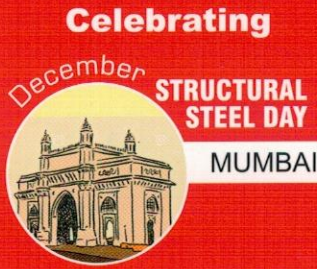


**STRUCTURAL
STEEL
CONSTRUCTION SUMMIT**

a new era in steel construction

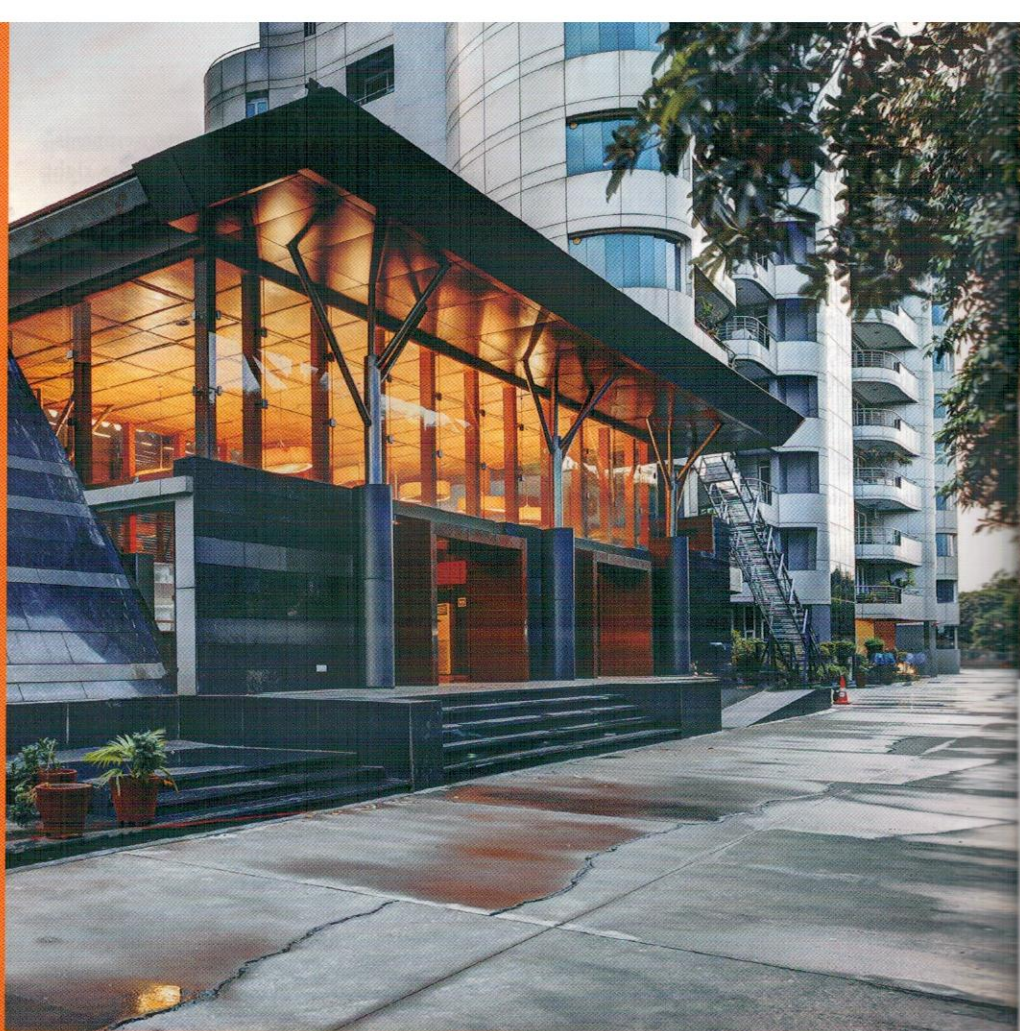
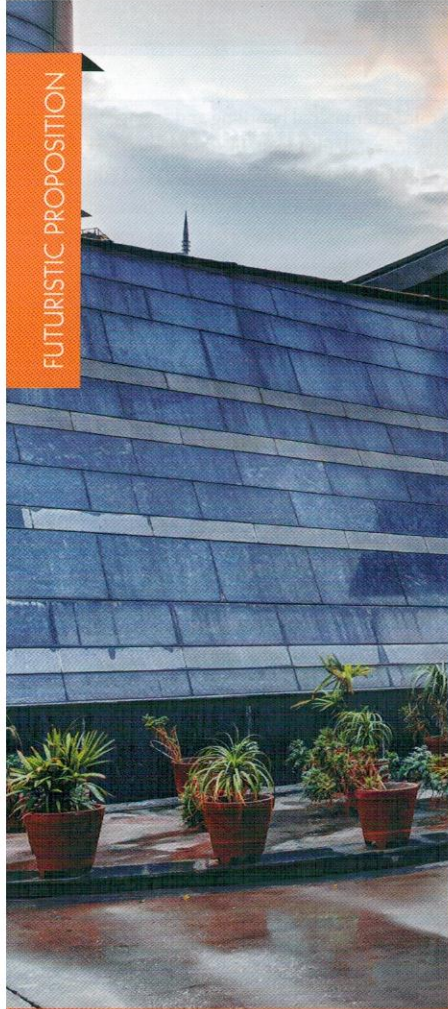


