

CONDITION REPORT

University of Manchester
Presidents Residence - Conservatory
Broomcroft Hall, Ford Lane, Manchester

NOVEMBER 2018



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CONTENTS

1	INTRODUCTION	4
2	GENERAL INFORMATION	4
2.1	Instructions	4
2.2	Inspection	4
2.3	Information Provided	4
2.4	Exclusions & Limitations.....	4
3	PROPERTY DESCRIPTION	5
4	KEY FINDINGS	5
4.1	Roof & Gutters	5
4.2	External Envelope	6
4.3	Internal Envelope	7
5	SUMMARY AND RECOMMENDATIONS.....	8
6	APPENDICES.....	8
	Appendix A – Photographic Schedule	
	Appendix B – Indicative Plan Drawing	

1 Introduction

In accordance with the instructions from the University of Manchester, Arcadis LLP undertook a site assessment in relation to the condition of the existing conservatory which is attached to the rear of the property known as Broomcroft Hall, which is located on Ford Lane, Manchester, M20 2RU.

The purpose of the inspection was to enable an assessment to be undertaken and to enable a report on the condition of the buildings envelope and related water ingress issues. This report shall also provide the Client with suitable recommendations to remediate or address the issues found to be present.

2 General Information

2.1 Instructions

Arcadis LLP were instructed by way of an e-mail from Paul Williams of the to the University of Manchester (herein referred to as the Client) on 16th October 2018.

2.2 Inspection

The inspection was undertaken at 10am on 17th October 2018, by Chris Newton BSc (Hons) MRICS and Anthony Lynch BSc (Hons). Also present at the time of the survey, were members of the University's facilities management team.

The weather conditions at the time of the survey were clear and dry, although rainfall had been recorded on the morning of the survey.

2.3 Information Provided

Prior to undertaking the inspection, the Client's estate team advised Arcadis LLP that the conservatory was subject to extensive repairs undertaken in 2017 however it continued to suffered from wet rot affected timbers. Internally, water ingress had also previously occurred from the roof and continues to manifest during heavy rainfall.

2.4 Exclusions & Limitations

A visual inspection has been undertaken of the internal and external envelope of the conservatory building only. The exterior of the building has been inspected from ground level and via a 3m ladder, the roof condition was also inspected from a first-floor window.

No intrusive opening up has been undertaken and accordingly, certain aspects of the condition not be fully assessed. We have not conducted an extensive intrusive inspection or testing of the fabric of the building to ascertain whether any deleterious or hazardous materials exist. We cannot confirm that all concealed parts of the property are free from woodworm, rot or any other defect.

For the avoidance of doubt, the internal and external inspection undertaken was limited to determining the current condition of the conservatory building envelope only, as directed by the Client. A full building survey has not been undertaken.

We have not undertaken any testing of the mechanical or electrical installations, heating installations or any other specialist installations within the building.

The report reflects the condition of the building at the time of our inspection. It should be recognised that further construction defects may develop or become more established subsequent to our inspection.

3 Property Description

The conservatory structure is a single storey, hardwood timber structure built off a concrete floor slab. The conservatory abuts the rendered masonry walled structure of the two storey building of Broomcroft Hall on two sides.

A hipped pitched roof covers the conservatory, which consists of clear non wired single glazing and prefinished aluminium glazing trims and ornate roof ridge capping's.

A concealed external gutter has been provided to the exposed elevations of the building, which are dressed using a decorative painted timber moulding to match the style of the main structure. A fibreglass lining has been retrospectively added within the gutter system. A trough gutter has been formed between the conservatory roof and the abutment with the main building to the left and right hand side as viewed from the rear.

Dressed lead flashings have been provided at the abutments of the glazed pitched roof and the rendered external wall finishes to the main building.

Gloss painted finishes have been provided to all internal and external timberwork, including to the single glazed windows and doors set within the external envelope.

Internally the conservatory is finished with plastered walls to the main building, decorated timberwork and ceramic tiled floor finishes.

The conservatory is heated by a small electric space heater located on the rear wall of the main building.

4 Key Findings

4.1 Roof & Gutters

During our inspection we noted the following issues and defects;

1. Pitched lead flashings at the abutment with the main building are not installed in accordance with the guidance provided by the lead sheet association, as they do not provide a minimum upstand of 150mm to the finished roof. We were unable to fully inspect the gutters or flashed dressing to the side elevation abutting the main building as there was no safe access and also due to a significant build up of leaves.
2. A damaged pane of the single glazed roof was noted at eaves/gutter level at the abutment with the main building.
3. No internal bracing or purlins are present to the roof structure as part of the original construction of the building. This is likely to be a contributory factor to the structural movement that was found, through the process of 'eaves spread' due to the presence of an unrestrained roof structure.
4. A single glazed, non wired, roof is provided with prefinished aluminium glazing bars and ornate roof capping's over timber rafters. Roof detailing has been retrospectively painted and the ultimate decorative finish of these have significantly deteriorated. Due to the nature of its original construction, this is a fragile roof and no suitable access has been provided to enable maintenance of the roof and rainwater goods.
5. The external gutters appear to be constructed level and not laid to suitable falls toward the rainwater outlet, which is connected in to the rainwater system serving the main property. Only one drainage outlet has been provided which is at the furthest point on the RHS elevation.

