SECTION 5

FAILURES OF STATUTORY PROCESS

Contents

5.1 Introduction

5.1.1 In this section I examine the application *process* in relation to Building Regulations compliance. This is in contrast with Section 4 where my focus was entirely on whether the work as designed and constructed was *compliant* with the Building Regulations.

5.1.2 My objective here is to examine the information submitted by Studio E and the design team in terms of its timeliness and its completeness as a basis for Building Control to properly carry out their duties. I also comment on the responses and work of Building Control in their processing of the application and their inspection of the work during construction.

5.1.3 I comment first on how the informal pre-application dialogue proceeded, then I comment on the formal application process and finally I comment on the inspection of work on site as carried out by Building Control.

5.1.4 I apply a similar Snap-Shot methodology as under Section 4 in this respect adopting the same 3 key stages: Studio E Stage D Report, Studio E Tender Documentation, and then Harley Construction Documentation, as a reference point for my commentary. Thereafter, under Snap-Shot Stage 4, I consider the performance of the Building Control Department during the construction period.

5.1.5 The Snap-Shot stages can be defined as follows:

Pre-Novation '*Snap-Shots*'

- Snap-Shot 1: Studio E Stage D Design Report: concluding August 2013

- Snap-Shot 2: Studio E Tender Documentation: August 2013 to January 2014

Post-Novation '*Snap-Shots*'

- Snap-Shot 3: Harley/Studio E Construction Documentation: April 2014-2016

- Snap-Shot 4 period can be defined as the start of construction at 2 June 2014 (as per the Rydon Progress Report's start date) through to the date of the Completion Certificate as issued by Building Control on 7 July 2016.

Was a '*Full Plans*' application required?

5.1.6 For some projects, especially smaller scale projects, a '*Full Plans*' application is not mandatory. In those circumstances it is acceptable, as described under Regulation 12(2)(a) of the Building Regulations, to give only a Building Notice in accordance with Regulation 12 prior to commencing work on site.

5.1.7 Regulation 13 in turn lists the information that is required in support of such a notice which, in terms of drawings, obliges the applicant, as a minimum, to submit a 1:1250 scale plan which shows the building size and position within the boundaries of its site, any other building within that same curtilage, and the width of any street '*on or within the boundaries of the curtilage of the building or the building as extended*'.

5.1.8 Regulation 13(3) is key in this respect as it requires that following the giving of a Building Notice the local authority must be given: '*...such plans as are, in the particular case, necessary for the discharge of their functions in relation to the building regulations and are specified by them in writing*'. My understanding is that the purpose of that requirement is to ensure that the Building Control Body has sufficient information in order to assess that the documents and the work as constructed are compliant with Building Regulations and the guidance contained within the Approved Documents where applicable.

5.1.9 Regulation 16 then sets out requirements in terms of giving '*notice of intention to commence work*'.

5.1.10 However, for certain projects it is mandatory that a deposit of full plans be made. Regulation 12(3) of the Building Regulations states:

> '*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*'.

5.1.11 The Regulatory Reform (Fire Safety) Order 2005 applied to Grenfell Tower because the common parts of the building were a workplace.

5.1.12 On this basis, the Building Regulations required that for the 2012-16 Works a Full Plans application should be made. A simple Building Notice would not suffice.

5.1.13 In this respect, it is normal in my experience in a Design and Build context for dialogue to take place between architect/design team and the Building Control Department of the Local Authority pre-novation stage, but for the Full Plans application to be made post-novation either directly by the Design and Build Contractor or on behalf of the Design and Build Contractor by the architect.

5.1.14 In such circumstances an architect usually seeks to secure a '*letter of comfort*' from the Building Control Department pre tender stage that confirms that conversations have taken place pre application and that the work as far as it has progressed appears to have been developed in accordance with the requirements of the Building Regulations and the guidance of the Approved Documents (rarely achievable). Alternatively, the architect may establish a record of meetings in the form of minutes / emails which serve as an indication of points of '*in principle*' agreement and areas that require further resolution, preferably pre-application.

What information was required under a Full Plans application?

5.1.15 Regulation 14 sets out the requirements for a '*Full Plans*' application. Paragraph 14(3)(c) calls for the depositing of *'any other plans which are necessary to show that the work would comply with these Regulations'*. In this context '*any other*' means anything required in addition to the minimal requirements under Regulation 13(1) and (2) relating to the size, position and boundaries of the building, including the 1:1250 plan, as required under a Building Notice (see paragraph 14(3)(a) which makes clear that '*Full plans shall consist of... the plans, particulars and statements required by paragraphs (1) and (2) of regulation 13*').

5.1.16 This project was dealt with through Local Authority Building Control as opposed to through an '*Approved Inspector*' so such information as was required under '*Full Plans*' had to be forwarded to the Building Control Department of RBKC.

5.1.17 In practice, on a large and complex project that is being run under contemporary conditions whereby, rather than all drawings being completed before building work starts, detailed construction information is prepared concurrent with construction. In such circumstances it is simply not possible to meet the requirements of Regulation 14 paragraph (3)(c) in the sense of submitting a complete set of documentation in 'one hit' with the application.

5.1.18 In my experience it is therefore accepted practice that the Full Plans application should be submitted with a set of general arrangement drawings and '*typical*' construction details.

5.1.19 Such general arrangement drawings would adequately describe the project in sufficient detail for the Building Control Department to understand the scope of the work that the applicant intends to carry out and the principles of its construction. Such drawings would comprise general arrangement plans, sections and elevations at scales variously (as appropriate) of 1:1250, 1:500, 1:200 and/or 1:100 showing the building in its totality with the principal plan arrangements (typically rooms with designated functions/access and egress within and to and from the building) all shown clearly.

5.1.20 These would be supplemented with more detailed drawings, typically at a scale of 1:20 and 1:5, showing and describing the principal construction arrangements. The tendency, especially with Design and Build contracts, is to adopt '*just in time*' information supply and consents as building construction times get faster, greater off-site fabrication takes place, and lead in times get shorter. Information accordingly flows to Building Control on an incremental basis to a programme that is intended to allow a rolling consent process sufficient to sustain continuous construction on site.

5.1.21 Information should be forwarded in a timely manner as the project proceeds (as ongoing supplementary documentation in support of the Full Plans application already '*lodged*'), so that the Inspectorate can carry out their work of checking and commenting on the proposals based on the documentation provided prior to work commencing on site. Thereafter, this same information is used during their site inspections by the Building Control Body as they check and comment on the work under construction.

5.1.22 Such a '*rolling*' process for the issuing of information requires very clear communication. In particular the applicant should make it clear that such information is to be received as part of the initial '*Full Plans*' application and all documents subsequently submitted should be clearly identified in that respect.

5.1.23 It is notable in this respect, and perhaps an oversight on the part of the drafters, that it is only under Regulation 13(3) that the Building Regulations call for the Local Authority to be given:

'*within such time as they specify, such plans as are, in the particular case, necessary for the discharge of their functions in relation to the building regulations...*'

5.1.24 This requirement is not listed under Regulation 14, but I think it is implicit within the Building Regulations that:

a) A '*Full Plans*' application should be sufficient in scope to enable the Building Control Body to commence its work and thereafter;

b) That information should be supplied by the applicant's design team in enough scope and detail, and in a sufficiently timely manner, so as to enable Building Control to properly discharge its functions.

That is the basis upon which I will assess the work of Studio E in this respect. That is, to establish whether the work relating to the over-cladding as produced by Studio E and Harley (whose work Studio E coordinated and submitted as part of the process) was sufficient in scope and sufficiently timely in its delivery in order a) to enable the Building Control Body to ensure that the proposals complied with the requirements of the Building Regulations and the guidance in the Approved Documents (insofar as they applied) and b) to enable the Building Control Body to carry out its functions relating to the inspection of the construction work during the course of its execution.

Pre-application dialogue

5.1.25 For large and complex projects such as the 2012-16 Works it is, as stated above, normal for a pre-application '*dialogue*' to take place between the design team as led by the architect and the Building Control Department and, through that Department, the local Fire Authority. This would normally proceed in orderly fashion, by way of email correspondence with attached diagrams and drawings and a series of key meetings around key topics. In a project such as the 2012-16 Works the over-cladding arrangements in relation to Part L and most importantly Part B of the Building Regulations would be one such key topic.

Summary of findings

5.1.26 The picture that emerges through this review is one of general disorder which I summarise as follows:

a) The pre-application dialogue was not comprehensive: for example, there was little reference to the rainscreen over-cladding work.

b) The Full Plans Application was late: it was undated but appears to have been submitted on 4 August 2014. In this respect I understand that the construction work commenced on 2 June 2014 – that is, before the Full Plans application had been submitted. It also seems that the Full Plans application was submitted without *any* accompanying drawings and it was not until 24 September 2014 that a first tranche of drawings was submitted to Building Control.

c) There seems to have been a lack of co-ordination in terms of processing the application: information appears to have been sent into Building Control on a piecemeal basis and responses from Building Control seem to have been poorly coordinated.

d) There is a lack of precision around dates of information issue and receipt and in terms of drawing numbers and revision references.

Managing the application process

5.1.27 Key to all this is the management of the Building Regulations application process and in this respect I am critical of:

a) Studio E as the architect responsible under contract to Rydon for overseeing this work (Schedule of Architectural Services paragraph 7 '*Responsibility for coordinating Building Regulation approval for and on behalf of the Contractor*') {RYD00094228};

b) Rydon as the Design and Build Contractor directly responsible to the TMO for carrying out this work and;

c) The Building Control Department of RBKC who failed to insist, as they could and should have, that a proper submission process was adopted.

5.1.28 Most serious in terms of my concerns is the apparently ad hoc and piecemeal way in which information was issued to, and thereafter commented on, by Building Control. It is essential in my experience that on a large and complex project such as the 2012-16 Works where the information is being issued and processed on a '*rolling*' basis, that the process is carefully monitored and managed. A commonly adopted way of doing this is with a '*tracking*' process.

5.1.29 Below I offer an example of the management, through a '*tracker matrix*', of a similar Building Regulation application process on a project run concurrent with the 2012-16 Works by my office in one of the other London Boroughs. This document was prepared by that Local Authority based on their standard template. The first section provides full contact details. These details include roles and titles of all officers who will be involved in the project. The second part is the '*tracker*' which I exhibit with my commentary below.

5.1.30 The contents of the '*tracker*', which is issued after the Full Plans Application has been made and the project has been formally registered with Building Control, relates consecutively to each Part of the Building Regulations and these are tracked separately:

Contents

5.0 Part F – Ventilation
6.0 Part G – Hygiene
7.0 Part H – Drainage & Waste Disposal
8.0 Part J – Heat Producing Appliances
9.0 Part K – Stairs, Ramps & Guards
10.0 Part L – Conservation of Fuel & Power
11.0 Part M – Access & Use of Buildings
12.0 Part P – Electrical safety
13.0 Part Q – Security
14.0 Part R – Electronic communications

5.1.31 A legend describes the status of the approval process for the entire application which is progressively filled in as the information is assessed, amended as and where necessary, and finally '*signed off*' by way of approval. Such a '*legend*' is shown below:

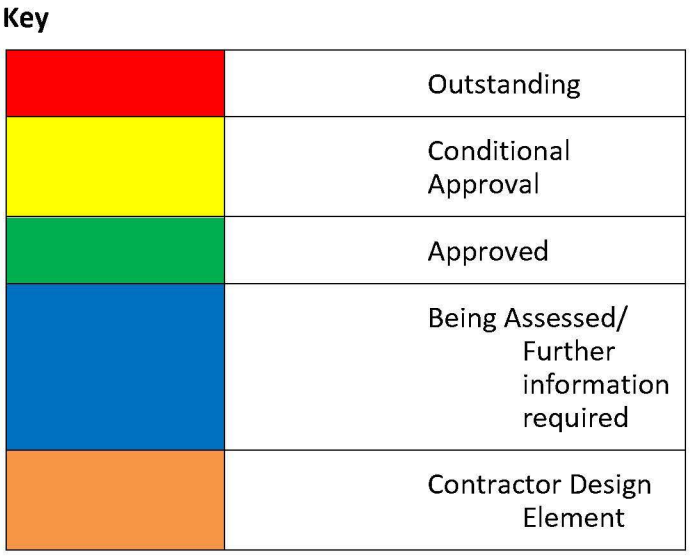


Figure 5.1: Legend from an Example Building Control Tracker

5.1.32 The next exhibit shows the tracker partly filled in as the application is processed. A constant dialogue would be expected as and where Building Control queries arise. Supplementary or indeed replacement information/documentation may be provided by the design team in response to those queries.

Design Information Required	Responsibility	Received date	LBH Status	Remarks
Part A - Structure				
1. Provide Ground investigation report.			Approved	
2. Provide Foundation design including drawings, details and calculations.			Approved	
3. Provide Piled foundation design - provide design and calculations including testing regime.			Approved	
4. Provide Design philosophy and statement on disproportionate collapse.			Approved	
5. Provide Substructure design and calculations			Approved	
6. Provide Superstructure design and calculations.			Approved	
7. Provide Floors design and calculations.			Approved	
8. Provide Stair core design and calculations			Approved	
9. Provide Cladding design and fixing longevity calculations.			Approved	
Part B - Fire Safety				
10. Sprinkler system required in accordance with BB or alternatively Fire Risk Assessment Tool report to be provided to justify exclusion			Awaited	
11. Provide Emergency exit signage layouts & specification			Awaited	
12. Doors schedule being checked			Approved	~~03.08.18~~ ~~Ground floor door schedule does not include DSTN or DSTT door types.~~
13. Provide Door ironmongery details (including any access control and emergency override)			Approved	
14. Provide fire fighting access layouts (including location of site boundary and fire fighting access to building)			Approved	
15. Provide Dry riser details and layouts including hydrant details/locations			Approved	
PART C - SITE PREPARATION				
16. No comments			Approved	
PART D - TOXIC SUBSTANCES				*N/A*
17.No comments			Not Applicable	
PART E - SOUND				
18. No comments			Approved	
PART F - VENTILATION				
19. Ventilation strategy does not include the provision of trickle vents to the windows. Confirm this is correct.			Approved	
PART G - SANITARY PROVISIONS				
20. Calculations required to justify sanitary provisions			Approved	
PART H - DRAINAGE & REFUSE				
21. Below ground drainage details being checked.			Being assessed	*Clarify discharge of RWP's to Permavoid*
22. Provide Refuse storage layout and disposal/collection strategy.			Awaited	
23. The Water Authority is to be consulted in regards to the location of existing sewers and			Not Applicable	

Figure 5.2: Extract from Example Building Control Tracker

5.1.33 Likewise, a '*track*' is kept on the process of testing as the construction works proceed and of certificates required at completion stage. An example is again exhibited below.

COMMISSIONING CERTIFICATES REQUIRED	Responsibility	LBB Status	Comments
34. Fire detection and alarm system	Contractor	*Information awaited*	To be provided upon completion.
35. Emergency lighting tests	Contractor	*Information awaited*	To be provided upon completion.
36. Fire damper tests	Contractor	*Information awaited*	To be provided upon completion.
37. Emergency door release break glass as applicable	Contractor	*Information awaited*	To be provided upon completion.
38. Ventilation commissioning and tests – smoke control and mechanical ventilation.	Contractor	*Information awaited*	To be provided upon completion.
39. Drainage certificate - above ground stack tests	Contractor	*Information awaited*	To be provided upon completion.
40. Drainage certificate – below ground tests	Contractor	*Information awaited*	To be provided upon completion.
41. Building log book. CIBSE Guide	Contractor	*Information awaited*	To be provided upon completion
42. Boiler and heating commissioning certificates	Contractor	*Information awaited*	To be provided upon completion.
43. Intumescent paint provision (where applicable.)	Contractor	*Information awaited*	
44. Lift Commissioning certificate	Contractor	*Information awaited*	To be provided upon completion.
45. Disabled Refuge EVC system	Contractor	*Information awaited*	To be provided upon completion.
46. Dry riser installation/test certificate	Contractor	*Information awaited*	To be provided upon completion.
47. Fire fighting lift installation certificate (where applicable)	Contractor	*Information awaited*	To be provided upon completion.
48. Sound testing (pre completion testing) if required by contract	Contractor	*Information awaited*	To be provided upon completion.
49. Air pressure test / leakage test certificate	Contractor	*Information awaited*	To be provided upon completion.
50. As Built SBEM calculation (to include air pressure test result)	Contractor	*Information awaited*	To be provided upon completion.

Figure 5.3: Example Building Control '*Tracker*' Indicating Commissioning Certificates Required

5.1.34 In circumstances where a Building Control Department fails to produce such monitoring tools (as appears to have been the case with RBKC) I think that a prudent architect's practice and/or Design and Build Contractor would produce its own in order to ensure a proper and comprehensive monitoring of the application process.

Design and Build Contractor's typical design management processes

5.1.35 In parallel with any Building Control tracker, it is in my experience normal for a Design and Build Contractor to produce a '*matrix of responsibility*'. This is because once the Design Team is novated it is of critical importance that their deliverables, responsibilities and liabilities are fully understood and agreed to avoid overlaps or gaps in scope or deliverables. The exhibit below shows an example.

Design Responsibility Matrix

		Key:										
PROJECT NAME:		x	Primary Responsibility									
		o	Support Function									
		v	Check/Verify design, fabrication and installation of others									
		b	Performance Spec. by Consultant, Detailed design by sub-contractor									
		Strike through any not applicable duties & Consultants.										
		Adjust 'x's, 'o's, and 'v's as applicable										
	SUPERSTRUCTURE	Architect	Structural & Civil Engineer	Services Consultant	Landscape Architect	Acoustic Consultant	Fire Engineer	BREEAM Assessor	FF&E Consultant	M&E Subcontractor	Other Subcontractor/ Specialist Consultant	
11.00	External Walls											
11.01	Building layout & GA's	x	o	o						o		
11.02	Building Sections & Elevations	x	o	o						o		
11.03	External walls - make ups, details, interface details & specs.	x	o									
11.04	External walls - movement & expansion requirements	o	x								o	
11.05	Cladding, insulation & liner sheet details & spec	x	o								o	
11.06	External window, curtain walling & door schedules	x	o	o						o		
11.07	Windows & Curtain walling - performance spec, interface details and design intent	x	o									
11.08	Windows & curtain walling - detailed design	v	v	o						o	x	
11.09	External Doors	x	o	o		o				o	o	
11.10	Wind loadings for design	o	x								o	
11.11	Structural glazing - performance spec, interface details & design intent	x	o	o		o	o				o	
11.12	Structural glazing - detailed design	v	v								x	
11.13	Rainscreen cladding - performance spec, interface details & design intent	x	o	o		o	o				o	
11.14	Rainscreen cladding - detailed design	v	v								x	
11.15	Metsec/cold rolled studwork Inc. membrane & boarding	x	o								o	

Figure 5.4: Example Design Responsibility Matrix

5.1.36 Again, in the absence of such a document being issued as a '*tool*' by the Design and Build Contractor, I believe that the prudent architect would issue his own.

5.1.37 Where there is shared responsibility between more than one party, the exact split of deliverables and responsibility/liability needs to be agreed. For example, it is common that the architect may issue construction drawings which are used by manufacturers/ suppliers/ sub-contractors to produce installation "*shop*" drawings. This was the case with the 2012-16 Works as Studio E were responsible for providing design information on the over-cladding both pre and post novation, and Harley were responsible for developing this work through their own shop drawings post their appointment as specialist sub-contractor.

5.1.38 Although third parties may be providing fabrication information, it is important to establish who is responsible for elements of the design which are affected by this information. For example, a window fabricator may not have any design responsibilities regarding interfaces with other materials and components relating to airtightness, acoustics, lintel design, fire safety etc. In the case of the 2012-16 Works, for instance, Harley expressly stated on their drawings that they were not responsible for inner window linings.

5.1.39 In researching the processes carried out for the 2012-16 Works I have seen no evidence either of the kind of matrix I refer to above for monitoring information flow with the Building Control Department, or of the kind of matrix that a Design and Build Contractor would routinely issue to define responsibilities between consultant team members both with each other and with sub-consultants.

The picture that I report below suggests to me that no such management tools for monitoring either the Building Control application process or the responsibility allocation between consultants/sub-contractors was in place.

5.2 Snap-Shot 1: Studio E Stage D Design Report (August 2013)

Dialogue with RBKC Building Control over U-value

5.2.1 The RIBA Job Book inputs for this stage are shown below. I draw particular attention to bullet point 7 which sets out the importance of carrying out the design work fully informed by the relevant statutory information. In other words, as architects and specifically under the express terms of their appointment which incorporated the RIBA Plan of Work as an express term of the appointment, Studio E's Stage D work at its outset should have been informed by a full briefing and design work carried forward from Stage C. It should have been compliant with the Building Regulations and, as far as relevant to its level of detail, with the guidance in ADB2.

Stage D Input

Check that all information necessary during Stage D is available, which might include the following:

- Partially developed Project Brief, derived from Strategic Brief.
- Stage C Outline Proposals as accepted by the client in written confirmation, incorporating any agreed design changes.
- Further information as requested by the architect and supplied by the client.
- Notes, sketches, details made on visits to other projects.
- Relevant published material, technical information, etc.
- Results of tests conducted during Stage C.
- Relevant legislation, Circulars or Guides.
- Further contributions, information and recommendations from consultants and specialists.
- Initial cost plan prepared by quantity surveyor.

Figure 5.5: Extract from the RIBA Job Book for Stage D

5.2.2 The email from Max Fordham to Building Control dated 29 August 2012, as exhibited below {MAX00003118} indicates that early dialogue was established with Building Control.

Grenfell Tower - Part L requirements.

Sent: Wed 29/08/2012 2:03:05 PM (UTC)

From: A.McQuatt@maxfordham.com

To: John.Allen@rbkc.gov.uk, Dave.Gammon@rbkc.gov.uk

CC: Bruce Sounes

20120829 - Grenfell Tower - Building Regulations Guidance.xlsx
694.8 KB

John/Dave,

We are the engineers that are employed by the RBKC TMO on the Grenfell Tower project. The project contains many different elements such as existing residential refurbishment, new residential flats within the footprint of an existing office. We have put together a spreadsheet showing our interpretation of what sections Part L of the building regulations apply to the various areas of the project. We would be grateful if you would return comment on the attached schedule as we want to make sure we are designing to comply with the correct regulations before we move beyond stage C.

If you would like to talk through any aspects of the project please feel free to call me on the number on the footer of this email.

I look forward to hearing from you,

Kind regards,

Andrew

MAX FORDHAM
2 Melville Street
Edinburgh
EH3 7NS
T [redacted]
F
maxfordham.com

Figure 5.6: Email correspondence between Max Fordham and Building Control {MAX00003118}

5.2.3 The Max Fordham Stage C Report dated September 2012 Rev B issued 10 October 2012 {MAX00001683} includes a Building Regulations table for Part L compliance, extracts of which are exhibited below, which indicates the proposed use of the Celotex 5000 insulation from a very early stage in the project. (I noted in the previous section that Celotex was sold under the designations FR and RS which in fact relate to the same product).

3.0 PART L BUILDING REGULATIONS

Under Part L of the Building Regulations the Grenfell Tower project is classified as a "mixed use development" as it contains both domestic and non-domestic elements. The domestic parts of the building will be covered by part L1B and the non-domestic parts will be governed by part L2B. The following section is a summary of the relevant requirements form the different regulations.

Relevant Part L - Compliance Documents

Level	Original Use	Proposed Use	Relevant Building Regulations
Ground	Reception, Boxing Club, & Storage	Reception & Nursery	Part **L2B** Existing non-domestic
Mezzanine	Nursery	Residential	Part **L1B** Existing Domestic
Walkway	RBKC TMO offices	Boxing Club and Offices	Part **L2B** Existing non-domestic
Walkway+1	Offices	Residential	Part **L1B** Existing Domestic
4th to 23rd	Residential (Dwelling)	No Change	Part **L1B** Existing Domestic

Table 3-1 - Part L Compliance Documents

U-value Targets
Part L1B (Existing domestic)

Element	Building Regulations Minimum Target U-Value ($W/m^2.K$)	Proposed U-Value ($W/m^2.K$)
Window	1.8	1.6
New Wall	0.28	0.15
Upgraded Wall	0.30	0.15
Upgraded Flat Roof	0.18	0.15
Curtain Wall (L2B)	1.8*	

Table 3-2 - Part L1B Minimum U-values

*1.8 is upper limit of curtain walling, Equation 1 should be used to calculate the limiting U-value for curtain walling which is bespoke to the individual project.))

Equation 1 - Upper limit of curtain walling U-value

Where FOI is the fraction of opening lights and GF is the glazed fraction.

