12th November 2019
Job No: 7802BRE

Structural Report

Bremhill House - Barn 1, Wiltshire

Report on the Structural Aspects of the feasibility of conversion of a single storey outbuilding to Bremhill House, Wiltshire

Report By
M. Mitchell BSc CEng MICE

Structural Solutions Management Ltd
Dairy Studios, 102 Lincoln Street, Bristol BS5 0BJ tel: 0117 924 5014
Email: admin@structuralsolutions.co.uk Website: www.structuralsolutions.co.uk

Bremhill House Barn 1, Wiltshire

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Purpose of the Report

Structural Solutions was commissioned to carry out an investigation into the feasibility of converting a single storey outbuilding at Bremhill House into a residential property. This report considers the current condition of the structure and the likely work required as part of the conversion. It is not intended to be a full structural evaluation of the building.

Introduction

The building is L-shaped in plan constructed with a mix of rubble stone and concrete blockwork walls to rear and gable end walls and an 'open' front to the south facing elevation. This elevation consists of a series of timber posts on stone 'saddle' stones supporting an eaves beam which in turn supports the roof structure. Internally, there are a series of isolated blockwork piers close to the 'rear' elevation. These support the principal roof trusses which align with the posts on the front elevation. The trusses support timber purlins with a corrugated metal roof. To the east end of the building, the short 'leg' of the L-shape consists of an enclosed space with rubble stone walls on external elevations and an internal blockwork dividing wall between this and the long 'leg'. The roof is similar to that previously described with principal roof truss and purlins.

Internally, the east west leg of the building is relatively open with only one defined internal 'divider'. The floor is of concrete construction and although the building was being used as a general store, from what could be seen was is a relatively good condition.

Investigation

Our investigation is based on a visual walk over only and no testing of the materials has been carried out.

The roof trusses of this building are of 'simple' A-style with an upper 'collar' and have been fabricated from large section timber. There are large section timber purlins that span between trusses approximately mid-span of the slope and small section purlins that are supported on top of the trusses at quarter points on each slope. The upper purlins support the corrugated metal roof covering. We believe that originally, the building may have supported rafters and possibly a tiled roof via the lower purlins but that the upper purlins were added to reduce the effective span of the corrugated metal. The quality of the roof structure is generally good with only minor signs of decay of the timber, particularly close to the eaves. The quality of the corrugated metal varies but does an acceptable job of keeping out the weather although there are areas where the metal has deteriorated to the point that it is letting the rain enter the building. A review of the existing structure will be

required to ensure that it is capable of supporting additional loads from a new roof covering, insulation and ceiling finishes once that these have been decided upon.

We do not anticipate that large scale remedial work will be required to any of the roof structure.

The masonry to the building is generally in a good condition although there is likely to be damp rising from the ground but there are no signs of deterioration. The mortar jointing of the external stonework is generally good and shows signs of having been maintained in the past.

Although the existing concrete floor appears to be in a relatively good condition, a damp proof membrane and insulation will need to be can be introduced into the construction finishes.

Discussion

We understand from the Client that the proposed conversion work will maintain the basic plan of the building including retention of the existing masonry and roof profile.

Apart from treating the existing timber, carrying out minor repairs and a review of the load carrying capacity of the roof structure there appears to be very little structural work that would be required as part of the proposed conversion work. Introduction of insulation and a damp proof membrane to the floor structure will also be required. Presumably, insulation will be introduced to the external walls and this will be detailed as part of the conversion works.

Conclusion

As stated above, this report is not intended to be a full and detailed structural survey. Its purpose is to establish in structural terms whether the conversion into a usable property is feasible without significant modification or demolition. In brief, demolition or significant removal of the fabric of the building is not necessary in either case as the existing structure is generally in a good condition. Apart from remedial work to certain areas of the building as outlined above, the main work we suggest will be concentrated on ensuring the future protection of the building's fabric and introduction of insulation.

Appendix A



Front Elevation of Barn (long 'leg')



Front Elevation of Barn (short 'leg')



'A' Frame roof trusses with upper and lower purlins & corrugated metal roof



Maintained external gable elevation of short 'leg' of barn