



 Wembley National Stadium Ltd.

The Church of Football makes a comeback

The new Wembley was already a major talking point in the global arena, but when it was announced on July 6, 2005, that London would be host of the 2012 Olympic Games, the amount of attention placed on it suddenly increased. Now, all companies involved in the development of the £757 million project are under even more pressure to ensure that it is the ultimate state-of-the-art stadium ever to have been erected, and that everything goes exactly to plan. Polypropylene will also be under pressure to perform once the famous turf is laid, as it is expected to be one of the elements that will be helping to keep the famous pitch in tact.

The architects of the new Wembley are the world Stadium Team, a specially-created joint venture between Foster and Partners and HOK Sport. These internationally renowned designers are working hard to ensure that innovative facilities are matched by a design that creates the ultimate stage for major events with an electric atmosphere. It will host world class events such as The FA Cup Final, The Olympics, all England home football games, The Football League Cup Final and The Rugby Football League Challenge Cup Final.

Wembley intends to be the best stadium in the world, and it's evident that no compromise will be made on the design. To put it into comparison, Wembley will be approximately twice the size of

Stade de France in Paris and three times bigger than Cardiff's Millennium Stadium, making it the largest football stadium in the world with all seats covered. It will seat 90,000 people and will cover an area of 173,000m² (the Telstra Stadium Australia is only 100,000m²).

Work started on the stadium in the summer of 2002, and is set to be completed in time for The FA Cup Final on 13th May 2006, the television coverage of which normally attracts a worldwide audience of around 13-14 million viewers. But when it's complete, apart from its size, what will make the new Wembley Stadium different to the old one and to the other national stadia around the world?

Replacing the two towers

Perhaps the most visibly striking feature of the new bowl-shaped stadium is the Wembley Arch, which will be the iconic replacement of the world famous and much-loved Wembley Twin Towers, the flagpoles of which are currently being kept in storage and it is hoped will eventually feature in a museum at the new ground. Standing at 133 metres and sitting at an angle of 68 degrees, the glowing Arch will be visible all over the London skyline, from as far as 30 miles away. It is made from 1,750 tonnes of steel and, as well as being one of the greatest landmarks in world sport, it will also serve the purpose of preventing fans from having their views obstructed by pillars since it supports the entire weight of the north roof and

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60 per cent of the southern side, making it possible to retract the south roof to allow light and air onto the hallowed turf.

The sliding roof concept is also a feature of the Millennium Stadium, the national stadium of Wales, which has been the temporary home for England, but whereas matches at the Millennium are often played 'indoors' when the weather conditions are bad (a common occurrence in the UK) the roof will not fully close. Instead, it will cover the 90,000 seats to ensure the fans can watch the match in comfort and dryness, but the pitch will remain exposed so it can continue to benefit from sunlight and oxygen, a concept that will be explained in further detail later.

The viewing experience itself will be unrivalled with each of the seats having more legroom than the old Stadium's Royal Box. Seats are closer to the pitch than in the original stadium, and with fans sitting in a single bowl around the pitch they will be able to enjoy unobstructed views of the action.

For before and after event entertainment there are three concourses, each 1km around and the width of a dual carriageway. The concourses will be lined with food outlets and shops, and catering will be second to none with 688 food and drink outlets for general admission tickets and eight restaurants for Club Wembley guests. The stadium will boast the largest banqueting hall in London, seating 2,000 guests, and 2,618 toilets – more than any other stadium in the world!

But, there's one main reason that people go to Wembley and that's to watch their favourite sport – whether it's football, rugby and now, with Wembley set to become a versatile, multi-sport venue, athletics. Like everything else in the new Wembley, the athletics surface and the football pitch will be second to none.

One of the problems with the old Wembley stadium was that because an athletics track permanently circled the stadium, the fans were far away from the pitch, with the track separating the seats from the playing field. But for the new Wembley, a revolutionary solution has been developed whereby a temporary athletics platform can be installed when necessary. During new Wembley's lifespan, it is likely it will only need a running track two or three times, since it will only host major athletics events, so at these times, a prefabricated platform will be built over the lower bowl of the Stadium, covering some of the seats but creating the increased surface needed to fit an athletics track. The spectator viewing experience at Wembley will be of a higher quality when compared to other multi-use stadia, such as the Stade de France.

Making a pitch

Wembley has always been famed for its excellent playing surface, and the new pitch is set to surpass that using the latest advances in technology to ensure it gives athletes the best possible performance.



Wembley Stadium's turf is being developed by the Sports Turf Research Institute (STRI), an independent market leader in turfgrass research and agronomy. The seeds for the pitch are originally sown in an off-site location, and it's only after a year of nurturing that they are ready for transportation. The famous turf will be a combination of real turf, synthetic fibres and other composites.

Experts have tested 250 different types of grass and selected the toughest variety, evaluating them on appearance, strength, and ability to recover from wear and damage. Tests that were carried out to ensure the strength of the turf were implemented using a purpose-built machine that simulated the effects from different types of football boots.

Each square metre of turf will contain 150,000 to 200,000 leaf blades, and to help the grass roots maintain stability, fine polypropylene fibres of 35mm have been mixed in to the growing medium, along with sand and peat. Best described as 'hairy sand', there are approximately 1.6 million fibres in each square metre of the pitch and the growing medium contains approximately 95 per cent sand for good drainage.

