

(PDH-06 and FORTHC0004256)

Submission 1 (S1) 10/11/2014

Part of this information is included in FORTHC0004256 (plans omitted)

MEMORANDUM

To: John Hoban
cc:

From: Paul Hanson
Dated: 10/11/2014

B1 - MEANS OF ESCAPE OBSERVATIONS

PREMISES: Grenfell Tower, Grenfell Road
APP No: Submission 1
SUBMISSION No: S1
DRAWING No: 1279(08) 101 01 BS, 100 01 BS.

Please also refer to marked up plans RBKC S1 where comments are added to the above plans.

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

Fire authority consultation

The scheme has been sent for consultation, any comments will be forwarded when received.

Comments for fire authority

The scheme involves an existing building comprising residential flats with a single stairway, protected by common lobbies with a powered ventilation system intended to protect the stairway. The powered vent system appears to be an early hybrid push pull system, which appears to have powered extract.

At preliminary submission stage the mechanical engineers were seeking to confirm whether the inlet air component was powered or natural and also to determine what the extract rate is in m³/s and what the supply air volume / area of the existing system comprises. This submission S1 has not revealed any information in this respect.

The proposal involves the rerouting of the final exit from the single stairway and RBKC have negotiated with the design team to ensure the stairway remains with ventilated lobby protection upto the final exit.

Additional residential use at lower levels

The refurbishment involves a floor at a lower level (Walkway +1) with a change of use to residential accommodation and one residential flat at the level below, this known as 'walkway level' although it is a normal enclosed floor).

RBKC building control would be satisfied under the building regulations if either:-

- a. the level of extract provided by the existing powered ventilation system is maintained at the new residential levels at 'Walkway +1 level and 'the single flat at 'Walkway level'. (On the basis of no adverse affect).
Or*
- b. the ventilation extract is justified.*

During preliminary discussions an extract rate of 10 air changes was put forward by the design team (not the fire consultant), the case put forward was that this value follows the guidance of Approved Document B. However RBKC felt this was not suitable on the basis that the 10 air change figure is a value used for car park fire fighting and is based on a different design criteria to residential lobby ventilation intended to protect stairways against the ingress of smoke for the purpose of means of escape.

The current submission has not put forward any new proposals for the powered ventilation system.

The current proposal also omits the ventilated lobby to the single flat at 'Walkway level'. RBKC have suggested the common ventilated lobby arrangement used in the upper floors be extended down to this level and marked up the plans accordingly.

New non residential access to residential stairway

There is also a new Boxing club connecting to the single stairway at 'Walkway level' and small office accommodation at ground level. RBKC have agreed with the fire consultants to provide a 0.4m² natural ventilated lobby connections to the single stair and these uses (although this is currently omitted from the recent scheme in two locations).

Therefore RBKC are not in a position to approve the proposals at this stage due to the need for the design team to establish an acceptable extract rate for the powered lobby ventilation system and the provision of ventilated lobby protection to all stairway connections to residential and other uses.

The remainder of the comments to client are self explanatory.

Regulatory Reform Fire safety order

As you are aware, the building regulations deal with the building work proposed in an existing building and are limited to ensuring that no adverse affect takes place to any exiting situation (and that any new work complies with the regulations). Therefore the regulations would not consider whether the existing building would comply with the Regulatory Reform (Fire Safety) Order (RRO).

During preliminary discussions the design team asked whether RBKC could assist in consulting the fire authority regarding their views under the RRO in respect of the existing lobby ventilation system for the building.

There is obviously an opportunity to make reasonable changes to the vent system to satisfy the RRO, whilst the refurbishment takes place.

RBKC have asked that the specific question be explained in separate correspondence which we will pass on to yourselves when received. We have explained that you will probably need to know the existing extract rate of the lobby ventilation system or justification for any new extract rate proposed (Appendix A outlines our suggestions to the client for writing to yourselves).

Comments for Client

The following comments should be read in conjunction with the marked up plans noted as S1.

1. Revision to add residential accommodation at Walkway level

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 separate the stairway from the lobby.

We would agree with your fire consultants that the existing powered ventilation system should be brought down to this level to provide the ventilation to serve the common lobby which needs to be formed between the flat and the stairway. This is not currently proposed on the plans.

2. The revised access to the Boxing club at 'walkway level' and office use at Ground level

No objection is raised in principle to the lobby connection with the non-residential uses via a 0.4m² natural ventilated lobby, however these have been omitted from the current scheme.

The 0.4m² ventilated should be reintroduced for the revised access points to the residential stairway. See marked up plans.

