



Interarch  
LIFE Systems  
for

Aviation  
Facilities

## INTERARCH BUILDING PRODUCTS NEWSLETTER

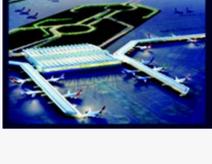
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### Possibilities of Pre-Engineered Steel Buildings and Structural Steel System for Aviation Facilities:

**Interarch LIFE**, a customized structural steel system for **Aviation Industry**, offers engineering & designed Pre-engineered Steel Building Solution from concept to completion. We take innovation in engineering, and strive to go beyond the realm of conventional construction with our team of leading engineers, quality manufacturing and efficient project handling capabilities.

#### Applications of Interarch LIFE Systems for the Aviation Industry :

- Airport Terminal Buildings
- Aircraft Hangers & MRO Facilities
- Roofing System for Main Terminal Building & Piers
- Multi-Storey Cargo Buildings
- Baggage Handling Structures & Aero Bridge Structure
- ATC Tower Structure
- Fire Stations
- Additional Floor (Mezzanine Floor) in case of increased FAR

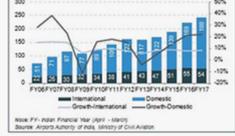


### Future Growth prospected of Indian Aviation Industry:

The civil aviation industry in India has emerged as one of the fastest growing industries in the country during the last three years. India is currently considered the third largest domestic civil aviation market in the world. India is expected to become the world's largest domestic civil aviation market in the next 10 to 15 years.

Domestic air traffic rose 17.69 per cent year-on-year in December 2017, continuing its double digit growth, according to the civil aviation regulator Directorate General of Civil Aviation (DGCA). About 11.24 million passengers flew in December 2017, up from 9.55 million a year earlier.

There is planning to expand connectivity and meet potential demand by establishing about 100 airports, doubling the current number in 15 years. Out of these, 70 will be locations that don't have such a facility, while the rest will be second airports or the expansion of existing airfields to handle commercial flights



### Project Spotlight: Indira Gandhi International Airport, Terminal 3, New Delhi

Interarch was chosen amongst many international and Indian-JV bidders from an international bidding process, to come aboard under lead contractors Larsen & Tubro and GMR-DIAL, to execute the structural steel works for the Domestic and International Piers of the Delhi International Airport (IGI) –Terminal 3 project as well as the entire roofing system for the entire terminal building. Interarch designed & Engineered, manufactured and constructed over 7500MT of steel in under 8 months and designed, procured and lay over 1.2 million square meters of roofing material to cover one of the largest buildings in Asia.



Building Location	New Delhi
Building Usage	Airport Terminal
No. of buildings	1
Building Tonnage	7500MT
Sheeting Supplied	1.2 million square meters
Feature	<ul style="list-style-type: none"> <li>• Interarch supplies a roofing system to cater to a STC – 51 criteria for sound transmission, a never before achieved feat in any Indian airport, as well as insulating properties of U&lt;0.26 W/m2</li> <li>• Interarch project management deployed over 30 roofing teams totaling over 1500 people at their peak, to roof the entire building Deployed over 30 roofing teams totaling over 1500 people</li> <li>• Interarch's project management and contracts division took over a 5 acre allotted yard space at the project site and built on location its' offices, on-site handling, logistics and satellite manufacturing and finishing facility at the airport site itself</li> </ul>

### Advantage of using Interarch structural steel system for the Aviation Industry

- Large clear span hangars & buildings can be easily made in steel, aiding functionality and aesthetics for airport applications
- Steel buildings can be easily expanded with growing demand or when passengers traffic increases in the future
- Reduced project time results in early occupancy, results in economic advantage to the investor/owner and fast start of operations
- For better utilization of airport land , multi-storey steel buildings are possible for cargo terminals
- Steel is 90% Recyclable and IGBC compliant material, which helps in acquiring IGBC certificate
- Steel structures are manufactured in a plant, under controlled environment which guarantees a quality product
- Steel can offer higher architectural flexibility in design and fabrication
- Full interface with all the services required at an airport
- Earthquake & Fire resistant structure & Buildings



### Projects Delivered for the Aviation Industry by Interarch

Interarch caters to some of the most diverse steel building construction projects in India ranging from clients like **Airport Authority of India , Dial , GMR , Delhi Cargo Service Centre , Air Deccan , Taj Flight Kitchen** and many more. Interarch has emerged into a large EPC player providing critical Project Management Consultancy to its clients