Figure 5.7: Extract from the Max Fordham Stage C Report indicating proposed U-Value Targets and Relevant Building Regulations {MAX00001683}

Spandrel Wall Panel (Green)

Element (Outside to Inside)	Conductivity W/(m.K)	Thickness mm
Zink Cladding (New Rain Screen)	160.0	3
Ventilated Cavity	n/a	50
Insulation (New, Celotex FR5000)	0.021	150
Cast Concrete (Existing)	1.400	250
Insulation (Existing)	0.035	10
Plasterboard (Existing)	0.160	12
Total		**475**
U-value (W/m2.K)		**0.1248**

Table 4-2 Spandrel Wall Panel Build-up

Figure 5.8: Extract from the Max Fordham Stage C Report indicating Proposed Build up to the Spandrel Wall Panel that includes FR5000 {MAX00001683}

5.2.4 However, as indicated below, Building Control is not listed amongst the consultees and accordingly I do not know whether they had any knowledge (formally or informally) at that stage of the proposed use of Celotex.

Meetings & Consultations
Design Team Meetings 01/05/2012, 13/06/2012, 18/07/2012, 19/07/2012, 26/07/2012, 09/08/2012.
Existing natural gas visit 13/06/2012
Design Session with Studio E 09/07/2012
Roof top plantroom visual survey 09/08/2012

Table 2-3 - Meeting and Consultations

Figure 5.9: Extract from the Max Fordham Stage C Report {MAX00001683}

5.2.5 I exhibit below an example of the level of detail provided by Studio E (revision 5 dated 29 October 2012) of a typical '*Proposed Floor Plan*' as shown on Studio E drawing 1279 RE110 {SEA00001693}. It is clear that RBKC Building Control were provided with a copy of this drawing during the latter part of 2012: a memorandum of 5 November 2012 {RBK00003044} issued by Mr Dave Gammon to Mr John Allen refers to this drawing number as a basis for recording a series of comments and observations. Such drawings carried little in the form of detailed information of proposed construction, products or materials, and I have seen nothing in this drawing that would have alerted Building Control to the proposed use of an insulating material that did not meet the standard of limited combustibility as required to achieve compliance with ADB2.

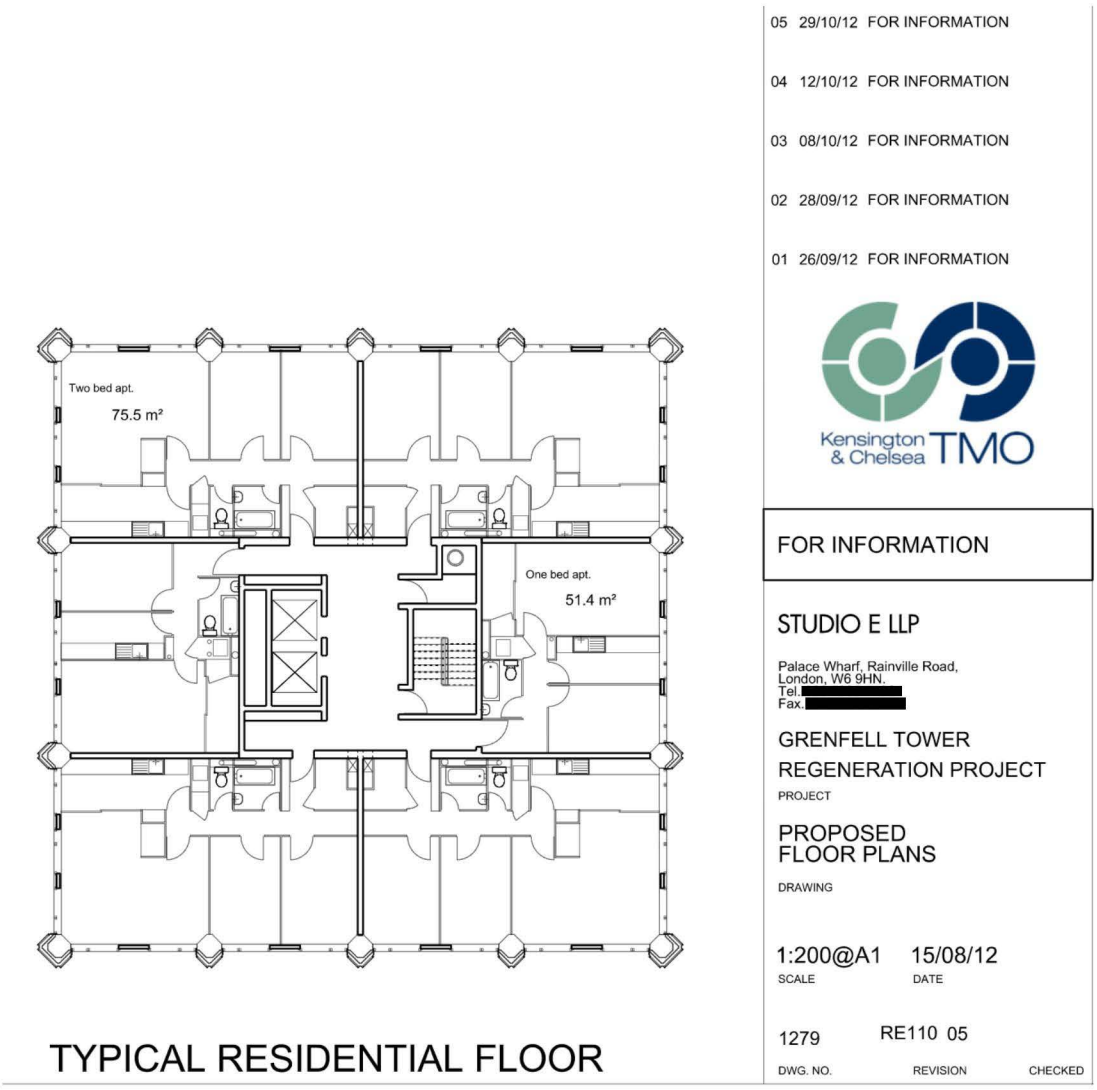


Figure 5.10: Extract from Studio E drawing 1279 RE110 Rev 05 'Proposed Floor Plans {SEA00001693}

5.2.6 There is a reference to PL 400 *'Proposed Over-cladding Detail'* on the covering letter of the Planning Application {RBK00018800} as exhibited below:

Plans submitted are as follows:

Location Plan	1279 PL 001	Rev00
Existing Site Plan	1279 PL 002	Rev00
Proposed Site Plan	1279 PL 003	Rev00
Existing Floor Plans	1279 PL 010	Rev00
Existing Sections	1279 PL 020	Rev00
Existing Elevations	1279 PL 030	Rev00
Proposed Floor Plans	1279 PL 110	Rev00
Proposed Ground Floor Plan	1279 PL 111	Rev00
Proposed Mezzanine Plan	1279 PL 112	Rev00
Proposed Walkway Plan	1279 PL 113	Rev00
Proposed Office Plan	1279 PL 114	Rev00
Proposed Resi Plan	1279 PL 115	Rev00
Proposed Plant Room Plan	1279 PL 116	Rev00
Proposed Roof Plan	1279 PL 117	Rev00
Proposed 4 Bed Plan	1279 PL 118	Rev00
Proposed Baseline Garage Refurbishment	1279 PL 125	Rev00
Proposed Baseline (EMB) Office Refurbishment	1279 PL 126	Rev00
Proposed Sections	1279 PL 200	Rev00
Undercroft Elevation	1279 PL 301	Rev00
Proposed West Elevation	1279 PL 302	Rev00
Proposed East Elevation	1279 PL 303	Rev00
Proposed South Elevation	1279 PL 304	Rev00
Proposed North Elevation	1279 PL 305	Rev00
Proposed Overcladding Detail	1279 PL 400	Rev00

Two hard copies and electronic copies of this information have been provided.

The fee for this application has previously been paid by our clients through internal transfer.

I trust that this will allow the validation and progression of the application and I look forward to hearing from you accordingly. Please do not hesitate in contacting me if there any queries.

Figure 5.11: Extract from Taylor Young's letter to the RBKC Senior Planning Officer {RBK00018800}

5.2.7 I have not been able to find a drawing with the title '*Proposed Over-cladding Detail*' but exhibited below is a drawing entitled '*Planning*' dated October 2012. This suggests that it formed part of the set of drawings submitted for the purposes of gaining planning consent. It carries the same number PL 400 {HAR00010404}. This drawing is, however, named '*Proposed Elevation Plan & Section Detail*' and may not be the same drawing.

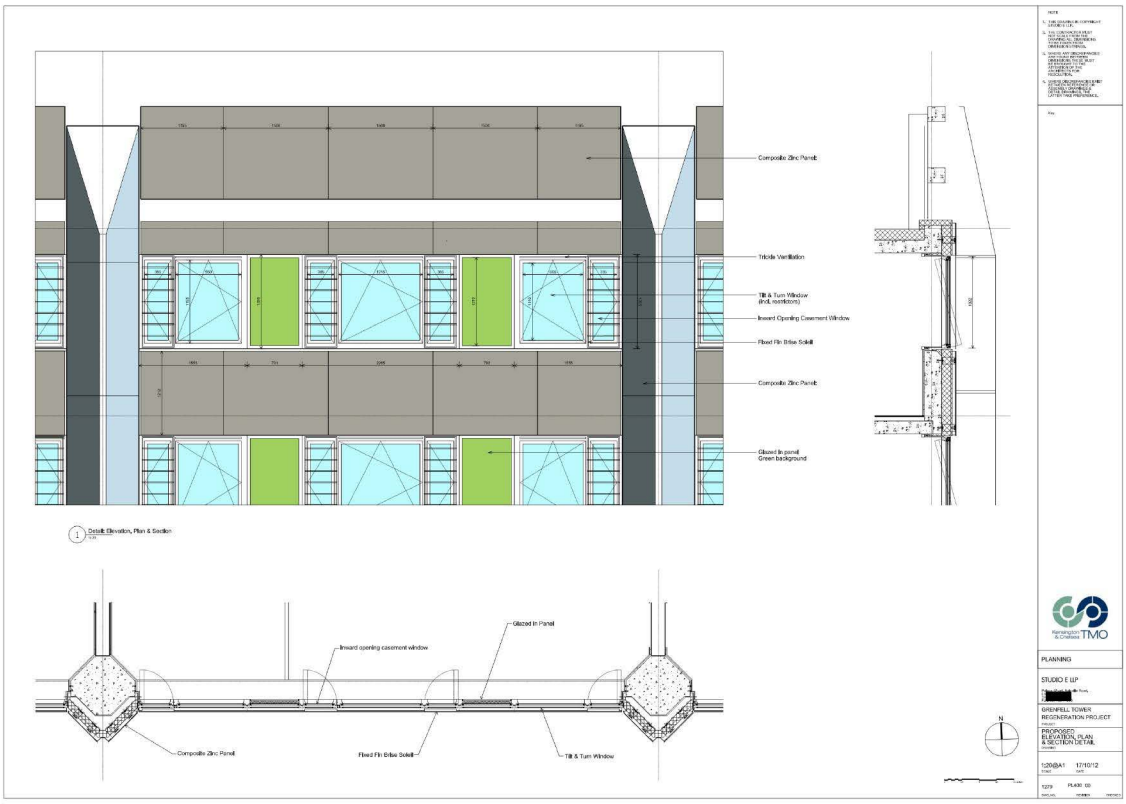


Figure 5.12: Extract from Studio E drawing 1279 PL400 00'*Proposed Elevation, Plan & Section Detail*' {HAR00010404}

5.2.8 Even if this is the same drawing, I would not expect Building Control to have been provided with any drawings issued to the Planning Department for the purposes of securing planning consent, unless it was sent to Building Control by an external party (for example Studio E). I take this view because the Planning and Building Regulation Departments are effectively separate entities within a local authority and applications for consent under Planning and Building Regulations are quite separate processes. In my experience external agencies deal with the Planning and Building Regulations Departments on an individual basis, and in discharging their statutory duties in relation to the Planning Act and Building Regulations for which they are independently responsible, the departments do not have any direct dialogue with each other around an application.

5.2.9 However, even if such drawings had been made available to Building Control by the Planning Department, the information relating to materials shown on drawing PL 400 as apparently submitted to the Planning Department, is scant and I would not expect any queries or issues to have been raised in relation to Building Regulations compliance based on the kind of information contained therein.

5.2.10 Exhibited below is the cover sheet for the minutes produced by Exova following their meeting with Building Control on 6 November 2012 {EXO00001371}. Although there are no references to the envelope / over-cladding work, the use of Celotex for the main insulation to the cavity created by the rainscreen was clearly under consideration at this time and had been so at least since the issue of Max Fordham's Stage C Report dated Sept 2012 {MAX00001683}. The minutes show that formal dialogue between the consultants and Building Control was underway very early in the design process, and that ample opportunity therefore existed at that early stage for the design team to gauge Building Control's view on the use of PIR insulation. I do not know whether any such discussion took place with Building Control at this time or whether they received any information by way of drawings or reports which suggested the use of Celotex or any other PIR product. I have not been able to find any records of any such information being passed to Building Control at this stage.

Exova Warringtonfire
Bramah House
65-71 Bermondsey Street
London
SE1 3XF
United Kingdom

T : [redacted]
F :
E : london@exova.com
W: www.exova.com

Testing. Advising. Assuring.

Project No:	301922
Project:	**Grenfell Tower**
Doc Ref:	MTM
Date:	06 November 2012
Location:	Kensington Town Hall
Subject:	Fire strategy

Meeting Notes

PRESENT:
John Allen – RBKC Building Control (JA)
Dave Gammon – RBKC Building Control (DG)
Adrian Jess – Studio E LLP (AJ)
Terry Ashton – Exova Warringtonfire (TA)

APOLOGIES:

DISTRIBUTION

Attendees
? Max Fordham
? Leadbitters

Item No	Description	Action owner	Timescale
	Purpose of meeting		
	To discuss fire strategy report. DG had prepared written comments on fire strategy and marked up drawings. These were used as the agenda for the meeting.		

Figure 5.13: Extract from first page of meeting minutes 06.11.2012 between Studio E, Exova, and Building Control {EXO00001371}

5.2.11 The Studio E Stage D Report of August 2013 {SEA00008054} refers, as shown in the exhibit below, respectively to the rainscreen cladding, the insulation, and the window units, although there is no reference to the insulation material within the window infill panels which are referred to as '*obscure panels*'. I have seen no evidence that Building Control ever had sight of this document or of the specification included within it. As can be seen from the exhibit of part of the Stage D Report the Celotex PIR insulation is clearly denoted.

L10 PPC Aluminium thermally broken windows.
- openable windows PPC Aluminium doubled glazed
- Inward opening casement windows (purge panels)
- External louvers to purge panel windows 100mm max openings
- Large tilt and turn casements. Lockable restrictors to prevent casual opening.
- Obscure panels below 1100mm from FFL

H92 Rain-screen Cladding: Pre-patinated zinc rainscreen cladding on aluminium cladding rails with insulation fixed directly to existing concrete.
- 1mm folded metal shingles on steel substrate: Rheinzink Blue
- Pre-formed window surrounds (cill/jamb/head). Cills angled to prevent roosting.
- Spandrel panels U-value 0.15 W/m²K (=150mm PIR)
- Columns U-value 0.18 W/m²K (=100mm PIR)
- Decorative strips to Strips to

P10 Sundry Insulation / Proofing Work
- Celotex FR5000 (100mm) to existing columns

Figure 5.14: Extracts from the Studio E Stage D Outline Specification {SEA00008054}

5.2.12 The Studio E Stage D Report of August 2013 {SEA00008054} also refers at page 28, as shown in the exhibit below, to a preliminary meeting with Building Control that had taken place apparently in part at least to discuss fire safety. Although the meeting date was not specified it may, due to the subject matter under consideration, have been the same meeting as referred to in the Exova minute referred to above, that is 6 November 2012.

RBKC Building Control Consultation – Fire Safety

A preliminary meeting with RBKC building control was held to discuss the current layouts and the proposed changes to the existing fire strategy. No major changes to planning layouts required but the discussions on the existing dry riser location and smoke ventilation introduced several services issues to be considered as part of the attached M&E section by Max Fordhams.

One of the issues was a request to extend the existing smoke extract system down through Walkway level into the proposed mezzanine level without knowing if the existing system is fit for purpose under the current building regulations.

Other issues raised to be taken into consideration are:

- Fire fighting lift location and which floors serviced to be clearly indicated on application
- Existing fire safety strategy for each floor and proposed changes to be clearly explained.

Figure 5.15: Extract from the Studio E Stage D Report {SEA00008054}

5.2.13 The Studio E Stage D Report {SEA00008054} includes Revision 1 of the Exova Fire Strategy Document, issued 31 October 2012 which makes the following statement with respect to B4 Compliance External Fire Spread:

3.1.4 Compliance with B4 (external fire spread)

It is considered that the proposed changes will have no adverse effect on the building in relation to external fire spread but this will be confirmed by an analysis in a future issue of this report.

Figure 5.16: Extract from the Exova Fire Strategy Document within the Studio E Stage D Report {SEA00008054}

5.2.14 Studio E sent Exova a link to the Studio E Stage C report on 31 October 2012 {EXO00001575}. It appears that Exova did not receive Studio E's Stage D report (August 2013). However, the Studio E Stage C report (dated October 2012) incorporated Max Fordham's M&E Stage C Report (from page 71 onwards) {SEA00006429}. On page 12 of Max Fordham's report Celotex FR5000 is proposed. Accordingly, Exova were either aware or should have been aware of the proposed use of Celotex FR5000 from 31 October 2012 based on the Max Fordham report as incorporated within Studio E's Stage C Report (that is before the 6 November 2012 meeting) regardless of whether they then later received the Studio E Stage D report, which confirmed the proposed use of the Celotex FR5000 product.

From: Adrian Jess [mailto:adrian@studioe.co.uk]
Sent: 31 October 2012 11:38
To: David Hale; Alun Dawson; manderson@kctmo.org.uk; pdunkerton@kctmo.org.uk
Cc: Chris Churchman; A.McQuatt@maxfordham.com; M.Smith@maxfordham.com; stefano.strazzullo@curtins.com; Chweechen Lim; Terry.Ashton@Exova.com; ct@syntegra-epc.co.uk; marc.watterson@tayloryoung.co.uk
Subject: Stage C report

All,

Please find attached the studio e ftp location for the Stage C report.

ftp://studioe-grenfell@studioe-ftp1.iweb-ftp.co.uk/Studio E/Reports/

Mark,

Can you let me know which address to send the hard copy to.

If the Stage C report is acceptable can you please sign off on the current layouts as soon as possible, we would note that coordination work on stage D is likely to be limited until the stage C layouts have been approved.

David / Alun / Mark,

Can you give me a steer on whether the stage C report in its entirety should be issued to Leadbitter or if parts of the cost information should be removed?

Regards,

Adrian Jess
Project Architect

For and on behalf of
STUDIO E LLP
Palace Wharf, Rainville Road, London W6 9HN
T [redacted] | F [redacted] | www.studioe.co.uk

Figure 5.17: Correspondence between Studio E and the Project Team, including Exova with Link to the Stage C Report {EXO00001575}

5.2.15 The inclusion of paragraph 3.1.4 of Revision 1 of the Exova Fire Strategy Document dated 31 October 2012 by Studio E within their Stage D Report of August 2013 indicates to me that in the 10 month period between Revision 1 of its Fire Strategy Document and the Studio E Stage D report, Exova did not update its advice to Studio E. This is despite, in that 10 month period, Exova being in receipt of the Studio E Stage C report in which Celotex FR5000 had first been proposed and attending the 6 November 2012 meeting.

5.2.16 The evidence indicates to me that from early November 2012 Exova were either:

a) Unaware of the proposed insulating material when they ought to have been aware, through any or all the following: receipt of the Studio E Stage C report, sight of drawings, or discussion at design meetings; or

b) Exova were aware of the proposed use of a PIR insulating material but had not raised any concern, either because their advice was not explicitly requested on this point prior to the issue of Studio E's Stage D report in August 2013 and Exova did not volunteer any updated advice. Alternatively, Exova simply failed to register those concerns, or they were unaware of the failure of the material to meet the guidance in paragraph 12.7 of ADB2, or because they were unaware of the guidance given within that paragraph.

5.2.17 In all of the circumstances, I am very critical of Exova as a specialist fire consultant in the following respects. First, for expressing the view as set out at paragraph 3.1.4 of Revision 1 of its Fire Strategy Document without first establishing what the external wall construction comprised in terms of materials. Secondly, when Exova knew, or ought to have known, what the external wall construction was comprised of (from early November 2012), for not updating its advice to Studio E either before issue of the Studio E Stage D report (August 2013), or at all. As I turn to below, at paragraph 3.1.4 of Revision 03 of its Fire Strategy Document dated 7 November 2013, Exova maintain exactly the same view as expressed at paragraph 3.1.4 of Revision 1 of its Fire Strategy Document. I cannot see how a responsible and competent specialist fire consultant could maintain such a statement when they knew, or ought to have known, that the principal insulation material comprising the external wall was a PIR product.

5.2.18 In summary of this '*Snap-Shot*' the following is evident:

a) Pre-Full Plans application dialogue with Building Control commenced very early (Max Fordham's email to John Allen and Dave Gammon of 29 August 2012) {MAX00003118}.

b) Despite being non-compliant with the guidance in paragraph 12.7 of ADB2 which stipulated that insulation material incorporated within an external wall should be of '*limited combustibility*', PIR insulation (that is Celotex RS5000) was proposed from very early on and was listed in the Max Fordham Stage C report (Rev B) of September 2012 {MAX00001683}. The Max Fordham Stage C report was incorporated within Studio E's Stage C report {SEA00006429}.

c) Studio E confirmed the proposed use of PIR insulating material in their Stage D Report of August 2013 {SEA00008054}. Over a period of some 10 to 11 months Studio E thus presided over a design development process that was based on the incorporation of a material which failed to meet the requirements of the Building Regulations or the basic guidance of ABD2. As stated in Section 4, Studio E should as architects have realised that this product was not of '*limited combustibility*' and therefore that it failed to meet the guidance in ADB2 or the requirements of the Building Regulations.

d) There was plenty of opportunity during early design development to discuss the materials proposed for the external wall – particularly the insulation – with the Building Control Department; for example at the meeting that is known to have taken place on 6 November 2012 by which time Celotex had already been proposed {EXO00001371}.

e) Exova either knew, or should have known, of the proposed use of PIR insulation by the time of their meeting with Building Control on 6 November 2012. As specialist fire consultant they should have drawn attention to its unacceptability through its failure to meet the requirements of '*limited combustibility*' both to the design team and to Building Control.

f) Surprisingly, it seems that the intention to use Celotex FR5000 was not brought to the attention of Building Control either by way of discussion during meetings or by way of documentation submission. Alternatively, Building Control, despite being made aware of the proposed use of PIR insulation, did not raise objection.

g) I conclude from the above that the parties involved in developing the design through to the completion of the Studio E Stage D Report (notably: Studio E, Max Fordham and particularly surprisingly Exova) were ignorant of the problems inherent in the proposal to incorporate PIR insulation within the new cavity that would be created to all four facades by the rainscreen cladding. I further conclude that Building Control were either not informed of the proposals with respect to the insulation material either verbally or through the submission of drawings, reports and/or specification notes. This suggests poor communication on the part of Studio E, or alternatively if Building Control were so informed, that they too were unaware that the product was non-compliant with the guidance in ADB2, and that accordingly it did not meet the requirements of the Building Regulations.

5.3 Snap-Shot 2: Studio E Tender Documentation (August 2013-January 2014)

5.3.1 The email exhibited below from Studio E to Building Control dated 25 October 2013 refers to a fire strategy, apparently presented to Building Control in the form of floor plans and sections together with *'a strategy document from Exova'*. The email concludes with reference to *'…a number of other issues…. that need to be discussed…'* and asks for availability with respect to possible meeting times {SEA00000121}.

Grenfell Tower Refurbishment - Fire Strategy

Sent: Fri 25/10/2013 1:17:42 PM (UTC)

From: Bruce Sounes

To: john.allen@rbkc.gov.uk, Paul.Hanson@rbkc.gov.uk

CC: Terry Ashton, d.campbell@maxfordham.com, Grenfell

1279_SEA_(08) 101 Fire Strategy.pdf 912.4 KB
1279_SEA_(08) 100 Fire Access.pdf 477.4 KB
MT14634R.Iss 02 - Grenfell Tower - OFSS.pdf 85.8 KB
M&E - Smoke Control Proposals - Rev A.pdf 88.5 KB
1279_PL010_Existing Floor Plans.pdf 282.5 KB
1279_PL200_Proposed Sections_Rev01.pdf 334.4 KB

Dear John and Paul,

Further to our meeting at RBKC on 17 August we are now in a position to forward your our proposed fire strategy for Grenfell Tower for comment. Please see attached fire strategy drawings, strategy document from Exova and a description of the proposed upgrade to the smoke exhaust system.

As discussed you will forward this to London Fire Brigade so that the TMO may receive a response as soon as possible. We believe that agreement on the smoke ventilation to the tower is the single biggest risk to the proposals, but we don't think it is reasonable to leave the existing system in place.

