

A SUSTAINABLE APPROACH TO THE MEDICAL SCHOOL IMPROVING HEALTHCARE LEARNING ENVIRONMENT AT PARBHANI

By

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A REPORT

Submitted in partial fulfillment of the requirements for the degree of
Bachelor of Architecture.



University of Mumbai

2023

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ABSTRACT

In the backdrop of Parbhani's cherished history and the pressing realities of healthcare access, this architectural thesis responds to the urgent need for quality healthcare education. Marathwada, including Parbhani, faces a significant shortage of medical colleges, failing to keep pace with the region's growing healthcare demands. This scarcity has far-reaching consequences, leaving communities underserved and lacking timely healthcare.

The proposal for a Government Medical College in Parbhani becomes a beacon of hope. It not only addresses the gap in medical education but also meets the critical need for a skilled healthcare workforce. Aspiring medical professionals from Parbhani and beyond will gain access to world-class education, fostering their potential as compassionate caregivers.

Beyond academia, the envisioned Government Medical College will catalyze socio-economic growth, offering employment opportunities and advancing community development.

This architectural endeavor aims to design a state-of-the-art medical institute that not only fulfills the academic need but also contributes to the overall well-being of Parbhani and its people.



INTRODUCTION

Parbhani is situated in the central part of India. It is part of the Maharashtra state, which is located in the western part of India.

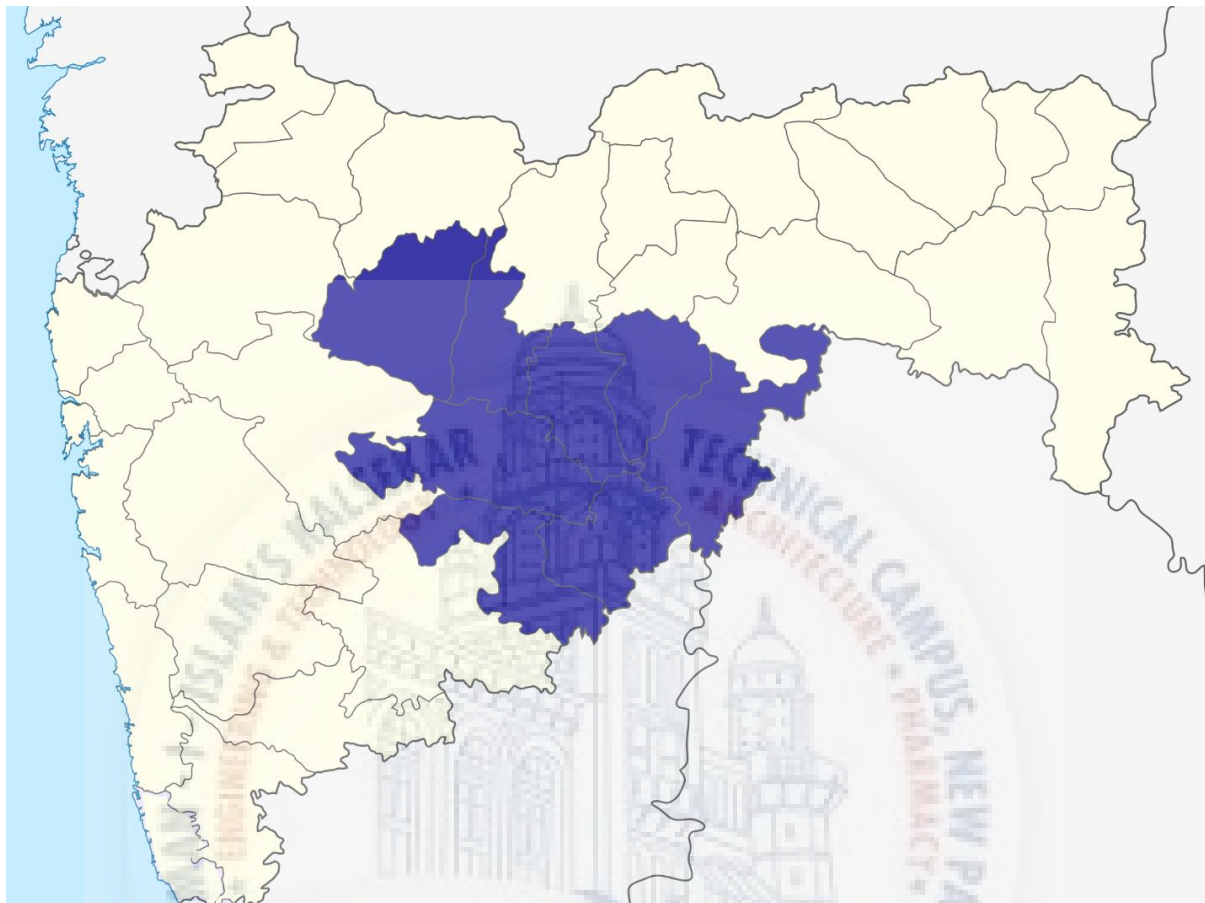


Fig 1. Map of Maharashtra

Maharashtra is sub-divided into six administrative divisions, each of which encompasses several districts. These divisions play a crucial role in the governance and administration of the state. Maharashtra's six administrative divisions .

Marathwada is one of the administrative divisions within Maharashtra and is situated in the eastern part of the state. It comprises districts like Parbhani, Nanded, Latur, Osmanabad, Hingoli, and Beed.

In the broader context of Maharashtra's location, Marathwada can be considered as part of the eastern region of the state. To pinpoint Maharashtra's position relative to Marathwada, you can think of Maharashtra as a larger entity, and Marathwada as one of its subdivisions located towards the eastern boundary.

Maharashtra, as a whole, has a diverse geography, with the western part of the state bordering the Arabian Sea and encompassing major cities like Mumbai and Pune.

The state extends eastward, where Marathwada, Vidarbha, and other regions are situated. Marathwada, in particular, has a semi-arid climate and is known for its historical significance and agricultural activities.

Parbhani is an administrative unit within the Marathwada division of Maharashtra. Marathwada, as a whole, is known for its historical significance and cultural heritage.

The city of Parbhani serves as the district headquarters and is the main urban center in the region. It acts as the administrative, economic, and cultural hub for the district. The district has educational institutions that cater to the educational needs of its residents. Parbhani and its surrounding areas have schools, colleges, and universities offering various academic programs.

Over the years, efforts have been made to promote infrastructure development and improve the standard of living in Parbhani District. Initiatives related to healthcare, transportation, and agriculture have played a role in the district's progress. Parbhani District, like other districts in India, has its own administrative and local governance structure, which includes government offices, municipalities, and local panchayats.

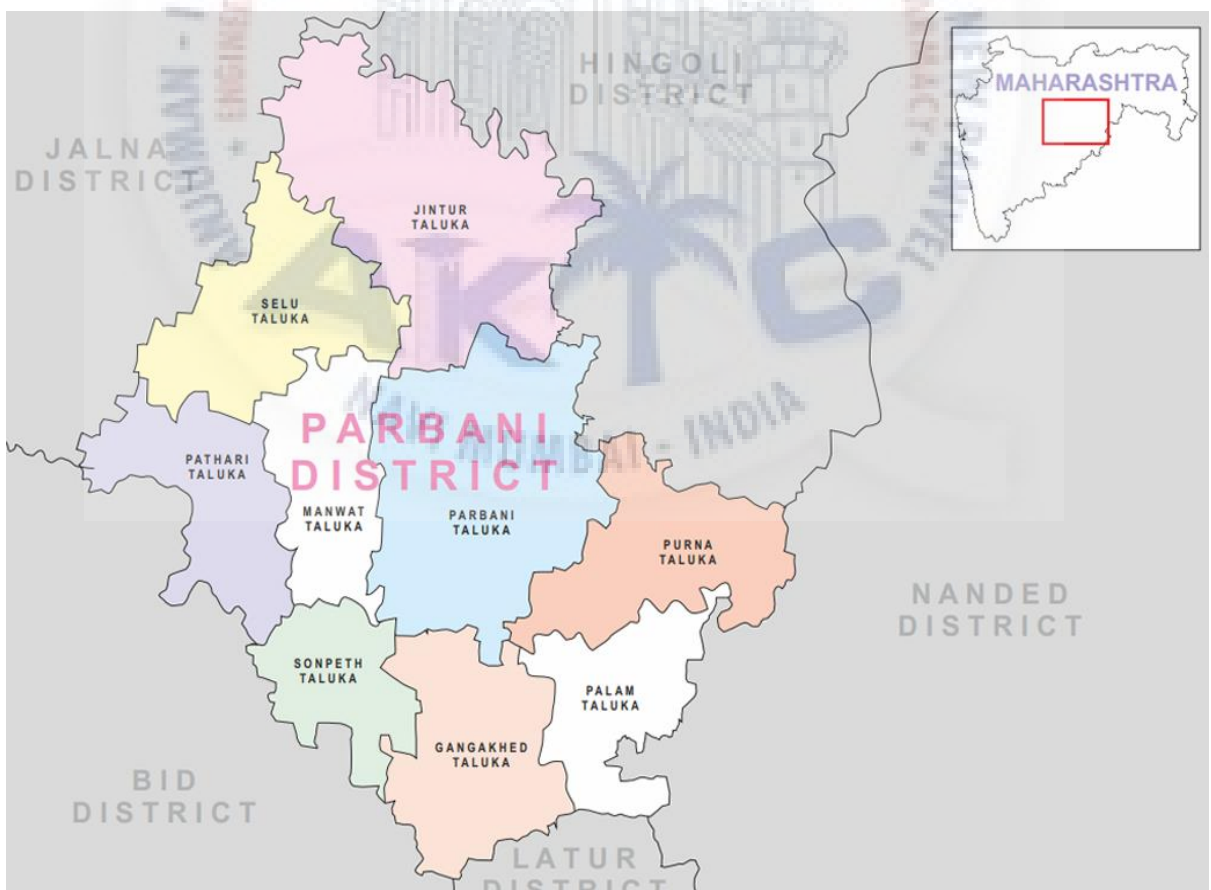


Fig 2. Map of Parbhani District

2.1 HISTORY

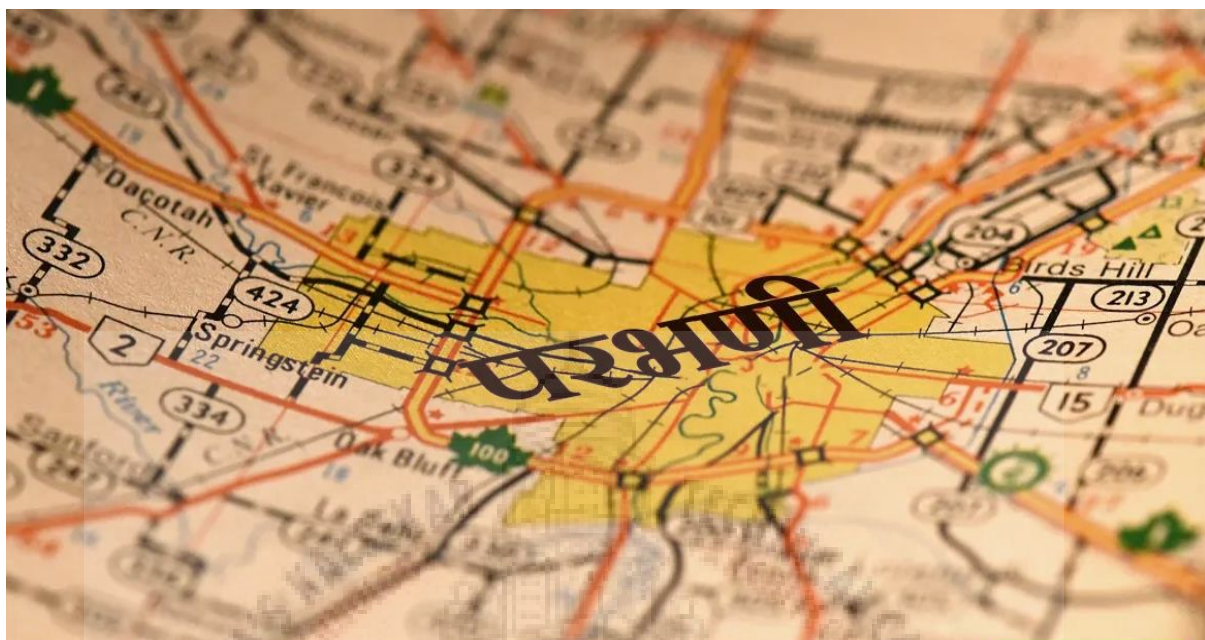


Fig 3. Parbhani

Parbhani, nestled in the heart of Marathwada, is a city adorned with a glorious past that echoes the vibrant history of the Deccan plateau. Its roots can be traced back to ancient times when it flourished under the patronage of the Bahmani and Nizam dynasties. The city's name is believed to have been derived from the Persian word "Par" (meaning "fortune") and "Bani" (meaning "wealth"). This unique amalgamation of prosperity and fortune aptly captures the essence of Parbhani's heritage.

Throughout history, Parbhani witnessed the rise and fall of empires, leaving an indelible mark on its cultural identity. The architectural marvels of bygone eras, including mosques, tombs, and palaces, are reminiscent of a bygone era that continues to inspire awe and admiration.

2.2 BACKGROUND STUDY

India indeed had one of the lowest doctor-population ratios in the world, and this has been widely reported and recognized by international organizations, including the World Health Organization (WHO). Here are some key pieces of evidence and data that support this fact:

The World Health Organization regularly compiles and publishes data on healthcare workforce indicators, including the doctor-population ratio, for countries around the world. According to WHO data, as of last update, India's doctor-population ratio was approximately 0.62 doctors per 1,000 people. This ratio is significantly lower than the global average and falls well below the WHO's recommended minimum threshold of 1 doctor per 1,000 people for adequate healthcare delivery.

Official Reports

The Government of India, in collaboration with the WHO, conducts surveys and publishes reports on healthcare workforce statistics. These reports consistently highlight the shortage of healthcare professionals, particularly doctors, in India.

Academic Research

Numerous academic studies and research papers have been conducted to assess the healthcare workforce situation in India. These studies often confirm the low doctor-population ratio and its impact on healthcare access and quality, especially in rural and underserved areas.

Media Coverage:

The shortage of doctors in India has received extensive media coverage both within the country and internationally. News reports and documentaries have highlighted the challenges faced by patients and healthcare providers due to this shortage.

Government Initiatives

The Government of India has acknowledged the healthcare workforce shortage and has initiated various programs and policies to address it. These initiatives include increasing the number of medical college seats, incentivizing doctors to work in rural areas, and promoting the training of allied healthcare professionals.

The list of states with their respective doctor-population ratios as per World Health Organization (WHO) data. As, Maharashtra indeed had a doctor-population ratio of 16,996, which places it among the states in India with a relatively lower ratio of doctors to the population. Here is the list

Bihar: 28,391 (Doctor-Population Ratio)

Uttar Pradesh: 19,962 (Doctor-Population Ratio)

Jharkhand: 18,518 (Doctor-Population Ratio)

Madhya Pradesh: 17,192 (Doctor-Population Ratio)

Maharashtra: 16,996 (Doctor-Population Ratio)

These figures reflect the challenges that several states in India, including Maharashtra, have faced in ensuring adequate access to healthcare services due to a lower concentration of doctors in comparison to their population. Improving healthcare access and addressing the shortage of doctors have been ongoing priorities for healthcare authorities and policymakers in these states.

The World Health Organization (WHO) recommends a standard doctor-patient ratio as a guideline for assessing the adequacy of healthcare services in a country. This ratio signifies the number of doctors available to cater to a certain number of patients within a specific population. For India, the WHO has recommended a doctor-patient ratio of 1:1000 as a minimum threshold for achieving basic healthcare services.

In essence, this ratio suggests that there should be one doctor available to cater to every 1000 individuals in the population. This benchmark is designed to ensure that a sufficient number of medical professionals are present to provide timely and effective medical care, especially for routine healthcare needs, preventive services, and early diagnosis of illnesses.

However, it's important to note that this ratio serves as a general guideline and might vary based on various factors, including the healthcare infrastructure, population density, the prevalence of diseases, and the distribution of healthcare facilities across urban and rural areas. In countries like India, where there is often a shortage of healthcare professionals, achieving the ideal doctor-patient ratio can be challenging due to the sheer size of the population and resource constraints.

The recommended ratio reflects the importance of having an adequate number of healthcare professionals to ensure that medical services are accessible and of good quality. While the 1:1000 ratio is an aspirational target, many countries, including India, often struggle to achieve it, leading to healthcare disparities and challenges in delivering quality medical care to all segments of the population. Addressing the doctor-patient ratio is just one aspect of the broader healthcare system reform required to ensure equitable and efficient healthcare delivery.

DOCTOR-PATIENT RATIO IN MAHARASHTRA

The doctor-patient ratio in Maharashtra is 0.84 doctors per 1,000 people, which falls below the World Health Organization's recommended ratio of 1:1000. This shortage is more pronounced in rural areas, exacerbating healthcare disparities.

In rural areas of Maharashtra, the gap in doctor availability is even wider, leading to longer wait times, reduced quality of care, and challenges in accessing medical services.

The shortage of doctors in both urban and rural areas poses challenges to delivering timely and quality healthcare services to the population. It can lead to compromised healthcare outcomes and limited access to specialized care.

Addressing the doctor shortage requires targeted efforts to attract and retain medical professionals in underserved areas. Initiatives may include incentives, improving rural healthcare infrastructure, and promoting medical education tailored to rural healthcare need.

(n.d.). World Health Organization (WHO). <https://www.who.int/>

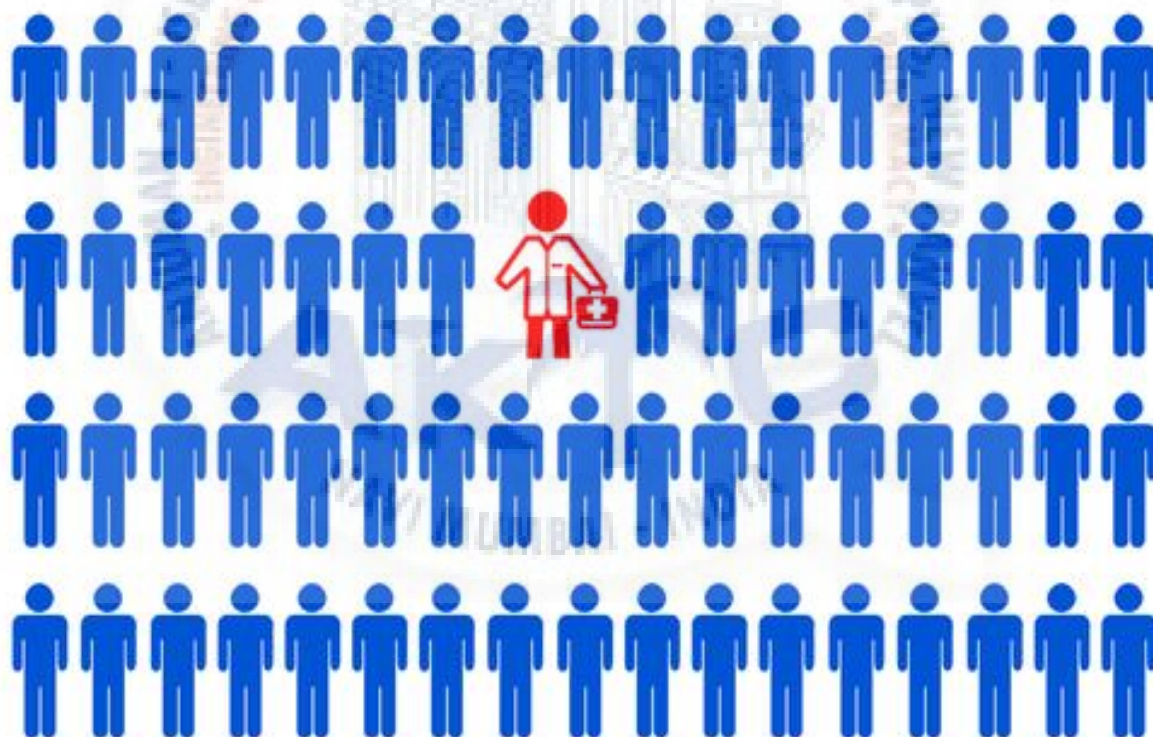


Fig 4. Doctor-patient ratio

NEET ASPIRANTS FOR 2022 IN MAHARASHTRA

It appears that Maharashtra had a significant number of students appearing for the NEET examination in 2022, with 228,829 students. This high number of test-takers in Maharashtra may be attributed to several factors, including the state's large population, a strong interest in medical and dental education, and the importance of NEET scores for admissions to medical and dental colleges across India.

NEET is a highly competitive examination, and students from various states across India aspire to secure admission to medical and dental colleges through this test. The number of test-takers can vary from state to state, reflecting regional variations in educational aspirations and priorities.

It's worth noting that NEET is a critical examination for aspiring medical professionals in India, and candidates from all states compete for limited seats in medical and dental colleges. This competition underscores the significance of NEET as a national-level entrance exam

NEET-UG | NMC. (n.d.). Index of /. <https://www.nmc.org.in/neet/neet-ug/>



Fig 5. Aspirants

MARATHWADA REGION HAS LOWEST NUMBER OF MBBS SEATS .

