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A BUILDING TRANSFORMATION CASE STUDY

Pullman London, St Pancras – Roof Replacement

The Pullman London St Pancras hotel is situated centrally between London's extremely busy Euston, St Pancras and Kings Cross stations, with the constant traffic of the Euston Road running directly outside the front of the property. Rising up to its full height in excess of 17-storeys, the Pullman hotel is a modern example of the city's eclectic mix of buildings and overlooks many of the local properties.

Project description

At 17-storeys tall, The Pullman London St Pancras, is one of the many iconic properties within the AccorInvest portfolio. A luxury hotel that dominates the skyline and overlooks all of the buildings around it, the views from the upper roofs are unrivalled in that area of London.

As part of our multi-service and growing relationship with the client, our unique and holistic approach to the building envelope has aligned with the client's over the last decade, helping them to maximise ROI across the portfolio. Through this holistic and all-encompassing approach we were asked to support the client through the replacement of their leaking and failing roofs, from the initial inception, core sampling and specification development, through to the delivery of the works.

With a multitude of individual buildings making up the overall hotel and all interconnected, each of the individual roofs had been repaired and maintained over the years, extending their lifespan and helping to prolong the need for replacement; however some of the roofs

had finally reached the point where repairs and patching were no longer a viable or cost effective option, with the replacement of each roof providing the best solution for the future.

Project overview

Situated in close proximity to London's main train stations, and with the iconic attractions of the British Museum, British Library and all of London on its doorstep, the hotel is an ideal location for travellers wishing to see the London sights.

Originally built for the council in 1971 and re-purposed over the years, in 2005 it was transformed into the Pullman St Pancras and now takes its current form as a 17-storey modern hotel. Over the years, the roofs of the hotel have been replaced, repaired and have been found to leak, being a constant thorn in the hotel's side and a nuisance for the hard-working maintenance team.

With the main roof of the 17-storey tower block having had quick fixes and repairs over the years, the leaks were becoming unsustainable and the roof had gone past its originally

intended lifespan. The onsite team had been able to avoid the need for replacement by undertaking the repairs, but this was no longer viable and a long-term solution was needed.

Over time and multiple leak detection surveys, we had been able to support the client and identify the issues that were leading to the water ingress, which just increased as each year passed. Amongst these issues were cracks in the lead work, defects to the masonry including missing pointing and delaminating render, degraded materials surrounding the roof system and the major issues being the cracking, shrinkage and general failure of the current coating system.

In order to ensure that the correct specification and materials were utilised, providing the client and property with the most appropriate, long-term and future-proofed solution for the new roof, the initial stage of the project saw further inspections, testing and core samples carried out. 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 roof areas, but also provide a warranty that aligns with their future needs.



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With the support of the product manufacturer, they satisfied themselves that the roof and their system were compatible and designed the build-up of the new system to help minimise the client's need for major maintenance in the future, whilst providing a 20-year guarantee across the roof.

With all elements of the project now agreed and approved, the replacement of the roof could begin, with each section being stripped up, waterproofed and then replaced and the surrounding materials repaired where needed. This was to ensure that the overall roof, including areas and materials that we were not replacing, provided an overall watertight seal.

Working methodically, the teams progressed well across all of the roofs that were being replaced, ensuring that each day the areas beneath were sealed and free from water ingress. The project was not without its challenges, including the centre section being heavily built-up with plant, BMU tracks and steel work criss-crossing the roof with little clearance in some areas. This led to the project being slower than normal, but this had been factored in and discussed with the client. The other main challenge of the project related to the great British weather. The project began during one of the windiest and wettest summers in the UK, needing us to ensure that at all times the roof was sealed and no opening up took place if rain was expected. All materials had to be stored safely to avoid anything having a risk of blowing off the roof, including the design of a safe system to transport any materials around the roof.

Finally, with the upper roofs complete, we have now been awarded the work to undertake the replacement of the lower roofs, helping to bring these other areas in line with the future vision for the client.

