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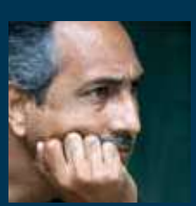
rather than simply treating illnesses.
AR. RAHUL KADRI
Principal Architect And Partner,
IMH Architects, Mumbai.



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text : : **aadrita chatterji**

THE ROAD TO WELLVILLE

hospital design, while always important, is now under the scanner during the global pandemic

apollo cradle hospital, amritsar | intrigue studio + lab, new delhi

Hospitals, with their varied functions, several departments and 24/7 operation, were always spaces that needed intelligent design. Now, as the world battles the Coronavirus pandemic, the infrastructure of such facilities has come under incredible amounts of stress, making the field of hospital design even more challenging and relevant.

What are the first thoughts that come to mind when designing a hospital project? Many factors must be considered when designing a medical facility, like regulation of smooth movement of people around the space, says Ar. Manoj Choudhury, Director, Edifice Consultants, Pvt. Ltd. Mumbai. "Incorporating universal design principles, an empathetic architecture and contextuality are as indispensable as designing the tangible spaces." Ar. Srijit Srinivas, Founder, Srijit Srinivas Architects, Trivandrum says, "Crossover of patients and services should be minimized in general hospitals, and there should be a standalone structure to function during an emergency as well."

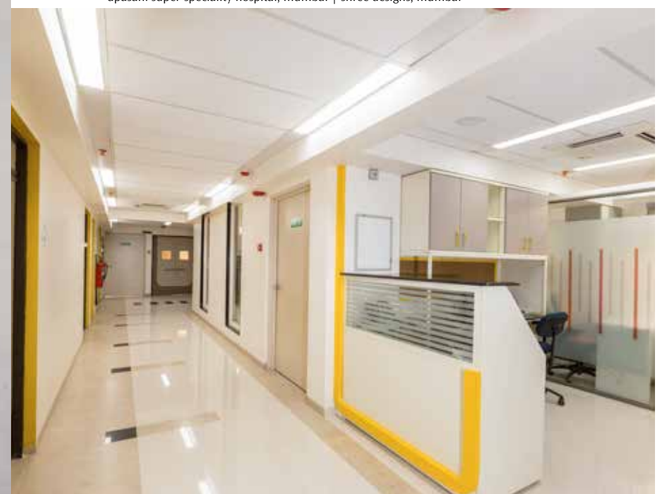
For Ar. Sandeep Shikre, Founder, Sandeep Shikre and Associates, Mumbai, the provision of natural light is an important consideration. He explains, "Hospitals should be planned to optimize daylight as nature plays a pivotal role in healing patients. Besides large windows, superior indoor air quality, adequate lighting and proper acoustics should be given due attention. Finally, a warm ambience with the thoughtful use of colors and textures goes a long way in aiding both medical staff and patients."

Ar. Shamit Manchanda of Manchanda Associates, sums it up, "A well designed hospital is not only limited to catering to the infrastructural needs of providing healthcare services but also plays an important role in patient recovery and well-being."

There should also be no compromise when it comes to accommodating ancillary facilities. Ar. Shilpa Jain Balvally, Partner, Studio Osmosis, Mumbai, says, "There must be adequate provision made for reception areas, family lounges and waste management spaces as they often get sacrificed due to space constraints."

The eternal bête noire, budget limitations can also prove to be an obstacle, and necessitate certain

upasani super-speciality hospital, mumbai | shree designs, mumbai



benziger hospice home, trivandrum | srijit srinivas architects, trivandrum

changes. According to Ar. Kshititi Nagarkar, Principal Architect, Shree Designs, Mumbai, "Spaces are now being designed from a vendor-neutral perspective so that the client can predict costs based on their choices."

Not just purely design elements, a judicious use of the right technology is also important when planning a hospital. Ar. Hiten Sethi, Founder, Hiten Sethi Architects, Mumbai lists some basic requirements: "The tech chosen to be used in a hospital should provide thermal comfort, acoustic comfort, the right indoor ambience and protect against extreme weather conditions."

