



Design and Access Statement

Manchester Central – Painting of gable steelwork

Prepared by Taylor Design Architects Ltd
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Manchester Central North-East (front) gable view



Manchester Central South-West (rear) gable view

1.0 Introduction

1.1 Preface

This Design and Access statement has been prepared by Taylor Design Architects Ltd on behalf of Manchester Central as a supporting document to accompany an application for planning consent.

As part of the ongoing maintenance, Manchester Central commissioned, in January 2015, an inspection to determine the existing condition and performance of the Grade II* listed building front and back gables.

The report has highlighted a major intercoat failure of the top coats present on both ends of the structure, although this does not appear to have any detrimental effect to the overall protection and is considered an aesthetic problem rather than a significant corrosion issue.

According with the report outcome, MCCC proposes to intervene by fully removing the poorly adherent top coats, power tool prepare areas of exposed substrate to an St3 standard and patch prime, followed by a full over coat.

The gable steelwork is part of the original building fabric and it is intended that the proposed works will not alter its appearance in any way. As such, the new coat for the steelwork on both gables will be in the same colour as existing.

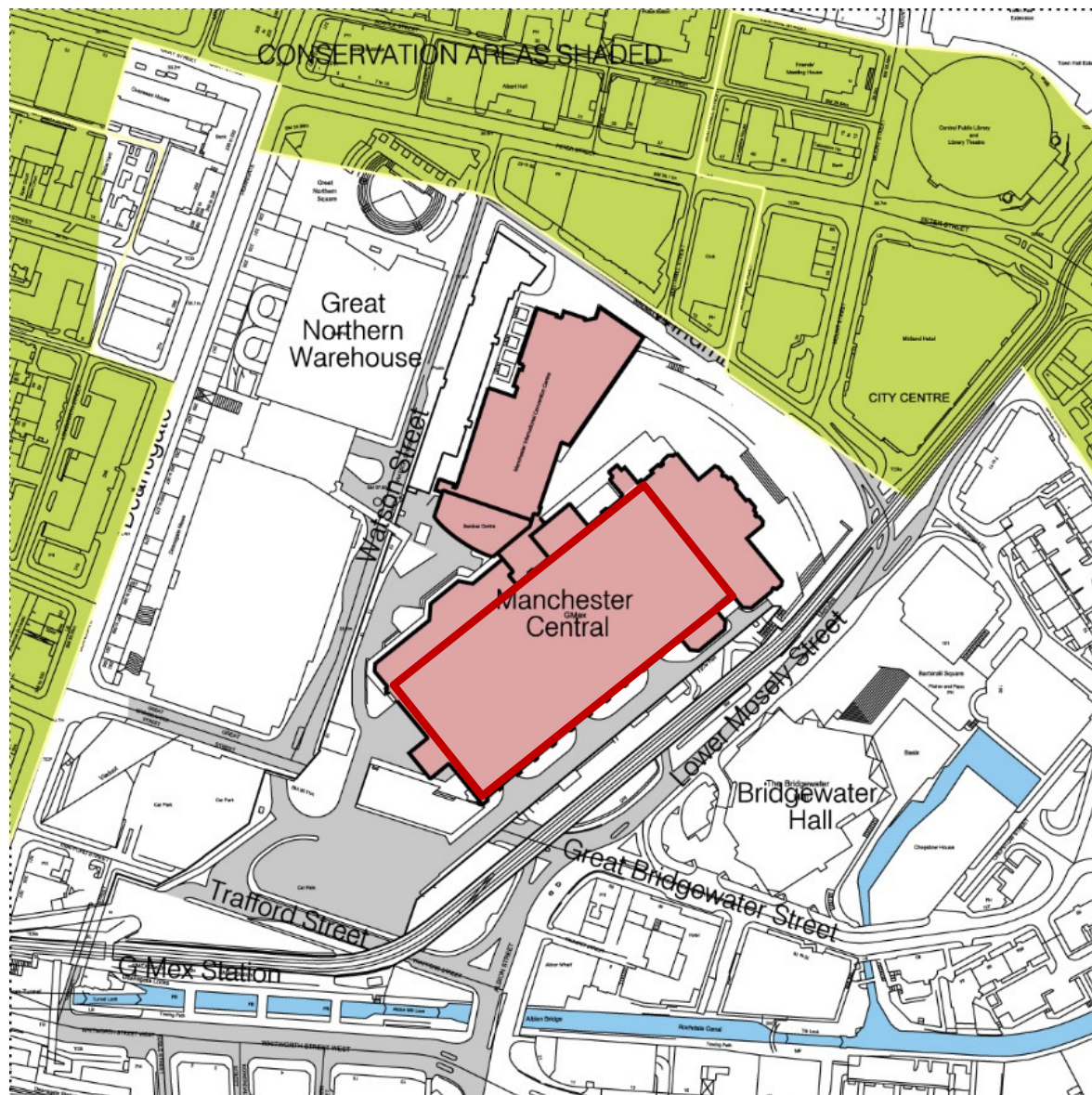
1.2 Project Directory

Client

Manchester Central
Windmill Street
Manchester
M2 3GX

Architects

Taylor Design Architects Ltd
30 Manchester Road
Wilmslow
SK9 1BG



2.0 The Site

2.1 Site Context

The Manchester Central Conference and exhibition Complex is situated on the south side of Manchester City centre. The site is bounded by Windmill Street, Lower Mosley Street, Watson Street and Great Bridgewater Street.

