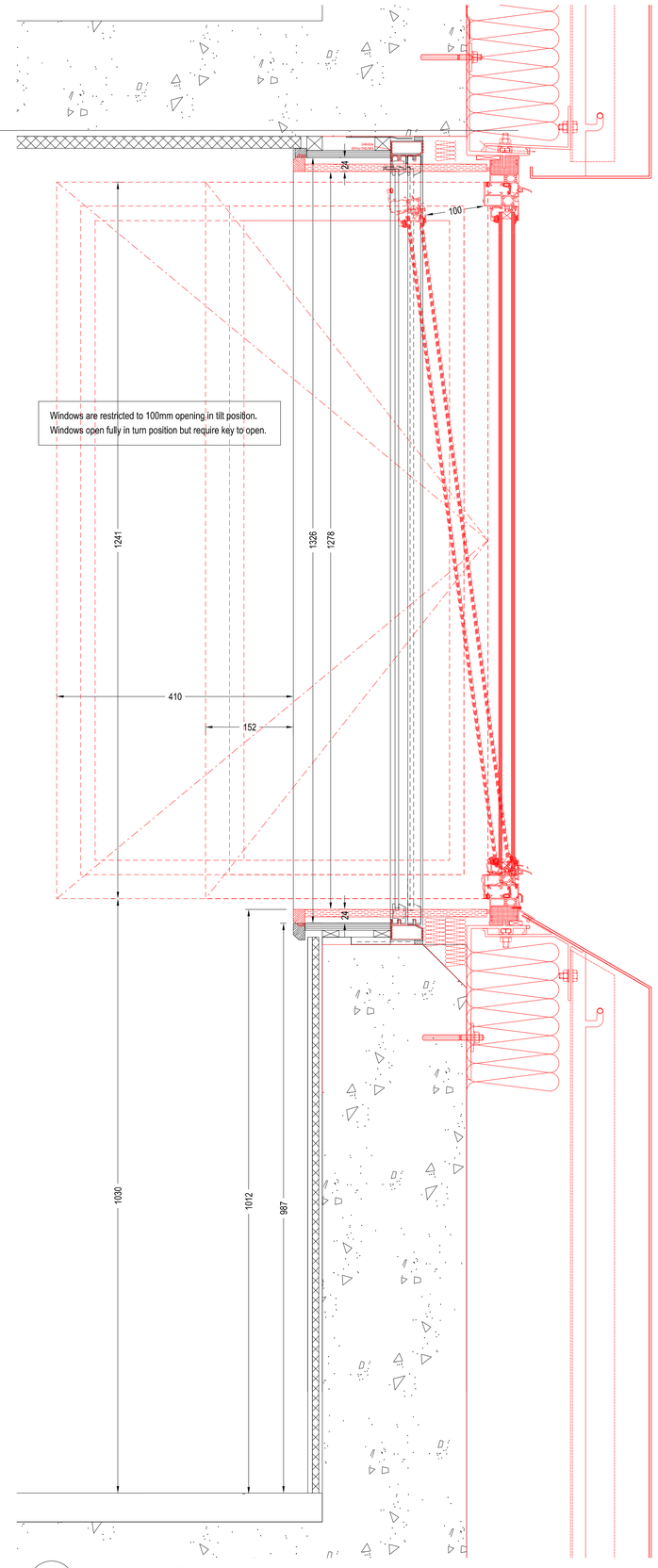
harley
HARLEY HOUSE
BROOKLANDS PARK
FARNINGHAM ROAD
CROWBOROUGH
EAST SUSSEX
TN6 2JD
Tel: 01892 669784

Drawing No: C1059-100
Rev: A

428) A submission dated 18 November 2014 {RYD00024038} was made to inform the BCB that there was a possibility that the window openings would be reduced. The submission included elevations with a materials key (reproduced in the screenshot below) and a reduced window study (also reproduced below).



02 1:5 Horizontal Plan Section - Existing and Harleys Proposed Detail



03 1:5 Vertical Section - Existing and Harleys Proposed Detail

NOTE

1. THIS DRAWING IS COPYRIGHT STUDIO E LLP.
2. THE CONTRACTOR MUST NOT SCALE FROM THE DRAWING ALL DIMENSIONS TO BE TAKEN FROM DIMENSION STRINGS.
3. WHERE ANY DISCREPANCIES ARE FOUND BETWEEN DIMENSIONS THESE MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECTS FOR RESOLUTION.
4. WHERE DISCREPANCIES EXIST BETWEEN REFERENCE OR ASSEMBLY DRAWINGS & DETAIL DRAWINGS, THE LATTER TAKE PREFERENCE.

01	18/11/14	Types Updated

Kensington & Chelsea TMO

FOR INFORMATION

STUDIO E ARCHITECTS LTD

310 Linton House, 164/180 Union Street
London SE1 0LH

GRENFELL TOWER REGENERATION PROJECT
PROJECT

Reduced Window Opening Inward Opening Leafs
DRAWING

1:20@A3 — SCALE
05/1114 — DATE

1279 SK 112 — DWG. NO.
01 — ISSUE
CHECKED

BMER000000A/132

429) The materials key refers to "composite material rainscreen panels", not insulated. The BCB should have ascertained what the "composite panel" comprised of.

430) The Exova fire strategy addressed Requirement B4 but only to the extent it stated it was thought that there would be no detrimental effect in relation to external fire spread but a further review would be carried out. There was no further issue of the fire strategy and as such the review never took place. The BCB did not pursue the matter, which in my view was a failing.

Witness evidence

431) John Hoban states in his Witness Statement {RBK00033934} that was made without access to his notes etc, that:
   (a) He was provided with initial design drawings (aluminium faced insulation panels), and discussed the works with the architect and his specialist fire consultant dealing with fire matters; had a brief discussion with the cladding contractors engineer who he recall advised that the cladding framework had been tested; he also recalls being advised that the system had been used many times in similar tall buildings (paragraphs 65 and 66); he looked up information regarding the insulation (paragraph 76). He also states he recalls that the cladding panels had no identifying marks to indicate any compliance standard; and that the specialist consultant said that the cladding would comply with the recommendations of Approved Document B. Mr Hoban appears to have relied on the unsubstantiated word of the contractors that the cladding achieved Class 0 classification for fire surface spread of flame and met the criteria within AD B for cladding incorporating combustible materials in a building exceeding 18.0m in height.
   (b) He refers to referencing Approved Document B, Building Control Guidance Notes but does not specify what these were. If LABC or BCA, or ACIA notes, these would have been recognised guidance and in using the notes it would have been important to note the context in which the notes were relevant, its specifics and limitations of application. It would have been important to read any certification or assessment in full to ascertain if the circumstances of the certification replicated that proposed.

432) In his second witness statement {RBK00050416} Mr Hoban states:
   (a) Paragraph 34(g) - he was not trained to check on the tested and specified installation method for cavity barriers within the cladding. As he had been working in building control for 30 years and cavity barriers had been a recommendation in the 2000 version of Approved Document B this is in my opinion a surprising statement by a senior building control surveyor.
   (b) Paragraph 34(c) that he did enquire as to the method of compliance with Requirement B4 but does not explicitly state how that enquiry was made and what was the response. He goes on to state that details were submitted in the initial submission, "I also discussed the material with the

Harley's engineer who had informed me that the cladding system had been fitted to many buildings throughout England and Wales to buildings of a similar height".