Documents attached:
1279_PL010_Existing Floor Plans.pdf
1279_PL200_Proposed Sections_Rev01.pdf
1279_SEA_(08) 100 Fire Access.pdf
1279_SEA_(08) 101 Fire Strategy.pdf
M&E - Smoke Control Proposals - Rev A.pdf
MT14634R.Iss 02 - Grenfell Tower - OFSS.pdf

There are a number of other issues in dealing with this refurbishment that need to be discussed and this is probably best done in person once you have had a chance to study the documents. Would you be able to advise availability for a meeting week commencing 4 November?

Many thanks

Bruce Sounes

For and on behalf of
STUDIO E LLP
Palace Wharf, Rainville Road, London W6 9HN
T [redacted] | F [redacted] | www.studioe.co.uk

Figure 5.18: Email correspondence between Studio E and Building Control {SEA00000121}

5.3.2 The above email clearly indicates an intention for Studio E to engage with Building Control and suggests an awareness that there were several issues that needed discussion. However, no specific items are listed in this email and there is no specific reference to the envelope, to over-cladding or to external fire spread. The email does however anticipate that Building Control will forward a copy of this package to the London Fire Brigade.

5.3.3 The following exhibits show the level of information contained within those drawings. Neither the email nor the attachments make any reference to the envelope/over-cladding construction.

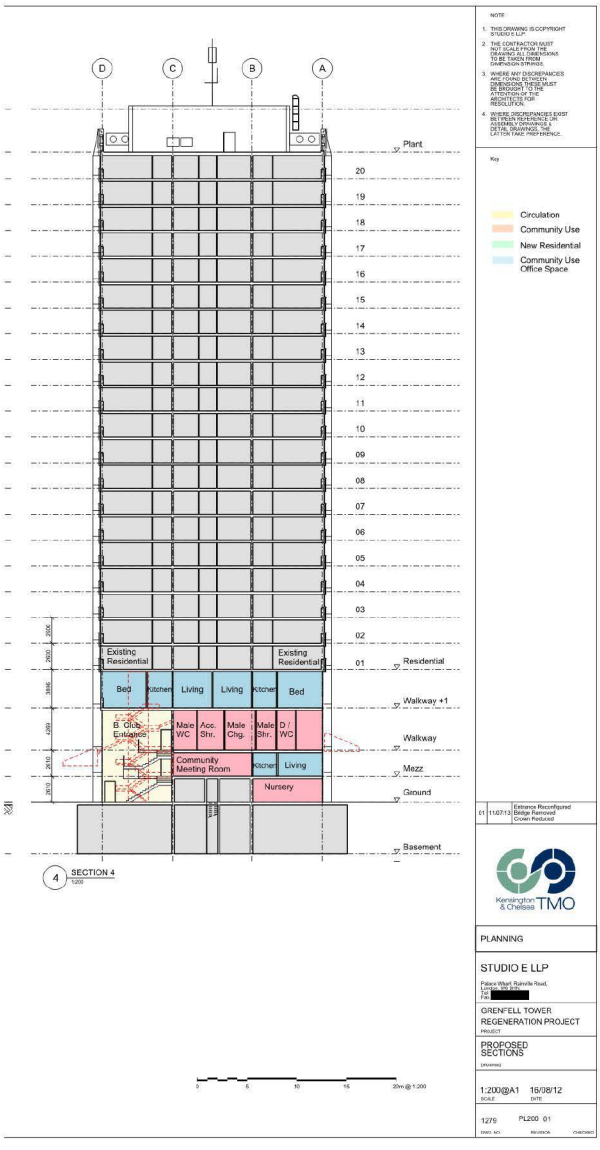


Figure 5.19: Extract from drawing 1279 PL200 Rev 01 '*Proposed Sections*' contained within the email dated 25.10.13 {SEA00000121}

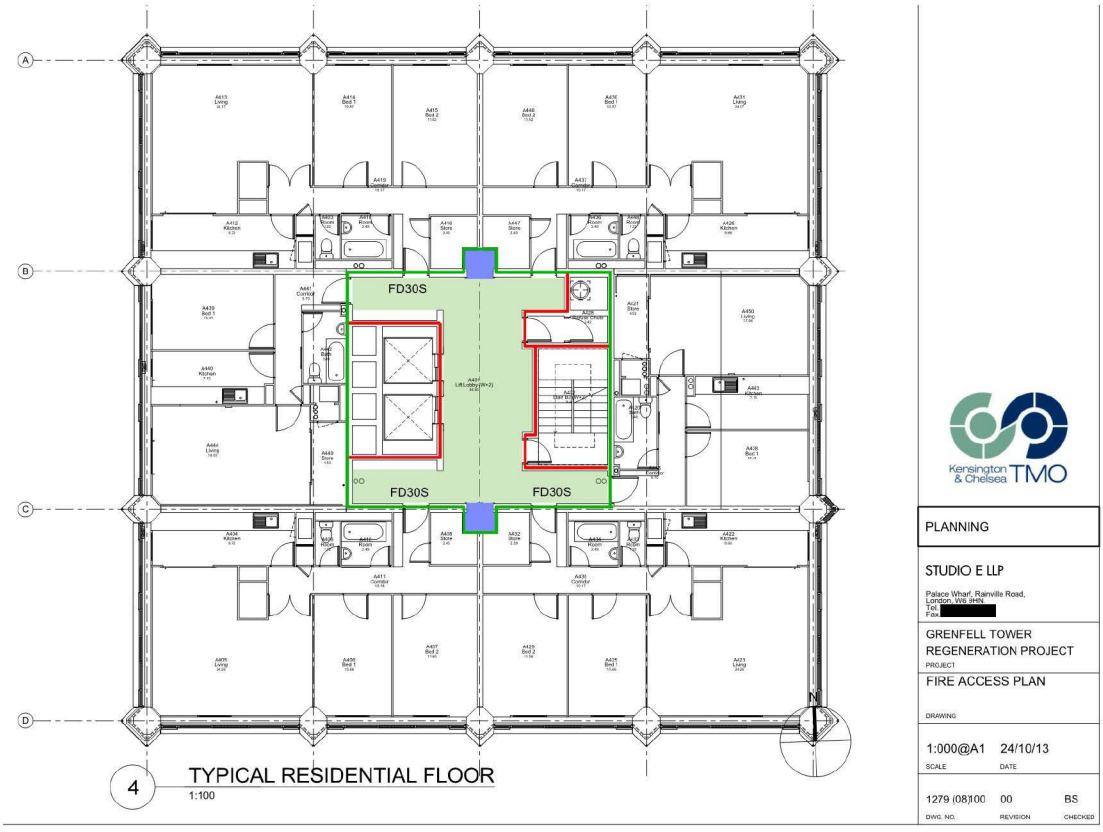


Figure 5.20: Extract from drawing 1279 (08)100 00 '*Fire Access Plan*' contained within the email dated 25.10.13 {SEA00000121}

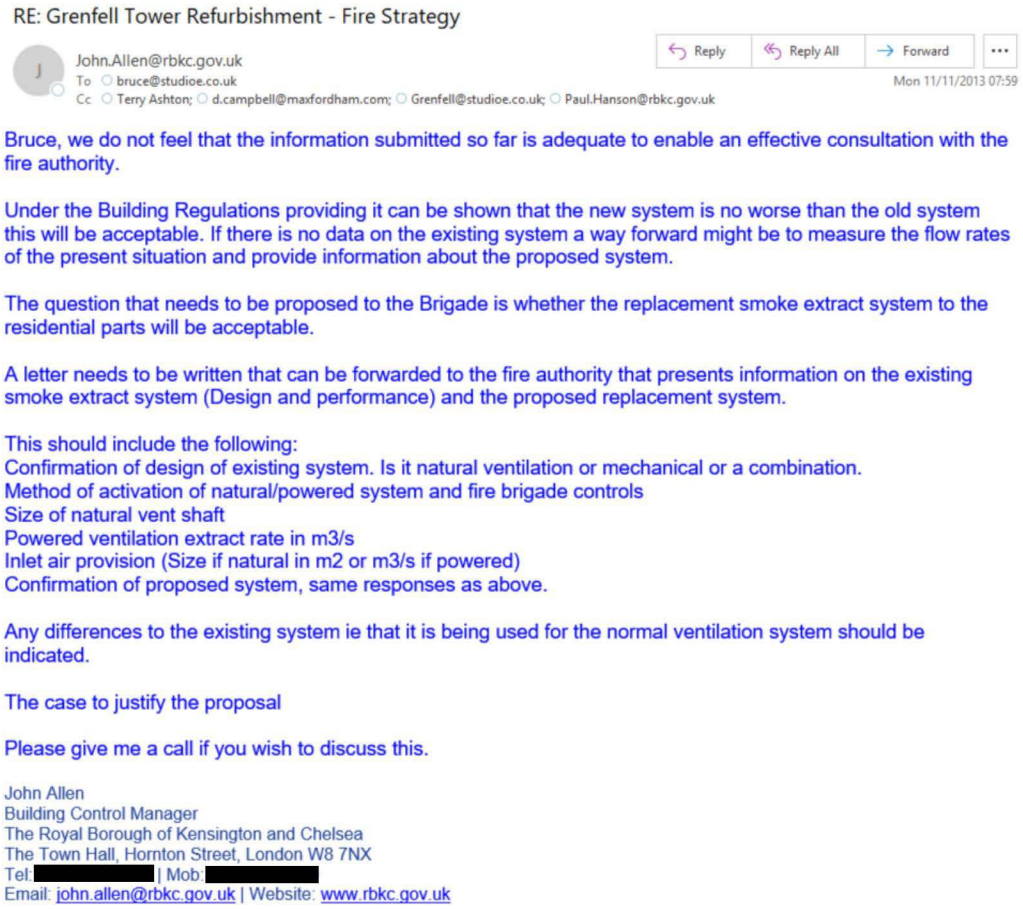
5.3.4 The two exhibits below show the title blocks of two of the drawings included within the information as sent by Studio E to Building Control under their email of 25 October 2013. These two drawings are listed in the email as '*1279 SEA (08) 100 Fire Access.pdf*' and '*1279 SEA (08) 101 Fire Strategy.pdf*'. However, both drawings are titled 'Fire Access Plan' and both are numbered 1279 (08) 100 {SEA00000123} {SEA00000122}. This raises questions over quality control with respect to Studio E documentation. For obvious reasons it is important that drawings are clearly and separately identified by discrete drawing titles and numbers that are applied with consistency throughout a project's life. It is also important that any revisions to drawings are clearly denoted at each time of re-issue. (Within Section 6 of this report I provide further commentary on Studio E's poor control / management of documentation).

Figure 5.21

Figure 5.22

Figures 5.21 & 5.22: Extracts from drawings 1279 (08) 100 00 '*Fire Access Plan*' and 1279 (08)101 00 '*Fire Strategy*' contained within the email dated 25.10.13 {SEA00000123} and {SEA00000122}

5.3.5 The email response (see Figure 5.2.3) from Building Control {RBK00002985} to Studio E's submission of 25 October 2013, dated 11 November 2013, clearly states that the '*information submitted so far is inadequate to enable an effective consultation with the authority*'. Even though this is at a stage of informal dialogue i.e. prior to the '*full plans*' submission, it represents an early warning to Studio E that a more substantial pack of information will be required by Building Control in order to process this application.



RE: Grenfell Tower Refurbishment - Fire Strategy

John.Allen@rbkc.gov.uk
To bruce@studioe.co.uk
Cc Terry Ashton; d.campbell@maxfordham.com; Grenfell@studioe.co.uk; Paul.Hanson@rbkc.gov.uk

Reply | Reply All | Forward | ...
Mon 11/11/2013 07:59

Bruce, we do not feel that the information submitted so far is adequate to enable an effective consultation with the fire authority.

Under the Building Regulations providing it can be shown that the new system is no worse than the old system this will be acceptable. If there is no data on the existing system a way forward might be to measure the flow rates of the present situation and provide information about the proposed system.

The question that needs to be proposed to the Brigade is whether the replacement smoke extract system to the residential parts will be acceptable.

A letter needs to be written that can be forwarded to the fire authority that presents information on the existing smoke extract system (Design and performance) and the proposed replacement system.

This should include the following:
Confirmation of design of existing system. Is it natural ventilation or mechanical or a combination.
Method of activation of natural/powered system and fire brigade controls
Size of natural vent shaft
Powered ventilation extract rate in m3/s
Inlet air provision (Size if natural in m2 or m3/s if powered)
Confirmation of proposed system, same responses as above.

Any differences to the existing system ie that it is being used for the normal ventilation system should be indicated.

The case to justify the proposal

Please give me a call if you wish to discuss this.

John Allen
Building Control Manager
The Royal Borough of Kensington and Chelsea
The Town Hall, Hornton Street, London W8 7NX
Tel: [redacted] | Mob: [redacted]
Email: john.allen@rbkc.gov.uk | Website: www.rbkc.gov.uk

Figure 5.23: Email correspondence between Building Control and Studio E {RBK00002985}

5.3.6 Studio E emailed Building Control on 3 December 2013 with what they refer to as an upgraded 'ground floor plan' as exhibited below {SEA00000157}. The drawing is still titled '*Fire Access Plan*', and still numbered 1279 (08) 100 Revision 00. It is however issued under the status of '*Employer's Requirements*' in lieu of '*Planning*' {SEA00000158}. This again raises questions over quality control with respect to Studio E documentation. For obvious reasons it is important that any revisions to drawings are clearly denoted at each time of re-issue.

Grenfell - updated Fire Access plan **Sent:** Tue 03/12/2013 12:14:54 PM (UTC)

From: Bruce Sounes

To: Paul.Hanson@rbkc.gov.uk

1279 SEA (08) 100 - Fire Access.pdf
391 KB

Dear Paul,

Please see attached the upgraded ground floor plan as discussed.

Regards

Bruce Sounes

For and on behalf of
STUDIO E LLP
Palace Wharf, Rainville Road, London W6 9HN
T [redacted] | F [redacted] | www.studioe.co.uk

Figure 5.24: Email correspondence between Studio E and Building Control {SEA00000157}

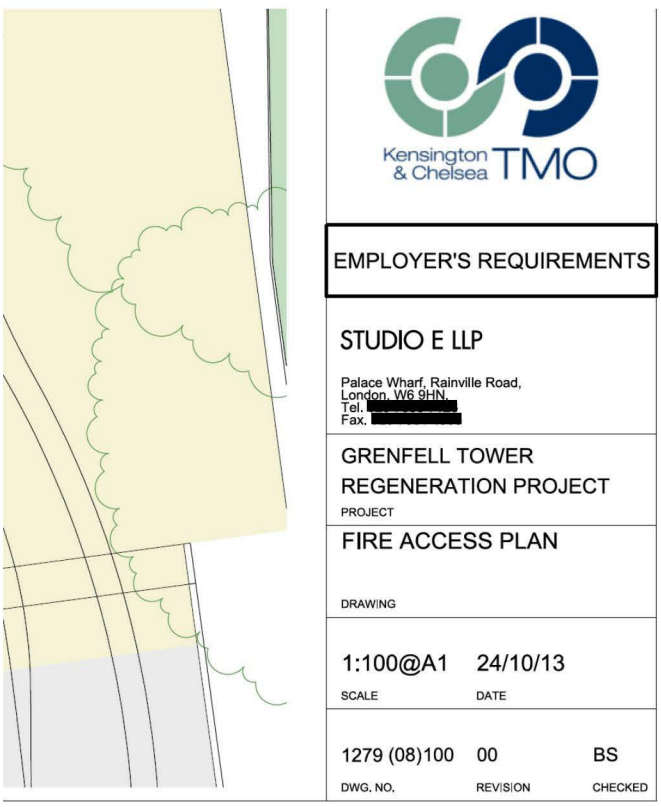
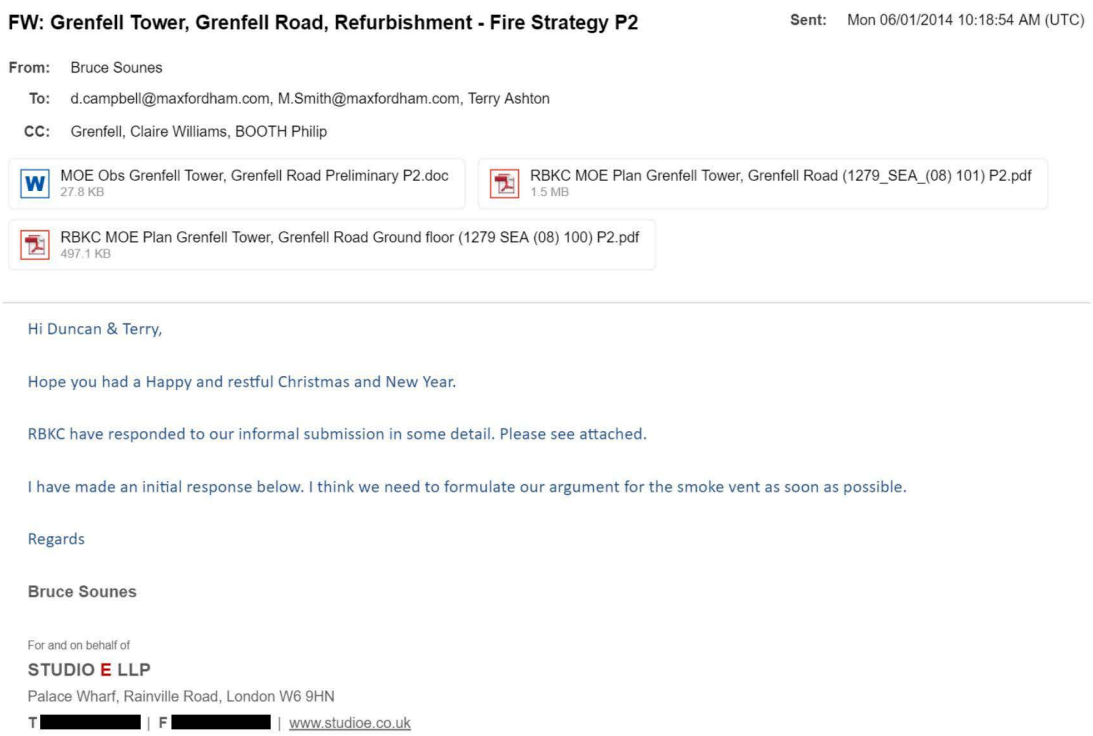


Figure 5.25: Extract from attached drawing 1279 (08) 100 '*Fire Access Plan*' contained within the email correspondence between Studio E and Building Control 03.12.2013 {SEA00000158}

5.3.7 On 6 January 2014 Studio E forwarded an email {SEA00010240}, as exhibited below, to Max Fordham and Exova. Attached to that email was a response that Studio E had received from Building Control in which the authority had made comments on the preliminary submission.



FW: Grenfell Tower, Grenfell Road, Refurbishment - Fire Strategy P2 Sent: Mon 06/01/2014 10:18:54 AM (UTC)

From: Bruce Sounes

To: d.campbell@maxfordham.com, M.Smith@maxfordham.com, Terry Ashton

CC: Grenfell, Claire Williams, BOOTH Philip

MOE Obs Grenfell Tower, Grenfell Road Preliminary P2.doc 27.8 KB

RBKC MOE Plan Grenfell Tower, Grenfell Road (1279_SEA_(08) 101) P2.pdf 1.5 MB

RBKC MOE Plan Grenfell Tower, Grenfell Road Ground floor (1279 SEA (08) 100) P2.pdf 497.1 KB

Hi Duncan & Terry,

Hope you had a Happy and restful Christmas and New Year.

RBKC have responded to our informal submission in some detail. Please see attached.

I have made an initial response below. I think we need to formulate our argument for the smoke vent as soon as possible.

Regards

Bruce Sounes

For and on behalf of
STUDIO E LLP
Palace Wharf, Rainville Road, London W6 9HN
T [redacted] | F [redacted] | www.studioe.co.uk

Figure 5.26: Email correspondence between Studio E and Building Control 06.01.2014 {SEA00010240}

5.3.8 Within the email chain circulated to the design team on 6 January 2014, as referred to above, appear the comments made by Building Control on 31 December 2013 in response to Studio E's preliminary submission. Examination of the Building Control email subject title, as exhibited below, indicates that the subject in question is '*Grenfell Tower, Grenfell Road, Refurbishment – Fire Strategy P2*' {SEA00010240}. However, the comments marked onto the Studio E Fire Strategy drawings by Building Control (as also exhibited below) refer to the comments as P1 {SEA00010243}. Little turns on this administrative error though it does indicate an ongoing sloppiness in the referencing of documentation, albeit on this occasion on the part of RBKC Building Control.

From: John.Hoban@rbkc.gov.uk [mailto:John.Hoban@rbkc.gov.uk]
Sent: 31 December 2013 11:57
To: Bruce Sounes
Cc: Paul.Hanson@rbkc.gov.uk
Subject: Grenfell Tower, Grenfell Road, Refurbishment - Fire Strategy P2

K:\SEA Projects\1279 Grenfell Tower\Cad\Visual\Consult In\RBKC Building Control\131231 Prelim comments

Dear Bruce,

The Building Regulations 2010 [as amended]
Grenfell Tower, Grenfell Road. London. W11.

Thank you for your preliminary submission. I have now been appointed the surveyor responsible for the part of Borough where your project is situated.

Please find attached marked up plans and observations relating to the fire strategy for the Grenfell Tower project, for your information / records.

Once you have had an opportunity to examine the attached information, please feel free to contact myself or Paul to discuss any of the points mentioned in the Councils schedule, or highlighted on the attached marked up plans.

Best wishes,

John Hoban
John Hoban
Senior Building Control Surveyor
[redacted]
john.hoban@rbkc.gov.uk

Figure 5.27: Email correspondence between Building Control and Studio E {SEA00010240}

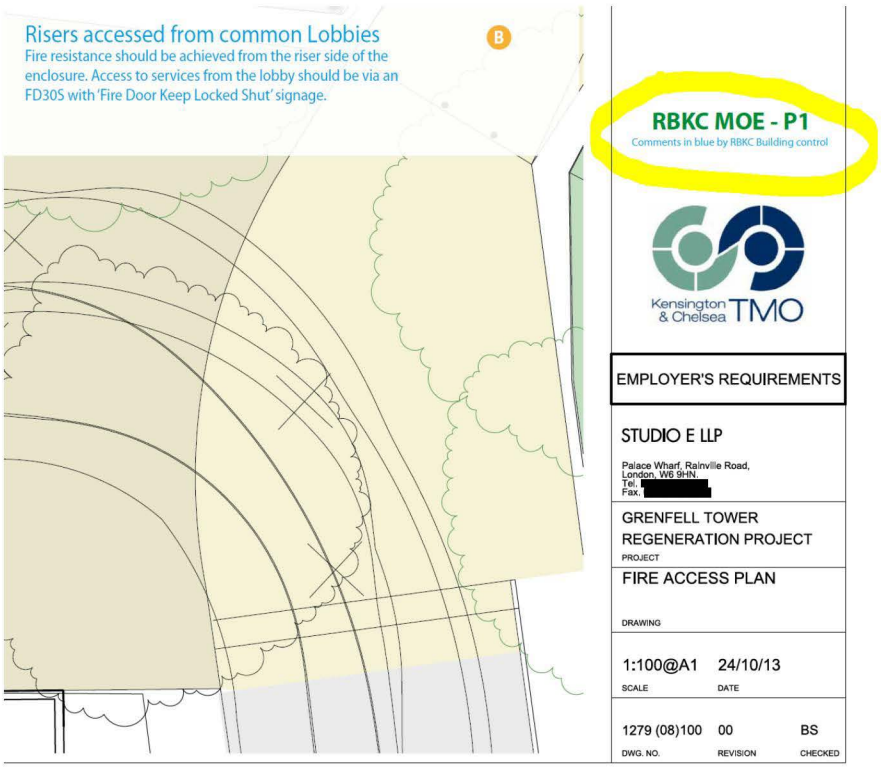


Figure 5.28: Extract from Studio E drawing 1279 (08) 100 00 with RBKC P1 Comments {SEA00010243}

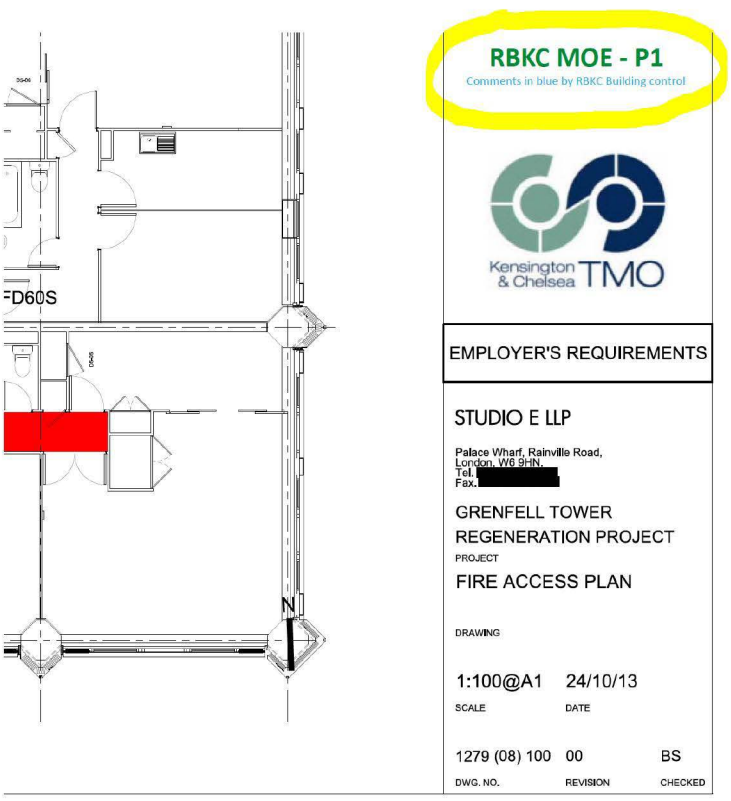


Figure 5.29: Extract from Studio E drawing 1279 (08) 100 00 with RBKC P1 Comments {SEA00010242}

5.3.9 The email of 31 December 2013 as exhibited above indicates Building Control's receipt of the information and their pre-application engagement in dialogue about the fire strategy information as provided by Studio E and the team. However, it appears that the fire strategy drawings do not at any point have notes or information relating to the envelope construction.