The Convention Centre is grade II* Listed and is situated outwith the Peter Square and Deansgate Conservation area.

The Manchester Central buildings are set above two levels of undercroft, formed by brick arches, which are used for NCP parking. This sets the entrance level of the building above the surrounding street level. There are stairs from the Windmill Street public plaza to an upper podium and this provides pedestrian circulation around the main entrance foyer, and along the centres Watson Street elevation towards the Deansgate – Castlefield metrolink station. The Watson Street elevation is approximately 10m above street level. Public thoroughways are separated from the rear parking areas by fence lines.

The metrolink provides an urban boundary condition to the rear of the Manchester site.

KEY

- Extent of Conservation Areas
- Manchester Central Convention Complex
- Manchester Central Convention Hall

2.2 Site Analysis

The North-East (front) gable faces directly onto Windmill Street and is Manchester Central's main façade. The South-West (rear) gable faces the Deansgate – Castlefield metrolink station.

As part of the ongoing maintenance of the building, we are proposing to provide a new over coat to the existing gables in order to maintain the aesthetic high standard on the two main facades of the building and provide protection to the steelwork.



Image 01 – View from Windmill St



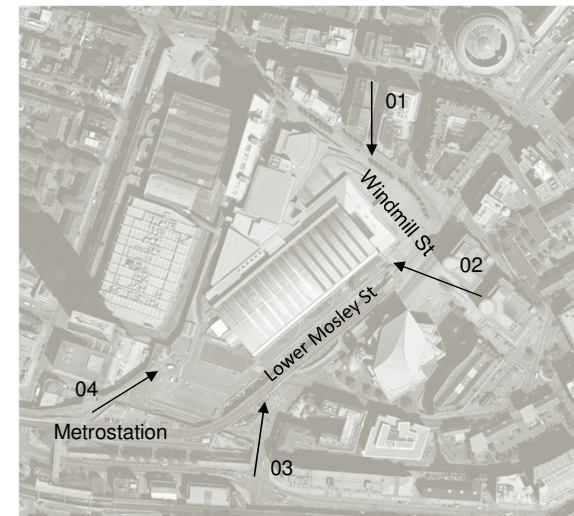
Image 02 – View from Lower Mosley St



Image 03 – View from A5103



Image 04 – View from Deansgate metrolink station





Manchester Central Convention Centre – Roof view indicating gables location

3.0 Design Influence

3.1 Requirements

Manchester Central is a successful business located within a central city location that hosts numerous types of social and political events. The proposed works are a necessary part of the building's ongoing maintenance.

