

THESIS SYNOPSIS

CANCER HOSPITAL

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SHRIKRISHNA EDUCATIONAL AND CULTURAL MANDAL, JALGAON

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Cancer Hospital

By

Azleen Feroz Kazi

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Seal

External

Principal

Thesis Guide

Dissertation report on
CANCER HOSPITAL

SUBMITTED BY:

AZLEEN FEROZ KAZI

FIFTH YEAR B. ARCH. [2020-2021]

**SHRI KRISHNA EDUCATIONAL & CULTURAL MANDAL'S
COLLEGE OF ARCHITECTURE, JALGAON**

Under the guidance of
PROF. AR. IMRAN DESHMUKH

**FOR THE PARTIAL FULFILMENT OF THE DEGREE OF B.
ARCH.**

FOR

**KAVAYITRI BAHINABAI CHAUDHARI NORTH
MAHARASHTRA UNIVERSITY JALGAON, INDIA**



ARCHITECTURE PROGRAM

SECM'S COLLEGE OF ARCHITECTURE

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Approval

The following study is hereby approved as a creditable work on the subject, carried out and presented in a manner, sufficiently satisfactory to warrant its acceptance as a prerequisite to the Architecture Program for which it has been submitted.

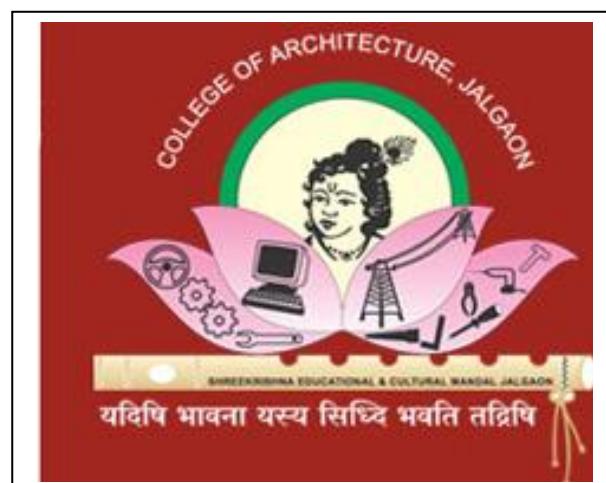
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PROJECT INTRODUCTION

It is an organisation intending to provide treatment for the people of Jalgaon and other cities.

Prof Mohammad Golam Mostafa also said that in India many more women aged between 15 and 20 are found suffering from cancer than in other countries in his opinion, due to eating vegetables and fruits which had been treated with toxic chemicals.

AIM

To design a hospital that provides multi-speciality in the treatment of the patients, with all the medical and testing facilities contained in one complex.

INTRODUCTION BACKGROUND

The purpose behind selecting the multi-speciality hospital specifically in Jalgaon is to create a hospital for the people residing in Jalgaon and remote areas.

Attracting the crowd who go to other big cities for treatment, testing and therapies towards this hospital, and to provide proper and cost-effective treatment to the patients.

OBJECTIVES

- To provide quality treatment
- To make a centre of excellence in the country
- To provide super speciality medical care of high quality in Jalgaon at the most economical rates.
- To establish a hospital city providing ideal working environment.
- To enable it to concentrate on preventive Medicare and basic health care.
- The objective of the design is to create a building that is user friendly, applies appropriate building methodologies in keeping with the locally available materials.
- Located in hot and arid area of north Maharashtrian region, the first priority therefore is given to its planning.
- The main principle which is more important to remember in hospital planning starts with circulation. The numerous departments of the hospitals should be properly integrated so that the different types of traffic traversing the building are separated as much as possible, traffic routes should be kept short, and important functions are protected from prying eyes or intrusion.

- The traffic patterns for movement of physicians, hospital personnel, patients, visitors should be concentrated, moreover efficient transportation of food, linen, drugs and other supplies should be handled carefully.
- The design will avoid duplication of services but at the same time provide flexibility and interchangeability of patient rooms for clinical departments and paying attention to special services like outpatient, intensive care, obstetrics, operating rooms, medical and surgical specialities, and to such concepts as infection control, disaster planning, etc.,
- Technology, functionality, prevailing architectural post modernistic trends, are all amalgamated that reflects the architecture of a progressive region of the area.

ACTIVITIES

- All diagnostic activities
- All kinds of treatments- surgery, radiotherapy, chemotherapy etc.
- Hospital Based Registry
- Different training programs.
- Organizing tobacco prevention & cessation programmes in the community.
- Participation in national activities- such as observance of World Cancer Day, World Paediatric Cancer Day, No Tobacco Day, Woman & Cervical cancer awareness month and chalking out of special Woman Cancer Screening Campaign in the victory month of December from 2015.
- Telemedicine services
- Palliative care services

SCOPE OF WORK

Need for a Multispeciality Hospital Over Traditional Hospitals in Jalgaon

The hospitals in Jalgaon are many with super speciality in some single faculty. Patients have to run helter skelter for different tests or second opinion. Many times the patient is not in a condition to be moved from one hospital to another. Here a need of a Multi-speciality hospital arises in Jalgaon.

The healthcare industry has been ever-evolving under the changing needs and scenarios of our times. Just as the medical treatments have changed, the systems and techniques of providing healthcare services have also transformed, or rather, modernized remarkably. Right from telehealth

services to easy Mediclaims, digital technology has paved the way for endless patient-oriented services into the healthcare system. It has also helped hospitals optimize their management and patient care processes.

But the most iconic change in the way healthcare services is provided has been noted after the inception of 'Multispeciality Hospitals.' Ideally, traditional hospitals have always had a single specialty with some sub-categorized treatments related to that specialty as their only services, with doctors and staff for the same. Such hospitals later evolved to be known as 'Super-speciality Hospitals,' focusing on singular medical treatment. But multispeciality hospitals created a new perception of how patients can benefit more without having to shift from hospital to hospital for their different medical needs.

To give you a brief overview of these modern-day healthcare providers, here are some of the notable benefits that you can gain today by choosing a multispeciality hospital for your treatment needs:

Easy Treatments At Affordable Costs:

Suppose, if you visit four different hospitals for different medical treatments, you'll spend a significant amount of money at each of those hospitals while having to update every doctor of the treatments you're taking from the rest of the three doctors.

But if you visit a hospital that provides specialist treatments for all those four medical conditions at the same place, you won't have to visit any other hospital ever. And since all individual units are linked and centralized in a multispeciality facility, all doctors will be aware of your ongoing treatments and conditions and will even coordinate to give you the best possible treatments.

If you think prudently, you'll save a lot of your savings by getting all your treatments from a single multispeciality hospital over your lifetime.

Larger teams With Multiple Specialities:

The biggest problem most patients face is when they are admitted to a traditional hospital and are told to a different specialty hospital after diagnosis due to the unavailability of the required doctors or staff.

This problem is significantly tackled in a multispeciality hospital where specialists from various fields come together to diagnose and treat you without moving you around. All staff members collaborate to help get all your medical necessities set for you even before you know it, making it a one-stop solution for all your health problems.

Varied Equipment available Under One Roof:

Another problem for patients who need to perform multiple tests for a condition is finding different testing centers, diagnostic imaging centers, and specialty hospitals that have the required equipment and staff for those tests.

In a multispeciality hospital, it is ensured that all necessary screening and testing equipment required for treating a variety of medical and physical conditions are set up with qualified staff. Hence, when you receive your list of tests, all other departments are automatically informed of your requirements so that your treatment process moves on smoothly.

Treating Different Lifestyle Diseases Simultaneously:

The biggest medical crisis of the 21st century arrived with our sedentary style of work and entertainment, which led to an exponential rise in the number of patients suffering from lifestyle diseases. These are diseases of the heart, bones, teeth, eyes, etc. which are primarily caused due to the way we work and eat today.

Instead of moving from doctor to doctor, at multispeciality facilities, you'll get a comprehensive treatment solution where all your lifestyle diseases

will be treated simultaneously. A team of experts will diagnose each of your problems and provide treatments for your holistic betterment.

Better Integration With Insurance Companies:

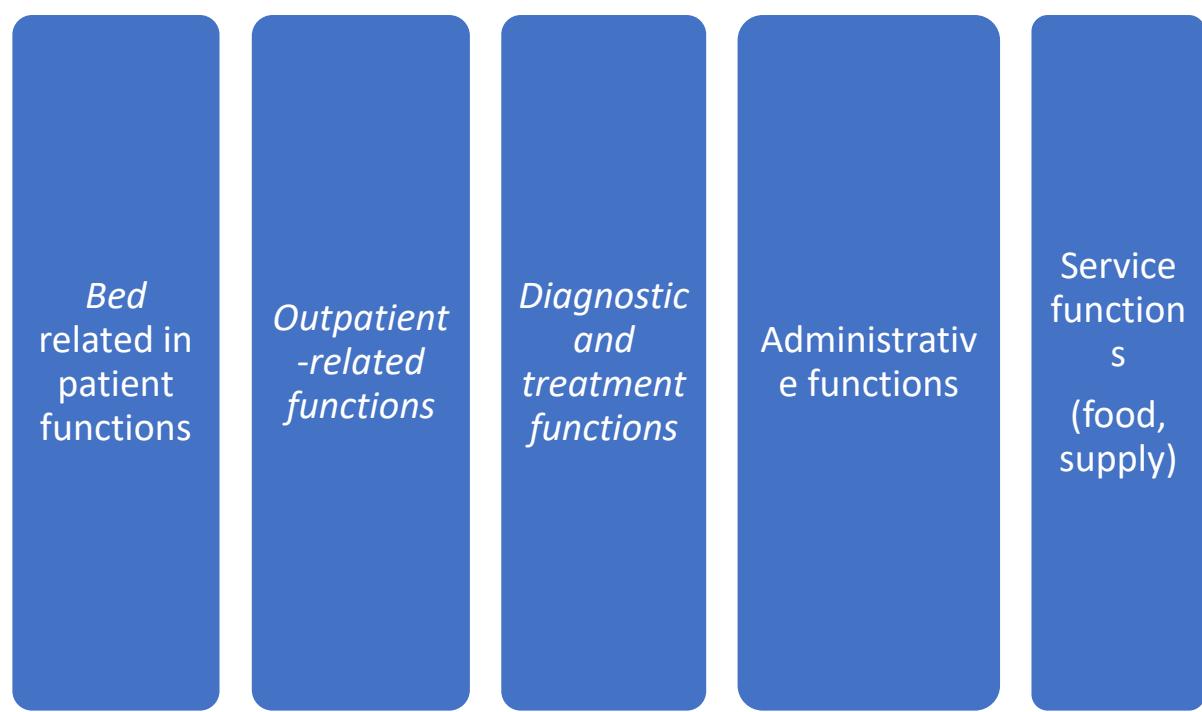
A singular specialty hospital will collaborate with insurance companies that cover their treatments only. Since that isn't the case with multispecialty hospitals, they tend to work with numerous insurance companies that would cover their varied medical treatments individually or in totality.

Hence, the chances of your insurance company being a part of a cancer hospital are much higher, which ensures that you almost always get insured treatment for any of your medical condition.

What Causes Cancer?

- Smoking and Tobacco.
- Diet and Physical Activity.
- Sun and Other Types of Radiation.
- Viruses and Other Infections.

The basic form of a hospital is, ideally, based on its functions:



ROLE OF ARCHITECT:

Hospitals in the modern era are no longer buildings with white and high ceilings. The newer designs focus on lifting the mood of all anxious and depressed patients. Hospitals are now designed to try and create a positive impact.

Today, hospital architects need to create functional environments. Not only this, but they also need to provide healing support as well. So, knowledge of the health sector is a must for doing justice to the architect's role in hospital planning. Architects need to go beyond their conventional role and have a say in the planning process. With newer technologies comes complexity in the designing process. Also, there is an increase in the number of specialised wards in hospitals around. This makes the architect's job even more difficult.

In the current era, Architects have to take part in the planning process. This is essential to understand the vision of the hospital. Also, architects need to follow the government guidelines to come up with a design that suits all. After all, they are not only designers but people committed to the institution. Functionality is the primary thing in hospital planning & design, followed by any aesthetic. An architect's role in hospital planning is to ensure functionality is at its best. He needs to see the limitations in design. And then, overcome them. All this comes under the responsibility of the architect. With this, he needs to ensure that patient treatments are never compromised.

The basic role of an architect in designing a hospital is:

- The architect has to design a building that is close to the culture of the area. And the design should be able to meet future demands and manage heavy patient loads as well.
- The design needs to be functional. It should be made keeping in mind the workflow so that critical care patients have no reason to suffer.

Five important factors in designing a hospital

1. Hospitals are like cities
2. Patients and families first
3. Patient privacy is essential
4. Hospital wayfinding is challenging
5. Access to views is crucial

Elements and divisions of the hospital

The main division of the hospitals are:

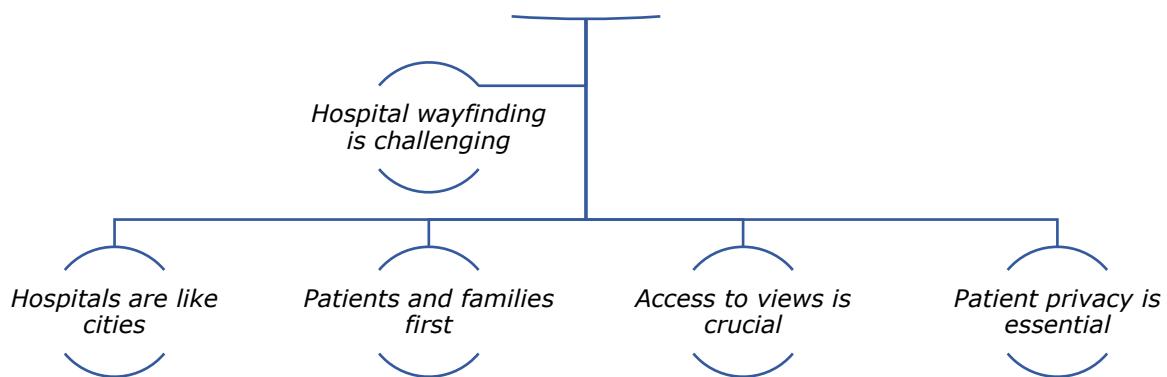
1. Administration division.
2. Outpatients' division, includes;
 - Outpatient clinics.
 - Pharmacy.
 - Emergency reception.
3. Diagnostic services division, includes;
 - Laboratories.
 - Radiology (diagnostic).
4. Therapeutic services division, includes;
 - Physical Therapy.
 - Radiology (therapeutic).
5. Internal medical treatment division, includes;
 - Operation Theatres.
 - Intensive Care unit.
 - Central Sterilization Department.
6. Inpatient division, includes;
 - Patient wards.
 - Nurses wards.
 - Inpatient services.
7. General service division, includes;
 - Kitchen.
 - Laundry.
 - Storages.
 - Workshops.
 - Mechanical services.
 - Mortuary.
 - Security.

- Parking.
- Landscaping.

The basic form of a hospital is, ideally, based on its functions:

1. bed-related inpatient functions
2. outpatient-related functions
3. diagnostic and treatment functions
4. administrative functions
5. service functions (food, supply)

Five important factors in designing a hospital



Since medical needs and modes of treatment will continue to change, hospitals should:

Follow modular concepts of space planning and layout

Use generic room sizes and plans as much as possible, rather than highly specific ones

Be served by modular, easily accessed, and easily modified mechanical and electrical systems

Where size and program allow, be designed on a modular system basis, such as the VA Hospital Building System. This system also uses walk-through interstitial

space between occupied floors for mechanical, electrical, and plumbing distribution. For large projects, this provides continuing adaptability to changing programs and needs, with no first-cost premium, if properly planned, designed, and bid. The VA Hospital Building System also allows vertical expansion without disruptions to floors below.

Be open-ended, with well-planned directions for future expansion; for instance, positioning "soft spaces" such as administrative departments, adjacent to "hard spaces" such as clinical laboratories.

Some important aspects of creating a therapeutic interior are:

- Using familiar and culturally relevant materials wherever consistent with sanitation and other functional needs
- Using cheerful and varied colours and textures, keeping in mind that some colours are inappropriate and can interfere with provider assessments of patients' pallor and skin tones, disorient older or impaired patients, or agitate patients and staff, particularly some psychiatric patients.
- Admitting ample natural light wherever feasible and using colour-corrected lighting in interior spaces which closely approximates natural daylight
- Providing views of the outdoors from every patient bed, and elsewhere wherever possible; photo murals of nature scenes are helpful where outdoor views are not available
- Designing a "way-finding" process into every project. Patients, visitors, and staff all need to know where they are, what their destination is, and how to get there and return. A patient's sense of competence is encouraged by making spaces easy to find, identify, and use without asking for help. Building elements, colour, texture, and pattern should all give cues, as well as artwork and signage.
- A better environment also contributes to better staff morale and patient care. Aesthetic considerations include:
- Increased use of natural light, natural materials, and textures

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

1. Administration division

Parts and components of the division:

- Reception hall.
- Waiting area.
- Registration.
- Treasury and Accounts.
- Staff offices.
- General manager office.
- Staff lounge.
- Nursing head office.
- WCs.

