

National Award Competition for Students 2022

For the best Innovative use of Steel in Architecture



ARCHITECTURAL DESIGNING OF A MULTI -EVENTS STADIUM AT KIRIBURU, JHARKHAND

DESIGN THEME

ARCHITECTURAL DESIGNING OF A MULTI -EVENTS STADIUM AT KIRIBURU, JHARKHAND

A multi-events stadium is a type of sports complex designed to be used by multiple types of sports events. While any stadium could potentially host more than one type of sport or event, this concept usually refers to a specific design philosophy that stresses multi functionality over specificity.

- The plain land on which the stadium is located nearby on Kiriburu main. The site plan is attached.
- The stadiums shall be aesthetically pleasing and planned to enhance viewing experience.
- Local climatic conditions shall be considered in order to provide structure with thermal comfort and energy efficiency and economy.
- Use of solar energy in the stadium shall be explored for lighting of important places to save electrical energy.
- Proper location of Pump House, Sump, Septic Tank, Electrical Transformer etc. shall be decided so that these will not create safety hazards to other facilities.
- Garbage Bins of suitable size at proper locations shall be provided.
- Proper drainage arrangements in the open spaces inside / outside of the sporting fields and tracks shall also be made so that water do not stagnate during play and movement etc. The underground drain connecting the main drains outside the stadium complex shall be provided.
- For safety precautions all openings, electrical panels, proper enclosures shall be provided.
- Parking place shall be outside of the stadium complex.
- Special provisions: Sanitisation kiosks, Mini health centre
- Provisions for Rain Water Harvesting shall be provided.
- Students can design as per schematic sketch or can provide their own arrangement without changing the outer dimensions and requirements of given projects.

DESIGN REQUIREMENT

Ground Development

- Turfing of the ground
- Underground drainage
- Developing the ground for different sports activities
 - 100 m track [6 lanes]
 - 400 m track [6 lanes]
 - Foot ball Ground
 - 2 cricket pitches with underground drainage + Cover during football season
 - Handball court
 - Volleyball court
 - Jumping events – long jump and high jump
 - Long Jump – Pit Dimension – 9 m x 2.75 m
 - High Jump - Mattress
- Providing watering facility (water tank) for watering the ground
- All round covered drains – outer of tracks and inner of fencing
- Petrol operated lawn mower
- Ride on roller

Boundary Wall & Drainage System

- RCC Column and Beam Framed structure with Brick Boundary Wall - 10" x 2.4 m ht
- Wall to be topped with Y shaped angle posts and Barbed Wire & Concertina Wire
- Internal wall to be painted with sport motif pictures
- Entrance gates at North, West & East– North side one with architectural design
- Drain along the boundary wall – connected with drains along internal fencing

Electrical Connectivity and Lighting

- Provision of a transformer [11KV X 440 KV }
- Electrical Control Room
- 6 lighting towers of 21m height with floodlights - Location to be finalized
- Smaller height flood light posts with lights

Development of Main Gallery

- Gallery will be provided with a 1m wide x 0.5m high sitting platform – ground floor central corridor back side – brickwork as well as sides, filing on local materials and PCC top
- Overall gallery area will be approximately 43m long and 16m wide – steel columns with steel beams
- Ground floor level, the front side will have galleries and the back side will have rooms / halls, washroom and storage facilities, reception, waiting lobby, wall mounted display area,
- First floor level, [above the halls, rooms, washrooms] a central VIP gallery with RCC Roof covering and 2 galleries with steel sheds on either side of the VIP Gallery
- Central VIP Gallery will have separate and exclusive entry. Washroom for the VIP gallery be provided at ground level.
- Overhead Water storage tanks – 2 kl
- Deep Bore well with pumping system
- Cantilever roof with Colour Coated Sheets

Development of Hostel cum Gallery

- Approximate area will be 60m x 16m – steel columns / beams
- Ground floor - dormitory halls, Kitchen, Dining and storage space will be provided
- First floor - Gallery at the front side and dormitory / rooms at the backside
- At the backside of the building, separate toilet & bath facilities will be provided. On the ground floor gents and on the first floor ladies toilets & bath facilities will be made
- Office, Common Store will be provided on the ground floor.
- Overhead Water storage tanks – 5kl x 2
- Cantilever roof with Colour Coated Sheets

