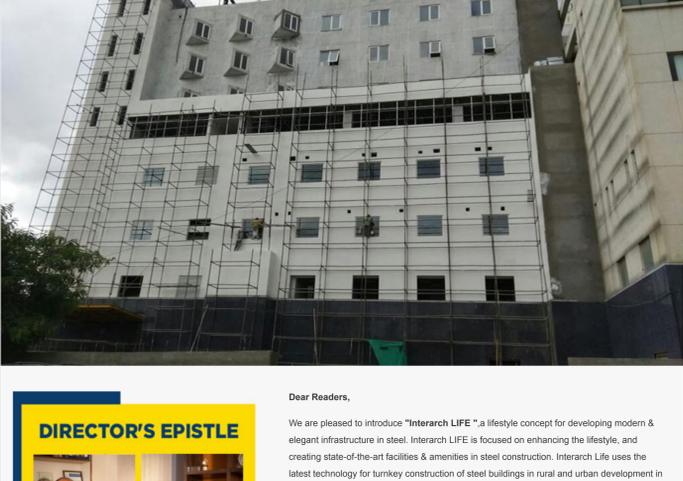


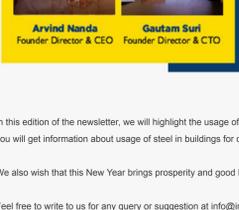


INTERARCH BUILDING PRODUCTS NEWSLETTER

Vol:9, Issue 1, January 2018



DIRECTOR'S EPISTLE



Arvind Nanda Founder Director & CEO
Gautam Suri Founder Director & CTO

Dear Readers,

We are pleased to introduce "Interarch LIFE", a lifestyle concept for developing modern & elegant infrastructure in steel. Interarch LIFE is focused on enhancing the lifestyle, and creating state-of-the-art facilities & amenities in steel construction. Interarch Life uses the latest technology for turnkey construction of steel buildings in rural and urban development in India.

Interarch uses composite steel structures for various applications for non-industrial buildings like

- Tall buildings for Healthcare (hospitals), Offices and other Commercial uses.
- Large Steel buildings for Malls, Stadiums, Auditoriums
- Educational Facilities for Schools, Colleges and Dormitory buildings
- Houses and villas on Hills and holiday resorts
- Additional floors on existing buildings for all types of uses and applications
- Large span structures using hollow & hot rolled sections for Steel plants and Cement plants
- Process plant structures for various manufacturing applications

In this edition of the newsletter, we will highlight the usage of steel buildings, and Interarch's experience in the healthcare sector. In the subsequent newsletters, you will get information about usage of steel in buildings for diverse applications and sectors

We also wish that this New Year brings prosperity and good health to all our readers

Feel free to write to us for any query or suggestion at info@interarchbuildings.com

Best Regards,

Arvind Nanda & Gautam Suri

Healthcare Sector in India

Healthcare has become one of India's largest sectors - both in terms of revenue and employment. Healthcare comprises hospitals, medical devices, clinical trials, outsourcing, telemedicine, medical tourism, health insurance and medical equipment. The Indian healthcare sector is growing at a brisk pace due to its strengthening coverage, services and increasing expenditure by public as well private players



- Healthcare has become one of India's largest sectors both in terms of revenue & employment. The industry is growing at a tremendous pace owing to its strengthening coverage, services and increasing expenditure by public as well private players
- During 2008-20, the market is expected to record a CAGR of 16.5% per cent
- The total industry size is expected to touch USD160 billion* by 2017 & USD280 billion* by 2020
- As per the Ministry of Health, development of 50 technologies has been targeted in the FY16, for the treatment of diseases like Cancer & TB
- Government is emphasizing on the E-Health initiatives such as Mother & Child Tracking System (MCTS) & Facilitation Centre (MCTFC)
- Indian companies are entering into merger & acquisitions with domestic & foreign companies to drive growth & gain new markets.