Location:

Very close to main entrance of the hospital.

Entrance area, registration, accounts should face the entrance, while the manager office should be back for privacy.

2. Outpatients' division

External Outpatient Clinics:

Parts and components of the division:

- Consultation room.
- Examination room.
- Treatment room.
- Waiting area.
- Staff room.
- WCs.

Location:

- Very close to the main entrance of the hospital.
- Close to the diagnostic services (labs and x-ray).
- Close to the pharmacy.

Emergency reception:

Parts and components of the division:

- Entrance + waiting area.
- Registration.
- Staff room.
- Mini-surgery.
- Test room.
- Medical utilities.
- Mini sterilization room.

Location: • Very close to the exit door of the emergency. • Very close to the radiology. • Close to the pharmacy, laboratories, and central sterilization. • Direct access to the stairs and elevators.

3. Diagnostic services division

Laboratories:

Parts and components of the division:

- Work area.
- Waiting area.
- Sample room.
- Cleaning room.
- Staff offices.

The most important labs in the hospital are:

- Chemical lab.
- Bacteriology lab.
- Histology lab.
- Pathology lab.
- Serology lab.
- Hematology lab.
- Microbiology lab.

Location:

- Very close to the emergency department and external clinics.
- Easily accessible from internal division.
- Easily accessible from maternity and surgery departments.
- Accessibility from central storages.

4. Radiology division:

Parts and components of the division:

- X-ray rooms.
- Control room.
- Waiting area.
- Staff office.
- Utility room.
- Dark room.
- Film view.
- Store.

Location: • Very close to the emergency department and external clinics. • Easily accessible from internal division.

5. Therapeutic services division

Physical therapy division: Parts and components of the division:

- Waiting area.
- Office.
- Hydrotherapy.
- Exercise room.
- WCs.

Location: • Close to the main entrance of the hospital. • Easily accessible from external clinics. • Easily accessible from internal division. • Must be in the ground floor.

5. Internal medical treatment division

Operation theatre:

Parts and components of the division:

- Entrance.
- Storage.
- Preparation room.
- Access area.
- Staff clothes room + WCs.
- Operation theatre.
- Clean-up room.
- Sub sterilizing room.
- Supervision room.
- Staff lockers.
- Very close to the intensive care division and should be touchable both of them.
- Very close to the central sterilization division of the hospital.
- Close to the inpatient wards.
- Can be easily accessible from the emergency division

TATA MEDICAL CENTRE, CALCUTTA

- Architects: CannonDesign, Carambiah & George
- Year: 2019
- Architect of Record: Carambiah & George
- PMC: Tata Consulting Engineers
- Design Consultant: CannonDesign
- Mep And Structural Design: Tata Consulting Engineers
- Landscape Architecture & Design: Singal & Associates
- City: Kolkata
- Country: India

Background

A philanthropic initiative from the House of Tata, the Tata Medical Centre was set up at New Town in the Rajarhat area of Kolkata on **13 acres of land** with a mission to *promote prevention of cancer, to provide facilities for early diagnosis, treatment, rehabilitation and palliation to cancer patients, and to do research in cancer.*

The Phase I of the hospital, which was inaugurated in 2011, is a comprehensive Cancer Care Center with well-trained professional staff and equipped with modern facilities and contemporary medical equipment.

This state-of-the-art Hospital was set up with a strategic alliance and assistance from the Tata Memorial Centre, Mumbai, which is one of the premier national institutions for cancer prevention, treatment, education and research with 75 years of experience. It has been built on carefully landscaped grounds to emphasize the holistic approach in our crusade against cancer.

Diagnosis and treatment are characterized by a multi-disciplinary approach with Disease Management Teams, wherein experts from different streams – viz., surgical oncology, radiation oncology, medical oncology, pathology, radiology & nuclear medicine, psychiatry and medical social work, to name a few – participate in decision-making for treatment protocols, using evidence-based medical strategies and appropriate documented clinical guidelines.

The Hospital, with a capacity of **183 beds**, serves all sections of the society, with 50% of the infrastructure earmarked for free or subsidized treatment for the underprivileged sections from across India as well as neighbouring countries such as Bangladesh, Nepal and Pakistan.

TMC -- Phase II

Phase II of the project, which is currently ongoing consists of a new wing for the Tata Medical Centre.

The project, which commenced in November 2014, consists of a **Ground + 4 storey block of total area of 22,211 Sqm**, with infrastructure and facilities, which will add value to the existing development. It is conceived to be in the same architectural style and with similar finishes as Phase I.

Masters' Role

Masters' role in this project is to work with Ar. Hiranmay Biswas in periodically reviewing the project progress against established budget, quality and time parameters and reporting on these to the Trustees.

Project consultants include –

Project Architect	Canon Design International Private Limited
Interior Architect, Functional Planner & Liaison Architect	Carambiah & George
Structural Consultants	Tata Consulting Engineers Limited
MEP Consultants	Tata Consulting Engineers Limited
Project Management Consultants	Tata Consulting Engineers Limited



**Tata Medical Centre
Cancer Hospital**



Therapeutic	Diagnostic	Paraclinical	Support
<ul style="list-style-type: none"> • Anaesthesia & Critical Care • Clinical Haematology & BMT • Dental • Gastroenterology & Digestive Diseases • General Medicine • Interventional Radiology • Medical Oncology • Paediatric Oncology • Psycho Oncology & Palliative Care • Radiation Oncology • Respiratory Medicine • Surgical Oncology <ul style="list-style-type: none"> - Breast - Gastro Intestinal & HPB - Gynaec Oncology - Head & Neck - Plastic & Reconstructive - Thoracic - Uro Oncology • Therapeutic Nuclear Medicine • Transfusion Medicine & Blood Bank • Visiting Clinical Services 		<ul style="list-style-type: none"> • Biochemistry • Cardiology • Clinical Pathology • Colposcopy • Cystoscopy • Cytogenetics • Cytopathology • Diagnostic Nuclear Medicine • Diagnostic Radiology • Endoscopy • Haematopathology • Histopathology • Microbiology & Serology • Molecular Diagnostics • Pulmonology 	
		Paraclinical	
		<ul style="list-style-type: none"> • Clinical Nutrition • Nursing • Pharmacy 	

- ❑ Diagnosis and treatment are characterised by a multi-disciplinary approach with disease management teams, wherein experts from different streams, viz., Surgical Oncology, Radiation Oncology, Medical Oncology, Pathology, Radiology, and other clinical and support groups participate in decision-making for treatment protocols, using evidence-based medicine strategies and documented clinical guidelines appropriate to our location.
- ❑ The above facilities are complemented by state-of-the-art equipment from the best of manufacturers worldwide, and supported by advanced technologies like *Digital and Molecular Imaging, Molecular Pathology, Robotic Surgery and the latest Radiation treatment delivery systems*.
- ❑ The treatment teams are complemented by support services including Medical Social Workers, Rehabilitation Services (Physiotherapy, Speech Therapy), Stoma Care, Dental and Prosthetics. They are supported by NGOs and other voluntary organizations whose services will include counselling, financial aid and patient navigation. The following graphic gives a snapshot of services provided by TMC.



Project Photographs



Phase I exterior



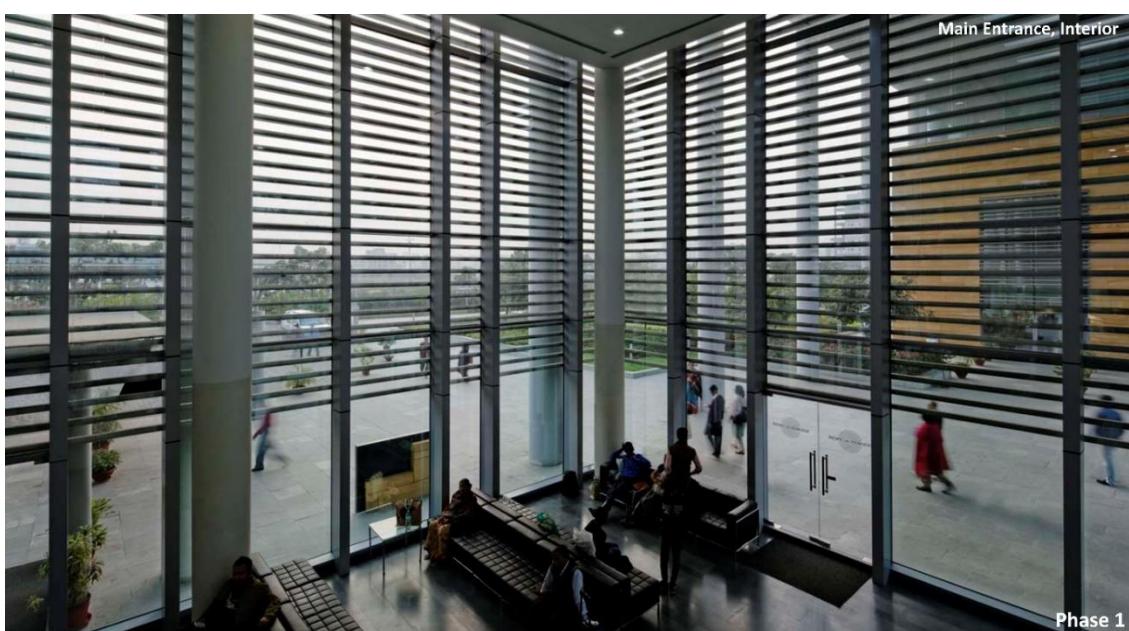
Phase I courtyard



Phase I at night



Phase I main lobby



Conceptualised in the year 2004 as a philanthropic initiative for the Eastern and North-Eastern parts of India and the neighbouring countries, the Tata Medical Center (TMC) started operations in Kolkata on **May 16, 2011**.

The hospital is governed by a charitable trust – **Tata Medical Center Trust**, established in the year 2005. The Trust has been mandated with the task of governing operations of the Tata Medical Center. Comprising of a panel of distinguished people, the Trust also has a mandate to encourage study, research and training in the field of Oncology.

The hospital was designed by **Cannon Design**, a renowned architectural firm from North America.

It is located on **13 acres of land** at New Town in Kolkata, West Bengal.

The hospital is an integrated Oncology facility with well-trained professional staff and equipped with modern facilities and contemporary medical equipment.

The Hospital, with a capacity of **437 beds**, serves all sections of the society, with 75% of the infrastructure earmarked for subsidized treatment for the underprivileged sections. It provides a wide spectrum of services from diagnosis and therapy to rehabilitation and palliative support. The Institution's objective is to excel in service, education and research.

The hospital campus is one of the **three institutions** planned for management of cancer, the other two being **Premashraya** (an accommodation facility for outstation patients & their relatives) and the **Tata Translational Cancer Research Center (TTCRC)**. All three facilities lie within a radius of **3 km**.

Diagnosis and treatment are characterised by a multi-disciplinary approach with disease management teams, wherein experts from different streams, viz., **Surgical Oncology, Radiation Oncology, Medical Oncology, Pathology, Radiology**, and other clinical and support groups participate in decision-making for treatment protocols, using evidence-based medicine strategies and documented clinical guidelines appropriate to our location.

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Therapeutic	Diagnostic	Paraclinical	Support
<ul style="list-style-type: none"> • Anaesthesia & Critical Care • Clinical Haematology & BMT • Dental • Gastroenterology & Digestive Diseases • General Medicine • Interventional Radiology • Medical Oncology • Paediatric Oncology • Psycho Oncology & Palliative Care • Radiation Oncology • Respiratory Medicine • Surgical Oncology <ul style="list-style-type: none"> - Breast - Gastro Intestinal & HPB - Gynaec Oncology - Head & Neck - Plastic & Reconstructive - Thoracic - Uro Oncology • Therapeutic Nuclear Medicine • Transfusion Medicine & Blood Bank • Visiting Clinical Services 	<ul style="list-style-type: none"> • Biochemistry • Cardiology • Clinical Pathology • Colposcopy • Cystoscopy • Cytogenetics • Cytopathology • Diagnostic Nuclear Medicine • Diagnostic Radiology • Endoscopy • Haematopathology • Histopathology • Microbiology & Serology • Molecular Diagnostics • Pulmonology 	<ul style="list-style-type: none"> • Physiotherapy & Rehabilitation • Speech & Swallowing Therapy 	<ul style="list-style-type: none"> • Biomedical Engineering • CSSD • Customer Care • Finance & Accounts • Food & Beverages • Housekeeping • Human Resources • Information Technology • Linen & Laundry • Maintenance Engineering • Materials Management • Medical Records • Medical Social Work • Quality Management • Security & Safety
Paraclinical			
<ul style="list-style-type: none"> • Clinical Nutrition • Nursing • Pharmacy 			

Tata Medical Centre, Kolkata is a philanthropic state of the art Cancer care centre committed to deliver Comprehensive Cancer care with cutting-edge technology and world-renowned Healthcare Professionals.

TTCRC is being built on a **2-acre** plot close to the Tata Medical Centre in Rajarhat in Kolkata. It will be a green interactive state of the art institution, incorporating in its design the heritage of and spirit of Kolkata.

In the interim, dedicated laboratory facilities will be available by the end of 2013 on the hospital site.

The Welcome-DBT India Alliance and the Tata Trust have provided initial funding for TTCRC.

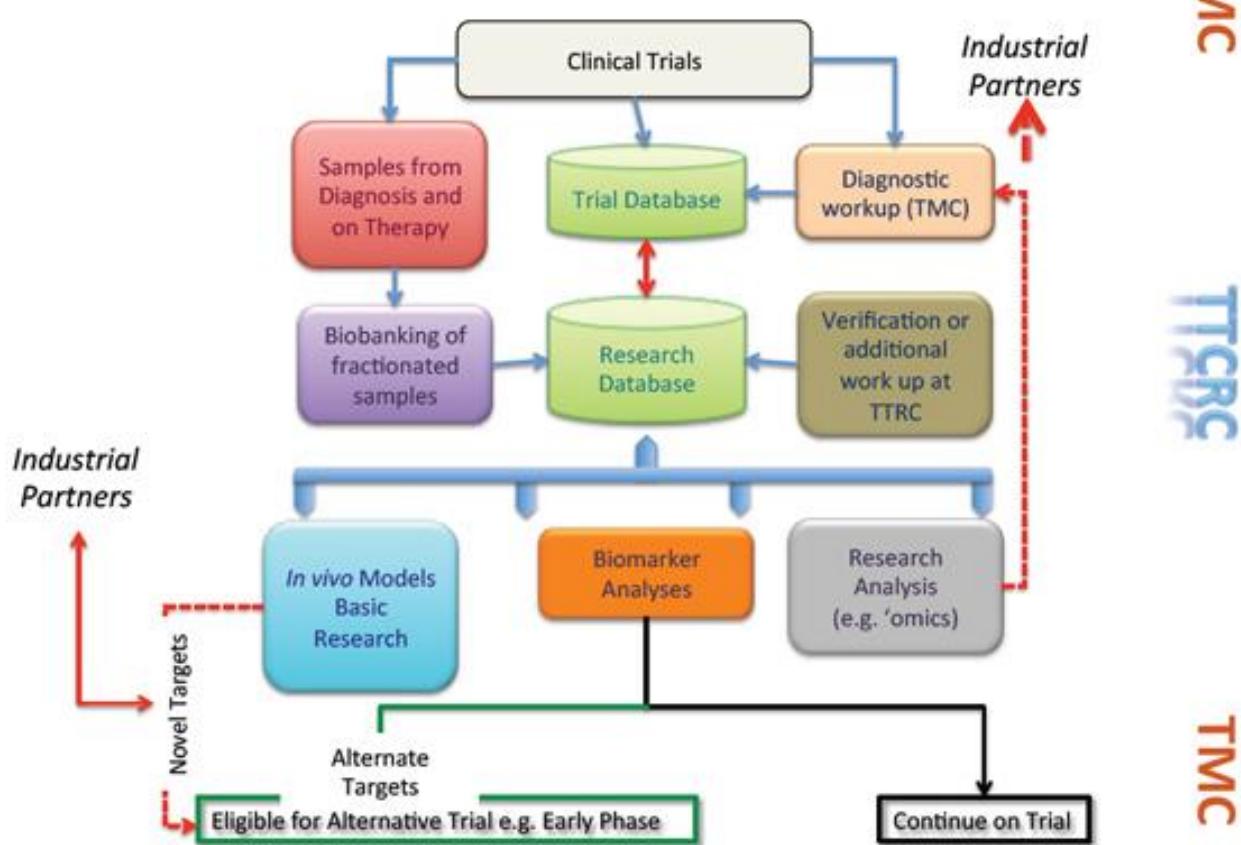
Patient care:

1. Diagnostic services –
 1. Laboratory services
 2. Imaging services
2. Therapeutic Services
3. Advanced technologies
4. Inpatient services
5. Outpatient services
6. Rehabilitation
7. Preventive oncology
8. Telemedicine
9. Premashraya Accommodation Facility
11. International Patient Services
12. Patient control –
 1. CSSD
 2. Virology Services



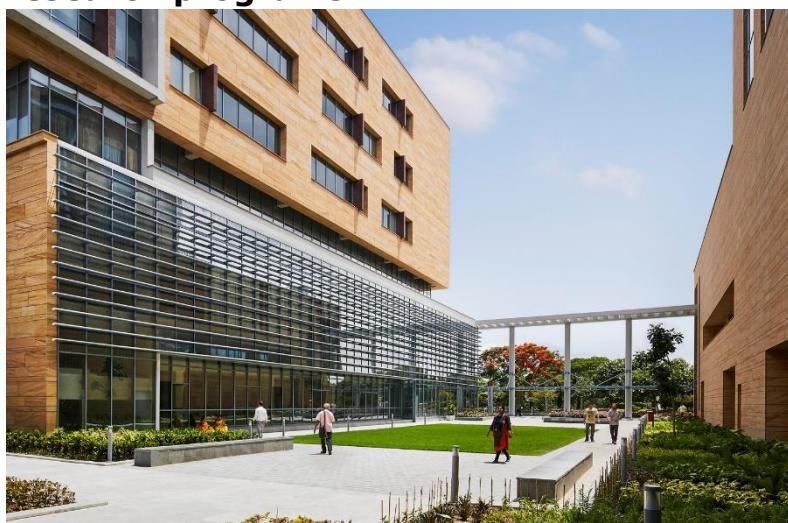
Cancer cases and deaths in India have doubled from 1900 to 2016, and one of the main reasons for that staggering statistic is the lack of access to cancer treatment. The Tata Medical Center was created to change this reality, acting as a beacon of hope for patients in India and across Southeast Asia. Already, clinical research done by the centre's Senior Pediatric Consultant and Director of Translational Cancer Research has increased childhood cancer survival rates in Kolkata from 65 percent in 2014 to 80 percent in 2019.