5.3.10 The internal Building Control memo between Paul Hanson and John Allen (both of Building Control) dated 6 December 2013 (exhibited below) that was contained within the email from Building Control to Studio E of 31 December 2013 {SEA00010240} also refers to '*P2*' which is again inconsistent with the associated mark ups which, as shown above carry the reference '*P1*' as allocated by RBKC {RBK00003867}.

FORM 53

MEMORANDUM

To: John Allen
cc:

From: Paul Hanson
Dated: 06/12/2013

B1 - MEANS OF ESCAPE OBSERVATIONS

PREMISES: Grenfell Tower, Grenfell Road
APP No: Preliminary
SUBMISSION No: Preliminary (P2)
DRAWINGNo:
Please also refer to marked up plan P2.

I make the following comments using Approved Document B and, where appropriate, BS 9991.

Figure 5.30: Extract from Internal Building Control Memorandum {RBK00003867}

5.3.11 The above email indicates that Building Control were discussing the proposals internally, although this example is in relation to ADB2 Section B1 (Means of Warning and Escape) and not to the envelope and external fire spread.

5.3.12 The above email chain suggests that there were not two separate P1 and P2 mark ups, but simply a contradiction between the memo and the mark ups. In Section 6 of my report I review and comment on Studio E's documentation management in terms of quality control.

5.3.13 Exhibited further below in this section is the RIBA Job Book output for Stage E which equates to Employer's Requirements Tender Documentation. In terms of what Studio E understood their scope of works to be I quote from paragraphs 229 and 241 of Mr Sounes' statement {SEA00014273} as follows:

P229: 'In the RIBA Plan of Work 2007, Stage E refers to "technical design" coming after Stage D (Design Development) and before Stage F (Production Information). To quote the RIBA Plan of Work: Stage E was intended "to co-ordinate components and elements of the project" and "for statutory standards and construction safety".'

241: 'Whilst Studio E had undertaken to prepare a RIBA Stage E tender package I believe what we produced was closer to RIBA Stage F1, albeit many aspects of the specification were expressly envisaged to be subject to the successful contractor proposing alternatives. The full NBS, schedules and details of internal areas meant that the contractor had clarity on the scope of work they were being asked to price.'

5.3.14 Two important points are evident from this quote:

a) Mr Sounes confirms his own understanding that his company had indeed been appointed to carry out work for the KCTMO up to at least Work Stage E.

b) Mr Sounes confirms that his firm carried out that work and beyond into Work Stage F1 whilst under the employ of KCTMO, because at paragraph 241 he clearly states that this work was provided in order for contractors to tender and the information produced for tendering was carried out, as we know, whilst Studio E were under the employ of KCTMO.

5.3.15 Further evidence in this respect is provided at the outset of Mr Sounes statement within paragraph 25 from which I quote as follows:

'.....My understanding of the KCTMO Appointment is that Studio E was to perform the services set out in the enclosures to the KCTMO Appointment, including, as requested by KCTMO to assist in finalising brief and feasibility options, outline design proposals (RIBA Stage C), detailed design including planning submission (RIBA Stage D) and technical design (RIBA Stage E) and preparation of the Employer's Requirements

5.3.16 On the basis of the above it seems to me that there can be no doubt that Studio E were commissioned by the TMO to provide full information, at least to the conclusion of Stage E of the RIBA Plan of Work, to a standard as defined by that plan.

5.3.17 The RIBA Job Book outputs for Stage E are shown below. I draw particular attention to bullet point 4: '*Full Plans submission for approval under Building Regulations*'. As I show within this section, aside from the fact that the technical work as developed for the over-cladding did not, in large parts, comply with ADB2 guidance, the scope of that work provided in terms of what was due at the end of this Snap-Shot stage (Employer's Requirements) was very much less than it should have been under Studio E's appointment to KCTMO.

5.3.18 Indeed, in this respect, Studio E were required to provide this work under both KCTMO and Rydon's appointment, and were paid fees for doing that work. However, it appears that such detailed work as was in each case contracted with respect to the over-cladding work (for example as listed under the Rydon Schedule of Architectural Services paragraph 31 (a) and (c)), was simply never carried out.

Stage E Output

Check that all the agreed outputs have been produced before the conclusion of Stage E, which might include the following:

- Detail design drawings. E/CM3
- Specification notes (prescriptive and performance) on materials and workmanship, and notes for draft preambles or preliminaries for Bills of Quantities/Specification/Schedules of Work.
- Further detailed information on proposals for existing, perhaps historic, buildings.
- Information for preparation of Full Plans submission for approval under Building Regulations.
- Non-production information for use in dealings with third parties, landlords, tenants, funders, etc (eg in connection with leases, boundaries, party walls, etc).
- Detail design information for incorporation into Employer's Requirements (part of Stage D–G). *(Employer Client)*

Design and build Further design development drawings and design team members' work on scheme submitted in the Contractor's Proposals (part of Stage D–E). *(Contractor Client)*

Figure 5.31: Extract from the RIBA Job Book for Stage E

5.3.19 In conclusion the following is evident for Snap-Shot 2:

a) Building Control had formally stated their view that the information as provided to them in November 2013 was inadequate to '*enable an effective consultation*'.

b) Information that was submitted by Studio E carried conflicting titles, drawing numbers and revision numbers.

c) As with Snap-Shot 1, I have found no evidence during Snap-Shot 2 (that is up to January 2014) that any documentation was submitted, or that any discussion took place between Studio E or any other member of the design team and Building Control with respect to the external envelope or over-cladding work.

d) On that basis it would appear that the tender information relating to the external envelope / over-cladding work that was issued to bidding Design and Build Contractors in January 2014 had never been discussed with Building Control.

e) Whilst I accept that under the RIBA Outline Plan of Work (as shown at Figure 4.3 and Appendix 2 of this report) makes it clear at the footnote to F1 that when appropriate the Building Regulations application may be made at a different (later) stage to suit the particular requirements of a project (this being particularly relevant to Design and Build procurement routes) it is clear to me that most of the work that would be required to inform such an application should be carried out under Work stages E and F1.

5.4 Snap-Shot 3: Harley Construction Documentation (April 14-2016)

5.4.1 The email from Studio E to Building Control dated 24 July 2014 {SEA00000175} informed Building Control that the architect had been novated to Rydon. It further confirmed that Studio E would be '*leading on gaining approval*'.

Grenfel Tower - Building Control Fees **Sent:** Thur 24/07/2014 10:32:32 AM (UTC)

From: Bruce Sounes
To: john.allen@rbkc.gov.uk
CC: Neil Crawford, slawrence@rydon.co.uk

John,

Further to Neil Crawford's email a week ago and my earlier call, please could you get in touch to discuss building control fees for the above project?

We understand that the client's budget is £8.5m. The application will be made by the design and build contractor, Rydon who are on site. Studio E's appointment has been novated to Rydon and we will be leading on gaining approval.

The fire strategy was a tricky subject and we would like to engage on this as soon as possible.

Many thanks

Bruce Sounes

For and on behalf of
STUDIO E ARCHITECTS LTD
310 Linton House, London SE1 0LH
T [redacted] | M [redacted] | www.studioe.co.uk

Figure 5.32: Email correspondence between Studio E and Building Control {SEA00000175}

5.4.2 The email evidences Studio E's understanding of their responsibility to Rydon under their Scope of Services for leading the Building Regulation approval process. I am particularly critical of the last sentence:

'The fire strategy was a tricky subject and we would like to engage on this as soon as possible'.

This is an ambiguous statement wholly unsuited in its casual use of language to a matter that required far greater precision and which, certainly with respect to the dialogue and consent process relating to the external envelope and over-cladding (essentially B3 and B4 of Schedule 1 of the Building Regulations), was long overdue in terms of attention and progress.

5.4.3 The email dated 4 August 2014 from Studio E to Building Control enclosing the Full Plans Application {RYD00014378}, as exhibited below, stated in its first paragraph that a *'hard copy'* of the application form and drawings were to follow.

Grenfell Tower Refurbishment

Sent: Mon 04/08/2014 1:53:27 PM (UTC)

From: Bruce Sounes
To: john.allen@rbkc.gov.uk
CC: Simon Lawrence

Full Plans Application - Grenfell Tower.pdf
240.7 KB

Dear John,

Further to your email lastTuesday please see attached the completed Full Plans application form for Grenfell Tower. Hard copy and drawings to follow.

As discussed I am sending this in advance so you can prepare an invoice for Rydon Maintenance for the relevant fee.

Regards

Bruce Sounes

For and on behalf of

STUDIO E ARCHITECTS LTD

310 Linton House, London SE1 0LH

T [redacted] | M [redacted] | www.studioe.co.uk

Figure 5.33: Email correspondence between Studio E and Building Control {RYD00014378}

5.4.4 The Full Plans Application Form, as submitted to Building Control, is exhibited below {RYD00014379}. It is signed by Mr Sounes of Studio E but is not dated. It seems likely that its date is that of the email under which it was sent, that is 4 August 2014, or some time shortly before. As such it was issued some weeks after building work had commenced on 2 June 2014. That is the date listed as the '*Contract Commencement Date*' in Rydon's Progress Reports the first of which covers the period up to 11 July 2014 / end of week 6.

DEPARTMENT OF BUILDING CONTROL
The Town Hall, Hornton Street London W8 7NX

Executive Director of Planning and Borough Development
Jonathan Bore

Building Control Manager
John Allen

THE ROYAL BOROUGH OF KENSINGTON AND CHELSEA

FULL PLANS APPLICATION

NOTES (Please read the notes before you fill in this form)	
1.	You must submit this application before the work starts on site.
2.	You will need to submit two copies of the plans. Further copies may be requested as required.
3.	You will need to notify us at least two working days before work starts on site. You can do this via email or telephone (see details at the end of this form)

1. Statement			
I am submitting these plans for the work described below in line with Regulation 12 (2)(b). I agree to the plans being passed with conditions.			
Name	BRUCE SOUNES		
Signature	BA Soumes	Date	
Company or organisation	STUDIO E ARCHITECTS LTD.		
Address	310 LINTON HOUSE, UNION STREET, SE1 0LH.		
		Postcode	
Email	bruce@studioe.co.uk.		
Phone number	[redacted]		

2. The building			
Address of building/site	GRENFELL TOWER, GRENFELL ROAD		
		Postcode	W11 1TQ
Date work will start	w/c 18 AUGUST 2014.		

3. Owner's details			
Name	CLAIRE WILLIAMS		
Address	KCTMO, NETWORK HUB, FIRST FLOOR, KENSAL ROAD		
		Postcode	W10 5BE
Email	clwilliams@kctmo.org		
Phone number	[redacted]		

4. Builder's details			
Name	SIMON LAWRENCE		
Company or organisation	RYDON MAINTENANCE LTD		
Address	RYDON HOUSE, STATION ROAD, FOREST ROW, EAST SUSSEX		
		Postcode	RH18 5DW.
Email	slawrence@rydon.co.uk.		
Phone number	[redacted]		

Figure 5.34: Extract from the Submitted Full Plans Application Form {RYD00014379}

5.4.5 As evidenced in the exhibits below Progress Report No. 1 {RYD00012259}, which records a '*contract commencement*' date of 2 June 2014, reported on progress up to 11 July 2014. That report both records in note form, and shows in the photographs incorporated within it (also exhibited below), substantial demolition works and the beginning of alteration works to the lower part of the building: a fully occupied residential scheme with some 120 flats in occupation and some 400 residents to which the Regulatory (Fire Safety) Order 2005 applied. In my opinion such work should not have been commenced ahead of submission of a properly prepared Full Plans application. I am extremely critical of both Studio E and of Rydon for allowing this state of affairs to arise.

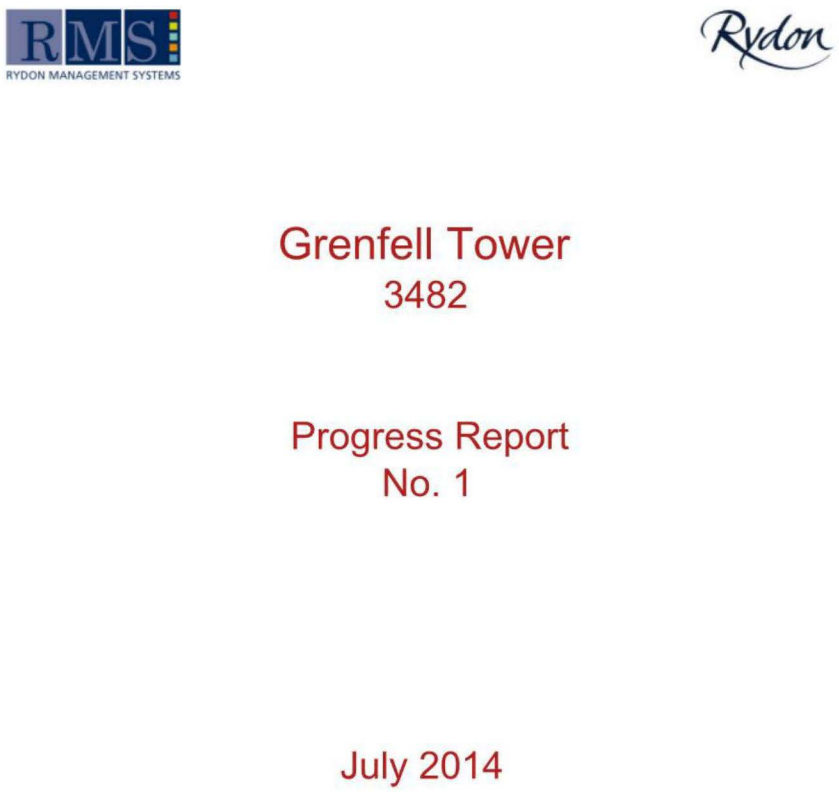


Figure 5.35: Extract from the Front Cover of Rydon Progress Report No. 1 {RYD00012259}

RMS
RYDON MANAGEMENT SYSTEMS

Rydon

Progress Report No.1

Report on Progress up to	Friday 11/7 /2011
Contract Commencement	: 2nd June 2014
Contract Completion	: 4 th September 2015
Contract Period	: 66 weeks
Programme Week	: 6
Progress Week	: 6
Time to Contract Completion	: 60 weeks
Inclement Weather to date	: None
Total inclement days to date	: 0 days

CON CM 05 Rev 01 / Aug 2010

Figure 5.36: Page 1 of Rydon Progress Report No. 1 Indicating Progress Summery up to 11/7/2011 {RYD00012259}

PHYR0000030_0045

External Ramp:
Demolition is completed to the west elevation external ramp area following boundary agreement with Bouygues.

Figure 5.37: Page 2 of Rydon Progress Report No. 1 Illustrating Demolition Progress {RYD00012259}

5.4.6 Also recorded, and shown in Progress Report No. 1, is a mock-up of a bay of the proposed new cladding and glazing system. Design development work on the ACP cladding was clearly well advanced at this stage yet it appears that no meaningful conversations, even at this late date, had taken place with Building Control with respect to the over-cladding proposals.

Cladding Mock up
The mock up of the proposed cladding system is now complete ready for viewing by the Planning Officers. It is situated above the South elevation walkway.

Figure 5.38: Page 3 of Rydon Progress Report No. 1 Illustrating the Cladding Mock-up {RYD00012259}

5.4.7 In view of the very tight timescales that would inevitably be involved as a result of the late clearance of the preferred ACP cladding system with the Planning Department it is my opinion that the failure to promote concurrent dialogue with Building Control on the over-cladding proposals was extremely unwise.

5.4.8 As an architect, I would never have allowed such circumstances to prevail. I am extremely critical of both Studio E and Rydon in this respect. Building Control officers carry onerous responsibilities combined, collectively, with enormous experience. As an architect I see it as my duty to provide Building Control with enough information in timely enough fashion for it to properly discharge its statutory function. I also see it as my duty to both my client and my company that I fully engage with Building Control in an orderly and timely manner so that my work, and the project information, is properly informed and assessed against the statutory requirements of the Building Regulations and the guidance in the Approved Documents, insofar as I am adopting that guidance as the basis for developing my work.

5.4.9 The Building Regulations are quite clear in terms of what is required. Regulation 12(3) states:

'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'.

5.4.10 In practice, as indicated above, and especially with respect to Design and Build procurement routes, it is simply not practical to submit all the detail required for a full plans application when that application is first made, as the required level of detail is usually not available. It is accordingly accepted practice that the '*Full Plans*' application contains general arrangement information sufficient to enable Building Control to understand the project in terms of scope and character. Thereafter, and as detailed above, subsequent information is formally supplied as further submissions under that Full Plans application. Any such information should be clearly marked as such when deposited. This is why the '*tracker*' process that I have mentioned elsewhere in this report is so important: effective management of information provided in this way is critically important in assisting Building Control to do its job.

5.4.11 In terms of the due timing of such a Full Plans application, Regulation 12(1) makes it very clear that:

'*This regulation applies to a person who intends to –*

(a) Carry out building work;'

5.4.12 The reference to '*intends to'* is repeated in Regulation 12(3): *'a person intending to....'*. To me it is abundantly clear from these two references that the Full Plans application complete with an appropriate level of supporting information as set out under Regulation 14 (3)(c) should have been issued before construction commenced. In my opinion, no responsible architect would condone the start of construction work, however preliminary its form, in circumstances where he/she was not absolutely confident that an ongoing dialogue had fully informed Building Control of the scope and character of the intended work and that the scope and character had in principle been understood and accepted by Building Control.

5.4.13 In that context I think that Studio E and Rydon should be severely criticised for not ensuring that a Full Plans application was submitted before any demolition work within the curtilage of the building began. I am even more critical that in the absence of such a Full Plans application, such design work and dialogue as had been ongoing was so evidently deficient in this respect. Comparison with what I have shown within my Indicative Approach at Section 3 herein gives clear guidance as to what I consider were the shortfalls: for example, there was no strategic resolution whatsoever of the cavity barrier provisions.

5.4.14 Such an application could have been made at the very least on the basis of the information that had been used for obtaining Design and Build tenders. Despite its deficiencies in scope, it would at least have served two useful purposes:

a) To clearly indicate the scope of work and general arrangements of the work;

b) Building Control would have had the opportunity to review and identify shortfalls and errors in terms of compliance with the Building Regulations and the guidance in ADB2. That Building Control may not have taken up that opportunity but that is not the point: they did not have the chance.

5.4.15 I also think that the Building Control Department should also be criticised, in this case for not using its influence to regularise the situation, first through firm dialogue and the exchange of letters with Studio E and Rydon and thereafter, if that proved inadequate, through direct communication with the KCTMO as ultimate client.

5.4.16 I would further point out that Progress Report No. 3 up to 12 Sept 2014 {RYD00017869} recorded internal works as being 5% complete – this, as I show below, being some 12 days before the drawings which were absent from the Full Plans Building Regulation Submission (of 4 August 2014) were dispatched on 24 September 2014. This serves to reinforce the commentary and criticisms that I have made above.

5.4.17 I quote below two paragraphs from John Allen's witness statement dated 25 November 2018 {RBK00033930} in which he describes the particular circumstances relating to Design and Build project information flows in relation to Building Regulation applications, and the '*typical process*' for checking a Building Regulation application as he understood it in relation to the work of his department:

'In recent years with "design and build", project information often arrived in stages throughout the build. Statutory time limits regarding approval or conditional approval or rejection were not usually adhered to in practice. In theory if no decision was made the application would be "deemed" approved but in reality no applicant ever took this point (sic)' (paragraph 14).

'As a Surveyor the typical process of checking a Building Regulations application would be to sort out the drawings you need to look at, look at each drawing, make a list as you go along, thinking through the building regulations and then usually write a letter suggesting amendments with a commentary that includes reference to the building regulations. For example, one might tell the applicant that they have not provided structural calculations (paragraph 15).

5.4.18 It may be that Mr. Allen will be able to provide a fuller description of the methodology of the RBKC Building Control Department with respect to its handling of applications, but on the evidence of the above quotations as taken from his statement I am concerned with respect to the following:

a) the casual nature in paragraph 14 of the use of the term *'not usually adhered to in practice'*. In my opinion the Building Control Department of a local authority should, in discharging its statutory duties, comply strictly with statutory time limits, and in particular, should ensure that confusion around the status of applications is avoided by the inconsistent application of rules.

b) I am particularly concerned to note, in paragraph 15 of Mr Allen's witness statement, the apparent lack of reference to any protocol with respect to checking applications, especially those for larger and more complex projects where the information, *'arrived in stages'*, as observed by Mr Allen in paragraph 14, quoted above. There is no reference anywhere in this statement to the setting up of a *'tracker'* as described in my introduction to this section. Without such a tool as a tracker that is properly maintained and updated, I simply cannot see how a building control department can manage and monitor a large application, especially one that is submitted in stages.

c) It is important to note that Mr Allen and his colleagues would most likely have been working on a number of applications concurrently: this would make the need for a management tool such as a *'tracker'* all the more necessary.

d) Mr Allen's stated methodology of *'sort out the drawings you need to look at, look at each drawing, make a list as you go along, thinking through the building regulations'* (paragraph 15, quoted above) is, in my opinion wholly inadequate for a large and complex application. Such an application needs to be checked systematically and discretely against the various components of the regulations – for example against Part L, against Part B and so forth. Further systematic checking within the various parts of the more complex legislation is also required in terms of methodology; for example discrete checking against Part B1 (Means of warning and escape), Part B2 (Internal fire spread (linings), B3 (Internal fire spread (structure), Part B4 (External Fire Spread (sic)) and finally, Part B5 (Access and facilities for the fire service).

5.4.19 When contemplating the task involved in receiving and processing a Building Regulations application, particularly one for a project of the scale and complexity of the 2012-16 Works, I simply cannot equate Mr Allen's statement that he would *'make a list as* [he went] *along'* with anything that I could consider adequate as a process. In my experience the Building Regulations and the Approved Documents are complex and nothing short of a systematic and rigorous approach with respect to their implementation can suffice – either in the preparation of a design and application for consent, or in the corresponding process of receiving and checking such an application.

5.4.20 Below I exhibit a copy of an email dated 3 September 2014 {RYD00016989} from Simon Lawrence (Contracts Manager, Rydon for the 2012-16 Works) to Building Control.

Grenfell Tower Project

Sent: Wed 03/09/2014 8:55:21 AM (UTC)

From: Simon Lawrence
To: John.hoban@rbkc.gov.uk
CC: Simon O, Connor, Neil Crawford, Bruce Sounes

Morning John,

We haven't been introduced properly yet, but I am Rydon's Contracts Manager for the Grenfell Tower project. I understand that you dropped into our site office recently and had a brief introduction to the project and drawings from our Project Manager, Simon O'Connor. As you will have seen we are only carrying out site set up, the enabling works and demo at the moment. As per today's email about the Dry Riser you will be aware that we are now carrying out the design element. So engagement with yourself through this phase will be essential for all parties. To be honest we would have liked to have got yourself on board earlier but there has been some Client design changes which we were hoping to confirm before our application so as not to confuse issues in the future. Also I can confirm that your invoice has now been processed by us and the full payment was returned to yourselves earlier this week. However if you have any queries with it then please let me know.

Studio E are our Architects, lead designers who will forward all relevant drawings, etc in the future. I believe you already know them from your work on the KALC project next door so hopefully this will make things easier. I will ask them to arrange a meeting with yourself on site shortly.

Kind regards

Simon Lawrence, ACIOB, MInstLM
Contracts Manager
T [redacted]
M
Rydon Construction Ltd

Rydon
www.rydon.co.uk

Figure 5.39: Email correspondence between Rydon and Building Control {RYD00016989}

5.4.21 I am critical of the above email because comments such as *'...so engagement with yourself through this phase will be essential'* and *'to be honest we would have liked to have got yourself on board earlier but there were some client changes that we would have liked to confirm before our application'* are in my opinion wholly inappropriate. On the basis that a Full Plans application had been submitted 1 month earlier with no plans, and that supporting general arrangement drawings were still some three weeks from being submitted, I believe that the tone of Mr. Lawrence's letter implies a lack of respect for proper process and for the authority of Building Control.

