EMERGENCY WORKS – REPLACE FAILED CHIPBOARD ROOF DECKS & LEAD ROOF COVERINGS

TO

STAIRS III - V

AT

NORTH RANGE, OLD QUAD
BRASENOSE COLLEGE
OXFORD
OX1 4AJ

DESIGN AND ACCESS STATEMENT, HERITAGE ASSESSMENT, AND NOTES IN SUPPORT OF APPLICATIONS FOR LISTED BUILDING CONSENT

Ref: D/6/0897

Updated March 2024

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1.00 **GENERAL INFORMATION**

Drawing List

1.01 The following notes are to be read in conjunction with the submission and drawings:

6/0897/01-S : Part Existing Roof Plan
6/0897/02-P : Locator
6/0897/03-P : Emergency Roof Works
6/0897/BP-01 : Block Plan
6/0897/LP-01 : Location Plan

The statement "do not scale from the drawing" is included in accordance with our quality policy and is aimed at the contractor, as we do not wish the contractor to scale from drawings, as this can lead to problems in the construction phase. You will note that on the left-hand side of the drawing there are 11 graduation marks. These form "the metric reference graduation" This is required as paper is a natural product and may have some degree of dimensional instability. Subject to you using the graduation marks we confirm that you may scale from the drawing submitted. An additional scale bar has been added to the drawings submitted for Listed Building Consent.

2.00 **LISTING**

List Entry Summary

2.01 This building is listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 as amended for its special architectural or historic interest.

2.02 Name: BRASENOSE COLLEGE, NORTH RANGE, THE OLD QUADRANGLE.

2.03 List Entry Number: 1046730

Location

2.04 BRASENOSE COLLEGE, NORTH RANGE, THE OLD QUADRANGLE.

2.05 The building may lie within the boundary of more than one authority.

County: Oxfordshire

District: Oxford

District Type: District Authority

Parish: Non Civil Parish

National Grid Ref: SP51535 06350

Grade: I

Date first listed: 12-Jan-1954

Date of most recent amendment: Not applicable to this List entry

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Legacy System Information

The contents of this record have been generated from a legacy data system.

Legacy System: LBS

Legacy System no: 244858

Details

2.06 BRASENOSE COLLEGE 1. 1485 The Old Quadrangle North Range SP 5106 SE 9/319B 12.1.54. I 2. Has rooms containing C17 panelling, some being by Arthur Frogley.

Listing NGR: SP5153106350

3.00 NATURE, EXTENT AND SIGNIFICANCE OF THE ASSET

3.01 The North Range has a Grade I listed status. The listing indicates that it is part of the Old Quadrangle and the original building dates from the fifteenth century.

3.02 It is reported that as the College built upwards to accommodate its students, third floor accommodation was created in the seventeenth century.

3.03 The flat leaded roof covering serving the North Range and facing outwards from the Quadrangle and towards Brasenose Lane is the subject of this submission.

3.04 It is evident that this roof has been resurfaced and boarded on several previous occasions.

3.05 The current flat roof surfaces are finished using code 8 lead, with small diameter hollow lead rolls formed at bay junctions, with shallow gutters and low drips, with shutes which direct water through the stone castellated parapet walls. Each outfall into hoppers and gutters which are sited externally on the Brasenose Lane elevation.

3.06 The form and configuration of the current roof lead leads us to believe that it was fitted in the 1970's.

3.07 Review by a lead roofing Contractor with extensive experience of working lead in this and other Oxford Colleges supports the view.

4.00 RELEVANT PLANNING HISTORY

4.01 We are unable to locate any planning history relating to the North Range Roof.

5.00 CURRENT CONDITIONS

5.01 Leaded flat roof coverings are deflecting, many of the small diameter hollow leaded rolls have compressed and exhibit cracking/splitting. Deflection in the bays is particularly severe where bays are built up, aligning with chimney stacks. Water stands in various locations across the scope of the roofs.

5.02 An initial investigation has been undertaken to establish possible causes.

5.03 A bay of lead (one of the bays aligning with a chimney stack), where the deflection is currently most severe was carefully taken up. It revealed that the deck below the lead is formed from chipboard, which having become wet from leaks, has disintegrated and the deck has failed. The investigation also revealed that the raised decks had been built up above the previously existing roof boarding*

* Raising up the decks aligned with stacks, and re-routing water from the back of stacks to each side is envisaged to be the previous remedial measure to address a lack of fall and cracking/splitting in the previous lead gutters. The lead failure would most likely have been caused by the stack projections which would constrain thermal movement of the lead.

5.04 Further investigation by peeling back lead from another bay revealed that chipboard had also been laid directly over pre-existing timber boarded areas. Wherever lead has been carefully peeled to date chipboard has been revealed. Where it has been revealed it is damp or wet and breaking down.

