

The New Wembley



A Few Facts and Figures.

- With 90,000 seats the new Wembley will be the largest football stadium in the world with every seat under cover. There will be NO obstructed views.
- The arch is 133 metres above the level of the external concourse.
- The stadium roof rises to 52 metres above the pitch. This compares to the 35 metres tall Twin Towers of the old stadium.
- The new Wembley has a circumference of 1 km.
- The London Eye could fit between the top of the arch and the pitch.
- The new roof will be over 11 acres. Four acres are moveable
- The rows of seating, if placed end to end, would stretch 54 kilometres
- 4,000 separate piles will form the foundations of the new stadium.
- There will be 35 miles of heavy-duty power cables in the stadium
- 90,000m³ of concrete and 23,000 tonnes of steel will be used in the construction of the new stadium.
- The roof alone will weigh almost 7,000 tonnes.
- The new pitch will be 4 metres lower than the previous pitch.
- Each of the two giant screens in new stadium is the size of 600 domestic television sets.
- The new Wembley encloses 4,000,000 m³ (cubic metres) inside its walls and under its roof.
- The total length of the escalators will be the same as a 400 metre running track.
- There will be 2,618 toilets - which WNSL estimate is more than any other stadium in the world.
- There is more leg room in EVERY seat in the new Wembley Stadium than there was in the Royal Box of the old stadium.

The Arch

- The new Wembley Stadium will be a landmark for London and one that will have a dramatic effect on the London skyline, with the Stadium's iconic Arch being visible across the City. When lit on a clear evening, the Arch will be seen from Canary Wharf – 13 miles away
- The Arch will be 133m at its highest point – this is over four times the height of Wembley Stadium's original Twin Towers. To put this in perspective, the London Eye could be rolled underneath the Arch.
- At seven metres in diameter, the Arch is wide enough for a Channel Tunnel train to run through.
- With a span of 315 metres, the Arch will be the longest single span roof structure in the world – the length of three football pitches.
- The Arch is made up of 500 steel tubes, referred to as 'straws'. The 'straws' form 13 modules each 20.5 metres in length. These are attached to giant 70-ton hinges using the two 'pencil end' sections.
- The total pulling force that the Arch jacks are capable of lifting is 12,000 tonnes – this is the equivalent pulling strength of a fleet of 6000 four-wheel drive vehicles.
- It supports 60% of the roof's weight. The roof can be partially closed during bad weather to protect the 90,000 spectators, or avoid heavy shadows across the pitch (which television cameras have difficulty coping with). It also opens up to give the pitch full natural light.



The Roof and Pitch

- One of the key challenges of the design team was to keep the famously high standard of the Wembley pitch while, at the same time, designing a stadium with stands that are higher and closer to the pitch than the original stadium and give better uninterrupted views.
- Many new stadia have suffered from poor pitches as the stands in the stadia can leave large sections of the pitch in almost permanent shadow. 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 for Wembley.
- Instead, computer models have been made of air movement and sunlight on the existing pitch and the unique moving roof designed for the new Stadium.
- This will be left open between events but can be moved to line up with the touchline within 15 minutes, ensuring every spectator is sheltered during an event.
- A further bonus 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.
- At 3pm on Cup Final day, for instance, only the two southern corner flags will be in shadow.

Challenges

- The construction presented a number of challenges. No stadium has ever been built this way, so architects and engineers had to use complex computer models to predict how the structure would behave if built in certain ways.
- Models of the stadium were put into wind tunnels to help predict how the roof in particular would behave during high winds.
- Given the special history of the previous Wembley Stadium, the designers had to pay particular attention to the atmosphere of the stadium, including the way it will sound with a full crowd cheering. Again, computers were used to simulate the acoustics of the new stadium before the design was agreed upon.

