

BUILDING SCIENCE INTO LONDON 2012



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The first medals are yet to be won in London 2012, but the achievement of the construction and engineering industries, delivering this vast and challenging project on time and under budget, is surely worth a gold in anybody's book.

The Olympic Park has been transformed in six years from a neglected patch of east London – an underused industrial site that was part wasteland, part contaminated, and all in need of regeneration. Before we could even start building, the 2.5sq km site had to be cleared and the land remediated.

Our partners in “mission impossible” have been companies – and their employees – in every corner of the United Kingdom, sharing in more than 1,500 top-level contracts worth over £6.5bn. The UK has always been a leader in construction; London 2012 has helped capture the

public's imagination and build confidence, here and abroad, that we can still deliver. We are not only capable of delivering major projects but that we are up there with the very best.

London 2012 has provided a fantastic opportunity to showcase the quality and innovation of British companies. Science and technology have played a major part in this. To some on the outside, science may not always be spoken of in the same breath as construction, but the reality is that technology and innovative ways of working have been pivotal in getting the job done, whether through pioneering construction methods, the latest approaches to carbon reduction, or using new technology to create better buildings and infrastructure.

Structural engineers, who rely on technological advances, came into their own as they built the venues and

infrastructure that are now an established part of the London skyline. We have new world-class sports facilities, thousands of homes in the Olympic Village and the largest new urban park in the UK for over a century. We have new bridges and roads, together with a backbone of utility and energy infrastructure that will serve the area for decades to come.

Technology was vital in ensuring synergy in the Olympic Park. Computer-aided design (CAD) and Geographic Information Systems (GIS) were used extensively to manage the multi-disciplinary platform, to ensure a completely co-ordinated approach. 3D visualisation of the Olympic Park was an essential tool in ensuring the venues and parklands were integrated and interacted with the surrounding community. It also provided a cost effective and flexible means of producing



physical models, simulation, fly throughs, and video animation.

Modern soil drilling techniques allowed us to test the quality of the earth and helped us calculate what needed to be cleaned or removed. The investigation of 250 hectares of land was challenging in itself, with 3,000 exploratory holes being dug. However, this represented only the beginning as the chemical and geotechnical data generated by the investigation had to be transferred in a suitable format to the designers so that earthworks and remediation could be commissioned. After we had identified the material that needed cleaning, five “soil washing” machines were used to clean two million tonnes of earth, with 80 per cent being reused on site. Without the technology, we simply would not have been able to do this in the required time.

Science extended beyond the realm of construction. The wildflower meadows surrounding the 80,000-capacity Olympic Stadium have been artificially timed to flower in July for the Games, just one example of the painstakingly detailed and innovative work of the experts who have created the Olympic Park. And in the Olympic Village we have installed superfast broadband for the 2,818 apartments that will become a new community after the Games – East Village, the first development of this size to have fibre optic cables installed in every home.

It was never going to be easy, and there were significant challenges to overcome. Our shared success in delivering the project against a deadline and within budget is rooted in a culture of overcoming hurdles – from the earliest planning stages to the Big Build itself.



There have been so many notable aspects to this project. We have encouraged contractors to buy into our challenging targets from the outset. Their response was excellent and enabled us to achieve new benchmarks across a range of areas, including tough sustainability targets and industry-leading health and safety records. Hitting these valuable indicators has served to create a sense of achievement and of being a single team with the same goal.

We have met 90 per cent of our sustainability targets including those covering the recycling of waste, the reuse of steel for the structure of the Olympic Stadium and Velodrome, and achieving Level 4 in the Code for Sustainable Homes for the Olympic Village – a real stretch for the project. Many of these achievements are now recorded on the ODA’s learning legacy website.

We have constructed venues that are built to last, not just for a few weeks this summer. The Aquatics Centre is designed so that the seating wings, which increase the capacity of the

building to 17,500 during the Games, can be removed, leaving a 2,500-seat venue for community use, elite athlete training and major events. The Olympic Stadium can be reduced to 25,000 seats, depending on the requirements of the London Legacy Development Corporation, which will take over responsibility for the Olympic Park after the Games.

Where there was not a need for a permanent venue, we built temporary ones. Engineers have met these challenges head-on, delivering the 12,000-seat Basketball Arena, which can be completely dismantled after the games to be reused elsewhere. We already have interest from Rio de Janeiro, host city for the 2016 Olympic and Paralympic Games.

British industry has shown that it has a wealth of talent and can deliver to the highest standards. With the eyes of the world on London this summer, people from across the world will be able to see for themselves, whether on television or in the flesh, what has been achieved.

The reputation of the British construction industry is as strong as it has been for a long time. The London 2012 project has helped promote UK expertise to a global audience, with companies proving that they can exceed expectations and deliver. The fact that it has all been done against a difficult economic backdrop – and to an immovable deadline – reinforces this.

In creating a completely new community – with sports venues, housing and infrastructure – the foundations have been built for the Olympic Park to become one of the best places in London to live. I believe the true test of the success and its legacy will not be this summer, or in five years time. It may take decades to be fully realised, but by 2030 I believe we will look back with satisfaction at what London – and the UK – gained from hosting the Games.

Learning Legacy website:
www.london2012.com/learning-legacy