

VOL.20, ISSUE-12 JUNE 2015

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ISSN 0973 - 0591

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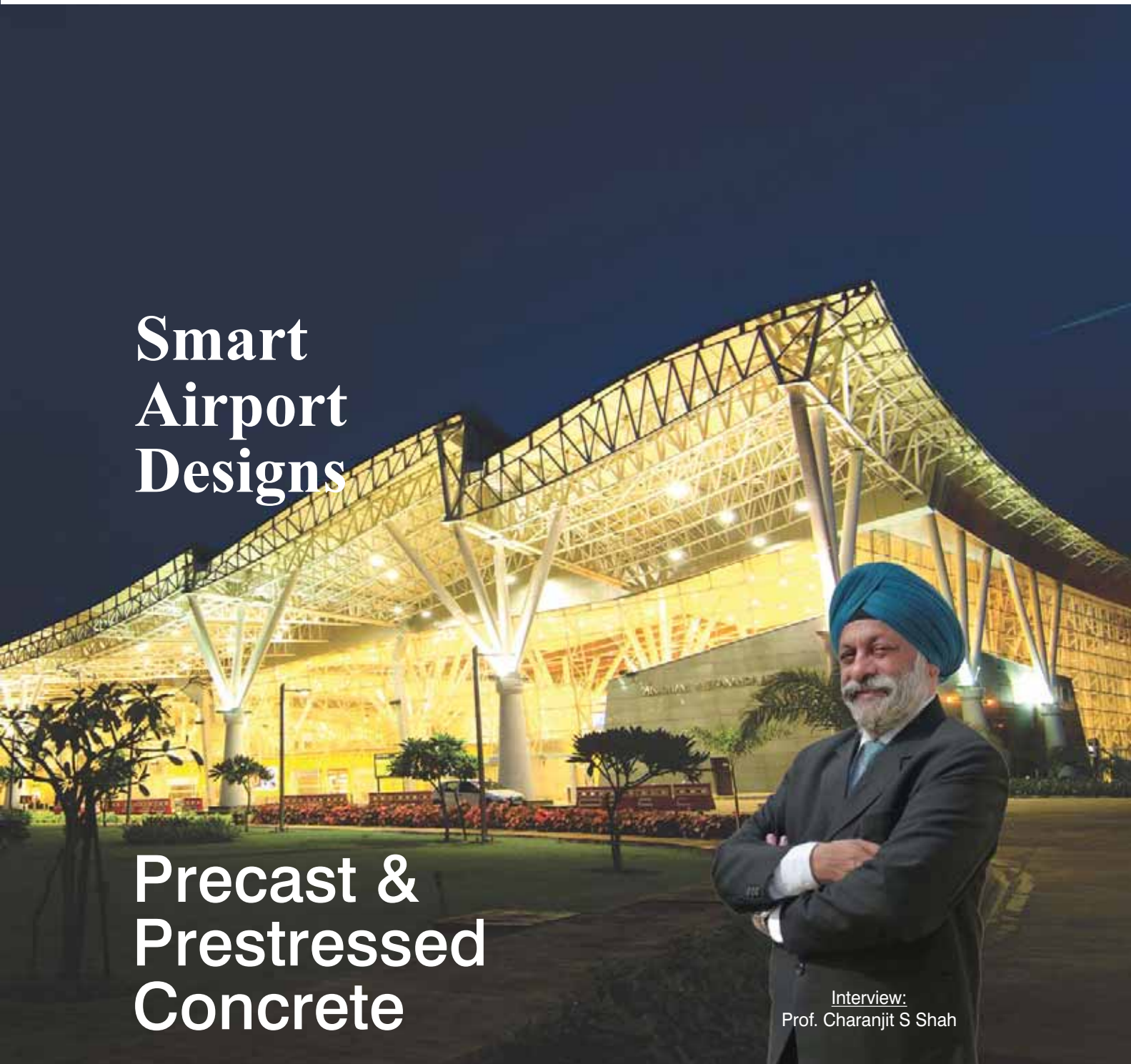
PROJECT BRIEFS

NEW PRODUCTS

**Smart  
Airport  
Designs**

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Interview:  
Prof. Charanjit S Shah



## **Creative Group:** Holistic Design Approach with the Righteous Attitude Results into Excellence

A portrait of Prof. Charanjit S Shah, an elderly man with a white beard and a blue turban, wearing a dark suit and a light blue tie. He is standing with his arms crossed, looking slightly to the right of the camera with a gentle smile.

