

University Roof Re-Waterproofing

University of Westminster, London

SCOPE

- // Asphalt Repairs
- // Tapered Insulation
- // Gutter Lining Waterproofed
- // 40 Roofs Re-Waterproofed

DETAILS

- // 40 roof areas to a University
- // Installation of insulation at 120mm thickness
- // 40 roof areas re-waterproofed with low odour Sika Decothane
- // Meticulously planned to adhere to noise restrictions and zones agreed to limit disruption to the occupants

Case Study // Roofing

Client | **Borras Construction**
Role | **Specialist Contractor**

Before: Existing, Failed Waterproofing System

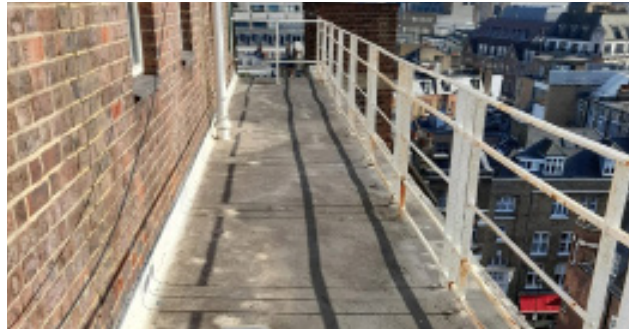


During: Installation Of Insulation & VCL

The University of Westminster is a renowned institution of higher education, having been established as the first polytechnic in London 180 years ago. The Westminster Law School is located at Little Titchfield Street, Central London which forms part of the University's Regent Campus.

This building is heavily populated by students, staff and visitors meaning a live environment had to be maintained at all times during the entire programme of works. During the tender stage and upon award of the contract, the client was given advice on achievable outputs and technical support for the specialist aspects. This allowed the team to limit disruption to the occupants and adhere to noise restriction times and zones agreed. The phasing and sequence of the works were meticulously coordinated

Before: Blistering To The Asphalt

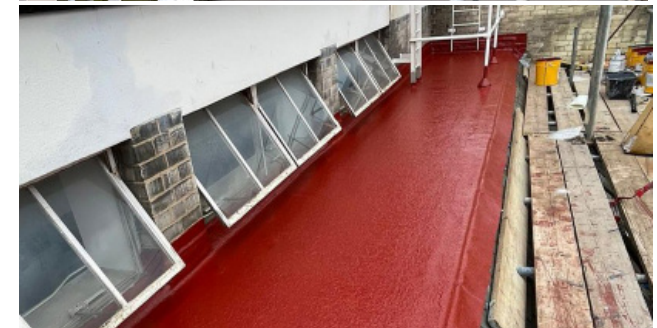


During: Application Of Reinforcement Fleece with Primer

to align with the noise restriction requirements, as well as other operations on site that formed part of the wider scope (such as decorations). In order to work within these noise restrictions, the work was coordinated with the balustrading painting and scaffolding subcontractors to ensure access to the roofs safely, starting on Level 6 and progressing downwards level by level in an organised and efficient manner.

During Sika's core sampling, there was no moisture detected under the existing asphalt to most of the roofs. It was determined that the significant amount of blistering could be repaired using a heat lance, which reduced the amount of wastage generated, to achieve a suitable substrate on which to apply the Sika Decothane Ultra waterproof decking system. Decothane Ultra was specified

Before: Poor Asphalt Detail At Junction With Lead Flashing



During: Low Odour, Seamless Waterproofing System

for its low odour properties during application and curing.

Solar reflecting chippings were embedded into the existing asphalt as a protective measure against UV rays and to reduce the surface temperature in hot weather. These chippings can become loose, blocking the guttering/outlets and exposing areas of the roof which could have contributed to the cracking, blistering and overall failure of the asphalt. In order to achieve the adhesion value specified, these were removed. This presented logistical challenges over 38 individual roofs, each roof required grinding by hand while maintaining dust suppression techniques.

The specified Sika systems are resistant to a multitude of environmental factors including protection from UV rays.

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Another advantage associated with these systems is the low odour emissions. This was particularly important on this project due to the works taking place throughout the summer months in close proximity to open windows during lectures and classrooms.

One two roof areas, the asphalt had failed, allowing moisture to penetrate beneath it, meaning this had to be stripped back and replaced with an alternative solution. The concrete substrate was flat rather than tapered, therefore to allow for adequate drainage, a new tapered insulation was designed and installed prior to the application of the waterproofing. An additional benefit of introducing the insulation means that these areas were thermally upgraded to meet the current building regulations.

Whilst onsite, the client was informed that the guttering on the roofs was performing inadequately. To counteract this, a solution was offered to apply the Sika Decothane Waterproofing System to the inside of the guttering, effectively sealing them to prevent further leaking.



After: Thermally Upgraded & Watertight Walkway

Across the 40 roofs, there were multiple fire escape routes that needed to be sequenced into the works, whilst ensuring they were immediately returned to service. Therefore these locations were waterproofed with the Sikalastic 721 waterproofing system incorporating anti-slip properties in line with health & safety guidelines for accessible walkways. Other walkway locations used the Sika Decothane system with the introduction of the anti-slip finishes in lieu of replacing the original promenade tiles which were found to be damaged and unstable. This also offered the client a better long-term solution with mitigated maintenance requirements.

Each of the 40 roofs were unique and led to significant and varying waterproof detailing:

- Preparation and termination to hundreds of balustrading posts.
- Dozens of Dormer windows that required slate tiles to be removed from the pitched roofs so that the liquid system could be dressed underneath prior to reinstatement.



After: Fully Re-Waterproofed Roof Areas

- Dressing and introduction of termination bars against window reveals.
- The existing lead flashing was to remain and the waterproofing system was detailed onto those areas.
- Standard concrete and brickwork upstand details.
- Mechanical and electrical units on multiple roofs required careful attention to ensure waterproofing was achieved to both the underneath and to the upstand details.

Consideration was given to the environmental impact of this project. Due to the location of this building being in Central London, deliveries were scheduled to arrive outside of rush hour traffic and were requested to be transported using smaller vehicles. Before works commenced, it was organised that all the necessary plant and materials required were on site whilst the operatives would travel to and from site each day via public transport. The asphalt was separated from the general waste and taken for recycling.



After: Waterproof Detailing Expertly Carried Out