The lower number of MBBS (Bachelor of Medicine, Bachelor of Surgery) seats in the Marathwada region of Maharashtra can be attributed to a combination of historical, demographic, economic, and administrative factors. Historically, regions that established medical colleges earlier tend to have more seats, while newer regions may have fewer. Marathwada, being relatively less densely populated compared to major cities, may have fewer seats due to lower population density. Resource constraints, including limited financial resources and challenges in recruiting qualified faculty, can hinder the establishment and expansion of medical colleges.

Government policies, economic development, and competition for resources also play roles in seat allocation. To address this issue, efforts should focus on incentivizing faculty in rural areas, improving healthcare infrastructure, and exploring collaborations with private institutions to expand medical education opportunities while considering the unique needs of the region.

The significant number of students, with 228,829 appearing for NEET in Maharashtra in 2022, particularly in regions like Marathwada, where only five government medical colleges offer a total of 850 MBBS seats, highlights the glaring disparities in healthcare and medical education infrastructure. While Maharashtra's high NEET participation reflects the state's educational aspirations, the limited availability of government medical colleges and seats in Marathwada raises concerns about disparities in access to medical education and healthcare services.

The stark contrast between the high demand for medical education and the inadequate infrastructure underscores the need for government initiatives, increased investments, and collaborative efforts to expand medical colleges, increase seat numbers, and enhance healthcare facilities to better serve the healthcare needs of the region's population and ensure equal opportunities for aspiring medical professionals.

(Prasad Joshi / TNN / Updated: Jul 13)

AIM

To design a state-of-the-art medical institute in Parbhani Marathwada to address the increasing demand for quality healthcare education in the region.

OBJECTIVE

1. To conduct research and analyze the current statistics of students interested in pursuing a career in the medical field in Maharashtra.
2. To identify the specific needs and requirements of a large number of students and faculty in terms of infrastructure, amenities, and learning spaces.
3. To explore innovative design solutions that optimize space utilization while promoting collaborative learning and research opportunities.
4. To implement sustainable practices and energy-efficient systems to minimize environmental impact and promote a healthy learning atmosphere.
5. To create a visually appealing and functional architectural design that blends harmoniously with the cultural context of Parbhani Marathwada.
6. To propose a scalable and adaptable design that takes into consideration future expansions and developments in the medical institute.

SCOPE OF WORK

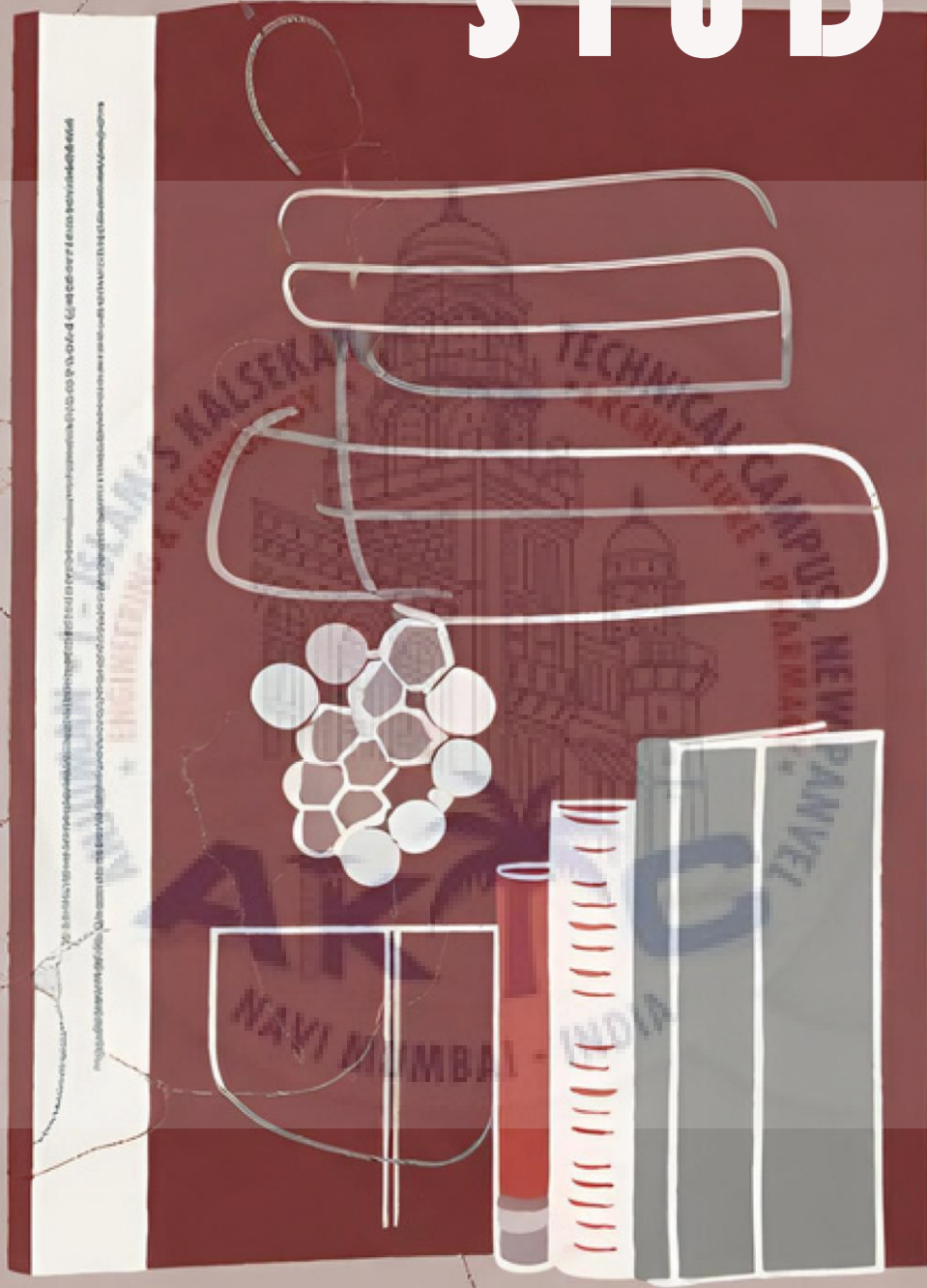
1. Analysis of the current medical education scenario in Parbhani Marathwada, including the number of students interested in pursuing medical careers and the availability of educational facilities.
2. Evaluation of the site and its suitability for the medical institute, considering factors such as accessibility, available space, and proximity to healthcare facilities.
3. Development of a comprehensive architectural design that includes educational spaces, laboratories, clinical and research areas, administrative offices, student amenities, and recreational spaces.
4. Integration of sustainable design principles, energy-efficient systems, and green building technologies in the architectural design.

By addressing these objectives and taking into account the defined scope of work, this thesis aims to deliver a well-designed medical institute that meets the growing demand for healthcare education in Parbhani Marathwada.

3. RESEARCH METHODOLOGY



LITERATURE STUDY

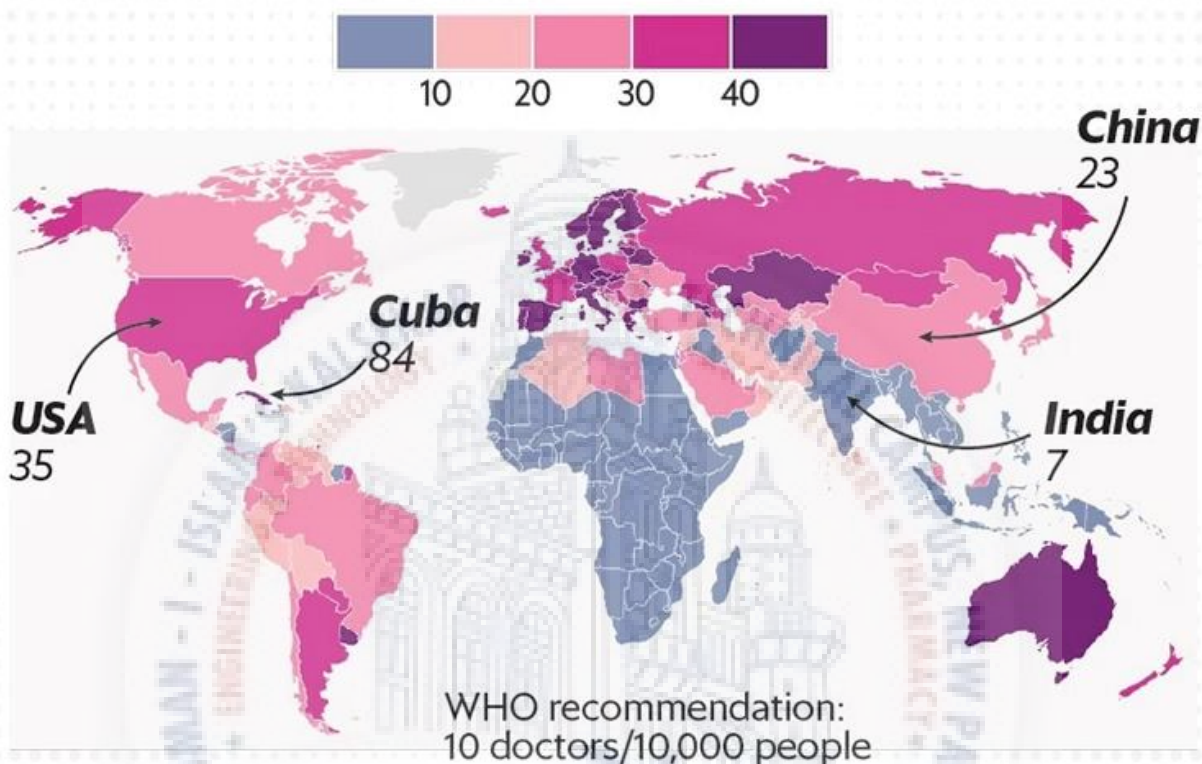


LITERATURE REVIEW

4.1.1 DOCTOR PER PERSON IN INDIA

India's doctor-population ratio among the lowest in the world

Medical doctors per 10,000 population



Latest available data for each country used. For most countries, it is from the period 2014 to 2021.

Source: World Health Organisation

Fig 7. World doctors ratio

India indeed faced a significant shortage of doctors, resulting in one of the lowest doctor-population ratios in the world. This shortage has been a long-standing challenge for the Indian healthcare system, especially when compared to the recommended standards set by the World Health Organization (WHO) and other international benchmarks. The shortage of doctors relative to the population has led to a variety of healthcare access and quality issues across the country, particularly in rural and underserved areas. It has contributed to longer waiting times, reduced quality of care, and limited access to specialized medical services. The low doctor-population ratio has been a central concern in the broader healthcare crisis in India.

(n.d.). World Health Organization (WHO). <https://www.who.int/>

4.1.2. DOCTOR-PATIENT RATIO AND ITS IMPACT ON MAHARASHTRA

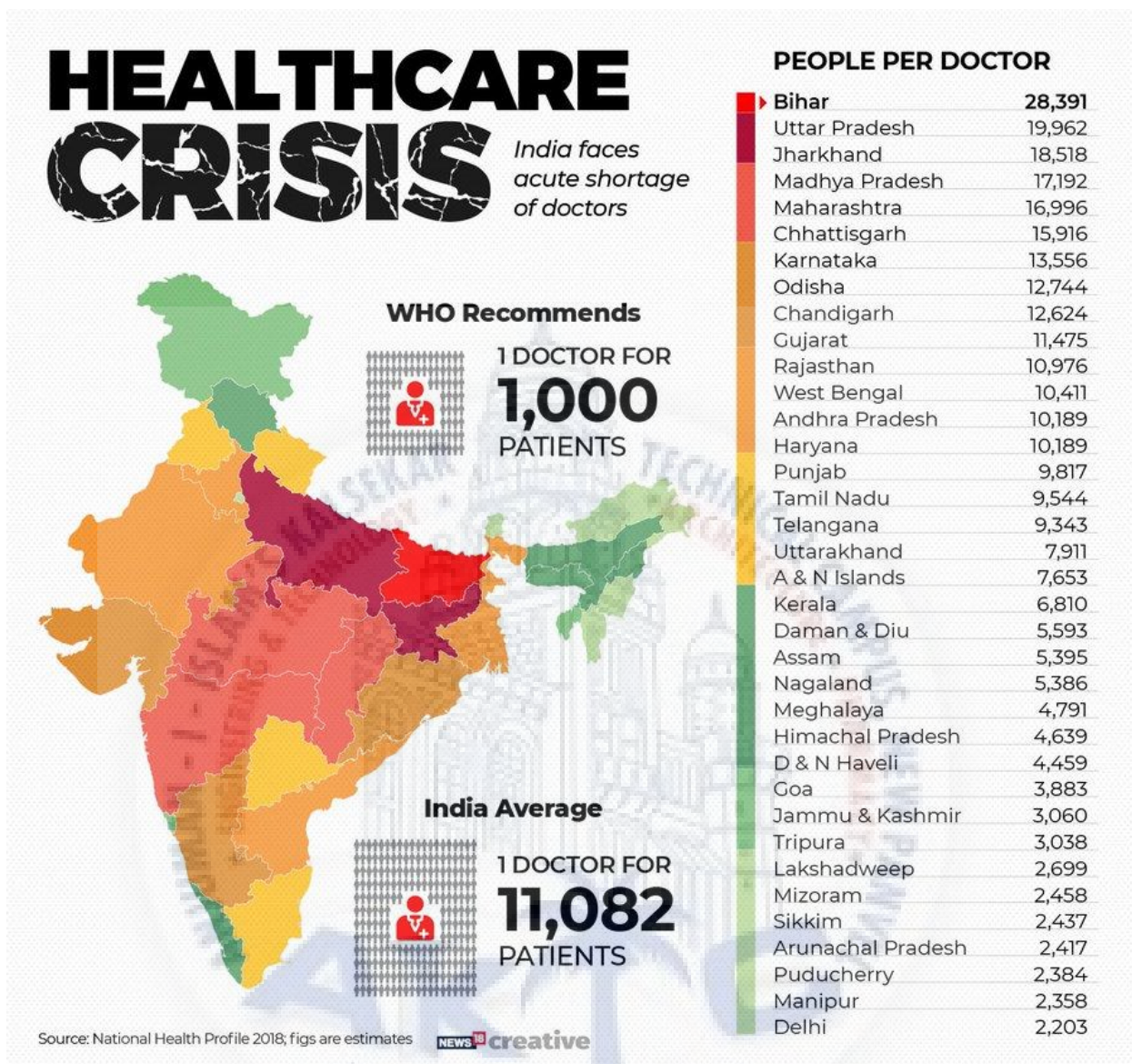


Fig 8. Doctor per person in India

Doctor Population Ratio: 16,996 doctors per 1,00,000 population.

This ratio means that there are approximately 16,996 doctors available to serve every 1,00,000 residents in Maharashtra. It's important to note that while this ratio might seem substantial on its own, it should be considered in the context of Maharashtra's large and diverse population. Maharashtra is one of the most populous states in India, and its healthcare needs are considerable.

(Prasad Joshi / TNN / Updated: Jul 13)

IMPACT OF LOW DOCTOR POPULATION RATIO IN MAHARASHTRA

LIMITED HEALTHCARE ACCESS

A low doctor density can result in limited access to healthcare services, especially in rural and underserved areas. Patients in these regions may face difficulties in finding a nearby doctor or healthcare facility.

OVERBURDENED HEALTHCARE FACILITIES

Healthcare facilities in Maharashtra may be overburdened due to a higher patient-to-doctor ratio. This can lead to longer wait times, overcrowded hospitals, and reduced quality of care.

CHALLENGES IN DISEASE MANAGEMENT

Timely diagnosis and treatment of diseases can be challenging with a low doctor population ratio. This can result in delayed medical interventions and potentially poorer health outcomes for patients.

HEALTHCARE INEQUALITY

There may be disparities in healthcare access between urban and rural areas within Maharashtra. Urban centers often have better healthcare infrastructure and a higher concentration of doctors, while rural areas may struggle to attract and retain medical professionals.

MEDICAL EDUCATION IN MAHARASHTRA

Medical education plays a crucial role in addressing the doctor population ratio. Maharashtra has a robust medical education system with several prestigious medical colleges and institutions.



The World Health Organisation recommends a ratio of one doctor for every 1,000 people. In Maharashtra, the ratio is 0.84 to 1,000. In the state's rural areas, the gap is even wider — as the recent The Indian Express series on healthcare in tribal-dominated Nandurbar revealed.

Fig 9. Doctor-to-patient ratio

The World Health Organization's recommended doctor-to-patient ratio of one doctor for every 1,000 people is a standard used to assess the adequacy of healthcare resources in a region. In Maharashtra, this critical ratio falls short, with only 0.84 doctors available for every 1,000 residents, highlighting a significant healthcare challenge.

The situation is more dire in rural areas of the state, as evidenced by recent reporting in The Indian Express focusing on healthcare disparities in tribal-dominated. In these remote regions, the gap in doctor availability widens even further, exacerbating healthcare inequalities. The shortage of doctors in rural Maharashtra leads to longer wait times, reduced quality of care, and formidable obstacles in accessing essential medical services.

This underscores the pressing need for targeted efforts to bridge the healthcare gap, such as incentives to attract healthcare professionals to underserved areas, investment in rural healthcare infrastructure, and the integration of telemedicine services to enhance healthcare access for all residents, particularly those in remote regions. Addressing this disparity is crucial for achieving equitable healthcare outcomes across the state.

(Yogita Rao / TNN / Updated: Apr 26, To up doc-patient ratio, State Govt to add 1,600 MBBS seats in 16 districts: Mumbai News - Times of India 2023)

4.1.3. SHORTAGE OF GOVERNMENT SEATS FOR CANDIDATES.

List of States with Highest Number of NEET 2022 Qualified Candidates

The state-wise NEET Result 2022 Highlights are listed here in the table below:

State Name	Total Number of Registered Candidates	Total Number of Appeared Candidates	Total Number of Qualified Candidates
Uttar Pradesh	2,29,115	2,19,197	1,17,316
Maharashtra	2,56,126	2,44,903	1,13,812
Rajasthan	1,21,675	1,17,099	82,548
Karnataka	1,33,255	1,22,423	72,262
Tamil Nadu	1,42,894	1,32,167	67,787
Kerala	1,28,053	1,16,395	64,034
Bihar	1,03,691	98,668	55,709
West Bengal	92,207	86,607	50,864
Gujarat	72,879	64,684	41,901
Andhra Pradesh	68,061	65,305	40,344
Madhya Pradesh	94,629	89,487	40,170

Fig 10. list of states with the highest number of NEET students

Maharashtra ranks second in the list of states with the highest number of students who qualified for the National Eligibility cum Entrance Test (NEET). The data you provided indicates a significant number of candidates who registered for NEET in the state.

- Total Number of Registered Candidates: 256,126
- Total Number of Applied Candidates: 244,903
- Total Number of Qualified Candidates: 113,812

This data reflects the substantial interest and participation of students in Maharashtra in NEET, which is one of India's most competitive medical entrance exams. The high number of qualified candidates demonstrates the dedication and hard work of students in the state in pursuing a career in medicine. It also highlights the importance of quality medical education and healthcare workforce development in Maharashtra to cater to the aspirations of these qualified candidates and address the healthcare needs of the state's population.

Marathwada has 850 seats available in government-run medical colleges, which is the lowest MBBS course intake capacity among all regions in the state. The Vidarbha region of the state has 1,150 seats available for MBBS courses in government-run colleges, whereas the 'Rest of Maharashtra' region has 2,850 seats (the highest), shows the data available with the National Medical Commission.

[Read Less](#)



Fig 11. Lowest Number Of MBBS Seats

The availability of MBBS course seats in government-run medical colleges in the state of Maharashtra. These disparities can have significant implications for healthcare access and medical education in Marathwada Region.

Marathwada Region:

This region has the lowest MBBS course intake capacity among all regions in Maharashtra, with **850 seats available in government-run medical colleges**. This lower capacity might indicate challenges in meeting the demand for medical education and healthcare professionals in this area.

Rest of Maharashtra

The 'Rest of Maharashtra' region has the highest intake capacity for MBBS courses among all regions, **with 2,850 seats available in government-run colleges**. This indicates a more significant presence of medical colleges and opportunities for aspiring medical students in this area.

(Prasad Joshi / TNN / Updated: Jul 13, Marathwada region has lowest number of MBBS seats in State: Aurangabad News - Times of India)

S. N	College Name	ESTD	Total Intake
MEDICAL GOVERNMENT COLLEGES IN MARATHWADA			
1.	Dr.Shankarrao Chavan Government Medical College	1988	200
2.	Government Medical College, Aurangabad	1956	200
3.	Government Medical College, Latur.	2002	150
4.	Swami Ramananda Teertha Rural Gov Medical College, Ambajogi	1974	200
5.	Government Medical College, Badnapur, Jalna.	2013	100
Total Number of MBBS Seats of Government Medical Colleges in Maharashtra			850

Table No. 1

The significant number of students, with : 113,812 appearing for NEET in Maharashtra in 2022, particularly in regions like Marathwada, where only five government medical colleges offer a total of 850 MBBS seats, highlights the glaring disparities in healthcare and medical education infrastructure. While Maharashtra's high NEET participation reflects the state's educational aspirations, the limited availability of government medical colleges and seats in Marathwada raises concerns about disparities in access to medical education and healthcare services. The stark contrast between the high demand for medical education and the inadequate infrastructure underscores the need for government initiatives, increased investments, and collaborative efforts to expand medical colleges, increase seat numbers, and enhance healthcare facilities to better serve the healthcare needs of the region's population and ensure equal opportunities for aspiring medical professionals.

