Donald Insall Associates Chartered Architects and Historic Building Consultants

Condition Survey and Recommendation for Improvement Works

The Old House Museum, Hereford April 2021



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1. CONDITION SURVEY

1.1 Introduction

1.1.1 Purpose

Herefordshire Council appointed Insall to undertake a condition survey of the first and second floor level external elevations, to identify the condition of the timber frame, infill panels and associated external joinery i.e. windows, bargeboards and finials, and provide budget costs to allow a capital funding bid for the work. The findings of the inspection were to inform recommendations for improvement works sufficient to allow tenders to be invited from suitably experienced contractors.

1.1.2 Status and Occupancy

The Old House Museum is managed and occupied by the Herefordshire Museum Service. The principal rooms at ground, first and second floor levels are generally open to the public, although not at the time of writing due to the Covid 19 pandemic. The restored and furnished interior provides visitors with a flavour of what life was like in 17th century Hereford.

1.1.3 History and Significance

The history of the building is well documented and comprises four main phases. Originally built as a dwelling over a shop forming part of a row of similar properties from the early C17 to C19, this use continued as neighbouring buildings were gradually removed in C19 before conversion to a bank in late C19 and subsequent conversion to a museum in the early C20. Listed Grade 1 in 1952, the museum is a remarkable survival of an elaborate early C17 timber-framed building.

1.2 Conduct of Inspection

Site inspections were carried out by David Barnes of Donald Insall Associates over two days on 22 and 24 February 2021. The weather was predominantly dry with light cloud. Access was organised by Robert Scott of Herefordshire Council and Balfour Beatty were in attendance to operate the cherry picker and oversee site safety issues. The Council's Conservation Officer, Conor Ruttledge and consultant Nick Joyce also briefly attended site to discuss issues arising.

The scope of inspection was limited to areas of the elevations above the top abutment of the pent roof over the ground floor storey. North, east and west aspects of the building were inspected on the 22 February and the south on 24 February. High level external access to the east elevation of the building was slightly obstructed by the adjacent tree. The survey was visual, non-intrusive and it was not possible to reach and touch building fabric in all areas to establish if panels were loose or hollow.

1.3 Summary

1.3.1 Recent Work to the Upper Exterior Elevations

- 1.3.1.1. Various late C20 repair works have been undertaken to the high-level external elevations that are the focus of this report. Partial information has been made available by the Council indicating the nature of works carried out but neither conclusively defining their scope nor detail.
- 1.3.1.2. In 1975 the carved bargeboards to the gables were partially replaced by Burmese teak replicas and it is also likely that some repair and replacement of other decorative carved elements was undertaken at this time, such as the brackets and bosses.
- 1.3.1.3. Various repairs to the timber frame, infill panels and rainwater goods were undertaken in the 1980s and sketches dated 1990 show new replacement infill panel construction details of wood wool slabs. A further repairs schedule from 1992 describes stripping out of ply boards, battens and lead for replacement with new wattle and daub; accompanying drawings appear to show the locations of replacement panels and frame repairs, although it is unclear if these are proposals or records of work undertaken.
- 1.3.1.4. Other periodic maintenance and minor repair works have continued at the building, including external redecoration at the start of 2004.

1.3.2 General Condition of Upper Exterior Elevations

- 1.3.2.1. The timber frame appears generally sound with only minor localised distortions. Past repairs to the frame are evident although it is difficult to establish when many of these were carried out. Some small sections of previous face repairs to the framing and window joinery are loose and require re-fixing. Several of the replacement carved bosses at the apex of each gable are heavily weathered on their upper surfaces and in need of attention.
- 1.3.2.2. Redecoration has obscured the legibility of junctions and previous patch/ face repairs to the frame as a result of the extensive use of modern, gun-applied sealant. Splits and shakes in frame and studs have been similarly treated with sealant. Ideally this should be removed prior to any future repair or redecoration, to prevent trapping moisture and avoid causing accelerated decay of the timber.
- 1.3.2.3. Numerous defects in infill panels reveal a range of varying underlying construction materials and techniques. Defects include delamination of paint finishes, delamination of render coats, fine cracks, large directional cracks, loss of key, inadequate support, displacement and complete failure. Problems are more extensive on the south and east elevations, particularly at second floor level. On the south elevation, a number of sections of render have failed and fallen from the façade.
- 1.3.2.4. Sealant has again been used to fill the perimeter junction between panel and frame in many areas, particularly on the north elevation, and presumably as part of the periodic redecoration of the building. Ideally this should be removed prior to any future repair or redecoration.

