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Your ref:
Our ref: E13339-241029rp-001/MP 30 October 2024

By email only (mattdavies@effefftee.co.uk)

Matt Davies
Faithorn Farrell Timms
Suite 4e Castle House
Sea View Way
BRIGHTON
BN2 6NT

Dear Matt

Grange Court, Coates and Locks Balconies | Southwick Estates, Brighton BN42 | Structural Engineers Report.

We confirm our meeting on site on the 29th October 2024 to inspect the intrusive opening up works undertaken to the balconies at Grange Court, Coates and Locks.

The balconies to the blocks are scaffolded and works have progressed to expose the rebar for further inspection to establish the condition of the rebar following the exposure works undertaken at Sea House which found significant corrosion to the balcony slabs.

We report on our observations.
Refer to the attached drawing No E13339-241029-01 Site Visit.

Grange Court

1. As found with Sea House the balcony slabs are reinforced with two layers of square twist rebar with minimal top and bottom cover. Where exposed the rebar has been found to be highly corroded with expansive corrosion and loss of section.

2. Both the top and bottom layers of reinforcement are corroded to equal measure.

3. There is also pitting of the rebar consistent with chloride induced corrosion.

4. The extent of corrosion observed together with the limited thickness of the slabs will not be suitable for undertaking normal concrete repairs which will require a minimum of 40mm to be removed around each bar. The result is that there will not be sufficient section of concrete retained to make the repair without totally breaking out the concrete to the slabs.

5. There is cracking of the concrete to a number of the projecting fins indicating expansive corrosion of the embedded rebar.

6. In some locations the rebar to the fins where exposed has been found not to be corroded and in a satisfactory condition. This is more apparent to the fins which are in sheltered locations and protected in part by the balcony slabs.

7. We note that there have been a significant number of previous repairs undertaken to the balconies and in locations these have failed and the rebar has been found to be corroded.

   We also note that the exposure works have uncovered previous filling of the gaps between the upstands and the wall indicative of creep failure causing outward rotation of the fins supporting the balcony slabs.

8. Opening up of the render band above the windows showed the construction to consist of a precast concrete lintel spanning the opening supporting rendered 70mm infill thermalite blockwork with a 100mm cavity behind. The fins were shown to be precast units cast into the edge of the floor slab.

Coates & Locks

9. The opening up shows the balcony slabs to be constructed with a light mesh reinforcement placed centrally and with only minimal corrosion and not highly corroded as found at Grange Court and Sea House.

10. The fin reinforcement was found generally to be highly corroded consisting of square twist bars and plain bar links.

11. At the joint in the balcony slabs the fins were found to be in a worst condition consistent with their location at the joint in the slabs where moisture is trapped.

We make the following recommendations.

Grange Court

1. As found at Sea House due to the extent and corroded condition of the rebar concrete repairs are not a suitable or economic solution to maintain the structural integrity of the balconies.

   The degree of damage and previous repairs uncovered is indicative of the general progressive deterioration of the concrete to the balconies and we are of the opinion that the balconies are now beyond the scope of remedial repairs and should be taken down to mitigate risks of further deterioration and possible partial collapse.

2. We would recommend that alternative solutions are considered for replacing the balconies with a galvanised steel structure as for Sea House.

Coates and Locks

1. The current proposal is to provide galvanised steel propping to the balconies and to retain the existing concrete elements with some concrete repairs. We are of the opinion that this can still be achieved as the balcony slabs are not in the same severely corroded condition as found at Grange Court and Sea House.

   As reported previously this considered a short term strategy for the retention of the balcony concrete which will inevitably continue to deteriorate from the process of on-going corrosion of the embedded rebar due to the elevated levels of cast in chlorides as found in the investigations undertaken in 2018 and 2022.

2. Some of the projecting fins have almost totally degraded due to the extent of corrosion and would be beyond the scope for concrete repairs. In this instance, there would be little benefit in trying to reconstruct the fins in concrete and we would recommend additional steel work is provided at these locations to provide adequate support to the balcony slabs. The steel channel sections at these locations would be doubled up and the damaged concrete fins removed and cut back to the building face.

We trust this report is adequate for your purposes and should you have any specific queries regarding the above then please let us know.

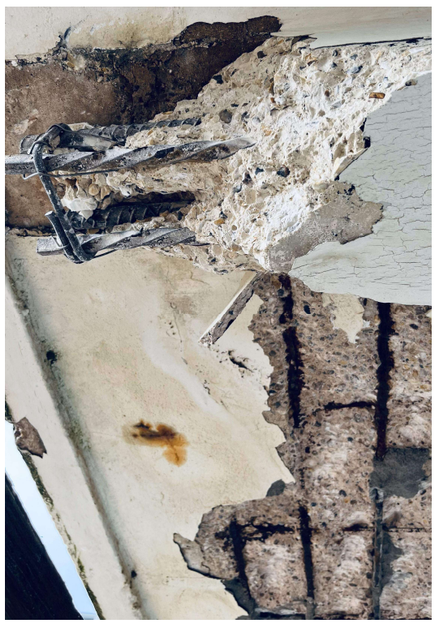
Yours sincerely

M V Pettit
BEng CEng MIStructE
For and on behalf of
EAR Sheppard Consulting Civil & Structural Engineers Limited





GRANGE COURT



Highly Corroded Rebar to Soffit
and Top of Balcony Slab



Fin Rebar with only
Minimal Corrosion



Rendered band and concrete
lintel above window and 70mmthk
thermalite block infill + 100mm
cavity to slab edge



COATES & LOCKS

Generally high corrosion to fin
reinforcement.



Rendered band and concrete
lintel above window and 65mmthk
brick on edge infill + 100mm
cavity to slab edge



Generally high corrosion to fin
reinforcement at joint in
balcony slabs



Generally high corrosion to fin
reinforcement.

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