NEET-UG | NMC. (n.d.). Index of /. <https://www.nmc.org.in/neet/neet-ug/>

4.1.4. IMPORTANCE OF MULTI-SPECIALTY HOSPITALS IN PARBHANI

MULTI-SPECIALTY HOSPITALS.

Parbhani has several multi-specialty hospitals that offer a wide range of medical services to the local population.

1. Parbhani ICU and Trauma Care Center:

This hospital likely specializes in providing intensive care and trauma care services. Multi-specialty hospitals often have dedicated departments for critical care to treat patients with severe illnesses and injuries

2. Yashodeep Multi-Specialty and Critical Care Center:

As the name suggests, this hospital is equipped to provide a broad spectrum of medical services, including specialized care for critical patients. They may have various departments like cardiology, orthopedics, obstetrics, and more.

3. Ganesh Netralaya Hospital:

This appears to be an eye hospital (intralayer) specializing in ophthalmology and eye care services. While it may not be a multi-specialty hospital in the traditional sense

4. Manwath Multi-Specialty Hospital:

Multi-specialty hospitals like Manwath usually have various departments and specialties, such as internal medicine, surgery, pediatrics, and gynecology..

5. Dr Prafulla Patil multi specialty Hospital Parbhani

The exact specialties of Dr Prafulla Patil Hospital are not specified, but multi-specialty hospitals typically offer a wide range of medical services, which may include general medicine, surgery, and more.

6. Spandau Critical Care Unit:

Critical care units like Spandau often focus on providing intensive care for patients with critical medical conditions

7. District Hospital, Parbhani:

District hospitals typically provide a broad range of medical services, including general medicine, surgery, obstetrics, pediatrics, and more. They often serve as a primary healthcare facility for the local community.

The low ratio of multi-specialty hospitals in Parbhani, approximately 0.00000327, relative to its total population of 1,836,086, underscores a substantial healthcare gap. With approximately 3.27 hospital beds in multi-specialty hospitals for every resident, this quantitative disparity highlights the pressing need for a government multi-specialty hospital. Beyond the numbers, the construction of such a facility not only addresses this gap but also promises to enhance healthcare quality, expedite diagnoses, and improve overall well-being, offering a holistic solution to the growing healthcare demands in Parbhani.

1. INADEQUATE HEALTHCARE ACCESS

With only 6 multi-specialty hospitals serving a population of over 1.8 million, there is a clear inadequacy in healthcare access. This low ratio means that residents may face challenges in accessing specialized medical care when needed. Building a government multi-specialty hospital would help address this critical gap.

2. OVERBURDENED EXISTING FACILITIES

The existing multi-specialty hospitals may be overburdened due to the high demand for specialized healthcare services. This can lead to longer waiting times, overcrowded facilities, and potentially compromised patient care.

3. ENHANCED EMERGENCY AND CRITICAL CARE

A low ratio of multi-specialty hospitals can impact emergency and critical care services. During medical emergencies and trauma situations, prompt access to specialized care is vital. Increasing the number of multi-specialty hospitals, particularly with government support, can ensure faster and more efficient responses to critical health situations.

4. LONG-TERM PLANNING

Constructing a government multi-specialty hospital is a commitment to long-term healthcare planning. It not only addresses the current healthcare needs but also anticipates the growing healthcare demands of the city as its population continues to expand.

In conclusion, the low ratio of multi-specialty hospitals in Parbhani in proportion to the total population indicates a significant healthcare gap. Building a government multi-specialty hospital is a vital step to improve healthcare access, provide specialized care, and enhance the overall well-being of the residents in the city. This investment in healthcare infrastructure will have a positive and lasting impact on the health and quality of life in Parbhani.

Article 1 :

International Journal of Community Medicine and Public Health
 Pandey A et al. *Int J Community Med Public Health*. 2019 Oct;6(10):4421-4425
<http://www.ijcmph.com>

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Original Research ArticleDOI: <http://dx.doi.org/10.18203/2394-6040.ijcmph20194505>

Patient-doctor ratio across nine super speciality clinics in government hospital: a cross sectional study

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Department of Medical Oncology, Indira Gandhi Institute of Medical Sciences, Patna, Bihar, India

Fig 12. Doctor-to-patient ratio

SUMMARY

In order to achieve optimal universal health coverage, both the World Health Organization (WHO) and the Planning Commission of India have recommended an ideal doctor-to-population ratio of 1:1000. However, the current doctor population ratio in India stands at 1:2000, with only 7.7 doctors per 10,000 people. This is significantly below the WHO's recommendation of 23 doctors per 10,000 population. The shortage of doctors is even more pronounced in government hospitals, where a single doctor caters to 11,000 people. Medical graduates in local clinics are trained to manage acute infections and malnutrition, which require fewer patient visits and established clinical protocols.

India, being a developing country, sees a large portion of its population relying on public hospitals for healthcare. However, the presence of highly skilled super specialty doctors in government hospitals is not up to the mark due to factors like excessive workload, outdated facilities, and more lucrative opportunities for private practice. Our study highlights a concerning aspect of this issue – the patient-doctor ratio in such hospitals is alarmingly high. It's crucial for the government to take immediate action to address this by recruiting and retaining experienced medical experts. This can be achieved by enhancing infrastructure, offering better compensation, and fostering a supportive environment for doctors within these already busy and strained tertiary care hospitals across India.

INFERENCE

India is a developing country where majority of population seek healthcare solutions at public hospitals. The availability and retention of expert super specialist doctors in government hospitals are suboptimal due to heavy workload, redundant infrastructure and more lucrative private practice avenues outside. One of the best matrix to discover the 'ground -zero' scenario is patient doctor ratio in such hospitals, which is alarmingly high as per our study. Urgent priority is merited by government to reduce this ratio by appointing and retaining experienced faculties by improving the infrastructure, remunerations and inculcating 'doctor-friendly' environment in otherwise busy and strained tertiary care hospitals in India.

(Patient-doctor ratio across nine super speciality clinics in government ...)

The impacts of corporatisation of healthcare on medical practice and professionals in Maharashtra, India

Fig 13. Medical Practice In Maharashtra

SUMMARY

The corporatization of healthcare in Maharashtra, India, has brought about notable transformations in the medical profession and healthcare landscape. Corporate hospitals and healthcare institutions have restructured employment relations for medical professionals, introducing performance targets and constraints on professional autonomy. This has led to concerns about the potential prioritization of quantity over quality of care and personal indebtedness among doctors. Additionally, the process of reprofessionalization has witnessed cost inflation, an increase in medical malpractice cases, and a growing sense of distrust in doctor-patient relationships, as the focus on corporate profitability can sometimes overshadow patient welfare. Within the medical profession, restratification is evident, with senior hospital specialists and 'star doctors' gaining elevated status and influence due to their association with corporate healthcare entities. In contrast, senior general practitioners often find their status and autonomy diminishing as they struggle to compete with the resources and marketing power of corporate hospitals. These changes are redefining the dynamics of medical practice and healthcare delivery in Maharashtra, prompting doctors to adapt to a shifting and increasingly corporate-driven healthcare system.

INFERENCE

The corporatization of healthcare in Maharashtra, India, has ushered in transformative changes for medical professionals and their practice. This transformation is characterized by a restructuring of employment relations within corporate healthcare institutions, introducing performance targets and constraints on autonomy, which impact doctors' clinical decisions and financial stability. The process of reprofessionalization has led to rising healthcare costs and increased instances of medical malpractice, potentially eroding trust in doctor-patient relationships. Furthermore, a noticeable restratification within the medical profession has favored senior specialists and 'star doctors' affiliated with corporate entities, while senior general practitioners have experienced declining status and autonomy, grappling with resource disparities and competition. Collectively, these shifts have substantial implications for medical practice and the accessibility and quality of healthcare services in Maharashtra.

((PDF) the impacts of corporatisation of healthcare on medical practice ...)

CURRENT STATUS AND CONSTRAINTS OF RURAL HEALTHCARE IN MAHARASHTRA**Dr. Kishor P. Bholane**

Head, Department of Commerce, Vinayakrao Patil Mahavidyalaya, Vaijapur, Aurangabad

Fig 14. Health Care In Maharashtra

SUMMARY

Healthcare is a fundamental right for every person. In India, healthcare is divided into two main parts: public and private. Public healthcare serves the basic health needs of people in both rural and urban areas, supported by government funding. Private healthcare, on the other hand, is more prominent in cities. The rural healthcare system consists of three levels: sub-center's, primary health center's (PHCs), and community health centers (CHCs).

Comparing healthcare in urban and rural areas, around 75% of healthcare resources are found in cities, even though only 27% of India's population lives there. This leaves 73% of the population without proper access to primary healthcare. Private healthcare is growing steadily, while public healthcare in rural areas faces challenges like inadequate staffing, poor infrastructure, and limited medicine availability. A KMPG report states that "74% of Indian doctors are serving the urban population." Moreover, rural regions experience higher maternal mortality rates compared to urban areas.

INFERENCE

In Maharashtra, the scarcity of sub-centres, primary health centers (PHCs), and community health centers underscores the pressing need for comprehensive healthcare reform. To address this deficiency effectively, it is imperative to prioritize the recruitment of medical professionals and support staff while concurrently bolstering rural infrastructure. By expanding the network of sub-centres, PHCs, and community health centers, Maharashtra can extend essential healthcare services to a wider rural populace, including remote villages. This holistic approach to healthcare improvement promises to enhance the overall well-being and access to medical services in the state.

((PDF) the impacts of corporatisation of healthcare on medical practice ...)



Case Study of Indian Students Going to Abroad for Medical Studies

Prerana Patil and Dr. Pratibha Deshmukh

BharatiVidyapeethsBVIMIT Navi Mumbai

Fig 15. Medical Students Moving Abroad

SUMMARY

The MMBS course typically lasts for five years and six months, including a one-year rotational internship at hospitals and health centers organized by non-profit organizations.

Ukraine and Russia has become a popular destination for Indian students seeking to pursue an MBBS degree due to several reasons. Indians constitute a significant portion of international students in Ukraine and Russia, primarily attracted by the lower cost structure compared to Indian medical colleges. In Ukraine and Russia, the fees for the MBBS program are considerably lower.

In the Indian Medical Education System, admission to MBBS programs is highly competitive and based on marks obtained in the NEET exam and the final examinations of Std. XII. Private medical colleges in India charge exorbitant fees, ranging from 80 lakhs to 1.5 crores, making it difficult for many students to afford. This scarcity of affordable seats in India motivates thousands of students to pursue MBBS degrees abroad.

The Ukraine and Russia Medical Education System offers great courses and quality education, making it an attractive destination for Indian students. The cost structure in Ukraine is approximately 25-30 lakhs for a six-year MBBS course, which is significantly lower than the fees in India. Additionally, Ukraine and Russia does not require medical entrance exams, which are mandatory in India.

INFERENCE

The shortage of government medical seats in India has led to a situation where many students opt for expensive private education or migrate abroad for affordable quality education. To address this, there is a pressing need to establish additional medical institutions within India. This will not only retain students within the country but also enhance access to quality medical education.

((PDF) the impacts of corporatisation of healthcare on medical practice ...)

4.1.6. MEDICAL EDUCATION IN GENERAL.



Fig 16. Medical Education

Medical education is the structured and formalized process through which individuals are trained to become healthcare professionals, such as doctors, nurses, or pharmacists. This educational journey encompasses a wide array of programs and activities offered by institutions like medical schools and nursing colleges. It involves both undergraduate and graduate studies and entails a comprehensive curriculum. Students partake in classroom instruction, clinical rotations, hands-on training, and extensive coursework that covers various medical subjects, patient care protocols, and ethical principles. The ultimate objective of medical education is to equip aspiring healthcare practitioners with the knowledge and competencies necessary to deliver high-quality healthcare services and to fulfill the stringent standards and licensing prerequisites inherent to their respective healthcare fields.

In pursuit of this goal, medical education institutions strive to foster a deep understanding of medical sciences, clinical practices, and the ethical responsibilities inherent to the healthcare profession. Through a combination of theoretical knowledge and practical experience, individuals are prepared to meet the rigorous demands of their roles, ensuring the provision of exceptional care and adherence to professional standards throughout their careers.

MEDICAL COLLEGE

In India that offers undergraduate and postgraduate programs in medicine, such as Bachelor of Medicine and Bachelor of Surgery (MBBS) and various postgraduate specialties like Doctor of Medicine (MD) and Master of Surgery (MS). These medical colleges are responsible for providing comprehensive medical education and training to students who aspire to become healthcare professionals, such as doctors and surgeons.

These colleges can be either government-funded or privately owned and managed. Government medical colleges are established and supported by central or state governments and typically offer education at subsidized rates, making it more accessible to a wider range of students. On the other hand, private medical colleges are established and run by private entities, and they often charge higher tuition fees for their medical programs, which can make pursuing medical education in these institutions a significant financial commitment.

The quality of education and training provided by these medical colleges is overseen and regulated by a central regulatory authority, historically known as the Medical Council of India (MCI). However, it's important to note that the regulatory body overseeing medical education in India has changed, and as of my last knowledge update in September 2021, it is the National Medical Commission (NMC) that governs medical education and practice in the country.

The regulatory authority conducts inspections and assessments to ensure that these medical colleges adhere to prescribed standards and guidelines, maintain appropriate faculty-to-student ratios, provide necessary infrastructure and resources, and deliver high-quality medical education.

Medical colleges in India are institutions that offer medical education and training to aspiring healthcare professionals. They can be government-funded or private, and the quality of education in these institutions is monitored and regulated by the central regulatory authority to ensure that students receive the necessary skills and knowledge to become competent medical practitioners.



Fig 20. MBBS Curriculum

Anatomy

Study of the structure of the human body, including organs, tissues, and systems.

Physiology

Examination of the normal functioning of the human body's systems and processes.

Biochemistry

Study of the chemical processes and substances within living organisms.

Pathology

Understanding of the nature and causes of diseases.

Pharmacology

Study of drugs, their actions, uses, and side effects.

Microbiology

Examination of microorganisms and their role in disease.

Forensic Medicine

Knowledge of medical aspects relevant to legal cases.

Community Medicine (Preventive and Social Medicine)

Study of public health, epidemiology, and preventive healthcare.

General Medicine

Comprehensive study of medical diagnoses and treatments for various diseases.

General Surgery

Understanding surgical procedures and techniques.

Pediatrics

Specialized care for infants, children, and adolescents.

Obstetrics and Gynecology

Study of pregnancy, childbirth, and women's reproductive health.

Psychiatry

Examination of mental disorders and their treatments.

Ophthalmology

Study of eye diseases and vision care.

Otorhinolaryngology (ENT)

Study of ear, nose, and throat diseases.

Orthopedics

Diagnosis and treatment of musculoskeletal disorders.

Dermatology

Study of skin diseases.

Radiology

Interpretation of medical images (X-rays, CT scans, etc.).

Anesthesiology

Administering anesthesia during surgical procedures.

Emergency Medicine

Handling medical emergencies and trauma care.

Medical Ethics and Professionalism

Understanding ethical principles and professional conduct in medicine.

Clinical Skills

Practical training in history taking, physical examination, and patient care.

Clinical Postings and Rotations

Hands-on experience in various medical specialties within hospitals and clinics.

Research Methodology

Introduction to medical research and evidence-based practice.

Medical Jurisprudence

Legal aspects of medical practice and healthcare.

Medical Education

Techniques and methods for teaching and learning in medicine.

LITERATURE REVIEW: CASE STUDY



Fig 21. Vidya Devi Jindal Medical College Isometric View

White stone lattice surrounds the entrance to a medical college in Agroha, India, clad in red sandstone

INTRODUCTION

LOCATED IN: Maharaja Agrasen Medical College

ADDRESS: 8JPC+W9M, Agroha, Haryana 125047

CLIMATE: Agro-Climatic Zones

SITE AREA:

This project, generously gifted by a prominent industrial house with deep local ties, stands as a modern marvel, seamlessly fusing contemporary functionality with profound respect for historical and natural contexts. Rooted in the architectural vernacular of Le Corbusier's Chandigarh and the historical 'Mounds of Agroha,' it emerges as a low, horizontal mound from the earth, employing red sandstone and brown concrete to echo the earthy hues of its surroundings. The triple-height marble Jali adorned with cuneiform symbols pays homage to India's ancient wisdom, while the building's layout, with a central courtyard and versatile amphitheatre, fosters a fluid blend of formal and informal learning. This architectural gem not only embodies sustainability but also illuminates the region as a beacon of knowledge, where past and present converge to shape a brighter future.

DESIGN CONCEPT

The building maximizes the use of passive climate control techniques. Strategically placed windows, shading devices, and ventilation openings help regulate indoor temperatures while minimizing the need for artificial cooling or heating.



Fig 22. Library Isometric View (VDJMC)

AESTHETICS AND FORM

The low, horizontal form was intended to resemble a mound rising from the ground. The earthy tones of the prehistoric landscape are reproduced by red sandstone and brown concrete. People entering the building are greeted by a triple-height marble lattice wall or jaali. In this hard and arid location, the white Jaali provides shade, cools the air, and calms the eyes. The lattice wall is made up of the cuneiform symbols of the Harappan culture, making it a monument to the wisdom and riches of ancient India.



Fig 22. Library Isometric View (VDJMC)

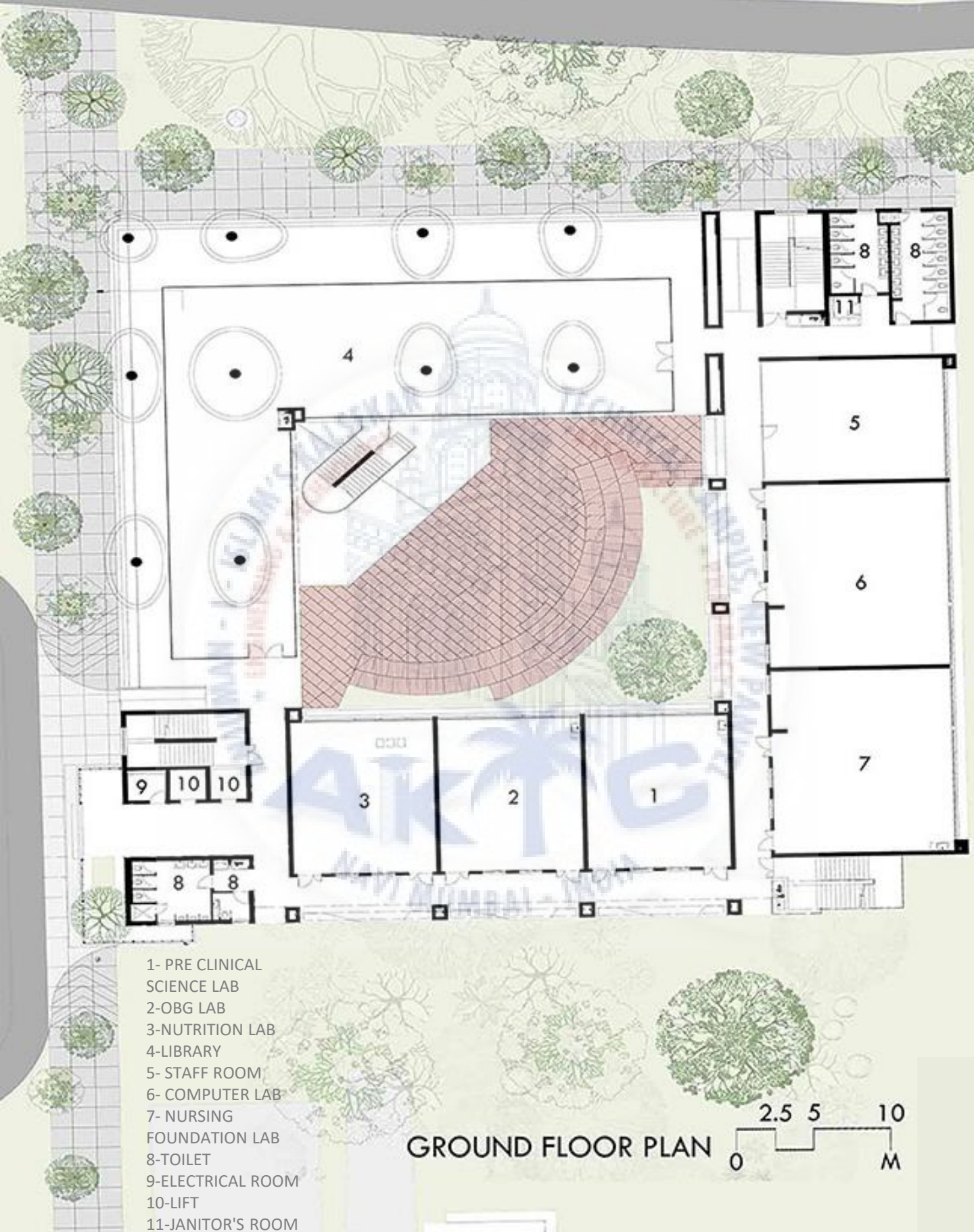


Fig 22. Library Isometric View (VDJMC)

The ground floor features a thoughtful and functional design that incorporates various spaces and circulation paths:

FOYER

As you enter the building, you are greeted by a triple-height marble Jali (lattice-wall) that serves as a striking feature. This lattice wall showcases cuneiform symbols of the Harappan civilization, paying tribute to the knowledge and prosperity of ancient India.

