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SUNDERLAND PEACOCK ARCHITECTS

07/09/12 - 4282

Design and Access Statement
with Structural Statement
Merrybent Hill Farm, Catlow Road, Slaidburn



Approach to Merrybent Hill Farm

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Introduction

Merrybent Hill Farm is situated approximately 5 miles to the North of Slaidburn, just off the Catlow Road and accessed by a farm track. The farm has not been "worked" since 2005 remaining empty to the present day. Merrybent no longer has any farm land attached and as such a small holding is no longer viable.

Planning permission has been granted (application 3/2010/1019) to extend the habitable accommodation into the barn. This subsequent application is to include the existing sheep pen as part of the habitable accommodation. The current approval indicates this area as a workshop. This revised proposal will utilise this as part of the dwelling, affording access to the existing mezzanine hay loft in the barn and also other internal amendments. This use of the existing sheep pen for the stair will maintain the internal form of the barn, free from obstructions.

Listing

The house is listed, listing description as follows 16.11.1954

House, possibly early C18th. Slobbered rubble with slate roof. 2 storeys, 2 bays. Windows rebated and chamfered with mullions, all of 3 lights. A central one-storey gabled porch has a plain stone door surround with '1688 AV' roughly carved on the lintel. Chimneys to the right of the porch and to the left of the first bay. At the far left is a unit now with a modern garage entrance on the ground floor and a modern copy of a 3 light mullioned window on the first floor. There is an outshut to part of the rear of the house, which has windows with just plain reveals.

Design

Merrybent Hill Farm is a linear development with the main house constructed from line washed stone. The attached barn from random stone with smooth stone surrounds to the openings. There is a further stone building and a half stone half clad machinery / cattle shelter.

This amended proposal has no external alterations to the previously approved scheme. The internal amendments have been designed to be sympathetic to the existing building. The main revision is the omission of the first floor bedroom and en suite over the barn. This retains the open internal form of the barn, with the roof structure fully exposed internally and omits a new first floor opening into the previous bedroom. The existing hay loft is also to be retained as a mezzanine, with a new first floor opening from the sheep pen.

Within the main dwelling, the modern staircase is to be removed and a new stair is to be constructed in the suspected original position in the outshot. This affords better circulation within the dwelling.

The ground floor door to the family bathroom in the outshot and door at first floor into the outshot have been identified by the conservation officer as being of historical merit to the building. They are to be retained within the proposed scheme.

Structural Statement

This is not a full structural survey.

The main load bearing walls on the barn vary between 600mm and 800mm thick random stone and probably consist of two leaves of stone with rubble infill. The internal dimensions are 8.7m x 5.5m. The barn is accessed by a large opening 2.3m wide and the internal space is full height. The roof is supported by two timber king post trusses, purlins and rafters. Viewed from the ground the timber trusses generally look to be in good order.

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Barn Roof Showing King Post Trusses



North west elevation of barn- the existing openings will be utilised as windows.

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South East Elevation of Barn



Barn entrance, details of random stone and the general sound condition of the building.

The roof of the barn is covered with stone flags. These will require carefully removing for the replacement of the existing slate battens with the addition of a breathable membrane and carefully re fixing. A thorough appraisal of the primary timber will be undertaken at this time.



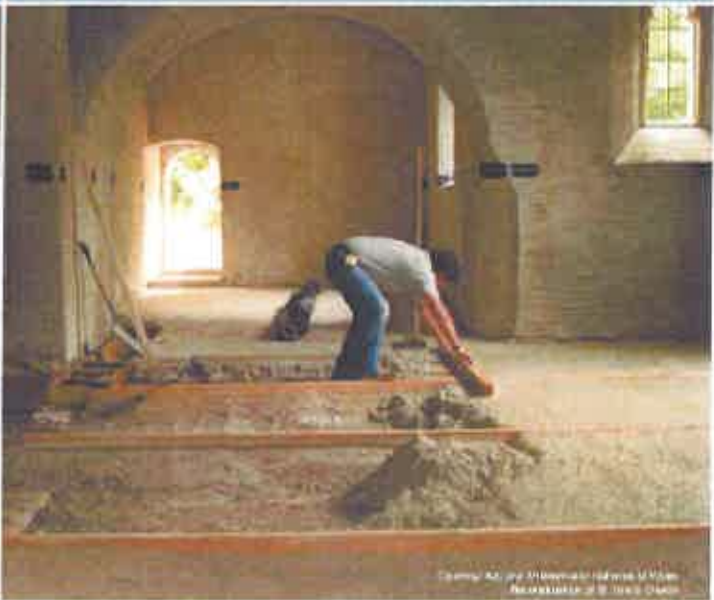
A small amount of movement is evident in this photograph. This area will require rebuilding to structural engineers details (approximately 5% of the overall external wall)