Paradigmatic Structure – TMC And TTRC



Almost immediately after the center opened phase one in 2011, the demand for its services far The second phase, which opened in early 2019, added 240 beds as well as an education block for visiting faculty and students.

- Both phases were designed to improve the patient experience.
- The natural progression from public to private spaces through the use of courtyards and outdoor “**hallways**” gives the hospital a campus feel, uplifting the spirits of paediatric and adult patients as they cope with the physical and psychological stresses of a cancer diagnosis.
- The outdoor spaces and courtyards are frequented by patients, visitors, doctors, and staff looking for a moment of respite.
- Because many family members come to assist with care, **waiting rooms were made larger** to accommodate these groups along with family spaces in patient areas for those staying for long periods of time
- Outpatient and therapeutic programs are conveniently located on **levels 1, 2, and 3** of the clinical building, with patient beds integrated yet grouped separately on levels 2 through 5.
- Adjacent structures accommodate **administrative, academic, and research programs.**

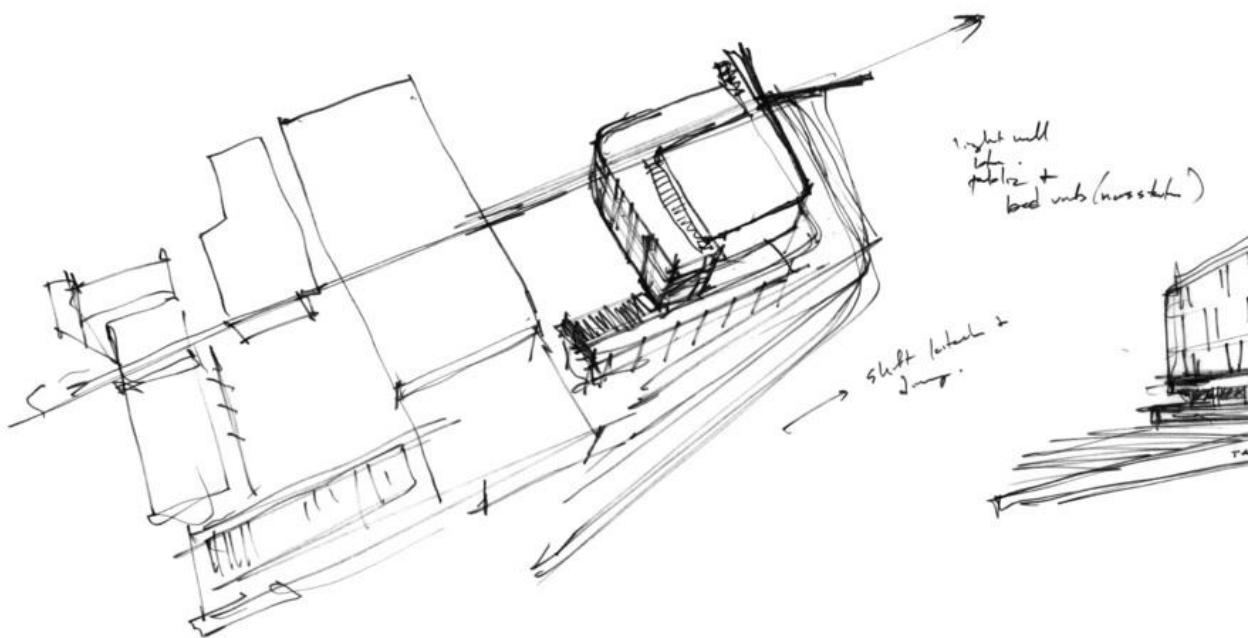


- An “**arrival gate**” bridging the academic and clinical buildings engenders a powerful sense of inception and hope in all who pass through.

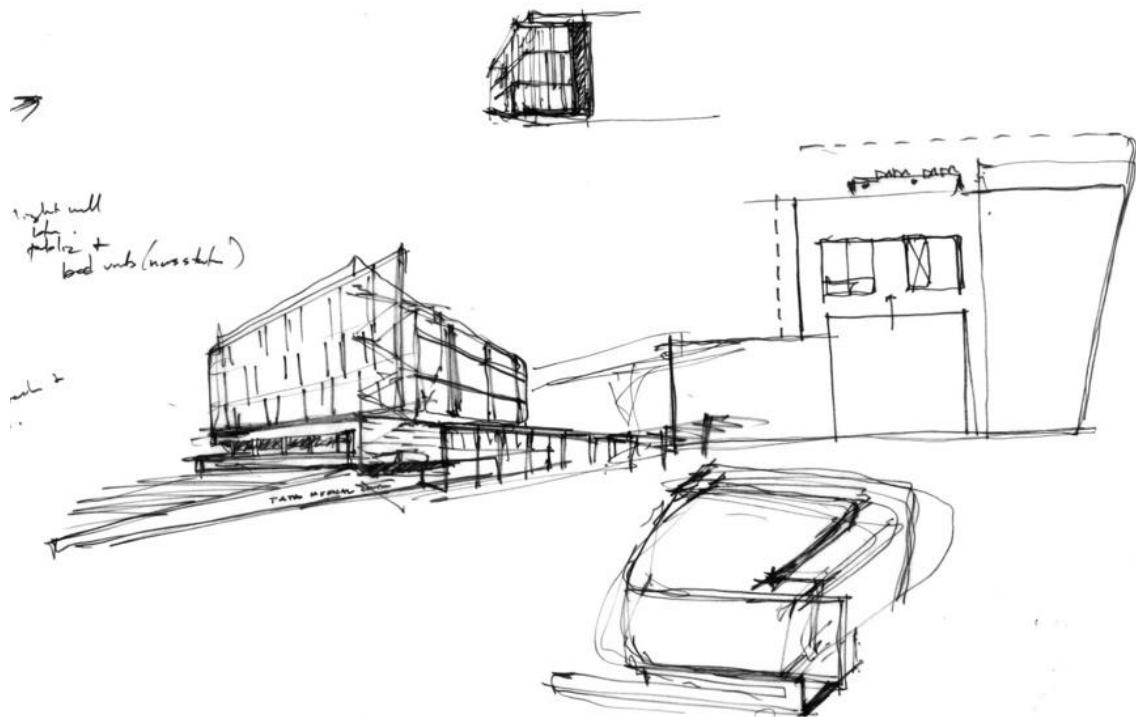
- A **serene garden-setting** glass arrival hall,

featuring an **information center and access to counseling areas and outpatient clinics**, provides further inspiration and reassurance for all as they embark upon their journeys to wellness.

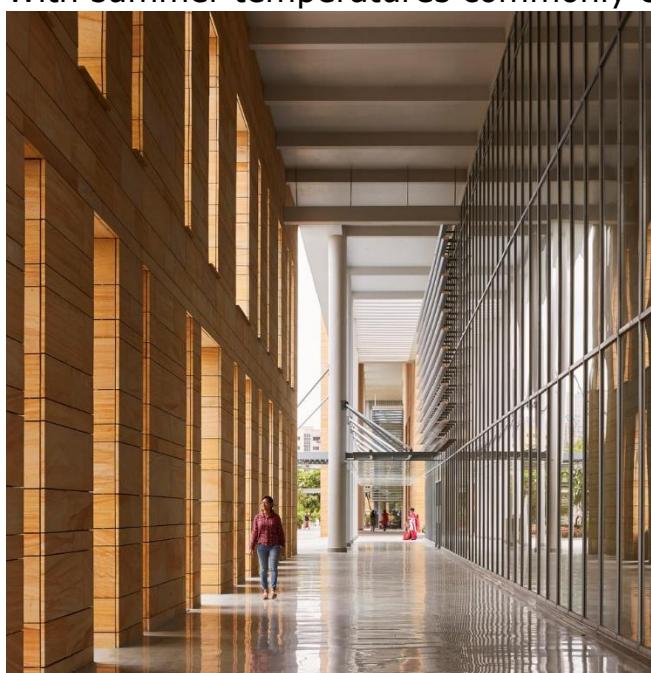
- ❑ The new campus includes a **low-dependency unit and a residential structure** for physicians and nurses.
- ❑ Future phases of development envisioned in the master plan total over **800,000 sf** and dovetail with other new construction – **a new school, residential development, and high-tech facilities** – planned for neighboring parcels.
- ❑ All future development is planned in a way that will preserve the original phase-one hospital and central courtyard, which will endure as a symbol of the Tata Trust's benevolent legacy.



MATERIALS USED



- With summer temperatures commonly exceeding 40 degrees Celsius, over 1.5 m of monsoon rains falling between June and September of each year, and seasonal dust storms, the climate demanded durable, authentic materials as well as traditional Indian architectural solutions.
- A natural stone and concrete exterior was chosen not only to withstand the extremes of wetness, dryness, and heat but also to weather beautifully over time – and to look as if it has proudly stood there for centuries.





❑ A double-walled system called a jali screen protects the building from the elements on the south and west.

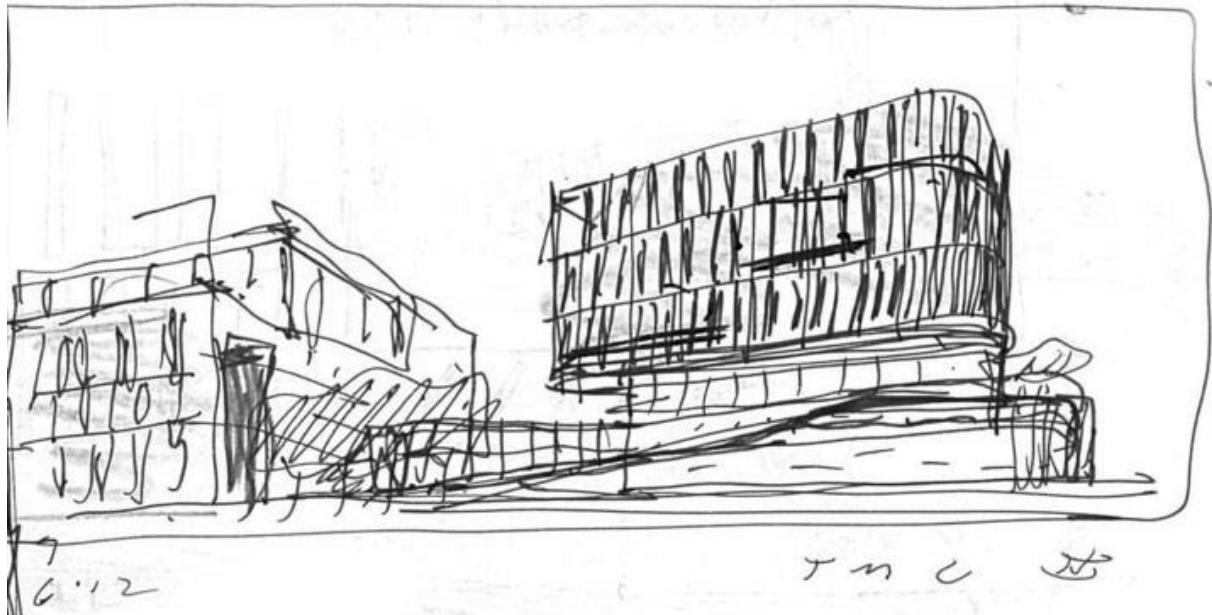
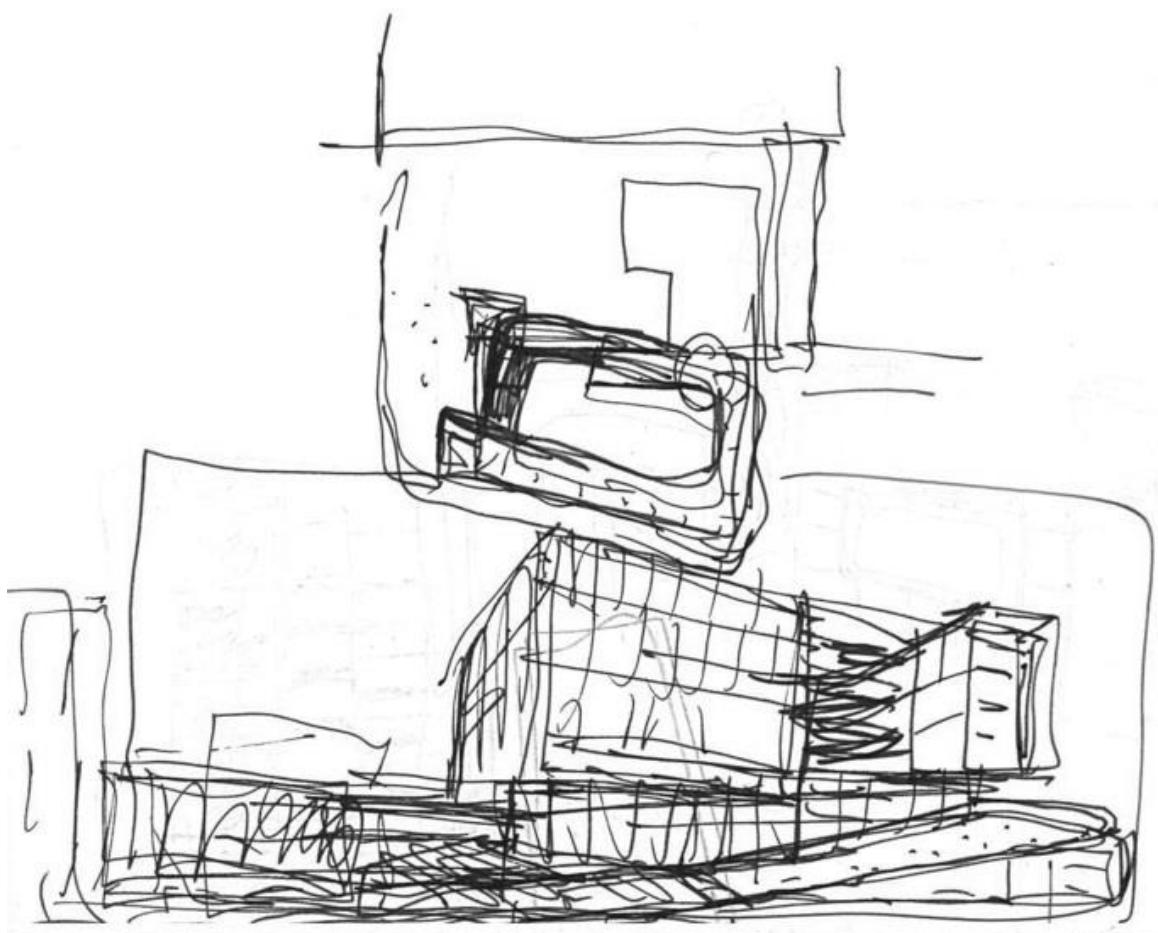
❑ Windows of clear glass appear primarily on the complex's north face and are deeply recessed and shielded by broad overhangs to minimize solar gain and potential water penetration.