Being a promoter of Green Building movement, **Prof. Charanjit S Shah**, an Architect, City Planner, Educationist, Author and an Academician with a prolific practice of over 4 decades, has had the passion to work ambitiously towards net zero and deliver self sustainable, energy efficient living structures that stay in harmony with the nature. Under his stewardship, the architecture firm, Creative Group was fortunate to have won over eight consecutive national/global architectural design competitions. Moreover, the Group has to its credit designed four globally acclaimed greenest airport projects in India-Chennai, Goa, Raipur and Vadodara. During his recent interaction with **S.A. Faridi & Maria R**, Prof. Shah says that a holistic design and planning approach along with the righteous attitude results into excellence. “We at Creative Group firmly believe to adapt to the realities and necessities of the day so as to have a pragmatic approach towards design issues.” Giving his views on importing global expertise, he states that we should always look upon the western world only with an eye for technological advancement but should not imitate the West blindly. He feels that a global intervention in respect of technology and local knowledge of ethnic principles will lead to a built environment which breathes.



**Over the period of time, the parameters of architectural practice have grown in terms of changing lifestyles, urbanization, modes of transportation, deficiency of urban land etc. What is your pragmatic approach towards design?**

Evolution of mankind is a continuous changing process. I do agree that during the last century or so, there have been multiple growths in terms of lifestyle, urbanization and transportation which have a direct effect on parameters of planning. The basic elements and principles of design, however, remain unchanged. Our approach towards planning is based on the natural phenomena of solar movement, orientation and envelope of the building. However, the changed situation matters in terms of functionality, usages and the approach towards ironing out respective issues. The visualization of an architect/

planner needs to complement the changed parameters, along with the use of latest advancement in technologies.

**Starting your career with mere stall designing to basic architecture, today your expertise at Creative Group has grown and expanded to infrastructure development specializing in airports, Metros, multi modal transportation Hubs, and Railway Stations. How is working at Infrastructure projects more challenging than basic architecture (houses, factories, corporate, interiors etc)?**

Though the start of education has always been from Kindergarten standard to the PhD level, the highest so called in academic parameters, but the process remains the same in each class of education. Similarly, the size of each project is immaterial,

the process remains the same to me while designing a house or an airport. The various issues of planning and designing remain the same. Agreed that the scale would change and this would call for various technical and particular inputs from specialists which need to be interwoven into the main fabric of an overall development.

Larger projects do demand a better interface between planning, management and administrating, the same in a channelized manner.

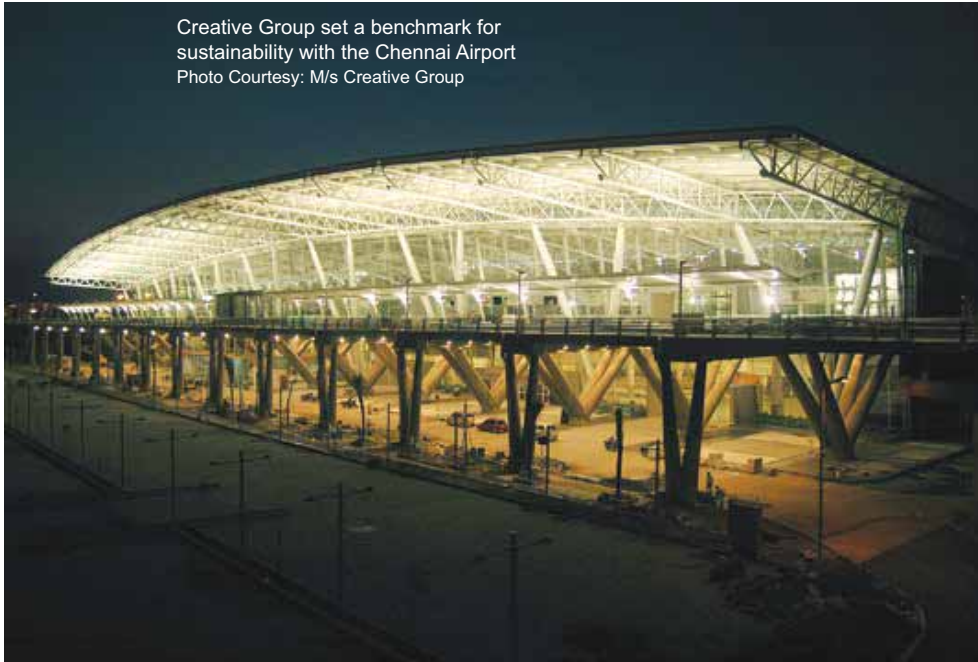
Inter ministerial, inter departmental and inter professional connectivity in overall visualization of a project call for command of professional leadership and skill to visualize, conceptualize and implement the project.

