



engineering
design

0309_Winsor House

Roof condition for proposed re-sheeting



Amendments

Revision	Amendment	Date	By
0	First Issue	07.07.2022	Toby Murphy Conservation Accredited Engineer

1. Introduction

1.1. Brief

Bea Engineering Design Ltd were contacted by Mandy Cole with regard to the proposed re-sheeting of the existing corrugated sheet roof. The application calls for a structural surveyors report on any works required on the structural timbers.

A site inspection was undertaken on the 4th July 2022. Toby Murphy is a Conservation Accredited Engineer at Bea Engineering Design Ltd.

The weather was dry.

1.2. Limitations

- The information in this report is based on a visual inspection from accessible areas. This includes from floor levels and with ladder access up to the loft hatch. Touching distance access was not possible to trusses within the attic space.
- No opening up was undertaken.
- No sampling or material testing was undertaken.
- This report is for the sole use of the Client and should not be relied upon by third parties.
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1.3. Building description

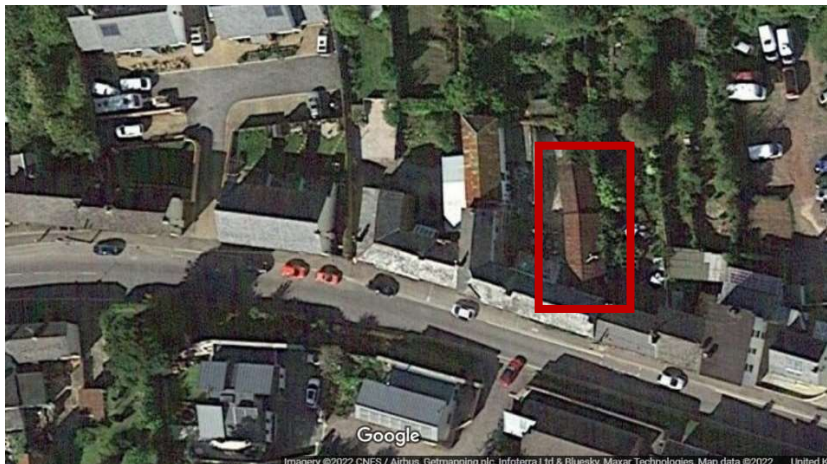


Image 1 - Aerial Image

The corrugated roof is in two sections. The first, closest to the house and over the living accommodation, is formed of timber trusses with raised collars. The trusses support purlins which have been packed off the trusses to support the corrugated metal sheet. These trusses are constructed of rough timber and are confined within an attic space. The second section, covering the hay loft area at the back, are formed of king-post trusses. These trusses are hardwood and of good quality joinery. The trusses support purlins with common rafters over. There are secondary purlins over the rafters which support the corrugated metal sheet.

2. Roof condition

2.1. Barn end roof (north section)

Typically the barn end of the roof is of very good condition and of good quality. There are five trusses and a hipped end. Two defects were noted:

2.1.1. *Hipped end truss at north end*



Image 2 - West bearing north truss

The hipped end truss has rotated towards the north. This is likely to relate to the previous collapse of the north end wall around 2007. It is possible that no bearing plate was placed under the truss west bearing and this may have led to deformation of the cob around the bearing. The presence of a bearing plate should be checked for, and a longer padstone may be required to span over some localised cracks.

2.1.2. Gable end truss at the south end



Image 3 - South end truss and west purlin

There has been water ingress through the corrugated sheeting where the roof steps up between the barn and living accommodation. The water ingress has caused decay to one of the purlin ends, and there are signs of insect damage on the west primary truss rafter. The decay to the truss appears historic. It is likely that the purlin end will require a spliced end repair in like for like timber, or replacement

2.2. Accommodation end roof (south section)

The trusses in this section of roof are rougher and have been adapted multiple times. In all there are six trusses in this section of roof. Five are located within the attic space, one is exposed within the north end roof. There are no signs of movement in the finishes which suggests there is no movement within the existing trusses. No obvious defects were observed, however it is likely some repairs may be required once the corrugated sheet is off and full access to inspect the structure is possible. In the exposed north truss one historic defect and repair can be seen.

2.2.1. North end truss



Image 4 - North end truss

The east end primary rafter has previously failed at a peg connection. It is likely the connection was with a previous tie location. There is woodworm around the location of the failure. The failure has been spliced across with a section of oak nailed into the primary rafter. It is likely the repair is a number of decades old. A number of the nails have missed the original timber and there is surface corrosion. It is unlikely the repair would meet modern standards but does appear to be working. It would be possible to add new fixings alongside the existing to enhance the robustness of the connection. Alternatively repairs could be undertaken from above once the corrugated metal sheet is removed.

3. Conclusion

The proposal to replace the existing corrugated metal sheet will safeguard against future leaks which would otherwise eventually cause damage to the structure. The proposed replacement is like for like material. It therefore adds no additional weight.

Though no recent defects or movement were observed, it is likely that some repair may be required following the removal of the corrugated metal sheeting. These would exist whether the corrugated sheet is replaced or not.

We support the re-sheeting to safeguard the building. It is recommended that the roof structure is inspected once the sheeting is removed.