

FAIRCLOUGH
CONSULTING STRUCTURAL ENGINEERS
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STRUCTURAL ENGINEERS INSPECTION REPORT

of

BUILDING 4

**GRATTON HALL FARM, GRATTON LANE, ENDON
STAFFORDSHIRE.
ST9 9AW**

24 July 2021

Report No: 210720B

INTRODUCTION

INSTRUCTIONS

1. Property to be inspected : Building 4
Gratton Hall Farm
Gratton Lane
Endon
Staffordshire
ST9 9AW
2. Client : Sarah & Lee Kirkham
3. We have been instructed to :

Inspect and report on the structural load bearing elements of the building.
4. The report is required for advice prior to planning consent. It is proposed to convert the building to domestic leisure use.
5. The property was inspected on the 14 July 2021.

EXTENT AND LIMITATIONS OF THE SURVEY & REPORT

6. This inspection report is limited in its scope to the instructions as noted above. We have not inspected parts of the property or defects that are not relevant to the instructions unless noted in this report. Our inspection was a visual inspection internally and externally as necessary subject to safe and reasonable access being available. We shall only report upon those structural defects that materially affect the stability of the property and provided that these defects are reasonably detectable at the time of our inspection. Whilst we will use all reasonable skill and care in preparing this report, it should be appreciated that we cannot offer any guarantee that the property will be free from future defects or that existing defects will not become worse. Internal inspection is made within the limits of ready accessibility and it is not normal practice to lift floor coverings or floor boards, remove panels or plaster, or move heavier items of furniture. We have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect. Such unexposed parts may contain problems and you would need to make special arrangements for these areas to be investigated if you require confirmation about their condition.

8. This report has been prepared for the named client and for a particular purpose. Any liability, which may arise, is therefore restricted to the client and the client's professional advisers in relation to that stated purpose.

ORIENTATION

9. For the purpose of this report, unless otherwise stated, the elevations will be referred to by compass direction. All references to left, right etc are given as if facing the elevation from the outside.

DESCRIPTION OF THE PROPERTY

10. The property comprises a former agricultural barn/shippon. The upper parts of the elevations are mostly of corrugated steel cladding and the lower parts are mostly of concrete blockwork.
11. No details were available of any structural problems that may have occurred, nor of any structural repairs or structural alterations that may have been made to the property or to neighbouring properties except as noted in this report.

EXTERNAL OBSERVATIONS

ROOF

12. The roof was observed from ground level. The roof is pitched and covered corrugated steel sheeting. The roof is free from significant deflection.

ELEVATIONS

13. The upper parts of the elevations are mostly of corrugated steel sheet on timber rails and steel columns. The lower parts are mostly of concrete blockwork. The elevations are plumb within the tolerances normally expected. There are no indications of structurally significant roof/eaves spread.
14. There is a large crack in the concrete blockwork on the South West elevation adjacent to a large mature tree; the crack appears to be old.
15. There are cracks in the concrete blockwork on the South East elevation above a wide door opening. These cracks appear to be caused by thermal movement.

INTERNAL OBSERVATIONS

ROOF STRUCTURE

17. There was no safe access to the first floor. This prevented a close inspection of the roof structure. Observation from the access ladder shows that the roof structure consists of slender timber purlins and simple “agricultural” timber trusses. The roof structure does not appear to be significantly deflected.

FIRST FLOOR

18. The first floor consists of steel beams supporting timber joists and floorboards. The exposed parts of the steel beams are superficially corroded but not sufficient to cause any reduction in strength. The upper part of the South West elevation is supported on the first floor beams. The bearings embedded in the elevations are more susceptible to corrosion but there were no visible signs of a serious problem. The timber joists mostly appear to be in a satisfactory condition.

GROUND FLOOR

19. The ground floor of both buildings is a typical old agricultural barn floor of solid concrete with changes in level. The floor has lifted and cracks adjacent to the large mature tree in close proximity to the South West Elevation.

WALLS

20. At first floor the internal face of the elevations is formed by the external corrugated steel cladding. At ground floor the internal faces of the elevations are concrete blockwork. There are cracks to match those noted externally.

CONCLUSIONS & RECOMMENDATIONS

ROOF STRUCTURE

21. The roof structure consists of timber purlins and trusses. It is slender and of a basic “agricultural” standard. It is supporting the load currently applied but this is only a single layer of corrugated steel sheeting. The roof structure could not support an increased load. The roof structure is not suitable for conversion and should be replaced with new unless the first floor is to remain un-converted and the roof not re-covered.

ELEVATIONS/MAIN STRUCTURE

22. The main structure of the building is a steel framework consisting of steel columns and steel first floor beams. These beams are supported on the masonry ground floor elevations and one internal column. These floor beams also support the columns of the inset first floor South West Elevation. There is no steel bracing. This arrangement relies on the first floor and ground floor elevations for stability and to a lesser extent on the roof. This arrangement is satisfactory but to fully comply with the building regulations additional stiffness in the form of some bracing and strengthening of columns will be required. It might be beneficial to provide greater stiffness by replacing the roof structure with a new steel structure rather than a new timber structure.
23. The ground floor South West Elevation has clearly been effected by the very close proximity of a large mature tree. This tree is of considerable amenity value and I suspect that the risk of further damage will have to be accepted. Since the tree is now mature the risk from water extraction from the supporting ground should be low but further direct physical damage from the roots is a possibility.

FIRST FLOOR

24. There was no safe access and some floorboards are rotten. The joists will have to be checked in detail for rot or other defect but provided they are in reasonable condition they will be able to support normal domestic floor loading.

GROUND FLOOR

25. I understand that the intention is to introduce a suspended timber floor to reduce the impact of any further damage from the large mature tree in close proximity. The damaged part of the floor should be excavated to exclude other potential causes of the damage - for example sulphate attack or expanding fill.

OVERALL CONCLUSION.

26. My overall conclusion is that this building is suitable for conversion but structural strengthening work will be required.

A handwritten signature in black ink, reading 'D Fairclough'.

D.Fairclough BSc, MBA, CEng, MICE, MIStructE, MInstRE
For Fairclough & Co Ltd