(c) In response to a question "did you request sight of any fire test reports in relation to the cladding" he responded "no".

(d) He adds elsewhere in his statement that he discussed the cladding with "the engineer" but without his notes could not recall who he was; he did not ask for precedents but recollects seeing similar projects on the Harley website; (paragraph 43) looked at the Celotex website for information relating to the insulation and this indicated it was "fit for purpose". Mr Hoban does not mention looking at any recognised certification on the internet, such as a BBA certificate or LABC type approval.

(e) Paragraph 43(g)(ii) that other than "approval of the initial design and the assurance by the specialist consultant at the initial meeting that the cladding would comply with the standards set out in Approved Document B" he took no steps to verify that the panels were compliant with the Building Regulations.

The cladding system

433) As the over cladding and the new rainscreen cladding formed walls on a building that far exceeded 18.0m in height, I would have expected the BCB to have required a full description of the materials to support a statement that the cladding complied with the requirements of ADB or a cladding package that included either:

(a) A report that confirmed the wall assembly met the criteria in BR 135 assessment report based on full scale test data; or,

(b) A desktop study report as set out in Option 3 of the Building Control Alliance (BCA) Technical Guidance Note 18 "Use of Cladding Materials on residential Buildings" Issue 0 June 2014 {CTAR00000025}; or, if the details were not available until after June 2015, a desktop study or a "holistic fire engineering approach, as set out in Options 3 and 4 of the BCA Technical Note 18 Issue 1 dated 1 June 2015 {CEL00002377}.

434) I note here that the BCA guidance highlighted:

(a) An individual combustible polyurethane foam would not be classified on its own as being of limited combustibility, but an assembly incorporating it may meet the BR 135 criteria;

(b) Cavity barriers are required in all cases to subdivide voids and around all openings;

(c) Space separation boundary conditions are a separate assessment.

435) There is no indication that the over cladding system was understood to be acceptable by virtue of any assessment, third party accreditation, LABC approval

or BBA [11] certification; no precedents are recorded.

ACM

436) I believe it was generally thought at that time an ACM panel fully encapsulated the core material in the panel and that panels were not generally cut on site i.e. that the core material was not exposed. This was my view at the time of the Grenfell Tower works and I would not have automatically assumed that the ACM panels were not of limited combustibility. However, I would have required details of the panels and the whole wall as a composite construction.

437) It would not be obvious by looking at the panel that it did not comply with the requirement of limited combustibility if the panel was fully enclosed and had no markings. However, visual inspection on site should have revealed any open/exposed edges and the inner materials of a panel. John Hoban in his second Witness Statement {RBK00050416} paragraph 43(g) has said that there was no indication on the panels as to what material it consisted of.

438) The site inspection notes do not record anything in relation to the panel materials (or the insulation, see below). There is no mention of the various types of cladding or the various levels at which the cladding was inspected on each occasion. There is no indication that Building Control questioned the suitability of a composite panel as part of the over cladding.

439) I believe a competent BCB inspector would have noted the exposed edges of the PE core of the ACM on site and asked what the core comprised of. In my opinion, the BCB when inspecting the cladding, ought to have identified that the core was exposed and asked for details and justification for its use.

440) I am aware that there was a BBA certificate in respect of the Reynobond ACM cladding. I have seen no evidence that this was provided to the BCB. In my experience I would not normally accept a BBA certificate as sole evidence of compliance because they are usually heavily caveated and it is difficult to identify the limitations of the certificate without seeing the underlying test data.

Insulation

441) As I have explained above, the drawings provided to the BCB do not identify the insulation that was proposed to be used as part of the rainscreen cladding system. I would have expected the BCB to ask the applicant to provide this information and to provide information demonstrating that the insulation was of limited combustibility or was otherwise acceptable as part of a composite system. No such information appears to have been provided and it was not requested.

[11] British Board Of Agrément.

442) John Hoban states in paragraph 43(a) of his second statement that he "looked at the Celotex website". It is not clear how he knew that the insulation was Celotex but it is likely that he either recognised the materials on site or it was labelled. However there were various forms of the material - fire retardant and non-fire retardant. It is not clear what information he found on the website, although he states the information he saw told him that "it was fit for purpose" (see paragraph 43(c)). The Celotex RS5000 installed on site was not of limited combustibility and it is not clear to me how John Hoban could have reached the conclusion that he did. In my experience, I would not accept a statement on the manufacturer's website about compliance, I would have asked for test data evidence from the applicant that positively demonstrated compliance. In my opinion, the BCB ought to have asked for more information and evidence of compliance in respect of the insulation at the stage of the full plans application and, failing that, following visits to site.

Infill Panels

443) As I have explained above, the drawings identified the window infill panels as having styrofoam and Kingspan TP10 insulation. I would have expected a reasonably competent BCB to query this as part of the review of a submission (at any stage in the process) as these materials are not of limited combustibility. I have seen no evidence that the issue was raised with the applicant. Unless identified on plan or as part of an on-site discussion regarding the panels, I doubt a BCB would have noticed the Styrofoam on site if the panel was fully enclosed unless a damaged or cut edge was exposed.

Cavity Barriers

444) Please see my analysis above in respect of B3.

445) In terms of the installation of cavity barriers on site, I have noted above that John Hoban states he was not trained to check this. I am surprised by this statement as in my opinion it is part of the role of a BCB to check whether the installation of cavity barriers on site complied with the manufacturer's guidance.

446) The specific Siderise barriers used were given in the details provided as part of the B3 cavity barrier discussion. It would have been a simple procedure to look at the technical details on the website. The Siderise document "cavity barriers for rainscreen cladding" {SIL00000227} dated November 2013, contains installation recommendations. The document does not state they are colour coded but the vertical and horizontal barriers are different colours and have the reference codes for vertical and horizontal clearly displayed. The brochure for March 2015 {SIL00000229} states the barriers were colour coded.

447) The overall quality of installation is an issue for the contractor and clerk of works; the quality of the installation of fire safety matters is the concern of a BCB in as much as compliance must be achieved - the condition of decorative finishes

etc. are not relevant. It is not for building control to carry out a detailed inspection of all cavity barriers. However, a BCB should inspect a range (horizontal and vertical) in different locations. If John Hoban had seen cavity barriers in the wrong location on site (i.e. horizontal cavity barriers installed in the vertical orientation) or cavity barriers that were not continuous, I would have expected him to raise this and require remedial works to accord with the manufacturer's tested installation details.

448) I would also expect John Hoban to have inspected the windows and to notice that there were no cavity barriers installed around the windows. In his second statement, Mr Hoban states that he did not inspect the windows (paragraph 33(f)). None of the site inspection notes refer to cavity barriers around window and door or other openings. In my opinion, the failure to check any window or other openings for cavity barriers fell below the standard of a reasonably competent BCB and certainly below a BCB with extensive experience.

Crown

449) As I have explained above, no details of the crown were provided other than a note on an elevation "zinc crown elements" at the time of the full plans submission. However, once on site, I would have expected a reasonably competent BCB to request further information about the construction of the crown and to be looking for issues such as whether cavity barriers were required and installed.

