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A BUILDING TRANSFORMATION CASE STUDY

# Hilton Hyde Park – Dome Re-coating

One of the many iconic properties within their portfolio, the Hilton Hyde Park is a wonderful example of London's architectural heritage, with enviable views directly across the park itself. With leaks causing damage to the main dome, a solution was needed to repair, re-coat and ensure the structure was sound.

# **Project description**

As part of our developing relationship with the Hilton brand, having worked with them across a range of requirements from façade and roof condition surveys, specialist leak detection and repair through to full façade and roof restoration projects across the UK, we were initially asked to review a survey that had been provided by others and undertake the works required to the dome, which had been leaking for some time.

The dome and the rooms within the hotel provide some of the best views across the city, so it was important that the leaks that had been identified were fixed so that once again this space could be utilised.

Working with this ideal in mind, we were able to provide the client with a safe and successful approach that ensured all elements of the project were aligned with their specific needs, essentially repairing and re-coating the most difficult to access areas of the hotel, providing them with a long-term, minimal maintenance solution.

# Project overview

The Grade II listed property represents Edwardian splendour with a modern twist, ensuring the hotel is well maintained is key to the client's objectives, as it is held with much historical significance and as a first class example of Edwardian architecture.

Built in 1907 and overlooking Hyde Park and Kensington gardens, it became part of the Hilton portfolio in 1999 and vitally retains many of its original features, including stained glass windows and roof. Of the various domes across the roof, it was the main dome which was to become the focus for this project.

With leaks having been a constant thorn in the hotel's side affecting the main suite within the dome, a leak detection survey had been undertaken to identify the issues that were leading to the water ingress. Amongst these issues were cracked lead work, defects to the masonry including missing pointing and delaminated block work, rotten timber within the window frames, but chiefly the cracking and failure of the current coating system.

Working closely with the client to understand

their initial and long-term goals for the property, we were able to design, test and implement an access, product and delivery methodology that solved their problems, helped to protect the dome and reduce the need for maintaining this extremely difficult to access area.

The initial stage of the project saw further inspections and testing carried out, with the main 2 elements of this being the access and product choice. Through adherence and crosshatch testing, we were able to provide the client with a range of specialist products that would achieve their goal of waterproofing the dome, but also provide a warranty that aligns with their future needs.

As the project began, before it was possible for any works to be carried out it was essential that a crash-deck be put in place to cover the hotel's entrance and the exit of the tube station next door. Through negotiations with the council, this allowed these areas to be protected and remain open, ensuring that the public below would not be affected.

It was then the turn of our abseil, or perhaps in this instance we should call them the climbing teams to set up safe systems of work, as the



dome sat atop the roof itself and would have to be climbed before work commenced. Having tested the rigging system pre-project, we knew that we could successfully mount an anchor point around the top of the dome which would allow the teams to work safely and freely across the entire area.

It was then down to them to remove the original coating, expose and repair the cracked and failed masonry beneath, then begin building up the new coating system so that all areas of the dome were uniform, received multiple coats and ultimately was finished with a new, weatherproof system that would provide the client with piece of mind for the future.

# Our work included

- Initial trials with the product manufacturers to ensure that the correct product was specified and would provide the client's desired level of cover, including cross-hatch and adherence tests, avoiding the potential for early failure and any future warranty issues.
- Due to the unique access requirements of working on this dome, which included aid climbing to the top of the dome and then abseiling down, the abseil team undertook access trials to ensure that safe methods of working could be put in place and rigging could be fully tested.
- The full removal of the current failed coating, stripping the system back to the masonry which then provided a sound surface to which the new product could adhere. This also involved extremely low impact methods to ensure that minimal dust was created and avoided the risk of this travelling on the winds that were present whilst working at height.
- Once the surfaces were fully prepared, any cracks or movement that had been identified were repaired and secured, again providing a sound surface for the new coating and also ensuring no areas were left where water could sit or penetrate.
- With the dome now fully prepared, the new coating system could be applied, which consisted of a multi-layered, liquid applied polyurethane coating, spread across all parts of the dome and built up to ensure water would not be allowed to penetrate the surface and a 10-year warranty could be achieved.
- With the timber window frames also being a source of leaks, these were rubbed back and prepared, any loose putty was removed and replaced, rotten timber was removed and then filled with a specialist timber

repair care system, then all areas were re-coated with an external weathershield system to help protect against future weathering and minimise the need for ongoing maintenance.

- Where the windows were blocked up at the back, leading to condensation being present, weep holes were fitted to allow moisture to pass out of the void and ensure no further damage occurred.
- As was identified in the initial survey, the piece of lead that was damaged on the cupola at the top of the dome, was fully cleaned and prepared, then repaired and the crack sealed to ensure water could not ingress within that area.

#### **Project challenges**

• One of the most important factors of project was the safety of our operatives and the public, due to the work taking place on a dome, above the entrance of the hotel and the exit of the tube station. Along with these factors, we encountered various challenges throughout the project, including:

A unique and bespoke access and anchoring requirement, which needed a tailor made approach to ensure that the safe system of rigging could be put in place at the top of the dome, then tested and secured from below.

- Working above an active hotel and station, both in their busiest periods, along another of London's main roads.
- All works being delivered at the highest point of the hotel and in the middle of one of the hottest periods of the summer, leaving the teams and products exposed to high winds and temperatures, which required bespoke delivery schedules to ensure safe delivery and maintain product application in the manufacturer's specified guidelines.
- Undertaking the project around the time of the King's coronation, in close proximity to some of the buildings and locations used on the day, whilst ensuring that our teams followed all guidance and worked safely.
- The discovery of a sign with the word 'radioactive' written on it, which halted the project for a day until we could confirm that no radioactive materials were present! (This story is a whole case study in itself and was a great learning about the history of lightning conductors – feel free to ask us about it).