

By Email

boohoo
49-51 Dale Street
Manchester
M1 2HF

Our ref 1765/SKR/L001

Date 01/06/2021

FAO: Mr Joe Campbell

RE: Refurbishment of Roof, 45-47 Dale Street, Manchester

Dear Joe

As requested, we have reviewed the boohoo proposals for the makeover of 45-47 Dale Street, Manchester, as shown on the Architecture:M drawings and in particular the works associated with the roof. We are pleased to comment on structural implications as follows.

1.0 Background

45 - 47 Dale Street is a Grade II listed building dating from circa 1900, the property also encompasses 6 Tariff Street. Boohoo are proposing undertake refurb as per the Architecture:M drawings, and proposed works include repairs and alterations to the roof, including repairs to the roofs to remove foliage and prevent future water ingress. The existing disused lift tower to the east of the roof is to be removed and several rooflights are to be installed as part of the proposals.

The roof scape is formed by a number of hipped roofs as seen from a drone survey undertaken by Westlakes on the 12th April 2021.

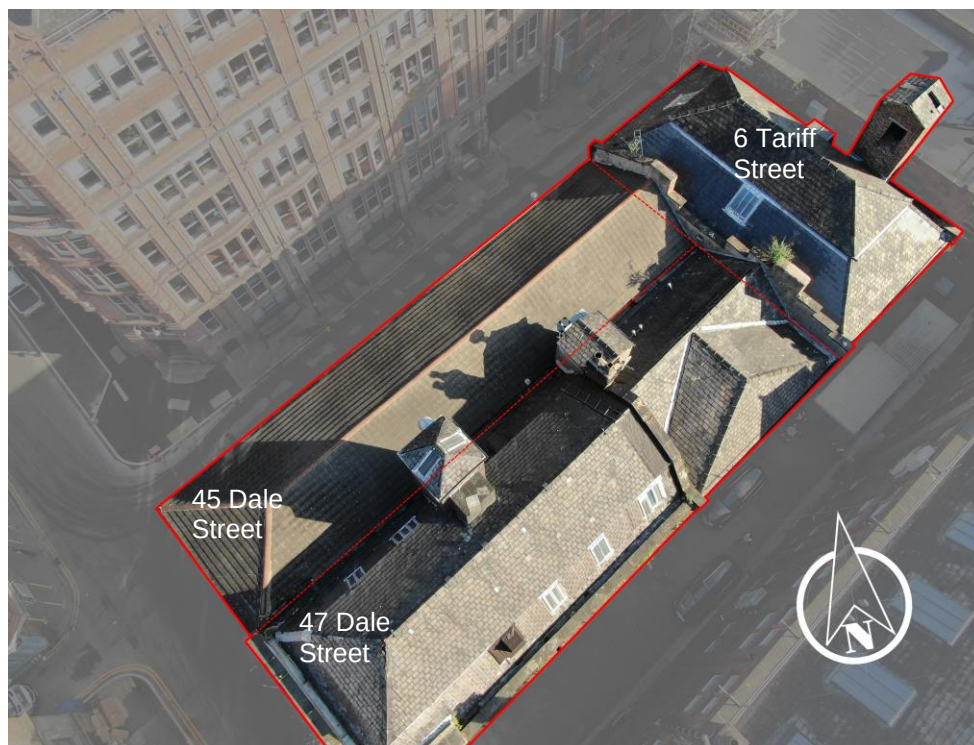


Figure 1 – Image from drone survey

2.0 Description of Existing Roof Structures

The roof structures are formed using a series of timber trusses.

At 45 Dale Street the trusses are typically Queen post and span from the external façade along Tariff Street to the party wall between 45 and 47 Dale Street. The spans of the trusses are approximately 6.50m at varying centres of approximately 2.50-5.00m. Purlins span between the trusses with rafters typically at 340mm centres. The timber members have been identified as being softwood.

The trusses over 47 Dale Street are typically a form of Gambrel Attic in creating a mansard roof form with space within the loft, currently used for storage. These trusses span from the party wall between 45-47 Dale Street and Lizard Street. The trusses are at approximately 2.55m centres with a span of circa 7.50m refer to Figure 2 below. There are two masonry towers that are located on the party wall line with 45 Dale Street.



