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The Roundhouse
Church Street
Melksham
SN12 6LS

Report on existing structure of the Roundhouse, Melksham



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The Roundhouse, Church Street, Melksham, Wiltshire SN12 6LS

Report on the existing structure of The Roundhouse in Church Street, Melksham

Purpose of the Report

Structural Solutions was commissioned to carry out an inspection of the Roundhouse in Church Street, Melksham to consider the condition of the building structure. This report considers the current condition of the structure and the likely remedial work that might be required to preserve the building into the future.

Introduction

The Roundhouse is, we believe, an early 18th century wool drying house built from natural rough stonework solid walls on the external elevations with brickwork internally with what is likely to be a rubble/lime core between the two. The plan of the building is circular and has a conical roof constructed with rafters bearing onto a timber wall plate. Externally, stone tiles are supported by the rafters and have a minimal overhang to the supporting walls and there are no gutters. Internally, there is a mezzanine floor constructed with a timber cross beam supporting joists spanning back to the internal brickwork accessed via a staircase built off the ground floor concrete, likely to be a ground bearing slab.

Investigation

Generally, the structure of the building is in what might be described as a 'tired' condition with evidence of past movement of both the external stone and internal brickwork walls. A degree of remedial works in the form of repointing has been carried out in the past but there are still cracks, particularly externally in the stone that are visible. The mortar generally is poor, particularly to areas low to the ground on the external elevations. The stone itself at low level is also in a poor condition having degraded over time possibly as a result of freeze/thaw action. The 'dressed' stone 'lintel' over the entrance door does show signs of movement and the stone that forms the surround has deteriorating probably through what is likely again to be freeze thaw action over many years. Window lintels in general are part of a 'dressed' stone surround externally with painted timber lintels internally. Additionally, there are signs of damp both ingress from outside and rising up for the ground. This is not unusual for a building such as this as no damp proofing would have been incorporated into the building during construction. The walls have 'bulged', particularly to the lower elevations and this is likely to have been caused by the damp ingress causing slumping of the rubble/line sandwich between the outer stone and inner brickwork combined with the lack of ties through the wall.

The roof structure is partially visible with the conical rafters, wall plate and apex finial all being on display internally but painted black. Plasterboard has been fixed between

rafters and thus 'felt', battens etc. supporting the stone tiles was not able to be inspected. However, there is no sign of spread of the rafters onto the wall plate which might indicate decay of the timber itself or the fixings between these elements or the roof.

The ground floor is, we believe, a concrete ground bearing slab and appears to be in a reasonable condition but very unlikely that there is any insulation or damp proofing under the floor. The first floor, a more modern addition, consists of a primary timber beam support softwood floor joists spanning back to the brickwork inner skin. The joists have been embedded into the brickwork and thus there is likely to be some decay in the timber although no significant sign of this was found. The floor is finished with softwood boards over the joists.

Although not actually part of the building, we were asked to look at a boundary wall to the rear of the property that is constructed from a similar stone to that used for the building. There has been significant movement of this wall in one area. It is not clear how this movement occurred but it could have been due to a tree that was originally close to the 'inside' face of the wall but has been removed. In any event, we recommend that a section of this wall is carefully taken down, the stone kept for reuse and rebuilt using the salvaged stone.

Discussion

Based on our inspection of the existing building, the main area of concern is the condition of the external stonework. As this constitutes the majority of the building structure, dealing with the issues is, in our opinion, a priority in terms of remedial works. The main issues are as follows:

1. Cracking of the stonework
2. Poor mortar joints which needs addressing in the form of re-pointing
3. Slumping of the wall
4. Deterioration of the 'lintel' over the entrance door
5. Poor condition of the stone at low level
6. Damp

1. Cracking of the stonework is caused by general movement over time. There are unlikely to be any foundations for the building and thus the building is susceptible to movement for any number of reasons, for example, vibration from vehicles on Church Street, maintenance of the footpath adjacent to the building or seasonal movement of the ground due to moisture level variations. Movement of the foundations will cause movement of the walls which leads to cracking. Some of this

cracking just requires re-pointing using a lime mortar as this allows for a certain amount of future movement. Larger cracks may require crack-stitch repairs that are appropriate for historic buildings.

2. The poor mortar joints are concentrated particularly at low level up to approximately 1 metre above the ground. This is likely to have been caused by splashback from rain coming off the roof (as there are no gutters), 'hitting' the footpath adjacent to the building. The water can slowly dissolve the mortar which is accelerated by freeze/thaw action. The areas of degraded mortar and joints repairs using a cementitious mortar should be raked out and repointed with a traditional lime mortar. This includes the window surrounds.

3. Slumping of the stone wall, i.e. bowing of the wall is caused by the rubble/lime core between the external stone and internal brick slumping or settling over time. The slumping is caused by ingress of damp and this exerts additional lateral pressure on the 'back' of the wall causing the observed bowing. The most unobtrusive remedial measure to prevent further bowing would be to introduce lateral restraint ties installed by drilling and inserting stainless steel 'bars' through the wall to effectively connect inner brickwork and outer stonework together. These are minimally invasive and can be finished so that they are not visible from either side.

4. Deterioration of the entrance door 'lintel' and keystone which shows sign of movement, possibly in recent history ideally should be removed and rebuilt. However, this is a particularly invasive process and thus an alternative would be to introduce stitch repairs using stainless steel bars and resin appropriate to historic buildings. The repair would then be repointed using a traditional lime mortar.

5. Finally, the poor condition of the stonework at low level is difficult to address without removing the affected stone, again, an invasive course of action. We would recommend that removal and replacement is only saved for the worst affected areas of stonework which, based on our inspection, is limited. Cleaning, raking out mortar joints and repointing will address the majority of these issues.

6. Damp in buildings is typically caused by rising damp and/or penetrating damp. Rising damp is difficult to control without introducing, in this case, a chemical damp proof course. However, we would not recommend this as it can cause damp to be 'trapped' within the wall rather than letting it dissipate through natural ventilation. Similarly, the best way to deal with penetrating damp is to ensure all mortar joints and cracks are dealt with as described above. Above all, if walls are in good condition, damp can be dealt with via good ventilation and low level heating of the building internally.

Conclusion

This report gives an over view of the condition of the existing building and identifies main areas of remedial works required to increase its durability and preserve the fabric into the

future. Generally, although the building is showing signs of degradation, not unexpected considering its age, introducing remedial measures now, mainly to the walls, will help to preserve the building into the future. As with all buildings, regular maintenance is the key to a long life. The roof and interior of The Roundhouse are generally in good condition considering the age of the building but work is required to the external walls in the form of crack repair, repointing, addressing the bowing of the walls and poor stonework at low level and repairing the 'lintel' over the entrance door.

Appendix A - Photos



External view of the building showing stone tile roof overhang, cracking of the stonework and cracking of the stonework around windows



Degraded stonework and mortar pointing at low level



Degraded stonework and mortar pointing at low level



Entrance door showing degraded stone surround and movement in ‘lintel’ and keystone above the door.



Internal view of building showing brickwork walls, timber lintel over windows, areas of past repointing below the window and base of roof rafters onto wall plate



Internal view of building showing underside of mezzanine floor



Internal view of building showing conical roof



'Inside' face of boundary wall that has suffered movement



‘Outside’ face of boundary wall that has suffered movement