We have learned through the process of completing a mega project of ₹2015 crores for the Government of India, on how to face the bureaucratic, political and professional hurdles

Raipur Airport was awarded The Best Regional Airport by Ministry of Tourism, Govt. of India  
Photo Courtesy: M/s Creative Group



Creative Group set a benchmark for sustainability with the Chennai Airport  
Photo Courtesy: M/s Creative Group



and get the project into a practical shape. We have learned the hard way to surpass all these hurdles and could very comfortably pass through such processes and could lead to be focused and practical in achieving success in the implementation of similar mega projects.

**Designing an airport is a complex task as lots of things have to be considered such as aesthetics, functionality, sustainability, safety, security etc besides important responsibility of reflecting city's and country's identity. What is Creative group's approach to design Airport projects?**

Creative Group's approach towards Airport designs has always been that "Airports should not only be considered as Energy guzzlers." We wondered, is it possible to have smart and sustainable airports? The architects/planners' intervention by way of adopting passive strategies of respecting solar movement, orientation, placement of building, envelope of building, insulations,

selection of materials etc, can make the built form sustainable and eco friendly and help in reducing heat load and maximize day light in the building.

The principles of basic planning have helped us and the airports designed by Creative Group are no longer energy guzzlers. We have been able to conserve water and electricity to the best of our abilities and hence, we are proud to have been able to reflect our country's identity through these smart airports.

**What are the elements which you think are vital to be incorporated in design that not only take care of Indian climate and culture but also at the same time give a global look and standard to the Airports?**

We have always believed that with such rich Indian heritage, we should always look upon the western world only with an eye for technological advancement but we should not imitate the West blindly. The rich ethnic tested principle of Vastu Shastra based on solar movement, climatology and other such natural

fundamentals should be adopted along with the high-tech advancements to be able to create world class global facilities.

I am confident that a global intervention in respect of technology and local knowledge of ethnic principles will lead to a built environment which breathes and is embedded with nature, as it should be.

**Would you please share your experiences of working on internationally acclaimed Raipur, Chennai, Goa and Vadodara Airports? Which project, out of these, you feel, is more appealing, challenging and also close to your heart?**

Though all four of our creations have their respective merits, I always look upon Raipur Airport as one of the most exciting and challenging projects of my life.

It is one of the Greenest Airports globally and also awarded the Best Airport of India, by Government of India as well. It is a unique steel structure with Avian roofing which is a double curved, highly complex roof, designed and executed, for the first time, by our Indian team.

It has the best of Indian ethnic art work in the central court – "Bastar Art" providing a local flavor to this global facility. It also consists of a hard green car park, a lake to store rain water, solar voltaic panels, and other Intelligent Building Management Systems, in place to optimize the use of energy and water.

**What is the status of Vadodara Airport?**

Vadodara Airport is currently under construction. It is a Four Star Griha accredited airport. It is one of the most sustainable high profile global facilities with use of highly insulating materials in the envelope of the building.



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We are confident that Vadodara Airport Terminal Building, when completed, would be one of the most exciting facilities, globally.

**With over 40 years of vast experience, do you think, Indian infrastructure industry has evolved to international standard or still it has to go a long way?**

I think that we are still at an infant stage of infrastructure. We have yet to learn to work in a holistic manner. All our departments are working in isolation, resulting in shifting of issues.

