

*9th
Anniversary*

INCREDIBLY INDIAN

A perspective on modern India's architecture and construction landscape by renowned architects, designers, consultants, EPC contractors and industry professionals of the soil



Coliseum in the land of the Gods

In god's own land amidst the beauty of the hills and temples, Shapoorji Pallonji has created an avenue for the gentleman's game to flourish.

The Rajiv Gandhi International Cricket Stadium and Sports Complex at Dehradun is the first cricket stadium to meet international standards in the newly-formed state of Uttarakhand. With the commissioning of this stadium in mid-2016, the young cricketers of Uttarakhand state can now seek cricketing opportunities within their own state rather than in other states. Armed with the Board of Control for Cricket in India (BCCI) affiliation, the Uttarakhand cricket team would be able to compete in the Ranji trophy and other domestic tournaments.

Shapoorji Pallonji Engineering & Construction was appointed as the EPC Contractor by the Rajiv Gandhi International Cricket Stadium and Sports Complex Society for the design and construction of an international cricket stadium of 25,000 seating capacity and comprising of corporate boxes, pavilions, general stands, utility block with plant rooms, ancillary buildings, a fully-equipped club house with various modern indoor sports facilities, external development, landscaping, etc.

A 23 acre sports marvel

The sports complex has been designed and built by Shapoorji Pallonji Engineering & Construction on a 23 acre land parcel as a multi-use stadium as per International Cricket Council (ICC) guidelines and capable of hosting international Test cricket, international One Day cricket, international 20-20 cricket as well as major concerts, events and ceremonies and serve the community at large. The salient features of the stadium include :-

- Two-bowl seating
- High-masts for sports flood lighting
- Sustainable turf with sub-soil drainage system
- LED video score boards
- Five main pitches and five practice pitches
- Swimming pool meeting FINA standards
- Clubhouse, Auditorium
- Dedicated vehicular and pedestrian accesses and parking facilities

For the design delivery, Shapoorji Pallonji Engineering & Construction constituted a team comprising of its most experienced architects and designers at its design centre in Mumbai.

The Pavilions

The stadium consists of four pavilions viz., East, West, North and South spread over a combined built-up Area of 35,000 sqm that includes the club house. The new stadium complex design meets the requirements of all applicable National Building Codes and Standards as well as the United Kingdom's Guide to Safety of Sports Grounds (The Green guide) as published by HMSO.

The North Pavilion is a G+4 structure majorly focusing on three significant masses such as press, players and VVIPs. The space is designed to cater to all the related ancillary requirements specific to these masses such as press conference room, VVIP lounge and Player Gymnasium etc. The South Pavilion is a G+2 structure majorly focusing on the sports facility of the clubhouse.



The seating area and design specifics

The Seating Bowl has been configured to provide a variety of seating types around the circular ground, consisting of a combination of general admission seating, members seating, VIP private boxes, dine and view seating and press seating. The seats inside the stadium have been arranged in a manner that it gives a look of *Aipan*, a traditional Kumaoni art. Facilities provided include seating for people with disabilities within each seating category and distributed at various locations within the seating bowl. Shapoorji Pallonji Engineering & Construction's design team delivered an efficient design to address critical parameters of crowd management and emergency evacuation.

The tensile fabric and polycarbonate sheet roof is designed to be an architectural statement that reflects the aspirations of modern design whilst providing an economical, lightweight structure that covers Premium spectators. The facade design entails use of sandstone materials and double glazed windows.

The landscape design approach segregates the vehicular and pedestrian movement. It is also designed to maximize area for spill out zone/plaza with planting of native trees. Adequate public toilets are provided throughout the stadium evenly distributed off the public concourses located behind the seating tiers.

The signage and graphics used in the facility are comprehensive, visible, readable, flexible and effective. The finishes adopted for the floors, walls and ceilings are contemporary and elegant. The RGICS stadium employs green building design principles and has already secured IGBC LEED Gold certification.

Addressing the challenges

The Shapoorji Pallonji Engineering & Construction design build team who executed this prestigious project faced many challenges during the execution phase of the project. The stadium complex is located in the Garhwal region against the backdrop of the Himalayas in very picturesque surroundings. This poses certain logistical challenges. Although a robust plan was developed for the design development, procurement and construction, the design approvals and the building permits and sanctions required to commence construction took more time than anticipated thus impacting the construction schedule.

In order to expedite the construction of the stadium, Shapoorji Pallonji Engineering & Construction decided to use precast bleachers instead of using in-situ concrete. Similarly, the

raker beams were designed and built using pre-engineered structural steel instead of RCC.

A total of 2,592 precast bleachers were cast in the project using about 1800 cum of concrete. A precasting yard was set up at the site for this operation. Upon casting and curing, the bleachers were then erected in a sequence over the raker beams. The fabrication for the raker beams itself was done in the vendor's facility located at Daman & Diu. The pre-fabricated elements were then transported by road to the site in Dehradun for erection. A high degree of planning and precision went into the precasting and fabrication operations.

The tensile fabric and polycarbonate sheet roof was erected over a height of 40m from the ground, covering an area of about 17000 sqm. The field of play admeasuring 17,500 sqm was another critical activity amongst the 25 specialist works that were handled by the SP Engineering and Construction - E&C design build team as part of the project. Dehradun being a remote location, a lot of coordination and monitoring effort was required on part of Shapoorji Pallonji Engineering & Construction to ensure timely delivery of materials by the key subcontractors, most of whom were based in Delhi and other major cities.

Although Shapoorji Pallonji Engineering & Construction has built cricket stadiums in the past, an EPC Contract for an international standard cricket stadium and sports complex of this nature did pose some new challenges and involved a lot of contractual and execution risk. However, the robust risk management mechanisms practiced within Shapoorji Pallonji Engineering and Construction and the teamwork exhibited by the design build team members made it possible for Shapoorji Pallonji Engineering & Construction to overcome such challenges. The fast-tracking of the construction schedule was achieved through technology-led solutions.

The successful completion of the Dehradun cricket stadium is not only a testament of Shapoorji Pallonji Engineering & Construction's rich legacy and resources-capability but also a perfect demonstration of its modern project management skills, state-of-the-art technology and the ideals of innovation and customer satisfaction. 🙌



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