LIBRARY

A significant portion of the ground floor, approximately 7,000 square feet, is occupied by the library. It is designed in an L-shaped layout, offering a spacious and well-lit environment for studying and research. The library is surrounded by glass, providing views of the garden on one side and the central courtyard on the other. Flared mushroom columns with an offset meet the ceiling, creating the impression of a floating ceiling, adding a dynamic architectural expression to the space.

COURTYARD

At the heart of the building lies a central courtyard, which has been scooped out of the "mound" structure to create a shaded oasis. This courtyard serves as a hub for various activities and gatherings and is a space for assembly and informal learning.

AMPHITHEATER

Within the courtyard, there is an amphitheater that functions as a spill-out space, where educational activities and gatherings can take place. It's designed to merge formal and informal learning, acknowledging that learning can happen at any time and place.

CIRCULATION

Circulation paths, including corridors and staircases, connect various parts of the ground floor, providing access to the library, courtyard, and other areas within the building. The layout is designed to facilitate movement while ensuring that the central courtyard remains easily accessible and serves as a focal point.

The ground floor is an essential part of the building, offering spaces for research, learning, and communal activities while maintaining a connection with the natural surroundings and the central courtyard. The use of materials and architectural elements also contributes to the aesthetics and functionality of the space..

FIRST FLOOR PLAN

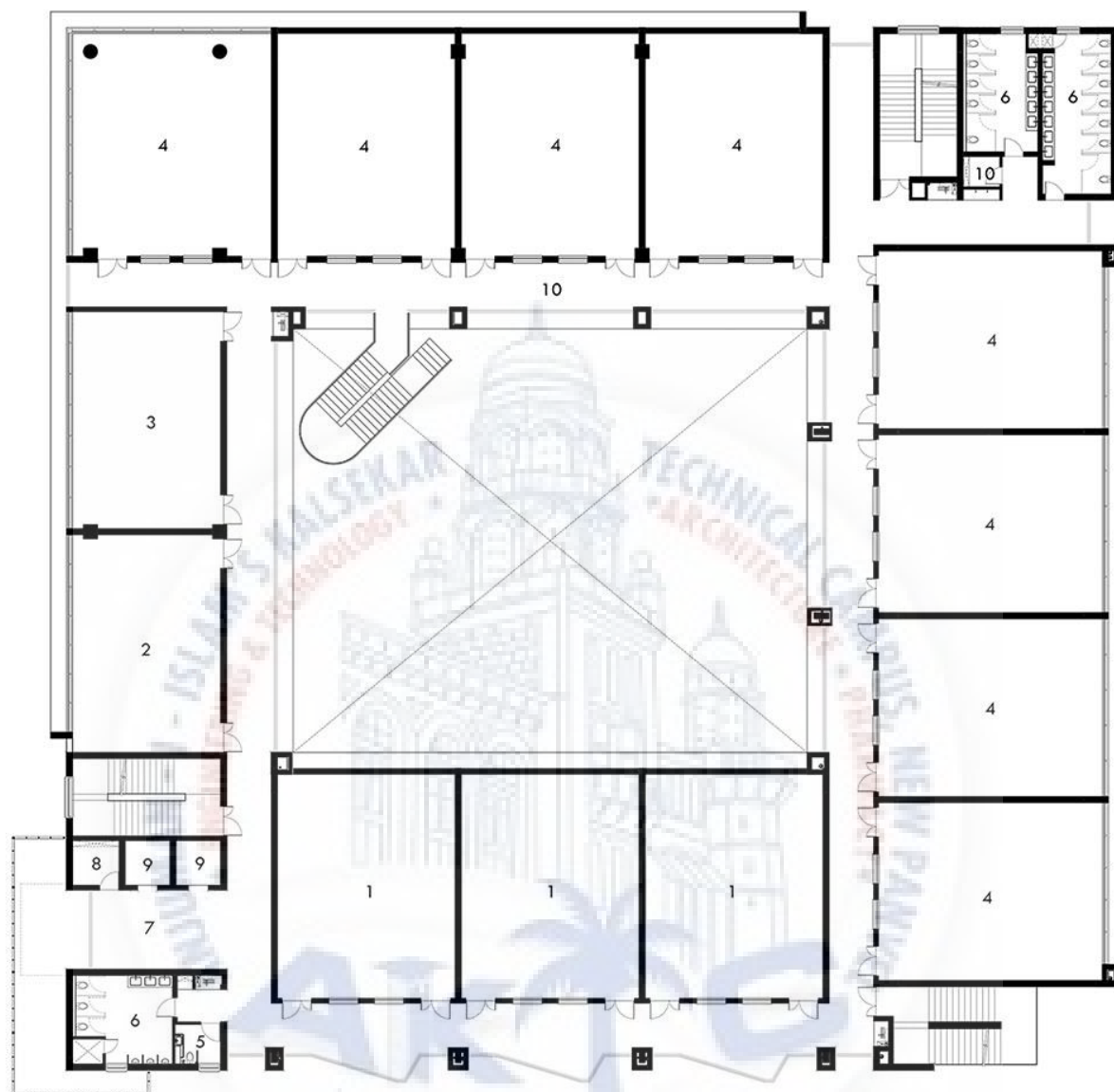


Fig 25. First Floor Plan (VDJMC)

- 1- LECTURE HALL
- 2- LABORATORY
- 3- CHEMISTRY LAB
- 4- LECTURE HALL
- 5- HANDICAPPED TOILET
- 6- TOILET
- 7- LEFT
- 8- ELECTRICAL ROOM
- 9- LIFT
- 10- JANITOR ROOM

On the first floor, Utilizing red sandstone and brown concrete, this level maintains continuity with the earthy landscape. The central courtyard remains a focal point for gatherings and learning, where formal and informal elements merge seamlessly. Academic spaces dominate this floor. With lecture halls and labs for academic purpose

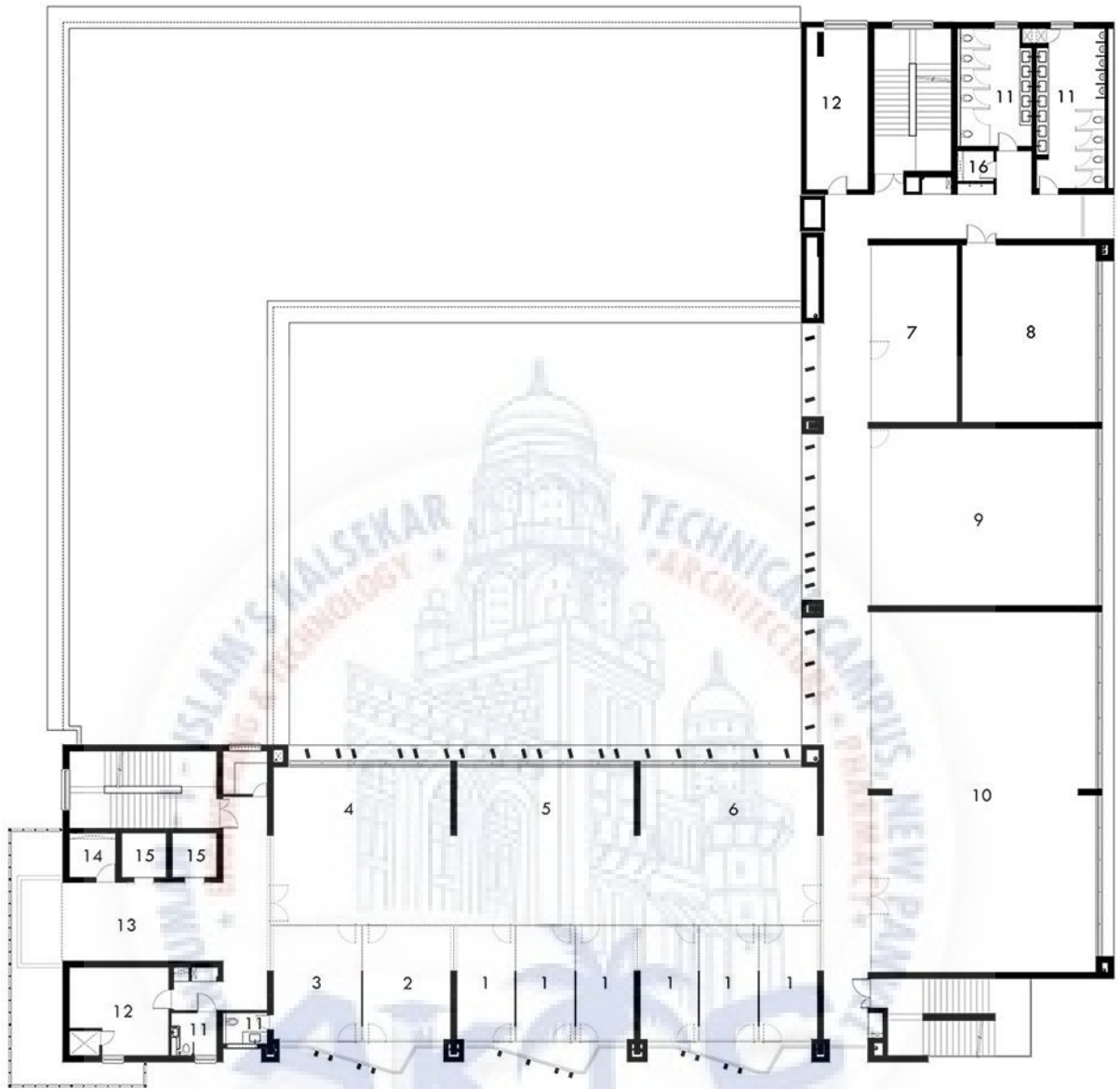


Fig 26. Second Floor Plan (VDJMC)

The second floor of the medical school building carries forward the architectural themes established on lower levels. On this floor, the program transitions from academic spaces to staff offices and smaller libraries. Sustainability features include an overhang to mitigate heat gain and materials chosen for their longevity and ease of maintenance.

- 1-HOD ROOMS
- 2-VICE PRINCIPAL'S ROOM
- 3-PRINCIPAL'S ROOM
- 4-ASSOCIATE PROFESSORS CABINS
- 5- TUTOR ROOMS
- 6- ASSISTANT PROFESSOR'S CABINS
- 7-OFFICE STAFF
- 8-A.V. ADIS ROOM
- 9-COMMON ROOM
- 10-LIBRARY
- 11-TOILET
- 12-STORE ROOM
- 13-LIFT LOBBY
- 14-ELECTRICAL ROOM
- 15-LIFT
- 16-JANITOR'S ROOM

IR@AIKTC-KRRC
THIRD FLOOR PLAN

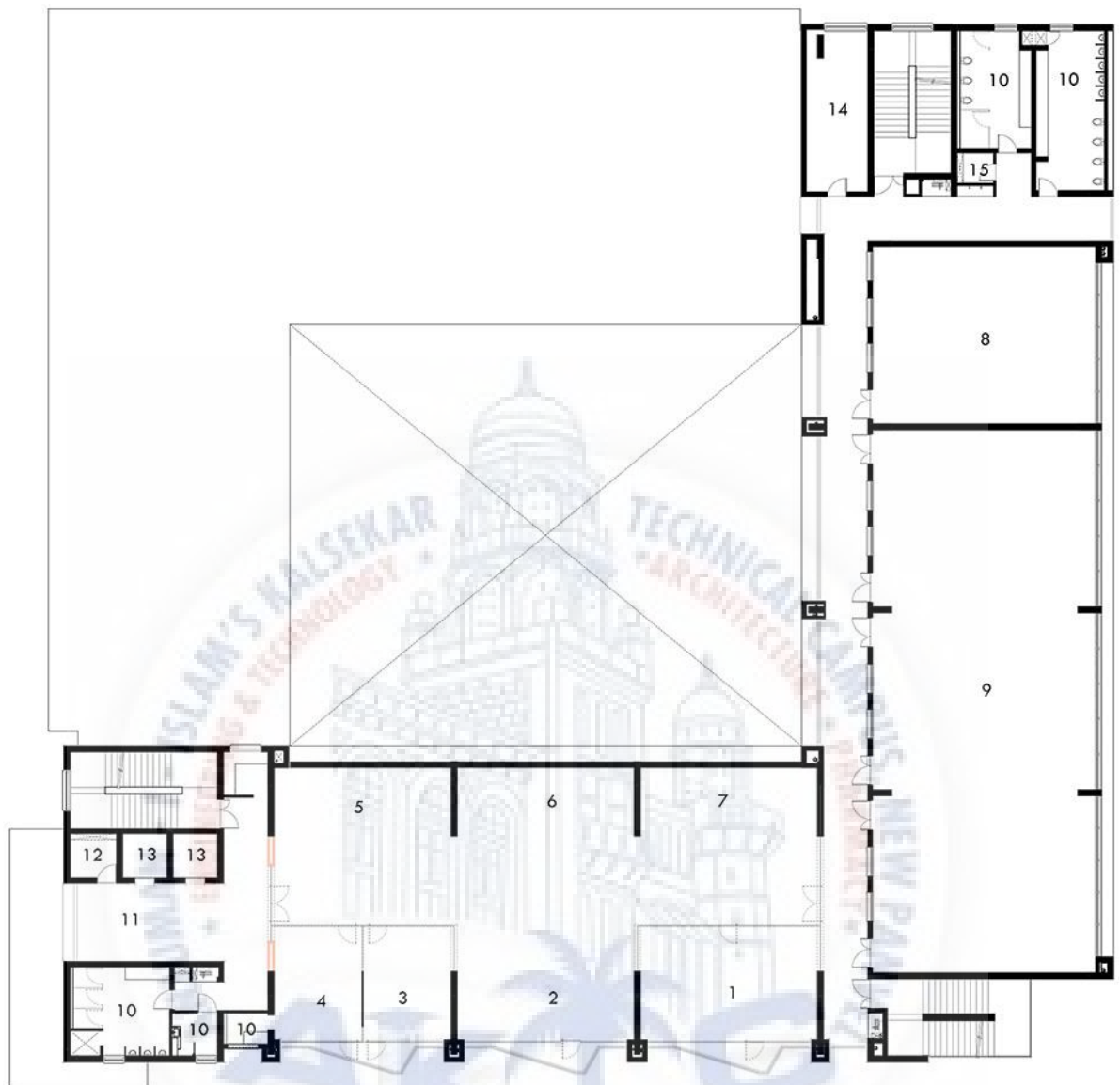


Fig 27. Third Floor Plan (VDJMC)

The third floor of the medical school building seamlessly integrates circulation with the overall design ethos. Transitioning from academic spaces on lower floors, this floor accommodates staff offices and smaller libraries.

- 1- DEMONSTRATION ROOM
- 2- ASSISTANT PROFESSOR'S CABINS
- 3- CONFERENCE ROOM
- 4- PRINCIPAL ROOM
- 5- ASSISTANT PROFESSOR'S CABINS
- 6- PROFESSOR'S CABINS
- 7- ASSOCIATE PROFESSOR'S CABINS
- 8- LIBRARY
- 9- HALL
- 10- TOILET
- 11- LIFT LOBBY
- 12- ELECTRICAL ROOM
- 13- LIFT
- 14- STORE ROOM
- 15- JANITOR'S ROOM

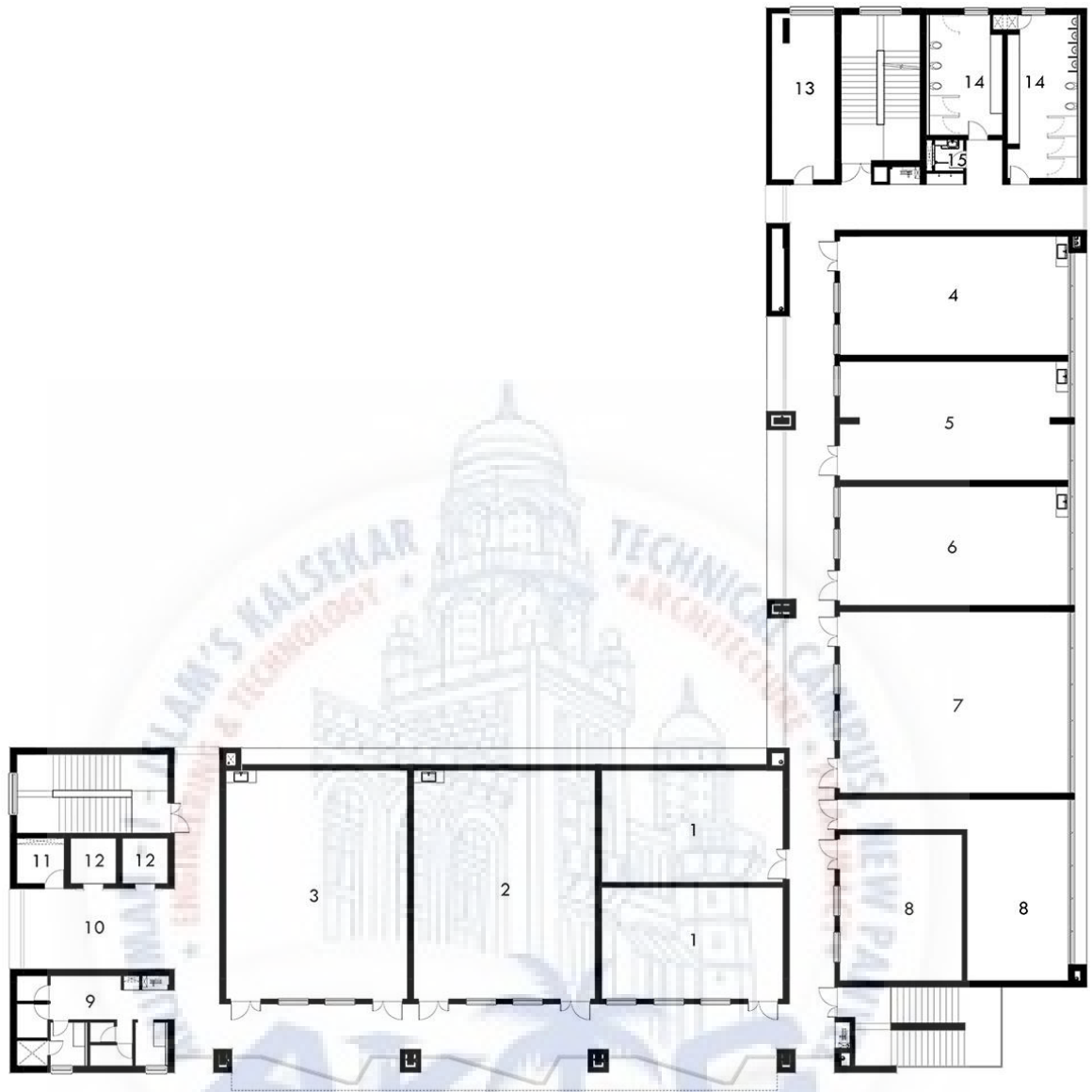


Fig 28. Fourth Floor Plan (VDJMC)

- 1-CLASS ROOM
- 2- ELECTROTHERAPY ROOM
- 3- EXCERCISE THERAPY ROOM
- 4- NEURO PHYSIOTHERAPY LAB
- 5- CARDIO PHYSIOTHERAPY LAB
- 6- BIO MECHANICS LAB
- 7- SEMINAR/AUDIO VISUAL ROOM
- 8-CLASSROOM
- 9 CHANGING ROOMS
- 10-LIFT LOBBY
- 11-ELECTROCAL ROOM
- 12 LIFT
- 13-STORE ROOM
- 14-TOILET
- 15-JANITOR'S ROOM

The fourth floor of the medical school building seamlessly integrates into the design, reflecting the institution's educational objectives. This floor acts as a transition, connecting academic spaces on lower levels with staff offices and smaller libraries on upper floors. The design prioritizes durability and minimal maintenance, employing innovative techniques like autoclaved aerated concrete blocks to reduce structural weight and dry-cladding methods for moisture resistance. The building's orientation and thoughtful use of louvers maximize natural light and energy efficiency, aligning with the site's historical significance and modern aspirations for a serene and sustainable learning environment.

TRIPLE-HEIGHT MARBLE JAALI/LATTICE-WALL

One of the standout features of the building is the triple-height marble lattice wall at the foyer. This stunning architectural element not only provides a visually striking entrance but also serves to soothe the eyes and create shade, enhancing the comfort of occupants in the dry and harsh regional climate. Moreover, the use of cuneiform symbols from the Harappan civilization in the lattice wall pays tribute to the rich historical knowledge and prosperity of ancient India, adding cultural significance to the design.



Fig 29. Entrance (VDJMC)

OVERHANG FOR HEAT REDUCTION

Recognizing the region's harsh summers, the building incorporates a large cantilever element above the library on the west side.

The design's dynamic expression is exemplified by the glass-encased library, supported by flared mushroom columns that appear to float. Sustainability features include an overhang to mitigate heat gain and materials chosen for their longevity and ease of maintenance..



Fig 30. Elevation (VDJMC)

IR@AIKTC-KRRC CENTRAL COURTYARD

At the heart of the rectilinear structure lies a central courtyard, which is skilfully scooped out of the 'mound.' This courtyard serves as a shaded oasis, fostering a tranquil environment for gatherings, learning, and informal activities. It represents a dynamic space where formal and informal aspects of education seamlessly converge, supporting the institution's educational mission by providing a versatile and comfortable setting for various activities.



