



STRUCTURAL ENGINEER'S REPORT

Property : Esclusham Hall, Rhostyllen,
Wrexham.

Client : Mr and Mrs Wakerley
Esclusham Hall
Talwrn Road
Rhostyllen
Wrexham
LL14 4ES.

Brief : Visit site, carry out inspection of condition of chimney stack on rear, northern elevation and report on this with opinion on its safety in consideration of concerns raised by evidence of clear distortion..

Date of Visit : Friday 28th August 2020.

Our Ref : GMS274 /GPH

Client Order No.



PROPERTY

The property is a grade II listed building dating from C15 or early C16 when it would have been a timber framed construction, but subject to extensive remodelling during the 1670's, we understand, when external walls were substantially rebuilt using brickwork . The building is two storey and has a Z shape on plan with two outrigger extensions to the main rectangular section.

BRIEF

Our brief, instructed by the property owners, Mr and Mrs Wakerley, was to visit the site and carry out an examination of the condition of the chimney stack at the centre of the gabled apex of the rear wall of the rear outrigger, assess its safety and advise our opinion on that and any necessary remedial measures.

We visited the site on Friday 28th August 2020 and carried out a general visual inspection from the paving around the building. We did not undertake any opening up works or excavations to examine the wall interior. Areas not examined nor commented on in this report cannot be verified as being free from defect.

OBSERVATIONS

The chimney stack is a substantial brick structure, projecting some 2.5 metres above the roof line and being around 1050 - 1150mm long, along the line of the roof ridge, around 1290 wide on the length of the end wall, where it has been buttressed historically by stepped brickwork, and 425 – 450mm wide at the other end – above the roof.

The chimney stack has a very substantial lean over the roof – parallel to the line of the roof ridge, at the thinner end. The lean is estimated to be 150mm or more which means that the self-weight of the chimney stack is shifting to a point whereby it will cause the stack to keep on distorting under its own eccentric weight. The stack also seems to lean backwards at the thinner end.

In addition to that, established by inspection and measure of breasting inside the house in the kitchen and bathroom at ground and upper floor levels respectively, the breasting



appears to be wider at the upper floor level , in the bathroom, than below, in the kitchen, with a consequential loading of the boarded timber joist upper floor – which has distorted by deflection – being ‘dished’ in the line of the chimney breasting.

DISCUSSION

The chimney stack in question and the cause of concern, has a substantial distortion at the thinner end. There has evidently been movement of longstanding origin which has prompted buttressing using stepped masonry over the thickness of the gabled section of the end wall of the building, which evidently hasn't been possible at the thinner end of the stack over the roof.

The degree of distortion and the apparent arrangement of the chimney breasting and its support arrangement internally, as described in the foregoing section of this report, means that the chimneys eccentric self-weight loading alone, not accounting for wind loading which will of course contribute significantly, will cause distortion to progress.

It seems clear that in addition to the buttressing of one end of the stack, the stack height has been increased substantially at some time during the buildings more recent history. The chimney is not live at present. It is sometimes the case that the stack brickwork can be affected by sulphate attack, from old soot build up – which causes curvature in a north south direction under the influence of wetting and the sun on the chemicals within soot deposits.

We must advise that because of the clear degree of distortion the stack should be considered as in a perilous state and that remedial measures should be undertaken. Because of the buildings listing works must be approved by the Local Authorities Conservation Officer.

In this case the best outcome would be for removal of the stack, which is not in a prominent position on the building frontage and making good of the roof cover to match the existing. If that was not approved the height should at least be substantially reduced – to around half its present height or less.

Concurrent with that work, the support arrangement of the breasting inside the building needs to be closely examined by local exposure of the structure to determine the appropriate remedial measures to alleviate the floor distortion and ensure safe support.



CONCLUSIONS/RECOMMENDATIONS

The chimney stack at the rear of the building has clear distortion and should be considered as a perilous state. Remedial works are recommended as described in the foregoing sections of this report.



APPENDIX

Record photographs.



LIMITATIONS OF STRUCTURAL COMMENT

- 1) This report is for the use of Mr and Mrs Wakerley and their advisors in this matter and those vetting works proposals in an official capacity, It shall not be released to any other party without the express permission of Hughes Consulting.
- 2) Hughes Consulting the right to change their opinion/recommendations should further relevant information become available.
- 3) This report does not confer nor purport to confer any third-party rights.

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