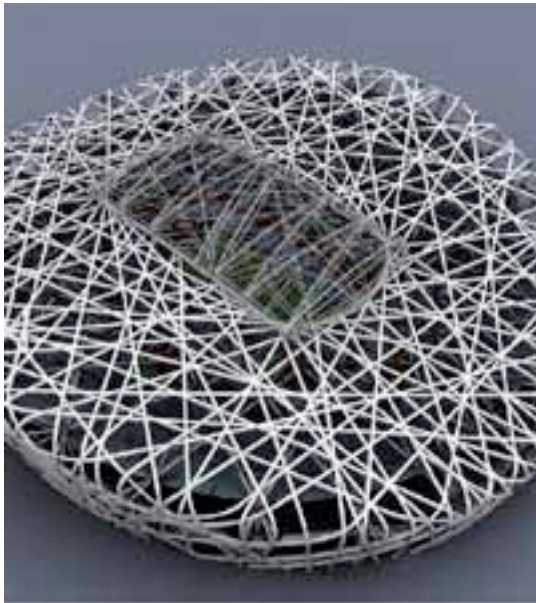


Beijing National Stadium, Olympic Green

This weightlessness is not pure illusion. The irregular nature of the structure meant looking for new methods of designing structural steel sections in order to minimize weight and make it feasible for the stadium to support its roof.

Design technology was equally important when it came to the matter of seating the spectators in a way that would be both safe and exciting. This was no small consideration for a stadium that will be the world's largest enclosed space when it is complete. An Arup software programme, designed specifically for the purpose, was used to find the optimum solution for the geometry of the bowl and seven tiers have been constructed for the anticipated 91,000 spectators.



About the stadium

The structural form of the roof is described as a "nest". The interwoven structural elements of the facade produce a single surface, upon which further elements are arranged in a chaotic manner to blur the distinction between the primary structure and the secondary structure.

The roof is saddle-shaped, and the geometry is developed from a base ellipse of which the major and minor axes are 313 metres and 266 metres respectively. The outer surface of the facade is inclined at approximately 13° to the vertical.

Bowl construction

The bowl's geometry was defined using Arup developed computer software, has been completed. The stadium has seven levels and these tiers have now been put in place.

The steel roof, a single 330m long by 220m wide structure, weighing 45,000 tonnes is due to be completed by October 2006. It will first be clad with a series of ETFE panels on the upper surface, and once this stage is complete, with an acoustic membrane on the lower surface. This layer reflects and absorbs sound to maintain the atmosphere in the stadium.

The architectural work of the inside of the stadium, such as the stairs, will be carried out at the same time as the cladding.

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