Fig 31. Central Courtyard (VDJMC)

L-SHAPED LIBRARY

The 7000-square-foot L-shaped library on the ground floor is a distinctive architectural feature enveloped in glass. This design choice not only enhances the library's aesthetics but also optimizes the view of the garden on one side and the central courtyard on the other. The library's design incorporates flared mushroom columns that meet the ceiling gently with an offset, creating the illusion of a floating ceiling. This architectural expression adds a sense of lightness and dynamism to the otherwise solid structure, making the building come alive.



Fig 32. Isometric View (VDJMC)

INFERENCE

The design not only pays homage to the region's rich heritage but also takes into account the challenging climatic conditions. The use of red sandstone and brown-coloured concrete blends with the prehistoric landscape, connecting the building to its historical roots. The triple-height marble lattice wall, besides its cultural significance, provides shade and ventilation, addressing the harsh regional climate. Material choices, such as autoclaved aerated concrete blocks and dry-cladding techniques, demonstrate a commitment to durability and low maintenance while reducing the building's environmental footprint. Additionally, thoughtful design elements like cantilever and louvers mitigate heat gain, ensuring energy efficiency. This architectural endeavour skilfully integrates climate-responsiveness and material sustainability, creating a harmonious and modern space for



Fig 33. Jali Wall (VDJMC))



Fig 34. Isometric View (VDJMC))



Fig 35. Isometric View Mackay Medical College

INTRODUCTION

ARCHITECTS: Pan and Partners

LOCATION: New Taipei City, Taiwan

Project Year 2013

SITE AREA 188,795m

BUILDING COVERAGE: 8.743 m

TOTAL FLOOR AREA 37.369 m

The Mackay Medical College Phase II complex, featuring a teaching and research building, multifunctional sports center, and dormitory, offers an inviting learning environment near the coastal area. Its enfolded layout shields against seasonal northeast winds while preserving natural elements like mountains, ocean, and sunshine. Honoring Dr. Mackay's legacy, the school motto, "Rather burn out than rust out," graces an iconic green wall. The Multifunctional Sports Center echoes local ventifacts, housing an assembly hall and gymnasium on separate levels for efficient circulation. The Dormitory's design fosters privacy, symbolic of human-God connections, and optimal light and ventilation. Communal corridors connect new and existing structures, enhancing accessibility and interaction. This holistic complex embodies the college's enduring mission..

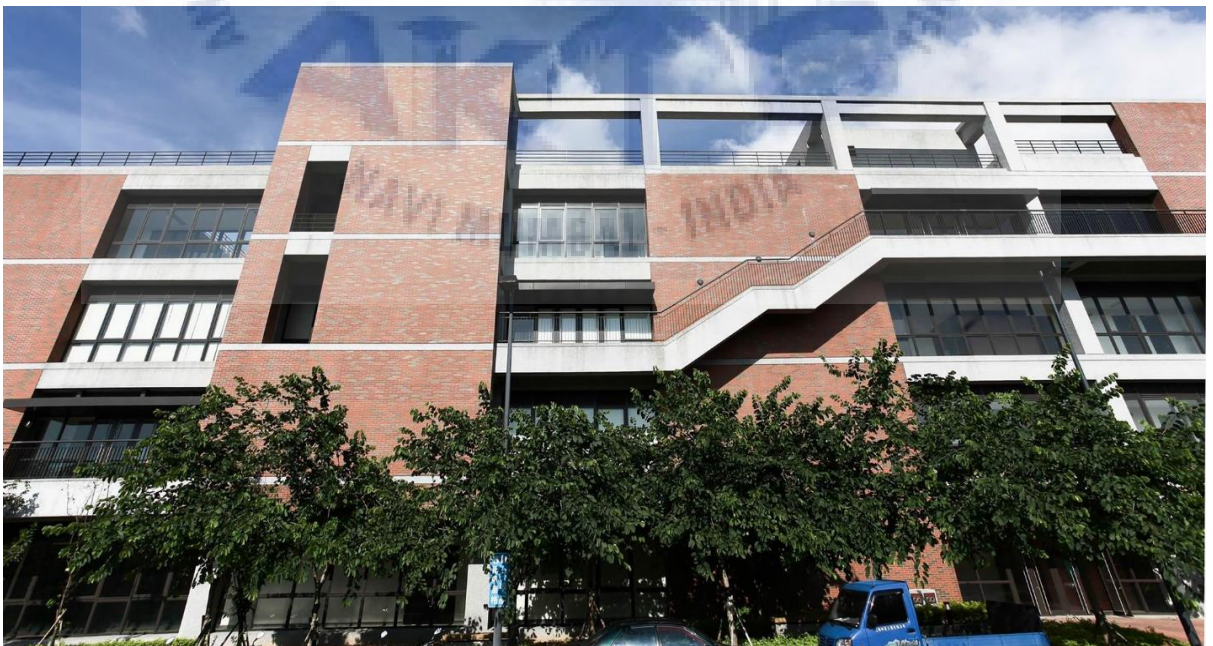


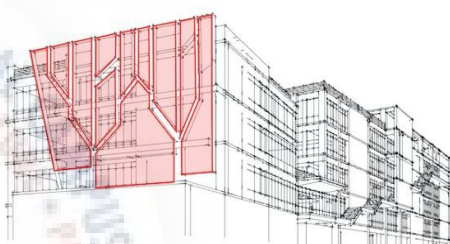
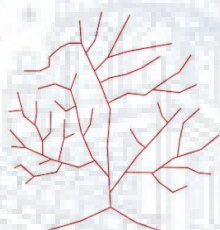
Fig 36. Isometric View Mackay Medical College

DESIGN CONCEPT

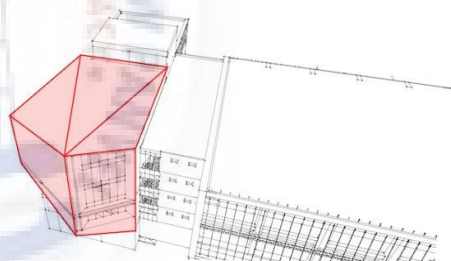
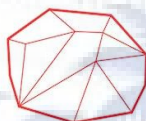
The architectural concept revolves around the idea of a "Harmonious Healing Nexus." This concept embodies the fusion of healing environments, innovative design, and functional aesthetics. Through biophilic design principles, fluid connectivity, and a seamless alignment of form with function, the complex creates a nurturing space that elevates the medical education experience. Natural light, cultural integration, and sustainability converge to establish an architectural sanctuary where the interconnectedness of nature, knowledge, and well-being flourishes, encapsulating the college's commitment to holistic growth, patient-centred care, and advanced medical expertise.

Design Concept

Teaching and Research Building



Multifunctional Sports Complex



Dormitory

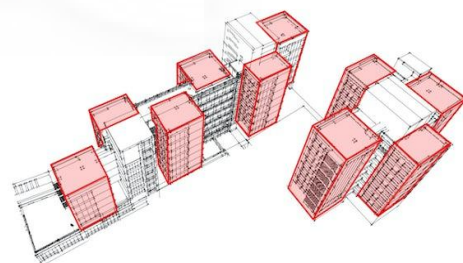
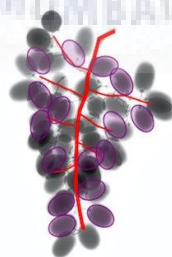


Fig 37. Concept Mackay Medical College



- New Building
 - a. Multifunctional Sports Complex
 - b. Teaching and Research Building
 - c. Dormitory

- Existing Building

Fig 38. Master Plan Mackay Medical College



Fig 39. Multifunctional Sports Center Building (MMC)

The architectural form of the sports centre, inspired by the unique shapes of local ventifacts in the Sanzhi District, signifies the college's deep commitment to its mission while harmonizing with the natural landscape. The building's functionality is divided into two main areas: an assembly hall and a gymnasium, accommodating diverse activities like sports, gatherings, and assemblies. The deliberate separation of these spaces on different levels optimizes circulation, reducing congestion and improving access and egress during events. This multifunctional approach underscores the center's versatility, making it a central hub for various campus functions, fostering community, and enhancing the overall college experience.

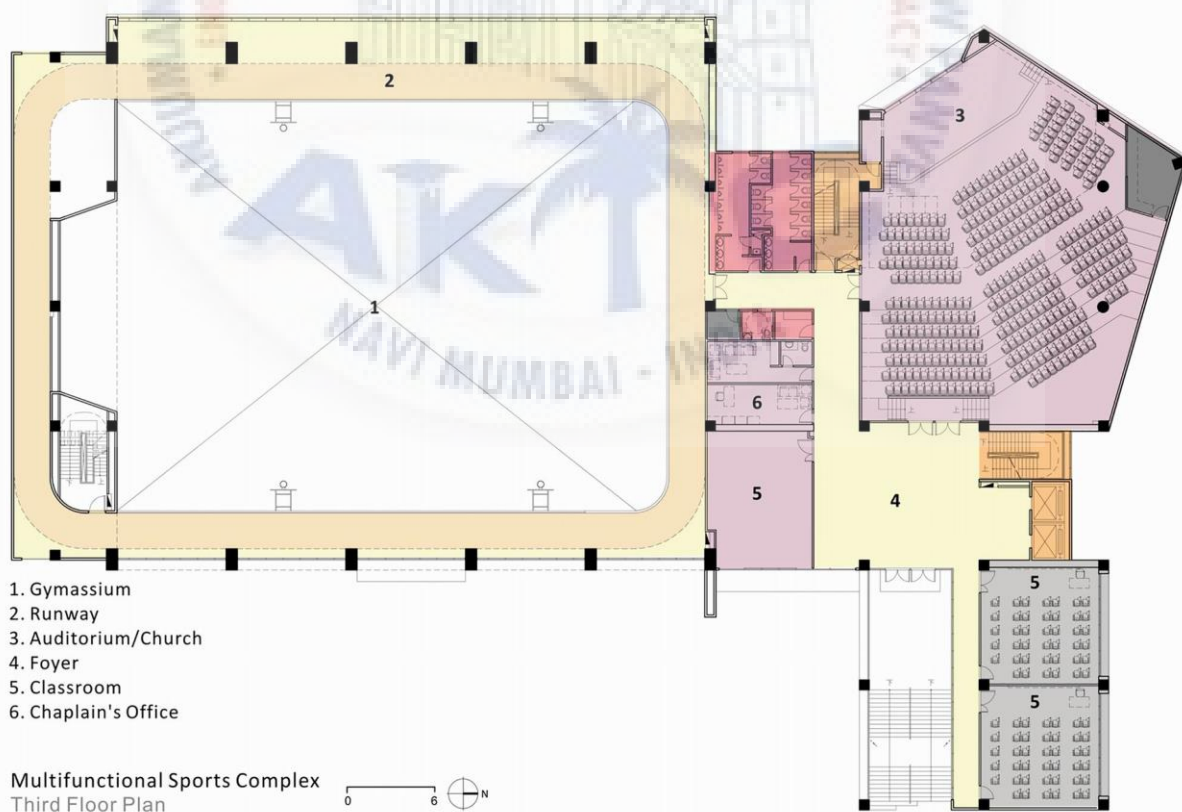


Fig 40. Multifunctional Sports Centre Plan (MMC)

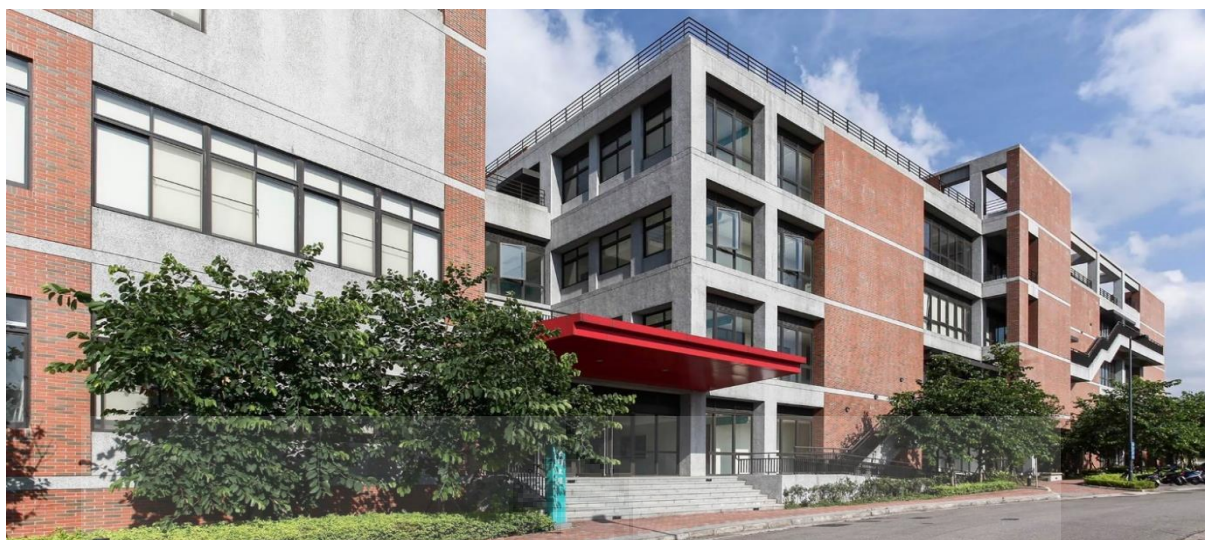


Fig 41. Teaching And Research Building (MMC)

The teaching and research building, resembling a tree, draws inspiration from nature's growth and interconnectedness. Just as a tree's branches reach outward, the building's design fosters collaborative learning and interdisciplinary interaction. The trunk represents the core of medical education, while branches symbolize different disciplines. Like leaves capturing sunlight, the design maximizes natural light for an uplifting learning environment. The roots, mirroring a tree's stability, symbolize the strong foundation of medical knowledge. Ultimately, this concept embodies the college's dedication to nurturing growth, fostering collaboration, and creating an environment where knowledge flourishes like a thriving tree

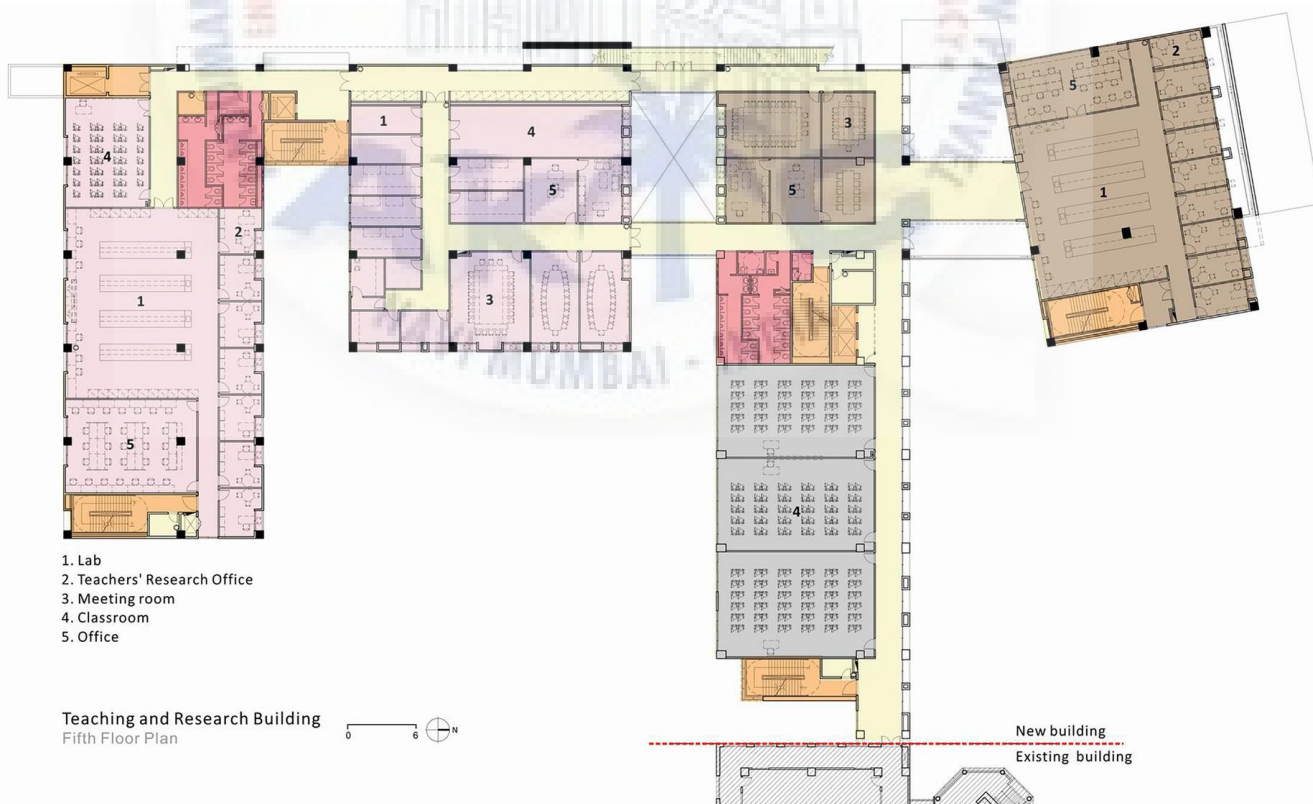


Fig 42. Teaching And Research Building (MMC)



Fig 43. Dormitory Building (MMC)

The dormitory design is a response to the site's contours, divided into multiple sections that gracefully follow the rising landscape. Corridors link these sections, forming a cohesive whole. While distinct, these sections reflect a connection, much like the Bible verse "I am the vine, you are the branches," signifying the bond between humans and God. Varying spatial sizes and privacy levels establish a sense of spatial order. All living spaces face north and south to maximize sunlight and airflow, ensuring a pleasant stay for residents.

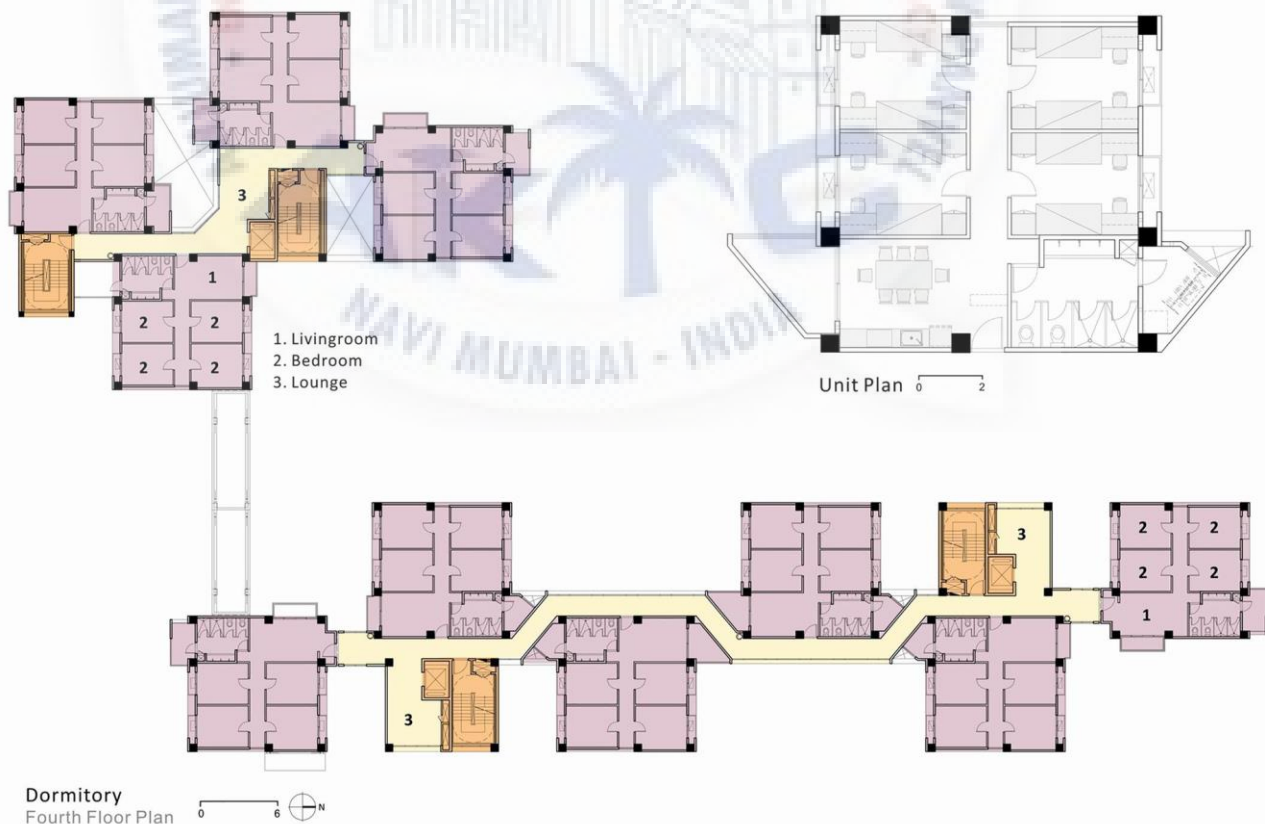


Fig 44. Dormitory Plan (MMC)

The architectural feature that stands out in the "Harmonious Healing Nexus" concept is the use of a rock-faced structure. This choice draws inspiration from the enduring and steadfast qualities of natural rock formations. The rock symbolizes strength, stability, and permanence, which are foundational principles in both medical education and healing.