In the case of the meeting room connecting with the horizontal escape from the residential units at Mezzanine level. It is recommended that consideration be given to the provision of an unvented lobby rather than ventilation of the room itself. The latter is unlikely to give protection equivalent to a lobby.

3. Upper storey powered ventilation system

The existing building appears to have an early push pull powered ventilation system providing powered extract and powered or natural inlet via enclosed riser shafts.

RBKC building control would be satisfied under the building regulations if either:-

- a. The performance of the existing system is maintained. Details of the performance of the existing and proposed systems are requested to be submitted to enable RBKC to be satisfied that the system would not be adversely affected by the intended works.
- Or
- b. The ventilation extract rate is justified to be suitable for the propose.

The Smoke Control association 'Guidance on smoke control in Apartment buildings' gives upto date guidance on powered residential extract systems.

Any new equipment for the system should comply with the recommendations of this guide.

If data on the existing system is available, a way forward might be to measure the flow rates of the present situation and provide information about the proposed system.

Therefore in order to consider your proposal details should be submitted of the following:-

- Existing extract rate in m³/s
- Existing 'inlet air' Supply rate in m³/s

- Proposed extract rate in m³/s
- Proposed 'inlet air' Supply rate in m³/s

- Confirmation of design of existing system. Is it mechanical ventilation or natural or a combination
- Method of activation of natural/powered system and fire brigade controls
- Size of natural/powered vent shafts

4. Service risers opening in to stairway

Due to the reconfiguration of the stair and lobbies, some riser shafts open directly in to the stairway. This arrangement should be avoided. Is access to the risers necessary at this level (see marked up plans with symbol 'A' for these areas). Access to common lobbies is acceptable as identified by symbol 'B'.

5. Refuse chutes

Please clarify the existing level of protection to the refuse chutes and confirm whether they will serve the altered levels.

6. Marked up plans

For further comments see marked up plans.

7. Fire strategy document by Exova Warrington ref MTY14652R

3.1.1. The report mentions various ventilated lobby arrangements, which were complete in the preliminary submissions, but as mentioned above have been omitted from submission 1.

3.1.1. Regarding the proposed venting of the community room – it is recommended this separation in this area be completed without venting the room (see marked up plans RBKC S1).

8. Further details

Details in respect to the following should be submitted: -

- a.** Please confirm the extent of the building work at roof level.
- b.** Escape lighting showing compliance with BS 5266 Part 1.
- c.** Fire alarm system showing compliance with BS 5839 Part 1 in respect to the common parts and BS 5839 Part 6 for the fire alarm system within the flats.
- d.** Mechanical ventilation showing compliance with BS 5588-9 or BS 9999.
- e.** Fire signage-showing compliance with BS5499 Part 1 (or BSEN 7010).
- f.** Details of the powered smoke shafts equipment together with the necessary control mechanisms.
- g.** Confirmation of arrangements for alternative power supplies to life safety systems.

Appendix A

Consultation with Fire Authority regarding the lobby ventilation system

You have requested RBKC consult the Fire authority for the purpose of assuring your client regarding responsibilities under the Regulatory Reform (Fire safety) Order. I note the information submitted by Max Fordham, including the email dated 8/11/13 further explaining the original strategy. However as outlined in the email of 11/11/13 from John Allen of this office, I would recommend the following approach.