It is proposed to install a breathable, lightweight slab as apposed to cement based concrete, (see appendix) to the ground floor and build up internal insulated block walls to comply with current building regulations and also to support the part first floor.

Conclusion

It is our opinion that the existing barn will convert easily and sympathetically into habitable accommodation.

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 www.lime.org.uk	Tŷ-Mawr ecological building products deunyddiau adeiladu ecolegol
limecrete floor	 Courtesy: Adam Williams Ltd and M. Williams Reconstruction of St. David's Church
insulated 	...breathing life into buildings... We, at Tŷ Mawr Lime Ltd, designed this innovative flooring system in 1988 as a breathable, lightweight alternative to cement-based concrete for use in old and historic properties. Over the years, we have selected and tested various materials and combinations of materials to both simplify the installation process and improve the 'green' credentials of the floor. It is therefore now being used more and more in ecological new builds. In 2000, our insulated limecrete flooring system received LABC (Local Authority Building Control) system type approval, this means that it is now easier for you to receive Local Authority Building Control approval wherever you are in the UK.
Caring for buildings... Caring for the environment... Caring for health... Gofalu am adeiladau... Gofalu am yr amgylchedd... Gofalu am iechyd...	

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insulated limecrete floor ...bre

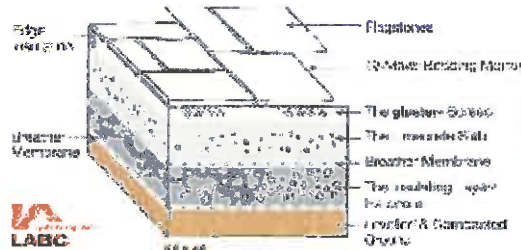


Crack in the floor at Chester Cathedral

History

We know that lime has been used since Roman Times either as mass foundation concrete or as lightweight concrete using a variety of aggregates (fine to coarse) that help to achieve increased strength and speed of set. This meant that lime could be used in a much wider variety of applications than previously such as floors, walls or domes.

Over the last decade, there has been a renewed interest in using lime for these applications again to let the domination of Portland Cement over the last 50 years wane. At Ty-Mawr, we have been involved in researching and developing different systems for lightweight insulated form. The Ty-Mawr Insulated Limecrete floor comprises of three layers:



LABC



Rebuilding the floor at Chester Cathedral

the limecrete slab

The limecrete slab is a blend of hydraulic lime and punice - a naturally fired aggregate. This was extensively used by the Romans. The slab is lightweight, vapour permeable and helps with thermal resistance. It is this slab layer which is the main load bearing element in the floor. It is here that underfloor heating pipes are laid.

the glaster® screen

This layer is required if bedding thin tiles or if underfloor heating is to be incorporated into the floor. It acts as the thermal store for the heat which is distributed through the pipes.

Again, in trying to improve the thermal resistance of the floor, our glaster® screen is a blend of recycled punice aggregate and a hydraulic lime binder.

floor finish

The finish should be vapour permeable e.g. stone tiles or unsealed quarry tiles are used but please note they should be old and pointed up with a lime mortar (we do a premium bedding mortar). Timber flooring is also possible but should be laid over an underfloor heating system for several weeks with the heating running on low before permanent fixing. A 10mm gap must be maintained between the lime screed and the floor boards. This air gap is necessary to prevent timber from warping. However, it can affect the performance of underfloor heating systems and so needs careful consideration.