Architects must take the help of experts before they design a healthcare project, says Ar. Nehit Vij & Ar. Devyani Gupta, Founders, Intrigue Studio + Lab, New Delhi. "Biomedical services and equipment planners are involved in the design process from the beginning, as their inputs about the latest medical devices and other back-end information contribute to a fool proof design."

photography : : inclined studio

lyfstyle wellness centre, ahmedabad | shailja harish design studio, ahmedabad

the current scenario

During the Covid pandemic, the architecture and design community has come up with workaround solutions to create temporary hospitals as Ar. Hiten Sethi, Hiten Sethi Architects, Mumbai, explains, “HSA and the Navi Mumbai Municipal Corporation (NMMC) converted the CIDCO Exhibition Centre into an 1,150-bedded coronavirus hospital.”

But these are only short-term solutions, and architects and designers will need to incorporate the lessons from these spaces to plan for the future.

Ar. Rahul Kadri, Principal Architect and Partner, IMK Architects, Mumbai, explains, “Most hospital campuses today exist as integrated units with shared circulation elements, which leads to cross-infection and contamination. The better alternative would be to segregate functions to multiple, separate wings and add buffer zones in between to avoid interference of services and maintenance areas with procedure areas and allow for greater isolation of diseases. Independent buildings need to be zoned responsibly too and functions segregated within sections or floors by creating general, semi-sterile, and sterile zones (for example, waiting areas to OPDs to ICUs). Finally, providing centralized green courtyards to provide passive evaporative cooling, and adding solar panels to reduce dependency on conventional forms of electricity, will help optimize building energy consumption and improve efficiency.”

Prasanna Kumar Venugopal and Sudheera Mure, Directors – Interiors, KGD Architecture, enumerate the factors they consider essential to planning the medical facilities of the future. “Modular spaces for isolations rooms, wards and IP rooms, segregation of in-patients and out-patient entry and exit points, big open spaces for waiting areas, easily convertible spaces to isolate units from other parts of the hospital, compact modular hospital designs, which can be assembled as fast as required, avoiding spaces that require human touch and selection of loose furniture with dividers, orientation and distribution for better segregation.”

Ar. Manoj Choudhury, Director, Edifice Consultants, Pvt. Ltd. Mumbai adds, “In most enclosed modern buildings, our dependency on air conditioning has increased so much that 90 percent of the air is recirculated within the building and only 5 per cent is brought in from outside. Therefore, the provision of natural cross-ventilation not only reduces the risk of infection by increasing the rate of natural air exchange but also provides a healthier interior environment. To dilute and remove contaminated indoor air, air conditioning systems would need to upgrade to a three-stage filtration process, with UV treatment in the AHU or ducts.”

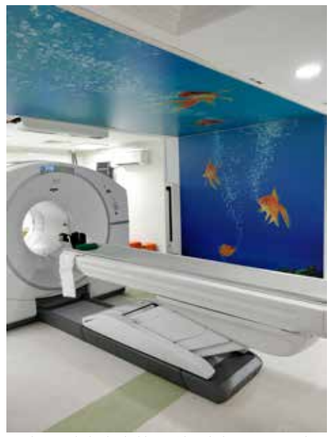
Integrating automation through technological solutions will also be crucial to ensure safe distancing in next-generation hospitals. Today, telemedicine uses existing computing devices - inexpensive equipment like smartphone cameras, wearable biosensors, etc. - to gather clinical data from patients, limiting the need for travel and contact, while providing optimal healthcare services.

