

Odourless Roofing Solution Maintains Staff and Patient Comfort at St George's Hospital

St George's Hospital, Wandsworth, London



Large expanses of flat roofs characterise most modern hospital buildings. Regardless of the system used, the original build quality or the thoroughness of maintenance regimes, all roofs have a finite service life. Degradation of the waterproofing membrane over time, standing water due to poor drainage and failure of joints or seams can all contribute to water ingress.

Ideally, capital works programmes to address potential roof issues should be planned in advance in line with the predicted service life or manufacturer guarantees associated with the existing roof system. In this way the roof can be renewed before water ingress becomes a problem or causes secondary issues, such as damp, water damage or electrical faults.

St George's Hospital in Southwest London has taken this planned approach to upgrading its roofs in a phased estates improvement programme. With a staff of more than 8,500, St George's is the largest NHS hospital in South West London, serving a local population of 1.3 million and delivering specialist provision for large areas of Surrey and Sussex too.

The hospital has sites in both Tooting and Wandsworth and it's at the Wandsworth site that a second roof refurbishment has just been completed using solvent-free Kemperol 2K-PUR; a cold-applied liquid waterproofing membrane that is odourless and requires no hot works, making it ideal for hospital roof installations.



Odourless Specification

St George's Hospital's Wandsworth site combines patient treatment and healthcare with an active research facility and a mortuary in its 'Jenner Wing.' It was here that a previous roof refurbishment was carried out in 2014 using the cold-applied liquid system.

Following the success of that scheme a second two-phase roof overlay project has been delivered, involving refurbishment of Jenner Wing's Block D; a building that forms part of the University of London and combines patient areas on the lower floors, with research and laboratory facilities on the upper floors, along with a basement mortuary.

The total roof area of block D is more than 1700m² so the project was divided into two phases, with 940m² of cold-applied liquid membrane installed in phase one, followed by the 819m² phase two installation. Both phases were installed as an overlay onto the existing asphalt roof.

The building features a significant amount of air handling equipment on the roof to serve the ventilation services for the patient areas, the laboratories and the mortuary, all of which is business critical to each department. Not only did this equipment need to remain operational throughout the roof refurbishment but it was also essential that there were no nuisance odours from the programme of works that could cause disruption to patients, staff or visitors.

It was for these reasons that the solvent-free cold-applied liquid waterproofing system was chosen, in line with the architect's performance specification.

The system is formulated using castor oil and both the primer and the resin are solvent-free and odourless, with installation in a single process without the need for any potentially hazardous or disruptive hot works.

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Flexible Installation

Before each phase could begin, lifting equipment was used to raise the air handling plant on the roof, which was then supported on rubber feet. The loose chippings on the roof were then removed by a mechanical scabber to prepare the surface for the overlay of the new membrane. However, in areas below the air handling plant where the machine could not be used, this process had to be carried out by hand.

Around the perimeter of the roof there is a railing that supports the basket used for window cleaning and, inside this, the roof is covered with paving slabs, which had to be removed so that the waterproofing membrane could be installed underneath. With the slabs removed and set aside for re-use where possible, the installation team cleaned the surface using jet washing equipment prior to application of the primer once the roof was dry.

The solvent-free resin was then applied in a single wet-on-wet process. The resin was applied to the substrate and a flexible reinforcement fleece was then laid directly onto the wet resin, immediately followed by more resin on top. This ensures complete saturation of the reinforcement fleece. The resin then cured to form a seamless, elastomeric waterproof membrane that cannot delaminate, is UV stable, and bonds directly to the substrate.

Service Life

Both phases of the roof overlay were completed without disruption to patient care or research activities, avoiding any strip out requirements, the nuisance odours associated with solvents and the health and safety considerations of hot works. The result is a durable, seamless roof with a BBA-accredited service life of 25 years.