AIR CONDITIONING

- The building is carefully oriented to capture the **prevailing winds**, which change direction in summer and winter. Openings are strategically placed in the building's mass to allow continual movement of air through the structure.
- Although the complex is fully air-conditioned, **mechanical provisions** have been made for the use of operable windows in certain waiting areas to enhance the comfort of patients and visitors who prefer natural ventilation. (Sterile areas are, of course, designed in accordance with state-of-the-art medical air quality standards.)
- **Rain is harvested** and stored in underground tanks for year-round irrigation of the gardens that are integral to the patient experience and to the creation of the Tata Medical Centre's healing environment.









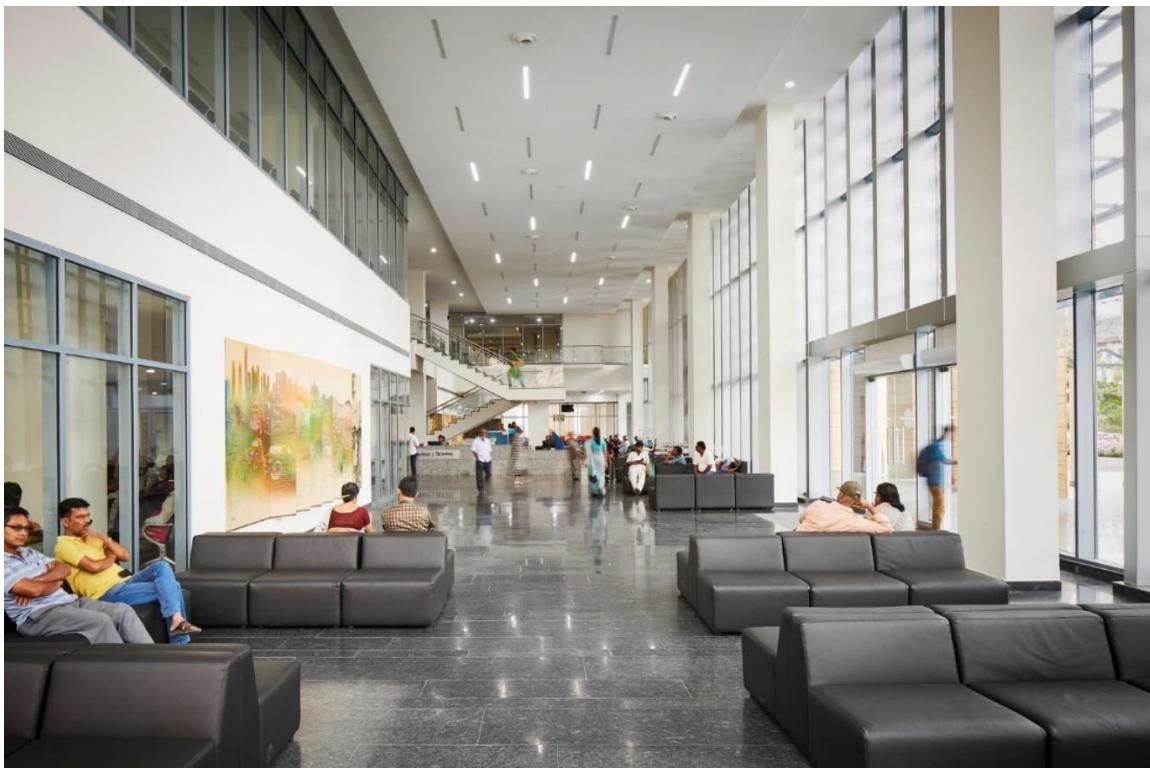
Almost immediately after the center opened phase one in 2011, the demand for its services far outweighed the capacity of its 150-bed hospital and outpatient facility. The director of the medical center, Dr. Mammen Chandy, stated the center had to turn away 30 percent of patients because of lack of space and that some patients waited two months for surgery. The second phase, which opened in early 2019, added 240 beds as well as an education block for visiting faculty and students, making it a prominent academic medical research center.



Both phases were designed to improve the patient experience, bearing in mind people would be traveling from all over the region to receive potentially life-saving treatment. The natural progression from public to private spaces through the use of courtyards and outdoor "hallways" gives the hospital a campus feel, uplifting the spirits of paediatric and adult patients as they cope with the physical and psychological stresses of a cancer diagnosis.

The outdoor spaces and courtyards are frequented by patients, visitors, doctors, and staff looking for a moment of respite. Because many family members come to assist with care, waiting rooms were made larger to accommodate these groups along with family spaces in patient areas for those staying for long periods of time.





Tata's commitment to providing care for all patients—more than 50 percent of the hospital's inpatient beds provide free treatment—makes it a critical changemaker in providing early cancer detection and access to treatment in this rapidly changing part of the world.

With a mission and mandate to provide quality healthcare, education, and research to the people of India, the new Tata Medical Centre in Kolkata (Calcutta) will serve the northeastern regions of India as well as the neighboring countries of Nepal, Bhutan, and Bangladesh. Occupying a 13-acre site at Rajarhat, the 300,000 sf center will be one of India's first world-class comprehensive cancer hospitals and research centers. The new facility reflects the dignity, security, care, and stability of the Tata Trust and of Tata Memorial Centre in Mumbai, an institution that for decades has been a leader in providing quality healthcare, education, and research. With gracious, inviting grounds and entrances, the Tata Medical Centre will project a civic presence while housing the most advanced technologies in cancer care today, offering hope and strength to patients and their families.

To foster a sense of community and place, an exceptional level of care has been devoted to the project's siting and organization. Rather than simply housing all programmatic components in one large boxlike building, a campus setting was created by accommodating care delivery, research, academic, and support functions in separate yet linked structures. These buildings surround a central courtyard that forms the heart of the campus, with gathering spaces and gardens that foster communication and interaction among patients, family, clinicians, researchers, faculty, and students. The result is a vibrant environment for scientific discovery and multidisciplinary patient care.

Outpatient and therapeutic programs are conveniently located on levels 1, 2, and 3 of the clinical building, with patient beds integrated yet grouped separately on levels 2 through 5. Adjacent structures accommodate administrative, academic, and research programs. An "arrival gate" bridging the academic and clinical buildings engenders a powerful sense of inception and hope in all who pass through. A serene garden-setting glass arrival hall, featuring an information center and access to counseling areas and outpatient clinics, provides further inspiration and reassurance for all as they embark upon their journeys to wellness.

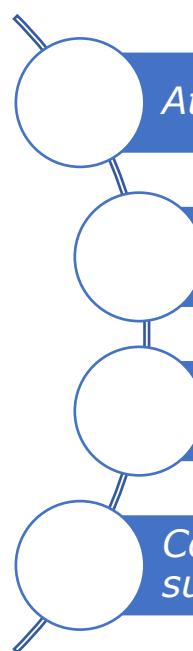
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hospital and central courtyard, which will endure as a symbol of the Tata Trust's benevolent legacy.

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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

SITE LOCATION

LOCATION: JALGAON, MAHARASHTRA

DISTANCE FROM JALGAON CITY: 3 KM

DISTANCE FROM JALGAON RAILWAY STATION: 5.3 KM

DISTANCE FROM JALGAON BUS STAND: 2.3 KM

DISTANCE FROM JALGAON AIRPORT: 6.6 KM



WHY JALGAON?

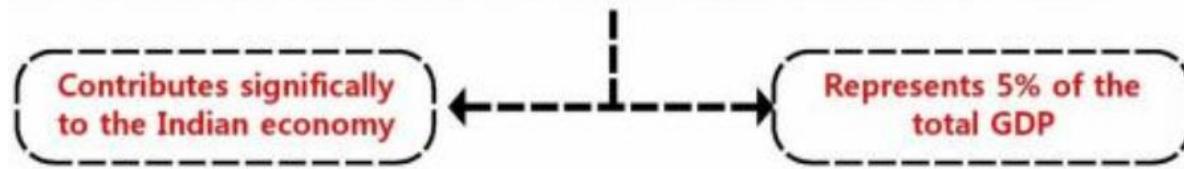
Jalgaon is a non-metropolitan city. People living in Jalgaon and the remote areas have to travel to the smart cities such as Aurangabad and Nashik or Pune for the treatment of cancer.

So, in order to provide a better medical facility for the people living in Jalgaon and other remote places, establishing a cancer hospital would be beneficial.

This would even help in the development of the city, while maintaining the feasibility of planning and affordability of the patients.



DEMAND FOR FINANCIAL SERVICES IN INDIA



DRIVERS OF THE HEALTH-CARE SECTOR IN GUJARAT

EMERGING MEDICAL TOURISM SECTOR OF GUJARAT

HOLISTIC WELL-BEING

Comprehensive approach towards treating patients by promoting Naturopathy, Yoga, Reiki , etc.

MOVING UP THE VALUE-CHAIN

Major corporate hospital groups are into qualifying and diversifying tertiary care services

HEALTH INSURANCE

Integrated insurance cover for patients servicing pre-health and post-health care too

IMPELLING TECHNOLOGY

Gujarat boasts a modern medical technology and well-equipped health facilities

DEMAND FOR CANCER HOSPITAL IN JALGAON

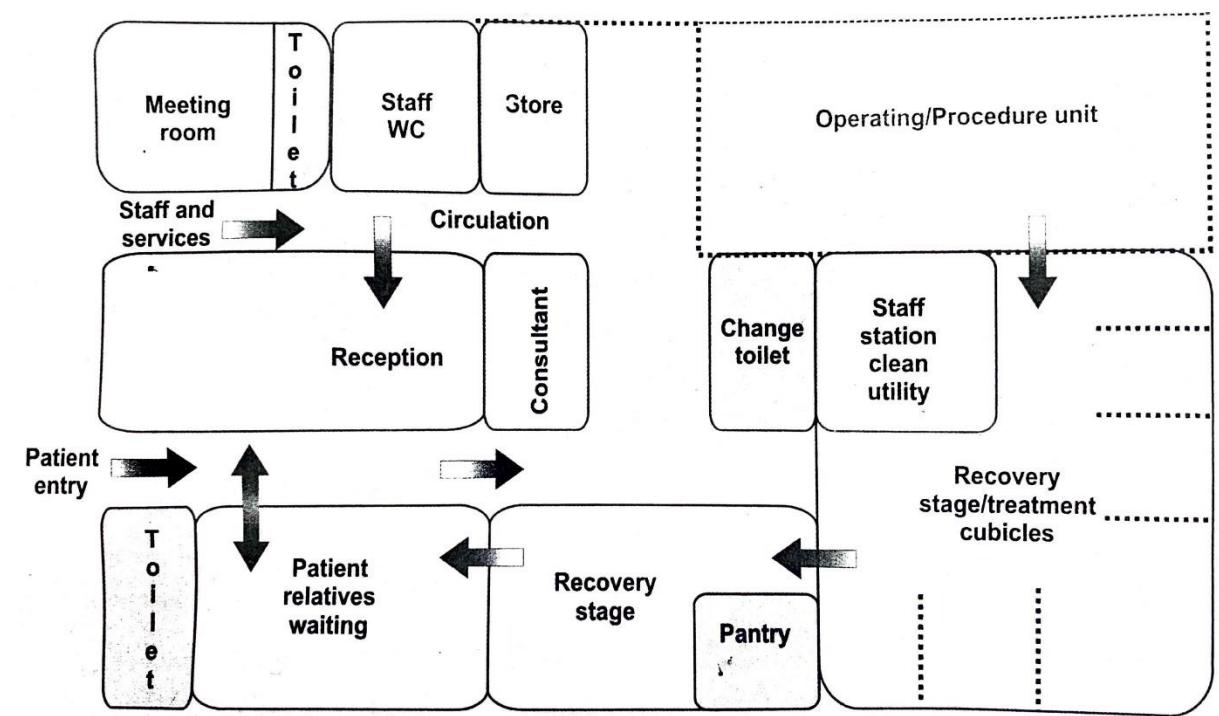
The share of secondary and tertiary care account for 17% and 4% respectively.