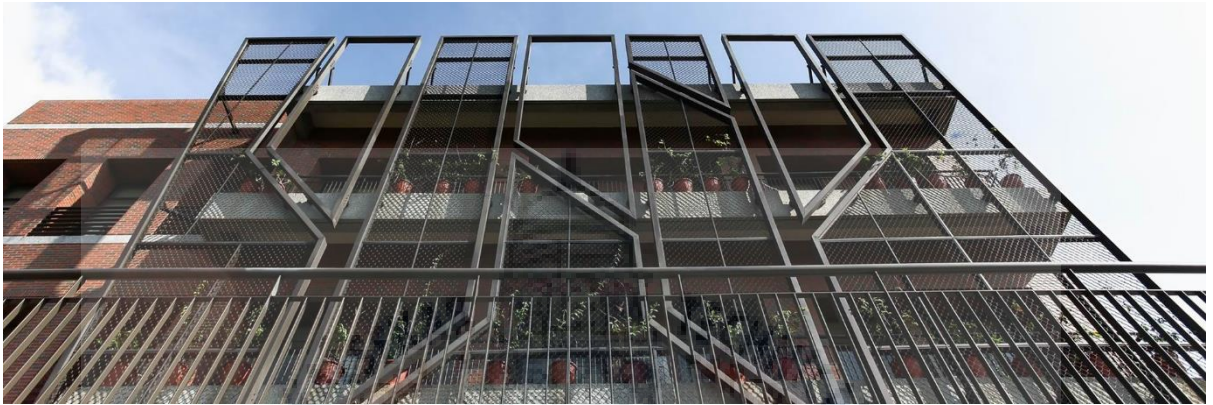


Fig 45. Building Facade (MMC)



Fig 46. Building Facade (MMC)

Furthermore, the integration of biophilic elements, akin to the way lichens and moss naturally grow on rocks over time, adds a healing dimension to the design. These elements connect the building with nature, promoting a sense of well-being and tranquillity.

The intricate layers of the rock structure serve as a metaphor for the diverse aspects of medical education, ranging from classrooms to research labs. Just as a rock provides shelter and protection, this architectural design offers a secure and nurturing space for learning and growth.

Overall, the "Harmonious Healing Nexus" concept's architectural feature of the rock-faced structure symbolizes the college's unwavering commitment to enduring education, innovation, and compassionate care, encapsulated in a building as steadfast as a rock.

The three integral components of the Mackay Medical College Phase II complex - the Teaching and Research Building, Multifunctional Sports Center, and Dormitory - exhibit a cohesive design approach that considers both functionality and aesthetics.

The Teaching and Research Building prominently features the school's motto, "Rather burn out, than rust out," on an iconic green wall, symbolizing the institution's dedication to excellence. Corridors facilitate connections between the existing and new buildings, serving as communal spaces that promote accessibility and user interaction.

The Multifunctional Sports Center draws inspiration from local ventifacts, embodying Dr. Mackay's determination. It comprises two main spaces - an assembly hall and a gymnasium - accessed from separate levels to enhance circulation and exit efficiency.

The Dormitory, responsive to the site's topography, is divided into volumes that follow the upward slope. This design echoes the verse from the Bible, "I am the vine, you are the branches," signifying the intimate relationship between humans and God. It introduces spatial hierarchy through varying sizes and levels of privacy while optimizing natural light and ventilation by orienting housing quarters north and south.

Overall, these three elements are interconnected through circulation corridors that bridge old and new structures, providing physical links and fostering a sense of unity. This cohesive design approach creates an integrated learning and living environment that emphasizes growth, well-being, and a strong connection to the institution's values and history



Fig 47. Site Elevation (MMC)

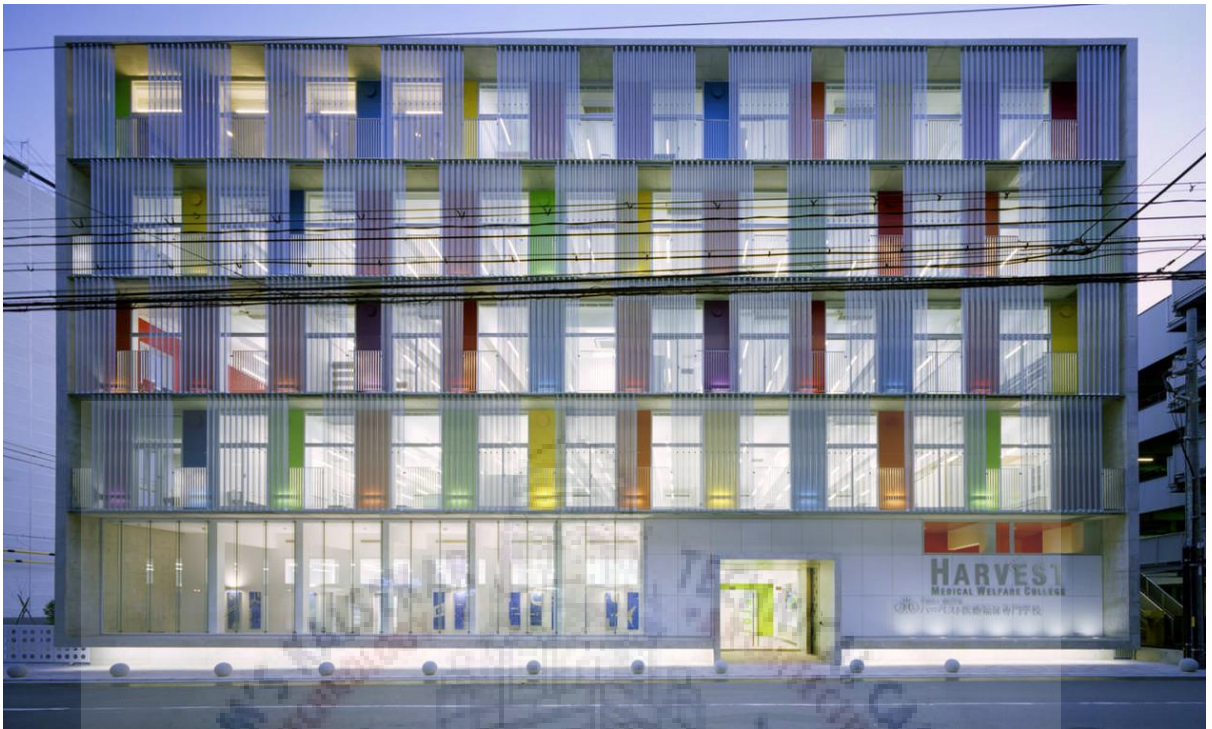


Fig 48. Elevation Harvest Medical College

INTRODUCTION

Architects	: Shogo Iwata Architect
Project	: Harvest Medical Welfare College
Location	: Hyogo, Japan
Site area	: 1494.48m ²
Total floor area	: 3802.50m ²
Building area	: 794.82m ²
Structure	: steel structure / 4 Floors
Construction	: 2007

Its design theme is “reflection of various colour”. The building uses six primary colours in interior, exterior, furniture and signs. The composition of these colours reflects embracing diversity that we regard as the primal concept of medical and welfare.

The frontal facade consists of the composition of primal colours. The checker board patterned steel porous folded plates layered in front of it make the facade rich and ephemeral.

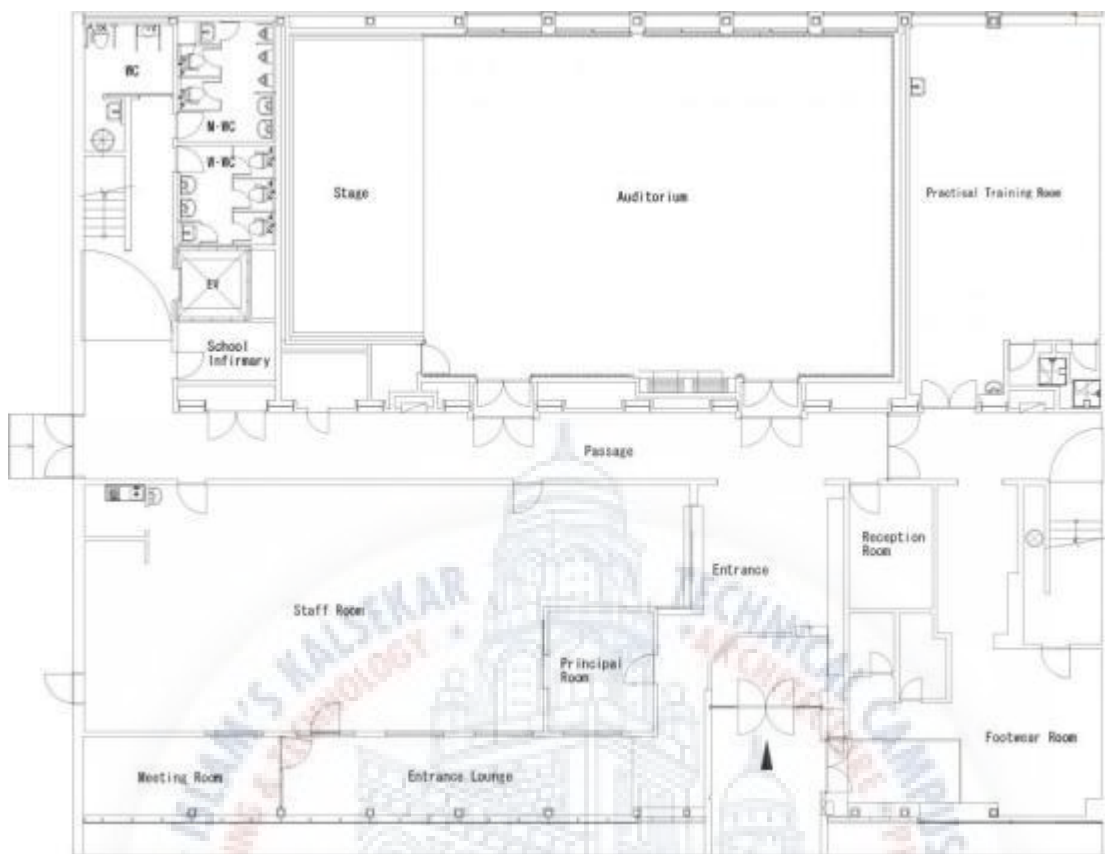


Fig 49. Ground Floor Plan Harvest Medical College

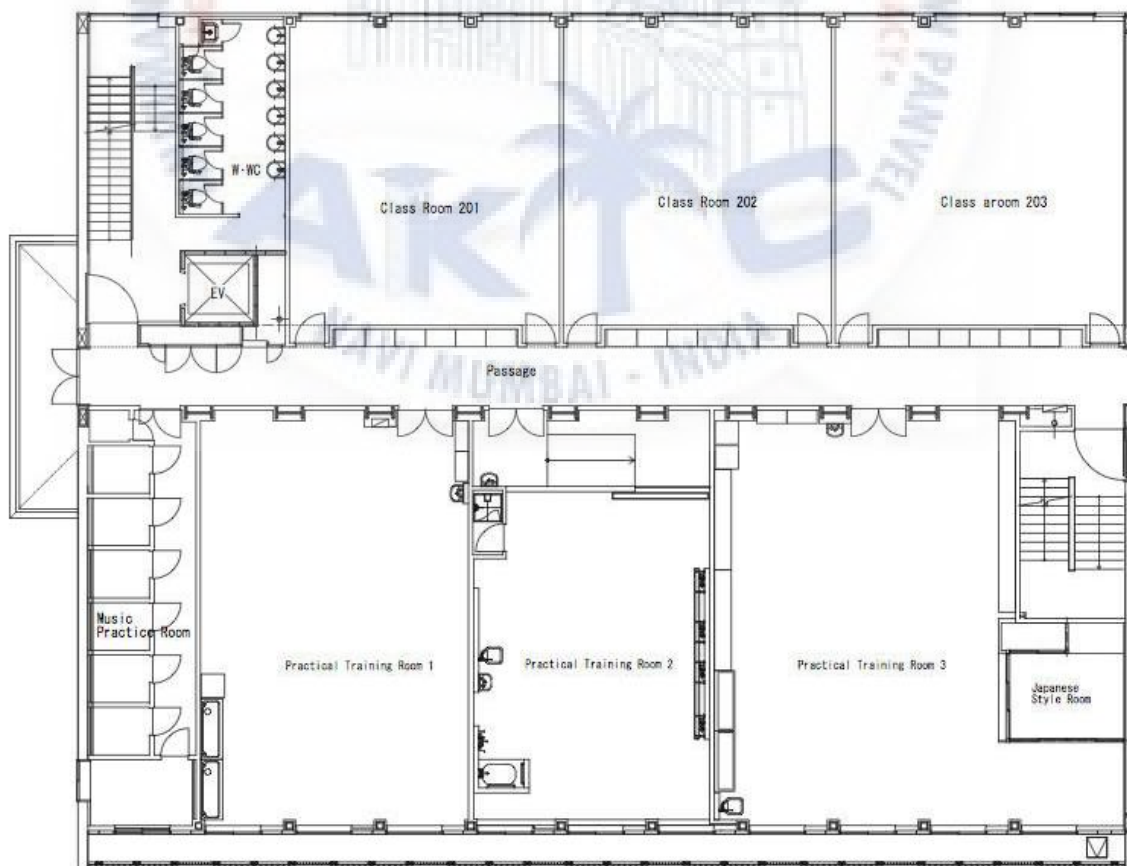


Fig 50. Second Floor Plan Harvest Medical College

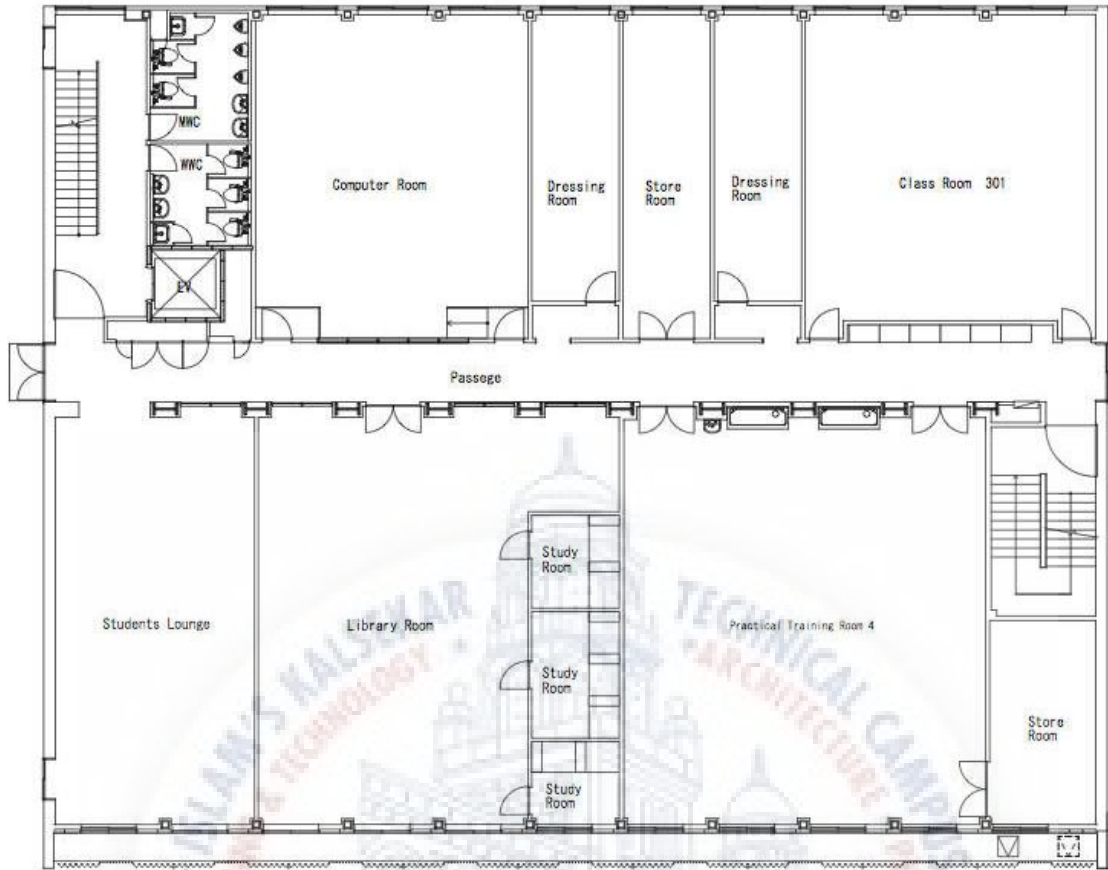


Fig 51. Third Floor Plan Harvest Medical College

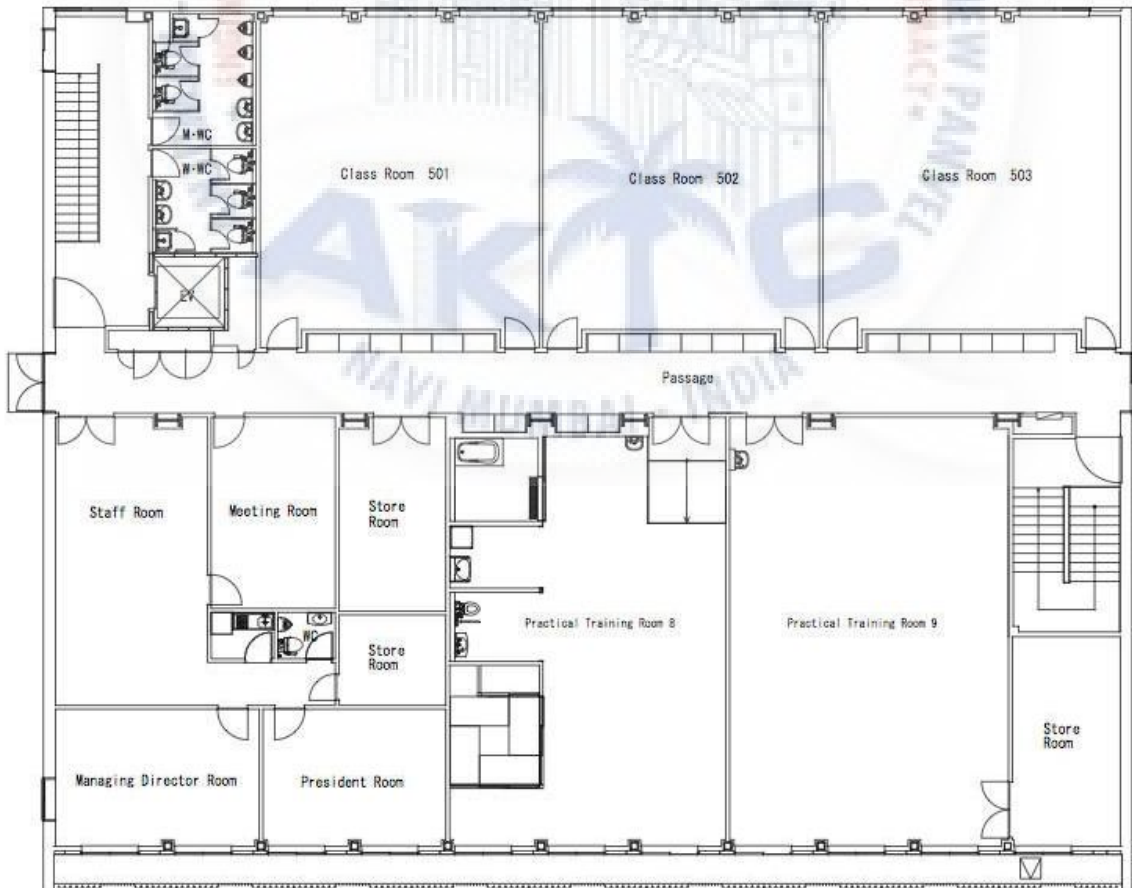


Fig 52. Forth Floor Plan Harvest Medical College



Fig 53. Isometric View Harvest Medical College

Its design theme is "reflection of various colours". The building uses six primary colours in interior, exterior, furniture and signs. The composition of these colours reflects embracing diversity that we regard as the primal concept of medical and welfare. The frontal facade consists of the composition of primal colours. The checker board patterned steel porous folded plates layered in front of it make the facade rich and ephemera.



Fig 54. Isometric View Harvest Medical College

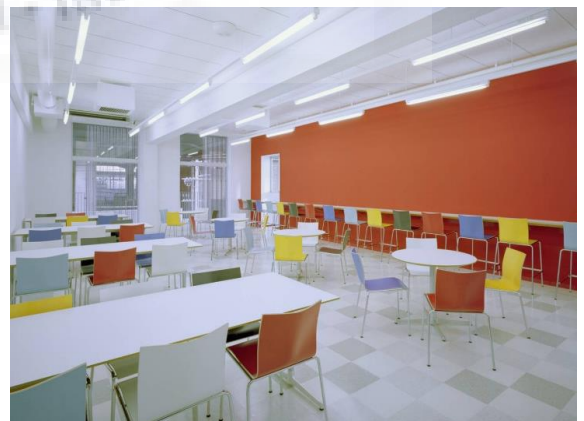


Fig 55. Class Room View Harvest Medical College

INFERENCE

The architectural planning of the college building, characterized by a single block divided by well-designed, offers numerous advantages. This layout efficiently utilizes space, reduces the need for excessive construction materials, eliminates unnecessary walkways, and ensures a smooth transition between departments, alleviating any discomfort associated with navigating separate building blocks. However, there are some areas for improvement. Laboratories from various departments are sometimes interspersed with functional spaces or located on different floors, leading to class dispersal and increased movement, resulting in noise disturbances.