5.4.22 This is the Contracts Manager of a Design and Build company who is responsible for overseeing a Building Regulations application on behalf of his client. He is writing in connection with a Full Plans application that had been issued some 45 days (6 weeks plus) earlier. That application was undated and incomplete in that it had no drawings attached. In this respect those drawings had still to be issued, as the email's author should well have known. In those circumstances, I do not understand how the comment '*...would have liked to have got yourself on board earlier...*' could have been written. Dialogue with Building Control had been established for a period of over two years since Max Fordham's first email of 29 August 2012. The issue that Mr. Lawrence should have addressed was what was being done to remedy the fact that the Full Plans application remained incomplete and wholly inadequate in its content.

5.4.23 Mr Lawrence's email of 3 September 2014 did, however, confirm his understanding that Studio E were responsible for forwarding to Building Control all relevant drawings.

5.4.24 The following email chain {SEA00011730} as exhibited below between, respectively, Mr D Anketell-Jones (Harley), Mr Crawford (Studio E), and Mr Ashton (Exova) all on 18 September 2014 is indicative of an ongoing and, as further exhibits below will show, growing confusion relating to the requirements of the Building Regulations and the application of the guidance contained within ADB2 to the construction of the new over-cladding.

From: Daniel Anketell-Jones [mailto:Daniel@harleycw.co.uk]
Sent: 18 September 2014 16:03
To: Neil Crawford
Cc: slawrence@rydon.co.uk; Simon O'Connor (SOConnor@rydon.co.uk); 1279 Grenfell Tower; Kevin Lamb
Subject: RE: Grenfell Tower Cavity Fire barriers

Neil,

Thankyou for your response.

The insulation is class 0. Therefore after reading the correspondence below; I believe that the fire barrier in these locations, will not be necessary.

Can you confirm that this is acceptable?

Kind Regards

Daniel Anketell-Jones
Design Manager

From: Neil Crawford [mailto:Neil@studioe.co.uk]
Sent: 18 September 2014 16:07
To: Terry Ashton
Subject: FW: Grenfell Tower Cavity Fire barriers

Terry

Is this interpretation correct (see below)?

Regards
Neil

From: Terry Ashton [mailto:Terry.Ashton@Exova.com]
Sent: 18 September 2014 16:21
To: Neil Crawford
Subject: RE: Grenfell Tower Cavity Fire barriers

Neil

A material which has a Class 0 rating is not necessarily non-combustible although the reverse is invariably true. Some Class 0 products will burn when exposed to a fully developed fire. In any case, you need to prevent fire spread from on flat to the flat above as I stated in my earlier email. What isn't clear from the information to hand is whether or not there is a continuous cavity from top to bottom in any part of the cladding (apart from around the column casings) irrespective of the type of insulation?

Kind regards

Terry

Terry Ashton: *Associate*, **Fire Engineering (Europe)**
Exova Warringtonfire
T: [redacted] M: [redacted]
Exova

Figure 5.40: Email chain correspondence between Harley, Rydon, Studio E and Exova {SEA00011730}

RE: Grenfell Tower Cavity Fire barriers

NC

Neil Crawford <Neil@studioe.co.uk>

To Terry Ashton

Cc Daniel Anketell-Jones; slawrence@rydon.co.uk; Simon O'Connor (SOConnor@rydon.co.uk); Kevin Lamb; **+1 other**

18/09/2014

Hi Terry

Thank you.

Daniel,

Can you confirm your position in relation to Terry's comment below regarding combustibility and continuous cavity paths. Having just finished several weeks of fire stopping checks on the Kensington Aldridge Academy where John Hoban crawled into almost every conceivable cavity possible with a torch (including nearly falling through a suspended ceiling!) we need to be clear on our position before going to building control.

Regards
Neil

Figure 5.41: Email chain correspondence between Harley, Rydon, Studio E and Exova {SEA00011730}

PHYR0000030_0054

5.4.25 I make the following comments about the above email chain:

a) Mr D Anketell-Jones, as the Design Manager for a specialist cladding company, should have understood that the guidance of ADB2 was that insulation should be of *'limited combustibility'* in accordance with paragraph 12.7. He should have known that a Class 0 material would not necessarily have met that quite separate qualification. He should also have known that *'fire barrier'* is not an adopted term within the Building Regulations. If, in this respect, he meant cavity barriers, he should have known that the requirement, or otherwise, of cavity barriers in terms of satisfying the guidance of ADB2 was completely unrelated to the classification of the insulation in terms of its fire rating or combustibility.

b) Mr Crawford demonstrates an unacceptable lack of understanding in his subsequent email to Mr Ashton of Exova (16.07) by asking *'Is this interpretation correct*?' As evidenced at paragraph 406 of Mr Sounes statement {SEA00014273} Mr Crawford (had begun) *'to take a role as Studio E's day to day contact on the Project'.* I note from Mr Crawford's Statement that although he has *'over 21 years of practical experience'* following graduation from the Mackintosh School of Architecture, he is not a registered architect having not taken his Part 3 examination {SEA00014275}.

c) The RIBA Part 3 course involves a rigorous programme of study that focuses on Building Regulations, Contracts and Administration. Parts 1 and 2 focus on matters of design and construction. Against that, I also note that Mr Crawford states at paragraph 21 of his witness statement to have held a senior position at Foster + Partners Architects, one of the world's leading architectural firms, where he – according to his statement – *'ran jobs of various sizes and capacities, including the Hardman Square project where I was involved from inception to completion and on cladding issues'* {SEA00014275}. Despite his apparent lack of formal training in Part 3, I would expect Mr Crawford, based on his experience at Fosters overseeing cladding work, to have well understood that Mr D Anketell-Jones' email betrayed a fundamental failure to understand the guidance in ADB2.

d) Mr Ashton's response, as a specialist fire consultant, is surprising because he: i) does not draw to the attention of all parties that the insulation must be of 'limited combustibility' in accordance with ADB2 paragraph 12.7 and ii) enquires about whether there is *'a continuous cavity from top to bottom in any part of the cladding (apart from around the column casings) irrespective of the type of insulation?.* I infer from the reference to *'apart from the column casings'* that Mr Ashton believed that such a cavity within the column casings would have been permissible when it would, on the contrary, have represented a fundamental and unacceptable departure from the guidance in ADB2 paragraph 9.3(a) and Diagram 34.

e) As I stated in Section 4, the extraordinary and disturbing point here is that, even at this late date with construction already well underway, there seems to be a fundamental lack of clarity about what the essential principles of the design should be with respect to compliance of the insulation and the cavity barriers (in terms respectively of choice of material and extent/position) with ABD2 guidance and the requirements of the Building Regulations.

f) The speed of this email traffic is also notable and disturbing: a mere 4 minutes and 14 minutes respectively between the first, second and third emails. This clearly suggests to me that insufficient care and consideration was being given to questions at hand.

g) The final email in the chain, Mr Crawford to Mr Ashton dated 18 September 2014, is indicative of a growing tendency during this stage of this project to 'buck-pass', and an abrogation of responsibility on the part of Studio E. The first sentence in which Mr Crawford asks Mr D Anketell-Jones to *'confirm your position'* is, in my opinion, entirely inappropriate in circumstances in which Studio E as architect was responsible ultimately for ensuring *'that all designs comply with the relevant Statutory Requirements'.* Studio E should have taken the lead in resolving this matter many months back and certainly before the Full Plans application was submitted some 5 plus weeks earlier.

5.4.26 The email exhibited below dated 18 September 2014 from Mr Crawford at Studio E to Mr Lawrence of Rydon {SEA00011707} provides further evidence of the general confusion and poor state of progress with respect to Building Regulation compliance some 16 weeks into the 66-week contract – that is 24% in.

Building Control **Sent:** Thur 18/09/2014 11:08:35 AM (UTC)

From: Neil Crawford
To: slawrence@rydon.co.uk
CC: 1279 Grenfell Tower

RBKC MOE Plan Grenfell Tower, Grenfell Road (1279_SEA_(08) 101) P2.pdf
1.5 MB

RBKC MOE Plan Grenfell Tower, Grenfell Road Ground floor (1279 SEA (08) 100) P2.pdf
497.1 KB

Simon

Not sure if you are aware of these building control preliminary observations that were made at the end of last year (attached).
They raise a number of concerns in relation to additional doors/ specification fire ratings/ venting. They will also have ironmongery implications.

Based on our experience at KALC where the process dragged on over a long period I am keen to sit with John and Paul and go through these issues and clarify them all in order to eliminate risk.
Before doing this I think it would be good to re-appraise the Fire Access Plans with revised drawings, but to do this it would be useful to know whether there had been any further clarity on the last proposals to EMB office area?

Regards
Neil

Neil Crawford
Associate

For and on behalf of
STUDIO E LTD
Unit 310 Linton House, 164/180 Union Street, London, SE1 0LH
T [redacted] | www.studioe.co.uk

Figure 5.42: Email correspondence between Studio E and Rydon {SEA00011707}

5.4.27 I comment in detail below on this email as follows:

a) Mr Crawford refers to P2 in both attachment references at the head of the email whereas as shown on the exhibits below in the drawing title block, in both instances Building Control have marked their comments on the Studio E drawings under the heading *'RBKC MOE-P1'* - the reference which I understand they applied to their preliminary response and commentary.

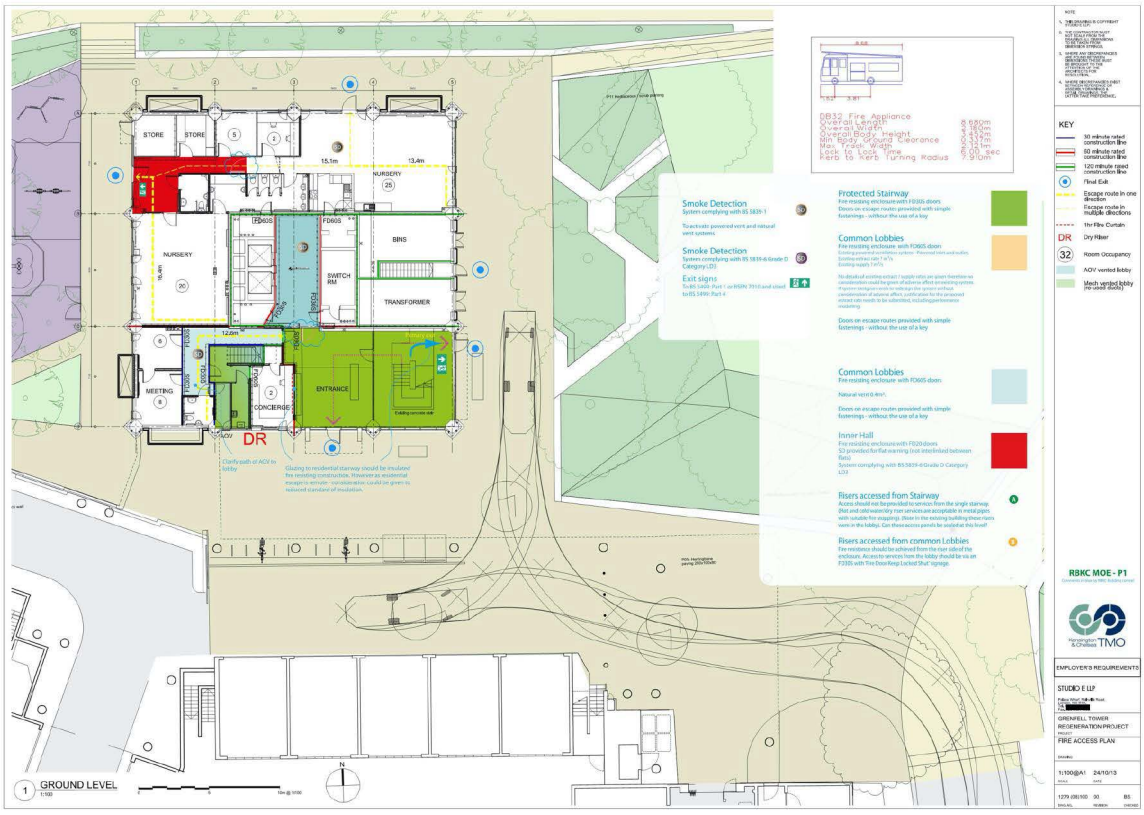


Figure 5.43: Studio E drawing 1279 (08) 100 – 00 '*Fire Access Plan*' {SEA00011709}

Figure 5.44: Studio E drawing 1279 (08) 100 – 00 '*Fire Access Plan*' {SEA00011708}

PHYR0000030_0058

b) I understand that both drawings at Figure 5.43 and 5.44 date back to 24 October 2013 – this is confirmed by the date marked in each respective title block. They appear to be the same drawings as attached to Studio E's email to Building Control on 25 October 2013 (see Figure 5.18, Figure 5.20, paragraph 5.3.4, and Figures 5.21 and 5.22 above). Figure 5.43 appears to be the same drawing as attached to Studio E's email to Building Control on 3 December 2013 (see paragraph 5.3.6, and Figures 5.24 and 5.25 above). Both Figures 5.43 and 5.44 also appear to be the same drawings as forwarded to the design team on 6 January 2014 (see paragraph 5.3.7 and Figures 5.26 to 5.29 above).

c) This suggests that there has been no further development of these drawings since Building Control last responded as noted above under paragraph 5.3.8 on 31 December 2013, some 9 months earlier.

d) Although it is clear that this email and attachment seeks to draw the attention of Rydon as Studio E's client (following novation) to Building Control's preliminary comments, and to draw their attention to the need to further advance dialogue with Building Control in order to '*eliminate risk*', it is clear to me that this communication is far too late in terms of its intention and far too narrow in terms of its scope. In short, the project at this time was far behind where it should have been in terms of design development, Building Control dialogue, and Building Regulation Full Plans documentation and submission.

e) Of particular note is that although the team had apparently seen fit to develop a full scale mockup of the proposed cladding / window arrangements as a basis for furthering the discussions with the Planning Department, no parallel work appears to have been carried out in terms of ensuring compliance with the requirements of the Building Regulations and ADB2.

5.4.28 The exhibit below comprises an email dated 24 September 2014 from Studio E to Building Control {SEA00000194} in which they forward what appears to be the first package of drawings to be formally issued in support of the undated Full Plans application form submitted under cover of Studio E's email of 4 August 2014.

Grenfell Tower Regeneration Project **Sent:** Wed 24/09/2014 3:29:51 PM (UTC)

From: Neil Crawford

To: john.hoban@rbkc.gov.uk

CC: slawrence@rydon.co.uk, 1279 Grenfell Tower, Paul.Hanson@rbkc.gov.uk

20140924 Building Control Set.zip
6 MB

John

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 levels 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 drawings 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
  1279 SEA (08) 101b - Fire Strategy-A1-000
- 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
  1279 SEA (06) 100 - Section A
  1279 SEA (05) 100 - Proposed South Elevation Rev01
  1279 SEA (05) 101 - Proposed North Elevation Rev01
  1279 SEA (05) 102 - Proposed East Elevation Rev01
  1279 SEA (05) 103 - Proposed West Elevation Rev01
  1279 SEA (04) 100 - Proposed Basement Plan
  1279 SEA (04) 101 Rev01 - Proposed Ground Floor Plan
  1279 SEA (04) 102 Rev01- Proposed Mezzanine Plan.pdf
  1279 SEA (04) 103 Rev01 - Proposed Walkway Plan.pdf
  1279 SEA (04) 105 - Proposed Residental Plan (W+2)
  1279 SEA (04) 108 - Proposed Roof Plant Plan
  1279 SEA (04) 109 - Proposed Roof Plan

Regards
Neil

Neil Crawford
Associate

Figure 5.45: Email correspondence between Studio E and Building Control {SEA00000194}

5.4.29 I am critical if this email because:

a) It does not state that it is a formal submission to be read as part of the Full Plans application.

b) The drawing list as incorporated into the email did not match the drawings submitted. In this respect the email lists a total of 20 drawings. In fact, only 19 were attached. Drawing 1279 SEA (08) 100 Fire Access is missing.

c) The email denotes five copies of dwg 1279 SEA (06) 100 Section A. This is clearly a mistake as it makes no reference to Sections B, E, F and G respectively drawing numbers 1279 SEA (06) 101 {SEA00010478}, 1279 SEA (06) 103 {SEA00002556}, 1279 SEA (06) 104 {SEA00002557}, and 1279 SEA (06) 105 {SEA00010481} (see also the Addendum to this section regarding the quality control of Studio E's documentation).

5.4.30 I exhibit below a list that my office has compiled with the drawings as were attached to the Studio E email of 24 September 2014 correctly listed and numbered.

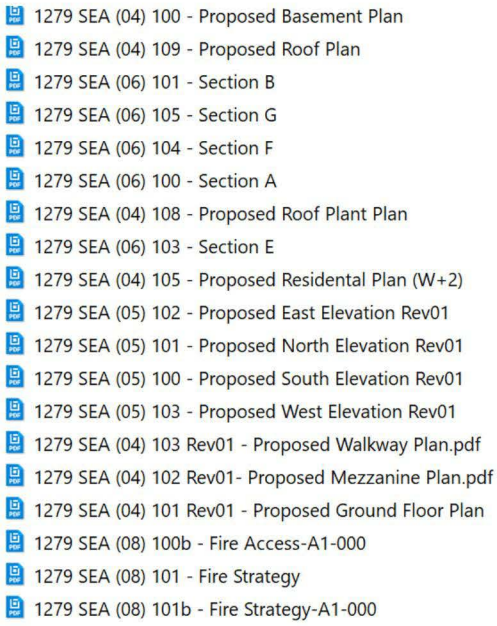


Figure 5.46: List of drawings contained within the zip file '*201409224 Building Control Set*' attached to the email between Studio E and Building Control {SEA00000194}

5.4.31 I am critical if this submission by Studio E because:

a) The level of information shown on the drawings and scope of drawings enclosed are, in overall terms, wholly inadequate for the late stage of the submission. For example, there is little information provided on the technical aspects of the external wall construction: that is the principles of the cladding details, insulation to the cavity, or cavity barrier arrangements in terms of position and strategy. It is notable in this respect that the scales of all drawings as listed for this submission are 1:100 and 1:50 – these are general arrangement drawings: there are no drawings of larger (more detailed) scale.

b) The legend to the elevations lists three principal cladding materials: Zinc Spandrel Panel Cladding, Aluminium Rainscreen Cladding and GRC Column Casing. Thus week 16 of the contract is indicative of the disarray in terms of design development and information: not only were there no details of these proposals but conversations were already well advanced at this time to switch the design to an all Aluminium Composite Rainscreen system.

c) In this respect Mr Sounes' witness statement {SEA00014273} states under paragraph 435:

'On 14 August 2014, Marc Watterson (KCMTO) emailed me to confirm that it appeared that the Champagne colour had been chosen for the cladding with cassette fixings {SEA00011475} although eventually the smoke silver metallic colour was picked'.

5.4.32 Against these developments in terms of dialogue with the Planning Department, and confirmation of specification changes with respect to the rainscreen cladding from zinc to ACP on 14 August, the information being submitted to Building Control some six weeks later is clearly out of date in its continued reference to zinc rainscreen cladding.

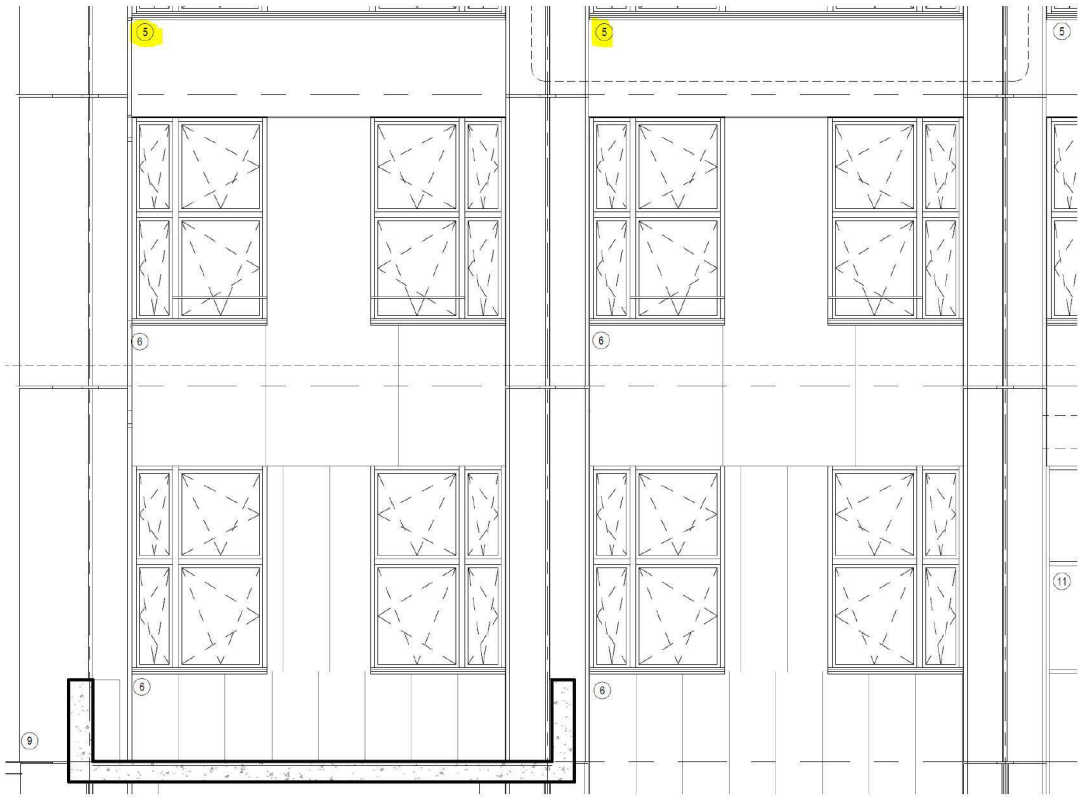


Figure 5.47: Extract from Studio drawing 1279 (05) 100-00 'Proposed South Elevation' illustrating zinc cladding {SEA00000202}

1. ALUMINIUM FACED INSULATED PANEL (L10 332)
2. CERAMIC COATED INSULATED GLASS UNITS (L10 333)
3. TOP HUNG WINDOW (HIGH LEVEL OPERATED BY TELEFLEX)
4. ALUMINIUM DOUBLE GLAZED FIXED UNIT (L10 331)
5. ZINC SPANDREL PANEL CLADDING - RESIDENTIAL FLOORS (H92 123)
6. ALUMINIUM RAINSCREEN CLADDING - WALKWAY+1, WALKWAY + MEZZANINE (H92 125)
7. ZINC CROWN ELEMENTS - CROWN ELEMENTS (H92 130)
8. ALUMINIUM DOUBLE GLAZED FIXED UNIT WITH PVB INTERLAYER (L10 331)
9. ZINC COLUMN CLADDING FIXED TO EXISTING COLUMNS (H92 120)
10. GRC COLUMN CASING (H40 130)
11. CURTAIN WALLING - RECEPTION LOBBY (H11 110)
12. RESTRAINT BAR

Figure 5.48: Extract from the Material Legend on Studio drawing 1279 (05) 100-00 '*Proposed South Elevation*' {SEA00000202}

5.4.33 A combination of the errors in listing the drawings, omissions to the drawing pack as submitted, inadequate explanation of the purpose of the drawings (that is as part of the formal Full Plans application), errors contained upon the drawings, general nature of the drawings and lack of detail provided within the drawings is all indicative of the general '*shambles*' that the project was in at this stage in relation to the Building Regulations consent process, the document control processes and the state of information pertaining to the envelope/over-cladding work.

5.4.34 This situation can only have frustrated Building Control in terms of its duty to discharge its statutory function. Responsibility for this poor state of affairs lay, at this time, squarely with Rydon as Design and Build Contractor, and with the novated architect Studio E.

5.4.35 The exhibit below shows extracts from drawing 1279 (06) 101 - 00 Section B {SEA00000207}. This was not listed in the body of the e-mail {SEA00000194} but nevertheless was contained within the pack of drawings sent to Building Control under cover of Studio E's email of 24 September 2014 {SEA00000194}. It provides an example of the lack of content on the drawings. By way of example there is little information in either drawn or noted form of the proposed over-cladding arrangements.