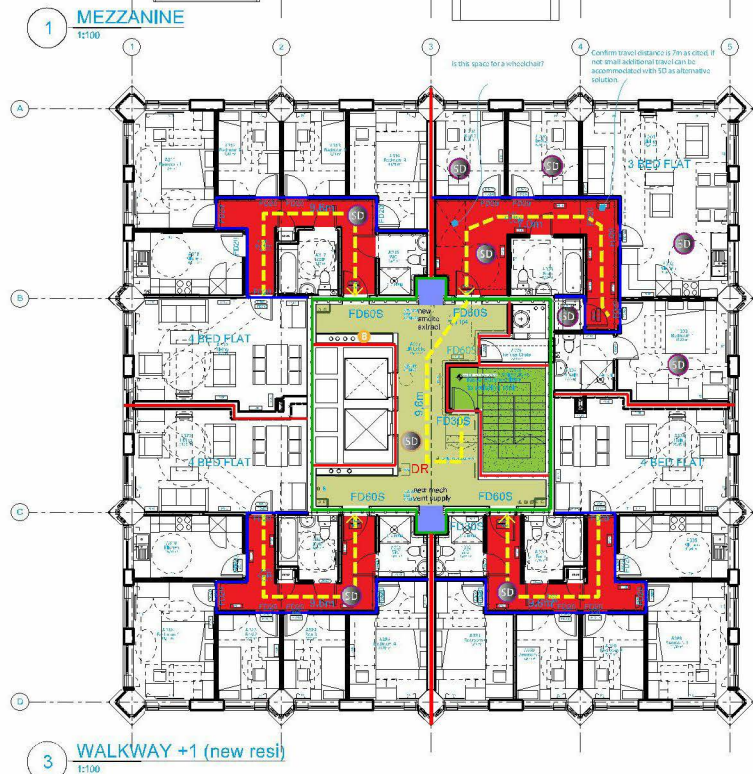
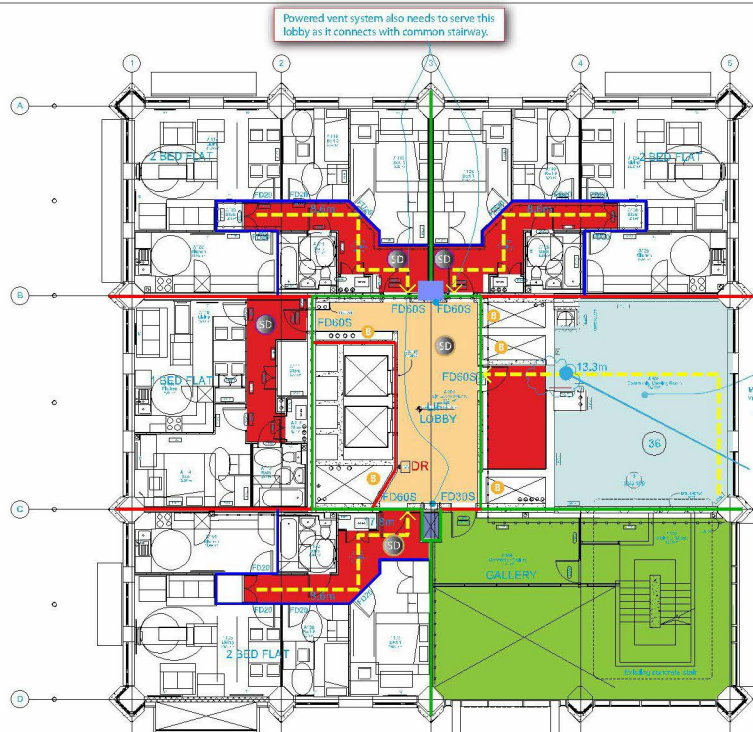
The question that needs to be proposed to the fire authority is whether the replacement smoke extract system to the residential parts will be acceptable for the purpose of satisfying a risk assessment under the above-mentioned legislation.

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 mechanical ventilation or natural or a combination
- Method of activation of natural/powered system and fire brigade controls
- Size of natural/powered vent shafts
- 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 i.e. that it is being used for the normal ventilation system should be indicated.
- The case to justify the proposal.

Upon receipt I will pass your question and information to the Fire Authority.

**Protected Stairway**

Fire resisting enclosure with FD305 doors
Doors on escape routes provided with simple fastenings - without the use of a key

Common Lobbies

Fire resisting enclosure with FD605 doors
Existing powered ventilation system - Powered inlet and outlet.
Existing extract rate 7 m³/s
Existing supply 7 m³/s