5.05 The chipboard roof decking material is not a fit for purpose material. It is an outmoded hazardous composite, and it breaks down when subject to moisture. As the chipboard gets wet it breaks down, the roof deflects and holds water, water passes lead cracks/splits, and the cycle continues until failure.

5.06 Chipboard is not an appropriate material for using as roof decking. Wherever it has been exposed so far, it is wet and damaged/breaking down or disintegrating. There is an urgent need for the material to be removed/replaced using a material which is fit for purpose, not least on a listed historic building.

5.07 The existing roofs serving the buildings have no current provision for protection against lightning strike(s).

6.00 PROPOSED REMEDIAL WORKS – ALTERATIONS

6.01 The proposed emergency works to address water ingress damaging the building fabric are detailed on the drawings listed in clause 1.01 of this document.

6.02 Structural consideration of the roof decking works has been undertaken by College's Consultant Structural Engineer Price & Meyers. Its review and observations are addressed in Appendix A.

6.03 Existing failed wet chipboard decking used on the raised bays and also on the other bays is all to be replaced in line with the typical details identified.

6.04 The methodology will be on the basis of replacing a bay at a time. Whilst this is a time-consuming process, it does limit the risk of disproportionate water damage being caused to internal fabric of the historic buildings. It also reduces significant expense and the disruption caused by providing a temporary covering for the roofs to allow the works to be undertaken in one attendance.

6.04 Code 8 milled lead will be used, laid fully in accordance with current Lead Sheet Association recommendations. This will be in line with the existing covering material. It will be laid by an experienced specialist, being a member of the Lead Contractors Association, allowing construction to ensure that the replacement lead is be laid at compliant falls to ensure long term protection of the building fabric is delivered.

6.05 Measures to allow ventilation to flow under the new lead roof guttering and bays must be introduced to meet with LSA recommendations. The details shown on our drawing address usual methodology for providing adequate ventilation.

6.06 In future, when College has the required financial capacity, it will be able to progress obtaining the appropriate statutory consents for reducing the building's carbon footprint. The ventilation provided in this emergency exercise will future proof the buildings ceiling envelope below, allowing for it to be insulated whilst reducing the risk for interstitial condensation.

6.07 The existing roof sited data cabling and containment, along with the existing wire line arrest system will be reinstated.

6.08 The College will give consideration to making appropriate provisions for lightning protection.

6.00 IMPACT ON THE ASSET & MITIGATION

6.01 We agree with the College that having established the severity of the problem these works must be undertaken as emergency measures. It is giving highest financial priority to safeguarding the buildings fabric.

6.02 Notwithstanding the statement above, College has given early commission to Sidleys to address a submission on its behalf for Listed Building Consent.

6.03 The proposed emergency works remove short lived inappropriate materials and introduce traditional measures and materials appropriate for use on these historic buildings.

7.00 **HERITAGE ASSESSMENT**

7.01 The College acknowledges advice relating to heritage assets laid out within the National Planning Policy Framework.

7.02 On discovery of its problem, it is seeking as a matter of urgency to progress with financing and undertaking what it believes are the necessary conservation measures identified to avoid further water damage and provide long term protection for the building's fabric.

7.03 We believe that the emergency works proposed will address long term needs for the buildings, using the appropriate materials and recognising the importance and historic significance of the buildings.

7.04 Wherever it is possible the works will cause the minimum of intervention with building fabric.

DESIGN AND ACCESS STATEMENT

8.00 **USE**

Existing Use

8.01 The buildings forms part of Old Quadrangle in the ownership of Brasenose College Oxford.

8.02 The spaces comprising the buildings include residential and other typical College accommodation.

User Requirements

8.03 The proposals arise from the need to address water damage.

8.04 Works to address a long-term solution to the weather resisting envelope will include measures to provide ventilation, protecting future thermal performance improvement, subject to statutory consents.

9.00 **AMOUNT OF DEVELOPMENT**

9.01 The proposed works are detailed on the drawings listed in item 1.01 of this document.

9.02 The amount of development is that required to address emergency measures in protecting against water damage. The works aim to achieve long term fabric protection and associated user requirements.

9.03 Original features are retained and protected wherever practically possible.

10.00 **LAYOUT AND SCALE**

10.01 The proposed layout and scale of the development is detailed on the drawings submitted with the applications.

11.00 **ACCESS**

11.01 Refer to the drawings for details of access points to the main College site.

12.00 **PHOTO IMAGES**

EXISTING ROOFS CONDITIONS

Photograph No 1

General view – Area 3 – Stair 5 – towards chimneys

See evidence of previous running repairs and deformed small diameter hollow leaded rolls.