**STEEL
STRUCTURES
& METAL
BUILDINGS**

OPTIMIZED BUSINESS CASE FOR INDUSTRIAL BUILDINGS:



DOMINATED BY STEEL



OMAXE FOREST CLUB, NOIDA

creating a language of architecture of layers & innovation

Omaxe's Forest was a first-of-its-kind, one among the premium apartments in the country - a very high-end housing replete with the upscale condominium living. Major part of the FAR was used to create the housing towers, and the requirement of a club was described to be futuristic.

The essential amenities that were evolved are multi-purpose halls for parties, a gymnasium, a squash court, billiard rooms, spa and some rooms for change and facilities. With such a residential scheme, the developers brought a contemporary idea to the client for these auxiliary facilities in the form of a recreational club. And this is when MOFA Studios - as architects stepped in.

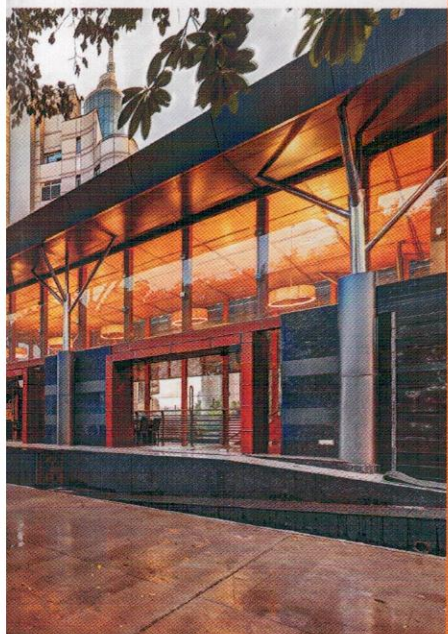
Design Progression

Initial thought to design the club for Omaxe's Forest Club began with a constraint. The site for the club where it was to be built, the FAR available was quite less than the requirements stated. The requisite area for the club was more

than 15,000 sq. ft. but, since the developers had already consumed most of the FAR in building 12-storey housing, what was available to the architects made the project more challenging, and this became the basis to propose an optimum, yet, state-of-the-art design for the club.

This gave the opportunity to develop an off-beat solution by using the basement. During that time, the client was using the basement for parking facilities and storage spaces were available in some parts. It was decided to design the space as a subterranean structure with floating spaces on the ground.

The design was conceived with a series of sunken courts and skylights to receive the much required sunlight in a deep gorge like situation, already created by the two 12-storey adjoining towers. All the recreational activities such as the gymnasium, snooker room, cards room and the squash court were all placed around two interconnected sunken courts. These courts provided sufficient sunlight and





the green areas to the entire basement and created a secluded environment away from the urban density above.

Crying Out Steel

The requirement to use steel as a major building component for this project came out from the design of the club itself. The presence of existing concrete substructure i.e. the basement structure became a pivotal reason to devise a light-weight, transparent system for the club. The designers also took inspiration from Japanese architecture where the structure creates a meditative ambience and emphasizes on functionality within these spaces. For instance, observing the temple architecture in Japan and how they work in wood – when series of thin wooden columns frame the fine translucent paper screen, either becoming a sliding wall or doors – the representation is of a box which takes light from every direction and thus, stands as a temple of light.

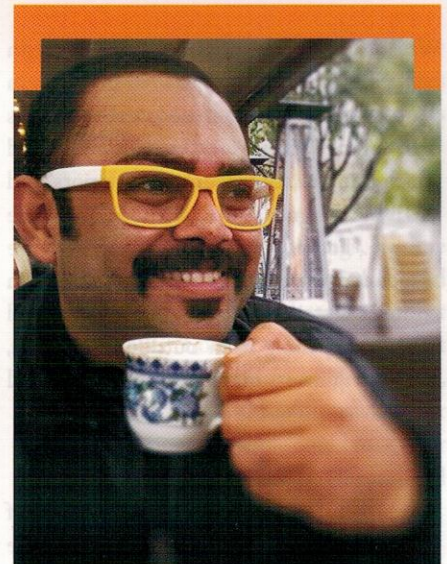
In this project, steel gave similar freedom and workability to create an aura for the box which was one space. The plaza adjunct to the building was equally important, the roof like a large canopy was extended, keeping the India climate in mind and the entire canopy in all directions to create that inside-outside space. Also, the spaces below the sunken court and basement rooms scaled and revealed the structure on top. These spaces were planned around the courtyard, so there is gym on one side; snooker room, card room and squash court on other side. All these were arranged around very few columns so that a lot of open space is created. The architects used the existing 8 concrete columns to carry this entire structure on top. It was extended as steel columns and it was mushroom-ed like trees, and held the entire roof like an umbrella over the building. The outside plaza which is overlooking the rivulet, also gets a partial roof on top and that is how the entire structure was created.