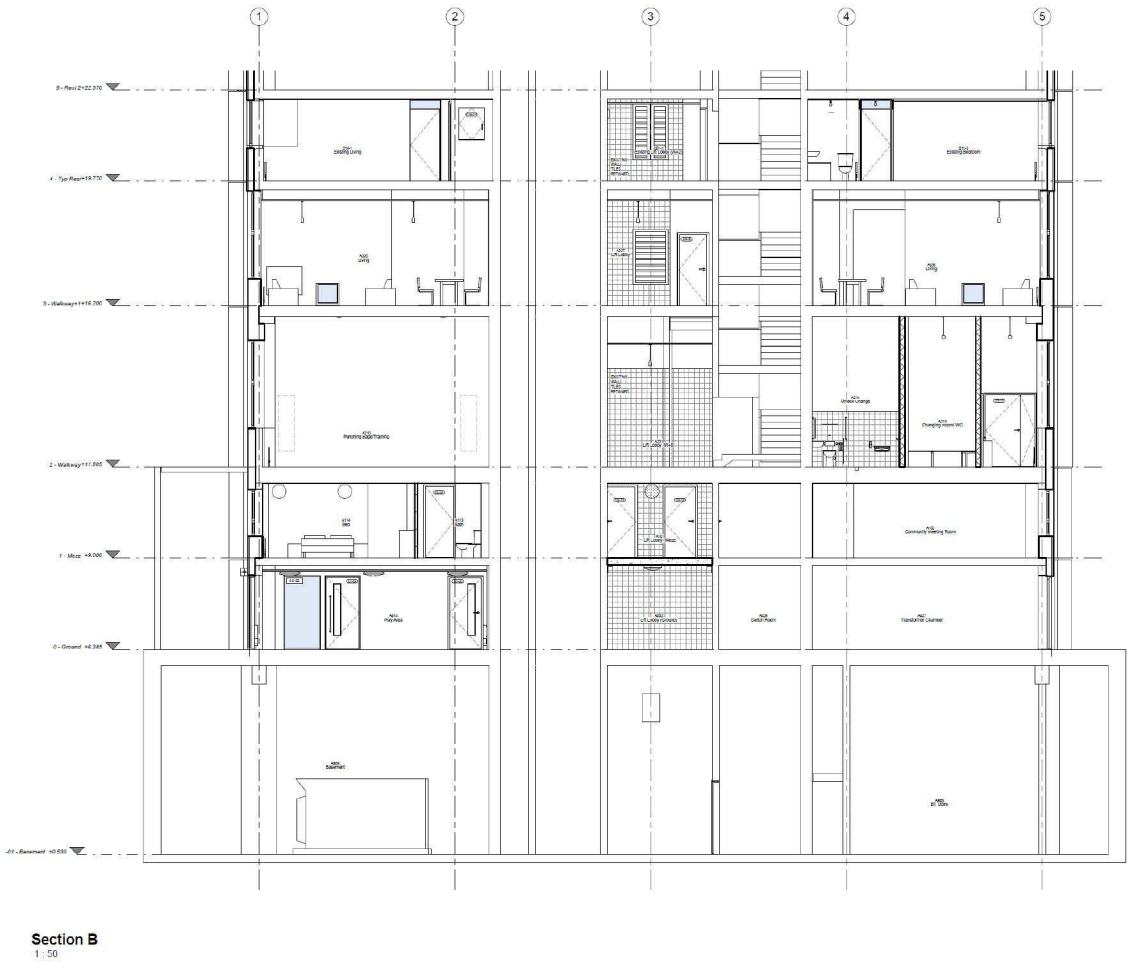


Figure 5.49: Extract from Studio drawing 1279 (06) 101-00 '*Section B*' {SEA00000207}

5.4.36 The exhibit below is taken from drawing 1279 (05) 101 -00 Proposed North Elevation {SEA00000203}, as contained within the pack of drawings sent to Building Control on 24 September 2014 {SEA00000194}. It indicates the materials to be used on the façade. Whilst the elevations include generic materials terms that include NBS specification references the NBS Specification was not included within the submission to Building Control. In addition, the section, elevation and fire strategy drawings do not include any reference to envelope cavity barriers. In my opinion the drawing submission of 24 September 2014 did not provide Building Control with adequate information to enable them review and assess the external envelope proposals in terms of their compliance with the requirements of the Building Regulations or the guidance contained within ADB2.

1. ALUMINIUM FACED INSULATED PANEL (L10 332)
2. CERAMIC COATED INSULATED GLASS UNITS (L10 333)
3. TOP HUNG WINDOW (HIGH LEVEL OPERATED BY TELEFLEX)
4. ALUMINIUM DOUBLE GLAZED FIXED UNIT (L10 331)
5. ZINC SPANDREL PANEL CLADDING - RESIDENTIAL FLOORS (H92 123)
6. ALUMINIUM RAINSCREEN CLADDING - WALKWAY+1, WALKWAY + MEZZANINE (H92 125)
7. ZINC CROWN ELEMENTS - CROWN ELEMENTS (H92 130)
8. ALUMINIUM DOUBLE GLAZED FIXED UNIT WITH PVB INTERLAYER (L10 331)
9. ZINC COLUMN CLADDING FIXED TO EXISTING COLUMNS (H92 120)
10. GRC COLUMN CASING (H40 130)
11. CURTAIN WALLING - RECEPTION LOBBY (H11 110)
12. RESTRAINT BAR

Figure 5.50: Extract from the Material Legend on Studio drawing 1279 (05) 101-00 *'Proposed North Elevation'* {SEA00000203}

5.4.37 The exhibit below shows a subsequent email dated 29 September 2014 {SEA00000215} under which Studio E forwarded to Building Control a copy of Revision 03 of the Exova Fire Strategy document dated 7 November 2013. The email states that the document was written prior to the Fire Strategy B changes. I do not understand what the comment *'which we will modify accordingly'* as contained within the email might mean.

RE: Grenfell Tower Regeneration Project **Sent:** Mon 29/09/2014 3:37:29 PM (UTC)

From: Neil Crawford

To: john.hoban@rbkc.gov.uk

CC: slawrence@rydon.co.uk, 1279 Grenfell Tower, Paul.Hanson@rbkc.gov.uk

MT14652R.Iss 03 - Grenfell Tower - OFSS.pdf
100.6 KB

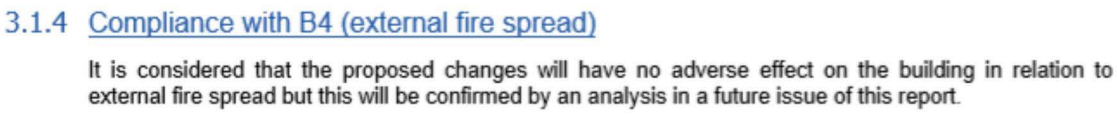
RE: Grenfell Tower Regeneration Project Fire Strategy Drawings- Minor revisions
48.2 KB

John

Please see attached the current Exova Study which was written prior to the Fire Strategy Rev B changes and also attached the correspondence with Exova relating to the Rev B changes which we will modify accordingly.

Regards
Neil

Figure 5.51: Email correspondence between Studio E and Building Control {SEA00000215}



3.1.4 Compliance with B4 (external fire spread)

It is considered that the proposed changes will have no adverse effect on the building in relation to external fire spread but this will be confirmed by an analysis in a future issue of this report.

Figure 5.52: Extract from Exova Fire Strategy Document Issue 03 contained within the Email Correspondence between Studio E and Building Control 29.09.2014 {EXO00001106}

5.4.38 This above email is evidence that Studio E issued the Exova Fire Strategy Report (Revision 03) to Building Control. The submission includes a statement that compliance with Building Regulation Requirements would be confirmed by an analysis in a future report. I have not seen any evidence to indicate whether the Building Control Officer noted this, made any comment, or requested a copy of that future report.

5.4.39 The exhibit below shows an email from Building Control to Studio E dated 18 November 2014 {RBK00002974}. It refers to the information sent on 24 September 2014 which Building Control designates as '*S1*'. This, as Mr Hoban states in his email, is a continuation of a process of comments referred to previously as P1 and P2.

From: John.Hoban@rbkc.gov.uk [mailto:John.Hoban@rbkc.gov.uk]
Sent: 18 November 2014 09:04
To: Neil Crawford
Cc: Paul.Hanson@rbkc.gov.uk
Subject: Grenfell Tower, Grenfell Road Regeneration Project MOE Obs Submission 1 Revised 2

Dear Neil,

The Building Regulations 2010 (as amended)
Grenfell Tower, Grenfell Road.

Thank you for your submission S1 for the above project.

A decision notice will be forwarded to you shortly on the proposals submitted.

As you have mentioned both Paul Hanson and myself have commented upon the scheme at preliminary stage which we identified as P1 and P2 submissions. Observations from Paul on the means of escape and fire fighting access for this submission are attached with marked up plans identified as S1.

As you have recently taken over the project I felt it would also be useful to highlight the most significant points below. They are also described in more detail in the observations and marked up on the plans.

Revisions to preliminary scheme:-

1. The revised residential use at walkway level opens directly into the stairway without a ventilated lobby – the plans have been marked up with a suggestion, to add a lobby.

2. Natural ventilated lobbies to non residential accommodation – the alterations to the scheme do not appear to have included the need for 0.4m² ventilated lobbies to the revised central connection from the single residential stairway to the boxing club at Walkway and office use at Ground levels.

Significant matters outstanding from preliminary scheme

3. The extract rate for the existing residential stairway lobby's to the newly extended residential units still needs to be justified by the design team.

Figure 5.53: Extract from Email Correspondence between Building Control and Studio E {RBK00002974}

5.4.40 The above email provides evidence that Building Control had accepted the Studio E submission of drawings under the email of 24 September 2014 as a bone fide supplement to the '*unaccompanied*' and undated Full Plans application form submitted on 4 August 2014. It is notable that this response was some 8 weeks after those Studio E drawings were submitted which, in the circumstances, was a disappointingly long response time.

5.4.41 I have highlighted the second sentence of the email in which Mr Hoban informs Studio E that a decision notice would '*be forwarded …. shortly on the proposals submitted*'.

5.4.42 It is notable that all comments within Mr Hoban's email relate to internal planning matters and services relating to the 2012-16 Works. He makes no reference to any of the external envelope matters as shown on the elevations and sections in Studio E's submission of 24 September 2014.

5.4.43 It is surprising that, at this time, Building Control still did not see fit to write expressing concern that no detailed or adequate information had been forwarded on the over-cladding proposals.

5.4.44 Despite the undertaking to provide a '*decision notice*' it seems that no such notice was ever issued against any of the submissions made by Studio E although, as I note at the conclusion to Snap-Shot 4, RBKC did ultimately issue a Completion Certificate.

5.4.45 On 18 November 2014 Studio E sent Building Control an email {SEA00000223} which contained initial drawings for the redesign of the window openings requesting comment on the general operation of them with respect to Approved Document K (Part K of Schedule 1 of the Building Regulations deals with protection from falling, collision and impact).

5.4.46 The following exhibit shows an extract from Studio E drawing 1279-SK112 {SEA00000230} as attached to the 18 November 2014 email {SEA00000223}. It is titled '*Reduced Window Opening Inward Opening Leafs Rev 01*' and the drawing illustrates the reduced opening width of the window in comparison to the current opening on the existing building. The email requests comment on the opening heights. The drawing illustrates the proposed detailed window arrangement and the proposed jamb, sill and head arrangements. It is notable however that the drawing contains no notes and the email does not make specific reference to the construction. This is information of the kind that I would have expected Studio E to have been issuing to Building Control some 12 months earlier as part of the P1 pre-application of Full Plans dialogue. In terms of its state of development it was wholly inadequate for this late (post Full Plans application) stage of the dialogue with Building Control.

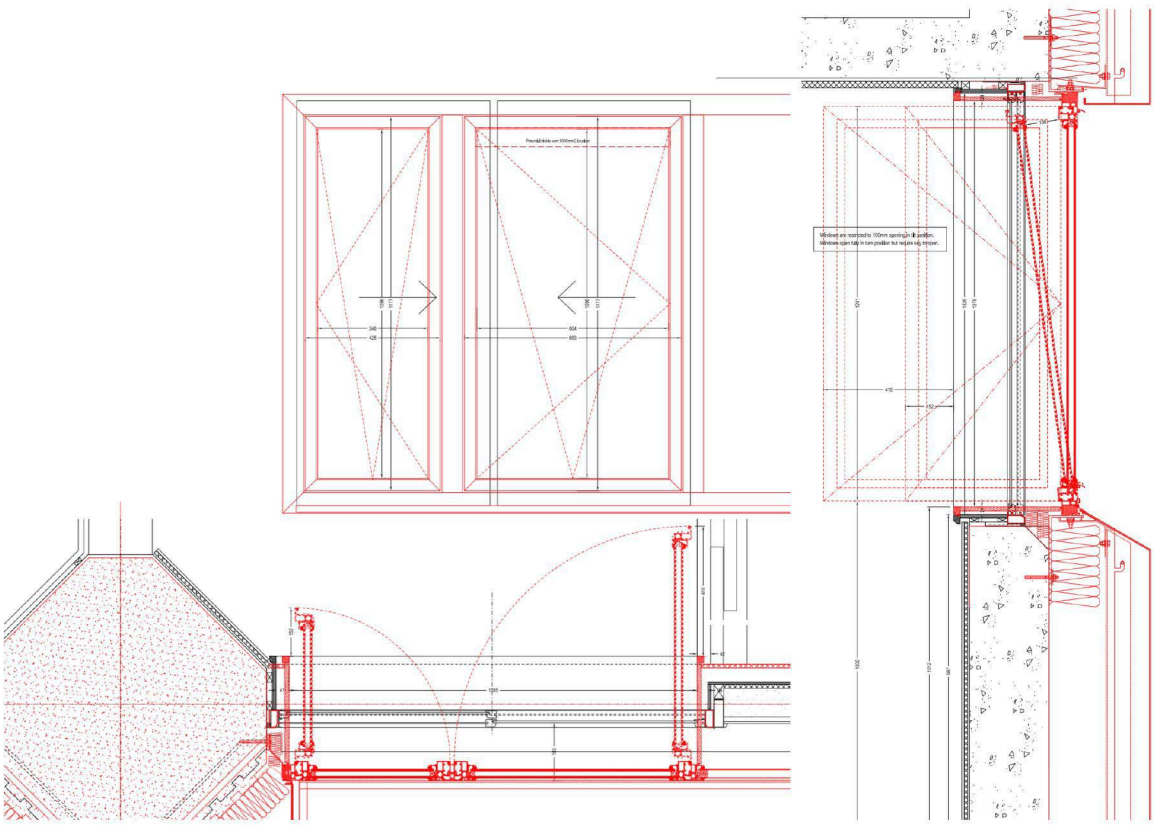


Figure 5.54: Extract of Studio E drawing 1279 SK 112 - 01 '*Reduced Window Opening Inward Opening Leafs*' {SEA00000230}

5.4.47 The exhibit below shows an extract from the revised Planning drawing 1279-PL-325 Rev 01 *'Proposed North Elevation'* {SEA00000228}. This drawing was included as an attachment to the email of 18 November 2014 which Studio E sent to Building Control {SEA00000223}. It seems to be the case that this drawing formed part of the information that was to be submitted for a Non-Material Amendment submission to the Local Planning Authority. The drawings indicate a change in the cladding material to *'Aluminium Composite Material'*. However, no details of the specification for the *'Aluminium Composite Material Rainscreen Panel' / 'Aluminium Interlocking Panel Rainscreen'* or *'Aluminium Cassette Rainscreen'* were enclosed. This proposed change was not formally noted or clearly brought to the attention of Building Control within this email.

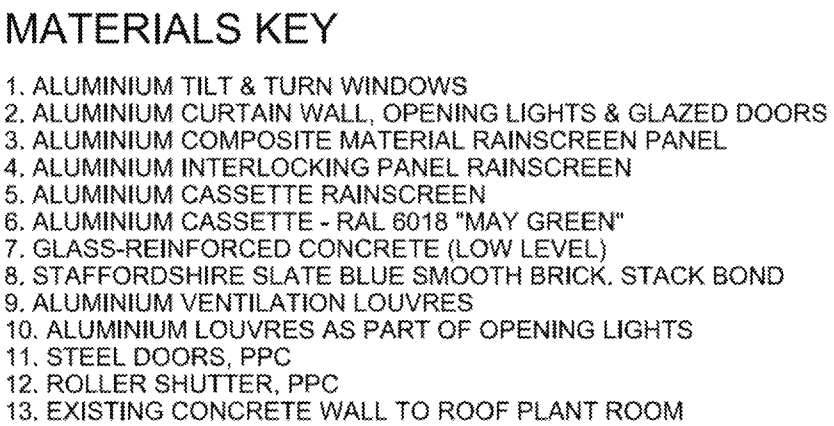
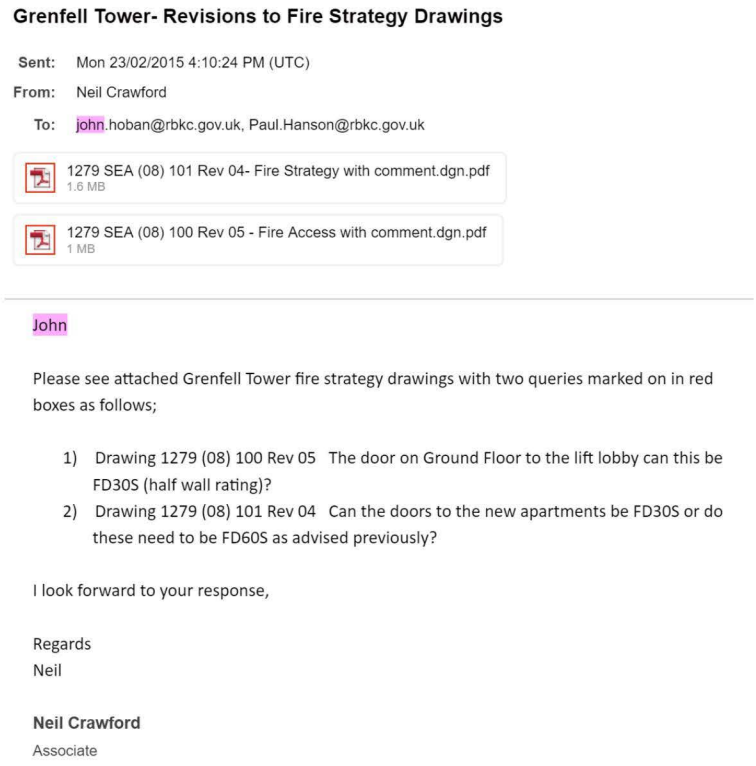


Figure 5.55: Extract from Studio E drawing 1279 PL 235 *'Proposed North Elevation'* {SEA00000228}

An issue of this significance should certainly have been brought clearly to the attention of Building Control through dedicated and discrete correspondence and documentation.

5.4.48 Whilst I acknowledge that the information sent to Building Control under the 18 November 2014 email does contain some more detailed information on the envelope construction, I am critical of Studio E for not specifically stating that the drawings were being formally submitted for review with respect to the façade construction as part of the Full Plans application. In addition, Studio E does not refer to the material changes as shown in the above exhibit and do not include any information that relates to such changes. As stated above, it is my opinion a change of such significance should have been brought clearly to the attention of Building Control with its own full and discrete package of information.

5.4.49 The email exhibited below dated 23 February 2015 from Mr Crawford of Studio E to Building Control {SEA00000244} contains further queries relating to the specification of doors in terms of meeting fire code requirements. Whilst this email serves as evidence of an ongoing dialogue with Building Control in terms of queries, it is surprising that no evidence exists of any parallel dialogue relating to the over-cladding proposals.



Grenfell Tower- Revisions to Fire Strategy Drawings

Sent: Mon 23/02/2015 4:10:24 PM (UTC)
From: Neil Crawford
To: john.hoban@rbkc.gov.uk, Paul.Hanson@rbkc.gov.uk

1279 SEA (08) 101 Rev 04- Fire Strategy with comment.dgn.pdf
1.6 MB

1279 SEA (08) 100 Rev 05 - Fire Access with comment.dgn.pdf
1 MB

John

Please see attached Grenfell Tower fire strategy drawings with two queries marked on in red boxes as follows;

1) Drawing 1279 (08) 100 Rev 05 The door on Ground Floor to the lift lobby can this be FD30S (half wall rating)?
2) Drawing 1279 (08) 101 Rev 04 Can the doors to the new apartments be FD30S or do these need to be FD60S as advised previously?

I look forward to your response,

Regards
Neil

Neil Crawford
Associate

Figure 5.56: Email Correspondence between Studio E and Building Control {SEA00000244}

5.4.50 The email exhibited below dated 6 March 2015 from Mr Crawford of Studio E to Paul Hanson of Building Control with Mr Hoban amongst those copied in {SEA00000252}, causes me concern at several levels.

PHYR0000030_0070

FW: Grenfell **Sent:** Fri 06/03/2015 3:49:56 PM (UTC)

From: Neil Crawford

To: Paul.Hanson@rbkc.gov.uk

CC: john.hoban@rbkc.gov.uk, slawrence@rydon.co.uk, Kevin Lamb (KevinLamb@harleycw.co.uk), Simon O, Connor (SOConnor@rydon.co.uk), Jason North (jnorth@rydon.co.uk)

855 C1059 GA Model 33 202C (1).pdf 275.4 KB

855 C1059 GA Model 33 201D (1).pdf 340.2 KB

855 C1059 GA Model 33 200I (1).pdf 372 KB

855 C1059 GA Model 33 100A (1).pdf 239.5 KB

855 C1059 Grenfell Tower Register Sht 1.pdf 114.6 KB

855 C1059 GA Model 33 305C (1).pdf 123.5 KB

855 C1059 GA Model 33 301E (1).pdf 211.1 KB

Hi Paul

Following our conversation this afternoon, this reminded me of another issue. Where we are over cladding what fire rating do we need to allow for within the wall build up between apartments (see below and attached)?

Regards
Neil

Figure 5.57: Email Correspondence between Studio E and Building Control {SEA00000252}

5.4.51 I comment with respect to those concerns as follows:

a) I am astonished that Mr Crawford should have written such a vague and imprecise email at this late stage of the project. To put it into context the author, who according to Mr Sounes' witness statement at paragraph 406 {SEA00014273} has been effectively in day to day charge of the project for some 8 months, is writing at around week 39 of a 66 week contract (that is some 60% of the way through the construction phase) to ask a question of the most fundamental kind about an issue that should have been firmly established prior to the release of Studio E's Stage D Report – that is almost two years prior back in August 2013.

PHYR0000030_0071

b) The email represents what is in my opinion a totally inappropriate type of communication with Building Control. Studio E is appointed architect on what is effectively a full service under a Design and Build contract. It should have been well within the firm's experience and capability to determine the performance requirements of the external wall as required in order to comply with the guidance in ADB2. They should not be asking Building Control's advice on such a mundane point.

c) It was not reasonable of Mr Crawford/Studio E to expect Building Control to answer such a poorly phrased question tendered on such a piecemeal basis. Whilst I know many construction professionals including architects find Building Control Officers to be very helpful, it is important to note that Building Control's function does not extend to '*spoon-feeding*'.

d) Mr Crawford's question is so poorly phrased as to be almost incoherent. It is imprecise in terms of location. I do not know what he is referring to in the phrase '*the wall build up between apartments*'. He mentions '*over cladding*' within the same sentence so I assume he is not referring to the internal compartment walls that divide flats. He may be referring to that part of the external wall where horizontal cavity barriers are required within the external cavities in positions that align with compartment floors. He mentions walls so it would appear he is unconcerned with this inquiry about the areas around columns.

e) He encloses a series of some 5 Harley drawings all of which are either stamped '*Issued for Approval*' or '*Approved for Construction*' {SEA00000253} {SEA00000256} {SEA00000258}. That stamp was apparently imprinted by Harley prior to issue of drawings to Rydon and/or Studio E. It is unclear as to whether the '*Issued for Approval*' or '*Approved for Construction*' stamp is indicative of the drawings being submitted by Harley in anticipation of Studio E approval (probable), or in the alternative whether they are issued in anticipation of Studio E forwarding them to Building Control for its approval (unlikely). In this context it seems absurd to me that Studio E should be submitting drawings stamped '*Approved for Construction*' as part of a package that appears to be requesting Building Control consent.

f) The important point is that Mr Crawford does not make clear within his email what he wishes or expects Building Control to do upon receipt of the package. In particular, he does not make it clear (if indeed that was his intention) that the drawings should be received as a further formal issue in relation to the Full Plans application of 4 August 2014 issued some 7 months hitherto. I am very critical of Mr Crawford in this respect. Building Control deserved better in terms of clarity of intent and expectation on the part of Studio E's submission.

g) Above all I am critical of the lack of any evidence, even at this very late stage in the project, of an overall and holistic assessment by Studio E of the external wall condition, or of any evident strategy for meeting the guidance in ADB2 and the requirements of the Building Regulations. There is no apparent connection being made between the respective parts of the ADB2 guidance in relation to the inhibiting of fire spread into and through the cavities as provided for by cavity barriers (paragraphs 9.2a. and 9.3a with Diagram 33 of ADB2), and the combustibility of materials within the wall construction.

5.4.52 On 6 March 2015, Mr Crawford emailed Mr Hanson of Building Control {SEA00000252} forwarding Mr Lamb's email dated 3 March 2015 to Mr Lawrence of Rydon {HAR00017738}. It appears that the issue about which Mr Crawford intended to seek Building Control's guidance was cavity barriers, incorrectly referred to as '*fire breaks*' by Mr Lamb of Harley.