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

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

Common Lobbies accessing non residential uses

Fire resisting enclosure with FD605 doors
Natural vent 0.4m²

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

Inner Hall

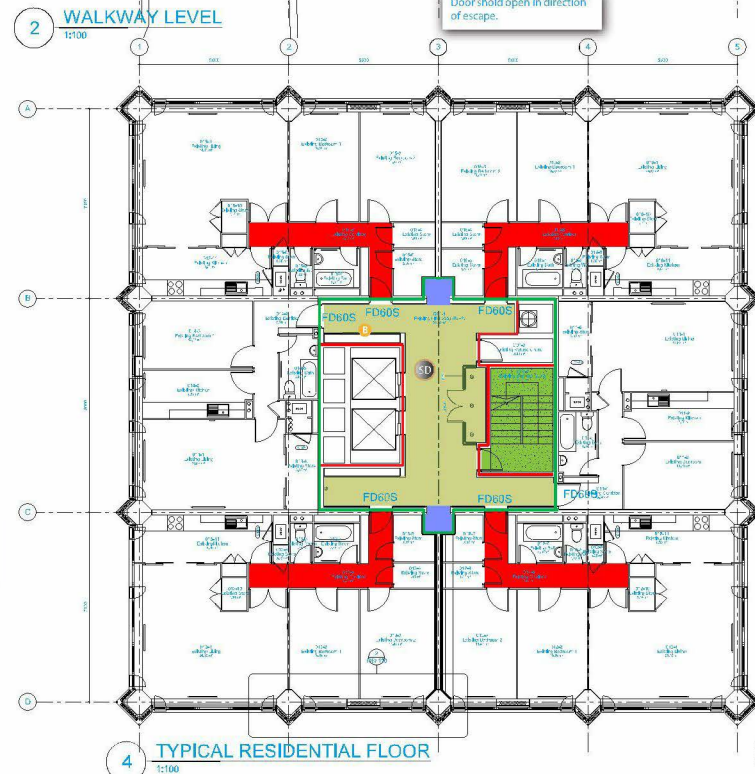
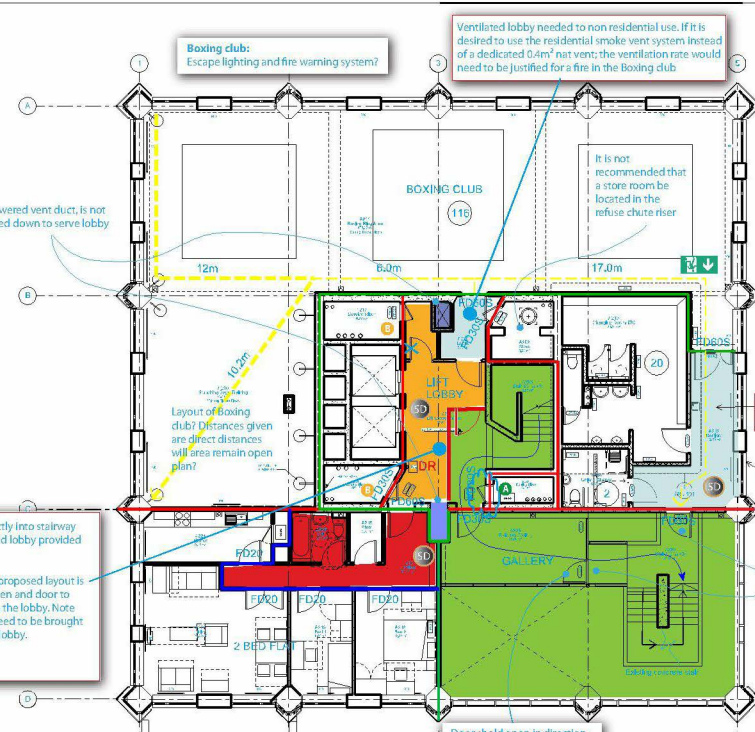
Fire resisting enclosure with FD20 doors
SD provided for flat warning (not interlinked between flats)
System complying with BS 5839-6 Grade D Category LD3

Risers accessed from Stairway

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

Risers accessed from common Lobbies

Fire resistance should be achieved from the riser side of the enclosure. Access to services from the lobby should be via an FD305 with Fire Door Keep Locked Shut Signage.



- NOTE
1. THIS DOCUMENT IS IN PRESENT STATE OF DEVELOPMENT
 2. THE CONTRACTOR MUST BE AWARE OF THE REQUIREMENTS OF THE BUILDING REGULATIONS AND THE FIRE STRATEGY AND MUST BE AWARE OF THE REQUIREMENTS OF THE BUILDING REGULATIONS AND THE FIRE STRATEGY AND MUST BE AWARE OF THE REQUIREMENTS OF THE BUILDING REGULATIONS AND THE FIRE STRATEGY
 3. WHERE ANY DISCREPANCIES ARE FOUND BETWEEN THE BUILDING REGULATIONS AND THE FIRE STRATEGY, THE BUILDING REGULATIONS SHALL TAKE PRECEDENCE
 4. WHERE DISCREPANCIES ARE FOUND BETWEEN THE BUILDING REGULATIONS AND THE FIRE STRATEGY, THE BUILDING REGULATIONS SHALL TAKE PRECEDENCE

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

Note for the purpose of means of escape this area is the stairway (shown in green). Therefore all accommodation access to boxing club needs vent lobby protection.

RBKC MOE - S1
Comments to be used by RBKC Building Control

**EMPLOYER'S REQUIREMENTS**

STUDIO E ARCHITECTS LTD

210 Ebury Street, London WC2A 3DU

GREENFELL TOWER
REGENERATION PROJECT

PROJECT
FIRE STRATEGY

1:100@A1 24/10/13

1279 (08) 101 01 BS

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