

Case Study: London 2012 Olympics

Client: The London Organising 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 Organising 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 minimising 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 tonnes 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 colour to represent the M25. ArmorDeck panels are normally white or translucent, but custom colors can be created. Because custom coloured 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.



Freephone: 0800 678 5893
Direct: +44 (0) 1642 744 990
Mon-Fri: 9am-6pm GMT

Unit 1, Blaxett Road
Blaxett Road Industrial Estate
Darlington
DL1 2BJ

Email: tbooth@signaturessystemseurope.co.uk

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 labour 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



Freephone: 0800 678 5893
Direct: +44 (0) 1642 744 990
Mon-Fri: 9am-6pm GMT

Unit 1, Blakett Road
Blakett Road Industrial Estate
Darlington
DL1 2BJ

Email: tbooth@signaturessystemseurope.co.uk

The London Organising Committee of the
Olympic Games and Paralympic Games Ltd.
23rd floor, One Churchill Place
Canary Wharf, London E14 5LN
Reception +44 (0) 203 2012 000
Fax +44 (0) 203 2012 001
london2012.com



18th September 2012

Dear Signature Team,



I am writing to you on behalf of LOCOG's Greenwich Park Venue Team to thank you for your wonderful support in helping us deliver the London 2012 Olympic and Paralympic Games.

Greenwich Park received incredible amounts of thanks and congratulations from everyone involved, from the athletes, International Federations, our spectators, the volunteers, and the local community, not only in London, but from all around the world.

We couldn't have achieved this success without your input, both throughout the Games, and also in the planning during the lead up where Signature were brought in to lay the necessary trackway quickly and efficiently.

London, and more importantly the Greenwich Park Venue Team, have delivered an extremely successful Olympic and Paralympics Games, in what can only be described as the most iconic venue within London, "The Jewel In The Crown". Without your help this would not have been possible.

Thank you again for your support, and I would like to wish you and your staff best wishes for the future.

Yours sincerely

Jeremy D. Edwards

Venue General Manager – Greenwich Park

London 2012 Ceremonies Ltd.
23rd floor, One Churchill Place
Canary Wharf, London E14 5LN
Reception +44 (0)20 3 2012 000
Fax +44 (0)20 3 2012 001



Mr Tony Booth
Signature Systems Europe Limited
Unit J5, Morton Park
Darlington
Durham, DL1 4PJ
United Kingdom

Friday, 5th October 2012

Dear Tony,

I would like to personally thank you and your entire projects team for their efforts throughout the Opening and Closing Ceremonies project. The dedication, professionalism and product quality is what made it a pleasure for me, working with Signature team.

Though London 2012 Ceremonies didn't contract Signature directly for the Ceremonies requirements, I was pleased to hear that Signature secured the work via a direct tender with LOCOG. When ArmorDeck was specified there were many considerations that we had to consider. They included the speed of installation; the speed of removal and the strength and longevity of the product because of the length of time it would be down during the Opening Ceremonies build up. ArmorDeck performed extremely well throughout and I would be happy to recommend ArmorDeck and Signature as a company to anyone should the need or request arises in the future.

I am sure future Olympics and stadia across the world will continue to buy/rent ArmorDeck for their applications considering the performance I'm familiar with.

As you know my time working for London 2012 Ceremonies is coming to an end but you have my contact details should you need to contact me in the future. I wish you and Signature all the very best in the future and perhaps our paths will cross once again.

Thank You.

Kind Regards

Scott Buchanan
London 2012 ceremonies Limited
Technical Manager – Services & Special Projects

The London Organising Committee of the
Olympic Games and Paralympic Games Ltd.
23rd floor, One Churchill Place
Canary Wharf, London E14 5LN
Reception +44 (0)20 3 2012 000
Fax +44 (0)20 3 2012 001
london2012.com



1st November 2012

Tony Booth
Signature Systems
Unit J5
Morton Park
DarlingtonCounty Durham
DL1 4PJ
United Kingdom

Dear Tony,

Ref: London 2012 Ceremonies



I just wanted to thank you for the extraordinary efforts you and your team made in helping us deliver some truly spectacular Ceremonies for London 2012 this summer.

The whole of the UK and wider world were universal in praising our productions.

Making these events happen took an extraordinary amount of hard work, dedication, patience and flexibility.

Signature Systems played a key role for us and were instrumental in delivering the fantastic end result.

You should be very proud of your contribution – thank you.

The armor deck delivered a flexible and robust system which completely protected the Mondo running truck from cranes, trucks, forklifts to horses and geese.

It has been a real pleasure working with you and we look forward to working with you again in the future.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Piers Shepperd".

Piers Shepperd
Technical Director