We lack a holistic design and planning approach. The overall road map of planning is not visible. The infrastructure does not sustain, it gets sustainable before it is yet to be executed. Either the issues are not properly addressed or there is a lack of practical and actual feasibility studies. Perhaps, we believe more in global experts and import professional expertise than complementing Indian experts and working out our Indian Infrastructure. We try to imitate the West and follow the same blindly. Even though we have created the best of Metro and Road infrastructure, our cities are still choking and our roads are cramped. We probably have the maximum road accidents in the world along with the slowest running traffic. We need to go a long way to reach global standards. It is perhaps the beginning towards learning to create global facilities but all this can only be achieved with cooperation from our Government by being sensitive towards overall visualized progress and making an attempt to segment the same with periodical developments.

**Is India well-equipped in terms of engineering and technology for constructing projects of high profile and global standard or still somewhat it is dependent on multinational expertise, technology and construction equipment?**

We have very few companies in India, who are fully equipped with such global facilities and standards. Infrastructure building is a herculean task. Insufficient and inadequate Indian agencies for execution of work are a cause of great concern. There are many mid sector infrastructure agencies who are trying to upgrade their standards globally but have miserably failed in the past in many of the National Highway projects. This is an alarming cause of concern. The real global management of such mega infrastructure needs a global intervention in terms of expert professional advice and input. Today, we are looking for a single window approach and therefore need to look globally for expertise.

# Smart Sustainable Airport Designs

Creative Group's step ahead in Green Airports

India as a country is passing through a transition, and there has been a lot of infrastructure growth to be visualized as a phase of evolution from developing into a developed nation. A lot of talks have been going on in the recent past to upgrade our towns and cities into smart cities and adopt strategies of a sustainable development for an overall futuristic growth.

Designing energy efficient terminals that have a long lasting effect on the environment and passengers alike is the definition for new age terminal designs, a sphere which intersects with the criteria for sustainable development. The large expansive public concourse within an airport terminal assists to alleviate a passenger's sense of being crowded

while still accommodating the flow of arrival, departing and connecting passengers.

Justifiably, Creative Group, since its very inception, aimed to be a change agent to transform India's image by consistently moving forward with the philosophy that "A built form should not be treated as a dead mass of brick and concrete, but as a living organism which breathes and is embodied with the natural environment." An architecture firm, in practice for almost half a century, setting up a tone to cater for not just design but also including a broad base in structural consultancy and financial management, for varied spectrum of projects of national and international significance, the architects have set an archetype for the next generation.

## Vadodara Airport – First Four Star Griha Accredited Airport in India

Vadodara is a Tier II city which is paving its way towards a flourishing development. The New terminal Building at Vadodara Airport is an iconic structure designed to accommodate a capacity of 700 passengers per hour with an area of 17,500 sq. m. Inspired by the body and wings of airplanes, the building creates a bold, sweeping form and identity and has one continuous aerodynamic metal skin. With focused design philosophy to increase the efficiency of resources, architect has envisioned the terminal as Green building, built at a cost of 135 crores. It is a Brownfield development with acute city side land constraints.

Vadodara Airport Terminal has a bold, sweeping form insulated with double skin galvanized metal sheet







*"We have attempted to create a sleek and contemporary building that reflects the age in which it was built and the age it shall dwell through. The sweeping curves deliver a sense of elegant boldness and clarity. Much like the profile of the building, the interior spaces are maintained as column free and conceived as a single visual entity to make the circulation hassle free," explains Prof. Charanjit S Shah, Founding Principal, Creative Group.*

## Design Intent

For the first time in India, an Airport has been accredited with a Four Star Griha Rating managed by Airports Authority of India. The terminal has been designed in a way that Active and Passive Strategies of Sustainability have been amalgamated to conceive a terminal which is hyper-environmental.

It was difficult for the architects to be able to expand the existing facilities due to lack of availability of land on the city side. But, keeping the constraints in mind, the architects were able to progress with the city side development in a rather holistic manner.

The outstanding arching envelope of the building is insulated with double skin galvanized metal sheet, one of the major factors that plays a role in maintaining moderate temperate in the terminal without much energy consumption. Aside from the exterior

play, a local flavor has also been infused into the terminal via the art effect used on the interior walls and through the inner water body channels that are not only alluring to the human eye but also maintain a cool atmosphere.