Market for tertiary care expected to grow at a faster rate due to →

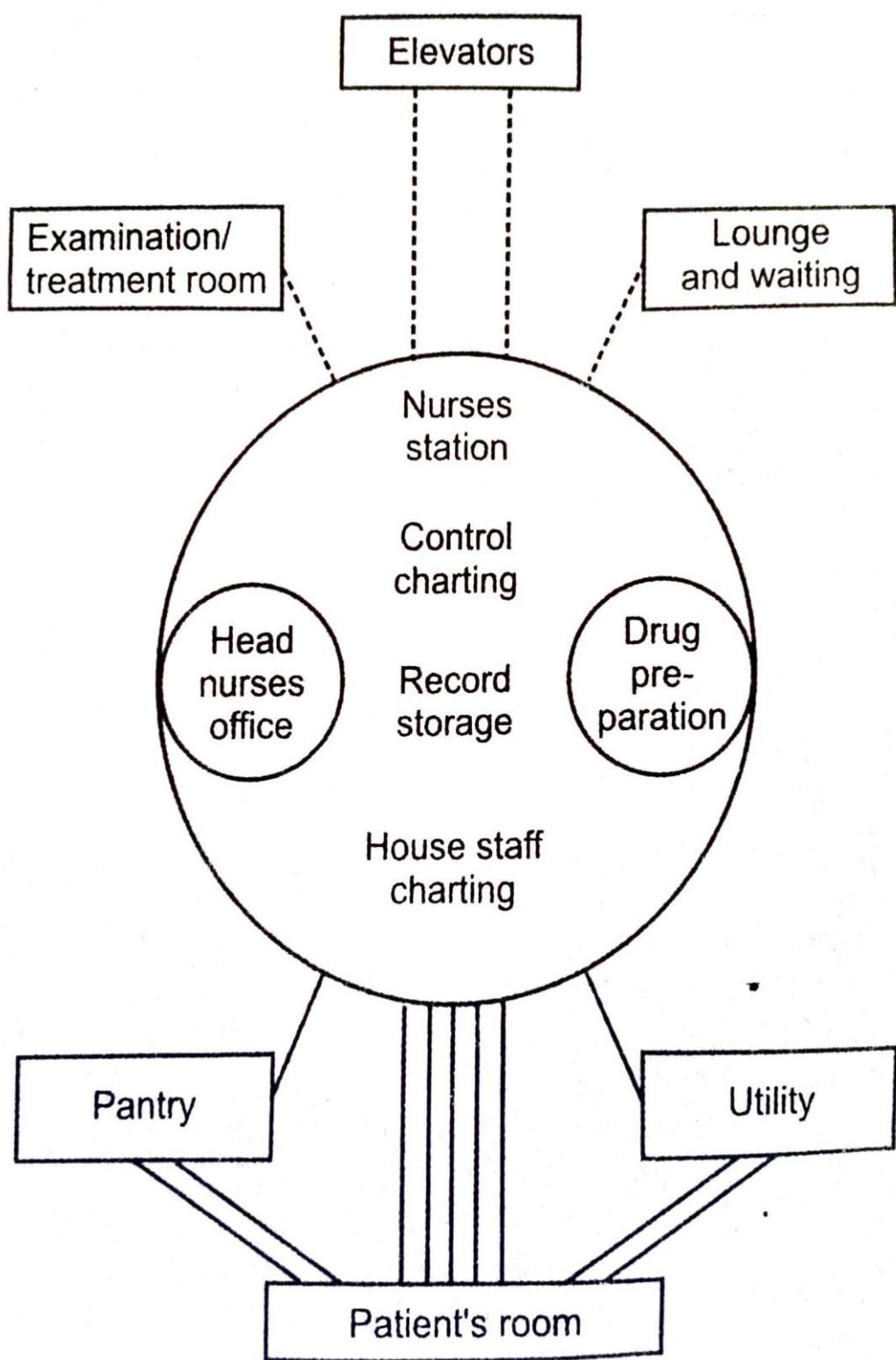
rise in income levels

increase in adoption of health insurance

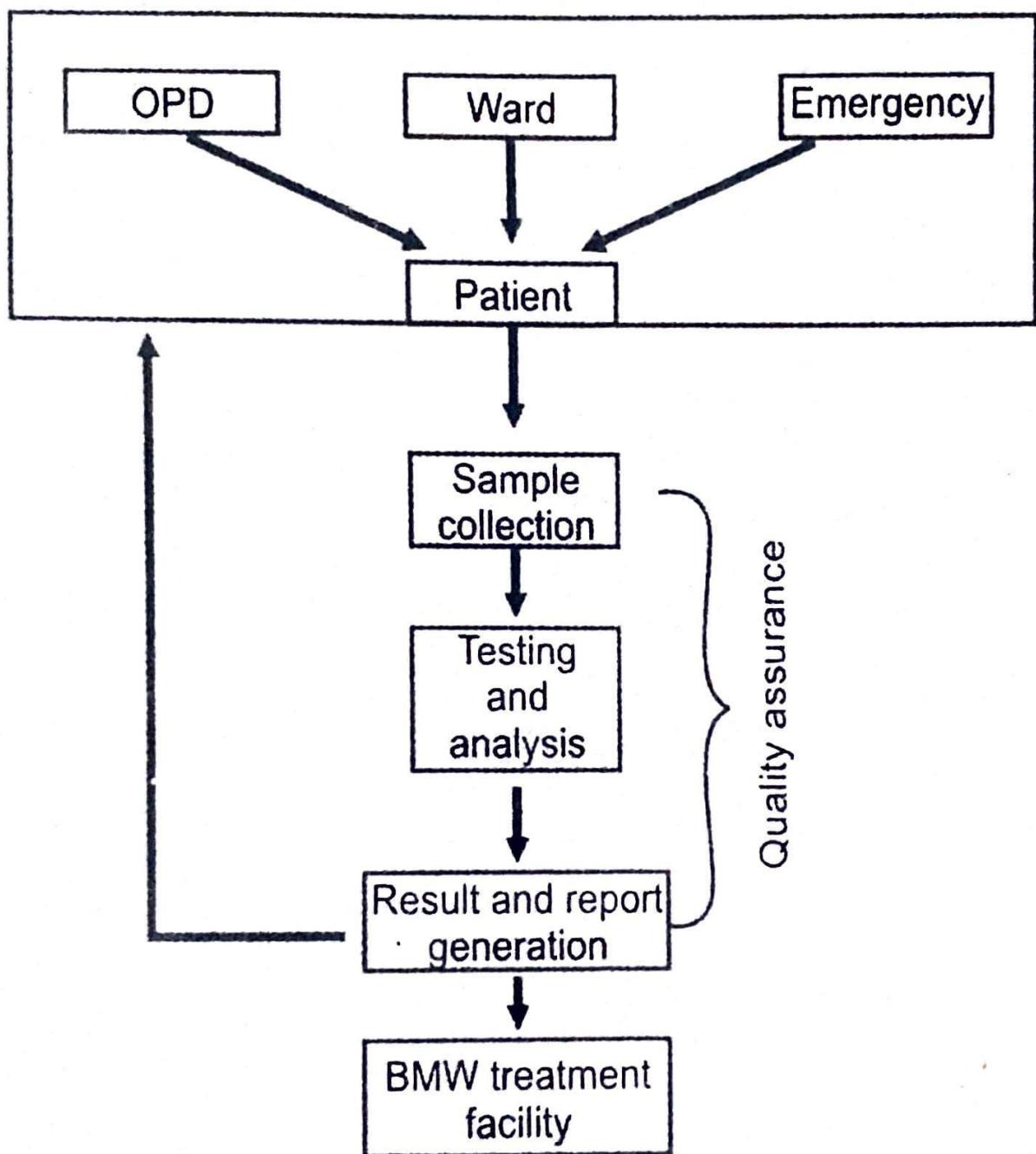
rise in complex in-patient ailments (cardiac, cancer, etc.)



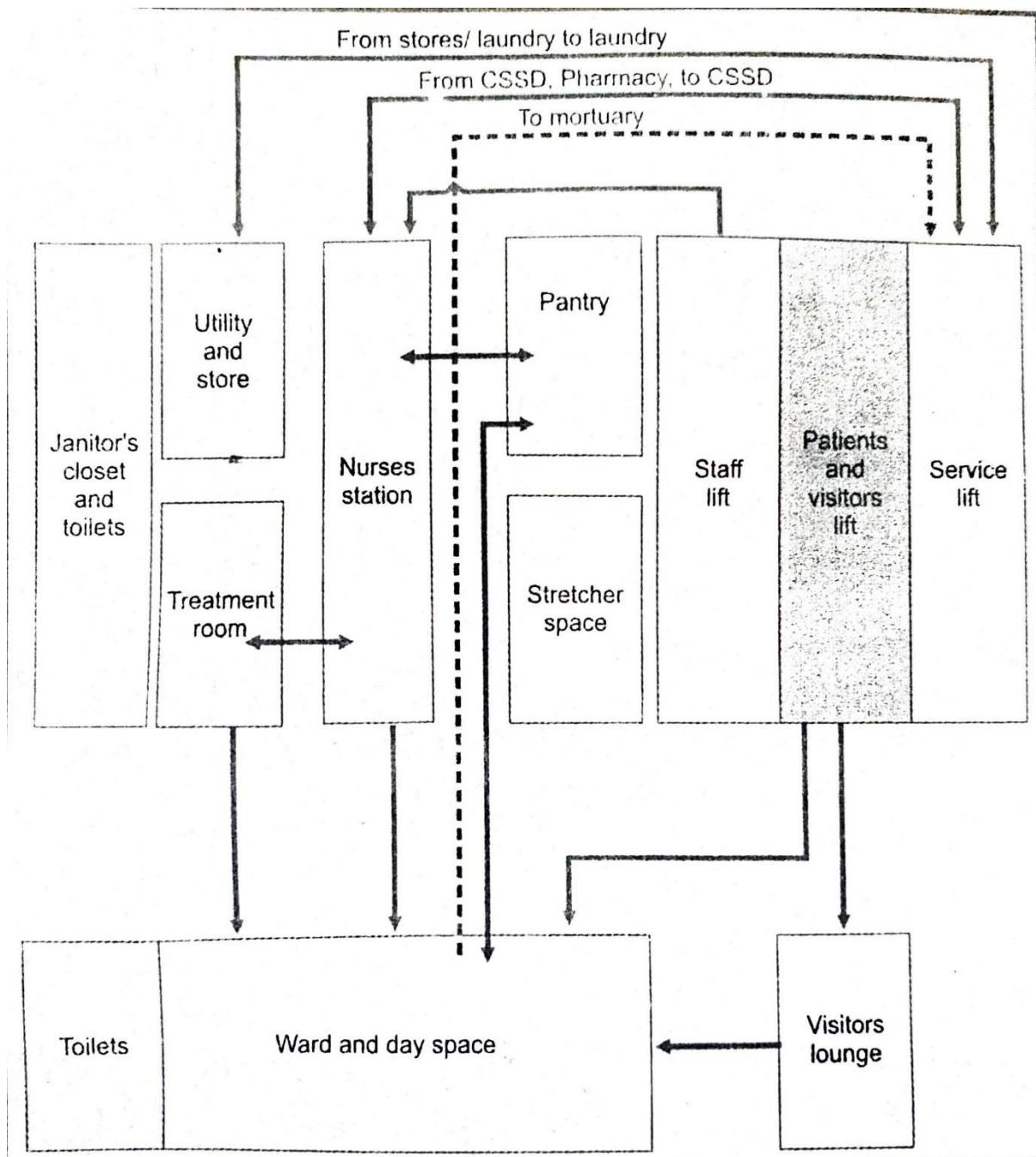
DAY CARE FUNCTIONAL UNIT



NURSING UNIT RELATIONSHIPS



OPD & EMERGENCY FUNCTIONAL UNIT



FLOW CHART IN NURSING UNIT

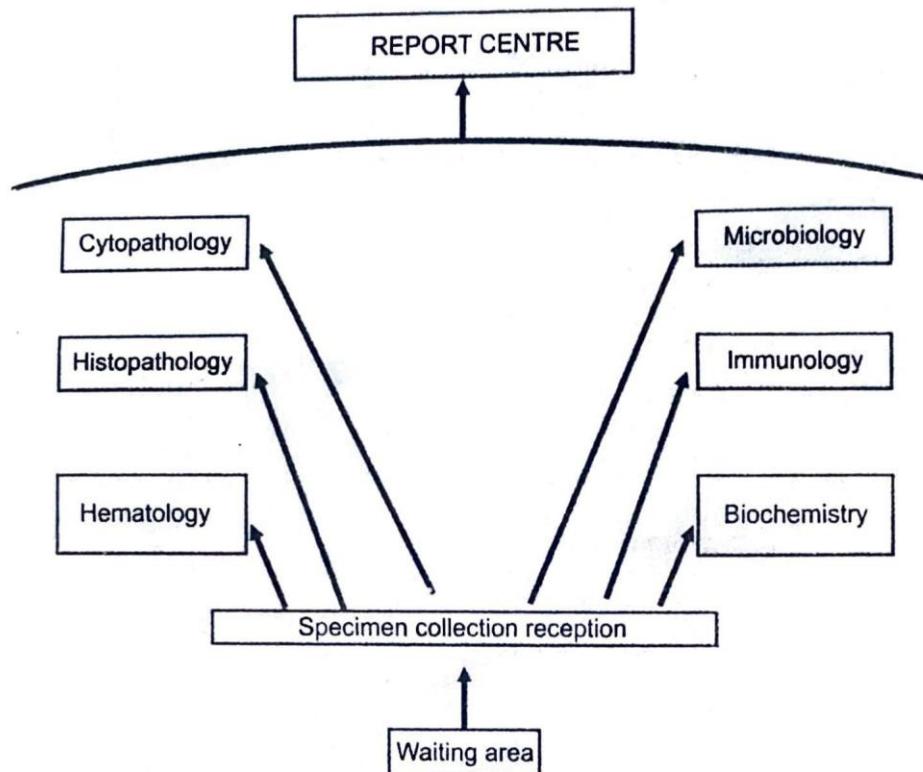


Fig. 11.5: Flow diagram

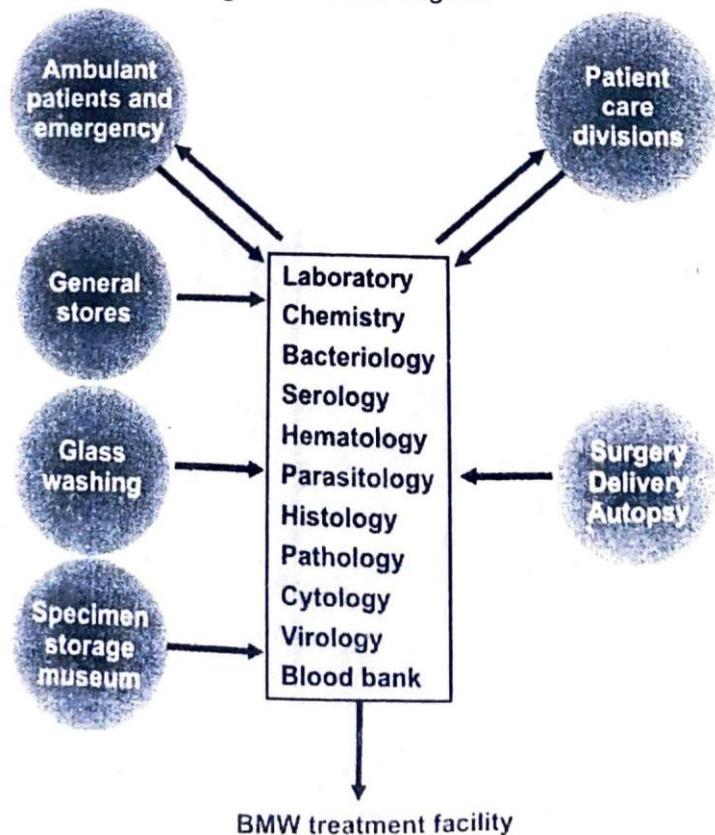
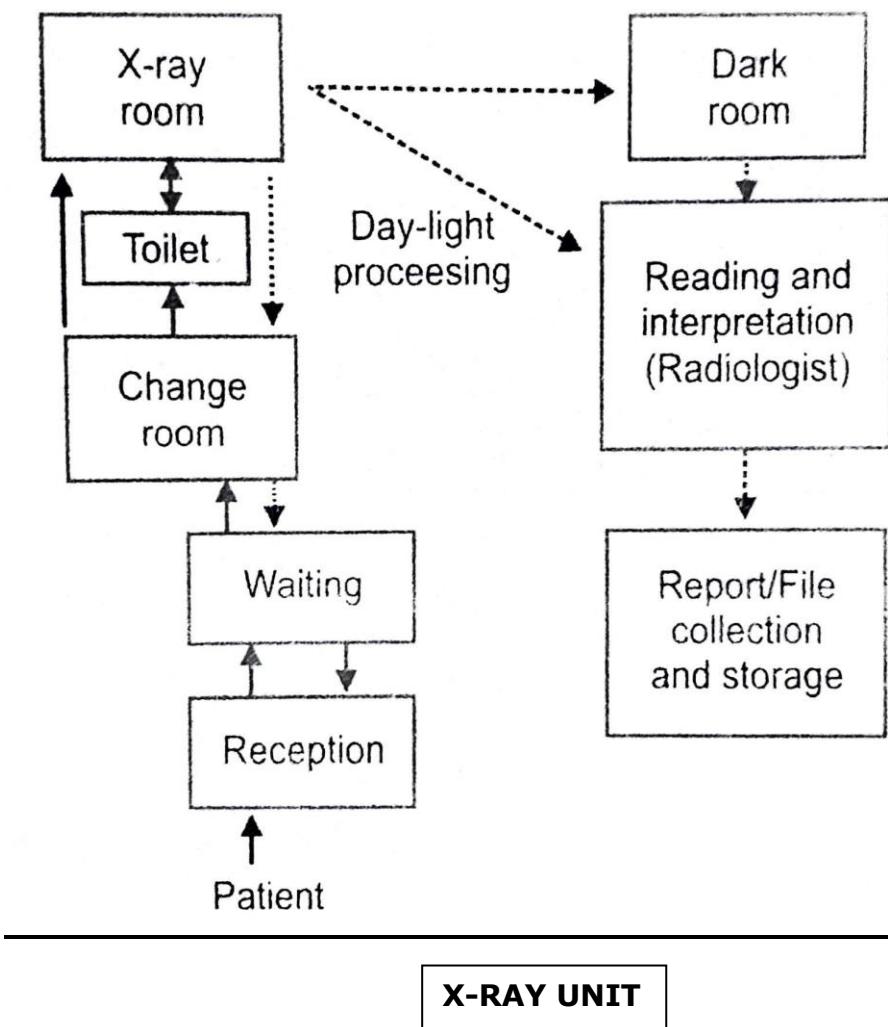
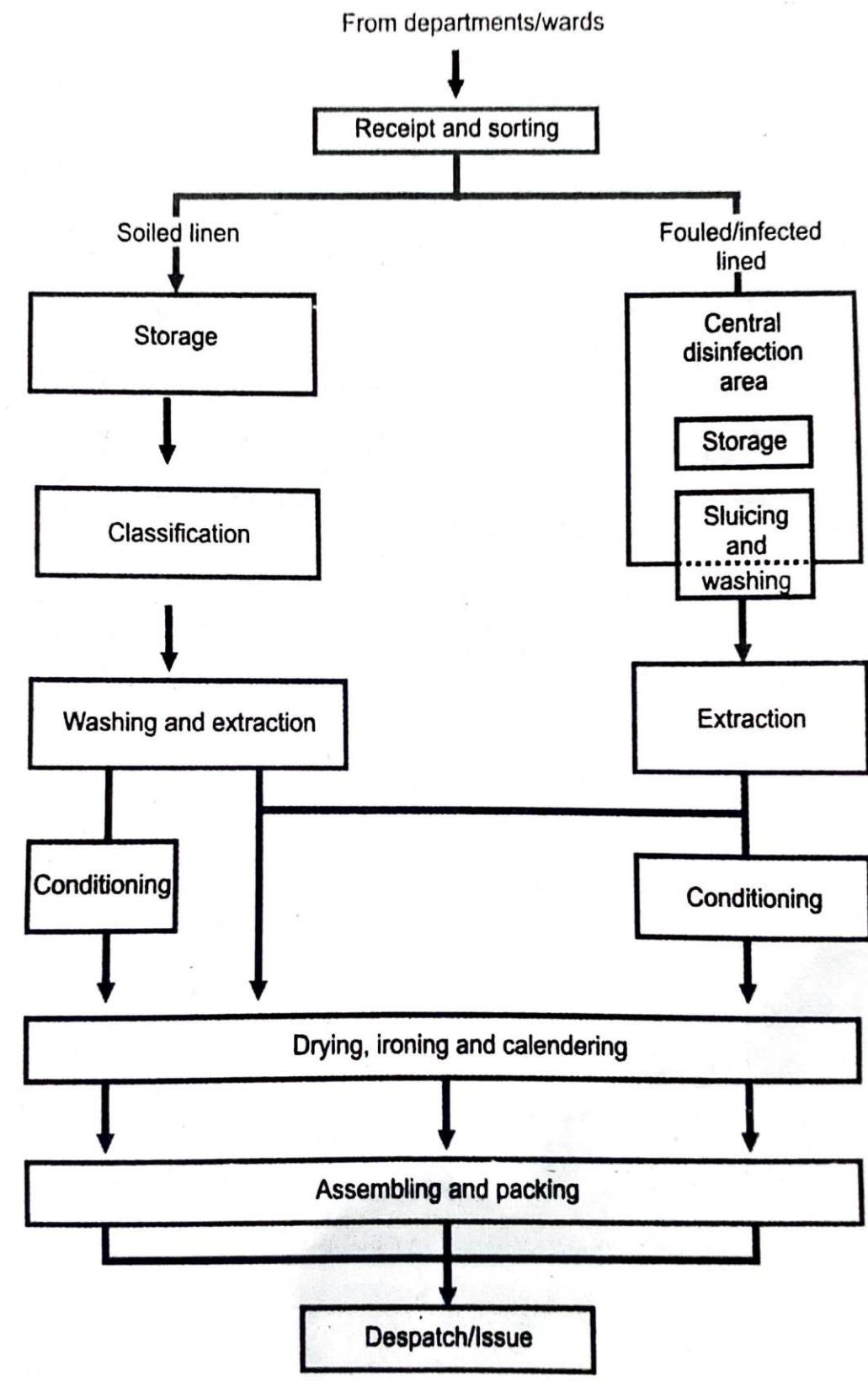


