




Academy of Hospital Administration, Kolkata Chapter

## Hospital Architectural Planning and Designing – Part 2

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## Principles and Planning Parameters of Hospital Building

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## Principles and Planning Parameters of Hospital Building

- Regardless of their location, size or budget all hospitals should have some common attributes
  - Efficiency and Cost-Effectiveness
    - An efficient hospital layout should :
      - Promote staff efficiency by minimizing necessary travel between frequently used spaces
      - Allow easy visual supervision of patients by limited staff
      - Include all needed spaces, but no redundant ones
      - Provide an efficient logistics system
      - Make efficient use of space by locating support spaces so that they may be shared by adjacent functional areas

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## Principles and Planning Parameters of Hospital Building

- Consolidate outpatient function for more efficient operation
  - This may be done on ground floor, if possible, for direct access by outpatients
- Group or combine functional areas with similar system requirements
- Provide optimal functional adjacencies, such as locating the surgical ICU adjacent to operating suite

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## Principles and Planning Parameters of Hospital Building

- Flexibility and expandability – room sizes since medical needs and modes of treatment will continue to change, design should be flexible
  - Follow modular concepts of space planning and layout
  - Use generic room sizes and plans as much as possible, rather than highly specific ones
  - Where size and program allow be designed on a modular system basis
  - Be open ended with well planned directions for future expansion

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## Principles and Planning Parameters of Hospital Building

- Therapeutic environment
  - Hospital patients are often fearful and confused and these feelings may impede recovery
    - Every effort should be made to make the hospital stay as unthreatening, comfortable, and stress-free as possible
- Cleanliness and sanitation
  - Hospitals must be easy to clean and maintain. This is facilitated by
    - Appropriate, durable finishes for each functional space
    - Careful detailing of such features as doorframes, casework and finish transition to avoid dirt-catching
    - Adequate and appropriately located housekeeping spaces

## Principles and Planning Parameters of Hospital Building

### 5. Accessibility

- Should comply with Person With Disability Act, 1995
- Should be easy to use by the many patients with temporary or permanent handicaps
- Ensuring grades are flat enough to allow easy movement and sidewalks and corridors are wide enough for two wheelchairs to pass easily
- Ensuring entrance areas are designed to accommodate patients with slower adaptation rates to dark and light
  - Glass walls and doors should be such that their presence is obvious

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## Principles and Planning Parameters of Hospital Building

### 6. Controlled Circulation – a hospital is a complex system with interrelated functions

- This requires constant movement of people and goods. Much of this circulation should be controlled
- Outpatients visiting diagnostic and treatment areas should not travel through inpatient functional areas nor encounter severely ill patients
- Typical outpatient routes should be simple and clearly defined
- Visitors should have a simple and direct route to each patient nursing unit without penetrating other functional areas

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## Principles and Planning Parameters of Hospital Building

- Separate patients and visitors from industrial/logistical areas or floors
- Outflow of trash, recyclables, and soiled materials should be separated from movement of food and clean supplies,
  - Both should be separated from routes of patients and visitors
- Transfer of cadavers to and from the morgue should be out of the sight of patients and visitors
- Dedicated service elevators for deliveries of food and building maintenance services

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## Principles and Planning Parameters of Hospital Building

### 7. Aesthetics

- Aesthetic is closely related to creating a therapeutic environment
  - It is important in enhancing the hospitals public image and is thus an important marketing tool
- A better environment also contributes to better staff morale and patient care
- Aesthetic considerations include:

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## Principles and Planning Parameters of Hospital Building

- Increased use of natural light
- Use of artwork
- Attention to proportions, colour, scale, and detail
- Bright, open, generously-scaled public spaces
- Homelike and intimate scale in patient rooms, day rooms, consultation rooms, and offices
- Compatibility of exterior design with its physical surroundings

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## Principles and Planning Parameters of Hospital Building