It is recognised that the main train hall building is the predominant historical asset of the convention centre and it is intended that the works to be undertaken will not alter its appearance. As such, the steelwork on both gables will be re-painted in the same colour as existing (please refer to next page for extent of works).

The scope of work is the surface preparation and painting of the existing steel and wrought gable ends structures at Manchester Central. The existing paint to the gable end structures varies in both the type of paint and numbers of coats of paints.

Broadly the conditions are:

- Flaking, detached and missing finish
- Degraded intermediate coats
- Complete breakdown of all paints to the substrate steel
- Corrosion of the substrate steel
- Combination of the above

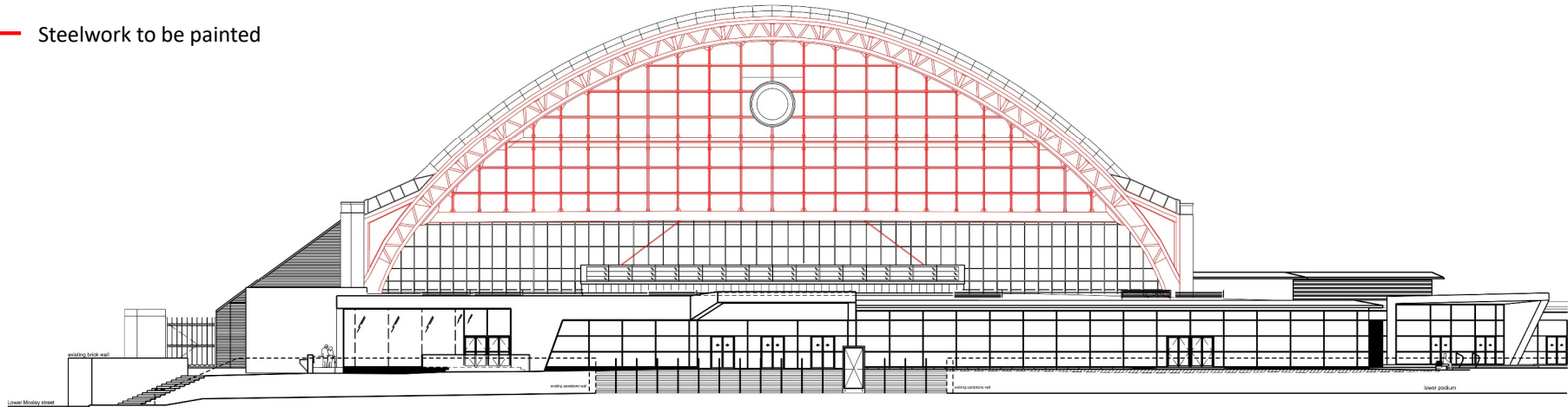
The intent is to remove and replace the existing finish over all the surfaces, to repair, or reinstate, intermediate coats and to renew all paint in locations where corrosion of the substrate is present.

Full Technical specification for Repainting provided by ARUP are part of the information submitted within this application.

