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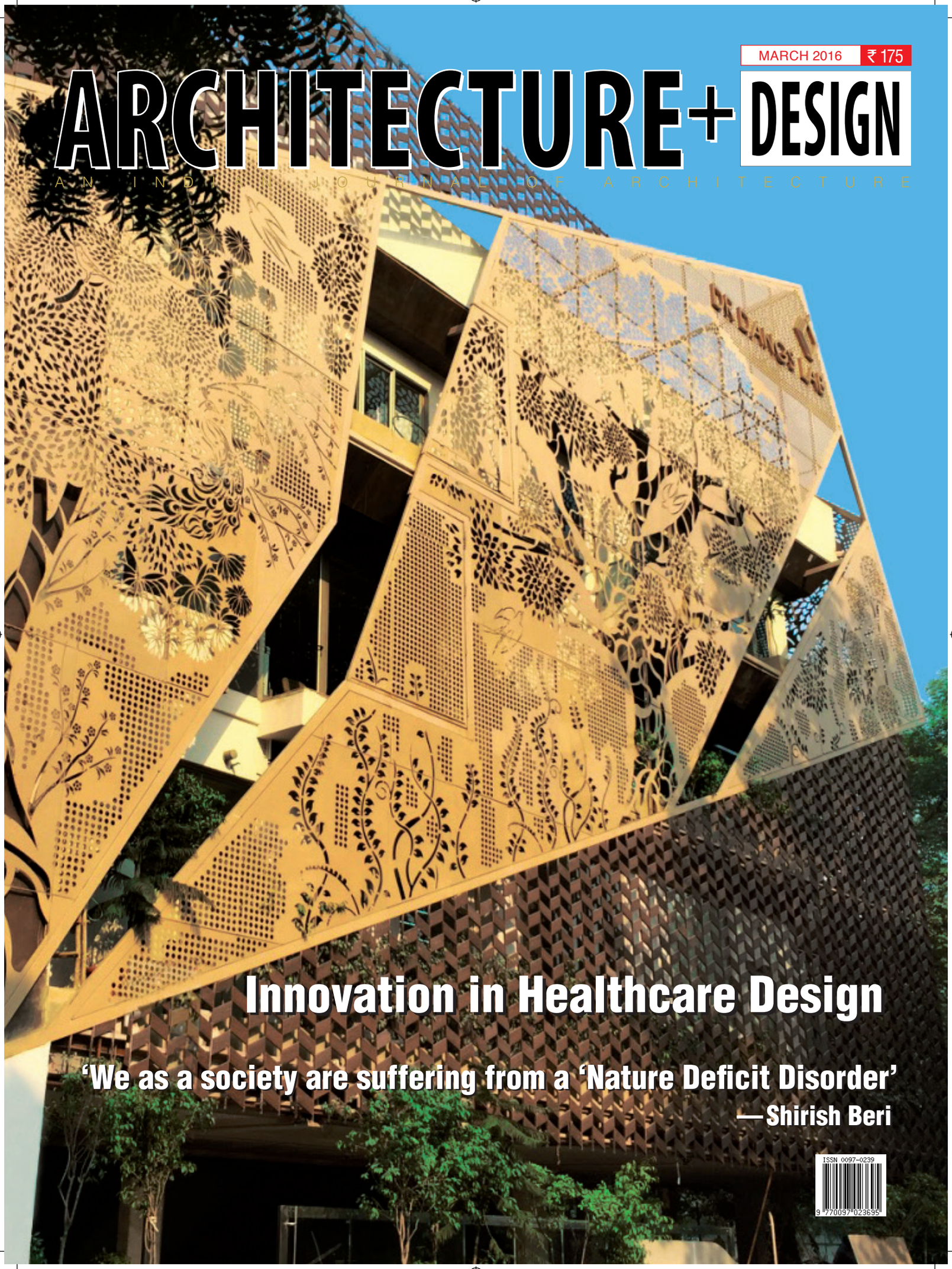

Innovation in Healthcare Design

'We as a society are suffering from a 'Nature Deficit Disorder'

—Shirish Beri

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Connecting Spaces

Project: Specialty Hospital, Accident (Trauma) & Emergency Hospital at Nizam's Institute of Medical Sciences, Hyderabad
Architects: Manchanda Associates, New Delhi

The Nizam's Institute of Medical Sciences is a 1000-bedded premier healthcare and teaching institute-cum-hospital in south India. The project was to add a 300-bed Specialty Hospital as well as a 200-bed Accident (Trauma) & Emergency Hospital in the existing complex.