4.2 External Envelope

6. Water staining was evident to the outer face of the timber dressed linings to the external gutters. The pitched roof is fairly steep and the gutters are relatively shallow. The water staining indicates that the gutters are, at times, unable to cope with the amount of rainfall. This is exacerbated by the presence of moss and debris within the fibreglass lined gutters, which further reduce the capacity and flow of the rainwater goods.
7. Rainwater overflows the gutters and is being trapped between the fibreglass gutter and the timber moulded decorative dressings where this has delaminated from the timber. This is then finding its way back into the head of the timber window frames and external timber soffits. The external timber soffits between the head of the window frame and the external gutters were found to be saturated in a number of locations and some areas are affected by wet rot. Medium to high moisture readings ranging from 28-67% WME were recorded within the external timber soffits.
8. The first floor of the building immediately above the roof of the conservatory is covered with vegetation which has been trained to grow against the building. This has resulted in considerable leaf and associated debris being deposited within the gutters, this was particularly evident within the trough gutter located at the abutment with the glazed pitched roof.
9. Wire mesh has previously been installed into the trough gutter to the LHS abutment with the main building to aid issues with fallen leaves and debris entering the gutter. This has proved to be ineffective as a large build-up of moss and leaves were found to be present within the perimeter gutters, restricting the rainwater goods from performing correctly.
10. There is insufficient provision within the original construction to prevent the possibility of moisture tracking back up under the bottom edge of the pitched glazed roof and entering the building.

During our inspection we noted the following issues and defects;

1. Evidence of historical structural movement was found to the rear of the conservatory. The timber corner post which acts as a structural support to the roof was found to be bowed and the lower infill panels to the rear elevation were found to have moved away from the tiled floor finishes. We were unable to determine if this is historical movement or if movement is still occurring, we would recommend that this is monitored over a period of time to confirm.
2. A poor standard of decorative finish was noted to the external envelope. Differing depths of coverage to painted finishes were present and the original varnished finishes were visible under the newer gloss decorations.
3. Use of a non-breathable surface finish such as gloss paint and the possible absence of suitable drying out times at the time of the previous repairs and redecorations, has increased the rate of decay within the timber structure. This appears to have occurred as a result of moisture having been trapped within the timber without sufficient drying out prior to decorations being undertaken.
4. A poor standard of previous timber repairs was evident, which consisted of a significant but unquantifiable number of timber splice repairs, timber replacement and resin repairs. It was evident that a number of repairs have been undertaken to the base of the structural timber posts which act as window mullions but also as the main supporting structure to the roof.

4.3 Internal Envelope

5. It should be noted that the standard of workmanship and the quantity and locations of previous repairs may affect the structural integrity of the conservatory. This could not be fully assessed and quantified at the time of the inspection due to full decorative renewal having been undertaken as part of the repairs.
6. Numerous areas of wet rot affected timbers were found to the external areas of the building envelope. High moisture readings were recorded in various locations, particularly to the lower infill panels, glazing beads and roof supporting posts.
7. New sections of timber have been previously fitted as part of a repair programme, such as a skirting detail that has been provided. It was found that not all of the timbers used were hardwood and are of poorly matched profiles in some instances.
8. A poorly fitting opening casement was present to one of the windows rendering the ironmongery latch almost inoperable.

During our inspection we noted the following issues and defects;

1. Water staining to painted plaster finishes as a result of water ingress to the LHS corner at the abutment with the main building. Likely cause for this is water tracking back under the glazing as a result of poorly maintained gutters.
2. Wet rot affected timbers and were found to the low level infill panels under the windows within the corner on the short return wall.
3. Historical movement has occurred to both sides of the doors leading into the conservatory within the rear elevation of the main building.

5 Summary and Recommendations

Internally the conservatory is in a serviceable condition, however, externally there are a number of significant repairs required to prevent further deterioration of the timber structure.

A number of immediate short-term maintenance works should be implemented to preserve its remaining life of the conservatory as far as reasonably practical.