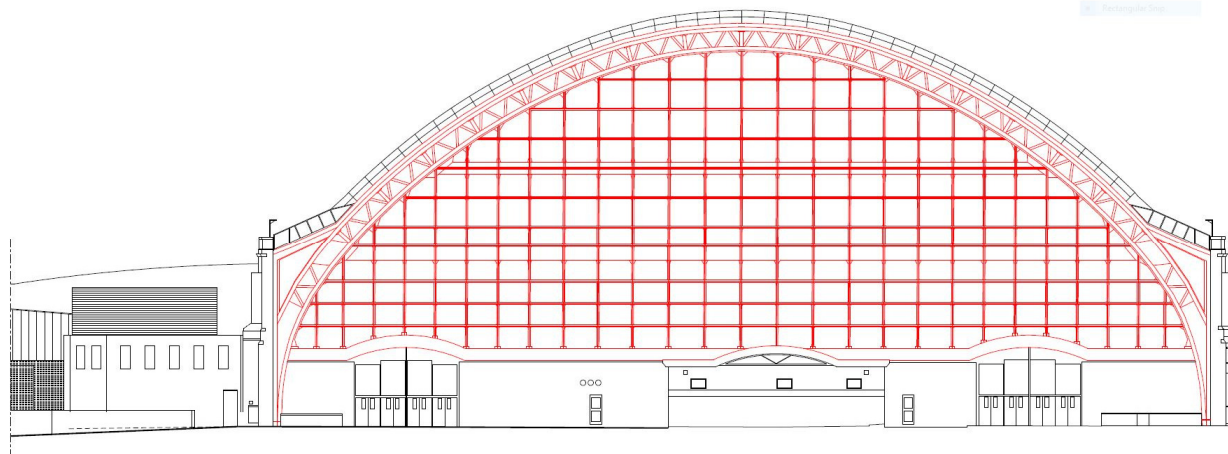
3.2 Extent of works

KEY

— Steelwork to be painted



North-East Elevation



South-West Elevation

Manchester Central Convention Centre – Gable elevations



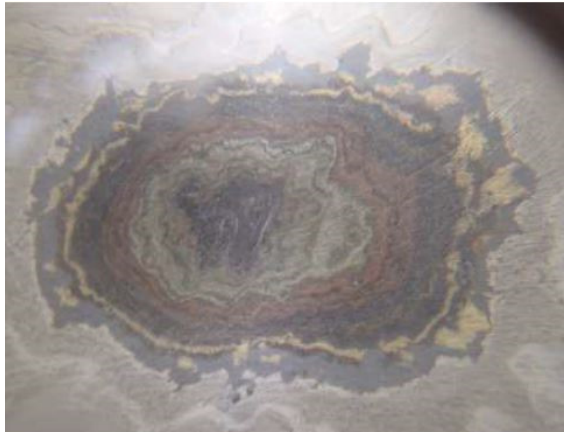
Coating removed by mechanical damage



Cracking of the coatings



Flaking and delamination of the top coat



Multi-destructive test to identify number of layers

4.0 Proposed Scheme

4.1 Materials – Existing – Front End Gable

The structure comprises the original sections and some newer cross bracings, possibly installed to strengthen the structure between the outer and inner Gable frames.

On the newer sections the condition of the existing coatings appears generally sound with only minor areas of corrosion and coating breakdown noted. The area of corrosion are isolated and mainly found along the horizontal angle sections and where coatings had been removed by mechanical damage exposing the substrate beneath.

Thanks to micro-destructive testing it has been possible to identify in the original sections a total number of 24 coats of paint, varying in thickness and generic type. The failing topcoat was found to be an alkyd type material applied over an epoxy type coating not adequately prepared and which consequently contributed to the delamination witnessed. The survey also highlighted top coat adhesion weaknesses.

The coating system on the newer sections was found to be an epoxy system, with the exception of the alkyd type top coat which, again was poorly adhered to the underlying paint layer, however the overall adhesion of the remaining epoxy system had fair to good adhesion. Were identified six layer on paint in total.

Please refer to technical report document provided by Taziker Industrial for full analysis. The document have been submitted as part of this application.