The profile of the two sites, their inter-relationship across an internal road and relationship with the adjoining development has determined the shape of two separate buildings connected by a link corridor at upper floor levels. Such an arrangement allows easy access to both Specialty Hospital and Accident (Trauma) & Emergency hospital while ensuring connectivity of similar functions of both blocks to draw required support from each other.

Easy and unhindered movement of patients, doctors and visitors is of prime importance in the functioning of any hospital. There was a need for distinct entries and parking for doctors, visitors and service personnel. A roundabout has been created to avoid clash of traffic coming from various directions. Internally a system of corridors connects vertical movement cores strategically located at all corners as well as in the middle. A ramp has been provided to connect all levels for the convenience of physically handicapped persons as well as for evacuation

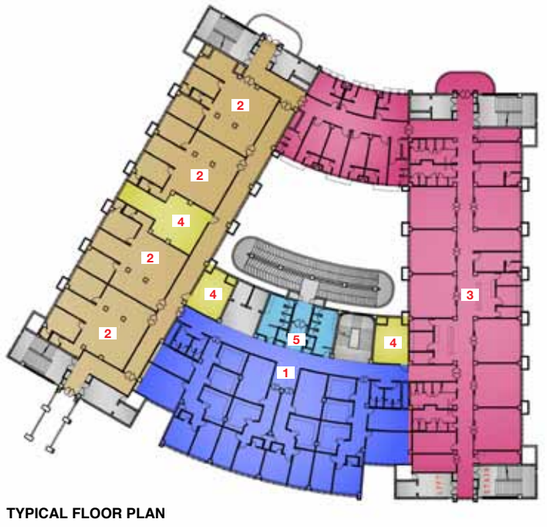
1. ACCIDENT (TRAUMA) AND EMERGENCY
2. SPECIALITY HOSPITAL
3. U/G WATER STORAGE TANKS AND PUMP ROOM
4. EXISTING BOYS HOSTEL
5. PARKING

SITE PLAN

1. ENTRANCE LOBBY
2. BACK OFFICE
3. SOCIAL WORKERS
4. SAMPLE COLLECTION
5. OUT PATIENT DEPARTMENT
6. PHARMACY
7. ADMINISTRATION
8. CAFETERIA
9. A.H.U
10. TOILETS

GROUND FLOOR PLAN

1. FACULTY BLOCK
2. OUT PATIENT DEPARTMENT
3. WARDS
4. A.H.U
5. TOILETS



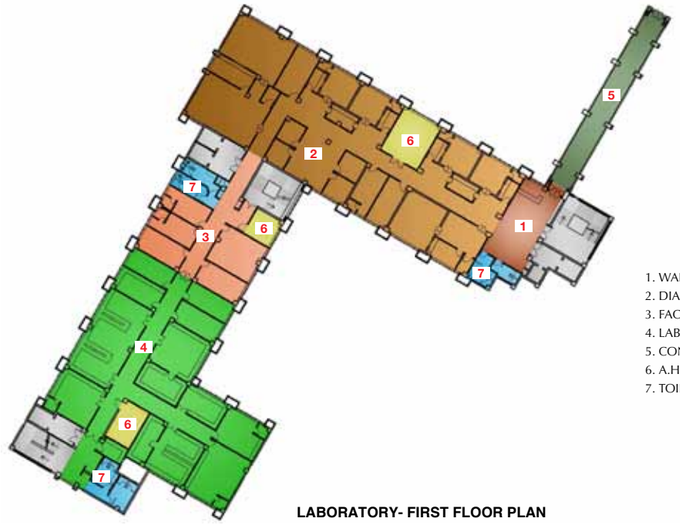
TYPICAL FLOOR PLAN

of patients in case of fire. The two building have been linked at floors, two, three, four and five for effectively utilising various facilities without duplicating them.

Spatial Inter-relationships

"Form follows function"—this architectural adage is most valid in case of planning a hospital where inter-relationships of departments within a floor and in between floors becomes paramount for efficient functioning of a hospital. The stack diagram explains these spatial inter-relationships.