Finishing Jobs

- Electronic Scoreboard with Control room all the laptops and softwares
- CCTV System with 2 nos monitor control fixed broadband connections
- Public Address System.
- VIP Gallery enclosure
 - Capacity 40 persons
 - Showcase to display medals / awards.
- Ground Floor Rooms in Main Gallery
 - Office Room - Almirahs, Attached toilet, store & Notice board
 - Common Store Room
 - General storage space along the entire central corridor
 - Washroom & toilet facilities for officials & sports persons [separately for ladies & Gents]
 - 5 Guest Rooms for visiting officials, trainers etc with an attached bathroom.
- A Common meeting / conference hall –
- Hostel Gallery
 - Dining Hall
 - Kitchen
 - Office Cum Store
 - Dormitories

The following facilities may be considered:

- Sprinklers – adjustable system, 10 m dia throwing capacity, with stand – 6 nos
- Underground water tank for 3 nos Overhead tanks and ground water system with proper pumping system
- Practice Nets for cricket with 2 pitches – hard
- Deep bore well
- Removable goalposts

JUDGEMENT CRITERIA:

The submission would be graded according to the following criteria:-

1. The physical manifestation of the brief into the design – its form and functionality.
2. **The innovative and judicious usage of Steel in the design.**
3. The presentation of the said design – via. Drawings sheets (for both Zonal and Final Round, if selected) and physical model and 3D sketch-up model in software, walkthrough and PowerPoint presentation (for Final Round only, if selected).

GUIDELINES

a. The proposed multi events sport complex will be of international standards in its features, quality, aesthetics and visual impact.

The Architects are free to evolve the Steel Structures having any suitable shape satisfying the basic requirements furnished in the Brochure.

b. Larger column free areas inside the Structures are desirable.

The following suggestion may be considered:

- a. One objective of the competition is to explain the basic concept of the design in an easy-to-understand way. Conceptual drawing may be used where necessary.
- b. The proposed drawings of structures should be easy-to-understand visually (e.g. Features, quality, aesthetics and visual impact by colouring where necessary)
- c. Students are free to evolve innovative ideas for the various aspects of the project but satisfying the basic requirements furnished in the Brochure

1.0 The following may be noted while working out the schemes:

- Innovative use of steel to the maximum extent in structural framing.
- Use of steel elements in roofing, cladding, fascia, stairs, main entrance gates and other areas as far as possible along with other construction materials.
- Use of Steel-Concrete Composite Structures may be proposed because it may be desirable to include RCC elements in some locations such as slabs etc.

2.0 Emphasis should be laid on design process and conception of innovative steel structures of various forms tempered with the practicality of putting the concept into reality along with Structural Stability.

3.0 Fire Safety/Lightning Protection norms are imperative. Encasement with concrete may not be adopted.

4.0 Detailed structural design and cost estimation / plumbing & sanitary design and auxiliary services **design are outside the scope of the competition.**

CODES AND REFERENCES

1. Use of Internet and recent publications for obtaining information on similar Structures worldwide is suggested. However, direct copying is prohibited. (Also refer rules under submission criteria in the announcement section)

The following codes and may be used for reference purpose:

- IS:800, IS:801, IS:806, IS:875, IS:1161, IS:1893, IS:4923, IS:9595, IS:11384 – the latest versions of these codes are to be referred.
- National Building Code-2016
- Participants are free to refer suitable Indian/ Foreign codes as applicable.

All submitted Entries will receive Participation Certificates.

STEEL ELEMENTS

All available Steel Elements may be used for the above purpose. These include:

- Steel Rolled Sections :
Standard Beam Sections / Wide / Narrow Parallel flange Beam Sections, Channel Sections / Angle Sections etc.
- Steel Fabricated / Built-up Sections / Castellated sections
- Rectangular Hollow Sections / Square Hollow Sections / Circular Hollow Sections
- Plates and Flats, Rounds and Squares
- Wire Ropes
- Cold Formed Steel
- Corrugated /Plain/ Embossed Profiled Sheet
- Colour Coated/ Plastic Coated/Galvanized Sheet
- Stainless Steel Sheet and Sections
- High Tensile Steel, Weather Resistant Steel etc