## Strategies for Sustainability

The terminal has a continuous overhang on the South-South West and North-North West side, as big as 18 m, thus respecting the solar movement and avoiding the low harsh sun. On the North-east and North-west, as well as on the South-East and South-West, glazing has been avoided and solid insulating walls have been incorporated such that there is no penetrating heat from the sun, neither from North-East nor from South-West.

Diffused skylights in the roof maximize the daylight whilst a solid mass of AAC blocks used in the external wall protects from the West Sun.

"We were also conscious in discouraging the cutting of trees and almost all existing trees have been left untouched," further elaborates Prof. Shah.

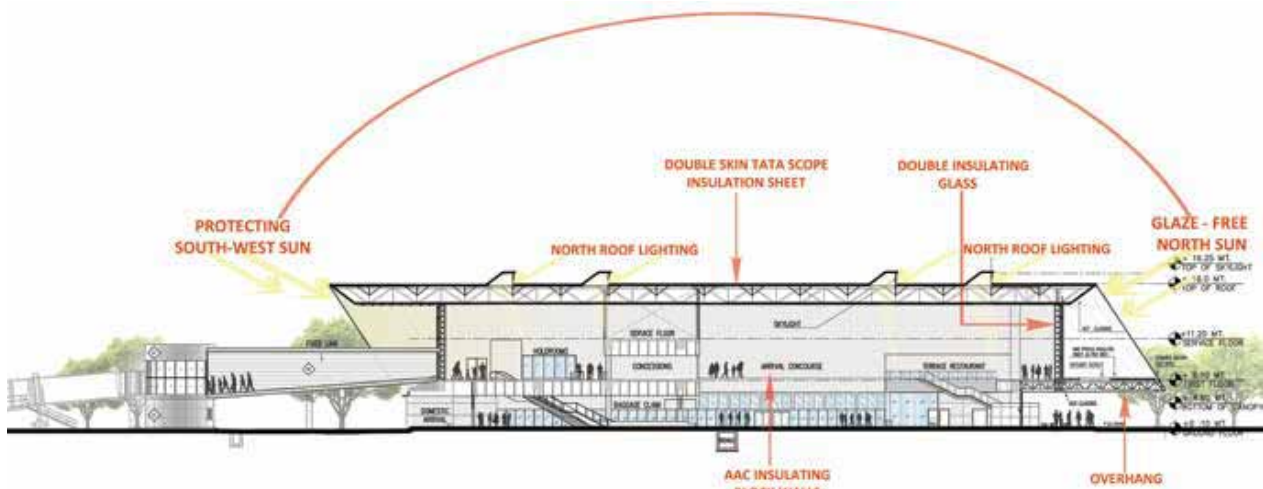
All active strategies of sustainability have been utilized in terms of equipment such as light sensors etc, so as to conserve energy intelligently. Similarly, water has been conserved as recycled water for flushing, HVAC and gardening shall be used besides the use of rainwater harvesting within the premises.

## Non Conventional Energy Resources:

This is the first time in any of the airport terminals that the parking shall have car park areas covered in steel frame along with solar voltaic panels so that the energy thus produced can be used for all common areas, the general lighting and also as protection from the heat of the sun for the car parking areas. Besides this, the terminal also has solar streetlights and solar traffic markers to optimize the consumption from the main grid.



Creative Group follows a design approach that integrates nature into its environment thus providing a stepped water body channel to enliven the terminal



Holdroom Section of the Airport showing passive strategies of sustainability

### During Construction:

For the first time, an attempt has been made in Airport Authority of India, to integrate all mandatory requirements of a green building into the main manual of the contract, so that during construction, minimum standards of health, safety, quality control and hygiene could be maintained at the work site and the labour camps.

**Top soil:** The top soil has been duly maintained and it has been strictly observed that the same be reused for landscaping at the time of the city side development.

**Soil Erosion:** During the construction, it was mandatory to observe that there should be no soil erosion and proper watering be done, of the surrounding and dug up portion during the summers and windy days. All mechanical equipment and vehicles, particularly their tyres and bodies, be properly cleaned and washed before and after operation at the site. Silt/Settlement Tank is maintained to conserve soil and avoid any soil erosion.