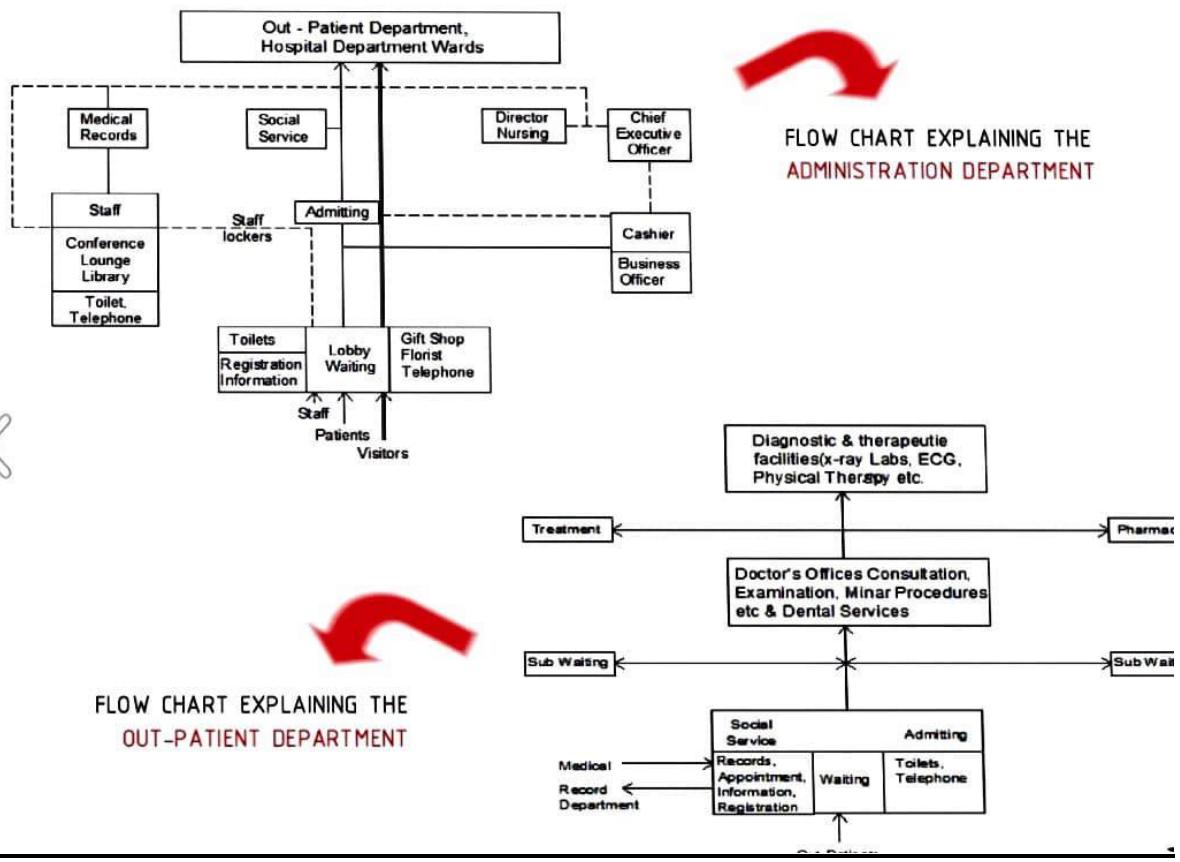
Fig. 11.6: Functional relationships



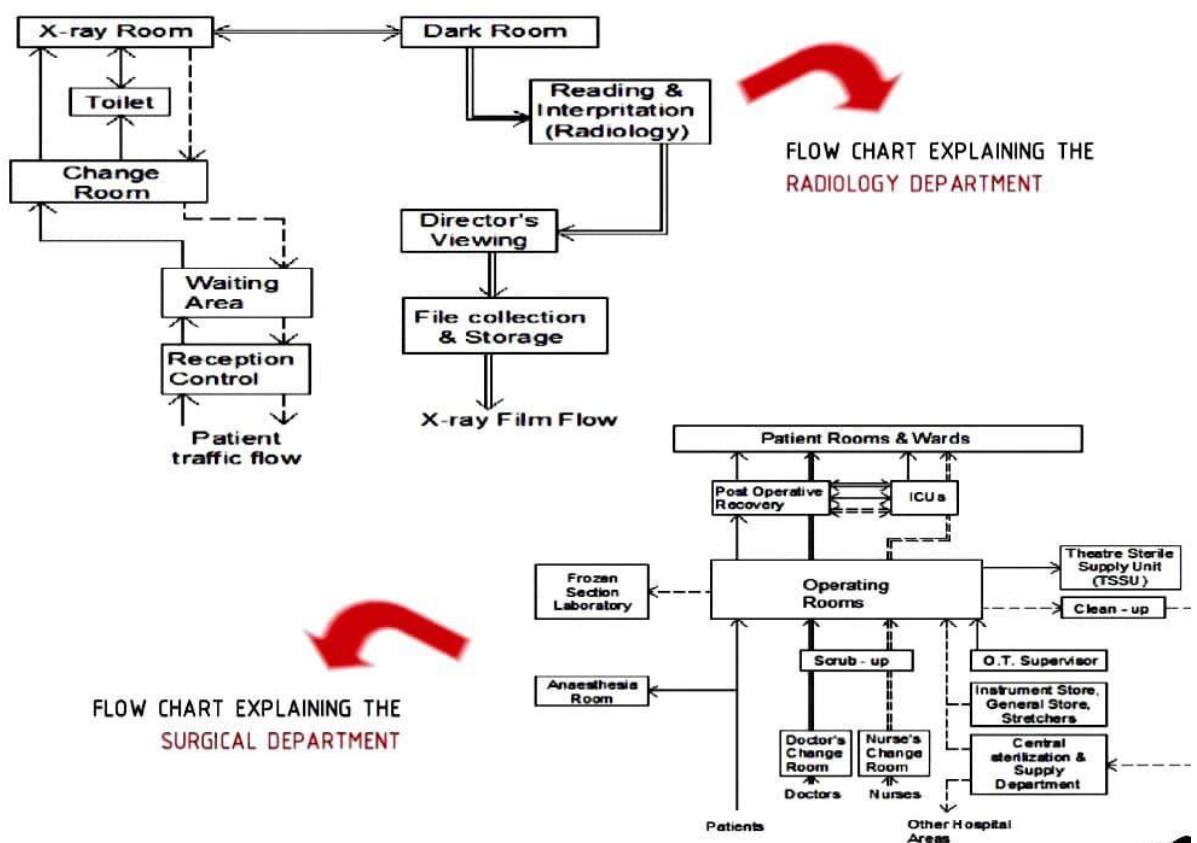
X-RAY UNIT



LAUNDRY FUNCTIONAL UNIT



FLOW CHART EXPLAINING THE OUT-PATIENT DEPARTMENT



FLOW CHART EXPLAINING THE SURGICAL DEPARTMENT

AMENITIES

1. Water Supply
2. Transportation: One can easily get public transport because of colleges around/.
3. Electricity: There are electric poles running through the perimeter of the site. Electricity in the area is provided by Mahavitaran, Jalgaon.

TYPOGRAPHY

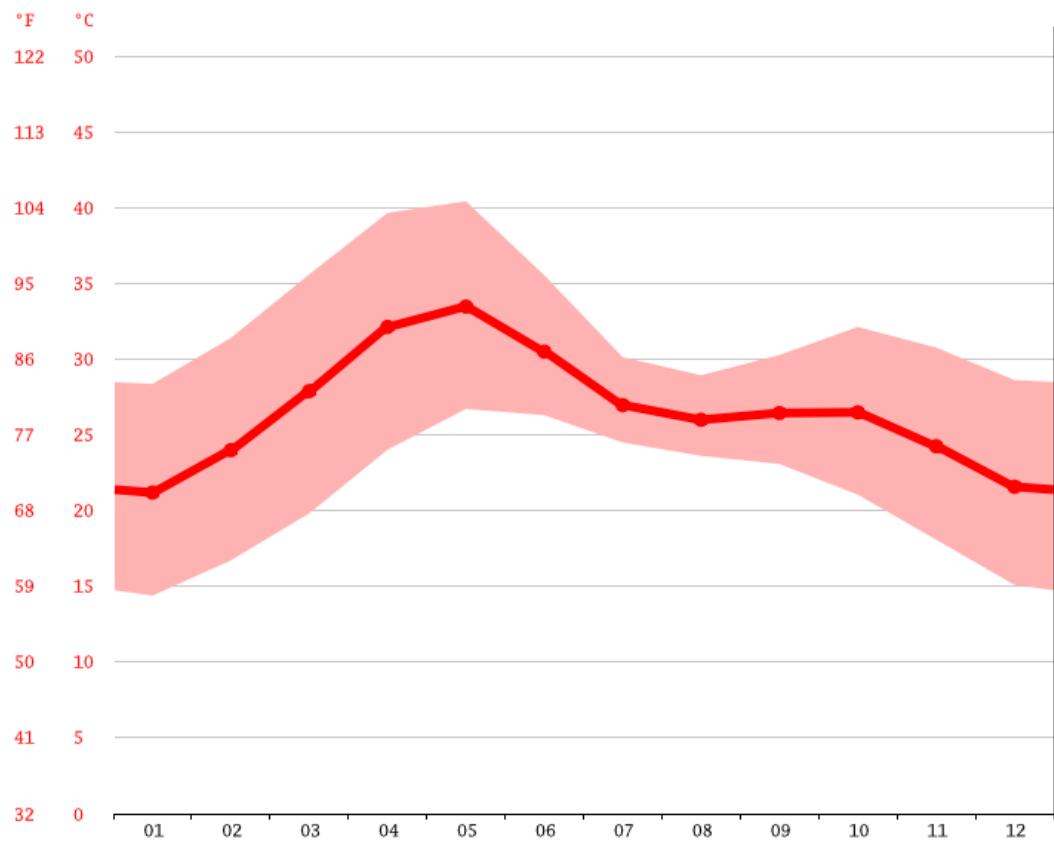
1. The topography of the site is plain with no undulations.
2. The site boundary is surrounded with plenty of trees, with some trees within the site too

VEGETATION

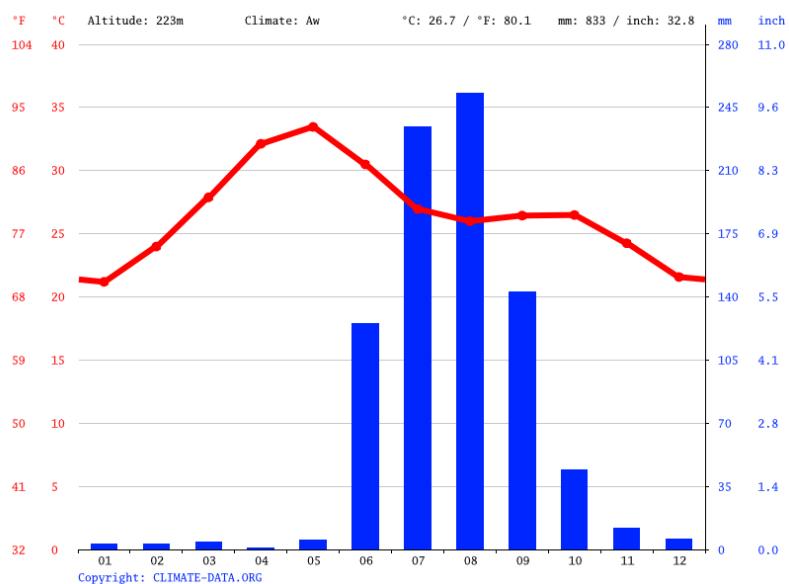
1. The site is surrounded by various kinds of trees. Most of the trees should remain at its place as they are good for environment and they aid moisture.
2. The trees also provide a healing environment for the patients.

CLIMATE

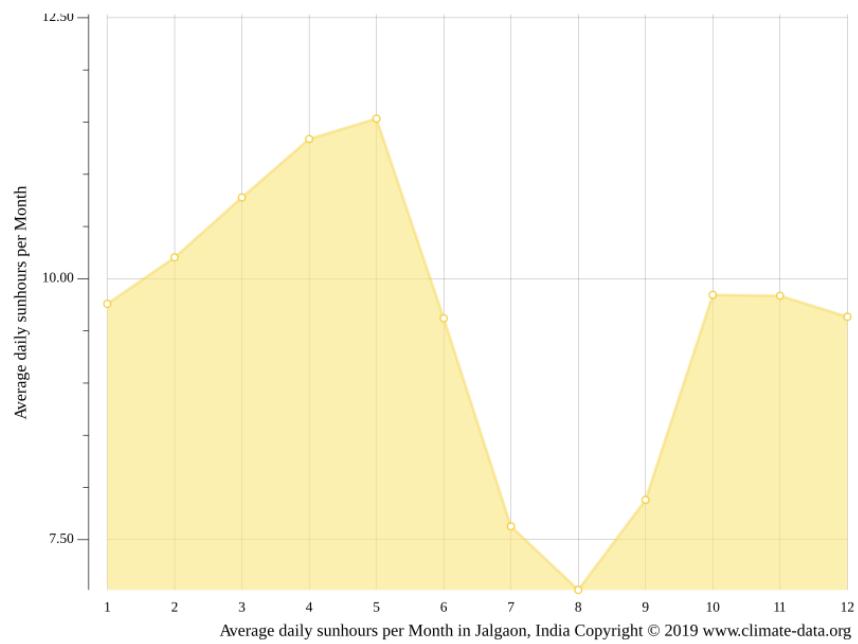
- ❑ Jalgaon is 223m above sea level. Jalgaon's climate is classified as tropical.
- ❑ The summers here have a good deal of rainfall, while the winters have very little.
- ❑ The climate here is classified as Aw by the Köppen-Geiger system.
- ❑ The average annual temperature is 26.7 °C | 80.1 °F in Jalgaon.
- ❑ The annual rainfall is 833 mm | 32.8 inch.



Jalgaon Average Temperature



Jalgaon Climatic graph/weather month wise



Jalgaon Average Sunshine

SWOT ANALYSIS

Strength:

1. Special expertised hospital in all fields on cancer in Jalgaon city.
2. Lesser cost of land and construction as compared to metropolitan cities.
3. Competant clinical staff members.
4. Comprehensive services.