### 8. Security and safety

- In addition to the general safety concerns of all buildings, hospitals have several particular security concerns:
  - Protection of hospital property, including drugs
  - Protection of patients, including incapacitated patients, and staff
  - Safe control of violent or unstable patients
  - Vulnerability to damage from terrorism because of :
    - » proximity to high-vulnerable targets, or
    - » they may be highly visible public buildings with an important role in public health system

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## Principles and Planning Parameters of Hospital Building

### 9. Sustainability

- Hospitals are heavy users of energy and water
- They produce large amounts of waste
  - Some of these wastes are hazardous
- Hospitals have significant impact on environment
  - Hospitals place large demands on community resources
- Hospitals, therefore, are the most suitable candidate for sustainable design

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## Selection of Site

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## Location

- The hospital should be located at a site that should have the following considerations
  - Access
    - The site of any health care facility shall be convenient both to the community and to service vehicles, including fire protection apparatus
  - Availability of Transportation
    - A transportation plan should be established
  - Security
    - Health facilities shall have security measures for patients, families, personnel, and the public consistent with the conditions and risks inherent in the location of the facility

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## Location

- Availability of Utilities to provide reliable utilities
  - These utilities are:
    - Water
    - Gas
    - Sewer
    - Electricity
- Water Supply
  - The water supply shall have the capacity to provide for normal usage, and
  - Fire fighting requirements

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## Location

- Electricity
  - The electricity shall be of stable voltage and frequency
- Freedom from Natural Hazards
  - There should not be undue threat to flood or storm
  - Land slide
- Environment
  - Noise
  - Pollution from factory
- Land
  - Land should be available for future expansion

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## Architectural Design

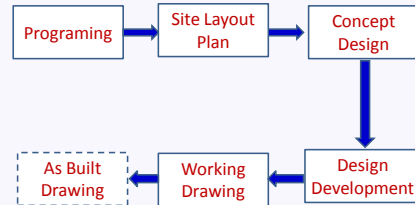
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## Architectural Design

- Architectural design must proceed in an orderly manner
- There are several steps in a hospital building project.
- These steps are:
  - Programming
  - Site Design
  - Schematic design
  - Design development
  - Construction Documents
  - Materials and Specification
  - Bidding
  - Construction administration

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## Architectural Drawings Stages



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## Programming

- The first step in design is referred to as Programming
  - It is the vision of the client how s/he wants the future hospital to be
  - Programming is the responsibility of owner
  - The client may broadly communicate the hospital size, number of beds, services to be provided, allocation of spaces, adjacency and relationship and so on
  - The client, most often, is not technically qualified to provide all details
  - Therefore, most often the client assigns this job to the architect

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## Programming

- The Basics
  - Programming involves discovering the client's needs and goals
    - These needs of the client are to be captured on paper either written or graphic form
    - These requirements spelled out by the client may be expressed either in qualitative or quantitative form
  - This allows the architect to understand the client's needs in terms of:
    - Hard numbers (square feet), and
    - Emotional expectations for how the space will feel and function

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## Programming

- It is important that at this stage an open, honest discussion takes place regarding:
  - Budget, Space requirements, and Overall expectations
- Programming is the time to
  - Identify, Consider, Debate, Reject, Accept and prioritize values such as;
    - Institutional purposes, functional efficiency, user comfort, building economics, safety, environmental sustainability and visual quality
- These identified values and concerns can have a profound impact on the ultimate form of a building

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## Programming

- Program driven for functional efficiency, will significantly affect the form of the building
- Program evolving from the social and psychological needs of the users will also have,
  - prescriptions for identified spaces and their sizes, characteristics, and relationships
- In Program evolving from economic concern, many essential aspects may be eliminated
- A carefully conceived and comprehensive architectural programming should ensure that
  - All appropriate values have been identified and prioritized

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## Programming

- The deliverable is a written architectural program which includes:
  - Methodology used,
  - An executive summary,
  - Value, and goal statements,
  - The relevant facts,
  - Data analysis conclusion,
  - The program requirements, including space listings by function and size, relationship diagrams, space program sheets, stacking plans, percept drawings and flow diagrams
  - It may also include project cost estimate and a project schedule

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TO BE CONTINUED

Thank you

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