

Solvent-Free Kemperol 2K-PUR Helps Airport Stay in Control

John Lennon Airport, Liverpool



Many roof refurbishments need to take place while the building remains fully operational and sometimes a business-as-usual approach is a business-critical necessity.

That was certainly the case at Liverpool John Lennon Airport when wear and tear demanded the installation of a new roof for the control tower without any disruption to its 24/7 operation.

Solvent-free

Liverpool John Lennon Airport is the 12th busiest in the UK, with flights to around 60 destinations and passenger numbers of more than 4.2 million each year. The control tower plays an essential role in ensuring that flights take off, approach and land safely to keep air traffic on schedule.

Not only does Liverpool John Lennon Airport rely on the control tower's 24/7 operation, but Robin Hood Doncaster Sheffield Airport also receives vital data from a transmitter located on the roof too.

This demanding environment meant that the roof refurbishment had to be carried out without any disturbance to air traffic controllers, who must be able to concentrate fully at all times. As a result, roofing contractor, W Swindells & Son Roofing selected Kemper System's odourless Kemperol 2K-PUR cold applied liquid membrane for the project.

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Explains John Swindells from W Swindells & Son: "Nuisance odours from a solvent-based or low odour system could have been distracting for the air traffic controllers who work in a relatively confined space for several hours at a time.

"Specification considerations also included noise levels as the air traffic controllers talk to the flight teams in the aircraft and must be able to hear them clearly so a liquid system that can simply be applied using rollers and brushes was the most appropriate choice."

Restricted Access

Not only did the air traffic control tower require the W Swindells & Son team to work at height in an exposed location with the airport terminal on one side and the River Mersey on the other, it also involved limited access and strict security procedures, which prompted the contractor to complete the job with just a two-man team.

John continues: "Each day the installation team had to undergo full airport security checks to work air-side at the airport and the only way to access the tower's roof was through the control room itself.

"Once again, the use of a cold-applied liquid system was ideally suited to meet these challenges: the use of hot works would not only have created noise and odours but would have involved carrying cumbersome equipment and gas bottles through the control room. Instead, we just needed to take manageable sized sealed containers of Kemperol 2K-PUR through the control room to the roof, along with the reinforcement fleece and rollers."



Installation Challenges

The control tower's existing roof surface was bitumen which had not been replaced since the building was first constructed. The refurbishment saw W Swindells & Son overlay the existing substrate with the Kemperol 2K-PUR liquid membrane in a single wet-on-wet process.

After cleaning the substrate, the installation team applied Kemper System's D Primer which was left to cure before application of the liquid membrane began.

The Kemperol 2K-PUR resin was applied section-by-section to the roof using rollers. The flexible reinforcement fleece was cut to size and shape on site and laid onto the wet resin. The installation team then immediately applied more resin to fully saturate the fleece removing any air bubbles or creases with the rollers. The resin then cured to form a seamless, durable and U/V stable monolithic membrane.

John explains: "The control tower roof is a dodecagon shape with a hexagon structure in the centre. The surface area may be relatively small, but there were some significant challenges in terms of details and working restrictions.

"We had to cut the fleece to meet the exact angles of the roof on both sides, creating flashings by bringing the resin and the fleece up the parapet wall on one side and the central structure on the other. We also had to accommodate numerous supports for the existing handrail that runs around the perimeter of the roof and six existing ventilation outlets."

Most challenging of all, the contractor had to complete the works without ever interrupting the line-of-sight signal that is transmitted from the rooftop satellite to Robin Hood Doncaster Sheffield Airport.

Non-Slip

Once the new roof surface had been installed, W Swindells & Son created a non-slip maintenance walkway by applying a central strip of Kemper System's Kemperdur TC surfacing on the roof along with anthracite-coloured quartz aggregate as the wearing course. This finish was also applied to the section of the roof where access is gained from the control room.

John adds: "The control tower at Liverpool John Lennon Airport may have been a relatively small roof but it was a challenging project and using Kemperol 2K-PUR really helped us address all the challenges."