Space separation

450) Space separation is required to deter fire spread between buildings. All buildings should be positioned at a distance relative to their boundary such that the heat radiated through or by the external walls of a single compartment will not ignite a building on an adjacent site. In simple terms, walls on or within 1.0m of the relevant boundary should be fire resistant; depending on the size of the external wall of the compartment, non-fire rated areas (which may include the external walls, window and door openings) are permitted and increase in total aggregate area the further the wall is located from the boundary. The size of the flats at Grenfell Tower was relatively small and the compartment external wall size at the upper levels remained unaffected but the lower level facades changed and should have been reviewed to determine if there would be any detrimental effect. I have not seen a disclosure that records the BCB was satisfied space separation would not be/was not compromised by the Building Works.

Requirement B5 Access and facilities for the fire service

451) B5 compliance based on the recommendations of AD B should have addressed:
(a) Fire hydrants – external;
(b) Fire mains within staircases for fire service hose connections;

(c) Firefighting shafts;
(d) Venting of heat and smoke from basements.

452) The external fire hydrants and any existing smoke venting of the basement were not affected by the works. And a disclosure from the pre application stage {CCL00002355} records in minutes from an Exova meeting with the BCB on 7 November 2012, that "Fire engine hard standing to remain as existing. (18m max. from dry riser inlet in direct line of sight)."

453) The existing dry rising main located in the lift lobby was amended to serve the two new additional residential levels that had previously been walkways. The pre-application meeting minutes mentioned above state, "Due to the additional dry riser connections being added at Mezzanine and Walkway levels it is likely that RBKC/LFB will insist that the inlet be relocated to an external façade from its current location within the stair core".

454) A dry riser inlet was indicated adjacent to the main entrance on the submitted Studio E Fire access plan 1279 (8) 100 01; and I saw the inlet in that position when I visited the Tower.

455) The services engineer contacted the BCB as the installation was a dry riser that served levels in excess of 50.0m above Fire Service access level. The 2006 and 2015 versions of the relevant guidance BS 9990 - Non automatic fire fighting systems in buildings - code of practice, recommended the use of wet rising mains (having on-site pumping equipment and water storage) where storeys are at more than 50.0m in height above Fire Service access level. A dry rising main is charged with water pumped from a Fire Service pumping appliance and has a limited capacity to provide the required discharge rate of water above 50.0m.

456) Mr Hanson responded {RBK00033902} and informed the services engineer "Essentially the Building Regulations cannot require you to improve the system to serve the existing floors over 50.0m. The regulations only apply to work being carried out and additionally you must not adversely affect the existing building".

457) The response was ambiguous as it seems to suggest that the work was not controllable under the Building Regulations. Strictly speaking the response was incorrect although its intent was correct. An altered fire safety installation must not result in the completed installation being any worse than before the alteration. The dry riser was altered by the additional outlets at the lower levels but it appears that the ability of the riser to convey water to the topmost level was not compromised. A dry rising main pressure test certificate was disclosed by Rydon {RYD00080551} dated 23 February 2016. I have yet to establish if this was passed to the BCB.

458) The works to the lower levels formed a fire fighting shaft that required smoke control; the firefighting shaft was also the escape stair from Grenfell Tower. The alterations to form the new residential units required the shaft to serve those

levels and to be protected adequately as both an escape stair and a fire fighting shaft.

459) The firefighting shaft was addressed by virtue of the requirements of B1 - the measures to protect escape in a residential block are considered adequate to facilitate fire service access and to protect a fire fighting shaft. The smoke control system, that was eventually replaced, was required to protect persons during the escape phase and to protect fire fighters during the firefighting phase.

460) The smoke control system will form the subject of a separate report.

Consultation with the Fire Authority

461) In this section I explain the consultation process and the actions of the BCB.

462) Consultation with the Fire Authority was a statutory requirement under Article 45 of the Order where the use of a building was within the scope of the Order.

463) The document "Building Regulations and Fire Safety Procedural Guidance" was first published by the Government in 1991 and was updated as legislation changed. The Guidance is described elsewhere in the report together with a detailed review of the actions of the BCB in relation to Regulation 38.

464) There is no statutory time scale in which a Fire Authority must respond to a consultation request, but the Guidance recommends in Clause 2.16 timescales should be agreed (usually within 15 working days) so the building control body can meet its obligations to make a decision. The Guidance also recommends that if the proposals are amended and fire safety matters are amended, a further consultation should take place.

465) A non-statutory consultation procedure between the London Boroughs and the Fire Service had been agreed and in place for some years prior to receipt of the Grenfell Tower full plans application. It required building control to have reviewed the fire safety measures and to be reasonably satisfied as to compliance before seeking consultation. The consultation process was set out formally in a LFB internal document FSIGN 501 which included the consultation pro-forma {LFB00054550}. The document made reference to the Building Regulations and the Fire Safety Procedural Guidance 2006. The pro-forma made provision for the BCB to give information in relation to means of escape (Requirement B1), active firefighting measures (sprinklers, smoke control, automatic fire detection and the like), and access and facilities for the Fire Service (Requirement B5). Section 5 Fire Brigade Comments is available for return comments in relation to means of escape and firefighting access.

466) In my experience for all but high risk, very high rise or complex projects, and where no dispensation of the Building Regulations relating to fire was proposed,

the consultation expected by both the BCB and the Fire Authority related to B1 and B5 matters only.

467) The guidance stated that the Fire Authority aimed, as per the Government Guidance, to provide a response within 15 working days.

468) Formal consultation for the refurbishment works was initiated by letter dated 11 November 2014 ({LFB00027294} and {RBK00027560}). The covering letter was accompanied by the agreed LDSA[12]/LFB consultation pro forma document and the internal RBKC memorandum between John Hoban (Building Control) and Paul Hanson (Fire Regulations) dated 10 November 2014, that set out the means of escape observations designated S1 and included the plans marked up with comments by Mr Hanson. The memorandum by Mr Hanson was drafted to include "Comments for fire authority" that could be used for the formal consultation and included details of what was unacceptable to the BCB; and "Comments for Client" that set out matters that required amendment and what further details were required. It also included the Exova Outline Fire Safety Strategy Issue No.3.

469) The second consultation request {RBK00033897} dated 5 February 2016, included Mr Hanson's observations S2 and the PSB Smoke Ventilation Technical Submission for Lobby Smoke Control Systems Revision 03. The consultation received an email response dated 4 March 2016, that refers to a letter of the same date, which states "The Brigade is satisfied with proposals as shown" ({LFB00000291} and {LFB00000292}).

470) The consultation documents gave the "Applicant details" as Claire Williams KCTMO and the "Agent Details" as Studio E Architects Ltd; the description of the works included new over cladding and windows. The BCB annotated the pro-forma to indicate that a fire engineered solution was proposed that would be acceptable with conditions, in that a smoke control system was proposed. The "Signed" persons are John Hoban and Paul Hanson

471) There was no reference to the cladding within any of the documents sent to the Fire Authority. There was no provision within any section of the pro-forma for comments other than in relation to "means of escape" and "firefighting access". The letter requested a response within 14 days or to inform John Hoban if this was not possible.

472) I would not have expected the consultation request to have made reference to the cladding or the observations of the Fire Service to be sought in relation to the cladding, albeit discussions on any fire related matter are not prohibited.