*“We have used polycarbonate sheets for the roofing to provide natural, glare free north light. The interface between roofing, steel structure, skylights and wall panelling has been resolved professionally with proper flashings and overlappings so as to avoid any leakages,” explains Mr. Prabhpreet Shah, Executive Director, Creative Group.*



Double skin galvanized metal enveloping for the airport

### Safety Measures:

All safety measures in respect of maintaining minimum standards of safety equipment are being used by the skilled and unskilled labour besides use of billboards and alarm systems within the site.





## Labour Camp:

It has been realized that the labour camps are mostly neglected. But, as per the green norms, the labour camps on the Terminal Site have mandatory pure drinking water and sewerage facilities thus maintaining the standards of comfort and hygiene.

Initially, the architects did face a lot of resistance on all these matters of maintaining minimum standards but gradually, these factors were integrated and disciplined into the day to day working on the site.



## Steel Applicability

The terminal stands on a pile foundation with R.C.C. columns and tubular steel structure in the super structure. A tubular steel truss with large span structure along with plate portal creates a large cantilever of 16 m on the curb side. The complexity of the tubular steel structure lies in its engineering innovation by creating such large span cantilever at the mezzanine level without a balancing supporting floor in the rear. Tubular trusses in larger diameter of pipes are

commonly available and bending of such pipes is being done locally as we are fully equipped with the construction technology and methodology. The steel structure is enveloped with double skin Tata scope steel sheet profile.

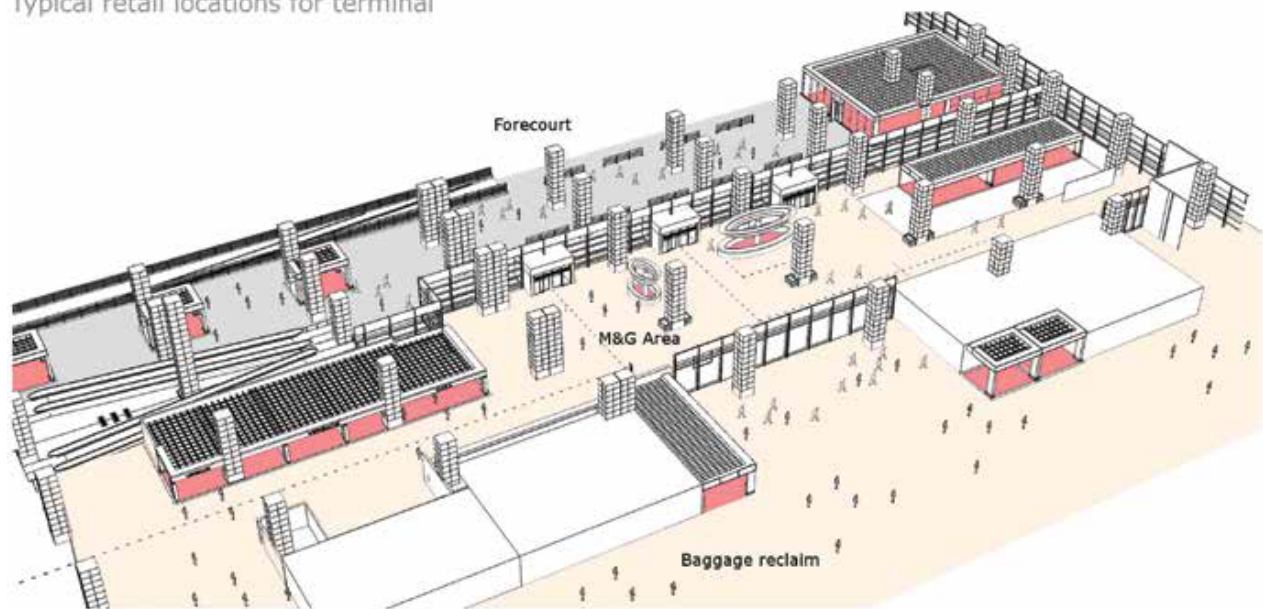


*“To achieve the best output, green building strategies should merge into the very nerves of the concept design itself and should not be treated as an add-on, even in such mega projects,” concludes Ar. Gurpreet Shah, Principal Architect, Creative Group.*

**Photo Courtesy: M/s Creative Group**

# Revamping of Retail Areas in T3 & T1C Terminals At IGI Airport, New Delhi

Terminal 3 Arrival  
Typical retail locations for terminal



With the increasingly economic air fares and ease of travel, Airport Architecture is no longer just limited to designing an efficient terminal for the passengers and the flight movements but it has also become a hub of activities for revenue generation significantly contributing in the functioning of an airport as a commendable commercial return on investment.

