

National Competition for Students 2021

For the best Innovative use of Steel in Architecture



ARCHITECTURAL DESIGNING OF AN INTERNATIONAL LEVEL SCHOOL AT GURGAON

DESIGN THEME

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An international school is a school that promotes international education, in an international environment, originally created to ensure that expatriates and diplomats could get a “western” education for their children while working in far-flung countries, international schools have found a new purpose: educating the children of wealthy locals so those kids can compete for spots in western colleges—and, eventually, positions.

- The plain land on which the school is located on a major highway should necessarily be a contiguous single rectangular plot of 73 acres land with approx 385m along highway and other side 766m.
- The site plan of land: North - Highway and main entrance, East - a water body , South - Barren land and West - Barren land.
- The building shall be aesthetically pleasing and look like educational building. Building shall be planned adopting to reduce noise levels/disturbance.
- Height of the room (Floor to ceiling) shall be minimum 3.500 mtr or as per site requirement and specifications of CPWD/MES.
- Local climatic conditions shall be considered in order to provide building with thermal comfort and energy efficient/economy.
- Use of solar energy in the campus shall be explored for lighting of important places to save electrical energy, besides being a demonstration for students of the schools.
- Proper location of Pump House, Sump, Septic Tank, elect. Transformer etc. shall be decided so that these will not create safety hazards and become obstruction for future expansion of building and other facilities.
- Garbage Bins of suitable size at proper locations shall be provided.
- In-configure plantation scheme, parks and other horticulture works in the campus in the master plan.
- Plinth protection around building with plinth drain connecting the main drains in the campus shall be provided. Similarly proper drainage arrangement in the open spaces inside / outside of the building shall also be made so that water do not stagnate in the campus causing hardship to students while play and movement etc.
- Classrooms, Library and Laboratory shall be larger in size with zig-zag sitting arrangement to maintain sufficient gap of physical distancing.
- The institution should have an arrangement for sports and extracurricular activities with the nearby schools. Adequate ground to create outdoor facilities for Athletics Track, Kabbadi, Kho-Kho and Volleyball etc.
- The School should have adequate facilities for providing recreation activities and physical education as well as for conduct of various activities and programs for developmental education and for the social, cultural and moral development of the students and for safeguarding their health.
- Hostels and Staff Residences shall be provided.
- Cycle/Scooter stand with simple truss and A.C. sheet roofing shall be provided close to boundary wall near left hand side of main gate.
- Canteen (Kiosk Type) without sitting space but with cooking, storage and service counter facilities shall be provided at a suitable place in the campus.
- A raised platform/stage for functions, with tubular truss and sheet roofing shall be provided at suitable location.
- The School will provide adequate facilities for potable drinking water on each floor.
- The School will provide clean healthy and hygienic washrooms on each floor with washing facilities for boys and girls separately in proportion to the number of students. The washrooms for the primary students should be separate from other washrooms. There should be separate washrooms for staff members.
- For safety precautions all openings, electrical panels, proper enclosures / grills shall be provided.
- Special provisions: Oxygen Booths, Sanitisation kiosks, Mini health centre with General beds, ICU with ventilators, sufficient wash basins at various strategic locations.

DESIGN AREA REQUIREMENT:

School- Academic Block

- Entrance Foyer / Porch (Area assume)
- Administration Office
 - Principals Cabin with attached Toilet - 25sqm
 - Waiting Area - 20sqm
 - Staff Area - 30-40sqm
 - Cashier - 10sqm
 - Staff Toilet - 2 nos (Male & Female)
- Classrooms - 12 nos for 5th Std to 10th Std (A & B Batch)
- Each Classroom - 100sqm (40 students each Batch)
- Staff Rooms with attached toilets for approx 35 teachers
- Laboratories - 4 nos (Physics, Chemistry, Biology, Maths) - 80-100sqm each
- Computer Lab - 80-100sqm
- Assembly Hall - Activities like dance, yoga, etc - 500sqm
- Music Room - 50-60sqm
- Games Room - 20-25sqm
- Library - 80-100sqm
- Store Room - 20-25sqm
- Infirmary - 15-20sqm
- Stationary Store - 15-20sqm
- Toilets for Boys & Girls as per Norms

Canteen

- Dining Room for 250 nos (2 Batches) - 400sqm
- Hand wash area - 15-20sqm
- Kitchen - 100sqm
- Store room - 50sqm
- Washing area - 50sqm

Hostel Block separate for 240 Boys & 240 Girls

- Dormitories (1 single bed, 1 cabinet & 1 study table per student) - Area & distribution to be decided as per design
- Toilets - As per norms
- Study Room - 50-60sqm
- Wardens' office - 10-15sqm
- Residing facility for warden - 20-25sqm
- Common lobbies

Outdoor Activities

- Play Ground-Football/Cricket & 200 m track (Assume sizes)
- Basketball Court (Assume suitable sizes)
- Volleyball Court (Assume suitable sizes)

Parking

- Buses - 2 nos with drop off bay (Assume suitable sizes)
- Cars - 20 nos (Assume suitable sizes)
- 2 Wheelers - 30 nos (Assume suitable sizes)
- Cycles - 40 nos (Assume suitable sizes)

Note-Corridors, Lobbies, Sit outs, Staircases, etc. To be considered as required

The following facilities may be considered:

- AC Classroom
 - Wi-Fi Campus for conducting online Exams to prepare students for competitive Exams
 - iPad Lab, Computer labs, State-of-the-art Science & Mathematics labs
 - Electric school Buses/ AC Buses with GPS and CCTV (Live-Streaming)
 - Well-stocked Library, Dance rooms, Art Studio, Auditorium
 - Temperature Controlled Indoor Swimming Pool
 - Fitness Gymnasium, Sports Amenities & Coaches
 - AC Indoor Playing Area for Badminton, Basketball
 - Facility for learning Piano, Guitar, Tabla, Violin & Vocal Music in a specially created sound studio
- ✚ Maximum Ground Coverage permissible is 30%
- ✚ Maximum FAR permissible is 1.0
- ✚ Maximum Height of the building permissible is 10 meters from Finished Ground Level.
- ✚ Parking standard is 2.0 ECS / 100 Sq. M of floor area.
- ✚ More than sufficient Wash rooms with all sophisticated facilities for faculty, Students and Visitors.

The planning may be Central AC/ Ductless mini splits AC/ Split individual AC

1. Dormitory type
2. Single Class room Type

Suitable flooring and floor finish may be considered at different utilities

School may be

1. Modular in nature
2. the Building may be prefab in nature
3. Vertical development may not be preferred.

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 school 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.

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