473) The email sent by the Fire Authority to the BCB in response to the first consultation is dated 12 December 2014 {LFB00000290}; it refers to their response letter, but no letter is attached. The LFB has stated that they have been

[12] London District Surveyors Association - represents local authority building control in Greater London.

unable to trace the attachment to the email that was the response to the first consultation.

474) Unfortunately the documents PDH-11, First Fire Authority Consultation Request - 11 November 2014 {RBK00033896} and PDH-12, Second Fire Authority Consultation Request, 5 February 2016 {RBK00033897} attached to Paul Hanson's first witness statement, {RBK00033894} both have the same LDSA/LFEPA pro forma dated 5 February 2016 (i.e. the second request). The BCB first consultation request can be seen at {LFB00027294}.

475) The initial response from the Fire Authority was received after the BCB informed Studio E of its response to the initial submission {RBK00013226}. It would therefore appear that Studio E was not informed of any comments made by the Fire Authority under the Order (if there were any). The Fire Authority comments received from the second consultation were passed to Studio E by the BCB. The email to Studio E and its attachment can be seen at {SEA00014148} and {SEA00014149} The response states the Fire Authority is satisfied with the proposals adding under other comments "A comprehensive Risk Assessment must be carried out to cover all the changes that are being carried out."

The BCB actions taken in relation to Regulation 38 Fire safety information

476) Regulation 38 was applicable to the parts of Grenfell Tower that were not the individual residential units. Those parts came within the scope of The Order as places of work.

477) The Regulatory Reform (Fire Safety Order) 2005 stated –

> *"Application to premises*
>
> *6.—(1) This Order does not apply in relation to —*
> *domestic premises, except to the extent mentioned in article 31(10);"*

478) The common parts of a residential block, such as the plant rooms, amenity areas, the lift lobbies and stairs are workplaces where maintenance staff, contractors, cleaners and similar personnel work from time to time. A detailed commentary on the Fire Safety Order, including Responsible Persons is set out in the Inquiry report "Legislation, Guidance and Enforcing Authorities Relevant to Fire Safety Measures at Grenfell Tower" by Colin Todd {CTAR00000001}.

479) The responsible person as defined in article 3 of the Order was –

> *"Meaning of responsible person*
>
> *3. In this Order "responsible person" means—*

(a) in relation to a workplace, the employer, if the workplace is to any extent under his control;

(b) in relation to any premises not falling within paragraph (a)—

(i) the person who has control of the premises (as occupier or otherwise) in connection with the carrying on by him of a trade, business or other undertaking (for profit or not); or

(ii) the owner, where the person in control of the premises does not have control in connection with the carrying on by that person of a trade, business or other undertaking."

480) My views as to who was "the person carrying out the works" is set out in the section of this report headed "Responsibility for compliance with the Building Act and Building Regulations". However, it is ultimately a matter for the Chairman of the Inquiry to decide. As I have explained in that section, a High Court judgement found that the person carrying out the works can include, although it is not limited to, the owner. The contractor may also be considered as the "person carrying out the work". This means that more than one person could be the "person carrying out the work" at any one time.

481) I am not in a position or required by my brief to state whether the Chief Executive of the Royal Borough of Kensington and Chelsea or the TMO was a responsible person under the Order. More than one person can be a "responsible person".

482) The works at Grenfell Tower came within the scope of Regulation 38: they incorporated a change of use and were subject to Part B of Schedule 1.

483) Regulation 38 implied a procedural requirement on a BCB to ascertain that fire safety information relating to a project that fell within the scope of The Order had been issued to the "responsible person" by the person carrying out the work.

484) Regulation 17 required a BCB to give a Completion Certificate only if among other things it was satisfied that the information required by Regulation 38 had been provided.

485) Regulation 38 did not (and currently does not) specify what format the information should have been in or by what means the BCB should have ascertained that the information had been issued.

485A) By email with attachment dated 19 March 2013 {RBK00048628}, John Jackson, the then head of Building Control, set out guidance in relation to the issuing of Completion Certificates. His email attached Building Control Policy Note No.49, Issue 1. BCPIN 49 {RBK00048629}, which set out changes necessary as the result

of The Building Regulations etc (Amendment) Regulations 2012. In relation to Regulation 38 the note stated –

> "Regulation 38 (fire safety information)
>
> Need to be notified that the person carrying out the work has given fire safety information to the responsible person not later than the date of completion of the work, or the date of occupation of the building or extension, whichever is the earlier.
> This regulation applies where building work –
> (a) consists of or includes the erection or extension of a relevant building; or
> (b) is carried out in connection with a relevant change of use of a building,
> and Part B of Schedule 1 imposes a requirement in relation to the work."
>
> [see p.2 of the note]

The note further states under the heading "Schedule 1": –

> "Please note that where notification is required to be sent to the local authority this can be via email or letter and does not need to include any details. For example Regulation 38 does not require the local authority to receive a copy of the fire safety information that has been sent to the responsible person."

486) Nothing in the disclosed information indicates that the BCB enquired as to who were the relevant parties under Regulation 38 or that the BCB received notification in any form that the required fire safety information had been passed to the responsible person. There is no indication that the BCB sought confirmation that the relevant information had been passed to the responsible person.

487) I have not seen any evidence in the disclosure which suggests that the persons carrying out the work complied with Regulation 38. In particular, I have not seen any records of fire safety information being passed to the Responsible Person. In my opinion, it is reasonable to infer that the persons carrying out the work contravened Regulation 38.

488) The 2007 Procedural Guidance in relation to the completion of works recommended:

> *"2.30 Where a building to which the Fire Safety Order applies (see 1.5), or will apply on completion of work, is erected or extended, or is subject to a material change of use the applicant must assemble a package of 'as built' information which records the fire safety design of the building.*

At or before completion of building work or any occupation of the building, whichever occurs first, the applicant must pass this fire safety information to the Responsible Person (see Appendix B) and should also send a copy to the building control body.

2.30.1 Regulation 16B of the Building Regulations provides that where a building is erected or extended, or is subject to a material change of use, and that building will be put to a use where the Fire Safety Order applies (see 1.5), or will apply on completion of building work fire safety information must be provided to the Responsible Person.

2.30.2 This information must be passed to the Responsible Person no later than the date of completion of the work or the date of occupation, whichever is the earlier.

2.30.3 In situations where the applicant and the Responsible Person are the same person, a copy of the information should still be forwarded to the building control body."

2.31.2 Building control bodies should not give completion certificates (in the case of local authorities) ….. unless they have been able to ascertain, as far as is reasonably possible, that the appropriate information required by regulation 16B has been provided. See regulation 17 of the Building Regulations."

489) Regulation 16B was the predecessor to Regulation 38.

490) Regulation 38(2) did not require the information to be copied to the BCB; it required that the information be passed to the responsible person(s) by the person carrying out the work. The BCB had to ascertain that the information had been passed to the responsible person(s). The onus was on the person carrying out the work to pass on the information. However, the Procedural Guidance recommends where the responsible person under the Order and the person carrying out the works are the same person, that a copy of the information is sent to the BCB.

491) I expand on the impact of the contravention of Regulation 38 in relation to Regulation 17 Completion Certificate, elsewhere in my report.