1.3.3 Further Investigation

- 1.3.3.1. The museum guidebook suggests that previous paint analysis has been undertaken on the building, at least in relation to the bargeboards. Originally left in a natural, unpainted finish and perhaps regularly limewashed along with the panels, the timber acquired its, then fashionable, black paint in the Victorian era and this appearance has continued into the 21st century. Further paint analysis of the finishes to the frame and infill panels would be helpful to establish the nature and compatibility of recent and underlying coatings before concluding future decorative proposals. Current condition, with extensive delamination of coatings to infill panels, suggests there have been some recent inconsistencies in decorative treatment.
- 1.3.3.2. The timber frame elements within the scope of this inspection do not show evidence of significant defects but should not be considered in isolation. A periodic inspection by a suitably experienced structural engineer would be worthwhile.

2. FINDINGS OF INSPECTION

Refer to elevational repair drawings for scope of indicative proposed repairs and locational references.

2.1 Attic Level Elevations

2.1.1 Timber Frame and Joinery

- 2.1.1.1. Note that decorative quadrant braces below attic windows on E, S, W elevations are not full depth. Frame and studs generally approx. 100mm thick. Quadrant braces approx. 60mm thick.
- 2.1.1.2. Upper sections of projecting 1970s replacement apex carved pendant angels/ grotesques are badly weathered. Many have exposed end grain on their upper surface which has opened up and is now trapping moisture, leading to progressive decay. Each feature is built up in jointed sections with through fixings to the background timber.
- 2.1.1.3. 5no carved apex pendants require partial repair refer to drawings.
- 2.1.1.4. Consider introduction of localised code 5 lead cover flashing/ weathering over top of all 8no carved apex pendants.



N3 centre pendant: back of carved head decayed; threaded stainless steel fixing bolt exposed.



N3 west pendant: top section of surround missing; trapped moisture encouraging organic growth /further decay

2.1.1.5. Barge boards, eaves pendants and framing in reasonable condition; remove all modern gun-applied sealant at junctions, splits and shakes etc. prior to redecoration.

2.1.2 Infill Panels

- 2.1.2.1. N elevation: infill panels generally sound on sheltered aspect; panel refs N3P6 and N3P17 slightly proud of framing and require further inspection to check integrity.
- 2.1.2.2. E elevation: areas of delaminating paint and minor irregular cracks.
- 2.1.2.3. W elevation: minor localised failure to northern corner of panel W3P2 needs opening up and further investigation.
- 2.1.2.4. S elevation: majority of lower infill panels loose or failed. Failed panels are 3 coat lime render in excess of 50mm thick; float coat has separated from scratch coat; stainless steel expanded metal background evident where exposed, apparently fixed to inner face of shallower quadrant braces.
- 2.1.2.5. Inspection of attic interior indicates several phases of plaster infill suggesting that materials may vary in different areas at this level.



S3P4 & P5 infill panels: expanded metal lathing visible; adjacent areas loose



S3P11 infill panel: float coat failure; remaining scratch coat springy; adjacent areas loose.

2.1.3 Miscellaneous

- 2.1.3.1. Attic leaded windows in good condition.
- 2.1.3.2. Top abutments to 2nd floor bay window tiled roofs with lead flashing chased into studs and braces and sealant pointed to framing and infill panels.