Photograph No 2

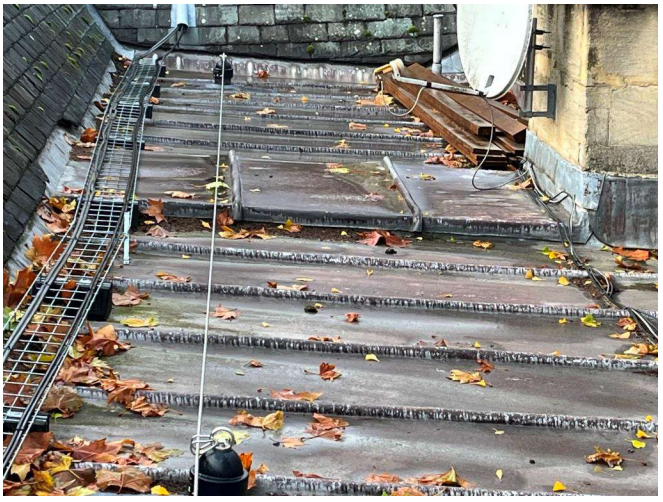
General view – Area 3 – Stair 5 – towards Stair 4

See deformations in bays, deformed small diameter hollow leaded rolls and standing water.

Photograph No 3 – Area 2 – Stair 4 - towards Stair 3

See deformed bays, deformed small diameter hollow leaded rolls and standing water.

Photograph No 4 – Area 1 – Stair 3



See deformed bays and evidence of standing water.

INITIAL INVESTIGATIONS – REMOVE LEAD FROM A RAISED BAY

Photograph No 5 – Investigation – Raised Bay a)

From south, indicating chipboard deck exposed – composite material is part broken down. Also indicates deformed and splitting small diameter lead rolls.

Photograph No 6 – Investigation – Raised Bay b)

From north, indicating disintegrated chipboard debris sitting on the previous roof covering timber roofing boards.

Photograph No 7 – Investigation – Raised Bay c)

Build-up of raised chipboard bay above previous boarded roof. Timber roof boards and two previous ceilings can be seen.

Photograph No 8 – Investigation – Raised Bay d)

View from below previous roof boarding – lathing from a previous ceiling can be seen.

APPENDIX A – STRUCTURAL REPORT – PRICE & MYERS

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PRICE & MYERS

Brasenose College Oxford

Structural Engineer's Site Visit Record
Review of North Range roof

For visit on date: **27/03/2024**

Introduction:

Jason Howell (JH) of Price & Myers (PM) visited site accompanied by Clifford Jones (Brasenose College) and David Tolley (Sidleys) to review the existing roof and discuss the proposals that have been drawn up by Sidleys to remove and replace the lead coverings to the areas of flat roof.

Water is ponding on these roofs and local investigations have shown that the lead coverings, thought to have been installed in the 1970's, are placed on chipboard. The chipboard has got wet and decayed causing areas of the lead to 'dish'.

Sidleys propose to remove the existing lead and replace the chipboard with soft wood boarding. Falls and gutter details will be improved with firring timbers and new lead coverings then installed. The new lead coverings will be code 8, which is the same thickness as the existing lead.

PM have been asked to review the effect of the proposals on the existing roof structure. No opening up has been carried out as part of this review. The roof area was viewed from an access doorway. A ceiling hatch was also accessed to view roof and ceiling structure, but this was in the pitched roof rather than the flat roof. Sidleys have also sent through photos of local investigations into the roof coverings.

Observations:

It was raining during the site visit and it could be seen that water is not running off the flat roof effectively and there are areas where the lead coverings appear distorted.

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Figure 1: View from roof access door looking West

The photos that have been sent through by Sidleys show the roof build up has been altered in the past. With the chipboard having been placed on top of timber boarding. There are also photos that show the structure below the boarding to be firring on timber rafters, supporting a lath and plaster ceiling.

Figure 2: Photo provided by Sidleys showing flat roof structure

PM were not present when the investigations were carried out but have been told that the roof structure itself did not appear to be suffering from decay in these locations.

Summary:

The proposals are to remove the existing lead and chipboard and to replace it with new soft wood boarding and lead of the same thickness as the existing. Based on this, there will not be any significant increase in load on the existing structure.

Provided that the existing structure is in reasonable condition the proposals should not have an adverse effect. The structure has not been seen but no obvious signs that would indicate significant defects (such as large deflections of the roof) have been seen.

However, given the issues with the lead and the fact that water is ponding, and in some cases getting through to the boarding under, there is a risk that there could be local areas where water has gotten through to the timber structure and caused it to decay. PM recommend that as the works are carried out the condition of the roof structure is reviewed and PM notified if the timber is found to be questionable.

Prepared by: **Jason Howell CEng MIStructE**
Job Number: **31306**
Document Reference: **SVR01**