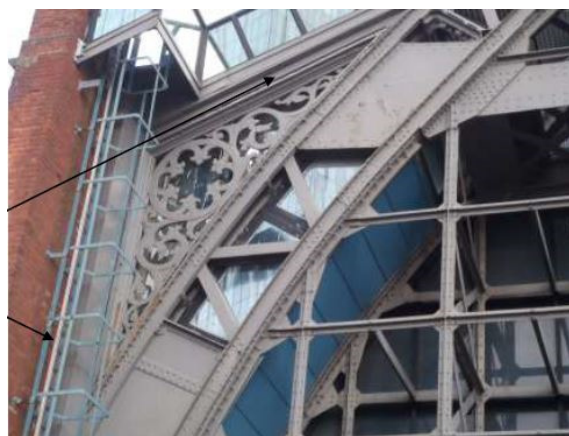
Flaking and delamination of the top coat



Corrosion under the walkway grating



Rust staining in the back to back gaps filled



Rust staining on main arch and ornate structure

4.1 Materials – Existing – Rear End Gable

The rear gable has a similar design of the previous section with the addition of a lower level framework and ornate detail at either side of the main arch. The condition of the existing coating was found to be fair with minor areas of corrosion and coating breakdown present. There is however noticeable flaking and delamination of the grey top coat, which had also discoloured in a number of areas. Corrosion is more widespread compared with the Front Gable end.

Micro destructive testing have identified two coating system present, the first is on the newer angled bracing and it comprises seven layers of paint similar to those found on the front Gable newer sections. The system appears to be an epoxy type material with the exception of the delaminating top alkyd type coating. The adhesion of the coating system on these newer sections ranged from fair to good.

The original sections appeared to have undergone full removal at some point in the past and here a six to seven coat system of alkyd type with grey top coat has been identified. The adhesion of the system was good overall.

The survey also highlights that a number of the 'back to back' gaps had been filled with and this had created a moisture trap and rust staining are visible. The only real area of concern has been identified in some isolated patches where the original coating system had not been fully removed and it is possible that lead based coating may still be present. The ornate configuration also appeared to be in good condition with very little breakdown, but where there are plies between the main arch and ornate structure there is clear rust staining present.

Please refer to technical report document provided by Taziker Industrial for full analysis. The document have been submitted as part of this application.



Manchester Central North-East (front) gable view



Manchester Central South-West (rear) gable view

4.2 Materials - Proposed

There are no material changes proposed. The steelwork on the two gables will be repainted in the same colour, using the following paint system:

1. Primer - Interseal 670HS @100µm DFT
2. Intermediate coats - Interseal 670HS @100µm DFT
3. Finish coats - Interthane 990 @ 50µm FT

The Interseal 670HS product is a low VOC, two component high build, high solids surface tolerant epoxy maintenance coating. It's designed to provide anti-corrosive protection.

The Interthane 990 product is a two pack, acrylic polyurethane finish that's designed to give excellent durability and long term recoatability.

Both products come in a wide range of colours, making it possible to match the existing colour.

Before the above products are applied, high pressure jet washing to all surfaces will be required in order to remove any existing contaminants. The steelwork will also need to be prepared via a combination of mechanical St3, needle gun and grinders up to 20% of the surface area and general abrasion, sandpaper, 80% of the remaining surface area. The chosen paint system can then be applied.

Finally, the gable windows will be washed down.

Specifications of the coat system products have been submitted as part of this application.



failed at glue (no result obtained)



failed at 1000 psi



Failed at 850 psi



Failed at 720 psi.

4.3 Materials - Testing

An adhesion testing was carried out on 4 sections that had received mechanical preparation to St3 standard.

The materials applied, according with the proposal , were:

- Primer – Interseal 670 aluminium
- Intermediate coats – Interseal 670
- Finish coat – Interthane 990

Three out of four results showed good intercoat adhesion within the new system and good adhesion to the existing paint system.

The existing paint system also appeared to be well adhered to the metallic structure.

Please refer to Paint inspection Report document provided by Taziker industrial for full data. The document have been submitted as part of this application.

Paint Inspection observations

5.0 Conclusion

The management team of Manchester Central Complex considers the painting of the gables steelwork to be part of an ongoing strategy for maintaining the building, ensuring the continuity of high quality operation of a competitive venue.

The building hosts large-scale conferences/events and from this business success has secured the historical importance of the former train station building.