2.2 Second Floor Level Elevations

2.2.1 Timber Frame and Joinery

- 2.2.1.1. Panel failure has partly exposed the sides of framing members to reveal a continuous vertical groove along the centre line of the studs.
- 2.2.1.2. Numerous previous patch/ face repairs to timber frame and studs particularly at junctions on S elevation; some of smaller repairs now loose and split and need refixing refer to drawings.
- 2.2.1.3. S elevation: 2nd floor bressumer beam has been refaced; studs over stop short of the beam and the junction is interrupted by a lead cover flashing.



S2P3/4/11/12: loose, split small patch repairs to frame junctions.



S2P8/9: studs stop short of refaced 2nd floor bressummer beam; overlong lead cover flashing split.

- 2.2.1.4. Carved acanthus leaf bracket below window S2W18 is opening up at junction with previous repair; refixing and minor repair needed.
- 2.2.1.5. Proud and missing oak pellets to previously repaired window sills on N & S elevations require reinstatement refer to drawings.



S2P20/21 bracket: refix loose acanthus leaf bracket detail below previous repair.



N2P2/6: modern sealant at frame junctions

- 2.2.1.6. Loose previous repair to sill below N2W11 needs refixing.
- 2.2.1.7. Loose previous repair/ split section of transom below S2W15 & W20 needs refixing.
- 2.2.1.8. Remove all modern gun-applied sealant at junctions, splits and shakes etc. prior to redecoration.

2.2.2 Infill Panels

- 2.2.2.1. Extensive problems with failure of panels on S & E elevations many of which have undergone previous repair or replacement using various forms of construction. Further isolated examples on N & W elevations
- 2.2.2.2. Panel failure reveals widely spaced, thin, horizontal wattles with bark still partly attached. No vertical staves are evident.



S2P5 infill panel: thin widely spaced wattles with bark still attached; no staves evident; face repair to base of stud.



S2P2 infill panel: riven lath located into groove in stud; poor key has contributed to delamination and loss of float coat; numerous patch repairs to frame.

- 2.2.2.3. Render failure shows thick/ heavy float coat build-up on poorly keyed daub background.
- 2.2.2.4. Breakdown of panel finishes at perimeter where skew-nailed woodwool slabs fitted loosely between frame.
- 2.2.2.5. Render face proud of framing and perimeter cracking suggests possible delamination or detachment/ loss of key – panels sound hollow/ loose.

- 2.2.2.6. Horizontal, parallel cracks in render suggest movement or deflection possibly resulting from inadequate support or excessive thickness.
- 2.2.2.7. Delamination of paint finishes possibly caused by overpainting with modern coatings.





S2P23 infill panel: skew nailed woodwool slab fits poorly into frame.

S2P18/19: parallel cracks in infill panels.

2.2.3 Miscellaneous

- 2.2.3.1. Occasional ferrous fixings to rainwater goods on S elevation corroding replace with non-ferrous.
- 2.2.3.2. Bird deterrent gel leaching into timber transoms and sills remove gel before redecoration.
- 2.2.3.3. Overlong lead cover flashing to S elevation bressummer beam split in several places; new sections required refer to drawings.
- 2.2.3.4. Damaged cut plain tile over windows N2W8 and E2W1 renew.
- 2.3 First Floor Level Elevations
- 2.3.1 Timber Frame and Joinery
- 2.3.1.1. Framing in reasonable condition; remove all modern gun-applied sealant at junctions, splits and shakes etc. prior to redecoration.
- 2.3.1.2. Loose previous repair to transom between window W1W6/12 refix
- 2.3.1.3. Missing section of oak 'cord' detail to post between panels S1P10/13 renew with approx. 600mm long x 40mm diameter scarfed repair.
- 2.3.2 Infill Panels
- 2.3.2.1. Extensive defects to panels and related finishes on E elevation, as at 2nd floor level. Isolated examples on S & W elevations. N elevation appears reasonably sound. Refer to drawings.
- 2.3.2.2. Minor localised failure of finishing coat render at perimeter junctions to frame in some cases concealed by modern sealant
- 2.3.2.3. Render face proud of framing and perimeter cracking suggests possible delamination or detachment/ loss of key – some areas hollow/ loose.
- 2.3.2.4. Delamination of paint finishes possibly caused by overpainting with modern coatings.
- 2.3.2.5. Horizontal, parallel cracks in render suggest movement or deflection perhaps resulting from inadequate support or excessive thickness.