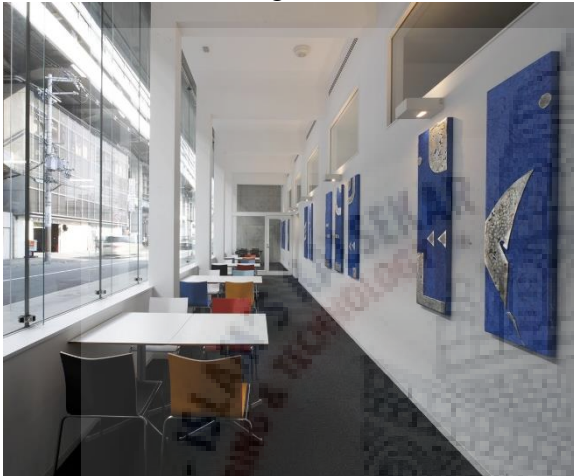


Fig 56. View Harvest Medical College



Fig 57. View Harvest Medical College

While the exterior of the college building boasts an appealing design, resembling a hospital in the interior is a drawback. This perception primarily arises from the finishes and their arrangement within. The interior lacks visual interest, with its white and light yellow painted walls and white-tiled dados in corridors. When corridors are doubled up, it further reinforces the impression of a common hospital-like setting.

One notable concern is the building's design, which may pose challenges for potential departmental extensions in the future. Expanding departments would require a carefully considered strategy to ensure that the existing circulation and architectural symmetry are not disrupted.

Despite these interior design concerns, the college building's strategic placement in relation to other facilities is notably positive. The convenient walking distance between the college building and other essential facilities on the campus ensures a seamless experience for every student. This proximity facilitates easy access to various resources and fosters a sense of interconnectedness within the educational institution, contributing to a well-rounded and functional campus environment.



Fig 58. Isometric View New Hospital Tower Rush University Medical Center

INTRODUCTION

LOCATED IN: CHICAGO, UNITED STATES

Architects: Perkins & Will

Area: 830000 ft²

Year: 2012

The hospital in question is a vital part of a comprehensive campus-wide transformation project in Chicago. Spanning a vast 800,000 square feet, it boasts 386 patient beds and houses critical medical facilities such as surgery, radiology, and emergency departments. Additionally, the project includes the construction of an orthopedic building, a parking structure, and improved delivery systems. Positioned strategically adjacent to the Eisenhower Expressway, Ashland Avenue, and Harrison Street, it promises improved healthcare services and accessibility for the community while contributing to the overall development of the Rush Campus.

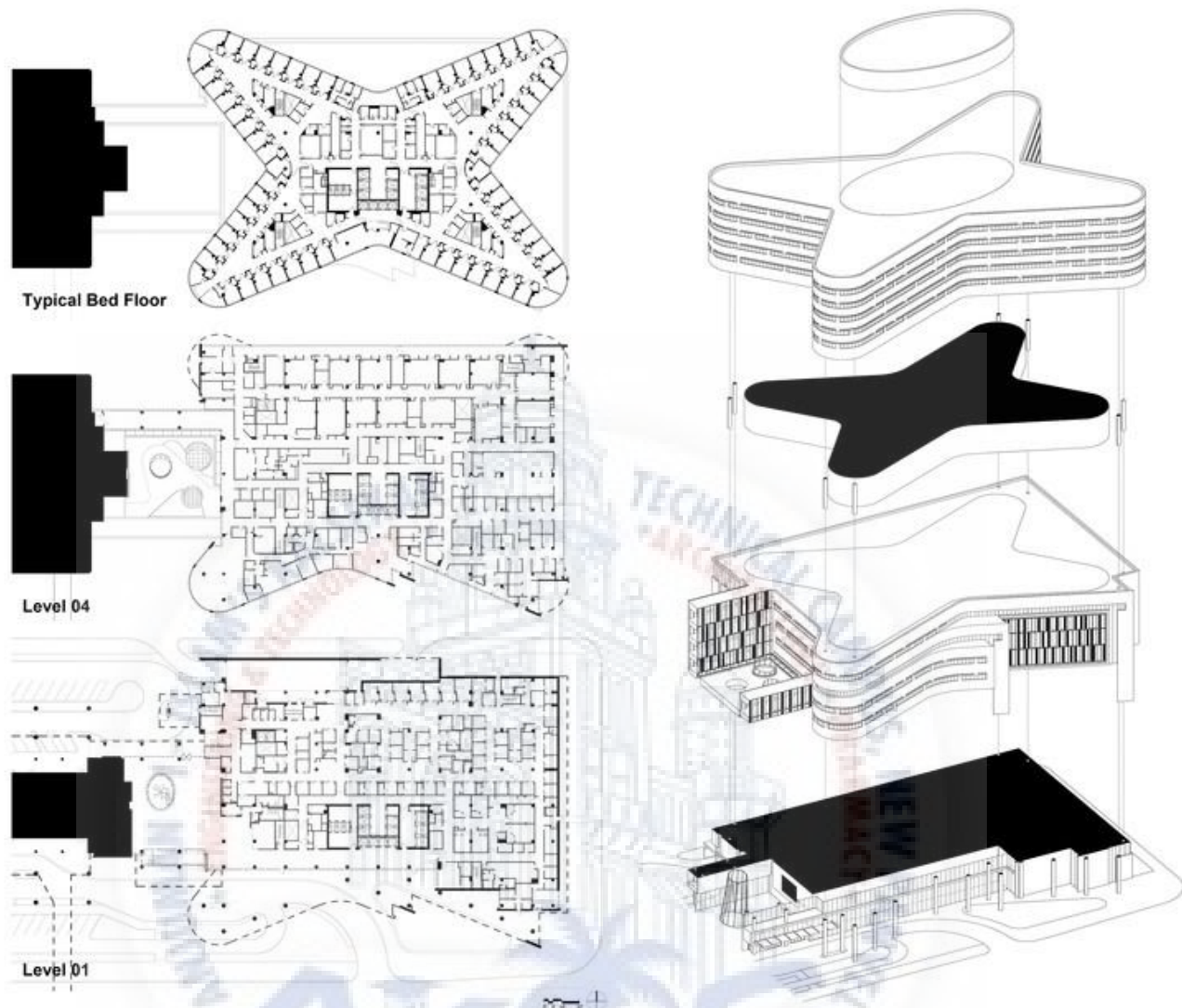


Fig 59. Design Concept

The architectural design concept for this hospital embodies a harmonious blend of form and function. It comprises two distinct elements: a solid, six-story rectangular base and an elegant, five-story curvilinear bed tower. The base serves as the foundation for new diagnostic and treatment facilities, seamlessly integrating with existing structures to create a unified healthcare hub. Its straightforward geometry ensures efficient operations and connectivity. Above, the bed tower takes on a curvilinear form, carefully designed to maximize natural light and panoramic views within patient rooms.

This curvature not only creates a soothing and healing environment but also enhances the overall efficiency and safety of healthcare delivery. In essence, this architectural concept combines modern aesthetics with practicality, aiming to provide an exceptional healthcare experience while promoting efficient and effective healthcare services.

1. Campus Integration:

The project seamlessly integrates the new hospital tower into the existing Rush University Medical Center campus. This integration is vital for creating a unified healthcare hub, allowing for easy navigation and access to services.

2. Transportation Accessibility:

The hospital's strategic location adjacent to the Eisenhower Expressway and Ashland Avenue enhances accessibility for patients and healthcare professionals from across Chicago. The addition of a new parking structure further simplifies connectivity by providing ample parking options.

3. Intra-Hospital Connectivity:

- The hospital's layout prioritizes efficient workflows and connectivity within its walls.
- Grouping related diagnostic and treatment facilities reduces the need for patients and staff to traverse long distances, fostering efficient healthcare delivery.



Fig 60. Isometric View

IR@AIKTC-KRRC 4. Patient-Centric Design:

The curvilinear bed tower is designed with patient comfort in mind. Its graceful curves maximize natural light, creating a healing and soothing environment. Patient rooms offer panoramic views, enhancing the overall patient experience.

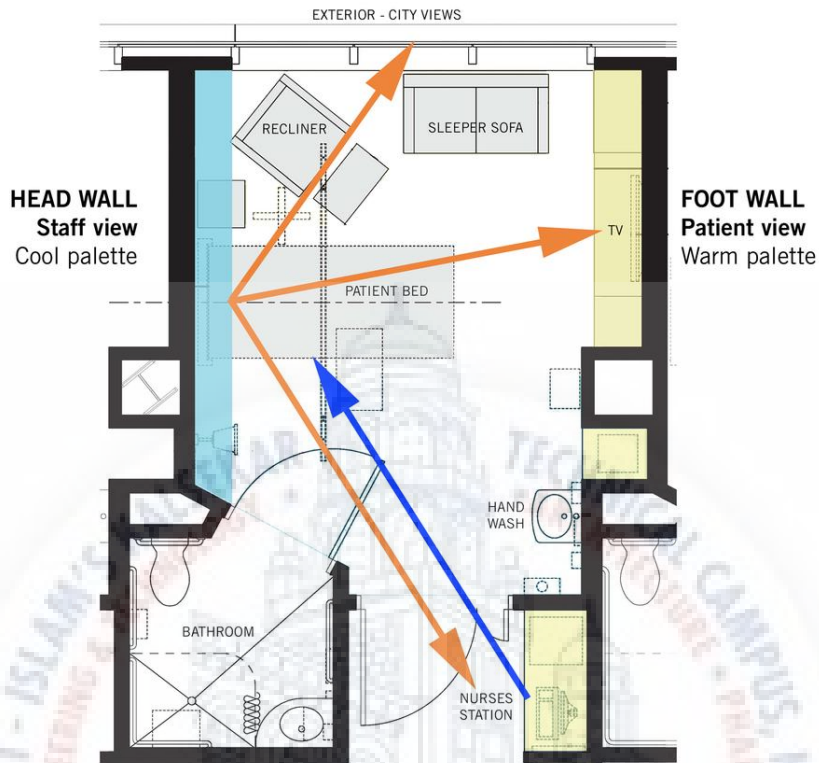


Fig 61. Patient- Room Plan



Fig 62. Patient- Room



Fig 63. Elevation

1. Base and Bed Tower:

The architectural design incorporates a clear division between the six-story rectangular base and the five-story curvilinear bed tower. This intentional separation serves both functional and aesthetic purposes

2. Functionality and Connectivity:

The rectangular base houses diagnostic and treatment facilities, fostering efficient healthcare delivery. It seamlessly connects with existing structures, creating a continuous interventional platform.

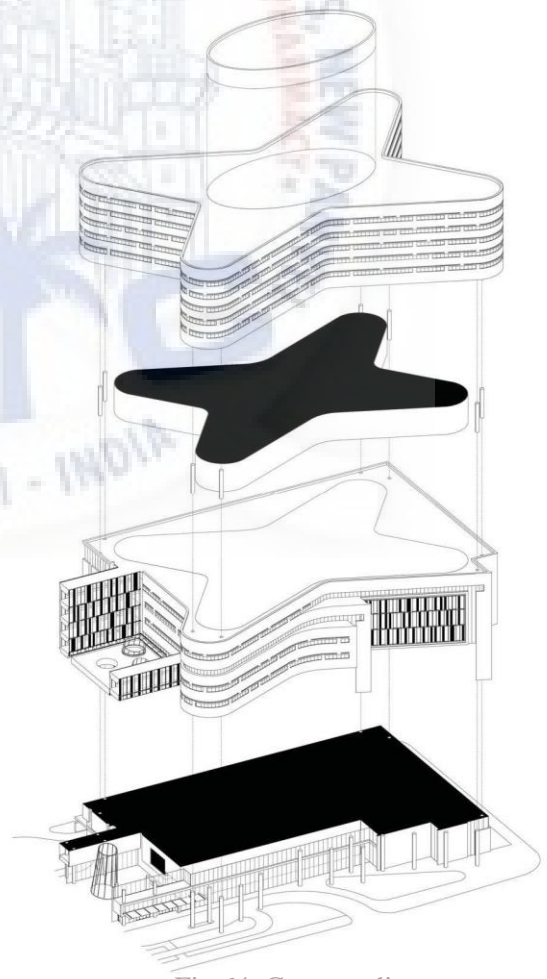


Fig 64. Concept diagram

The roof garden at Rush University Medical Center is a serene and therapeutic oasis in the heart of the hospital. This green space, located on the rooftop of the curvilinear bed tower, is designed to provide patients, their families, and hospital staff with a peaceful retreat.



Fig 65. Green Space Section



Fig 66. Green Space View

KEY FEATURES OF THE ROOF GARDEN:

NATURAL TRANQUILLITY:

The garden is adorned with a variety of lush plants, flowers, and trees, creating a natural sanctuary that offers respite from the clinical environment of the hospital



Fig 67. Green Space Plan View

PANORAMIC VIEWS:

Positioned on the rooftop, the garden provides breathtaking panoramic views of the surrounding cityscape, offering patients and visitors a connection with the outside world.

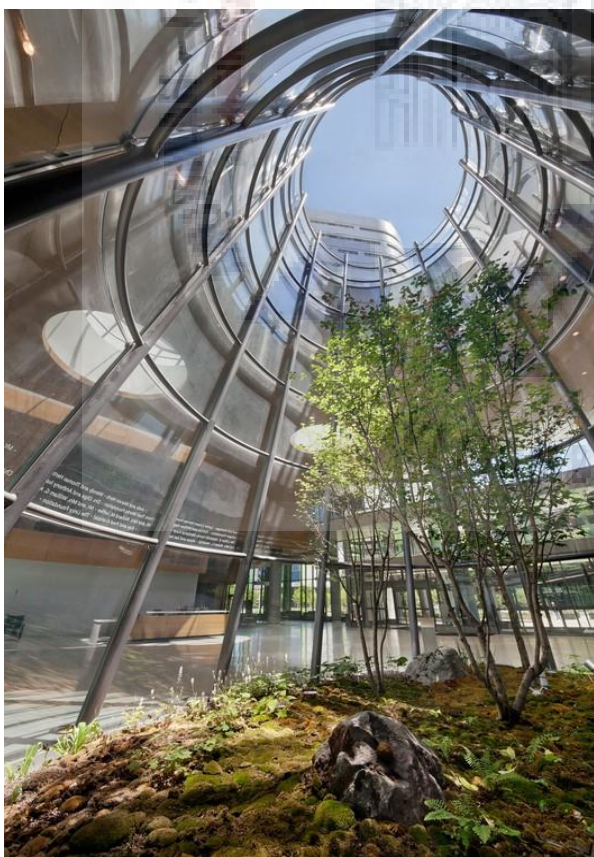


Fig 68. Green Space View

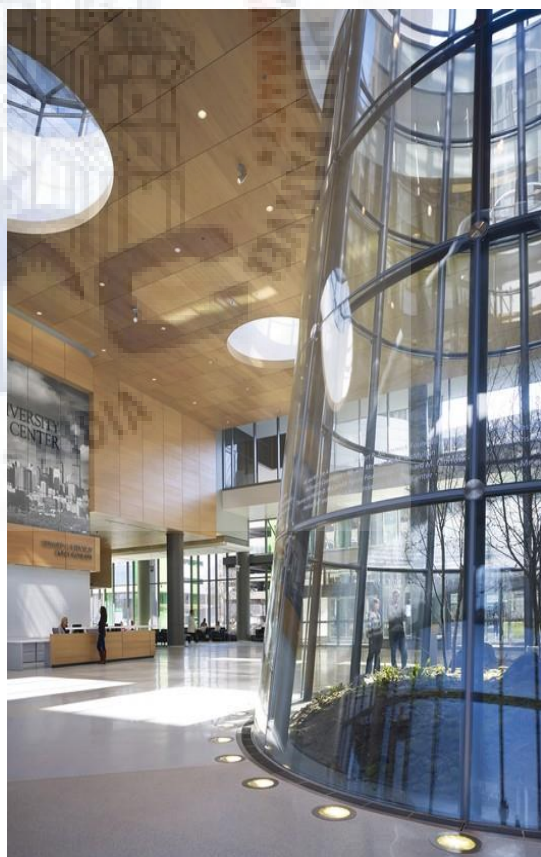


Fig 69. Green Space View

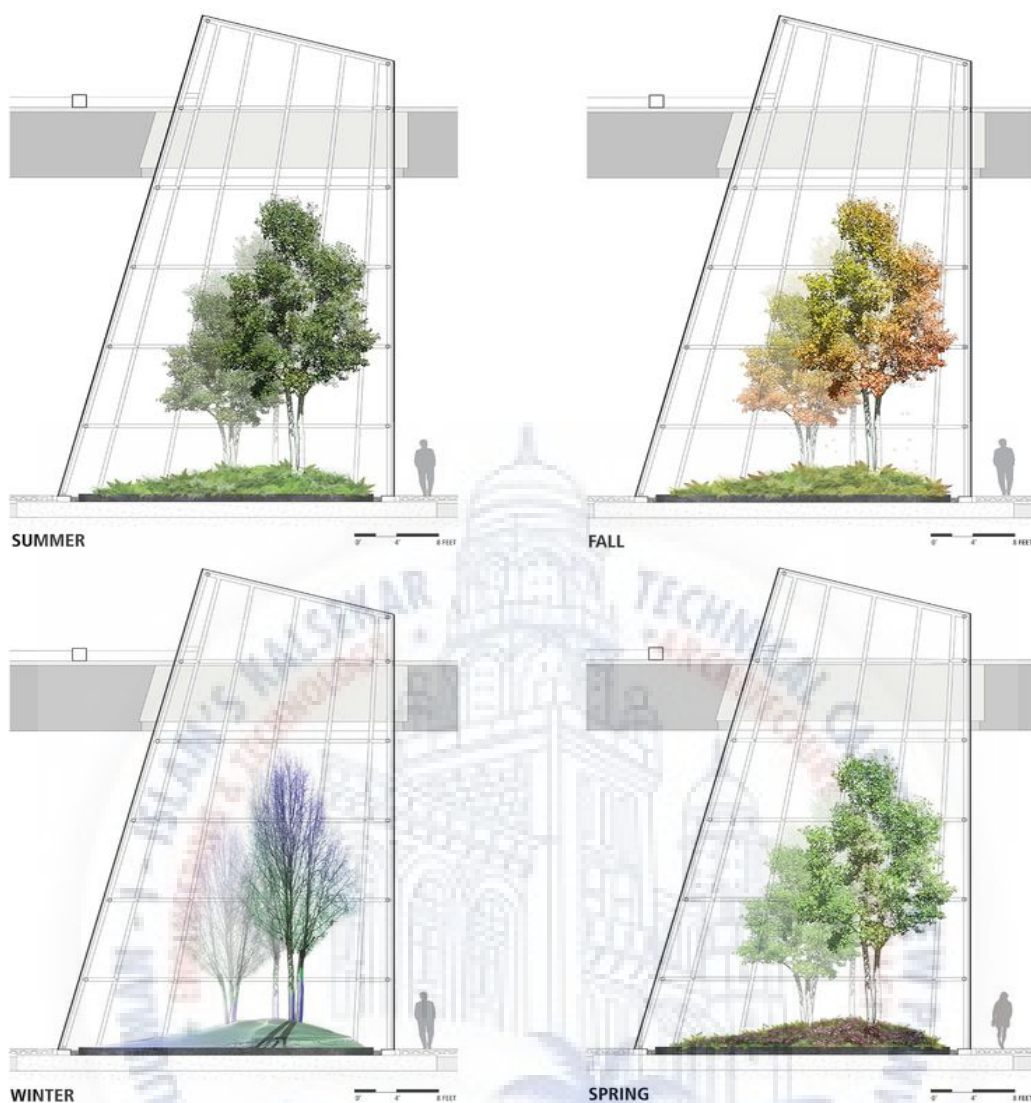


Fig 70. Green Space Section According To Seasons

HEALING ATMOSPHERE:

Designed with patient well-being in mind, the garden serves as an extension of the healing environment, promoting relaxation and reducing stress.

THERAPEUTIC BENEFITS:

The greenery and open space have therapeutic benefits, enhancing the overall patient experience and contributing to the hospital's patient-centered approach to care.

In essence, the roof garden at Rush University Medical Center is not just a space for aesthetics; it's a vital element of the hospital's commitment to patient well-being and healing. It offers a connection to nature, tranquility, and a place to respire amid the demands of healthcare.

The architectural design of Rush University Medical Center's hospital embodies a holistic approach to healthcare. The hospital's features harmonize functionality, aesthetics, and patient well-being. The distinct base and bed tower design optimize healthcare delivery by efficiently housing diagnostic and treatment facilities, fostering streamlined workflows and connectivity within the hospital.

The curvilinear bed tower stands as an architectural marvel, maximizing natural light and providing panoramic views from patient rooms. This design choice creates a therapeutic environment, promoting patient comfort and healing. Patient-centricity is evident, emphasizing the importance of both physical and emotional aspects of healthcare.

Strategically positioned near major roads, the hospital ensures accessibility to patients and staff, extending its role as a healthcare provider to the broader community. The addition of a rooftop garden enhances the patient experience, offering a serene sanctuary within the hospital. In conclusion, Rush University Medical Center's hospital design integrates aesthetics, efficiency, and patient well-being. It's a testament to the institution's commitment to providing exceptional healthcare services while creating a welcoming and healing environment for patients and their families.



