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## **Preliminary Structural building appraisal**

November 2020

### **Agricultural barn at :**

Windy Cross Farm  
Thornbury  
EX22 7BZ

### **Client**

Mr & Mrs Priest

### **Prepared by**

Gareth Short, MCIAT, C.Build e MCABE



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## 1.0 Foreword

The agricultural building at Windy Cross Farm, was inspected on the 18<sup>th</sup> November 2020.

The purpose of the inspection and subsequent report is to assess the building's current structural condition, for its potential re-use under Class Q legislation. This report provides a written assessment of the buildings structural components for the purpose of the pre application enquiry, for consideration of the buildings suitability for conversion to a dwelling, pending comment from the local planning authority in connection with the submitted pre application enquiry, with regards to either the construction of a new dwelling on the site (see supporting pre application statement), or the conversion of the shed under class q legislation.

The building was inspected by Gareth Short (Cbuild e MCABE) on behalf of R.A Rowe

## 2.0 Limitations and scope of works

The building was subject to an extensive visual survey at the time of inspection. Supporting photographs were taken of key structural aspects of the building.

All observations with regard to structural elements were carried out visually, from ground level. Some aspects of the building may have been covered and therefore were not readily available for inspection by eye, without the need for invasive works being carried out. Where such areas exist, these are commented upon within the accompanying report.

No invasive works, opening up works, nor trial pits were carried out.

Any underground pipework, in the form of drains, both surface and foul have not been inspected as part of this report.

None of the buildings existing services were inspected as part of this report.

## 3.0 General building comments

The building which is the subject of this report is located to the west of the farmhouse, known as Windy Cross Farm. The building fronts the high way and is approximately 4900mm from the west existing farmhouse. The subject building together with the host farmhouse make up a collective grouping of buildings at Windy Cross.

The subject building has a dual pitch roof with gable ends at the northern and southern ends. A lean to section adjoins the main steel frame building, on the west side. The main body of the building is constructed from steel frame portals as indicated on the accompanying drawing, number Pre/20.P05. The steel frames are generally clad in vertical tin over supporting timber structure. The roof is finished in a corrugated sheet material.

The site is located approx. 300 metres to the east of Woodacott and 1.2 kilometres to the west of Thornbury. Holsworthy is 5.7 kilometres to the south west.

Windy Cross, including Windy Cross Farm comprises a small cluster of houses forming a hamlet



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with an unclassified road running through it. Approximately 430 meters to the west of the subject site is the Woodacott Methodist Chapel, and the Woodacott arms which is a Public House

The building occupies a pleasant rural location and has a southerly aspect.

The building represents a straightforward rectangular form, walls are of steel frame, clad in tin sheeting fixed back to timber members. The roof is traditional dual pitch, with a central apex.

The ground floor is finished as earth and concrete. The building is predominantly open internally with the leanto on the west side being open to the highway aspect.

#### **4.0 Floors**

The building has a ground floor which could be seen as a mixture of cast concrete and earth covered in bedding hay. The floor is higher at the western side.

From inspection and given the age and construction of the building, it is evident no damp proof membrane exists.

#### **5.0 Walls**

The building is a modern steel portal framed structure, comprising of 3 main steel portal frames as indicated on the accompanying drawing. Vertical stanchions are considered to be approximately 178 x 102 with the portal frames spaced approximately 4.2 meters apart.

The building is generally clad and covered in, with openings in the positions indicated. Wall cladding is corrugated tin, or profiled metal sheeting fixed back to supporting timber members which span between the steel portal frames.

Diagonal steel restraint bracing was noted to the northern aspect of the portal structure, providing additional structural integrity to the portal frames.

Some slight surface corrosion was noted to the steel frames, however this is not considered to be conducive with major corrosion, or rot and is not considered to compromise the structural function of the members themselves. It is clear all steel work has at some stage been treated with a suitable rust protection coating, red oxide or similar which is likely to have been factory applied before erecting of the shed.



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## 6.0 Roof

The roof is formed around cranked steel members forming the steel portal frames. The steel rafters are bolted to the steel stanchion columns with a reinforcing plate located between the vertical uprights and the pitched members. A further steel reinforced haunch is located at the junction between pitched and vertical members. The vertical section and pitched members are bolted together with 4no. bolts.

At the apex junction between adjoining pitched members a horizontal steel reinforcing member is fillet welded to the principles with a continuous welded junction.

The northern most portal frame is braced back to the central frame with steel wind bracing, at diagonal juncture, bolted to each portal to provide lateral restraint to the main structure.

The roof is covered with a corrugated sheet material which is mechanically fixed to 200 x 75mm timber purlin rails which span between portal frames. There are 3 purlins to each roof slope on the east and west facing slopes.

A lean to roof adjoins the main shed which to is covered in a corrugated sheet material mechanically fixed over timber purlins spanning between load bearing members.

Generally the roof structure is considered to be in satisfactory condition and is performing its structural duties in a suitable manner. This is evident by there being no deflection noted with in either the portal frames, nor the structural timber purlins spanning between frames. The roof coverings are flush and true with no sags noted within the covering, again indicating that structural duties are being carried out adequately.

## 7.0 Conclusion

The building inspection and subsequent written report demonstrates and records the current formation and condition of the main structural elements of the buildings.

The report has been put together for the basis of a pre application enquiry regarding the potential for the building to be considered for conversion to a dwelling under the class Q legislation. The main structure of the building is seen as being sound and in adequate condition. The building stands and has done so for a significant number of years and no adverse structural fatigue or decay has been recorded with regards to the buildings ability to perform structural duties.

Its conversion to a dwelling ought to be considered favorably under class q legislation, as the conversion can take place without placing adverse structural impacts to the existing structure.

Walls can be insulated and finished / decorated as expected by the wider building regulations through the incorporation of a non load bearing insulated timber stud lining, similar to that as proposed for the conversion of a traditionally constructed rural building. The stud work will allow for the requisite amount of thermal insulation to be placed between and will also allow for the fixing of plasterboard for decorating. The main portal frame and cladding rails will not be influenced by the lining therefore no adverse or increased loading will be experienced as part of



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the conversion.

Similarly the roof structure is seen as being in sound condition. Conversion of the building to a dwelling will not impact of the wider structure as ceilings can be installed, located away from the main structure, off of the afore mentioned insulating wall lining which in turn can support ceiling members, light weight mineral wool insulation and plasterboard for decoration.

Any new openings which may be considered as part of a conversion can be punched within the existing corrugated sheet cladding and positioned as such to not impact on the sheeting rails which are in place.

In conclusion the steel framed building is in satisfactory structural condition with no observed signs of structural compromise. The main steel portals and timber components throughout are in good condition and as described above, both wall and roof structures are functioning in a structural aspect, in an adequate manner. The building is deemed to provide a suitable structural basis from which to base a conversion, with regard to the class Q legislation.

Subject to the recommendations made within this report, it is considered the building does represent a sound structural integrity and is therefore structurally viable for a re-use as proposed.



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## Appendix A – Photos



North perspective



South perspective



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Internal perspective – main shed



Steel portal frames, sheet cladding, lateral structural restraint strapping to roof and wall elements of portal frames