- A link corridor has been provided between floors two, three, four and five which ensures quick and easy access between OTs, diagnostic services and wards of two separate buildings.
- All functions of a particular department (OPD, Teaching and Wards) have been provided on the same level for easy functioning.
- A large triage has been provided for quick and effective segregation in case of large-scale calamities.
- The diagnostics facilities (Imaging and Laboratories) have been provided on an independent floor so that these functions can be out-sourced on PPP (Public Private Partnership).
- Provision of value added facilities like ATM, florist, coffee



1. WAITING AREA
2. DIAGNOSTIC AND IMAGING
3. FACULTY
4. LABORATORIES
5. CONNECTING CORRIDORS
6. A.H.U
7. TOILETS

LABORATORY- FIRST FLOOR PLAN

vending machines, chemist, etc, have been provided at the ground floor level.

The planning grid of both the buildings has been based on 6600 x 6600mm with 3000mm for internal corridor space. These dimensions are within the recommended norms for hospital buildings and meet with most of the requirements essential for various functions. It can accommodate a six-bedded general ward in one unit, four-bedded special ward with attached toilets or two reasonable sized rooms for doctors, nurses/staff change rooms, etc.

The floor-to-floor height has been kept as 3750mm with 4200mm clear height for OT floor to allow for additional space for numerous services. All floors have beam-free corridors to facilitate running of services above the false ceilings.

Each grid has been provided with a vertical shaft to accommodate all kinds of services including medical gases, etc. This provides enough flexibility in expansion of services even at a later date and also ensures easy serviceability of installed services.

Public hospital's wall and floor finishes and other elements require two very important basic premises—low on maintenance and should not help breed infection. To achieve these, following methods were proposed:

- Seamless walls and floors in clinical and critical areas by using epoxy coatings, anti-bacterial coatings, etc.
- Corners coved in critical areas.
- Ceramic and vitrified tile finishes.
- Stainless steel counters

AD

SECTION

- Flooring—a mix of Kota, Shahabad stone, marble and granite

Specifications for Operation Theatres

- Modular OTs with laminar flow and state-of-the-art equipment and facilities. Having anti-bacterial coatings on walls and floorings.
- Special care for cable management for OTs with suitable equipment to avoid loose wires hanging around.
- Sensor operated stainless steel scrubs and hermetically sealed doors.

Doors consist of pre-laminated shutters fixed in aluminum frames with stainless steel fittings and fixtures. Windows and structural glazing in aluminum with judicious mix of insulated, tinted, low-e and normal glass panes.

Services

Electrical: It was proposed to utilise the existing termination point of the 11KVA line from APSEB and build the electrical sub-station and DG sets for backup power supply in the existing service zone. Building information systems incorporated for efficient use of electricity by controlling, lighting, air-conditioning, lifts, pumps, etc.

Water Supply and Sewerage: It is proposed to install a sewerage treatment plant to be able to re-cycle water and use it for HVAC make-up, flushing and garden irrigation.

Water supply shall be split into: Drinking water – Municipal supply; general washing and bathing – bore well supply after basic filtration and chlorination; and flushing – recycled water. This strategy reduces the dependence on municipal supply.

The HVAC plant which uses the municipal supply at present can be fed from the treatment plant thereby drastically reducing the dependence on municipal supply.

Energy Efficiency Systems

- Use of Solar panels both for heating water.
- Use of low-e and insulated glass to minimise heat gain while still maintaining large glazings for increasing day-lighting within buildings.
- Use of waste water re-cycling
- Use of Building Management Systems to monitor and control all electrical appliances from simple water pumps to complex air-conditioning systems and lighting levels.

Factfile

Client: Ministry of Health & Family Welfare, GOI/Nizam's Institute of Medical Sciences

Design team: R C Manchanda, Shamit Manchanda, Shweta Manchanda, Abhilash Kiran, Sameer IK, Sunil Sharma

Consultants: Arohi Consultants (Structure), V S Kukreja & Associates (MEP), HSCC (India) Ltd (Project Managers)

Contractors: Unity Infraprojects

Built-up area: 4,00,000sq ft (Approx)

Cost of project: Rs 107 crore

Year of completion: 2013