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Our Ref: CAS / 25536

11<sup>th</sup> March 2025

Dear Jack & David,

## Re: Derby Lodge, Wicklow and Britannia Street, London. WC1X

Following our site visits and previous reports to inspect the structure we have the final comments and recommendations to make:-

## Block :- 85 - 102 Wicklow Street.

The central piers are not formed from solid construction as originally thought. The pier is • hollow. The pier is constructed from 102mm brickwork. We believe that they are hollow down to the ground floor.



Void within the pier.

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- The concrete padstone which has the rendered feature to it is not solid across the area of the pier.
- The concrete corbels out to support the base of the steel arch. The base of the steel arch only bears onto brickwork approximately 25mm. The steel arch is supporting the edge of roof over the fifth-floor landing. The arches on the lower floors are not supporting the landings as the steel channels have been added into the structure. The top of the arch is tied into the pier. The concrete has cracked in various locations. The ends of the arches where they bear onto the structure are corroded.



Cracked concrete under the steel arch. Corroded steel arches. The concrete is formed from clinker concrete with steel reinforcement which has corroded (see picture below from neighbouring block 69 - 84)







Corroded steel arches.

Distorted brickwork and cracked pattress plates.

• The ends of steel channel which was exposed (under the fifth-floor landing) was bearing 100mm onto the brickwork. The end of the PFC is corroded.



Concrete cast into the web of the beam. End of beam is corroded along entire length of its bearing where it has not been treated / painted.

• The brickwork behind the split pattress plate on the fourth floor has cracked and is distorted. The plate needs to be replaced and the brickwork behind it needs to be reconstructed.





Similar defects are noted at lower level down the structure.

Failed Patress plates cracked brickwork (underside of fourth floor)



Patress plate is starting to fail cracked brickwork (underside of 3<sup>rd</sup> floor)





Patress plate is starting to fail cracked brickwork (underside of 2nd floor).



Pattress plates are starting to fail. Cracked concrete supporting feature arch.



## Block 68 - 84 Wicklow Street.

Block 68 – 84 is constructed in an equivalent way to block 85 – 102. There are defects within the piers although not as extensive as block 85 – 102.

# Defects to central piers noted below.



Pier under roof. Pattress plate condition is adequate. Corrosion to steel arches evident and cracking to padstone.



Cracked padstone and brickwork under the fifth-floor landing.





Cracked padstone and brickwork under the fourth-floor landing.



Cracked padstone and brickwork under the third-floor landing.





Second floor landing. No major defects on the day of visit.



Cracked padstone and masonry at ground floor level.



## Block 1 - 18 - Britannia Street .

Block 1 – 18 is constructed in an equivalent way to the blocks on Wicklow Streett. There are defects within the central piers to the landing which need to be addressed.



Pier under roof. Minor corrosion to pattress plates. Brickwork in good condition.



Cracked padstones under the fifth-floor landing. Remove vegetation.



Cracked padstones and split pattress plate under fourth floor landing.







Plate is corroded and the padstone has cracked under third floor landing. Severely corroded steel beam due to water ingress down the column.





Corroded plates split brickwork under the second-floor landing.



Pier at ground floor level.



# Block 19-36 -Britannia Street.

Block 19 – 36 is constructed in an equivalent way to the blocks on Wicklow Streett. There are defects within the central pier which need to be addressed.



Pier under roof level. Corroded pattress plates.



Cracked padstones under the fifth-floor landing.





Signs of water ingress under the fourth-floor landing



No major issued under the third-floor landing.





Cracked brick work and concrete padstone under the second-floor landing. Pattress plate is starting split.



Brickwork to the piers at first floor level has cracked.



Pier at ground floor level.

Please also refer to drawings 25536 / 05 and 06 highlighting where the defects are to each block.



## Causes of the structural defects :-

### Pattress plates :-

We believe that the pattress plates have failed / failing have cracked due to following variations in temperature causing them to the expand and contract and them not being galvanised to prevent them from corroding. We do not know what grade steel the existing plates are.

### Concrete padstones :-

The concrete padstones within the piers have been cast from clinker concrete. To our knowledge they are part of the original structure and are approximately 160 years old. The reinforcement within the padstones has corroded and caused the concrete to crack / fail. The clinker concrete has come to the end of design life.

### PFC Beams :-

The PFC beams are not part of the original structure, we believe that they were installed to provide support to the edge of the landing. The PFC beams are no galvanised. As water has run down the inside of the piers the ends of the beams have corroded.

#### Brickwork to the masonry piers:-

The brickwork piers are of hollow construction and part of the original structure making them approximately 160 years old. The piers have been tied back to the structure via the pattress plates and ties bars to provide lateral restraint. We believe that the brickwork has cracked due to the varying strengths of the brickwork (manufacturing was not consistent when they were made) and age.

### Water ingress

The rainwater from the landings does not drain away from the structure via the rainwater pipe which is set behind the masonry pier. As a result of this water has run down the inside and outside of the piers. This has increased the corrosion of the landing beams, the deterioration of the of the clinker concrete padstones, pattress plates and brickwork. See picture below :-





#### Summary :-

After much consideration we recommend that the central piers are taken down and reconstructed on each block as detailed on our drawing 25536 / 04. This is to ensure that the structure will last another 50 + years.

We do not recommend that patch repairs are carried out to the structure as we cannot guarantee that the brickwork / pattress plates or padstones will not crack in the future leading to more costly repairs.

We also believe that it will be easier to take the piers down and rebuild them with regards to temporary works, i.e. propping the central pier to replace a section of brickwork or a concrete padstone will be complicated as access to the residential units needs to be maintained.

If you have any queries, please do not hesitate to contact us.

Yours Sincerely,

Eaman

Christopher Seaman (Bsc Hons)