Our work included:

- Initial test 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, adherence and core sample, avoiding the potential for early failure and any future warranty issues.
- This phase of testing and trials also allowed us to understand the current build-up of the roof system and plan for any changes to align the systems with current regulations.
- With the roof being open to the elements, there were areas that were attractive to birds and the deposits that they often leave behind. Each of these areas had to be dealt with safely during the removal of these deposits, including the initial neutralisation of the deposits, then each section being carefully removed and disposed of within hazardous waste procedures, with the team being fully suited and kitted out with the appropriate PPE and RPE for the task.
- The current system was completely stripped up, taking the roof back to the exposed deck, from which we could then begin replacing the manufacturer's approved coating system.
- Through the initial trials, we were able to provide the understanding of which areas were damp and any areas that were dry, with the ultimate decision being to replace all areas of the roof, thus ensuring a full warranty throughout.
- As is the case with any internal or external project that required the removal of coatings, we could not be sure that 100% of the substrate would be sound until it was removed and we advised the client accordingly. Thankfully, during the initial strip-up of the current system, no adverse issues were found and the substrate was intact.

- Where repairs were required to provide a suitable surface, these were undertaken in conjunction with the manufacturer's input, ensuring that the materials used would not adversely affect the new system or any warranty provision.
- With the substrate fully prepared and cleaned, the primer was applied to all surfaces and then the vapour layer was laid down to provide the initial waterproofing seal.
- Once the vapour layer was in place, the main elements of the roofing system could then be installed and built-up, which in this specific case included the specifically cut and designed insulation and foaming, the carrier membrane, embedment coat which is reinforced with a fibres to allow movement, and then finally the top coat of the system is applied and built up to achieve the desired thickness.
- Due to the volume of plant and historical pipework that was present across the roof, care had to be taken when working around these systems, so as not to damage any areas. This also meant that where the current roofing system was terminated at masonry and lead work, or beneath pre-built cappings, these had to be carefully lifted and safely stored to provide access for the new system, then each item replaced or redressed to ensure a watertight finish once the new roof system was in place.
- With the size of the roof and again, the volume of plant around the central core, as well as the client's decision to not have a temporary roof fitted, the delivery of the works and the stripping and replacement of the roof had to be broken down in to sections, reducing the potential for water ingress and ensuring that each night the roof was sealed.
- In addition to the upper roofs, we were also asked to review and commence the replacement of some of the lower roofs. Unfortunately these areas had historically been poorly fitted with a felt finish that will need to be stripped and replaced.

Project Challenges

As with all projects, one of the most important factors of the delivery was the health and safety of our operatives. Working 17-storeys above the busy London streets, we were tasked with working closely with the hotels employees and day-to-day operations, planning accordingly to minimise any disruption to ensure that the hotel could operate as normal. Along with these factors, we encountered various challenges throughout the project, including:

- This project, like many similar, included the application of roofing and coating products that had to be undertaken within strict manufacturer guidelines. All of our works delivered throughout a classic British summer which included one of the hottest and also wettest periods, requiring a flexible approach and bespoke delivery schedules to ensure safe delivery and maintain product application in the manufacturer's specified guidelines in order to achieve the desired warranties.
- As the building is centrally located and tall in comparison to its counterparts, the outer edges of the roofs were awash with mobile phone masts. The presence of these masts limited our ability to work safely in certain areas, meaning a proactive approach was required in communications with the mast operators to ensure that they were deactivated each day and a safe system of work put in place to avoid all risks. In addition, some masts required a 'lift-and-shift', which had to be planned 6 months in advance of the project.



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- Throughout the project, the hotel was open for business as usual, requiring our teams to work and ensure that they were out of site, did not disturb the hotel users and ensure that at all times even though we were stripping up the roof, it had to be watertight and no further leaks could occur.
- The volume of plant that was present on the roof, including chillers, AC units and large amounts of pipework meant that the working space and clearance from the deck was limited and a bespoke approach was needed, ensuring that all areas of the roof could safely be stripped and replaced in line with the specification and manufacturer's requirements.
- Pigeons, or more accurately the deposits that they leave! In order to be able to work in specific parts of the roof and also maintain the safety of our operatives, before any work could be carried out the team had to safely neutralise and remove the presence of pigeon guano.