Possibilities of Interarch LIFE for the Healthcare Industry

Interarch provides customized structural steel system for the Healthcare Industry, offers engineering & designed Pre-engineered Steel Building Solutions from concept to completion

Applications of Interarch LIFE Systems for the Healthcare Industry

- New Hospital Building
- Additional Floor on existing hospital buildings in case of increased FAR
- Diagnostic Facilities & Laboratories
- Canteen Building
- Research & Development Block
- Administrative Buildings
- Training Centre
- Hostel Buildings for hospital staff



Awards & Recognition:

Interarch Building Products Pvt Ltd has won "Outstanding Company in Pre-Engineered Building (PEB) category" by EPC World Awards 2017 held on 20th Dec'17 at The Ashok Hotel, New Delhi



Projects Delivered for Healthcare Industry by Interarch

Interarch caters to some of the most diverse steel building construction projects in India ranging from clients like Fortis Healthcare Ltd, GMR Group, Safdarjung Hospital, Indian Spinal Injuries Centre, Reliance Industries, Batra Hospital and many more. Interarch has emerged into a large EPC player providing critical Project Management Consultancy to its clients.

Client Name	Building Usage	Location
Fortis Healthcare Ltd	New G+7 Hospital Building	Bangalore
Fortis Healthcare Ltd	Additional Floor on 7th Floor	Bangalore
GMR Group	Dispensary	Chamba
R.R. Hospital (Army)	False Ceiling	Delhi
Indogulf hospital & diagnostics Centre	Doctor Canteen(Rooftop)	Noida
Fortis Healthcare Ltd	Fire Exit Ram Structure	Chennai
Chirayu Health & Medicare Pvt. Ltd	Multi-purpose Building	Bhopal
Lok Nayak Jai Prakash Narayan Hospital	False Ceiling	New Delhi
Safdarjung Hospital	False Ceiling	New Delhi
All India Institutes of Medical Sciences	False Ceiling	Delhi
Punjab Institute Of Medical Sciences	False Ceiling	Jalandhar
Indian Spinal Injuries Centre	False Ceiling	Delhi
Sanjey Gandhi Postgraduate Institute of Medical Sciences	False Ceiling	Lucknow
Dr. Ram Manohar Lohia Hospital	False Ceiling	New Delhi
National Institute of Biologicals	False Ceiling	Noida
Guru Nanak Hospital	False Ceiling	Mumbai
Naga Hospital Authority	Roofing	Kohima
Tilganga Institute of Ophthalmology	False Ceiling	Kathmandu
Fortis Escorts Heart Institute	False Ceiling	New Delhi
Madras Institute of Orthopaedics and Traumatology	False Ceiling	Chennai
Lilavati Hospital & Research Centre	False Ceiling	Mumbai
Apollo Hospitals Enterprise Ltd	False Ceiling	New Delhi
Indira Gandhi Memorial Hospital	False Ceiling	Maldives
Batra Hospital	False Ceiling	New Delhi
Govind Ballabh Pant Hospital	False Ceiling	New Delhi
Dr Baba Sahib Ambedkar Medical College and Hospital	False Ceiling	New Delhi

Industry Spokesperson: Mr Surender Kumar, Head Projects-Fortis Healthcare Ltd

Mr Surender kumar, Head Projects joined Fortis Healthcare Ltd in Oct 2000 and has been associated with the company for the last 17 years. He overlooks the design and engineering of the company and verticals of project management. Mr. Kumar is an Engineering graduate from M.I.T. Manipal after which he did Post Graduate Diploma in Business Administration from Symbiosis Institute Pune. As per him, there is a huge gap between supply and demand of hospital Beds in India. Indian Healthcare is growing at a 15 percent CAGR to reach US\$158 billion by 2017.



He recommends, while designing a hospital building you should consider the grid Size of 7.8X3.5 m for Indian conditions. The standard room for Hospital should not be less than 4.2m, to provide area for MEP services and to have a clear height of room as 2700mm

As per Mr. Surender there are certain advantages of using Steel structure over RCC building like faster construction, Low carbon footprints, more floor area is available as sections dimensions are less, dust free construction, better quality control and Steel are a recyclable material.