From: Kevin Lamb [mailto:KevinLamb@harleycw.co.uk]
Sent: 03 March 2015 12:58
To: slawrence@rydon.co.uk
Cc: Neil Crawford; Bruce Sounes; Daniel Anketell-Jones; Mark Stapley; Rob Maxwel; Ben Bailey
Subject: Grenfell

Simon,

Please find attached drawings now showing the fire breaks, both horizontal and vertical.

We assume a requirement of 90min integrity & 30min insulation is sufficient, if not please advise.

The vertical breaks are not on all columns, just party walls.

Regards

Kevin Lamb
Project Designer

harley

T- [redacted]
F-
W- www.harleycurtainwall.com

Figure 5.58: Email Correspondence between Studio E and Building Control {HAR00017738}

5.4.53 What should have been abundantly clear to Studio E – and thereafter Building Control - upon receipt of the drawings attached to Mr Lamb's email {HAR00017738} is that the cavity barriers shown on the Harley drawings were not positioned in a way that achieved compliance with ADB2 – I discuss this issue further below.

5.4.54 Amongst the items issued under Mr Lamb's email of 3 March 2015 as forwarded to Building Control under cover of Mr Crawford's email dated 6 March 2015, was Harley drawing no. 855 C1059 100-A {HAR00017742} which provided the proposed specification against a list of components/products that Harley intended to incorporate within their work. Included in that list was 25 mm Styrofoam and 25 mm Kingspan TP10 Rigid Insulation to be used within the window infill panels. As stated, these are respectively Extruded Polystyrene Insulation (XPS) and phenolic insulation and neither meet the definition of '*limited combustibility*' as required to meet the guidance in paragraph 12.7 of ADB2.

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.

Figure 5.59 Extract from Harley Specification Sheet C1059-100-A {HAR00017742}

5.4.55 Whilst Building Control may be criticised for not identifying these products as non-compliant with the ADB2 guidance, I think any such criticism should be tempered by the fact that Studio E's management of the information flow, certainly in relation to the over-cladding work, was by now evidently incompetent for the reasons set out above. In my view Building Control submissions of all kinds, but particularly those relating to large and relatively complex projects such as the 2012-16 Works, should be made in a clear and ordered manner. That is why the tracker monitoring system that I referred to at the outset of this section is so important. But in order for that to be effectively operated it is essential that the applicant (in this case Studio E on behalf of Rydon) organises the submissions in a coherent manner and indicates clearly what is expected of Building Control upon their receipt. In this particular instance I think it would be reasonable to suggest that this drawing, along with all the others included in Mr Crawford's email of 6 March 2015 {SEA00000252}, did not constitute a part of the Full Plans submission as there was no reference to that submission within the covering email.

5.4.56 Below I exhibit examples of the drawings as issued by Harley that were attached to Mr Crawford's email of 6 March 2015 to Building Control {SEA00000252}. These drawings illustrate various parts of the new envelope over-cladding that would be subject to Building Regulation compliance such as horizontal and vertical cavity barriers and insulation to the window surround. All drawings that are illustrated below are noted either as '*Issued for Approval*' or '*Approved for Construction*' about which, in terms of ambiguity, I have commented above.

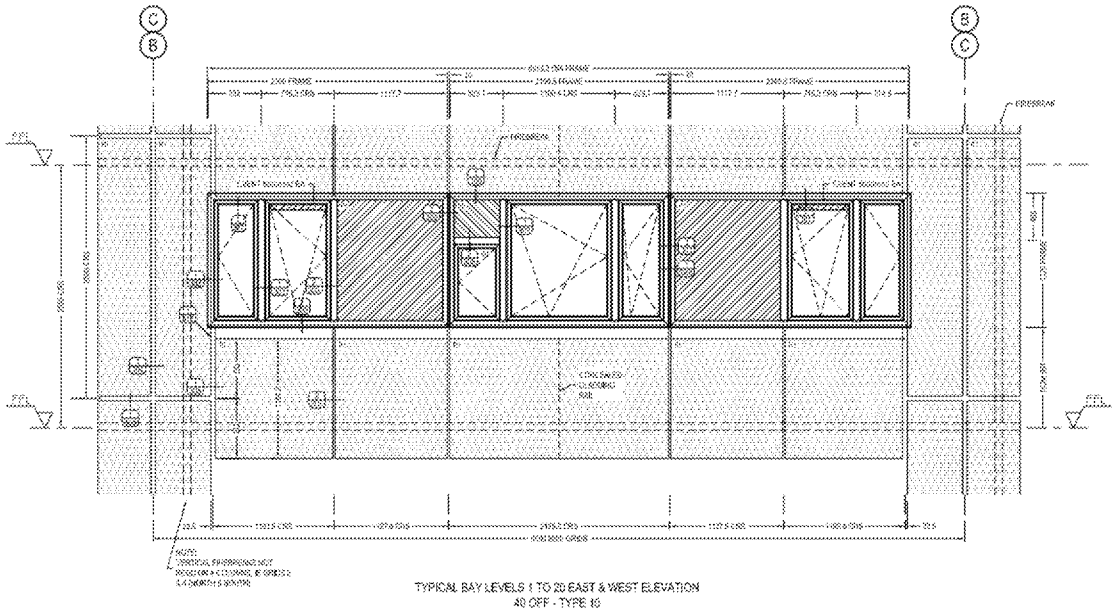


Figure 5.60 Extract from Harley Drawing 855 C1059-200I {HAR00003953}

PHYR0000030_0075

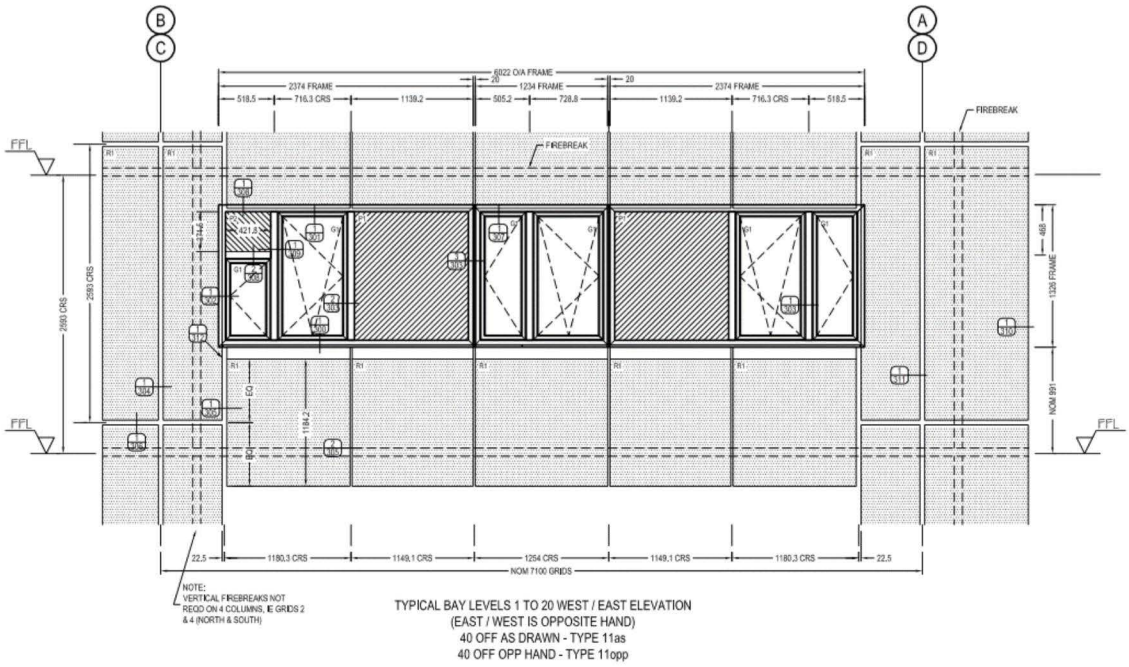


Figure 5.61 Extract from Harley Drawing 855 C1059-201D {HAR00003953}

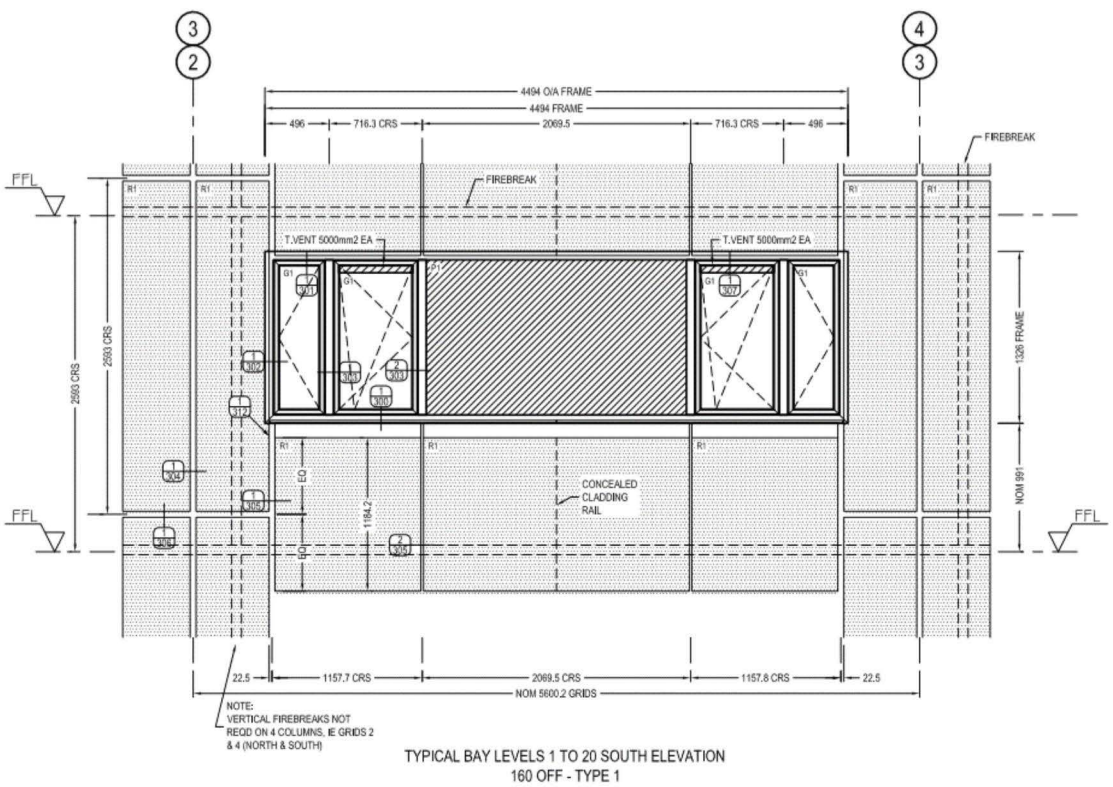


Figure 5.62 Extract from Harley Drawing 855 C1059-202-C {HAR00003952}

PHYR0000030_0076

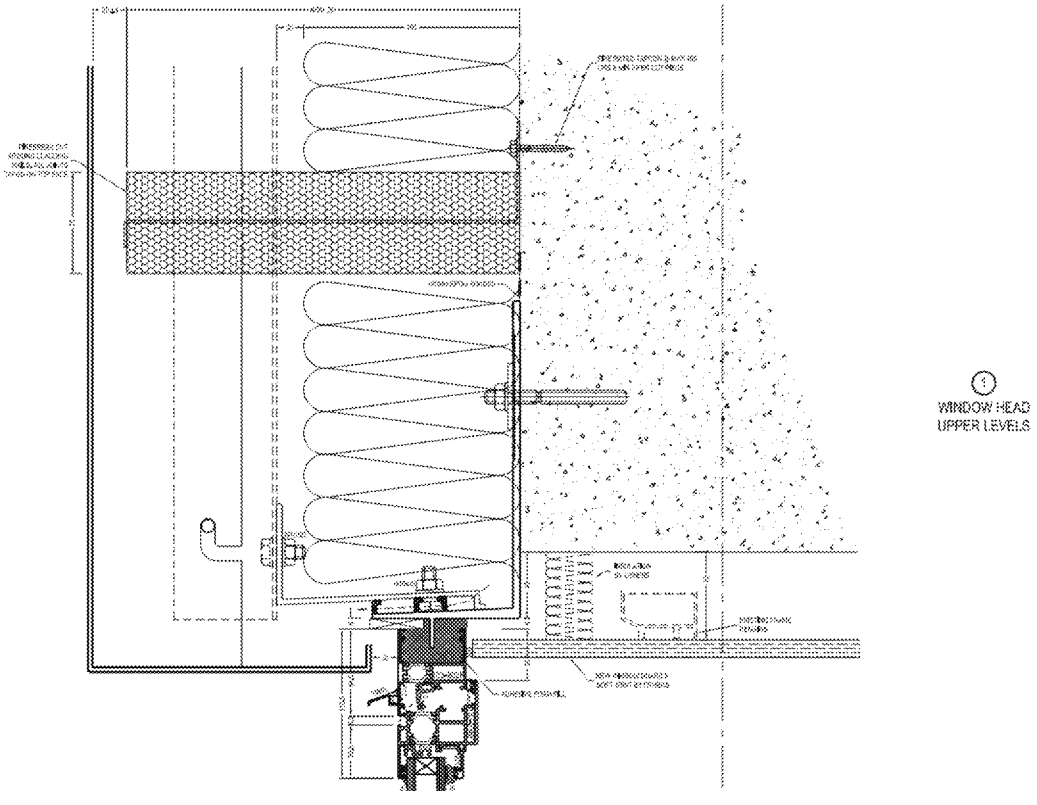


Figure 5.63 Extract from Harley Drawing 855 C1059-301-E {HAR00003958}

5.4.57 As discussed in Section 4 of this report, the above drawings show a series of fundamental errors in terms of the application of paragraphs 9.2a and 9.3a as well as Diagram 33 of ADB2 which I list as follows:

a) There are no cavity barriers shown to close the cavity at the head of the opening around the windows on either the elevations or the detailed window head section, contrary to the guidance in ADB2 paragraph 9.2aand 9.3.

b) There are no cavity barriers shown to either the jambs of the opening around the windows.

c) There are no cavity barriers shown to the sill of the window openings.

d) The horizontal cavity barrier that should, in order to accord with the guidance of ADB2 paragraph 9.3a, be located within the depth of the floor slabs, is set above the floor slabs (FFL).

e) The vertical cavity barriers are referred to as '*Firebreaks*', which is not a term which appears in ADB2.

5.4.58 My point here is not to re-visit the non-compliance of these drawings with the guidance in ADB2 and the requirements of the Building Regulations, but to offer these as examples of the failures of process on the part of Studio with respect to the application process for consent under Building Regulations. These drawings represent the first submission of any comprehensive and detailed information on the over-cladding construction. As such they were issued without any formal indication that they were to be received by Building Control as part of the Full Plans application.

5.4.59 Against that context I am again critical of Building Control for not seeing fit to write to Studio E in the strongest terms stating that the status of information in relation to the over-cladding was wholly inadequate and that the matter of outstanding information, in this respect some 7 months on from the submission of the Full Plans application (without drawings), was a matter of grave concern.

5.4.60 The above Harley drawing (Figure 5.4.63) also highlights another notable issue: the thermal insulation to the newly formed cavity behind the rainscreen cladding is clearly shown with a graphic notation/drawing convention which is generally known and accepted within the construction industry to represent mineral wool. (I exhibit the same drawing below with the insulation highlighted in yellow). In this respect Harley, in preparing this drawing, appear to have erred by breaching graphic convention and misrepresenting Celotex/PIR as mineral wool because they had received Studio E's tender specification which called for Celotex RS5000 and therefore should have depicted a rigid board product. What is important is that I have seen no evidence that Building Control ever received any drawing or specification that provided written reference confirming what kind of product/material was being proposed.

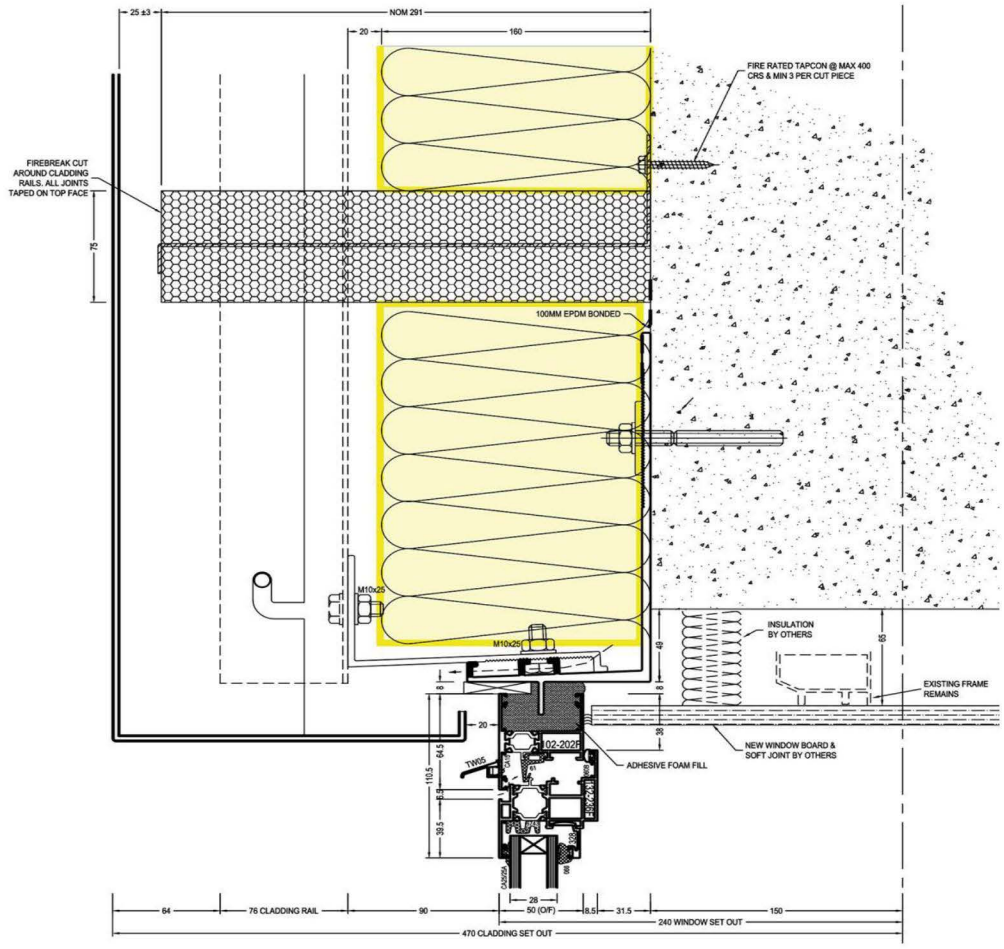


Figure 5.64: Extract from Harley Drawing 855 C1059-301-E {HAR00003958} marked up to show thermal insulation as denoted by conventional graphic representation

PHYR0000030_0079

5.4.61 In the context of this lack of information I note from Mr Hoban's statement {RBK00033934} at paragraph 67 that he states the following:

'I also looked up information on the insulation. The cladding panels themselves, as far as I can recall, did not have any markings on them to indicate what standard they complied to. I was also advised at the initial meeting on site by the specialist consultant that the cladding would comply with the standards set out in the Approved Document B.'

5.4.62 From this I deduce that, despite the lack of information on the insulation type received prior to the inclusion of Harley drawing 855 C1059-301-E (as shown in the exhibit above) within Mr Crawford's email of 6 March 2015, Mr Hoban at some time, either before or after receipt of that drawing, chose to investigate Celotex RS5000 in terms of its acceptability for this application. Such inquiry (*'I looked up the insulation'*) seemed to take the form of research of the manufacturer's product information. In this same paragraph Mr Hoban states that he received advice *'that the cladding would comply with the standards set out in the Approved Document B'*. I am critical of Mr Hoban in this respect for failing, as a Building Control Officer, to seek and secure more robust proof, in the form of independent documentary evidence, that the proposed insulation did comply with the guidance of ADB2 in terms of being a product of *'limited combustibility'*.

5.4.63 In a subsequent statement {RBK00050416} at paragraph 43a Mr Hoban further reports that he *'looked at the Celotex website to see the information they had in respect of the material'* adding: *'I may have looked at other information shown on other sites but I cannot be certain.'* He further advises at paragraph 43c that he concluded from that research that the Celotex product *'was fit for purpose'.*

5.4.64 Again, I am critical of Mr Hoban in this respect for accepting such evidence as indicative that the Celotex RS5000 product was *'fit for purpose'*.

5.4.65 Clearly Building Control had not been supplied with adequate information in a timely manner, and the applicant (Rydon) and its agent (Studio E) should both be severely criticised in this respect. However, in circumstances where the information as supplied by Studio E in support of the application was clearly so inadequate Mr Hoban should not have accepted inappropriate information from other sources. And he should have known that as a PIR product Celotex RS5000 would not meet the standards required of a material of *'limited combustibility'* as defined under ADB2.

5.4.66 I show below an extract of Studio E drawing 1279 06) 120 Rev 00 *'Detail Section Sheet 1'* {SEA00002551}.I exhibit it because it shows the normal graphic convention for rigid thermal insulation (such as PIR products) as opposed to non-rigid mineral wool.

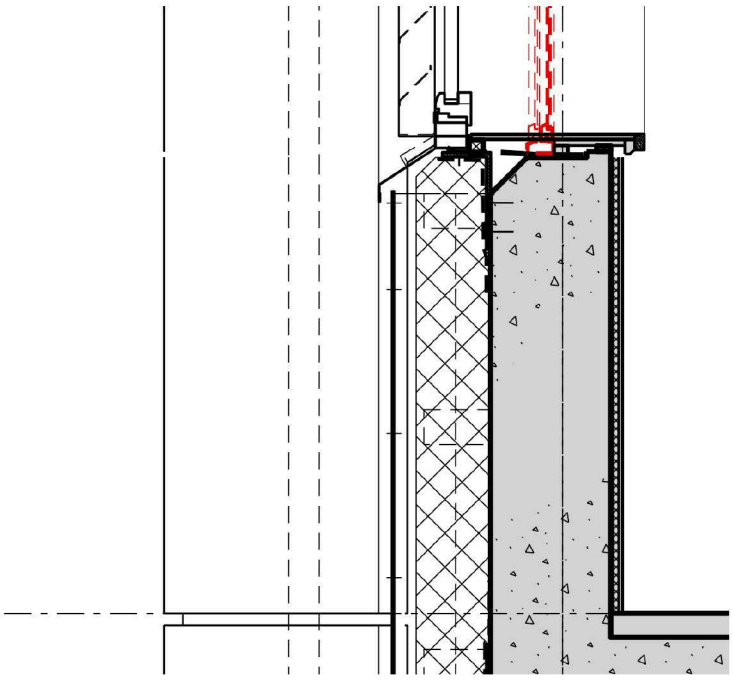


Figure 5.65: Extract from Studio E drawing 1279 (06) 120 Rev 00 '*Detail Section Sheet 1*' {SEA00002551} showing the way they portrayed rigid thermal insulation which is more akin to conventional graphic representation of that product

5.4.67 The exhibit below shows an email dated 20 March 2015 {SEA00012963} from Mr Hoban of Building Control to Studio E in which he responds to the query regarding the fire rating within the wall build up between apartments as referred to above. Whilst I note that Building Control considered it necessary to draw Diagram 33 to Studio E's attention, I consider it extraordinary, and indeed an insight into Mr Hoban's evidently growing concern about both the state of Studio E's information and its understanding of ADB2 guidance and the Building Regulations with respect to the over-cladding work, that he should see it as appropriate to make such a reference. That aside, Mr Hoban's email seems to have misunderstood the line of inquiry being pursued by Mr Crawford and makes some references to Table A2 of ADB2 which, as far as I can understand, were unrelated to the enquiry. I am however somewhat sympathetic towards Mr Hoban in this respect: Building Control Departments are inevitably under great pressures of work and it requires those making applications and seeking advice and assistance to organise their information and enquiries in an appropriately disciplined format. It is my opinion that Studio E failed continually in this respect and Mr Hoban should have brought matters to an abrupt halt by refusing to continue dealing with the issues on a piece-meal basis and calling for a competent and comprehensive package relating to the over-cladding to be submitted, rather than continuing to participate in what appears to have been a shambolic process.

RE: Grenfell **Sent:** Fri 20/03/2015 1:21:44 PM (UTC)

From: John.Hoban@rbkc.gov.uk

To: Neil Crawford, Paul.Hanson@rbkc.gov.uk

CC: slawrence@rydon.co.uk, KevinLamb@harleycw.co.uk, SOConnor@rydon.co.uk, jnorth@rydon.co.uk

Dear Neil,

The Building Regulations 2010 (as amended)
Grenfell Tower, Grenfell Road, Refurbishment.

Thank you for returning my call this morning.

Further to my conversation with you today, I would confirm that the *fire time* for the new *Elements of Structure* [new columns, beams, sections of compartment floor etc.] in Grenfell Tower is 120 minutes, as specified in section 1a of Table A2, Appendix A of Approved Document B.