492) There is no indication that the BCB had been given a copy of the required information for Grenfell Tower. There is also no indication that the BCB was provided with or sought assurances or evidence that it had been done.

493) In my experience a BCB at the time of the works at Grenfell Tower did not necessarily seek/require a copy of the information specified in Regulation 38. I have in the past heard a BCB ask if the information has been passed to the responsible person and accept a verbal assurance. Anecdotally, I know another BCB attached to decision notices a tear-off slip that an applicant could return to

advise the BCB that the relevant information had been passed to the responsible person.

494) In my opinion, the BCB's failure to ascertain if the relevant information had been passed to the responsible person indicates a procedural failure on their part and a lack of rigour in their processes.

495) Compliance with Regulation 38 is important for a number of reasons. The aim of the 2007 Guidance was to achieve a building where the life safety installations could be properly and effectively operated and maintained by the "responsible person" based on the Regulation 38 information and that on occupation/re-occupation would not require additional works for the safe use of the building as occupied. As highlighted in the General Introduction of the Procedural Guidance, its adoption will tend to avoid abortive work and the process will generate the basis of an owner's fire safety management procedures and risk assessment.

496) If the use of a building falls within the scope of The Order, there is no period of grace between occupation and the requirement to undertake a fire risk assessment. As such it is beneficial for the building owner to ensure, or for his professional advisors to be instructed to ensure, that all fire safety information is available to all interested parties.

497) For the Grenfell refurbishment, it is possible that the person "carrying out the work", the owner and the person having control of the building (the responsible person under The Order) was the same entity, that is the TMO.

498) As to the identity of the responsible person, Ms. Janice Wray, a TMO Health, Safety and facilities Manager, states in her Witness Statement {TMO00000890} that she believed both RBKC and the TMO were responsible persons as defined in the Order; and advises that she managed the ongoing permanent fire risk assessment programme on behalf of the TMO; that the fire risk assessments were shared within the TMO but that RBKC generally did not receive copies of the assessments, but was informed of the actions resulting from the assessments in periodic reports.

499) The person named as carrying out the work on the full plans application {RYD00014379} was Claire Williams KCTMO, that is the Kensington and Chelsea Tenant Management Organisation (TMO).

500) Ms. Williams in her Witness Statement {TMO00840364} states her role was to monitor the programme and budget for the TMO, that it was a design and build contract with the contractor contractually responsible for all design, construction and compliance matters. This suggests Rydon was responsible contractually for compliance with Regulation 38.

501) It appears from the information disclosed that within the TMO Ms. Wray had the day to day role of responsible person for Grenfell Tower and Ms. Williams had that of the person carrying out the works.

502) Ms. Williams was the Project Manager[13] for the works and it appears she was conversant with the fire safety measures. She had prior knowledge of the issues with existing defects in relation to the fireman's lift and smoke ventilation/control measures as can be seen in the disclosed emails. {SEA00000148} shows Ms. Williams was copied an email from the BCB regarding the proposed fire strategy dated 11 November 2013, before the full plans application. Ms. Williams was copied correspondence from the BCB, e.g. an email dated 22 June 2016 relating to the BCB letter of outstanding matters and the linking of the environmental and smoke ventilation {TMO10045448}.

503) The witness statements of Ms. Wray and Ms. Williams {TMO10048973} and {TMO00840364} respectively indicate that the TMO was actively involved in the works and knew of the fire safety measures existing and proposed in outline if not in detail.

504) The TMO also received a copy of the O&M manual for the refurbishment. An email 24 May 2016 {ART00005562} from Ms. Williams states that she had just received her link to the "dropbox for the O&M manual!" This is likely to have contained some, but not necessarily all, the information regarding the fire safety installations.

505) An O&M manual - the operation and maintenance manual - should contain details of the requirements and procedures for the operation and maintenance of a building and its systems, including those relating to fire safety.

506) The warranties for systems and the components of systems and details of defects periods may be held within a separate manual.

507) "All Group Holdings" (AGH) was appointed to compile the O&M manual on behalf of KCTMO {RYD00071352} and was corresponding regarding missing information as late as 24 June 2016 {RYD00081502}. The contractor Rydon made the recommendation to use AGH as they had used them before. Rydon provided information to AGH from other contractors and subcontractors. However, there is some suggestion that Rydon did not hold all of the required information itself and was collecting and passing to AGH information from the various contractors and subcontractors; or was copied in when subcontractor information was passed directly to AGH {JSW00000022}.

508) In such circumstances, if I had been the BCB surveyor responsible for the works, I may have assumed that on completion, the relevant information would have been or could have been made available to the "responsible person" within the

[13] Ms Williams as Project Manager - in the email in TMO10007968 she signs herself as such.

TMO. However, as part of the building control process I would have expected any such assumption together with its justification to have been recorded.

509) I believe this would have been a reasonable assumption to make but I have seen no evidence that the BCB did in fact make such an assumption. If they did a copy of the relevant information may not have been passed to the BCB as recommended in the Guidance.

510) I would point out that no disclosure to date indicates that it was the BCB's policy to retain information that confirmed compliance with Regulation 38.

511) If it is not correct that the TMO was the "person carrying out the works", then another potential candidate is the contractor, in this case, Rydon. Rydon was contractually responsible for all compliance matters which would have included Regulation 38.

512) As far as I can ascertain no comprehensive O&M Manual for the works was compiled or has been disclosed and the BCB was not copied into the emails relating to the O&M manuals that were exchanged between the TMO and various members of the Design Team. If it is determined Rydon was "the person carrying out the works" the disclosed documents indicate they failed to provide the relevant information to the "responsible person". And, as far as I can establish, the various complete and incomplete documents relating to the life safety installations that formed part of the correspondence between AGH, Rydon and the sub-contractors was not seen by the BCB. For example, the operating and maintenance instructions for the above ground smoke ventilation system, dated 3 May 2016, that was produced by PSB for JS Wright {JSW00001916} was issued to AGH and Rydon (but not the BCB).

Inspection of the works

513) As previously explained, a local authority building control body is not obliged to conduct inspections throughout the progress of the works.

514) In a statement dated 21 June 2017 after the fire, RBKC {RBK00014263} stated that site inspections began on 29 August 2014 and that 16 inspections were undertaken in total. However document {RBK00027411} indicates that there were 15 inspections. Disclosed documentation indicates 14 visits. Acolaid {RBK00044876} indicates 13 visits. Two of the inputs on Acolaid are copies of emails. All but one of the recorded visits was undertaken by John Hoban. Prior to the visit described in Acolaid as commencement, three pre-start visits are recorded.

515) Disclosed records of the inspection notes can be seen on the Acolaid printout {RBK00044876}, {RBK00013223}, {RBK00027411}, {RBK00002711} and {RBK00027418}.

516) The visits on Acolaid total 14; Jose Anon's record of his visit on 17 April 2015 {RBK00029082} is not recorded on Acolaid.

517) Below is a synopsis of the site visit details recorded on Acolaid plus that of Jose Anon.