S.No.	Client Name	Solution Provided/Application	City
1	Airport Authority of India Ltd.	False Ceiling	New Delhi
2	IGIA Terminal 3	Roofing Structure	New Delhi
3	IGIA Terminal 3 Piers	Pier Structure	New Delhi
4	Hindustan Aeronautics Ltd	Aircraft Hangar	Nashik
5	Shri Mata Vaishno Devi Shrine Board	Helipad Structure	Katra
6	Delhi Cargo Service Centre	Cargo Warehouse	New Delhi
7	Airport Terminal 1	Roofing	Ahmedabad
8	Airport Terminal	Roofing	Nagpur
9	Airport Terminal	Roofing	Kochi
10	Defence Research and Development Organization	False Ceiling	Srinagar
11	Mumbai Airport Terminal	False Ceiling	Mumbai
12	Air Deccan	Cargo warehouse	Chennai
13	Delhi International Airports Pvt Ltd	Cargo Warehouse	New Delhi
14	Delhi International Airports Pvt Ltd- Jet Airways	Warehouse	New Delhi
15	Delhi International Airports Pvt Ltd- Spice Jet	Warehouse	New Delhi
16	Guwahati Airport, Agartala Airport, Tezpur Airport	False Ceiling	North East
17	Bhopal Airport	Multiple	Maharashtra
18	Ravilla Precision Engineering Pvt Ltd	Cargo Warehouse	Coimbatore



### Industry Spokesperson - Prof. Charanjit S Shah Founder Principal-Creative Group, New Delhi

Prof Charanjit Singh Shah is an architect, planner & infrastructure expert with 5 decades of practice. He is a practicing architect, planner, author, scholar, educationist, teacher, art & architecture critic & practicing in creating sustainable green architecture. He is the author of many books in architecture & recently authored "Redefining Indian Sustainable Smart Cities".



His works speaks of his transition looking beyond architecture & development of large infrastructure projects like airports, metro stations, railway stations, transit-oriented development, inter-modal hubs and creating sustainable, walkable, cyclable neighborhood and creating 'Indian Sustainable Smart Cities of Tomorrow'. He is being adorably called as AIRPORT KING.

Dr. S.S. Bhatti, has been tempted call Prof Shah the 'Patrick Geddes of India' in creating sustainable architecture. Prof. Shah has also successfully initiated 'Smart Habitat Foundation' – a centre of excellence in pursuit of art and architecture, urban planning, transport and infrastructure and a platform where academicians and practitioners come together to interact in form of a serious dialogue bridging the gap between academics and practical application CREATIVE GROUP is one of the leading international architecture and design practices based in New Delhi, India that offers services in Architecture and Urban Planning, Project Management, Financial Analysis, Construction Management, Engineering and Building Consultancy. Creative Group moves 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, allowing it to breathe with nature'. Established in 1973 by Prof. Charanjit S Shah, the firm has 45+ years of experience delivering award-winning architectural projects across Infrastructure, Aviation, Real Estate, Commercial, Institutional, Industrial and Corporate sectors.

According to him, aviation is a gateway of a city and now has become a necessity rather than a luxury. Aviation has a large scope in India as connectivity is required pertaining to urbanization. Additionally, short town connectivity is required nowadays. We are going to see many small and large airports coming up in India in the next 5 years. We are going to see around 500 small or domestic airports in the next few years.

Focusing on construction methodology, he feels that most of airports in India have been constructed in steel structures due to benefits like possibility of a large span, dynamic design, easily expandable, low cost and long life. He feels that architects, consultants and steel fabricators should work together to create prototype designs of pre-fabricated structures for terminal buildings which can be installed quickly. Additionally, other facilities required like cargo terminals, hangars etc. where steel has become an obvious choice for construction, should be readily available with different modules for faster execution in future.

For a terminal building, the design plays a vital role therefore an architect should choose a simplistic and dynamic design with an ideal clear span of 32-35 M and distance between the columns should be 14-16 M. This spacing makes the terminal building more efficient and affordable. An architect should understand factors like air traffic, air space, and other factors like environment & social impact, air space conflicts before finalizing the design.

According to him, through the last many years various types of structures like space frames, nodes, trusses, plate portal have been used for making airports in India but now he foresees large span and prefabricated steel structures which are light weight, expandable, economical, aesthetical to eye, being used in time to come. The architect should also use fire paints to provide fire safety for 1.5 hours as per National Building code.

On the typical size of terminal building, Prof Shah feels that the size of the terminal building can range from 5000 sqm to 40,000 sqm to 80,000 sqm where both domestic and international operations take place. The minimum size of a building should be 5000 Sqm where a smaller plane, an ATR-72 comes with a load of 150 passengers, to and fro every hour. The time period to execute the smaller airports is around 3 months whereas it takes 18 months to complete a large airport. For example, the Chennai airport is around 1, 35, 000 sqm and it took 18 months to finish the construction.

