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Dear Andrew,

Chimney Stack Inspection - 21 Bedford Square

As requested we have assessed the condition of the front chimney stack on the party wall with No. 22 Bedford Square. We attach our survey photographs and report as follows:-

1. The property was located on the north side of Bedford Square and faced south eastward (see photograph 2).
2. Viewed from the square the chimney stack on the left hand side of the above property was clearly out of plumb and leaning towards No. 22 Bedford Square, the adjacent property (see photograph 1).
3. The chimney stack measured two bricks thick (approximately 450mm), 3m long and 2.3m above ridge level (2.8m above mansard party wall level).
4. There were 7 chimney pots, and the flues appeared to serve 21 Bedford Square, but this has not been confirmed (see photograph 3).
5. Viewed from the central valley on the roof the stack leaned significantly towards No. 22. We were not able to measure the verticality as safe access was not available but was probably in the order of 150mm or so. The top 25 courses appeared to have been most affected (approximately 1.8m see photograph 4).
6. Distortion of this type can be difficult to assess by eye, but it was very noticeable and may exceed our estimation. It is likely that the movement that has occurred is long standing but we cannot confirm that the movement is not progressive.
7. 150mm out of plumbness represents one third of the width of the stack, or height/15.
8. The stack has been repointed in the not too distant past and the condition of the cement based mortar was poor in places. The repointing may have concealed bed joint cracking or movement at the base of the stack.
9. We were not able to inspect the stack from the neighbouring property and therefore cannot confirm the condition of the brickwork or pointing on that side.

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Whilst the stack appears to have accommodated the movement without significant distress we cannot confirm its stability in high winds, or that future movement will not occur. There remains a risk therefore that the stack could become unstable and collapse on to the roof of number 22 Bedford Square. The upper section of stack weighs in order of 33kN, or 3 tonnes and this would cause considerable damage in the event of collapse.

Whilst we understand this is a Grade I Listed building and minimum intervention is preferable we consider the risk of further distortion and potential instability of the stack to be significant. We have considered a remedial tension restraint tie-back to the roof of number 21 but we do not consider it is appropriate in this instance. The chimney is significantly higher than the roof and does not align with the ridge, i.e. it projects forward of the mansard roof (see photographs 6, 7, 8). The tie force would be eccentric and the existing timber structure of the mansard is unlikely to be robust enough to provide sufficient restraint. The tying would probably be a significant intervention to the roof structure, and one that presents the risk of damage to the integrity of the roof itself.

In our view, the most appropriate repair in this instance is careful demolition down to ridge level and rebuilding using the original bricks and lime mortar. This will reduce the risk of collapse and damage to the roofs of Number 21 and 22 Bedford Square.

I hope that the above is clear, but please let me know if you require any further information or clarification. If a meeting onsite would be useful we would be happy to present our findings in person.

Yours sincerely



DAVID MASON
For Mason Navarro Pledge Ltd

Enc.