# A spatial inter-relationship of functions...

Shamit Manchanda

**Project:** Medanta SN Super Specialty Hospital, Sri Ganganagar
**Architects:** Manchanda Associates, New Delhi

The demand for quality healthcare in Tier-2 towns has been rising in the last few years. The clients envisioned the idea of setting up a 200-bedded super specialty hospital. Located on the outskirts of Sri Ganganagar, on the Suratgarh-Hanumangarh Bypass Road on a 3-acre plot of land, the brief for the architects was to set up an ultramodern facility with a possibility of expansion to take it to 300 beds while keeping in mind budget constraints.

Natural light and ventilation are essential elements for designing any building, especially hospitals. A lot of hospitals are being planned today as centrally airconditioned facilities, but that does not mean that these crucial elements are to be sacrificed. The hospital was

planned in an H-Shaped pattern ensuring natural light and natural ventilation for almost all areas. The H-Shape helped in creating distinct zones for segregating independent departments while keeping the vertical circulation central. This ensured easy and unobstructed movement of patients, doctors and visitors, which is of prime importance in the functioning of any hospital. The H-Shape also enabled space for an additional block for future expansion. A ramp has been provided to connect all levels for the convenience of physically handicapped persons as well as for evacuation of patients in case of fire.

Spatial inter-relationship of various functions within a floor and between floors becomes paramount for the efficient functioning of a hospital. The major public zones were restricted to the ground and first floors comprising the OPD, emergency and radiology on the former and part OPD, dialysis centre and ICU in a separate wing on the latter. The second floor houses the pathology department and administration in one wing and wards in the other. The third floor is entirely dedicated for operation theatre's and its allied services like CSSD and blood bank. Fourth floor comprises the paediatric, gynae and obstetric departments along with a birthing centre and a neonatal ICU – along with the fifth floors, it is totally dedicated for private wards.

The planning of the building has been based on a 6600 x 6600mm grid 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 an Operation Theatre, a six-bedded general ward in one unit, two single-bedded private wards with attached toilets or two reasonably sized rooms for doctors, nurses/staff change rooms, etc.

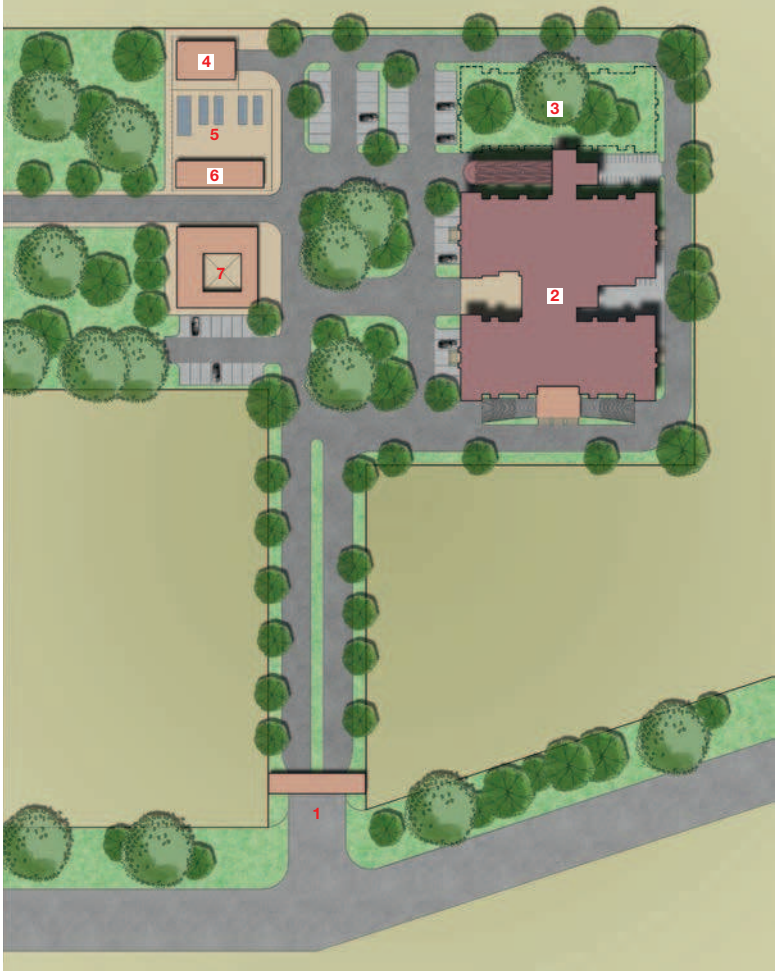
The floor-to-floor height has been kept as 3600mm with 4200mm clear height for the OT floor to allow for additional space for numerous services. All floors have beam-free corridors to facilitate running of services above the false ceilings.