Works advised include;

1. Removal of vegetation growth from the rear of the main property to reduce debris and vegetation build up within the roof drainage systems.
2. Clear all moss and other debris from within the existing gutters to enable greater rainwater bearing capacity within the existing gutters.
3. Remove the existing fibreglass and inspect and reline gutters with liquid applied waterproof coating if required.
4. Undertake short term localised cosmetic repairs or replacement of wet rot affected timbers and decorative finishes. **Note:** These are unlikely to prevent further wet rot decay occurring to the building but will enable the building to 'appear' serviceable until full replacement is possible.
5. If leaking (as this was not possible to evidence at the time of inspection), replacement of the damaged single glazed roof sheet.
6. Introduce a second rainwater outlet to the LHS corner.
7. Ease and adjust poorly fitting opening window casements.

It is our opinion that the timber structure is now beyond its economical lifespan and considerable repairs at a significant cost would be required to prevent the building falling into disrepair or becoming unsafe through timber decay to some of the main structural elements.

There are some inherent design flaws with the conservatory such as the width of the valley gutter, lack of restraint to the roof to prevent eaves spread and the overhang of the roof glazing into the gutters which would be difficult to address without significant alteration.

We would recommend that provision should be made for replacement of the conservatory in full, rather than undertaking extensive and unquantifiable repairs to the existing conservatory. There is little certainty with the success of any future repairs given the unknown condition of the entire structure and its previous repairs to structural timber members, without removal in full of all decorative finishes to enable this to be assessed.

6 Appendices

Appendix A – Photographic Schedule

Appendix B – Indicative Floor Plan

APPENDIX A

PHOTOGRAPHIC SCHEDULE

Photographic Schedule of Condition
17th October 2018



Image 1: Rear Elevation



Image 2: RHS Elevation

Photographic Schedule of Condition
17th October 2018



Image 3: LHS Elevation



Image 4: Bowing to corner post



Image 5: Wet rot affected timber

Photographic Schedule of Condition
17th October 2018



Image 6: Wet rot affected timber



Image 7: Damaged glazed roof panel



Image 8: Wet rot affected timber soffits to u/s of gutter

Photographic Schedule of Condition
17th October 2018



Image 9: Wet rot affected timber, varnished finish exposed



Image 10: High moisture content within glazing beads

Photographic Schedule of Condition
17th October 2018



Image 11: Deterioration of decorative finishes



Image 12: General standard of previous timber repairs

Photographic Schedule of Condition
17th October 2018



Image 13: Pitched roof in poor condition



Image 14: Low dressed lead flashings at abutment to main building

Photographic Schedule of Condition
17th October 2018



Image 15: Vegetation within trough gutter at abutment to main building

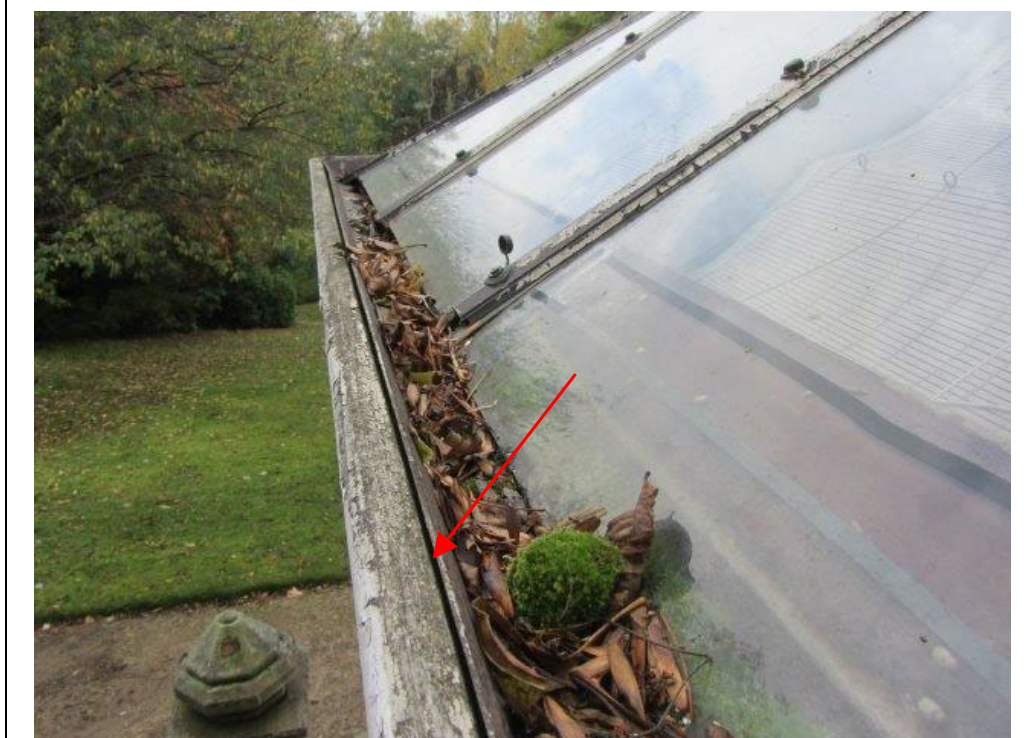


Image 16: Fibreglass liner delaminating with moss and vegetation to gutter under glazing