indovasc hospital, ahmedabad | shailjaharish design studio, ahmedabad

national cancer institute, nagpur
hiten sethi architects, mumbai

photography : : inclined studio

alvura cosmetic clinic and hospital,ahmedabad
increation associates, ahmedabad



mahatma phule charitable trust hospital-a surana associate, mumbai | sandeep shikre & associates, mumbai

medanta ganganagar hospital, sri ganganagar, rajasthan |
manchanda associates, new delhi

photography : : inclined studio

lyfstyle wellness centre, ahmedabad | shailja harish design studio, ahmedabad

symbiosis hospital and research centre (suhrc), pune | imk architects, mumbai

design of the future

Today, as our understanding of health and wellbeing evolves, new construction technologies provide limitless possibilities in the sector. Building Information Modeling (BIM), for example, which can help determine the optimal geometry of buildings in response to certain parameters, can aid in pre-empting problems and shortening the time of construction and saving cost, while ‘temporary and transformable’ architecture has enabled emergency mitigation like never before. “Imbibing such innovations within healthcare design holds the key to streamlining our systems for better performance; from the accessibility of essential public services and improved patient care to the wellbeing of our economy,” says Ar. Kadri.

As for the future and long term, sustainable design and collaborative thinking is a big weapon against the Covid-19 pandemic. “It’s important to absorb, listen, discuss ideas, and be open to collaborating with likeminded people and plan for the unknown, with as much flexibility and multi-functionality in design as one can,” says Ar. Shilpa Jain Balvally, Principal Architect and Partner, Studio Osmosis, Mumbai. “It’s significant to think about individual and social responsibility, plan to use fewer resources and focus on local materials and sustainability. Hygiene, ventilation, and a sensible design with good climate responsive elements should be the key to all projects.”

Speaking of the need for a revolution in healthcare, Kadri further adds, “we need to rethink our model of healthcare design, to support health rather than simply treating illnesses. Care must be preventative rather than responsive; mental well-being must be incorporated as a key component of physical health and we must strive to put the patient’s experience at the core of healthcare.” ifj

photography : : a&r interior photography

raghoji kidney and multi speciality hospital, solapur |
nmd interiors, solapur

SANJEEVANAM AYURVEDIC HOSPITAL, KOCHI

Kumar Group Total Designers, Kochi

Design brief and aim
To amalgamate traditional and modern architectural systems for an age-old healing practice.

How this was accomplished
The one-acre site accommodates an 81-bed hospital, 17 treatment rooms and recreational facilities. The project, a holistic wellness practice uses a triple-height atrium with perforated aluminium façade screens to facilitate natural light and ventilation, and create a calm congregation space. These rooms are designed to bring solace and a feeling of home.

Natural ventilation of rooms and other interior spaces are a priority, resulting in a spatial configuration that permits smooth airflow. Natural vegetation in lobbies and rooms creates a cohesive environment emphasising Ayurvedic principles. Pitched roofs unify traditional and modern architectural styles and channel the essence of Ayurveda.

photography : : kumar group total designers, kochi

SYMBIOSIS HOSPITAL AND RESEARCH CENTRE (SUHRC), PUNE

IMK Architects, Mumbai

Design brief and aim
To establish a multi-specialty hospital for the population of Pune and far-flung areas. At the moment, the hospital is being used as a Covid-19 center.

How this was established
Built along a slope of a low hill, the building was strategically positioned to minimize the cut-and-fill of the site. Two entrances were designed, for the hospital and the academic block. Functionally, the hospital comprises four sections: three belong to the hospital and the fourth one is a Skill Centre.

Inspired by stainless steel surgical equipment, a gigantic steel bird with open wings welcomes the visitor into the Skill Centre. Small skylights exist in the roof along with a large opening that has an upward bending tip, supported by steel pipes. A terrace garden is constructed on the upper surface of this canopy.

The hospital was planned across five levels: the OPD, casualty, radiology, and MHC departments are located on the ground level; the general, twin and single-bed wards are on the first floor while the operation theatres, ICU and the cath lab are located on a sterile zone on the second floor, segregated from the rest of the hospital.

Two courtyards create buffer zones that bring in ample light and look over the wardrooms and the Out-Patient Department. All the departments enjoy fresh air and ventilation without the need for air-conditioning. A 3- meter-wide corridor shares a common boundary with the central courtyard.

Post-tensioned slabs are used to achieve flexibility, minimum beams and larger spans that facilitate different room-size arrangements for easy routing of ducts. Naturally-compressed, sun-dried earthen bricks produced on-site were used for the façade and masonry work. Colour coding was used for easy identification of spaces and critical areas.