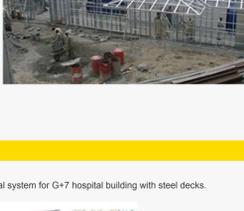
His emphasis is more on Green Buildings as they are very useful in conserving natural resources and energy efficient. He feels that companies in the healthcare should promote green material and should incorporate green materials like, Insulated blocks for the periphery of the building to reduce heat gain, Low VOC paints, LED Lights, Green Laminates, Structural Steel for Canopies, trusses, Efficient Glass for the envelope, Low flow fixtures, grass pavers to reduce Heat Island effect to make an efficient Hospital building.

As per him the latest trend in healthcare is Mobile Health Apps and its' adoption is increasing. New Strategies are being discussed to deliver Low-Cost Healthcare & Pace of setting up Cancer Centre is on the rise.

Advantages of Using Steel Buildings for the Healthcare Industry:

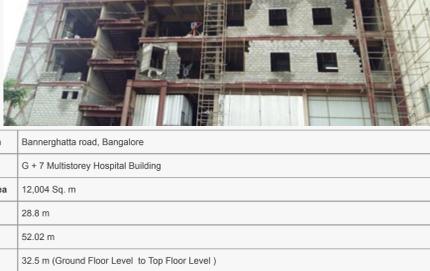
The Health sector demands buildings that are flexible and adaptable in use and which can be constructed rapidly to meet tight schedules.

- Steel structure is faster to erect, as compared to RCC frames being lighter in weight & offers speed in construction and time saving resulting in an overall cost saving in the project
- Easily expanded in the future without providing any hindrance to the existing hospital operations & minimum disturbance to the patients during construction as no wet construction is done.
- Steel structures are ideal for construction for healthcare facilities in remote locations & hilly areas as work is carried out by skilled labour.
- Steel structures are manufactured in a plant, and no fabrication is done on site which guarantees quality product
- No site storage space is required, as JIT delivery is followed
- Steel occupies less space and can be designed for larger span/column free spaces, resulting greater floor area in comparison to RCC
- Better seismic performance & Fire resistant structures option & Low maintenance cost



Project Spotlight - Fortis Healthcare Ltd

Interarch scope of work included, design & engineering, manufacturing and erection of steel structural system for G+7 hospital building with steel decks.



Project Location	Bannerghatta road, Bangalore
Building Type	G + 7 Multistorey Hospital Building
Total Project Area	12,004 Sq. m
Width	28.8 m
Length	52.02 m
Height	32.5 m (Ground Floor Level to Top Floor Level)
Special Conditions	<ul style="list-style-type: none"> • Flat roof deck slab • Partition load has been considered 100 Kg/Sq. m on all floors • False Ceiling load of 50 Kg/Sq. m has been considered on all floors • Exterior wall finishes has been considered with Glazing & Hollow blocks • Interior wall finishes has been considered with Dray Wall Partition
Major Challenge	Proposed project was executed at a running hospital with inflow and outflow of patient 24 hours. Interarch completed the erection process without affecting the running operations.

Project Won

- Pricol Ltd in Andhra Pradesh
- Adam Fabriwerk Pvt. Ltd. in Maharashtra
- Jaycee Punching Solutions Pvt Ltd in Bangalore
- Shimizu Corporation India Pvt Ltd in Haryana
- Britannia Industries Ltd in Assam



Project Completed

- Tropilite Foods Pvt Ltd in Madhya Pradesh
- Somani Fabrics Pvt. Ltd. in Rajasthan
- Dolphin Machining Solutions in Tamil Nadu
- Thapar University in Punjab
- VE Commercial Vehicles Ltd in Madhya Pradesh



Industry Spokesperson: Artika Aggarwal & Yashas Watwani, Design HKS Consultants

HKS Inc. was founded in 1939 and currently has 24 offices worldwide that are serving projects located in over 1,500 cities throughout 92 countries. HKS is a team of more than 1,400 professionals working together across industries and across the globe to create places that delight, heal and stimulate peak performance. Their services include Design Consultancy, Planning and development, Programming, Project Management, Interior Design, Advisory Practice, Research, Sustainable design, Design Interpretation



As per Ms. Artika, any multi-storey hospital buildings should be designed using codes like NBC, FGI, JCI and local byelaws. NBC 2016 requirements and structural codes determine the live loads, dead loads, wind loads and seismic loads considered. As per NBC 2016 (Part 6, Table 1) UDL for Patient rooms can be taken as 2 KN/m², for Operating rooms as 3 KN/m², and for OPD rooms can be 2.5 KN/m².