Crack in the floor at Chester Cathedral

the insulating layer

This layer acts as a moisture break as well as providing the insulation for the floor. We offer two alternative materials for this layer: Hespoc recycled terracotta aggregate or recycled LECA (lightweight expanded Clay Aggregate). The Hespoc terracotta offers some environmental advantages in that it is recycled (as opposed to capturing a natural finite resource) and is fired at a lower temperature (LECA is also has a significantly lower bulk density (about 100kg/m³) which offers energy and cost savings in terms of transport. The Hespoc product is also dimensionally stable (not angular) which makes it easier for those working with the material's (putting the sand). Unlike the LECA, it does not require a tight bonding to the concrete underneath.

Ty Mawr Lime Tel 01474 811361 www.tymawr.org.uk

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breathing...insulating...approved...

why do I need a 'breathable' floor?



A traditional solid wall construction building

The replacement of original 'breathing' floors such as earth, stone flags and even brick in old buildings with modern impenetrable damp proof membranes and concrete ground slabs potentially causes rising damp problems by creating a build up of water pressure beneath the membrane. With time moisture will move a new way until it reaches the existing masonry where it will be able to escape in the wall structure.

This situation is often exacerbated then by use of waterproof cementitious renders or cementing on the walls which traps the moisture within the masonry. Replacing modern 'hard' floors with one that will breathe a floor can very quickly begin to remedy this type of 'rot house' problems.

"The floor's performance has been very good. Through use have benefited it by a fact. There is no evidence of the surface damp problems that were evident throughout the year around the edges of the previous concrete floor" **PM, 2008**

This qualification means that our innovative flooring system has been chosen by and successfully installed in significant historic building projects such as the Chapter House Floor in Worcester Cathedral, The Priory Church of St Mary and St Eusebius, Chichester (12th Century), The Vincent, Goodray Palace, Surrey and by the National Museum and Galleries of Wales for the 15th Century Church at St Fagons, but it is just as useful in barns, farm houses, barns and outbuildings.

"... we had to find a method of controlling the relative humidity levels within the building so that both the historic, and new parts, undoubtedly would not be adversely affected. The use of a

impenetrable under-floor flooring system combined with an insulating breathable floor... was seen as an ideal way of controlling such problems, ensuring the building is hygienic, energy and naturally whilst increasing the natural environment for staff and visitors."

why should it be installed?

In a response to global warming, governments the world over are setting targets to ensure that buildings become much more energy efficient.

Part L of the current Building Regulations requires a U-value (thermal transmittance) of 0.22 W/m²K for a new thermal element (ground flooring floor) and 0.28 W/m²K for a replacement thermal element. Unlike roofs, walls and immediate floors, U-value calculations for ground floors cannot be calculated in the normal manner with reference to the construction details alone. Heat loss from ground floors depends upon the ratio of exposed floor perimeter to total floor area. It is therefore important to consider all elements if your floor is going to give you the best possible performance for your building. **At T4-More, we design the floor build-up for your specific floor to ensure that you comply with the Building Regulations, all you need to do is complete a simple form available on www.t4more.co.uk**

*In certain circumstances Part L Regulations do not apply to old buildings where placement is in with the framework of old buildings and flooring assembly.

is it approved for use in buildings?

T4-More's Insulated Integrate flooring system has a LABC system type approval to show that it can be expected to comply with current Building Regulations, **subject to standard calculations being undertaken and supplied by T4-More for each scheme**.

Factors that influence the design and use:

- wall thickness and construction type
- floor area and perimeter length
- substrate type
- groundwater pressure
- room protection (membrane's membranes do not offer 'adon' sealed on)
- intended use
- budget



Remedying ground floor (T4-More) floor



University of Gloucestershire, Mendon, Gloucestershire, 2008

St. Mary's Church, 2008



Specialist Manufacturer and Distributor of Insulation and Ecological Building Materials are Demis