E1P2/3: horizontal parallel cracks



E1P5: delaminating paint finishes; render proud at bottom of panel

2.3.3 Miscellaneous

- 2.3.3.1. Window N1W10 leaded fixed lights sagging in frame dismantle, remove to workshop, clean and repair then reinstate in existing timber frame.
- 2.3.3.2. Broken quarry in window N1W13 renew in matching glass
- 2.3.3.3. Loose quarries in window S1W6 clean out and make good with waterproof glazing 'cement'.
- 2.3.3.4. Bird deterrent gel leaching into timber transoms and sills remove gel before redecoration.
- 2.3.3.5. Remove sealant joint to lead abutment flashing over pent roofs to ground floor refer to drawings.



N1W10 window: sagging leaded light panel.



N1W20 sill: bird deterrent gel leaching into timber.

2.4 Recommendations

2.4.1 Timber Frame and Joinery

- 2.4.1.1. Necessary repairs to joinery on the upper-level elevations are minor in nature and largely focused on arresting the further loss of the delightful decorative details which are such a feature of this eye-catching building.
 - Repair 5no carved pendant characters adorning gable apex. Introduce discreet lead cover flashing over upper surfaces of all 8 pendants following repair and redecoration.
 - Repair several other missing or damaged decorative joinery features.
 - Numerous previous patch repairs to frame and joinery require refixing.
 - Remove extensive modern sealants before repair and redecoration.
 - Remove leaching bird deterrent gel on transoms and sills before repair and redecoration.
 - Prepare and redecorate external timber with linseed oil paint.
 - Arrange close inspection by a suitably experienced structural engineer when access is next available during planned works.

2.4.2 Infill Panels

- 2.4.2.1. The constructional build-up and layered provenance of each panel is difficult to determine as the building has undergone may phases of adaptation and repair, but some original panels are likely to have survived at least in part and these are of high significance. Consequently, a cautious approach to repair is required where the type of construction is not apparent in a defective panel.
- 2.4.2.2. The cause of panel defects may often be the result of a combination of factors. It appears that many of the defective areas are of modern construction and relate to recent phases of repair.
- 2.4.2.3. Remove defective and delaminating coatings to panels and perimeter sealant at junctions with frame.
- 2.4.2.4. Progressively open up defective areas recording existing individual panel construction on reference sheet.
 - Where defective panel is supported on modern woodwool slab or expanded metal lathing, assume complete replacement with new wattle and daub panel construction.
 - Where defective panel is of modern, or historic, wattle and daub construction, assess soundness of panel and integrity of wattles/ laths to establish suitability for stabilisation or patch repair. Samples of any soil or lime-based daub should be carefully salvaged and bagged for analysis by others.
- 2.4.2.5. Replacement panels of new wattle and daub construction refer to specification and drawings.
- 2.4.2.6. Repairs to existing wattle and daub panel construction refer to specification.
- 2.4.2.7. Prepare and redecorate panel exterior with mineral paint refer to specification.
- 2.4.2.8. Prepare and redecorate panel interior with distemper refer to specification.

2.4.3 Ancillary Items

- 2.4.3.1. Minor repairs to fixed leaded light windows in timber frames.
- 2.4.3.2. Renew isolated broken clay plain tiles to bay window roofs.
- 2.4.3.3. Repair/ renew sections of lead cover flashing to south elevation 2nd floor bressummer beam.
- 2.4.3.4. Remove sealant joint over lead cover flashing at top abutment of tiled roofs refer to specification for repair detail.

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