The loading details depend on the location and the building working requirement. Designers should also consider sustainable design practices that help in improving the wellbeing of the user, reducing carbon impact and creating a triple bottom line for the client.

Mr. Yashas suggests, for a healthcare project, typical grid sizes can be determined by the size of internal modules such as patient rooms and OTs, as well as parking. For optimum patient room clearances, FGI guidelines are taken into consideration. For surgical spaces, FGI guidelines along with vendor specific data is used. Parking also impacts grid sizes, for which a minimum spacing of 8200 X 8200mm is considered. As per best practice the grid sizes ranging from 8200 X 8200 to 8500 X 8500 should be considered, depending on the bed room configuration.

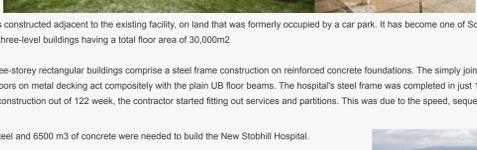
The team feels that the role of architects & consultants is social, financial and operational requirements. It is also imperative to continually advise and make the client aware of potential issues that may arise in meeting the client mandate while arriving at an optimized design solution. Further fire safety is very important and any building designed should be fully compliant with the NBC and local fire authority in terms of fire safety and prevention. Designers and consultants should ensure all applicable fire safety codes are taken care of.



Children's Hospital of Richmond at VCU Pavilion

Building Made Possible in Steel: The New Stobhill Hospital, Glasgow

The New Stobhill Hospital is one of two new ACAD (ambulatory care and diagnostic) facilities for NHS Greater Glasgow Clyde under PPP. This new hospital deals with about 80% of the patient load of a district general hospital with a high throughput of patients, about 2,000 per day. Very great care was taken to design a functional building with clear way finding and a non-hospital feel.



The new Hospital was constructed adjacent to the existing facility, on land that was formerly occupied by a car park. It has become one of Scotland's largest hospitals with its two three-level buildings having a total floor area of 30,000m²

The hospital's two three-storey rectangular buildings comprise a steel frame construction on reinforced concrete foundations. The simply jointed steel frames with composite concrete floors on metal decking act compositely with the plain UB floor beams. The hospital's steel frame was completed in just 15 weeks and by the 30th week of start of construction out of 122 week, the contractor started fitting out services and partitions. This was due to the speed, sequence and efficiency of the steelwork

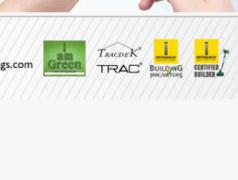
- 1,600 tonnes of steel and 6500 m³ of concrete were needed to build the New Stobhill Hospital.
- The hospital has 1,400 doors and more than 550 windows.
- Laid out together, the hospital's internal partitions would stretch for six miles – which is greater than the distance between Bishopbriggs and Glasgow city centre.



Latest trends in technology to watch out for in 2018 in the Healthcare Industry: Wearable's

Wearable technology, wearable's, fashionable technology, wearable devices, wear logs, or fashion electronics are smart electronic devices (electronic device with micro-controllers) that can be worn on the body as implants or accessories. Wearable technology is related to both ubiquitous computing and the history and development of wearable computers. Wearable's make technology pervasive by incorporating it into daily life. Through the history and development of wearable computing, pioneers have attempted to enhance or extend the functionality of clothing, or to create wearable's as accessories able to provide users with surveillance - the recording of an activity typically by way of small wearable or portable personal technologies. Tracking information like movement, steps, and heart rate is part of the self-movement.

Now, mobile devices as small as a cell phone can perform ECGs, DIY blood tests, or serve as a thermometer, all without even leaving the house. With help from automation, patients can even be prompted to check their weight, pulse, or oxygen levels, and enter results into mobile patient portals. Even better: they can transmit the results to the doctor in real time. Those details, when entered regularly, can help predict one's risk for heart disease and other illnesses, ultimately saving lives. This trend is catching up very fast on only with the young, but people in their 50's and 60's



*Source: Frost & Sullivan, LSI Financial Services, Deloitte, www.ibef.org