Synopsis of site visits undertaken by the BCB

Date of site inspection entry on Acolaid	Comments recorded (synopsis) - from inspection notes	Acolaid description and result entry
29/8/14	Met project manager; demolition on going; nothing to check; informed manager that yet to receive up to date details; asked to be informed when works commence	PRE START VISIT; SAT (SAT is assumed to be satisfactory)
5/9/14	Entry (1) is an email - Hoban to Rydon - introducing himself.; request he be point of contact on all matters Entry (2) is an email - Studio E to Rydon re Fire Regulations officer Paul Hanson being person to discuss dry riser and AOV's	INTERIM VISIT ;UNSAT
29/9/14 29/9/14	Entry (1) is an email - Hoban to Hanson requesting observations under Part B for attached proposals - is part of a chain that includes Studio E email submission 24/9/14 with plans and details. Entry (2) is a site inspection note - demolition ongoing (further months work); discussion with project manager and advised had just received up to date details of work.	PRE START VISIT; SAT
24/11/14	Site meeting- Hoban, Hanson and part of design team to review scheme, fire strategy in particular.	PRE START VISIT; SAT
27/11/14	Met site manager and site agent; metal stud partitioning; advice given re	COMMENCEMENT; SAT

	maintain compartmentation around service penetrations between flats; work progressing steadily; no adverse comments to make regarding work to date.	
17/4/15	Jose Anon: Jason North [redacted] Metal deck in place, A393 Mesh going in and ok, min cover 25mm to mesh. Overlaps ok.	NOT RECORDED ON ACOLAID
15/5/1 (3 month gap to next visit)	Inspection to check framing for cladding.	INTERIM VISIT; SAT
17/8/15 (approx.3 month gap to next visit)	Met site manager and site agent to look at new cladding on external envelope, insulation on various works progressing steadily; no adverse comments to make regarding work to date.	INTERIM VISIT; SAT
2/11/15	Cladding inspection and meeting with new project manager.	INTERIM VISIT; SAT
11/11/15	Met site manager and Harley representative; went up hoist to look at new cladding on eastern and western elevations; 90% complete on main elevations; columns 50% complete; seen horizontal Siderise cavity barriers; some minor repairs/making good to be done where hoist is to be removed; work progressing steadily; no adverse comments to make regarding work to date.	INTERIM VISIT; SAT
18/11/15 (approx. 3 month gap to next visit with Xmas holiday between)	Met clerk of works, site manager and Harley representative; went up hoist to look at new cladding on eastern elevations; 92% complete on main elevations; columns 50% complete; seen horizontal Siderise cavity barriers; some minor repairs/making good to be done where hoist is to be removed; western elevation 96%; a	INTERIM VISIT; SAT

	few panels need straightening/ replacing; work progressing steadily; no adverse comments to make regarding work to date.	
8/2/16	Met site manager and Harley representative; went up hoist to look at new cladding on eastern and western elevations; 92% complete on main elevations; columns 50% complete; some minor repairs/making good to be done where hoist is to be removed; work progressing steadily; no adverse comments to make regarding work to date.	INTERIM VISIT; SAT
24/3/16	Site visit. Entry by John Allen. Lists issues as email 24/3/16 Allen to Rydon {TMO10047624}; firestopping being carried out to a high standard; cladding nearly complete. Most matters relate to lower levels. The referenced email states My overall impression is that you are completing the works to a high standard.	INTERIM VISIT; SAT
1/6/16	Notes are detailed list that is copy of letter dated 2/6/16 Hoban to Rydon setting out outstanding issues {RBK00013224}.	INTERIM VISIT; SAT
7/7/16	Works controllable under the Building Regulations now complete. Clear job.	COMPLETION; SAT

518) It is my understanding that the disclosed records are those for the Grenfell Tower works as undertaken. The notes address the cladding and other Part B issues. Controlled works other than Part B should have been inspected (e.g. drainage, stairs, energy efficiency, acoustics, structure) but apart from mention of two matters on page 59 under Part M (level access) and Part K (non-uniform stair risers and elsewhere the glass balustrade), there is nothing recorded on Acolaid {RBK00044876}. As far as I have been able to ascertain to date, apart from the Jose Anon note, there were/are no other inspection notes.

519) In his Witness Statement John Allen {RBK00033930} states "the frequency and objective of inspections would normally be agreed by the Area Surveyor and the parties involved". John Hoban states in his second Witness Statement

{RBK00050416} that he was not aware of any RBKC written policy but that he was aware of the Building Control Performance Standards 2014 states "the scope and frequency of inspections should be determined, and incorporated in a formal written plan".

520) The 2014 Guidance stated –

6. Site inspection

Standard

Site inspection regime: Building Control Bodies shall deliver a site inspection plan matched to client and project needs.

Relevant factors should be assessed at the outset and regularly reviewed so that effective control is maintained for the duration of each project, with adequate site inspections and sufficient records, to demonstrate the application of reasonable skill and care.

Site inspection records: records of each inspection shall be maintained. Records shall identify the work inspected and any non-compliance. Where plans are not available for the work, these records will be more detailed.

Contraventions: details of non-compliant work (contraventions) should be communicated promptly and clearly to the responsible person, identifying the contravention(s) and indicating any measure(s) believed to be necessary. Any mechanisms for appealing against or disputing a decision of the Building Control Body shall be clearly made known to the responsible person.

Notification of consultees: During the inspection phase, the Building Control Body shall ensure that all statutory consultees are notified of any significant departures from plans.

521) The 2014 Guidance recommended one visit to an active site every 28 days; and the storage of records in a retrievable format for a minimum period of 15 years.

522) As far as I can ascertain there is nothing disclosed to date that suggests the Performance Standards guidance was adopted. The Standards set out best practice and as such all LABC BCBs are encouraged to adopt them.

523) A copy of the "Building Control Service Plan 2016/2017 19th July 2016" has been provided by RBKC {RBK00033982}. This was produced after the full plans application was deposited. This is not what I would expect a building control service plan to address: it appears to be a marketing "paper" highlighting the competition posed by Approved Inspectors, rather than a plan setting out the response times to enquiries, the protocol for dealing with pre-application enquiries, guidance as to the minimum number of site inspections based on a specified criteria and the relationship with consultants (internal and external).

This paper may have resulted from a paper dated 25 June 2001, titled "Key Strategic Issues {RBK00028391} which reviews the building control function in a local authority and RBKC's role in it.

524) The LABC has produced a readily available document (undated) "Guidance for Customers: Inspection Service plan" for domestic extensions, alterations, renovations and refurbishments; but that is guidance for homeowners.

525) There is no generally available guidance as to how many inspections should be undertaken. The LABC may currently contain one on its members' site. The Government (DCLG) issued an advisory document in 2012 Risk assessment decision making tool for building control bodies - Final risk assessment guidance. This was published alongside the 2012 consultation to changes to the Building Regulations. It was not formally adopted. Anecdotally I understand that it was not well received by Building Control Bodies as it was time consuming and required a depth of knowledge regarding the builder that may not have been available prior to the start of a project.

526) The notes of Jose Anon effectively followed the BCPS recommendations at that time.

527) John Hoban states {RBK00033934} he believes he visited the works at Grenfell Tower once a month. There are periods of approximately three months between some recorded visits. This may reflect that period when the panels were not available due to the suppliers' insolvency or building control's belief that a good job was being undertaken. As at no point did building control express concerns regarding the works.