Weakness:

1. Lack of dominant competition in city.
2. Site is surrounded by colleges

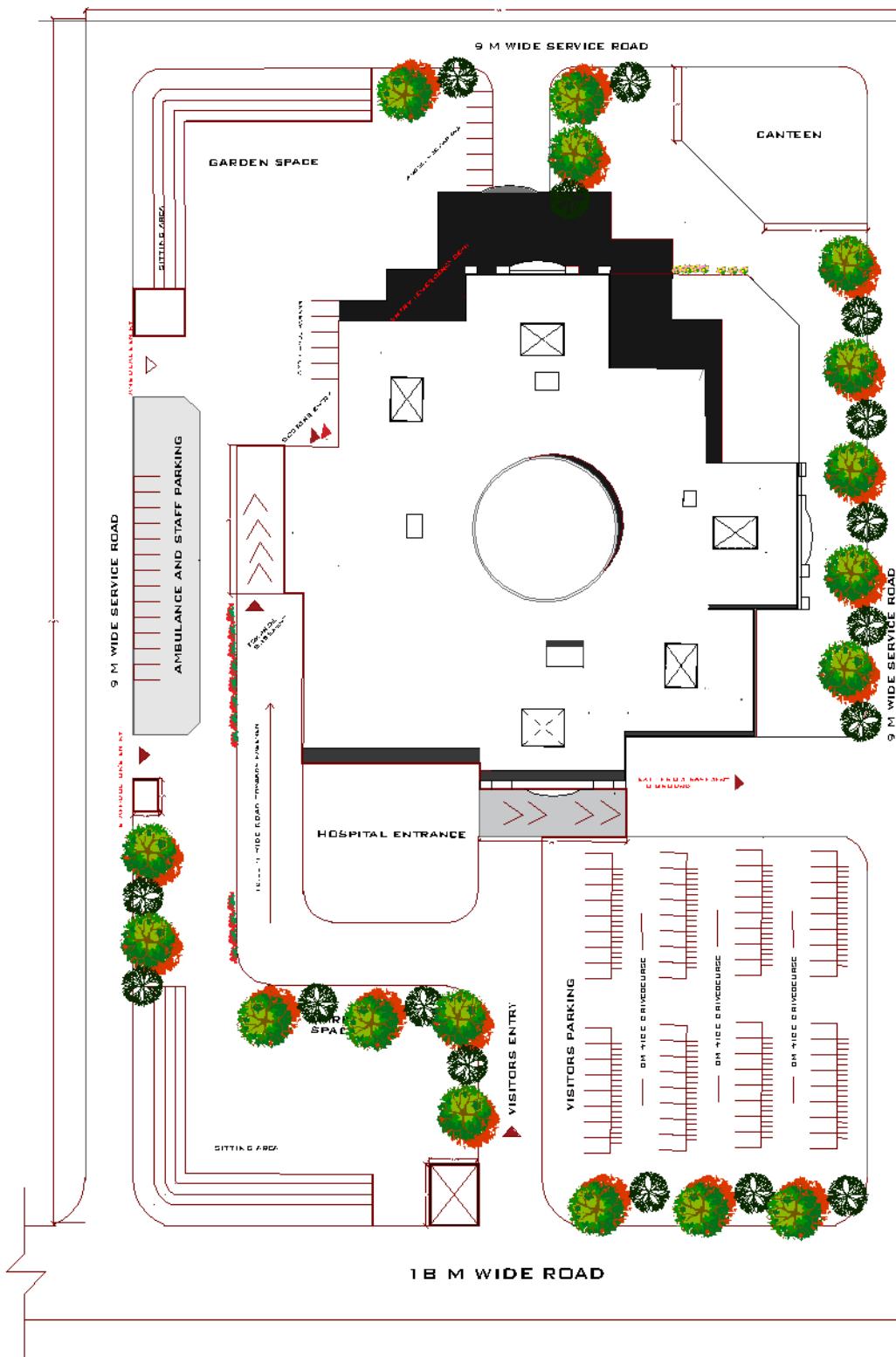
Opportunities:

1. Lack of dominant competition in city.
2. Acquiring a higher market share.
3. An unsaturated area which can tolerate the opening of new branches and/or satellite clinics in strategic locations.
4. Affiliation with government
5. Emerging need for a serviceline

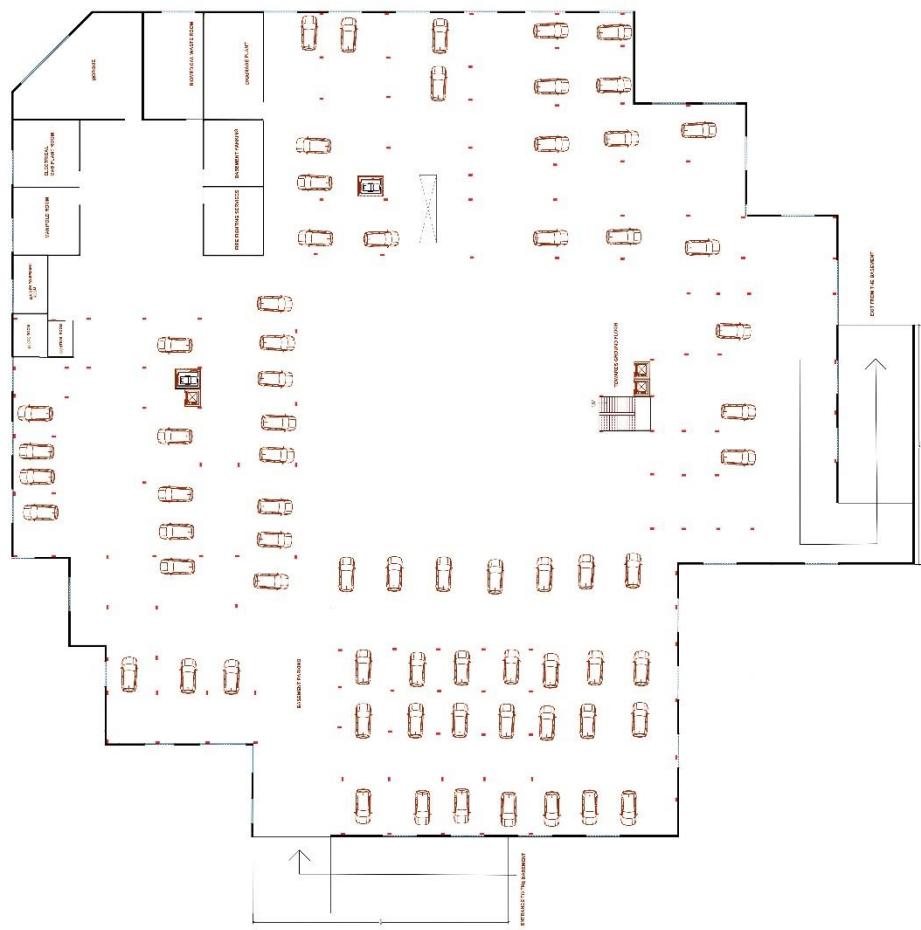
Threats:

1. Potential competitors who can enter the market in future.
2. Adverse demographic changes.
3. Adverse government policies
4. Economic slowdown.
5. Increased power of the heathcare insurance companies
6. Changing patient's attitude.

S I T E P L A N



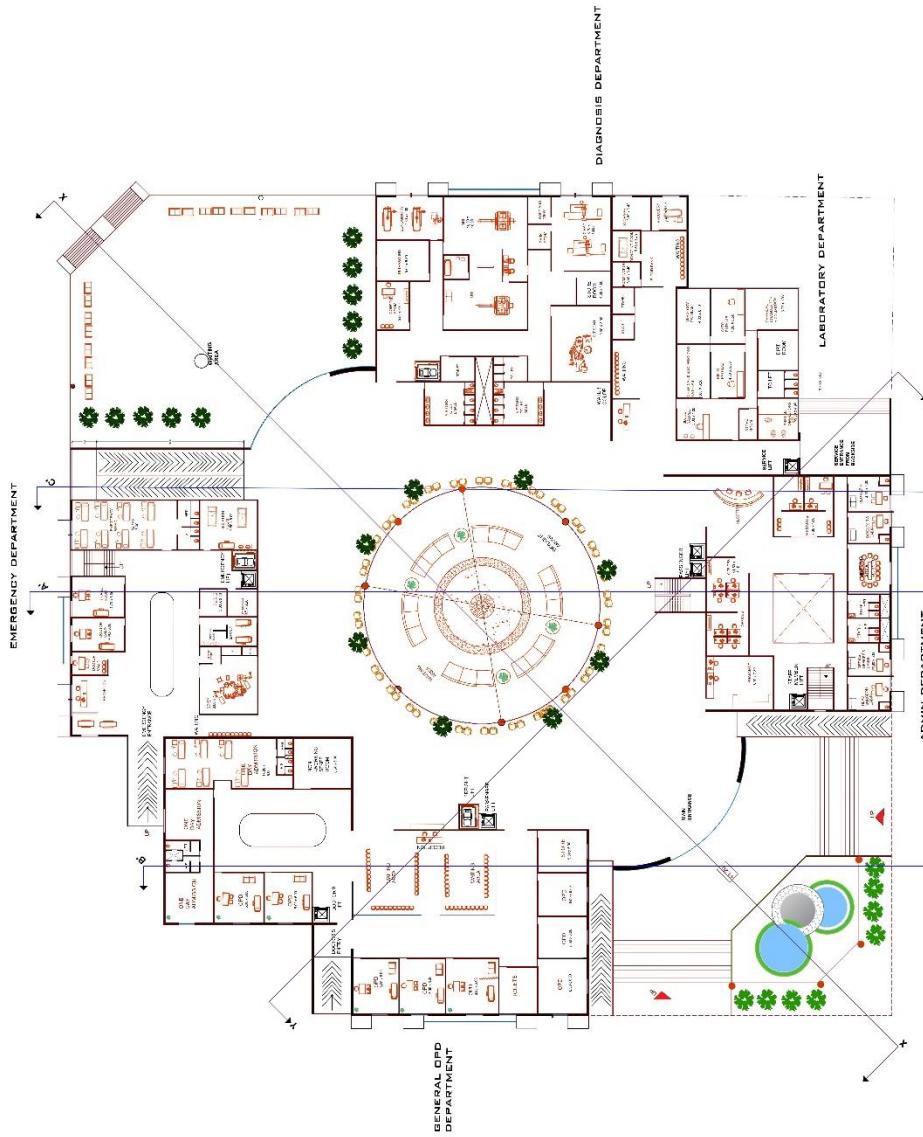
C A N C E R H O S P I T A L



BASEMENT FLOOR PLAN

SE&CM's COLLEGE OF ARCHITECTURE, JALGAON
NAME : AZEENI F. KAZI
YEAR : F.Y. B. ARCHITECTURE
SUBJECT : ARCHITECTURAL THESIS

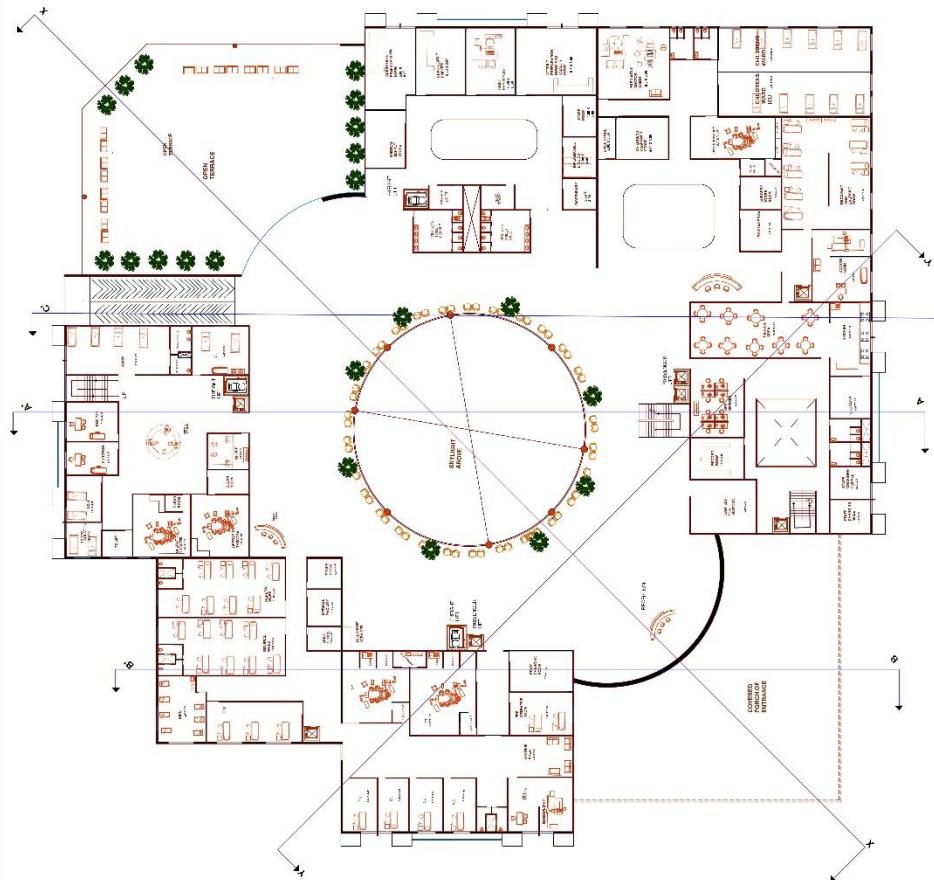
C A N C E R H O S P I T A L



SE&CM's COLLEGE OF ARCHITECTURE, JALGAON
NAME : AZEEN F. KAZI
YEAR : F.I. Y.B. ARCHITECTURE
SUBJECT : ARCHITECTURAL THESIS

GROUND FLOOR PLAN

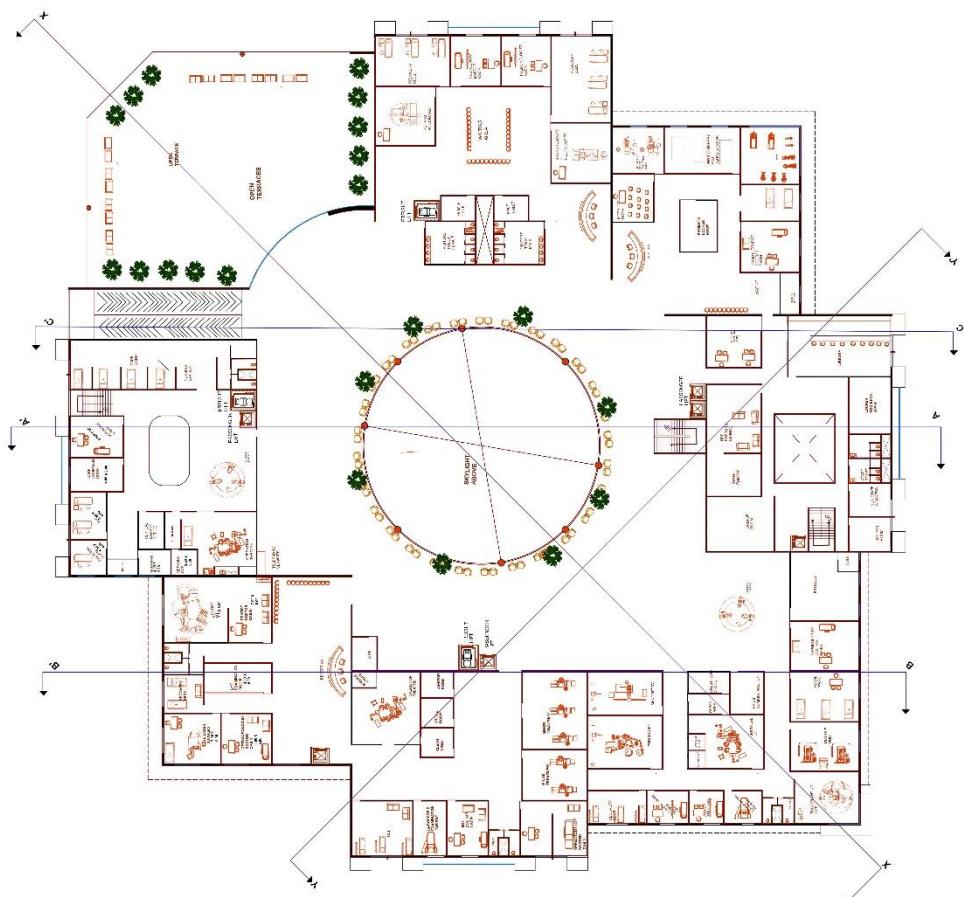
C A N C E R H O S P I T A L



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NAME : AZEEN F. KAZI
YEAR : F.I.Y.B. ARCHITECTURE
SUBJECT : ARCHITECTURAL THESIS

