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Facade Repairs Report for Bridgewater House, Manchester

Client:
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Historical photograph from the early 20th century showing front and side elevation of Bridgewater House.



2001 new entrance and terracotta cladding replacement.

1.0 Introduction

Bridgewater House was erected in 1912, to the designs of Harry S Fairhurst for Lloyds Packing Warehouses Ltd. At the time it was the largest warehouse of its type in the world.

The building was constructed with a steel frame and concrete beam and block floors and the principle elevations were clad, in an eclectic style, in pale terracotta, over a two storey, massive stone base.

By the 1960's the cotton trade and, therefore, the packing warehouses, were but a shadow of their former selves and owners of these buildings began to seek new uses. Frequently this led to cheap office space in the city and storage or light industry further from the centre. Bridgewater House became office use and underwent a lot of change including, in about 1972, the removal of all the steel windows to be replaced with Kawneer Aluminium and the colonising of the loading dock at the rear. It was at this time that investigation took place into cracking of the terracotta, especially vertically between the windows, and it was revealed that there was bending taking place in the steel columns, probably because they were at 90 degrees to their correct orientation. A programme of repair was carried out which involved taking down the terracotta covering to the columns, supporting the horizontal structure, then turning each column through 90 degrees and recladding. Some block repairs were undertaken and we believe that there was some replacement though the extent of both of these actions is not known and we have no knowledge as to whether it was approved by the planning department.

In 2001 a new entrance was formed in the centre of the Whitworth Street elevation to provide a single point of control and to ensure DDA compliance. The work involved the removal of the column on the centre line of the building from ground to first floor, and the terracotta cladding to the first floor soffit and introducing two new columns to support the structure at ground floor. The terracotta cladding at first floor level was not re-instated.



Inappropriate epoxy mortar crack repairs along the Whitworth Street elevation.



Cracks spread along the Whitworth Street elevation.

2.0 The current situation

The result of these works was a disturbance to the structure around this new entrance causing stress fractures to the face of the building. Repair works were undertaken, some being relatively successful, but in other areas the cracking of the blocks has continued leading to opening up of repaired cracks or further new cracking. It is particularly noticeable around the new entrance where a higher proportion of replacement blocks are needed and there is also a greater proportion of repairs.

There are also two areas where particularly inappropriate repairs have been carried out in the past. These are to the west side of the former hovel on Whitworth Street. Blocks numbered 123,126,127,129,132,134-137, and 139 (10 blocks) are not blocks at all, but are in-situ concrete painted a pale yellow. Blocks 133 and 133A to 133F (7 blocks) are terracotta 'tiles' which replace the original full blocks. They are mortared to the face but are not part of the structure of the elevation as they are not fully bonded into the adjacent blocks.

There are some areas of very poor repair and, at the extreme, faces which are simply mortar. Of significant concern are cracks to the underside of the soffit blocks above the two original entrances. All blocks are affected and have had cracks filled with some sort of epoxy mortar in the past. The blocks above the east entrance are of particular concern because the cracks have opened further. This area needs to have invasive investigation.

3.0 The proposals for facade repair

The building contains a large proportion of blocks that are damaged, but which are capable of a viable repair, and others that have been badly repaired in the past but which are capable of a good repair as part of these works. At the moment these repairs amount to about 440 blocks but will be reassessed when scaffolding is erected to provide a better working platform. These blocks are marked on the submitted drawings. Some of these blocks are complex in detail and will require some sensitive, in-situ, work. A further group involve no more than the restoration of



former scaffold fixing points which were simply filled with mortar when the scaffold was removed. Others may require localised pinning to ensure that they remain viable for the foreseeable future.

As previously noted, there are blocks which we consider are incapable of repair and where we propose replacement in whole or in part. These fall, loosely, into the following categories. Some blocks fall into more than one category.

1. Blocks which have pre-repaired cracks which have now continued to spread and affect more than the original face(s). These often have corners which now appear very vulnerable to separating from the main block, so causing a public hazard.
2. Blocks which have extensive, wide, cracks which have very poor repairs, often using inappropriate materials such as cement based mortar.
3. Areas where some previous, cosmetic repairs have led to 'whitening' of the surface. Tests have shown this damage to be non-reversible.
4. Blocks where the crack runs around more than one face and has significantly opened up in recent years. These blocks often coincide with areas showing an underlying problem, and the area around the central entrance demonstrates this very well.

To minimise the impact of these repairs, blocks where the damage, though clearly severe, does not seem to affect the strength of the block itself, are proposed to be repaired by carefully cutting of the face of the block and re-facing with a new block front. As the block projection is 70mm (generally) and an adequate bearing is 60mm to provide stability. The face removal will be 130mm. It does introduce a fine vertical joint on the return face but it is felt that this will hardly be noticeable and is an acceptable alteration in conservation terms seeing that it retains the major part of the original block. More than 2/3rds of the blocks scheduled for replacement will be a face only repair. The remaining 50 Blocks, which are a total replacement, are those considered to be in need of replacement on account of extensive damage, an unacceptable appearance because of previous, bad repairs, or where there is perceived to be a real danger to the public from an ongoing failure which could lead to a section of a block falling away.





Lime based mortar samples on Atwood Street. The approved sample is in the top right corner of the image.

4.0 Summary

The works required to the terracotta façade of Bridgewater House have been assessed mindful of the guidance of Historic England's 'Practical Building Conservation' guidance.

Except in extreme situations, blocks are not being replaced for cosmetic reasons alone. Fine cracks are judged as to whether they are simply fireskin or glaze cracking, and therefore left alone, or are indicators of damage which is deeper and could, in the future, lead to significant water ingress and, therefore, subsequent failure. Repointing and crack repairs are to be executed in a lime based mortar and a sample panel has been prepared on Atwood Street and the sample on the right of the block is to be used for all such repairs. See illustration.