528) In my opinion the records of the site inspections should have indicated:
(a) The name(s) of the inspector;
(b) Date and time of visit;
(c) Persons contacted on site - name and or their role;
(d) Weather if appropriate;
(e) Location of works - level of building; internal or external;
(f) What was looked at;
(g) To who and how any comments were made;
(h) Any non-compliant works.

529) The recorded notes do not contain sufficient detail.

Completion certificate

530) Earlier in my report I have set out the requirements of Regulation 17 (Completion certificate) and the BCB actions taken in relation to Regulation 38 Fire safety information. I concluded I have not seen any evidence in the disclosure which suggests that the persons carrying out the work complied with Regulation 38 but added that in my experience a BCB at that time did not necessarily seek/require a copy of the information specified in Regulation 38. I

have also stated that compliance with Regulation 38 was important as the information was required to enable the life safety installations to be properly and effectively operated and maintained.

531) The BCB issued the Completion Certificate for the works on 7 July 2016 {RBK00018811}. This followed the completion of works outlined in the BCB letter dated 2 June 2016 to Rydon {RYD00079917}.

532) The BCB signed off two of the listed items - fire door signs {RYD00081891} and a rubber access ramp {RBK00003000} on receipt of photographs of these on 1 and 6 July respectively. This was in my view acceptable having regard to the matters concerned. The fire door signage was within the scope of Part B of the Building Regulations. Any missing signage would have subsequently been noted during the fire risk assessment under the Order. On 5 July 2016, Rydon confirmed by email to Hanson (cc Hoban) that the new lift lobby doors had been fitted with intumescent seals and not smoke seals {RBK00002982}.

533) A completion certificate should only be issued by a BCB if it is satisfied that the fire safety information required by Regulation 38 has been given to the person defined as the responsible person under the Order and that the Building Works within the scope of Schedule 1 of the Regulations have been complied with. The site inspection notes state that "Works controllable under the Building Regulations now complete. Clear job" indicating that the BCB was satisfied the Building Works were compliant. In the absence of evidence that Regulation 38 had been complied with I can only determine that a completion certificate should not have been issued.

534) The maintenance of the accepted fire safety measures is addressed within other reports.

535) It will be for the Chairman of the Inquiry to decide the impact of the failure of the BCB to verify compliance with Regulation 38.

Records

536) The records of a BCB indicate their competency and efficiency; and in my view give an insight into the manner in which they approached their role.

537) Following any incident or external enquiry, the BCB records are the only means by which a BCB can demonstrate they carried out their statutory function to check for compliance with the then current Building Regulations and attain a reasonable level of safety.

538) RBKC BCB adopted the Acolaid management system to record and maintain its records.

539) Acolaid has the capability of providing a detailed record of the building control process. Building control had the system but, in my opinion, did not use it to best

effect in that a comprehensive record of the project is not retained. Like any such system it is dependent on the quality and volume of the information put into the system.

540) The building control Acolaid print out for the Grenfell Tower works does not record any decision letters, any witnessing of testing or commissioning or the receipt of commissioning certificates. The facilities to record amendment requests, post decision amendments or resubmissions were not used. In his Witness Statement Paul Hanson {RBK00033894} states that a commissioning certificate for the smoke control system was issued; that he had no role in witnessing the commissioning but that he attended a demonstration of the system on 4 May 2016, that was limited to activation of the system from a small selection of detectors on various floors. This revealed that there was a missing air inlet vent at ground level and subsequently a window was modified to provide the inlet air. The need for the window to open was set out in a letter dated 2/6/16 from John Hoban to Rydon setting out outstanding issues {RBK00013224}. This letter also recorded the need for a notice giving instructions to the Fire Service as to how to operate the system. The letter is retained on Acolaid, but there is no record of the witnessing of the demonstration of the system by Paul Hanson.

541) RBKC has disclosed a document {RBK00030894} titled BC Enterprise Manual Version 1.0 dated 3 November 2016 that sets out the "surveyors tasks" for entering information onto Acolaid. It covers scheduling a site inspection, consulting the fire brigade, consulting Thames Water, sending structural calculations for checking, full plans decision, entering a meaningful response, requesting fire regulations observations and entering site inspection notes (Only 3 of the 4 pages are reproduced).

542) Mr Hanson states in paragraph 21 of his second Witness Statement {RBK00050416} there were no protocols or policies for using Acolaid at the time he used it.

543) The records retained on the Acolaid system do not allow for an overview to be taken of compliance of the project as a whole. It was building control's policy to weed job files, even to the point of removing all paperwork. I consider this to be contrary to good practice if full details of the project and the building control role are not retained electronically. Building control did not make full use of the facilities within Acolaid to retain adequate records which could support an action for non - compliance at any stage.

544) The retained records for the project should in my opinion have included:
(a) The original full plans submission;
(b) The approved details;
(c) Subsequently submitted and approved details;
(d) All statutory consultations and the responses;
(e) Statutory notices served;
(f) Remedial works following notices and if compliance achieved;

(g) Any legal actions and the outcome.

545) And, I believe the notes should have been retained until the building was demolished; or for a minimum of 15 years. As the retention was electronic, retention until demolition was feasible.

546) The Building Control Performance Standards 2017 are more extensive and detailed than the 2014 version. The 2017 Standards set out guidance as to what BCB records should include as minimum:
(a) Approved/accepted proposals and design principles
(b) Records of work carried out by professional consultants on behalf of the BCB
(c) Records of consultations
(d) Records of site inspections
(e) Client design and contractor details
(f) Certificates and notices, including Completion certificates.

Section C Installation of the gas riser within the stair

547) The disclosed document revealed a series of correspondence between the TMO, Janice Wray and the BCB John Allen, regarding the installation of a gas main at Grenfell Tower; there were works being undertaken by National Grid to replace the old system of gas distribution.

548) Ms Wray sought clarification from the BCB as to whether the gas riser installation was within the scope of the Building Regulations; and Mr Allen replied by email dated 16 March 2017 {TMO10016306}:

> *"I am content that this work would be regarded as a repair providing there is no change to the fire safety implications. A building regulation application would not be required.*
>
> *In particular to ensure that the riser replaces a riser in the same position. Gas risers and meters are not generally positioned within stairways or if they are they should be in fire resisting enclosures.*
>
> *They should also reinstate and firestop any fire resisting enclosures that are affected as part of the installation."*

549) I agree with this interpretation of the Building Regulations.

550) By email dated 24 March 2017, Ms Wray advised John Allen that the new riser had been installed in the stair {TMO10016428}.

551) The BCB, John Allen, replied on 3 April 2017 {TMO10016546}: "…we do not usually take the building regulation application for this type of work. Although it is not specifically mentioned in the building regulations or the building act we would regard it as a repair. A steel pipe in the stairway in an enclosure will not pose a particular risk. Where gas risers are enclosed there is a need to ventilate (vertical and horizontal risers)".

552) By reply of the same date, Ms Wray informed the BCB they had received commitment from National Grid to enclose the riser in a two hour fire rated boxing: "LFB are saying (though not yet in writing) that they are unhappy about the riser being on the means of escape – but as it already installed not sure this will have any input." {TMO10016548}.

