Case Study

Olympic Stadium, London

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Project Outline

Contractor	Sir Robert McAlpine
Location	London, England, UK
Sector	Stadia
Disciplines Covered	• Fire Detection • Voice Evacuation & Public Address • Fire Telephone • Gas Extinguishing
Key Points of Interest	• 3000+ Addressable Devices • 6 Cirrus Pro Aspirating Detectors • 13 VEPA Rack Suites

Project Overview

The 2012 Olympic Stadium located Stratford, London created for the 2012 Olympics and Paralympic games. The stadium hosted the opening and closing ceremonies for each of the two games. The stadium also featured in the majority of the track and field events at the games.

The initial construction of the Olympic Stadium began in May 2008 and completed on time and within budget in March 2011. The development was the biggest project of its type in Europe at that time, along with it being the most significant mobilization of the nation's workforce outside times of war. At the initial time of construction, the stadium offered 80,000 seats which were later reduced to 66,000 seats in 2014 when the stadium later reopened as the London Stadium as part of the London legacy development.

The Challenge

The project brief outlined by Team Stadium called for a complete turnkey solution with the systems to be completed in just less than two years ready for the Stadium fit-out for the Olympics. The various systems Proposed would also have to meet British standards and then current green guide regulations.

The Solution

The project comprised the design development, detailed design, procurement, installation, testing, commissioning and handover of the complete fire alarm system at the Olympic Stadium at Stratford.

The team selected a Protec 6400 fire detection system due to its versatility, proven track record, and reliability. The system comprised of a 6400 network with six Display and control nodes (DCN) and ten loop processing nodes (LPN), two colour graphics workstations and several bespoke panels.

There are over 3,000 Protec 6000Plus peripheral devices located around the stadium which are supplemented by six Cirrus Pro Aspirating Detection systems used to protect the buggy route and selected for their high immunity to unwanted alarms.

The PAVA system uses a distributed networked system operating over a dual redundant fibre network. A highly resilient, self-healing industrial standard switching network provides the data network. Thirteen PAVA racks are strategically located around the stadium and connected to the fire-rated fibre network. These racks are all supported by dedicated local UPS systems.

The head end is located in the Stadium Control Suite with a touch screen display and paging microphone. The stadium is backed up with a similar arrangement in the Emergency Control Room.

The PAVA system is under automatic control of the fire alarm system in non-event mode and under full manual control on event days.

Protec also supplied the EVC system, non-critical fire telephones, Argonite Fire Suppression systems, flame detection to special hazards and other supplementary systems.

The completed systems were completed on-time and handed over to the client ready for the Stadium fit-out works to commence.

The Aftercare

Since completion of the works at the Olympic Stadium, London Legacy development appointed Protec to carry out the further contract required to reduce in size the Olympics stadium turning this into what is now known as the London Stadium home of West Ham United.

Protec continues to offer a fully comprehensive service and maintenance contract for the London Stadium.