For constructing a green building, design must focus on sustainable architecture to gain parameter to attain IGBC rating. An architect should follow sustainable architecture: passive design practices along with the placement of the building and the orientation of the building are some very important factors to keep in mind. One has to find ways to maximize the daylight and minimize the heat gain in the building.

Mr. Shah feels that pre-fabricated steel is the only material of the future which has the maximum advantages - versatile material, faster and most appropriate to construct terminal buildings in India

#### Project Spotlight: Swami Vivekananda Airport (Brownfield Project)



Client : Airports Authority of India  
Year of completion: 2013  
Cost: 129.66 Crores  
Site Area: 79 acres  
Area: 20,900 sq.m  
Terminal Building: 18,500 sq.m  
Sub Station Building: 2,000 sq.m

### Project Won

- JSW Steel Coated Products Ltd in Maharashtra
- Hindustan Unilever Ltd in Punjab
- Rajiv Plastic Industries in Dadra & Nagar Haveli
- Krishna Tissues Pvt Ltd in West Bengal
- Jain Farm Fresh Foods Ltd in Maharashtra



### Project Completed

- TATA Motors Ltd in Gujarat
- Softgel Healthcare Pvt Ltd in Tamil Nadu
- Siram Technoplast Pvt Ltd in Odisha
- Lotus Beauty Care Products Pvt Ltd in Uttarakhand
- Ashadeep Aquaculture Pvt Ltd in Odisha



### Training & Development at Interarch

Interarch organized training for Painting team in Kichha plant on 28 Feb. 2018.



### Why Steel is obvious choice- Heathrow Airport Terminal 5 (T5)

Heathrow Terminal 5 is an airport terminal at Heathrow Airport, the main airport serving London. Opened in 2008, the main building in the complex is the largest free-standing structure in the United Kingdom

\*\*The main terminal building is 396 metres (1,299 ft) long, 176 metres (577 ft) wide and 40 metres (130 ft) tall. It is the largest building in the Terminal 5 complex and is the largest free-standing building in the United Kingdom. Its four stories are covered by a single-span undulating steel frame roof, with glass facades angled at 6.5 degrees to the vertical. The area covered by the roof is the size of five football pitches, and each section weighs 2,200 tonnes.



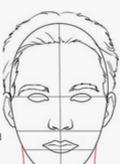
One of the main drivers was to reduce site work and this was achieved by providing large pre-fabricated units of up to 55 tonnes each that were bolted together at low level to form the central section of the roof. The arch is formed from steel box girders at 18m centres; 800mm wide and up to 3.6m deep. These are tied at high level by pairs of 115mm diameter pre-stressed steel cables. 914mm diameter steel arms reach up from the tops of the legs to support the rafters, and solid steel tie-down straps from the frame structure. The splices in the central arched section of the rafters always carry net compression. Therefore, they can transfer forces from section to section in bearing.

### Latest trends in technology to watch out for in 2018: Aviation Industry

Biometrics: Facial recognition technology has been the biometric of choice in many trials, there is little doubt that biometrics will play an increasingly important role in creating a more secure and seamless passenger experience.

The biometrics works in this way that the airports deployed biometric facial recognition technology and passengers have their photo taken, their face is checked against the image held in the biometric chip of their e-passport, or against an airline's passenger manifest, and they move on through the airport without the need for a manual identity check.

It is asserting that facial recognition technology will make the airport experience easier for passengers. Biometrics can also be deployed for such things as entry to airport lounges and for purchases at duty-free stores. Also, at security gates as well as at boarding gates, passengers won't have to keep track of passports, driver's licenses and boarding passes, making the airport journey easier.



Source\*: <https://www.ibef.org/industry/indian-aviation.aspx> [https://en.wikipedia.org/wiki/Heathrow\\_Terminal\\_5](https://en.wikipedia.org/wiki/Heathrow_Terminal_5)  
Source#Read more at: [http://economictimes.indiatimes.com/articleshow/61523048.cms?utm\\_source=contentofinterest&utm\\_medium=ext&utm\\_campaign=cpsr](http://economictimes.indiatimes.com/articleshow/61523048.cms?utm_source=contentofinterest&utm_medium=ext&utm_campaign=cpsr)

**INTERARCH BUILDING PRODUCTS PVT. LTD.**  
Central Marketing Office, B-30, Sector 57, Noida - 201 301, India  
Tel: +91-120-4170200, 2581029 | Fax: +91-120-2581017 | E-mail: [info@interarchbuildings.com](mailto:info@interarchbuildings.com)  
visit us at: [www.interarchbuildings.com](http://www.interarchbuildings.com), [www.interarchinfra.com](http://www.interarchinfra.com)

