

The Old Shop, Kingcoed, Usk, Monmouthshire, NP15 1DS

Ref: RH/2777 Date: 4th August 2014

<u>Structural Survey at Coed-y-Colwn barn, Llancarfan</u> <u>For Mrs J. White</u>

Instructions

Mr Richard Hernon was instructed to carry out a structural survey of 'Coed-y-Colwn barn' near Llancarfan in order to assess its condition and to confirm its suitability for conversion to a habitable structure.

Limits

- 1. We did not inspect woodwork or other parts of the structure, which were covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property was free from defect.
- 2. The survey was as at the day of inspection.
- 3. The weather on the day was fine and cold following a generally dry period with occasional heavy showers.

Description

The barn is a rectangular building constructed from local stone laid in lime mortar. It has a timber-joisted intermediate floor and a corrugated cement-fibre roof covering supported by timber 'A' frames and purlins. Doors are present on the south-west elevation and north-east elevation together with a personnel door in the south-east gable at ground floor level and a hay-loft door above it. Window openings exist on both sides with some steel framed glazing still remaining.

Appraisal

The walls are all upright and straight with virtually no signs of bulges or other structural deficiencies. Minor vertical cracks show in the internal corners at both the east and north corners. These are extremely minor and not destabilising. The stone quoins of all doors are upright and intact but some repairs and making good in brickwork have been carried out around the windows at some point in the building's past. Concrete lintels have been inserted over all windows and the gable end door to replace the original stone arches. This appears to have been carried out many years ago, evidenced by the 1930's style metal window frames within the opening and general deterioration of the wooden door frame. Similar brick has been used for the pillars supporting the intermediate floor suggesting this was replaced at the same time probably when the barn was renovated to construct the animal pens.

The intermediate floor structure has supporting steel beams and herringbone strutting at mid span. The beams are in turn supported off the brick pillars. No signs of instability were seen and the additional beam was probably provided to allow the floor to be used for heavy storage. Some damage has been caused to the floor by water ingress through the hay loft door however this appears to be limited to a small patch of rotten floorboards.

The 'A' frame roof and purlins are in good condition and probably used to support a tiled or slated roof. The corrugated sheets are evidently a newer feature and should be tested in case they contain any asbestos. The roof timbers are softwood rather than a traditional oak and have a tie bar at approximately the mid span of the rafter.

Externally both gables are covered in ivy. They appear sound but ivy is destructive and should be removed as a matter of priority.

There are signs that a lean-to structure existed along the length of the South West elevation. Holes at high level indicate where primary rafters used to be socketed into the stone wall. However most of the structure has now collapsed with some of the remains visible having been left where they fell.

The floor is poured concrete with formed drainage channels which again looks contemporary with the other barn refurbishments.

Conclusions/recommendations

The building is in good condition and suitable for conversion with no demolition or major re-building required.

It is recommended that the roof structure is replaced, or a lower tie installed if headroom allows, to prevent the wall plates spreading under the increased load of the new roofing. This work will involve some rebuilding of the wall heads once the roof has been removed.

The concrete floor should be removed and replaced with either a damp proofed and insulated slab or a breathable lime-crete flooring system.

All ivy should be removed and any damage corrected using lime mortar.

Richard Hernon, C.Eng., M.I.Struct.E.

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