Polypropylene-featured pitches

Dave Saltman, pitch consultant for Cardiff's Millennium Stadium and managing director of Pitchcare, a portal for groundsmen and greenkeepers, said polypropylene is a fibre that is used in many types of pitches. He explained that for different types of pitch, polypropylene is used in different quantities. For instance, in the Wembley pitch that is currently under development and in The Millennium Stadium pitch, polypropylene is only used in the growing medium, a pitch commonly known as fibre reinforced turf. In this case, the polypropylene fibres work by increasing the stability of the rootzone, preventing the grass from tearing away when a footballer or rugby players slides the studs of their boots across the turf.

But stadia such as that of European Champions Liverpool Football Club (UK) and Real Madrid (Spain) use the DD GrassMaster system by Belgium-based Desso DLW Sports systems. It's a

sand based stabilisation product, developed in the Netherlands in the 1980s, which has been installed in playing surfaces since 1992. This type of pitch consists of 20 million artificial grass fibres, which are injected about 20 cm deep into the natural grass pitch by a special machine, and projected 1.5 - 2 cm above the ground. During the growing process, the natural grass roots intertwine with the artificial fibres and as a result the three per cent artificial grass fibres anchor the total pitch, guaranteeing maximum stability and fast regeneration. In this case, the artificial grass fibres also stimulate good vertical drainage of rainwater, meaning no mudbaths on the field, and the protruding fibres help to protect the natural grass. Dave Saltman feels the success of the fibre sand has yet to be proven.

But synthetic fibres can't take the credit for it all. Mother Nature is of course an essential factor when it comes to creating and maintaining one of the greatest sports turfs in the world. One of the key challenges of the Wembley design team was to keep the famously high standard of the pitch while, at the same time, designing a stadium with stands that are higher and closer to the pitch than the original stadium.

No shadow

Many new stadia have suffered from poor pitches as the stands can leave large sections of the pitch in almost permanent shadow, and grass demands direct sunlight to grow effectively. For this reason the sliding roof remains an integral part of the design for the new Wembley. Options such as a palletised pitch (moving a patchwork pitch in and out of the stadium between events) or regularly re-laying the pitch were rejected as inappropriate at Wembley. Instead, computer models have been made of air and sunlight on the existing pitch and now, Wembley's partly retractable roof will allow the famous turf to be exposed to vital direct sunlight and ventilation. A further bonus of this is an improved TV image for fans watching at home. In bright sunlight, the roof can be withdrawn to allow clear TV pictures uninterrupted by heavy shadows on the pitch.

The effectiveness of the partly retractable roof will be watched extremely closely by stadium designers and turf experts from around the world, intrigued to see if this is the answer to solving all pitch problems.

A few hundred miles away is The Millennium Stadium, with its palletised pitch and fully retractable roof. But the pitch has had a troubled history, and chief executive Paul Sargeant said the growing conditions inside a stadium are far from ideal and, as of yet, he has not seen any evidence that a solution has been found. Will the sliding roof at Wembley provide this solution?

He said: "At the end of the day, there is only so much that the stadium designers, turf experts and groundsmen can do to improve the growing conditions in a stadium – Mother Nature cannot be fooled. To date, there has always been a choice

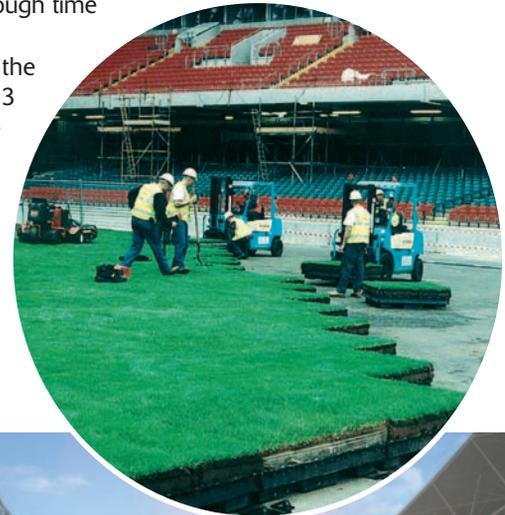
of either having fantastic sidelines and an average pitch, or a fantastic pitch but fans are left miles away from the action. We went for having fans close to the action, but the proximity of the stands to the pitch means there is a limited amount of sunlight and very little air circulation inside. We do get plenty of rain but you need all three elements for good pitch conditions.

"Stadium's are so expensive to design and build, so you need to operate them like you would any other business. This means you need to use all the facilities as much as possible. For instance, this year alone, including training sessions and company days, approximately 90 games have been played on the pitch. This means a lot of pressure is being put on the pitch, so obviously it is going to be more difficult to maintain."

Despite being rejected by Wembley Stadium, the palletised pitch has in some ways proved to be a positive element to The Millennium Stadium. It does mean damaged pitches can easily be removed, and also that pitches of different quality turfs can be bought in as and when necessary. Paul added: "Our next pitch, which is being laid in October, will be a thicker cut than the last one to ensure more stability. This is because Wales is hosting four major rugby union internationals against New Zealand, Fiji, South Africa and Australia." But, on the other hand, moving the pitch in and out of the stadium so frequently (this year already the pitch has been changed four times and another pitch is due to be laid soon) allows no one pitch enough time to settle.

We'll have to wait until the whistle blows on May 13 before we know how the pitch will fare. On that day, the world will find out if Wembley does contain state-of-the-art technology that will change the face of stadium design and pitch technology forever. 

 The Millennium Stadium, Cardiff.



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