Figure 2: Photograph of internal roof space to 47 Dale Street

Westlakes have not yet inspected the roof over 6 Tariff Street, the roof construction is a mansard in form and is understood to be constructed using timber trusses spanning between the party walls between 45 and 47 Dale Street and 8 Tariff Street. There is a tall masonry lift shaft located on the boundary shared with 8 Tariff Street.

All three roofs are covered with slates with gutters positioned along the perimeters of the building and also between the three roof forms of 45 and 47 Dale Street and 6 Tariff Street.

3.0 Investigations

Westlakes have visited the property on a number of occasions in the recent past and are familiar with the arrangements of the roof structures to 45 and 47 Dale Street. As mentioned in Section 1.0 a drone survey to determine the condition of the finishes to the roof has been completed by Westlakes.

Hutton + Rostron Environmental Investigation Limited (H+R) were commissioned to undertake a survey, by Hightown Group, of the roof of 45 Dale Street. The survey findings are recorded within the report titled 'Timber Condition Survey and Visual Strength Grading of Roof Structure' dated 21st December 2020. The aim of the report was to identify damp and decay issues in the roof and provide timber species information and visual strength grading.

Within the report several areas were noted that have been subject to water penetration and decay has been noted to some structural members and others have been affected by damp. The areas affected by water ingress coincide with noted RWP locations, this is a common defect with buildings of this age. In particular the issues arising with the gutter between 45 and 47 Dale Street on the party wall are likely due to its accessibility and a lack of maintenance historically.

Timber structures that become overly sodden with water, with a moisture content of at least 20%, are likely to be affected by wet rot. When moisture levels approach between 30-40% dry rot can occur, which is more harmful as it can rapidly spread to other timber elements within a building. Moisture levels noted within the report indicate that there are areas where the surface of the timbers are in excess of 40% but that this is presently limited to superficial decay with the majority of the affected members subject to wet rot.

Previous repairs have been undertaken to several the trusses where the decayed timber section has been removed and replaced and bolted steel plates applied to each side of the timber members to tie the old and the new members. Calculations for the more recent interventions have been completed as part of these works. These repairs have been carried out without the water ingress problems being fully addressed and with limited access from below.

4.0 Proposed Works

The roofs are to be stripped to enable the installation of a new breathable membrane and insulation, damaged or missing tiles will be replaced. Once the roof is stripped back a full inspection of the roof members will be possible.

It is expected that further areas of damage to the timber members through historic water damage will be uncovered as the finishes are removed, and from previous involvement with similar buildings similar issues have been noted and successfully remediated.

Each situation requiring repair will be assessed for the most appropriate remedial action.

- Structural integrity, ensure the structural members are capable of taking the loads they may have to bear.
- Minimal intervention, retain the maximum amount of historic timber and minimise alteration or introduction of new elements. Consider the impact of the repair process on the component and the structure, including access issues, the viability of moving the timbers for repair, and the extent of damage which might be done to other building elements in executing the repair.
- Reversibility, try to ensure that alterations and additions can be undone without harm to the fabric.
- Like for like, where possible, use the same materials and techniques as previously used.
- Honesty, make the solution honest but aesthetically and architecturally elegant and either neat or invisible.
- Documentation, record the fabric before intervention and document the intervention itself so that future conservation work is well informed.

Where replacement of timber sections is required, it is proposed that the affected timber is cut out and replaced with the same species and grade of timber where possible, utilising scarf joints where appropriate to the situation. An example of a splayed scarf joint with a wedge system is indicated in Figure 3 and would be utilised at the end of members suffering from water damage and or rot.

In addition to the investigation and repair of damaged members it is recommended that the trusses are cleaned of dirt and debris and that bolted connections are checked for tightness.