Steel Fabricator & Supplier
RK Metal Engineering Works

Area
15,000 sq. ft.

Project Timeline
22 months



ARCHITECT MANISH GULATI

Principal
MOFA Studios Pvt. Ltd.

“The project with an area of 15,000 sq ft. - like a clear tessellation has multiple systems of light, air, view, circulation, proportions, material to give us open and close spaces in form of sunken courts, halls and plaza. To balance the nature and the structure, we placed to the inside and the outside - a water rivulet which bridged across most of these spaces, and around all of this, we aligned activities in the basement like gym, card room, storage spaces. Thereby, a constant exploration gave us an affirming square on the existing structural chaos. The inventiveness of how we used steel and glass for this project reflected a lesson for future projects. It was the Gandhian approach, where you need to be silent and patience to understand the depth of situation, and then propose a solution through that. When you enter such a state of existent disorder and then eventually things are disclosed, how you respond is always significant. Architecture takes you through several such situations.”



western sun and heat; the architect devised a way to use the steel to create that layering. Conventionally, when structural glazing or any kind of curtain glazing is done, the steel or aluminium structure is on the inner side and the glass is pasted from outside. In this case, four columns define the whole system as they hold the whole roof together.

Steel/aluminium columns are used in between glass panels and they reverse the whole conventionality. Rather than using steel as a frame, the architect used it from inside and then pasted the glass from inside. The division of glass follows the Fibonacci series - 1, 1, 2, 3, 5 and only three sizes of glass are used. Looking at the façade in perspective, a unique randomization is created, because of the structure interacts with outside and that became a defining line for us.

Because of that glass box becomes series of louvers, coming up and initiating the roof in glass and then becoming steel roof. So, when you sit in the restaurant because you have glass on both sides and partial glass roof it becomes like an extension of inside to the outside so the feeling of the space expands into that green landscape without getting over heated.

Double layering of exposed glasses are used in this and louvers further cast shadows, creating frames between the tables so the views are framed of the green adding another dimension and a layering using steel as a material. It is the structure that forms the architectural language of this project.

Analyzing The Form

There are 8 existing columns, in order to hold the 8 columns. A span of 12 metres by 12 metres was the only clear space available in centre for the club. Calculating this projection,

it was found that there were peripheral columns at 6-metre distance, and at the centre, a set of two beams crossing at 12 and 12. With certain dimension to whole space, a heavy 'I' section was used covering the 12-metre span. The designers used a system of castellation of girders, which is a very regular practice in the engineering handbook where the same girder is cut in a hexagonal pattern, shifted, and welded together. The areas in the centre - where there is no moment, there is no load, and is hollowed out completely.

This way, one is using the same quantity of steel in an effective manner. 'I' section of 300 beam depth was used and a resultant of 450 was achieved through the design, which saved 30 per cent of steel. Also, the self-load was reduced which resulted in a more efficient structure.

This made it behave like a truss - without being an actual truss, and when one looks at the language of it, it is not something that is hiding, but, something that is being seen. The hexagon becomes part of the nature, and the branching columns blend with the surrounding landscape. Although the material is steel, but, the proportion and scale of it coherently settles with what exists on the site.

If you see the plan, it is a square - the roof is an absolute square in the geometrics. There was an existing chaos of the parking below, and the site of the club was at the junction of the two grids of the housing from two directions. A square on top was overlaid to regularize and tie all of the grids together - two from the building blocks and grid of the resultant parking below it. The square of the club's building became like an over-layer of a discipline over the chaos of these grids. Since the mess of existing grid could not be altered, an order through a clean

square was formulated for the whole composition of housing. That is also how this juxtaposition gave these interesting spaces inside and outside the club.

Unique Feature

Normally clubs are closed buildings, but, the idea here was to expand vertically and horizontally, with space and the usage, so that people can spill in from anywhere and spill out from anywhere. It becomes more like an open, transparent gateway in three dimensions for the entire housing, so people could park their cars in the basement, step out of the car and enter the club directly from there.

The entire health club which has the gym, snooker room, squash court, changing rooms, everything was in the basement. Also, it was reinventing the theme of Japanese architecture - like in the basement the plinths are raised and along with that the architect introduced openable translucent screens for both division of space and appropriate light circulation.

The architect counter balanced the design by probing into material palette like steel and glass, looking out for interactive spaces by developing them and then envisaged systems of light, sound and water - all of these infused a perfect spirit in creating a language of architecture of layers and innovation. For the architect, it was like a monk being tested on the scale of dark versus light, level versus layers, chaos versus silence and presence of a discipline to break mundanity. ■

