



Case Study: London 2012 Olympics

Client: The London Organizing Committee of the Olympic and Paralympic Games Ltd. (LOCOG)

Location: 24 Olympic and Paralympic venues in the London 2012 Olympics, including the Olympic Stadium in Stratford, London, UK

The London Organizing Committee of the Olympic and Paralympic Games Ltd. (LOCOG) had a vast requirement for portable flooring and temporary roadways across a wide variety of venues, each with their own special performance requirements and environmental considerations. From minimizing pedestrian wear on the front garden of Hampton Court Palace to facilitating the construction of a temporary equestrian arena on the protected grounds of Greenwich Park to protecting the running track and athletics field during the Opening and Closing Ceremonies of both the Olympics and Paralympics, the temporary flooring needs for the 2012 Games were as varied as its participants. LOCOG's first challenge was to find one company that could provide the appropriate products for each particular venue, manufacture the quantities required (1,866,505m²), work to extremely tight deadlines simultaneously across multiple venues and adapt to the constantly changing demands of a sporting event with unparalleled scope and exposure. LOCOG awarded the trackway contract to Signature Systems Group because of their manufacturing capabilities both in the United States and the United Kingdom and their demonstrated determination to go to any lengths to complete their works to their clients' satisfaction, on time and within budget.

While each of the 24 venues requiring temporary flooring or roadways for the 2012 Olympic Games provided their own challenges, protecting the competition surfaces during each of the four Ceremonies at the Olympic Stadium was one of the most complicated in terms of performance, aesthetics, and logistics. The pre-rig load-in for the Opening Ceremonies of the Olympic Games required several massive cranes weighing up to 20 metric tons each, fully-loaded articulated lorries, and myriad smaller forklifts and other vehicles to traverse the protective surface without causing any damage to the rubber running track beneath, while maintaining a safe surface for the thousands of athletes and performers to walk, run and dance on during the Ceremonies themselves.

ArmorDeck3 was chosen to meet this requirement because of its weight-bearing properties, quick installation, and smooth attractive surface. The flat bottom and ribbed interior of the ArmorDeck3 panels, combined with their interlocking edges and cam locks at each corner and edge would help to disperse the over-sized point loading throughout the floor. To provide even more weight distribution and protection to the track, Signature first swept the track clear of any small pebbles and debris, then laid a thick layer of Visqueen plastic to ensure no fuel or chemicals from the Ceremonies or vehicles would ever make contact with the rubber running track. Next, a 5mm layer of rolled recycled rubber was applied to help absorb and distribute the excessive weights.

The next temporary flooring challenge posed by the Opening Ceremonies of the 2012 Olympic Games was a design requirement that part of the floor remain exposed and be a dark grey color to represent the M25. ArmorDeck panels are normally white or translucent, but custom colors can be created. Because custom colored panels are more expensive, LOCOG opted to use translucent panels where they wouldn't be visible and only use the custom grey panels where they would be exposed. This posed several additional challenges. The positioning of the grey panels had to be precise. Signature produced a set of installation drawings from the original CAD layout of the Stadium, detailing row by row the design of the translucent and grey panels like a knitting pattern, to minimize confusion and speed installation. Crew chiefs would periodically count the installed mats to confirm that they were being laid exactly in the configuration required for the Ceremonies. Additionally, the assistance of the Stadium's surveyor was employed to check key points against a GPS system to confirm that panels weren't just laid in the precise pattern, but that the entire floor was positioned within millimeters of the site plan so that all of the staging, lighting and props were perfectly aligned.

The installations and extractions of close to 20,000m² of ArmorDeck3 at the Olympic Stadium in London in would have been complicated projects on their own due to the large quantities involved, but there were many logistical

considerations that added to the complexity of these works. One of the greatest of these considerations was the timing. Due to the nature of Signature's work at the Stadium, they had to be the first in and the first out, meaning that any delays on Signature's part in the installation would in turn delay all works following them and any delays to the other suppliers' works on the extractions would reduce the already short amount of time Signature had to remove the ArmorDeck3. While the installation for the Opening Ceremonies was completed in stages over several weeks, Signature had only 17 hours to remove all the flooring completely from the Olympic Park before competition commenced. The time allowed for Signature's installations and extractions were progressively shorter with each visit to the Stadium. To accommodate these incredibly tight schedules, Signature's project management team scheduled overlapping crew shifts, coordinated works with other suppliers, and broke down each project into smaller pieces so the crew had specific goals for reaching critical points.

Another considerable logistical challenge was the high level of security in place at the Olympic Park and the Stadium. Each stage of the Games required different levels of accreditation for each member of crew to enter each area of the Olympic Park. The fit-out stage required all crew to obtain a biometric pass containing a scan of their hand and passport information as well as a background check, completion of an SPA safety training course and safety inductions for both the Park and the Stadium. Accessing the Stadium during Games Time required a new pass with a separate background check by the Home Office, an upgrade pass for the Stadium and a Ceremonies Contractor pass in addition to new site inductions and the SPA card. The period between Olympics Games Time and The Paralympics required all the former plus additional transition passes; all accreditation had to be re-applied for and processed for the Paralympics Games Time. Due to the transient nature of crew labor and the extensive works Signature's crews were completing on other off-Park venues, getting all crew completely accredited in time for their works at the Stadium involved extensive coordination and collaboration between Signature's project coordinator and LOCOG's access team, Ceremonies' accreditation manager, LOCOG's Games Time Accreditation team, the Olympic Park Enrolment and Pass Office, the Uniform Distribution and Accreditation Centre and the crew company contracted to work with Signature. Signature's project coordinator was on site at each installation and extraction to ensure all crew was allowed on site and troubleshoot any accreditation issues that arose at the gate to the Park. The process of getting product, trucks and equipment on site was no simpler. Each vehicle and each driver needed its own permits and accreditation. Each vehicle was booked to arrive on site at very specific times and was only permitted to enter the Park during their scheduled window. Prior to arriving at the Park, each vehicle was required to be screened and sealed at a location off-site and then re-checked once on site. To ensure that all trucks with product and equipment made it through the extensive screening process, the logistics manager of Signature's warehousing and distribution center remained on site throughout all works coordinating the complicated schedule of deliveries and removals.

Throughout their works at 24 venues of the 2012 Olympic Games in London, England, Signature Systems encountered countless challenges and complications, especially for the Opening and Closing Ceremonies of the Olympics and Paralympic Games. Signature's project team rose to meet each challenge to LOCOG's great satisfaction, confirming that they made the right choice in selecting Signature to provide their temporary flooring and roadway requirements.

External documents:

- Reference letter from Piers Shepperd, Technical Director of London 2012 Ceremonies
- Reference letter from Scott Buchanan, Technical Manager of London 2012 Ceremonies
- Reference letter from Jeremy Edwards, Venue General Manager of Greenwich Park