While designing the services for this hospital, one thing was clear – the systems have to be robust and easily maintainable – keeping in mind the lack of availability of trained manpower in the area. Any breakdown would require a company service engineer to come from another city.

While the project did not undergo any Green-rating system, systems were still adopted to make the building green, sustainable and energy efficient.

The orientation of the buildings has been kept such so as to maximise glazing on north and south faces while effectively blocking the hot sun on the eastern and western faces. The H-Shape ensures natural light and ventilation to almost the entire building while still offering mutual shade to cut down the heat.

The energy efficiency systems include; use of solar panels both for heating water and power generation; use of energy efficient insulated glass to minimise heat




1. ENTRANCE GATE
2. HOSPITAL BLOCK
3. FUTURE EXPANSION
4. STP/ETP
5. DG SETS
6. ELECTRICAL SUB STATIONS
7. FOOD COURT

N

**SITE PLAN**


1. ENTRANCE LOBBY
2. OPD
3. EMERGENCY
4. RADIOLOGY
5. LIFT LOBBY

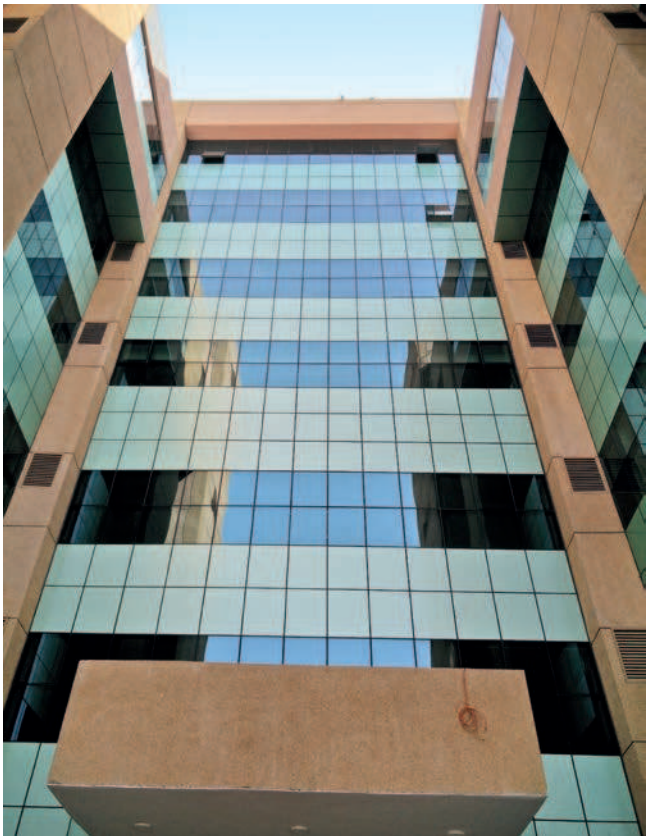
**GROUND FLOOR PLAN**

1. OPD
2. DIALYSIS
3. ICU AND CCU
4. LIFT LOBBY
5. VISITOR WAITING AREA


**FIRST FLOOR PLAN**


1. OT COMPLEX
2. BLOOD BANK AND CSSD
3. LIFT LOBBY
4. VISITOR WAITING AREA

**THIRD FLOOR PLAN**



gain while still maintaining large glazing for increasing day-lighting within buildings; waste water re-cycling and reuse for flushing, HVAC make-up and horticulture from STP; use of variable frequency drives and high-efficiency screw type chillers.

The hospital walls, floor finishes, and other such elements require two very important basic premises – they should be low on maintenance and should not help breed infection. To achieve the same, the following was incorporated: seamless floors in clinical and critical areas by using anti-bacterial vinyl flooring with coved corners; large sized ceramic tiles to minimise joints; vitrified tiles for floors in hospital areas; kota and granite for service areas and staircases; modular OT's with laminar flow and state-of-the art equipment and facilities having anti-bacterial coatings on walls and floorings; sensor-operated stainless steel scrubs and hermetically sealed doors; doors consist of laminated shutters fixed in aluminium frames with stainless steel fittings and fixtures; windows and structural glazing in aluminium with insulated and energy efficient double-glazed units to reduce heat gain.

## Factfile

**Client:** S N Super Specialty Hospital

**Design team:** R C Manchanda, Shamit Manchanda, Lalit Pandey

**Consultants:** Charu Engineering Consultants (structural), V Consulting (MEP), Ved Pal and Ajeet Singh (civil project managers)

**Built-up area:** 1,65,000 sq ft

**Cost of project:** INR 45 crore

**Year of completion:** 2018