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PLEASE REPLY TO Dorking

Ben Kirk
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By email: ben@manorwood.co.uk

Dear Ben

STRUCTURAL IMPACT ASSESSMENT OF PROPOSED LOFT CONVERSION AT CHURCH FARM HOUSE WEST, 24 MANOR ROAD, NORTH LANCING, WEST SUSSEX, BN15 0HA

Further to recent instructions I confirm having visited the property on Wednesday 5 July 2023 to review the existing structure and report on the likely implications of the proposed loft conversion, as outlined in John Whiting Architects drawings and report as follows:

Description

The property in question is circa early to mid-18th Century constructed in masonry and flintwork under a pitched tiled roof.

The current roof construction is traditional pitched rafters supported on a purlin that spans between principal rafter trusses, but these principal trusses do not have the traditional collar at the top of the raking struts. There are 2No. with a middle single collar of these principal trusses and approximately equal spacing across the width of the roof.

The existing trusses, collar and rafters are in a fair condition for the majority, albeit showing a degree of sag on the rafters.

It appears that historically some additional cross bracing has been added to resist this sag.

At some point the roof has been re-roofed and this is clearly visible due to the heavy firring that has been undertaken between the original and the replacement rafters in order to give a line and level roof finish.

Proposals

The proposal is to open out the roof by removal of some cross braces in order to obtain a more usable space but the raking struts are to be left in-situ as a feature.

However, removal of the collars may affect the mains frames ability to resist roof spread.

It would be recommended to provide an interrupted collar forming a door frame in order to ensure that the forces resisted by the collar is maintained.

With careful consideration and design I believe this can be achievable.

With reference to the new floor joists that will be required, it would be my recommendation to provide small structural steel sections either side of the principal rafter trusses to support the new floor joists that would span between.

The benefit of this proposal is that it would have little or no structural impact on the ceiling joists or rafters or the principal trusses themselves and could be readily demountable at a later date if required.

Supplementary Comments

On the south facing pitch adjacent to the west facing gable end there is a significant (albeit historic) fracture in the purlin and some temporary propping has been installed to support the roof.

Whilst this propping appears to be effective, I consider it would be appropriate to replace this fractured section of purlin by splicing in a new section of oak purlin such that the propping can be removed and the roof restored to its more traditional configuration.

Conclusion

In general, the proposed loft conversion would have limited structural impact on the existing roof other than the cutting of the cross ties which would need careful consideration.

There are, naturally, some areas of the roof that would require some remedial attention such as stiffening of connections by appropriate metal cleating and splicing of localised rotted timbers, but in general, this is not beyond normal maintenance concerns.

Exclusions

This is not a full survey of the property and is intended solely in relation to the proposed loft conversion and based on limited access to the loft and first floor areas.

Yours sincerely



David Barnard
IEng AMIStructE
Project Engineer