Photographic Schedule of Condition
17th October 2018



Image 17: Vegetation to rear of property



Image 18: Steep pitch to glazed roof



Image 19: Timber faced fibreglass gutters to perimeter

Photographic Schedule of Condition
17th October 2018



Image 20: Water staining to timber gutter linings



Image 21: Water staining to gutter and wet rot affected timber linings

Photographic Schedule of Condition
17th October 2018



Image 22: Good internal condition generally



Image 23: Location of reported internal water ingress, under trough gutter

Photographic Schedule of Condition
17th October 2018



Image 24: Poorly fitting opening casement



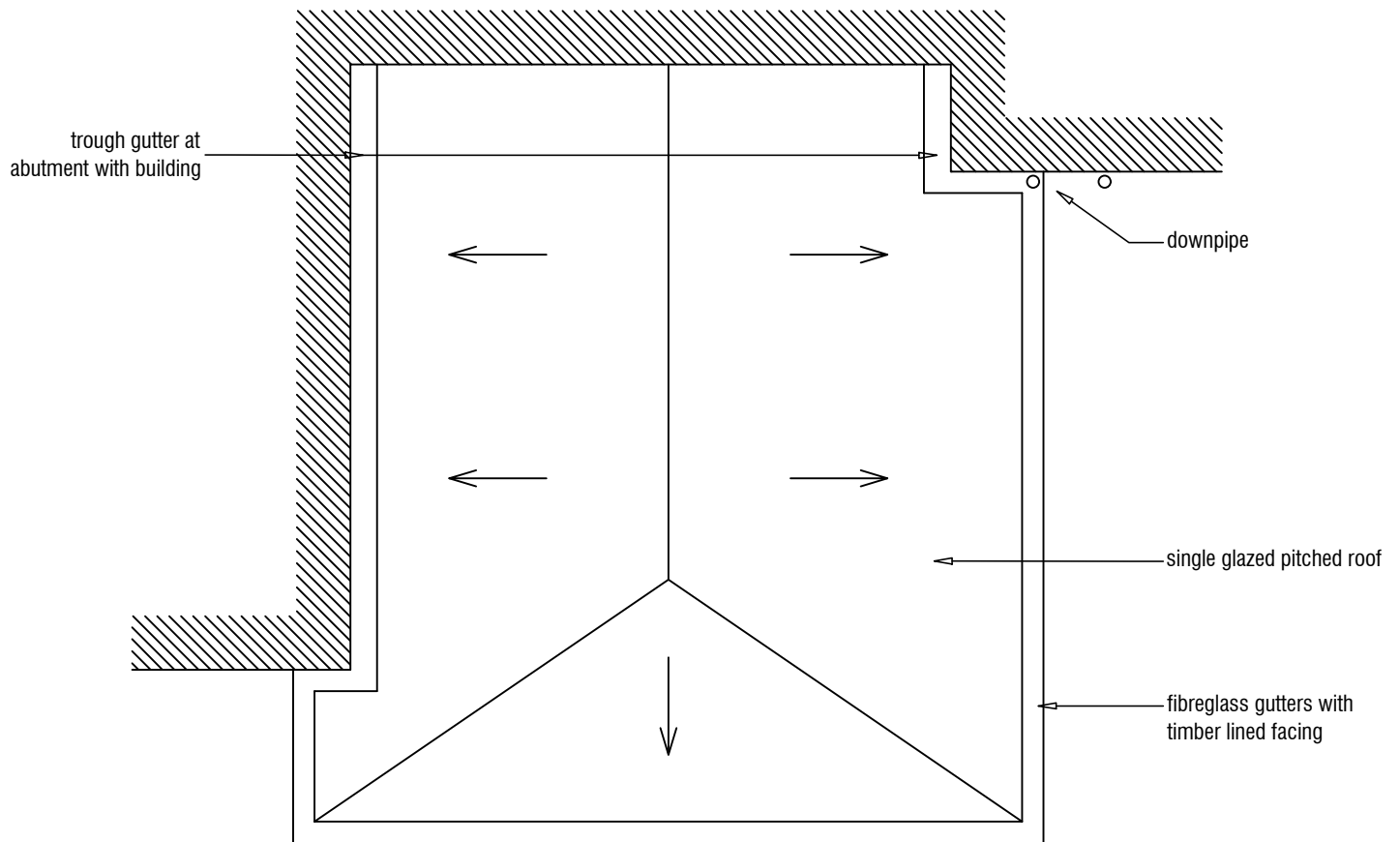
Image 25: Poorly matched timber replacement moulding to infill panel

APPENDIX B

INDICATIVE FLOOR PLAN

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Appendix B - Indicative Floor Plan



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