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1.0 Introduction

- 1.1 This report has been completed by John Harrison MStructE, CEng) for Harrison Shortt Structural Engineers Ltd.
- 1.2 Harrison Shortt Structural Engineers Ltd. have been appointed by the leaseholders of flat C to review the condition of the building on their behalf to submit a report to the Freeholder
- 1.3 Access has been gained to the leasehold demise of this apartment on 3rd August 2021, site notes are shown on plans E12 and E13
- 1.4 The building is occupied and therefore opening up works have not been completed.
- 1.5 Harrison Shortt worked for the leaseholder in in the structural design of the alterations to the basement flat.

2.0 Existing Building, Site and Ground Conditions

- 2.1 The existing building is the end of a group of 3 terraced houses in the middle of a road with similarly trio of house.
- 2.2 The House has been subdivided into 3 leasehold flats.
- 2.3 The existing Facades and party walls are masonry, internally the spine wall appears to be masonry this supports timber joists that span front to back
- 2.4 The building is founded on corbeled strip footings into the underlying London Clay

3.0 Observations

- 3.1 The Front façade is showing slowing in towards the bay window at both first and second floor level.
- 3.2 The sash window frame has skewed so the bottom section of the frame has been planed down by approximately 30mm
- 3.3 The front wall is bowing at second floor level by 50mm, The skirting board is 30mm further towards the street than the ceiling level.
- 3.4 The first floor front façade wall slopes outwards by 10mm
- 3.5 The corner of the house appears vertical and plumb as viewed form ground level.
- 3.6 Harrison Shortt have reviewed another building in this grid of streets that have suffered settlement suggesting the underlying soil is highly shrinkable.

4.0 Discussions

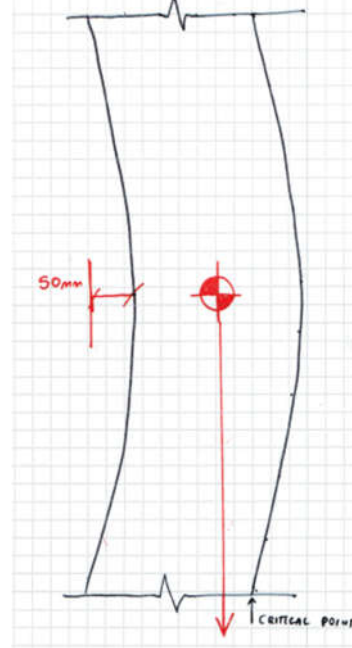
- 4.1 The underlying ground in this part of London is believed to be highly shrinkable however the ground floor windows appear reasonable square and true for their age and type.
- 4.2 The deformation in the front façade is likely to be as a result of the bressemer beam that spans across the top of the bay window. These are typically timber and over time this timber sags in a process called creep, This can be exacerbated by water increase form a leaking bay window roof. The patter is suggestive that the right hand end has suffered more than the left.

The bowing in the floors all relates to the issue with the bressemer the slope on the second floor is worsened by the presence of a dense partition (we believe it to be brick built off the existing timber joisted floor.

There were no cracks in the façade and therefore it is possible that this problem has been repaired and this movement is historic. However if not then a new steel beam is required in the ceiling of the Ground floor to prevent further movement.

The dense partition could be removed at Second floor level to prevent any further creep.

4.3



The bowing within the front façade appears to be worse at the second floor level as the tying at both eaves and roof level appear adequate as there is limited bowing at this level. When the center of mass of the wall moves beyond the face of the wall then it becomes unstable, this has not happened yet. The reason for the movement is likely to be as a result of central heating skrinkking the joists reducing the fricking into the wall at that level. It would be advisable to install strapping as shown on P01.

5.0 Conclusions

- 5.1 The bowing in the front elevation is a result of the loss of tie at second floor level that should be reinstated with the installation of BAT straps
- 5.2 The sag left to right at second floor level could be improved by the removal of the partition and replacement with a lightweight wall but this is not critical.
- 5.3 The vertical sag in the front façade on the balance of probability is historic however if the movement is ongoing a new bressmer beam (152 UC 37 with steel cap-plate to suit wall thickness) will be required. It would be advisable to confirm with the leaseholder at ground floor to confirm if the beam has already been replaced and lift a floor board at first floor level to determine construction and delay any works to see if the sagging worsens.