FIRST FLOOR PLAN

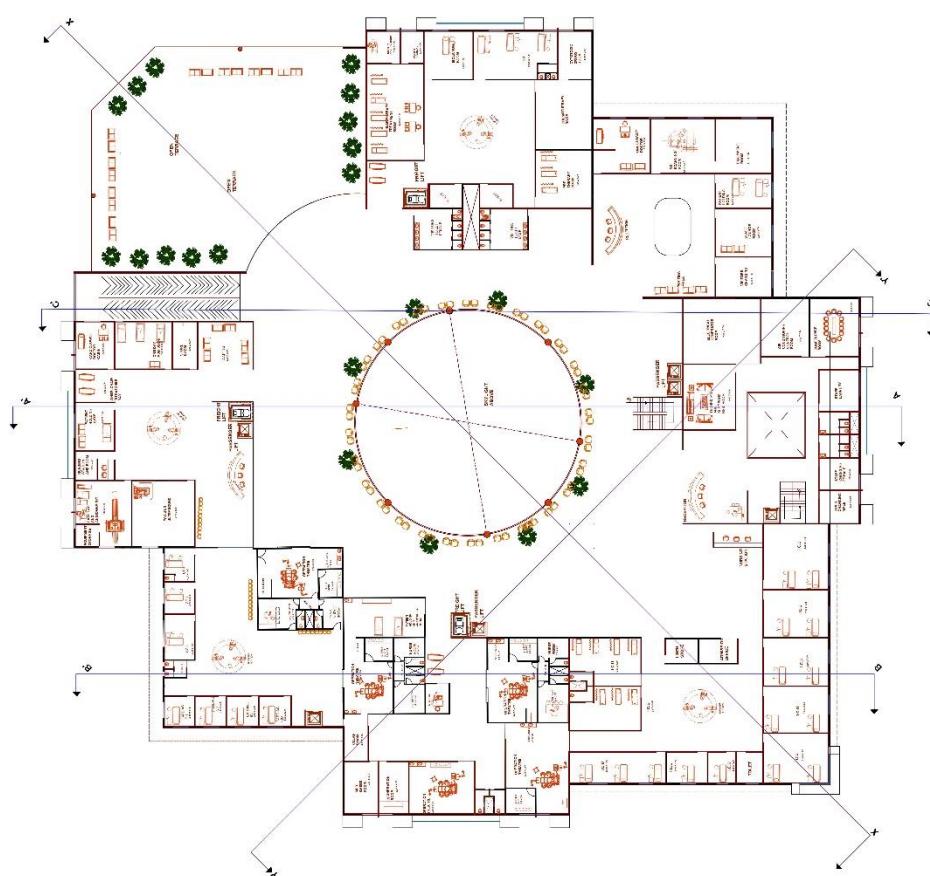
C A N C E R H O S P I T A L



SE&CM's COLLEGE OF ARCHITECTURE, JALGAON
NAME : AZIEENF KAZI
YEAR : F.I. Y. B. ARCHITECTURE
SUBJECT : ARCHITECTURAL THESIS

SECOND FLOOR PLAN

C A N C E R H O S P I T A L



THIRD FLOOR PLAN

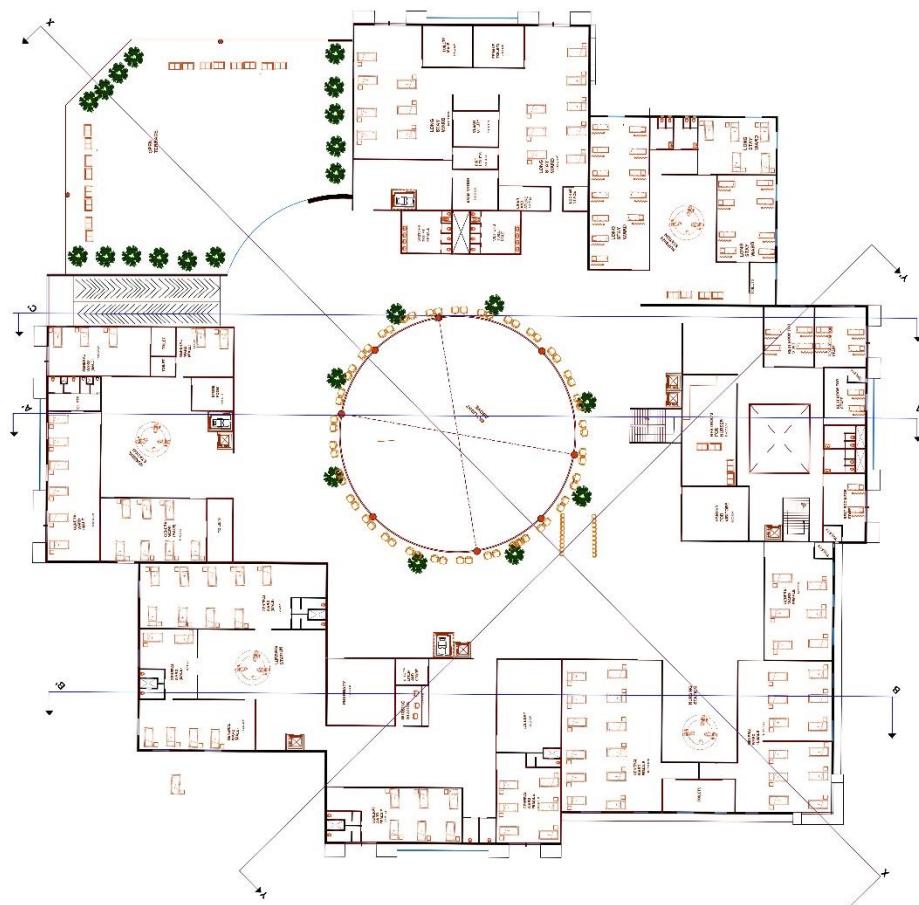
SE&CM's COLLEGE OF ARCHITECTURE, JAGGAON

NAME : AZLEEN F. KAZI

YEAR : FI Y B. ARCHITECTURE

SUBJECT : ARCHITECTURAL THESIS

C A N C E R H O S P I T A L



SE&CM's COLLEGE OF ARCHITECTURE, JALGAON
NAME : AZEEN F. KAZI
YEAR : F.Y.B. ARCHITECTURE
SUBJECT - ARCHITECTURAL THESIS

FOURTH FLOOR PLAN

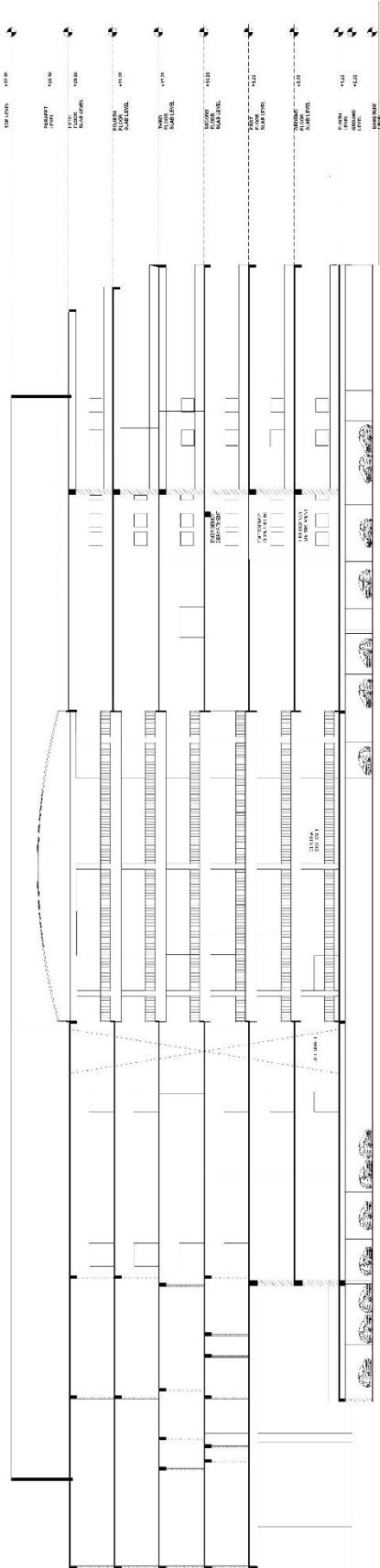
C A N C E R H O S P I T A L



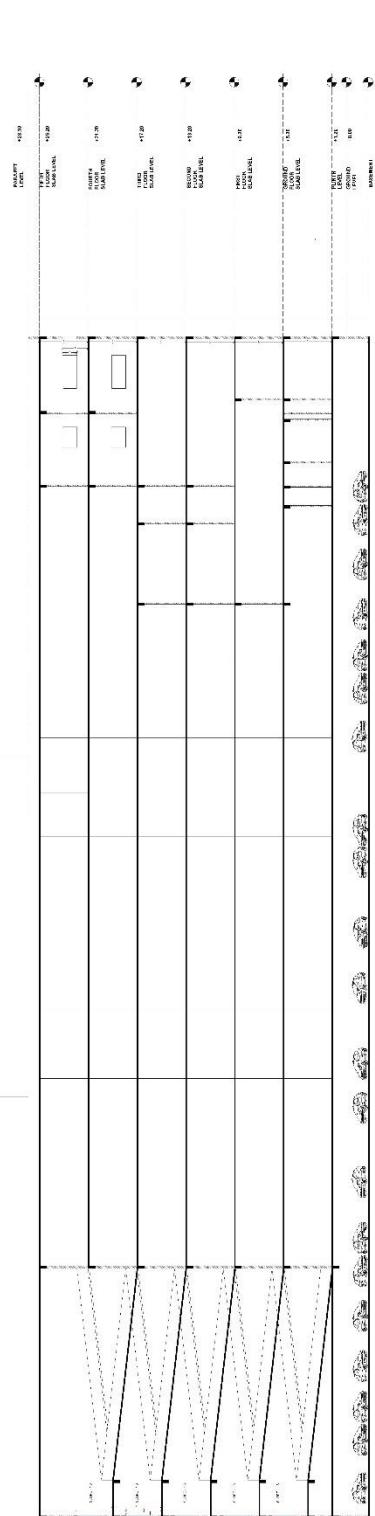
SE&CM's COLLEGE OF ARCHITECTURE, JALGAON
NAME : AZLEEN F. KAIZI
YEAR : F.I. Y.B. ARCHITECTURE
SUBJECT : ARCHITECTURAL THESIS

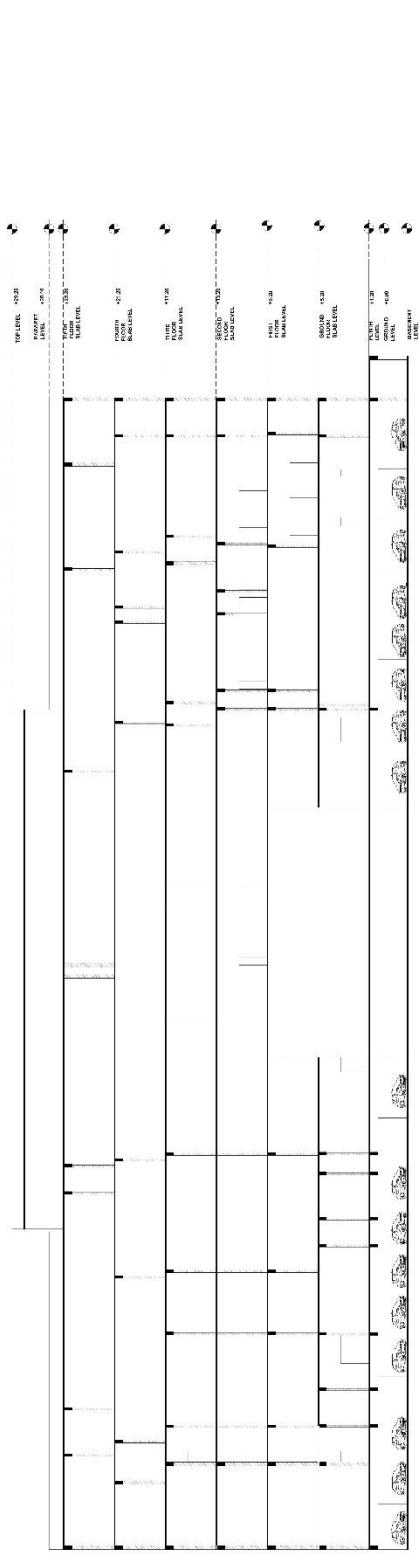
FIFTH FLOOR PLAN

SECTION XX

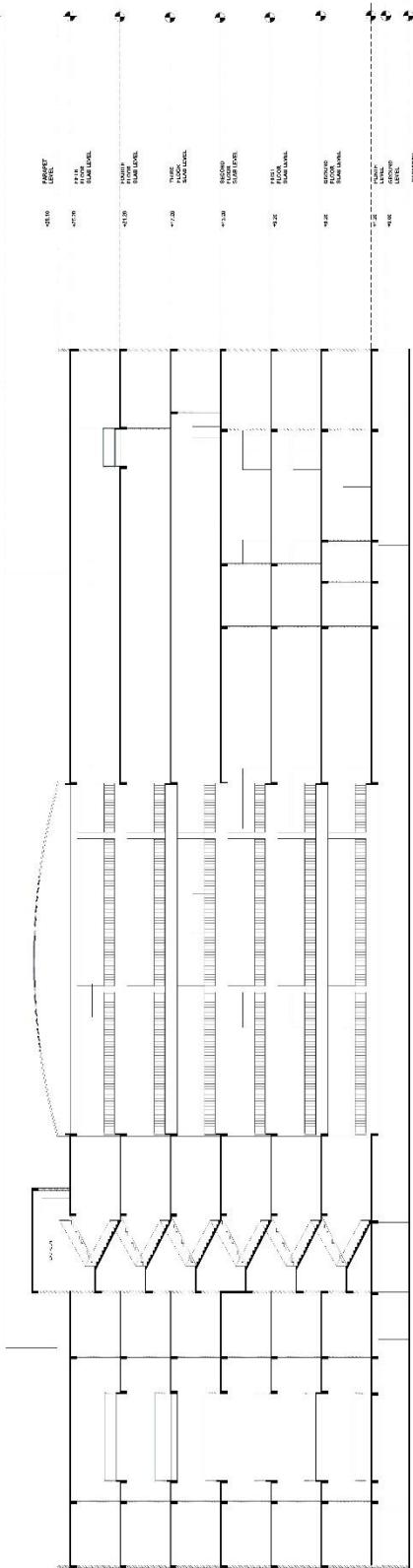


SECTION CC'

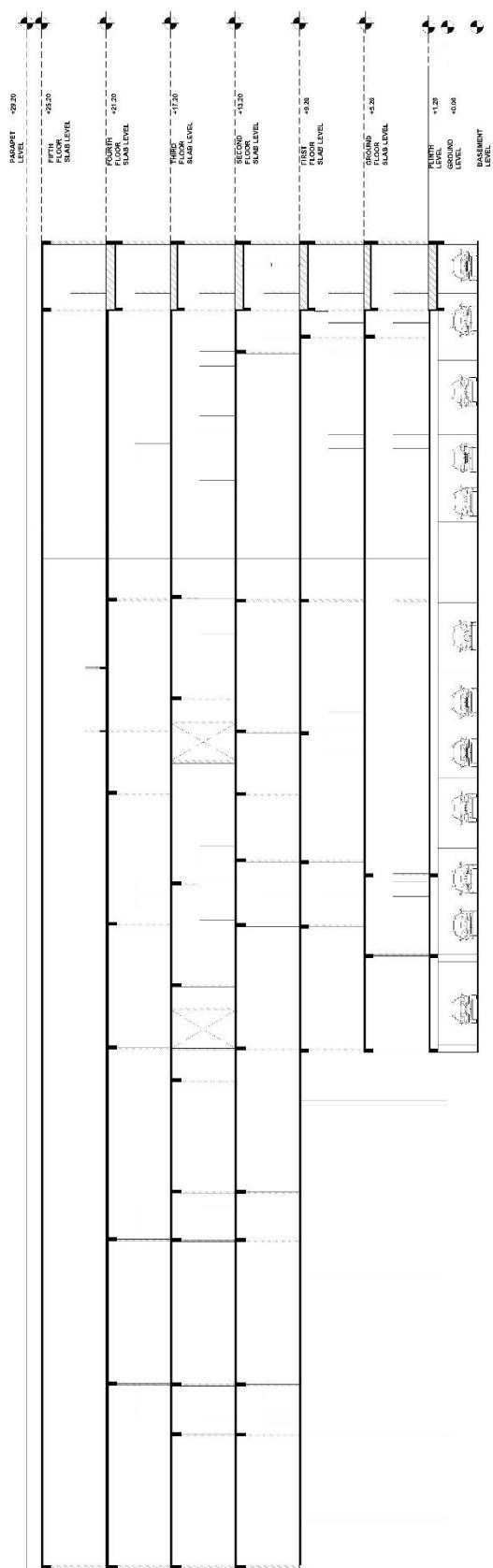




SECTION YY



SECTION AA'



SECTION BB'



SOUTH SIDE ELEVATION

- Red sandstone or exposed brickwork - for wall cladding work
- Fibre reinforced plastic whether proof sheets for dome
- plaster groove
- glass railing, and glazing facade



EAST SIDE ELEVATION



NORTH SIDE ELEVATION



WEST SIDE ELEVATION

3D VIEW



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