I would also draw your attention to diagram 33 of Approved Document B and highlight the detail between compartment floors and external cladding. In the meantime should you wish to discuss any other aspects of the project Neil, then please do not hesitate to call me, my direct line contact number is [redacted].

Best regards,

John Hoban
John Hoban
Senior Building Control Surveyor
[redacted]
john.hoban@rbkc.gov.uk

Figure 5.66 Email Correspondence between Building Control and Studio E {SEA00012963}

5.4.68 I exhibit below a copy of Mr Hoban's email to Mr Crawford of 1 April 2015 {RYD00037836} in which he acknowledges receipt of further drawings including an extract from Studio E Drawings 1279 (06) 120 – rev 00 '*Detail Section – Sheet 1*' {SEA00002551}, 1279 (06) 121 – rev 00, and Harley drawing C1059-325 Rev C (referred to elsewhere as Rev D). The former Studio E drawing and the Harley drawing are also exhibited below.

From: John.Hoban@rbkc.gov.uk [mailto:John.Hoban@rbkc.gov.uk]
Sent: 01 April 2015 15:37
To: Neil@studioe.co.uk
Cc: Simon Lawrence
Subject: FW: Grenfell Tower Fire Stopping

Dear Neil,

The Building Regulations 2010 (as amended)
Grenfell Tower, Grenfell Road, Refurbishment Project.

Thank you for your email and for the attached drawings, showing further cladding details.

I would advise you that I have no adverse comments to make on the cladding proposals shown on your drawings 1279 (06) 120 rev. 00, 121 rev. 00 and Harleys drawing C1059-325 rev. C with regards to compliance with Parts B2 and B3 in Schedule 1 of the building regulations.

May I take this opportunity to remind you that the new *elements of structure* being erected, must be capable of resisting the action of fire for at least 120 minutes. In this connection, I would draw your attention for the need to protect the new steelwork supporting the new gallery floors shown on drawing 1279 (06) 121 rev.00 to that standard.

Should you wish to discuss any of the points mentioned in this email or want to review any particular aspect of the project with regards to the building regulations, then please do not hesitate to contact me Neil.

In the meantime, may I wish you a Happy Easter.

Best regards,

John
John Hoban
Senior Building Control Surveyor

Figure 5.67 Email Correspondence between Building Control and Studio E {RYD00037836}

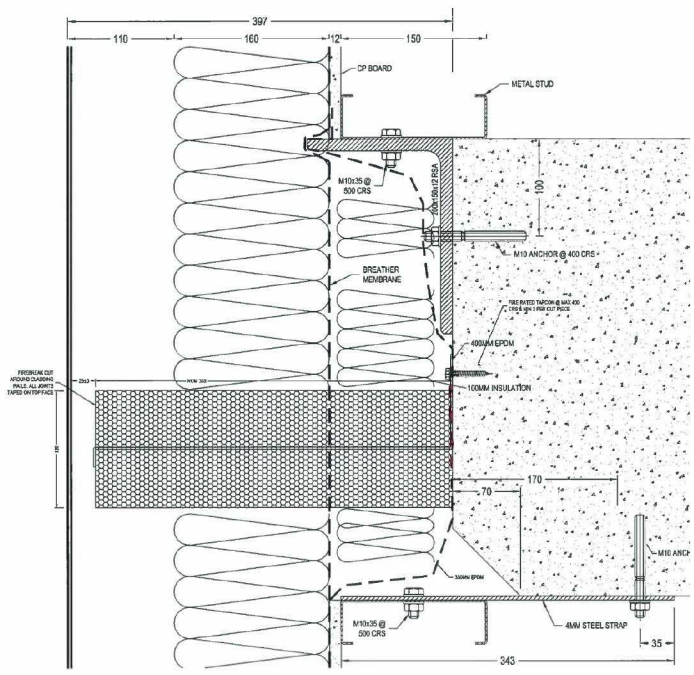


Figure 5.68 Extract from Harley Drawing C1059-325-C {HAR00006599}

PHYR0000030_0083

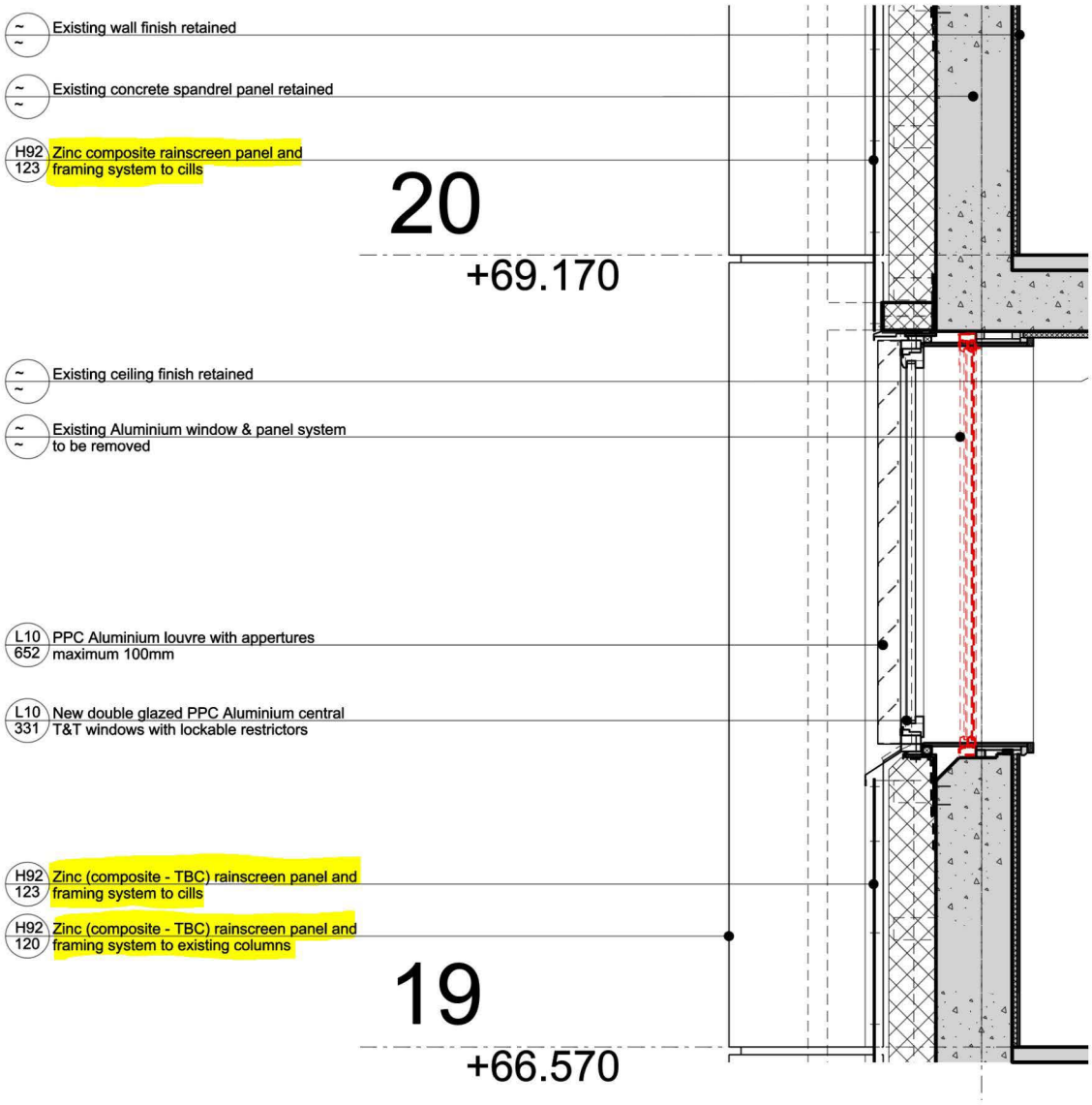


Figure 5.69 Extract from Studio E Drawing 1279 (06) 120 – 00 '*Detail Section – Sheet 1*' {SEA00002551}

5.4.69 I am critical of Mr Hoban's email for the following reasons:

a) Not for the first time this Building Control email fails to identify the date of the email to which it is replying. I appreciate that emails often reveal such referencing information within the '*email trail*' but such trails can be confusing. In order to minimise the risk of mistakes I think that Building Control officers should all operate strict protocols around electronic and hard copy communications under which correspondence '*trails*' are clearly identified.

b) The above email is just one example of Building Control's poor performance in this respect. However, it is important to state here that I am also critical of Building Control's poor performance in the application of such protocols across the entire period of its dealings with this project, both with respect to the referencing of communications, and with respect to the referencing of material referred to within or as attachments to communications.

c) With complex dialogue taking place around complex information that is being variously submitted and received on an incremental basis over often very extended periods of time, I believe that it is essential in order to mitigate the likelihood of mistakes for all parties to maintain and apply strict discipline in terms of referencing material.

d) Mr Hoban confirms at paragraph 2 of his email that:

'I have no adverse comments to make on the cladding proposals shown on your drawings 1279 (06) 120 rev 00, 121 rev. 00 and Harley's drawing C 1059-325 rev. C with regards to parts B2 and B3 in Schedule 1 of the Building Regulations'.

e) Mr Hoban's use of the first-person singular is in my opinion inappropriate when writing on behalf of the Building Control Department, particularly in terms of what may be construed as a note affirming that consent will in due course be forthcoming with respect to that part of the construction as contained within the attached drawings. Furthermore, the '*affirmation*' (if that is what it was) is unclear in terms of its scope because Mr Hoban restricts it to only these particular drawings (that is as referenced within the email) and, of great significance, qualifies his response as being only in terms of those drawings as they relate to '*cladding proposals*'. As an architect I would expect the Building Control Officer to be absolutely clear in terms of such a communication: the email is headed '*Fire Stopping*' which is not in any way shown on the drawings in question. With those qualifications I am unclear as to whether Mr Hoban intended to affirm acceptance of the other information contained within those drawings, such as the position or omission of cavity barriers, or the type of insulation (which was shown but not specified on those drawings).

PHYR0000030_0085

f) Mr Hoban makes no comment on the fact that the Studio E drawings attached to that email refer to *'Zinc composite rainscreen panel'* (as high-lighted) in my exhibit whereas he (and Building Control) should have been aware that the rainscreen cladding had been proposed as ACP *('aluminium composite panel, smoke silver metallic Duragloss 5000 Satin'*) as confirmed by the Harley Specification Sheet C1059-100-A already in its possession and as sent by Mr Crawford on 6 March 2015 {HAR00003955}.

g) Also notable, as highlighted on the above exhibit, is the fact that Studio E's drawing references both *'Zinc (Composite – TBC (to be confirmed)) rainscreen panel and framing system to cills'* in positions where the note is annotated to a spandrel panel (as opposed to a cill piece) and on the very same drawing as a contrasting note which also states *'Zinc composite rainscreen panels and framing to cills'* (that is: no' TBC' qualification).

h) Perversely, even though Mr Hoban does appear to restrict his indication of *'no adverse comments'* to B2 and B3 (respectively Internal fire spread linings and Internal fire spread structure) his reference to the *'cladding proposals'* implies that his comments should also be related to, B4 External Fire Spread.

5.4.70 Exhibited below is the front page of minutes {RBK00020191} produced by Rydon of a meeting *'Held on site at Grenfell Tower'* with Building Control at which Mr Crawford of Studio E was listed as being present. The minutes are dated 10 May 2013, but it seems likely that this is an error, and that the date was actually 7 January 2016. (Evidence that this date is correct is contained in three separate covering emails (respectively {RBK00010772}, {RBK00019606} and {RBK00020182} each of which contained identical versions of these minutes.)

5.4.71 Whilst these minutes demonstrate that the design team, including Rydon, were continuing the dialogue with Building Control at this time, it is notable that there is no reference within these minutes to the design and construction of the envelope. I would have expected the meeting – or some other meeting between Building Control and the design team during the installation of the cladding of which there is no evidence – to have addressed the cladding, particularly in view of the ongoing conflicting information on rainscreen material (ACP or Zinc / TBC or not TBC) which remained unresolved.

5.4.72 The timing of the minutes exhibited below is particularly important in relation to the ongoing unresolved conflicts in terms of the status of the information deposited with Building Control at the time of this very meeting, as shown under the next Snap-Shot. Building Control had recorded the ACP rainscreen cladding installation as being '*90% complete*' on the eastern and western elevations and '*50% complete*' on the columns. With such important conflicts contained within the documentation that Building Control was (or at least should have been) processing towards the issue of the '*Decision Notice*' (as had been promised ('*shortly*') under Mr Hoban's email of 18 November 2014 as exhibited earlier within this Snap-Shot), it is extraordinary that meetings and dialogue could be continuing, and that site inspections of ACP cladding under installation could be proceeding, without Building Control expressing extreme concern and alarm.

RMS
RYDON MANAGEMENT SYSTEMS

Rydon

GRENFELL TOWER (3482)
MINUTES OF MEETING WITH BUILDING CONTROL

Held on site at Grenfell Tower.

Present: Dave Hughes, Steve Blake, John Hoban, Paul Hanson, Neil Crawford

Apologies: None

Distribution: All those above, plus: Claire Williams, Neil Reed, Andrew Malcolm, Tony Batty, Jon White, James Clifton, Alan Whyte, Andy Bridges, Jonathon Earl, Richard Moss, Richard Hamilton, Dave Bradbury, Matt Smith

Minutes taken by: Dave Hughes

		ACTION
1.00	**Existing Residential Floors**	
1.01	HEAT DISSAPATION VENTS TO RISER CUPBOARDS Building Control will not accept any ventilation into the new riser cupboards, including intumescent vents. Temperature in cupboards during walk round was not great and system is running at maximum capacity. Rydon to discuss with Max Fordham about the need for heat dissipation to cupboards.	Max Fordham to advise
1.02	EXISTING RISER CUPBOARDS Chipboard to existing risers does need to be upgraded as refurbishment works and area had not been adversely affected. However Building Control do recommend that client upgrade to FD30S doors especially on electrical riser and/or assess risk by means of fire risk assessment	KCTMO
1.03	GAS RISER VENTS TO FLATS There is no legislation requirements that mean vents have to be installed to risers containing gas pipes. These works are being done at client's request	Note

Figure 5.70: Extract from the Rydon Minutes that included Building Control and Studio E {RBK00020191}

5.4.73 In making the above criticisms of Building Control I am mindful that the work it undertakes is complex in nature and substantial in quantity. Workloads for officers can at times be very onerous. But it is precisely for these reasons that Studio E and Rydon should have ensured that information was provided in clear form i.e. in a way which was unambiguous, clearly referenced and cross-referenced, and as far as possible, issued in a timely manner under correspondence that clearly described its purpose – that is, whether it formed part of the formal '*Full Plans*' submission, whether it formed part of a question, or whether it was merely for information.

5.4.74 For its part, Building Control could and should have used its authority to put order into the process. It should have firmly expressed the inadequacies of the information in terms of its scope, quality and quantity early in the process and it should have made very forceful representations as to these inadequacies for as long as such deficiencies continued. It did not.

5.4.75 With respect to the over-cladding, in overall terms, it is clear to me that, for whatever reason (perhaps excessive workloads, perhaps lack of operational systems and support) the Building Control officers involved in this case were oblivious to much that was wrong in terms of submissions and documentation, as well as in terms of construction.

5.4.76 In conclusion the following is evident under this '*Snap-Shot*':

a) The entire Building Regulations application process was mis-managed by Studio E with respect to their duty as novated architect to Rydon and by Rydon as the appointed Design and Build Contractor.

b) The RBKC Building Control Department failed to manage their commentary and responses – in particular they responded in piecemeal fashion to inadequately prepared, ill coordinated and incomplete submissions of information. They should have been much firmer in their insistence that the information as provided (particularly in relation to the over-cladding) was inadequate for their purposes in terms of discharging their statutory functions.

c) The full extent of the shambles and incompetence that pertained can be summed up in the final exchanges of emails and drawings as illustrated above:

- In his e-mail of 1 April 2015 Mr Hoban for Building Control indicates that he approved (*'I have no adverse comments'*) a combination of Studio E and Harley drawings and specification notes that were a) in conflict with each other and b) which clearly breached the requirements of Building Regulations and the guidance in ADB2.

- These documents show and note respectively zinc cladding (Studio E) and Aluminium Composite Cladding (Harley).

5.5 Snap-Shot 4: Studio E '*As Built*' Documentation (May 2016)

5.5.1 Below are exhibited some seven extracts from RBKC notes relating to their site visits in date order {RBK00013223}. The final exhibit is the Completion Certificate which RBKC issued on 7 July 2016. I provide comment in each case in terms of points of note arising from the site visit notes. All but one of the visit reports were completed by Mr Hoban. Mr Allen made the last visit report and signed the Completion Certificate. I comment on each exhibit as follows:

5.5.2 BCO Interim Site Report 15.05.15, includes a note relating to rainscreen '*framework*'.

Plot: 1	**Action:** Interim visit	
Date: 15/05/2015	**Result:** Satisfactory	**Officer:** John Hoban
Notes: inspection to check framework for cladding		

Figure 5.71 {RBK00013223}

5.5.3 BCO Interim Site Report 17.08.15, includes a note relating to new cladding and insulation. Particularly disappointing is Mr Hoban's apparent failure to realise, even at this late date, that the Celotex RS5000 insulation, as a PIR product, does not comply with the guidance in paragraph 12.7 of ADB2 and therefore fails to meet the requirements of the Building Regulations.

Plot: 1	**Action:** Interim visit	
Date: 17/08/2015	**Result:** Satisfactory	**Officer:** John Hoban
Notes: met the site manager and a site agent, visit to look at new cladding on external envelope of building, insulation on various works progressing steadily, no adverse comments to make on the works carried out to date.		

Figure 5.72 {RBK00013223}

5.5.4 BCO Interim Site Report 02.11.15, includes reference to a further site visit relating to rainscreen cladding inspection.

Plot: 1	**Action:** Interim visit	
Date: 02/11/2015	**Result:** Satisfactory	**Officer:** John Hoban
Notes: Cladding inspection and meeting with new project manager		

Figure 5.73 {RBK00013223}

5.5.5 BCO Interim Site Report 11.11.15, includes reference to rainscreen cavity barriers. This note demonstrates that the Building Control Officer looked at the new cladding and cavity barriers and whilst minor repairs were required there were no adverse comments.

Plot: 1	**Action:** Interim visit	
Date: 11/11/2015	**Result:** Satisfactory	**Officer:** John Hoban
Notes: Visited site met site manager and harley representative went up on hoist to look at new cladding on eastern and western elevations 90% of cladding on main elevations complete columns 50% complete, seen horizontal Siderise cavity barriers where panels are to be fix just after hoist is taken down, some minor repairs \ making good to be done prior to final fixing of these particular panels in a few locations. Subcontractor is aware of the matter and is schedule to carry out such make good. Works progressing steadily no adverse comments to make.		

Figure 5.74 {RBK00013223}

5.5.6 The Building Control Officer Interim Site Report 18.11.15, includes further reference to rainscreen cavity barriers. Again, this demonstrates that the Officer looked at the new cladding and cavity barriers and whilst minor repairs were required there were no adverse comments. Whilst nothing turns on this point, I cannot understand in these notes how Mr Hoban can make reference to such precise quantities as '*96%*' in terms of the amount of cladding installed.

Plot: 1	**Action:** Interim visit	
Date: 18/11/2015	**Result:** Satisfactory	**Officer:** John Hoban
Notes: Visited site met the clerk of works, site manager and harley representative went up on hoist to look at new cladding on eastern elevations 92% of cladding on main elevations complete columns 50% complete [a few additional panels fitted since last visit, seen horizontal Siderise cavity barriers where panels are to be fix just after hoist is taken down, some minor repairs \ making good to be done prior to final fixing of these particular panels in a few locations. Subcontractor is aware of the matter and is schedule to carry out such make good. western elevation about 96% of cladding on main elevations complete, panels need straightening, workmen currently fixing trims, and a few panels need replacing, also some minor repairs \ making good to be done prior to final fixing of these particular panels in a few locations. Subcontractor is aware of the matter and is schedule to carry out such make good. Works progressing steadily no adverse comments to make. clerk of works john white [redacted]		

Figure 5.75 {RBK00013223}

5.5.7 The Interim Site Report 08.02.16, includes further reference to rainscreen cavity barriers. Again, there appears to be no understanding of the widespread failure in terms of the cavity barrier installation's non-compliance with the guidance in paragraphs 9.2a and 9.3a of ADB2.

Plot: 1	**Action:** Interim visit	
Date: 08/02/2016	**Result:** Satisfactory	**Officer:** John Hoban
Notes: Visited site met the site manager and harley representative went up on hoist to look at new cladding on eastern elevations 92% of cladding on main elevations complete columns 50% complete [a few additional panels fitted since last visit, seen horizontal Siderise cavity barriers where panels are to be fix just after hoist is taken down, some minor repairs \ making good to be done prior to final fixing of these particular panels in a few locations. Subcontractor is aware of the matter and is schedule to carry out such make good. western elevation about 96% of cladding on main elevations complete, panels need straightening, workmen currently fixing trims, and a few panels need replacing, also some minor repairs \ making good to be done prior to final fixing of these particular panels in a few locations. Subcontractor is aware of the matter and is schedule to carry out such make good. Works progressing steadily no adverse comments to make. clerk of works john white[redacted]		

Figure 5.76 {RBK00013223}

5.5.8 The Interim Site Report 24.03.16, makes further reference to thermal insulation. It appears that as with Mr Hoban, Mr Allen is also oblivious to the fact that the Celotex RS5000 insulation, as a PIR product, does not comply with the guidance in paragraph 12.7 of ADB2 and therefore fails to meet the requirements of the Building Regulations. This note demonstrates that the BCO again had sight of the insulation. Throughout all the above reports there is no mention of any comment regarding the window infill units, opening cavity barriers and window surround insulation.

Plot: 1	**Action:** Interim visit	
Date: 24/03/2016	**Result:** Satisfactory	**Officer:** John Allen
Notes: Cladding nearly complete. Ensure thermal insulation completely fills voids. Nursery- no markings on fire resisting glazing Firestopping being carried out to a high standard including in between voids in steel deck Ensure firestop the gap on the line of internal and external wall between playroom entrance and store Accessible wc switch flush to side nearest handrail Ensure floor is level to community room from mainl obby Bottom of stair to boxing club highlight where section of landing protrudes into 2m headroom Ensure fire exit signs are the same. And agree format with RBKC Query size of lobby to storeroom level 1 off common lobby New flat entrance doors are letter boxes intumescent Check if mdf ok to risers Level 3 lift lobby try to even out rise on 2 steps Still need to finish area near secondary escape from boxing club. New flats nearly complete. Apart from areas highlighted no immediate concerns.		

Figure 5.77 {RBK00013223}

PHYR0000030_0092

5.5.9 Exhibited below is a copy of the Building Control Completion Certificate, final inspection date 7th July 2016, as issued by RBKC Building Control {RBK00013253}. The document is signed by Mr Allen as Building Control Manager. It is notable that Mr Allen, as shown above, carried out the inspection on 23 March 2016. I draw particular attention to the following phrase from the first main paragraph: *'....as far as could be ascertained, after taking all reasonable steps, the building work carried out complied with the relevant provisions'.* I believe that the 'provisions' referred to are the requirements of the Building Regulations and the guidance contained within ADB2, insofar as that was relevant. Clearly, the over-cladding did not so comply in many ways that formed serious breaches of the Regulations. Despite the seemingly chaotic submission process those breaches were evident on drawings submitted to Building Control as part of the Full Plans application, and they were clearly evident during the Officers' visits to site. On this basis, whilst I note that the Inquiry has instructed a Building Control expert (Beryl Menzies) who will provide her views on these topics, it is my opinion as an architect that the Building Control Department of RBKC failed in its statutory duty with respect to the 2012-16 Works.

PLANNING AND BOROUGH DEVELOPMENT

DEPARTMENT OF BUILDING CONTROL, TOWN HALL, HORNTON STREET, LONDON W8 7NX

Executive Director Planning and Borough Development **Graham Stallwood**

Building Control Manager John Allen

THE ROYAL BOROUGH OF KENSINGTON AND CHELSEA

COMPLETION CERTIFICATE

THE BUILDING REGULATIONS 2010 (as amended)

PREMISES: **Grenfell Tower, Grenfell Road, London. W11 1TH.**

APP No: **FP/14/03563**

The Council hereby certifies under Regulation 17 that as far as could be ascertained, after taking all reasonable steps, the building work carried out complied with the relevant provisions.

This certificate is evidence, but not conclusive evidence, that the relevant requirements specified below have been complied with.

WORK: **Renovation and improvement works to an existing tower block. Such works include new floor areas, new overcladding & windows, new heating system, reconfigured podium and entrance, also the constuction of 9 no. additional dwelling units.**

FINAL INSPECTION DATE: **7th of July, 2016.**

BUILDER: **Rydon Maintenance Limited.**

RELEVANT PROVISIONS: **Schedule 1.**

SIGNED:

John Allen
Building Control Manager

Figure 5.78 Building Control Completion Certficate, Final Inspection Date 7th of July, 2016 {RBK00013253}

PHYR0000030_0094