Airports with large passenger traffic movement have created a commercial viability exploring the air travel growth into a business opportunity and a centre for commercial activity. As passengers are spending a lot of time at the Airports, it is providing opportunities

to the traveler for retail, commercial, restaurants, food courts, games, gyms as well as relaxing and meditating centres with variety of comforts.

Shops and Restaurants at Airports have to be designed differently as compared to the retail at malls with the sole purpose of presenting the airport as a global destination complemented with regional flavors. With the same intentions, Creative Group is designing Retail Spaces occupying an area of 30,000 sq.m for the T3 and T1C Terminals at the Indira Gandhi International (IGI) Airport, New Delhi.

The design objective at IGI Airport was to have a connection between the traveler and the shortest walkable distance, particularly in the hold areas to ensure that the traveler

feels comfortable and at ease while walking through the ambient spaces and enjoying varied experiences of retail, commercial and other activities. The retail space exhibits vibrancy and breaks the monotony and tension inside the airport, thus converting frequent flyers to frequent buyers.

Keeping in harmony with the existing retail development at the terminals, Ar. Gurpreet Shah, Principal Architect, Creative Group visualized the concept to enhance the overall passenger experience through the planning of the retail spaces in sync with the flow of passenger movement. "The vocabulary of the terminal is being exhilarated by redefining bulkheads and pilasters of all commercial spaces as well as reviving the existing



## Airport Projects



Each retail shop has a distinctive character yet blends into the overall look and feel



Materials and Finishes for Stores

columns, inside and outside the terminal by integrating advertisement panels, way finding signage and Flight Information Displays. Our aim is to enhance the overall look and feel of the retail and commercial spaces to fall in sync with the terminal and the flow of movement," illustrates Ar. Shah.

Another challenge in designing these retail spaces was to intertwine the segregated commercial zones together with a unique theme so as to make the passenger's shopping experience much easier and fluid. The design intent focuses on the same and provides a thematic connect between all the retail spaces of the terminals and at the same time giving a standalone identity to each activity hub. As the passenger enters the terminals, he is welcomed with various shops connected through a bulkhead and moves forward, gazing at one shop to another. The services are hidden and packed away neatly

from the human eye, thus avoiding any visual hindrance. The architects have provided separate locations for all the high end retail stores and programmed volumetric atriums with retail zones that have a visual connect without any hindrances, thus seamlessly connecting the entire retail zone in a 360 degree dimension.

Apart from equipping the IGI Airport with a clear cut and simple shopping experience, Creative Group wanted to attribute the country's heritage as a bridging characteristic of the retail design. A gold pattern

has been used on the side façade of the shops, which correlates with our cultural heritage. "We have provided an adequate prominence to the retail shops by using rich materials like textured solid surface corian, wood finish panels, lacquered glass and stainless steel jaalis. These elements not only restore our heritage but also give a unique identity to the terminal," explains Prof. Charanjit Shah, Founding Principal, Creative Group.

Retail Architecture at Airports is essentially concerned with the quality of the airport experience that it provides translating into a pleasant atmosphere for the passengers and attracting retail developers with the economics of airport retailing. "In today's contest, shops and restaurants in airports have to be designed intelligently, in order to create a more relaxing travel experience, provide the right mix of amenities for travelers, and drive revenue for the airport itself," emphasizes Mr. Prabhpreet Shah, Executive Director, Creative Group.

This combination of architectural design clubbed with a commercial brilliance purely for an elevated passenger experience and creating a sense of community between the retail tenants, customers and the airport staff, aims to erect the Indira Gandhi International Airport as one of the most commercially active airports on the World Map leaving the passenger with a memorable retail experience.

**Photo Courtesy: M/s Creative Group**

The architects enhance the flow of movement through retail spaces