553) Having reviewed other disclosures such as {ART00005126}, {ART00005128} and {ART00005136}, I have concluded that the new gas riser in the stair was a completely separate issue to the original proposal to replace the existing gas distribution installation, which was mainly located in the flats. The ventilation originally spoken of was in the flats; it is described as gas cupboard vents in {ART00005080}.

554) The new gas riser in the stair is described as Riser No. 2 in the report by the gas engineer Rodney Hancox and that by Dr Barbara Lane. I will adopt this designation also.

555) Approved document J supports compliance with Part J of the Building Regulations - Combustion appliances and fuel storage systems. It advises that all combustion installers must meet the requirements of the Building Regulations. Gas installers also have to comply with the Gas Safety (Installation and Use) Regulations, which require anyone undertaking gas work to be competent. Gas engineering businesses must be approved by the Health and Safety Executive. Because of this the Building Regulations allow that such work need not be notified to BCBs if it solely complies with the installation of a gas appliance and is undertaken by such an approved person. Gas Regulations cover the safe installation, maintenance and use of gas fittings, appliances and flues.

556) Approved Document B at the time Riser No.2 was installed stated -

Gas service and installation pipes in protected stairways

2.42 Gas service and installation pipes or associated meters should not be incorporated within a protected stairway unless the gas installation is in accordance with the requirements for installations and connections set out in the Pipelines Safety Regulations 1996 SI 1996 No. 825 and the Gas Safety (Installation and Use) Regulations 1998 SI 10998 No 2451 (see also paragraph 8.40).

Use of space within protected stairways

4.38 Protected stairways need to be free of potential sources of fire. Consequently, facilities that may be incorporated in a protected stairway are limited to the following:

(a) sanitary accommodation or washrooms, so long as the accommodation is not sued as a cloakroom. A gas water heater or sanitary towel incinerator may be installed in the accommodation but not any other gas appliance.

Gas service pipes in protected stairways

4.40 Gas service and installation pipes or associated meters should not be incorporated within a protected stairway unless the gas installation is in accordance with the requirements for installation and connection set out in the Pipelines Safety Regulations 1996 SI 1996 No.825 and the Gas Safety (Installation and Use) Regulations 1998 SI 10998 No 2451 (see also paragraph 8.40).

Pipes for oil or gas and ventilation ducts in protected shafts

8.40 If a protected shaft contains a stair and/or a lift, it should not also contain a pipe conveying oil (other than in the mechanism of a hydraulic lift) or contain a ventilating duct (other than a duct provided for the purposes of pressurizing the stairway to keep it smoke free; or a duct provided solely for ventilating the stairway).

Any pipe carrying natural gas or LPG in such a shaft should be of screwed steel or of all welded steel construction, installed in accordance with the Pipelines Safety Regulations 1996 SI 1996 No.825 and the Gas Safety (Installation and Use) Regulations 1998 SI 10998 No 2451.

Note: A pipe is not considered to be contained within a protected shaft if the pipe is completely separated from that protected shaft by fire resisting construction.

8.41 Ventilation of protected shafts conveying gas

A protected shaft conveying piped flammable gas should be adequately ventilated direct to the outside air by ventilation openings at high and low level in the shaft.

Any extension of the storey floor into the shaft should not compromise the free movement of air over the entire length of the shaft. Guidance on such shafts, including sizing of the ventilation openings, is given in BS 8313:1997.

557) In his reply to the TMO John Allen did not enquire as to the ventilation proposal for the duct enclosing the gas riser, which correspondence suggests was to be ventilated into the stair.

558) Mr Allen was of the opinion that a steel pipe in a stairway enclosure will not pose a "particular risk". Clause 8.40 of AD B stated that - Any pipe carrying natural gas or LPG in such a shaft should be of screwed steel or of all welded steel construction, installed in accordance with the Pipelines Safety Regulations 1996 SI 1996 No. 825 and the Gas Safety (Installation and Use) Regulations 1998 SI 10998 No 2451. Mr Allen did not enquire if this standard had been adopted.

559) A separate report on the gas installation at Grenfell Tower has reviewed the installation as installed. During my visit on 27 June 2018, I noted that the threaded section at the joint of one section of pipe forming gas riser No.2 was damaged (had a hole in it) and the protective boarding of the pipe enclosure was on the stair side of the duct framework rather than on the inside (pipe side) where the risk was.

560) I am of the opinion that the BCB should have pursued the matter of the gas riser in the stair as I believe that venting the duct into the stair was not only detrimental to escape, it also affected the integrity of the stair as a fire fighting stair. As such it was controllable under the Building Regulations albeit the gas

contractor stated it was compliant with the relevant gas safety installation regulations. The installation of gas riser No. 2 resulted in the building "not complying with a relevant requirement where previously it did": it was a material alteration. The location of No.2 riser in the stair was unacceptable; it was contrary to guidance.

561) A firefighting stair is not only used for the fire service to safely approach a fire, it is also their last place of refuge should circumstances require them to retreat from the fire floor or the building.

562) AD B diagram 52 states that a fire fighting shaft should be constructed in accordance with clauses 7 and 8 of BS 88 – 5 2004, which was superseded by BS 9999:2008.

563) Clause 21.2.7.2 of BS 9999:2008 stated "Only services associated with the firefighting shaft should pass through or be contained within the firefighting shaft. A firefighting shaft should not contain any cupboards or provide access to service shafts serving the remainder of the building."

564) This is repeated in the current version of BS 9999 (2017).

565) BS 9991: 2011 Clause 19.3.1 stated "Only services associated with the firefighting shaft, such as ventilation systems and lighting for the shaft, should pass through or be contained within the firefighting stair".

566) This is repeated in Clause 50.3.1 of the current version of BS 9991 (2015).

567) Within a residential block, services are accessed from the lobby (or corridor) that forms the firefighting lobby. However, in my experience gas risers are not accepted within a firefighting stair; ventilation of a gas riser into a fire fighting/escape stair or other escape route is not acceptable.

568) The separation of the riser from a stair by a fire rated enclosure removes the riser from the stair. Any attack on the enclosure from fire is anticipated from inside the riser, not the stair. A stair is assumed not to be a place of fire origin, unless it is malicious and that is not addressed by Building Regulations.

569) As stated in clause 8.41 of AD B -

> *A protected shaft conveying piped flammable gas should be adequately ventilated direct to the outside air by ventilation openings at high and low level in the shaft.*
>
> *The ventilation proposed was not to the outside air and not provided at both high and low levels.*

570) Had gas riser No. 2 been adequately fire separated from the stair by 120 FR construction and ventilated independently of the stair and lift lobby, I would have considered it reasonable to consider the proposal as compliant and not

seek an application for Building Regulations approval. However, as "compliance" was not established I believe an application should have been required. In the circumstances I believe it would have been reasonable to accept a building notice rather than a full plans application but I do not doubt that some building control bodies would have required a full plans application.

571) A building notice is an application that allows works to be carried out without the submission of full plans. It is usually adopted for small works and where statutory consultation with the Fire Authority is not required; and by some building control bodies where albeit a building is subject to the Order, the works have a limited impact on fire safety.

I understand that my duty in providing this report and in giving oral evidence is to assist the Inquiry with its investigations into the fire at Grenfell Tower on 14 June 2017. I confirm that I have and will comply with that duty.

Signed:

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Beryl Menzies FCABE PPBEng CBuildE CABE MRICS