

Mr D Eaves
Senior Planning Officer
Havant Borough Council
Public Service Plaza
Civic Centre Road
Havant
Hampshire
PO9 2AX

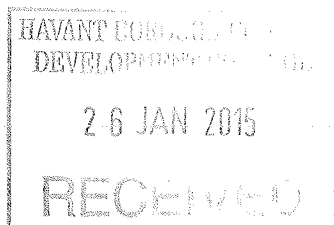
11 July 2014

Dear Mr Eaves


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Consulting Structural Engineers & Building Designers


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Ref 14-1003 Antrims Barn, St Peters Road, Hayling Island PO11 0RT
Application Ref 07/62510/001 & 06/62510/002

H J Concepts were contacted by Robert Tutton Town Planning Consultants Ltd on behalf of Mr S Wilson owner of Antrim's Barn to carry out a structural review and prepare a set of drawings for the building as constructed.

A site visit was carried out on 1st July 2014 by Mr P Hamblin I Eng A.M.I.C.E. AMIStructE in order that a preliminary assessment of the building could be prepared.

Mr Wilson has provided us with a number of historic photos, condition reports and frame drawings that recorded the building prior to commencement of works and a number of photos during the initial works operation.

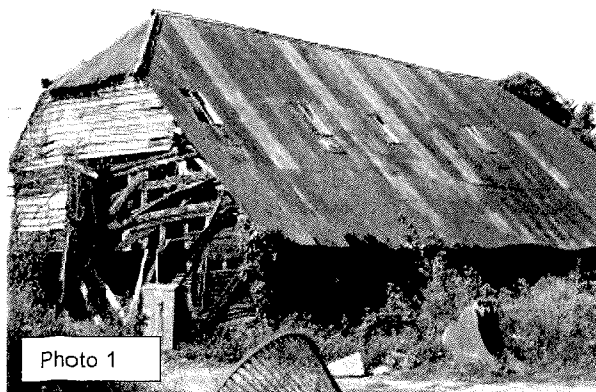


Photo 1

It is clear from the original photos and reports that the oak framing to the barn has seriously deteriorated and that barns external cladding was in a very poor state of repair and as such required a significant amount of intervention to ensure it's survival. As with all old dilapidated farm timber structures a certain degree of modern structural intervention is required to stabilise the building and it is clear that this building required such additional support. **Photo 1:** The building prior to commencement was clad in timber and roofed in a metal profile sheeting

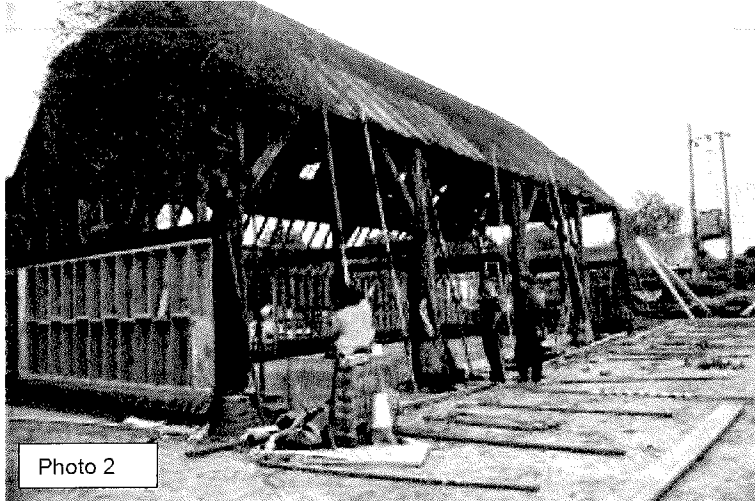
One of the biggest issues with the conversion of old timber farm buildings to residential accommodation is that the aerodynamic permeability of the building changes vastly, which affects the internal and external wind coefficients and pressures. The original building would have been a leaky well ventilated structure which allowed air to pass equally through the wall and roof cladding, thus reducing the pressure coefficients and horizontal wind forces on the main internal oak asile frames and gable walling. Once the building has been reclad and made air tight this changes the air permeability of the building and alters both the internal and external wind loading, which in turn effects the primary oak frame and it's ability to withstand the wind loads applied. This basically means that the original building frame now has to withstand much higher horizontal wind loading that previously applied, excluding any Meteorological climate changes now and in the future. This is well documented within the British Standard Code of Practice for the application of wind loads on to structures and is a major consideration when considering overall stability of the structure when carrying out a refurbishment and restoration project.

Directors: P Hamblin IEng A.M.I.C.E. AMIStructE • C J Akehurst B Eng(Hons) IEng AMIStructE

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As we can see Antrims's Barn, is a large tall structure with a relatively small cross sectioned aisled oak frame, which would not have been designed for the horizontal wind loadings now being applied to it. Natural deterioration and shrinkage of the oak frame has the effect of reducing the frames ability to carry wind loading and as such induces significant amount horizontal movement, which inturn makes the building unstable and liable to collapse.

The applicant has installed 5 no. steel portal frames and these have 2 uses. (i) to stabilise the original timber aisle frames and reduce the forces applied to the existing timber braces and joints and (ii) to provide independent support for the new internal floor structures. **Photo 2** below clearly shows that the steel frames are an addition to the oak framing and not a replacement for the oak legs, thus conserving the original frame.



We note that Havant Borough Council has compiled a list of changes to the approved scheme that it feels are detrimental to the building. (ref HBC letter dated 9 May 2014). These are also being reviewed and we shall be providing amended drawings covering these changes.

On conclusion following our initial review of the photos and documents provided to us we are of the opinion that without the insertion of the steel portal frames the existing oak aisle frames would have failed and the building would have ultimately collapsed.

It is proposed to prepare as far as possible a set of "AS BUILT" plans and elevations with material notes for the building and submit these to Havant Borough Council (HBC) for their consideration. We would like to propose that these drawings are submitted to HBC by the end of July 2014 along with supportive documentation

Yours faithfully

P Hamblin

Philip Hamblin
On behalf of H J Concepts Ltd