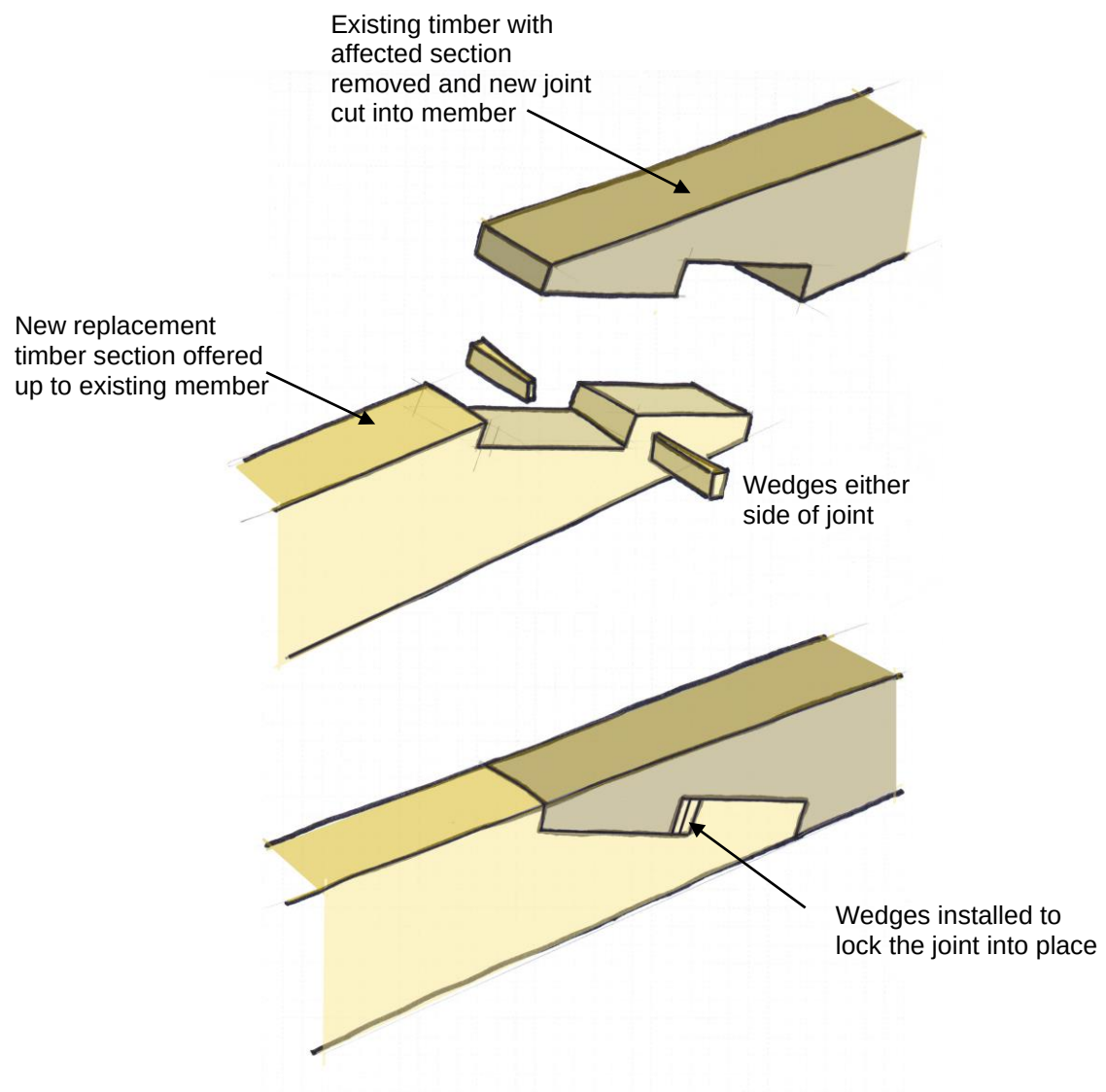


Figure 3 – Example of a scarf joint

With regards to the removal of the existing disused lift tower, refer to Figure 4, it is proposed that the masonry tower is deconstructed to below the roof line with minimal impact on the roof structure. The void created in the roof is to be infilled using structural framing to match the existing roof structure to retain the original features of the roof as far as reasonably practicable.



Figure 4 – Image from drone survey showing the existing lift shaft to be removed in the foreground.

I hope this is sufficient for present needs. If there are any further queries, please do not hesitate to contact us directly.

Yours sincerely



Steve Reynolds

Technical Director

cc: Ryan Berry, Architecture:M