Fig 71. View

5. WEILL CORNELL MEDICAL COLLEGE BELFER RESEARCH BUILDING

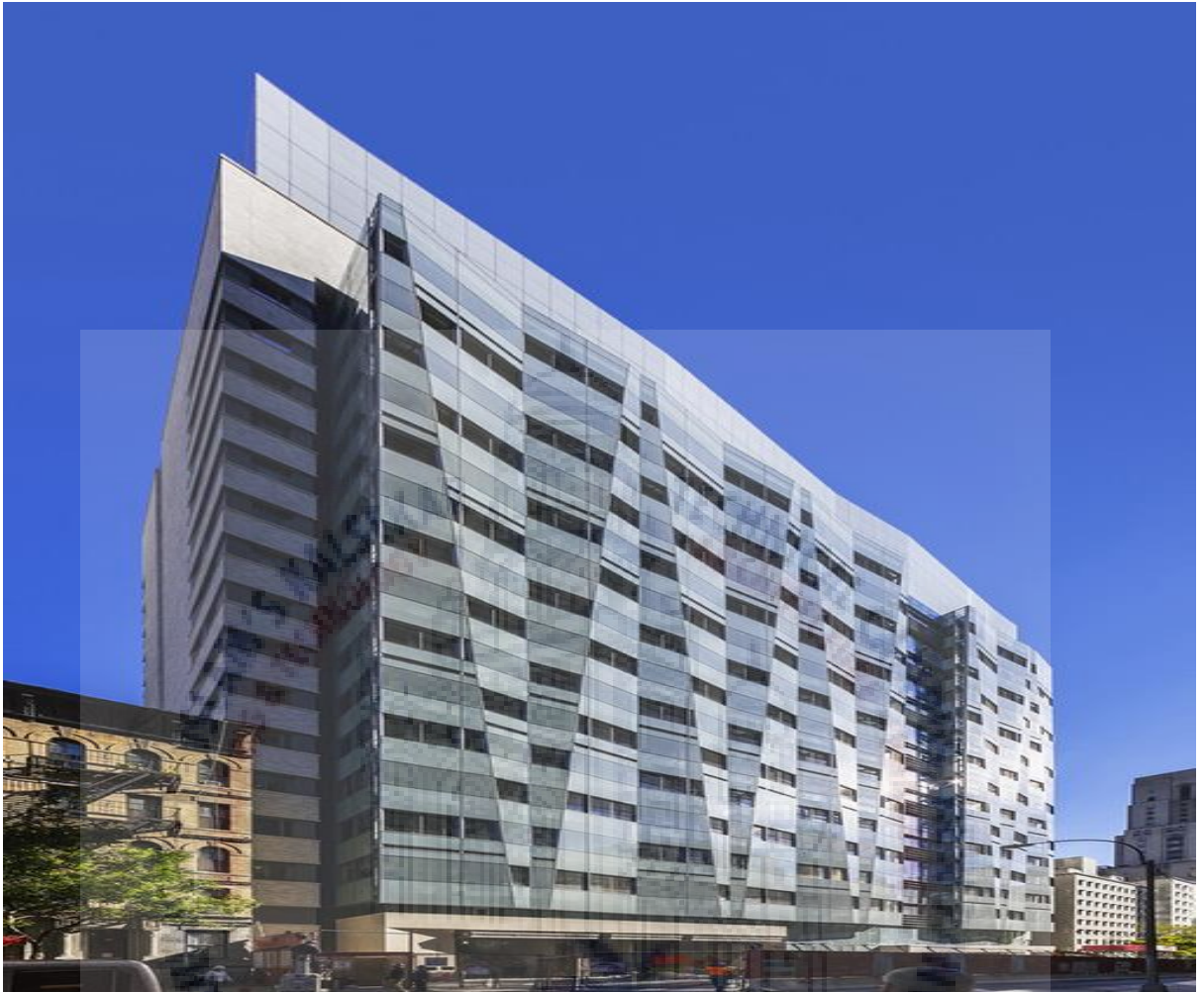


Fig 72. Isometric View Weill Cornell Medical College Belfer Research Building

INTRODUCTION

Location: New York, United States

Architects: Todd Schliemann | Ennead Architects

Area: 480000 ft²

Year: 2014

The Weill Cornell Medical College Belfer Research Building, located in New York City, stands as a beacon of cutting-edge medical research and innovation. This state-of-the-art facility is dedicated to pushing the boundaries of scientific discovery and healthcare advancement

DESIGN CONCEPT

The design concept for the Weill Cornell Medical College Research Building is rooted in innovation, collaboration, and sustainability. It features cutting-edge laboratories that promote interdisciplinary teamwork, incorporates state-of-the-art technology, and prioritizes safety and compliance. This environmentally conscious design is accessible to all, with flexibility for future growth and a patient-centered approach. The building's aesthetic harmony inspires creativity, while spaces for community engagement underscore its commitment to advancing healthcare through research and education



Fig 73. Building Façade Weill Cornell Medical College Belfer Research Building

FUNCTIONAL ANALYSIS

The Weill Cornell Medical College Belfer Research Building, designed by Todd Schliemann of Ennead Architects, is a state-of-the-art facility encompassing 480,000 square feet of space. It was completed in 2014 and serves as a cutting-edge medical research centre in close proximity to the institution's existing clinical, research, and academic structures, reinforcing its role as an urban academic biomedical hub and a global leader in the field.

The building's design integrates with the Weill Greenberg Centre, an award-winning ambulatory care facility on the same campus, and includes a two-story atrium. The facility features classrooms, conference rooms, lounges, study spaces, and a café, all seamlessly connected to the garden.

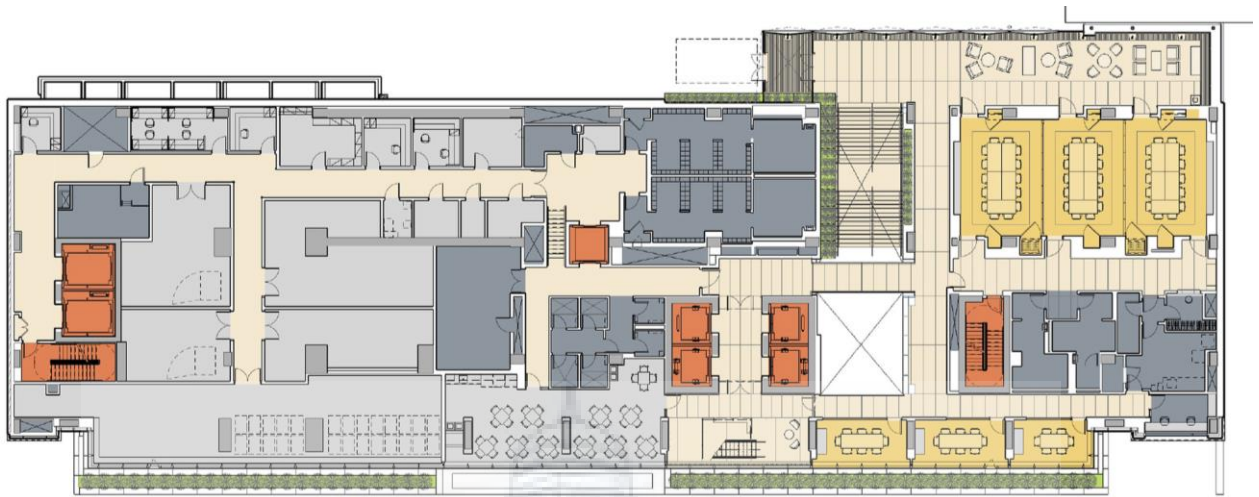


Fig 74. Section Weill Cornell Medical College Belfer Research Building

The design prioritizes flexibility, transparency, openness, and adaptability to foster communication and cross-disciplinary collaboration among researchers.

Natural light is maximized through transparent partitions, allowing southern light to permeate the laboratory areas, enhancing the overall laboratory environment and enabling visual communication between principal investigators and laboratory researchers.

FLOOR PLAN



GROUND LEVEL






- 
 System and toilet
- 
 Vertical circulation
- 
 Building services
- 
 Corridor
- 
 College program

Fig 75. Plan Cornell Medical College Belfer Research Building

Principal investigators' offices are strategically placed along a common corridor, which also features shared collaborative spaces such as conference rooms, computational spaces, lounge areas, and a break room. A connecting stair between floors further fosters interaction.



SECOND LEVEL






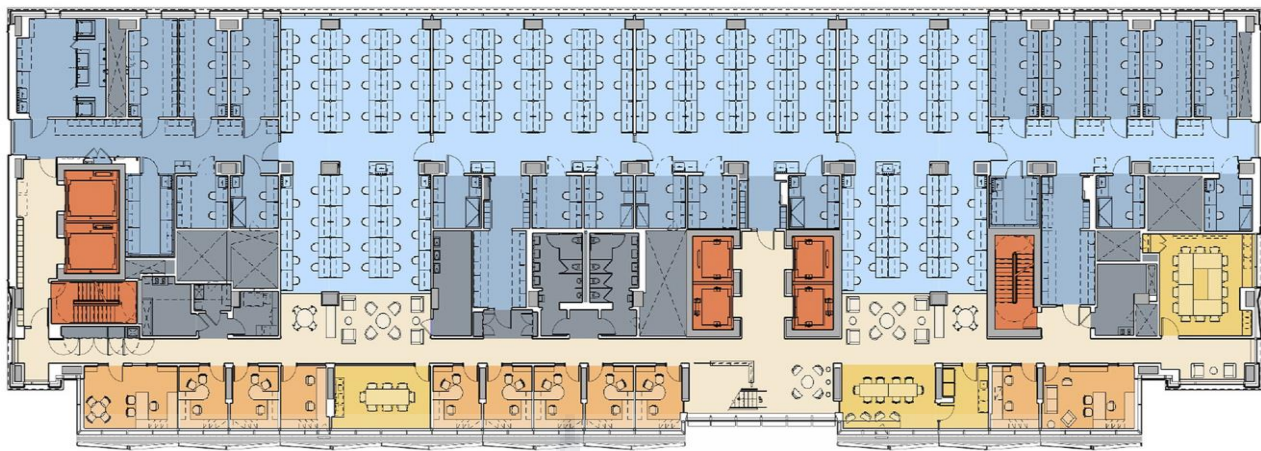
- 
 System and toilet
- 
 Vertical circulation
- 
 Building services
- 
 Corridor
- 
 College program

Fig 76. Plan Cornell Medical College Belfer Research Building



THIRD LEVEL



Fig 75. Plan Cornell Medical College Belfer Research Building

Functionally, it provides an environment conducive to high-impact translational research across

- o Thirteen laboratory floors,
- o Three academic program floors, and
- o Two research support floors.

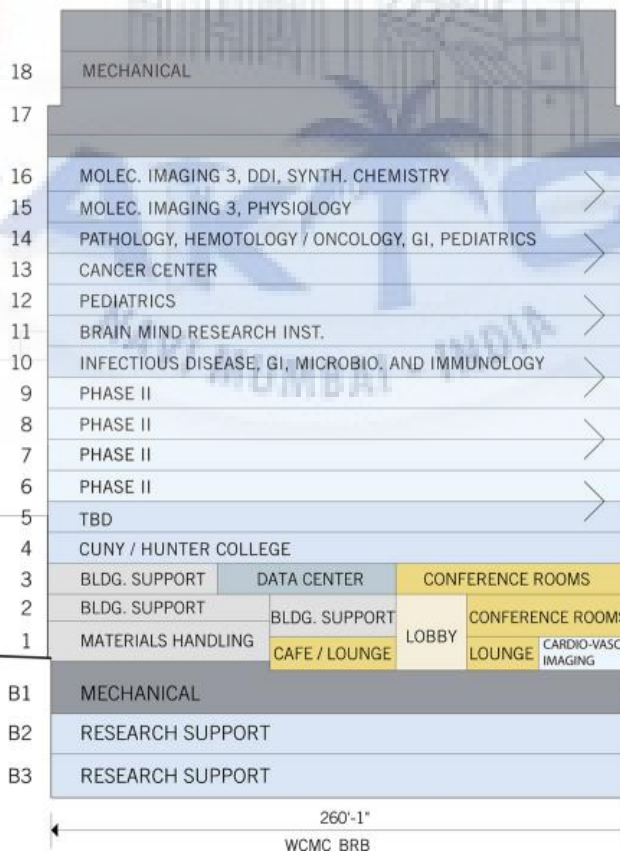


Fig 76. Plan Cornell Medical College Belfer Research Building

SPECIAL FEATURE

The characterized by a high-performance double-skinned, fritted-glass curtain wall. This curtain wall serves as the defining feature of the building's visual identity while also optimizing energy efficiency. The design employs a passively vented system, strategically promoting controlled convection within the wall cavity. This approach effectively mitigates extreme temperature fluctuations on the exterior of the building, consequently reducing temperature variations on the interior glass surfaces.



Fig 79. Façade

The incorporation of carefully designed openings and sun-shading devices not only enhances visual and thermal comfort within the office zone but also substantially decreases cooling requirements. This not only aligns with sustainability goals but also surpasses the energy efficiency benchmarks established by the US Green Building Council

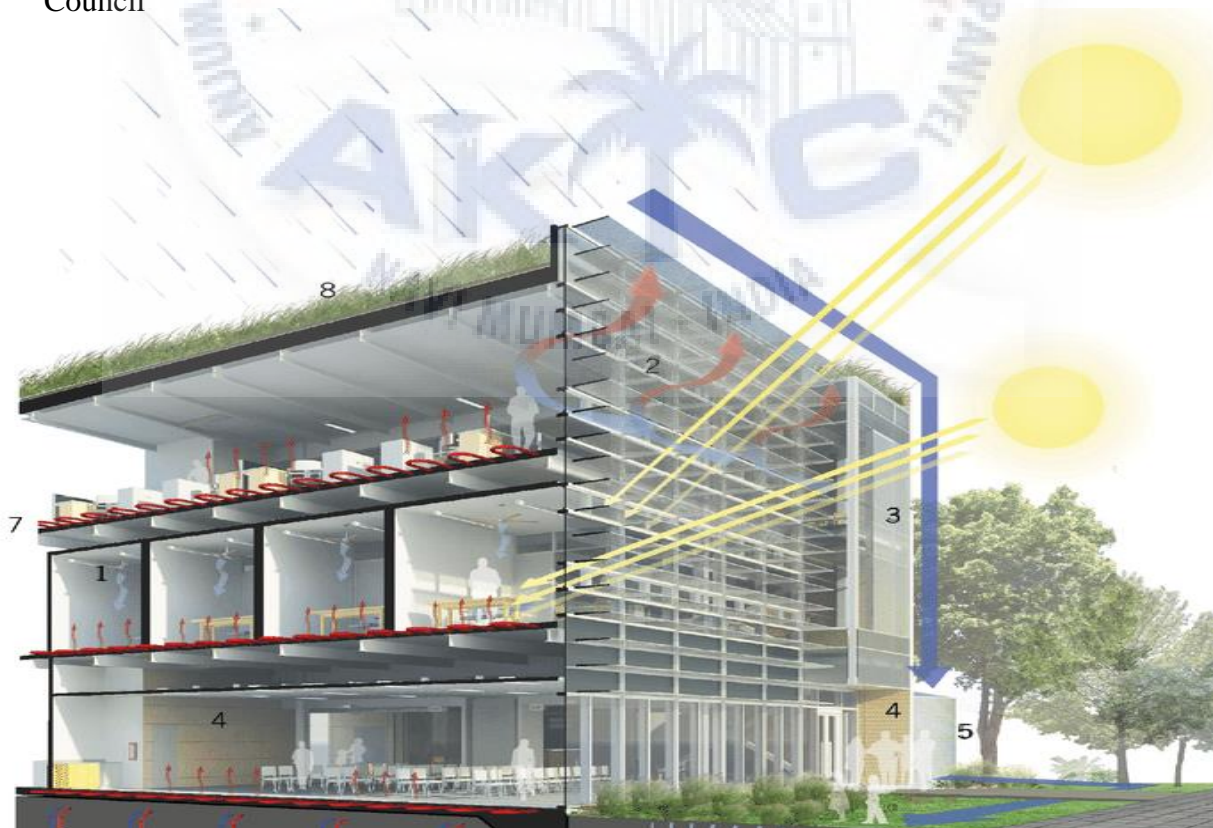


Fig 80. Façade Section

Furthermore, the curtainwall design embraces industry-standard components and construction methods, making it a cost-effective and sustainable solution. The building doesn't stop at its envelope; it also integrates energy-efficient HVAC (Heating, Ventilation, and Air Conditioning), advanced lighting control systems, and water conservation technologies. Sustainable materials and green construction practices are also employed.

As a result of these comprehensive measures, the Belfer Research Building anticipates achieving LEED Gold certification, a testament to its outstanding commitment to sustainability

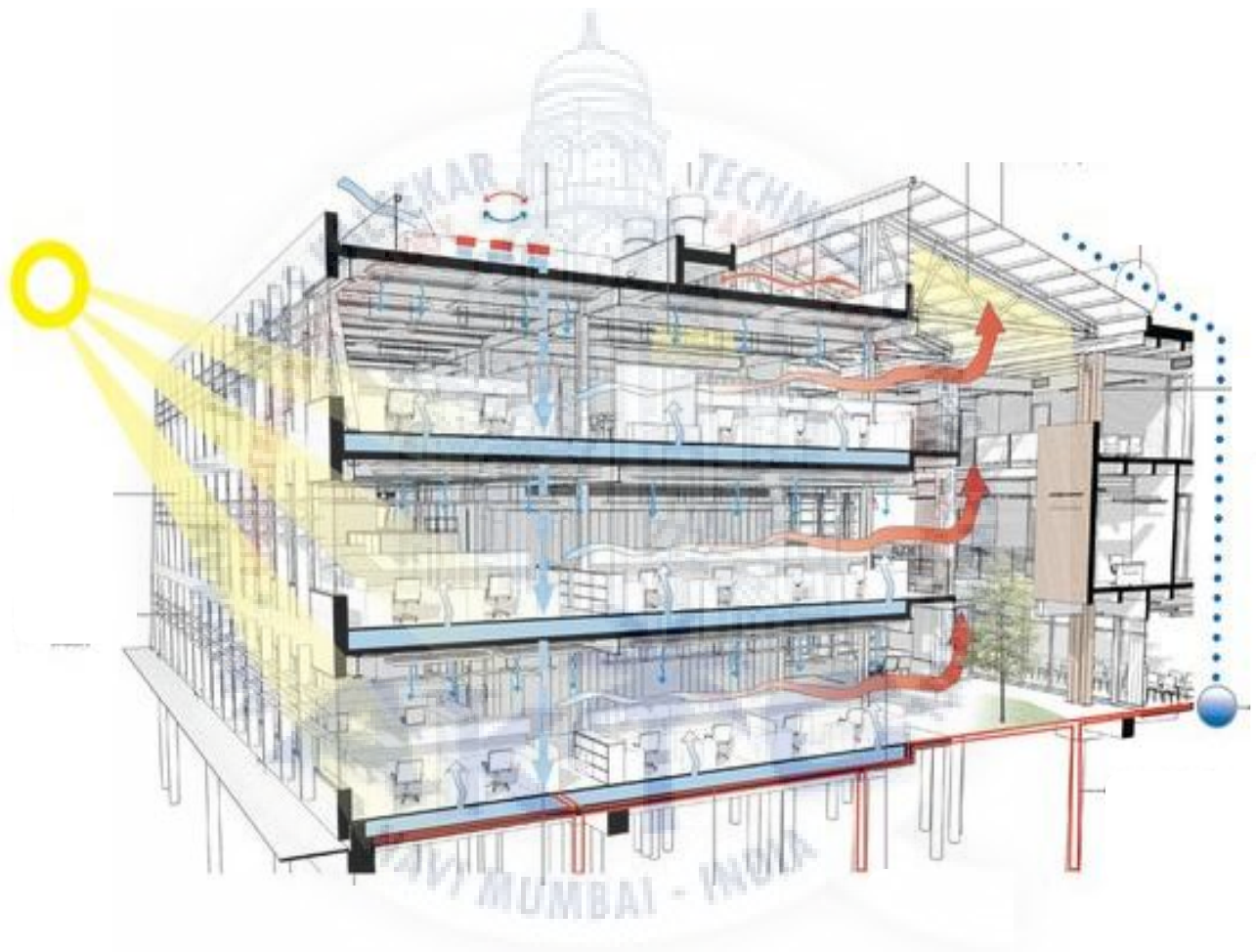


Fig 81. HVAC Section

In practical terms, these efforts are expected to yield impressive outcomes, including a projected energy consumption reduction of approximately 30 percent and a corresponding decrease in carbon dioxide emissions by approximately 26 percent when compared to a building merely meeting industry-standard. This architectural approach represents a harmonious blend of function requirements. This architectural approach represents a harmonious blend of function



Fig 82. Building Ventilation Section

INFERENCES

The Weill Cornell Medical College Belfer Research Building exemplifies a harmonious blend of architectural brilliance and sustainable design. Its striking double-skinned, fritted-glass curtain wall not only defines its identity but also functions as an energy-efficient system, stabilizing interior temperatures while providing superior comfort.

This design exceeds sustainability benchmarks without inflating costs, employing industry-standard components for a cost-effective solution.

Beyond the curtain wall, the building integrates comprehensive sustainability measures, from efficient HVAC systems to advanced lighting and water conservation practices. Positioned for LEED Gold certification, it anticipates a remarkable 30% reduction in energy consumption and a 26% drop in carbon emissions, setting a high standard for both aesthetics and environmental responsibility.

6. GOVERNMENT MEDICAL COLLEGE **AURANGABAD**



Fig 83. GMC Aurangabad

INTRODUCTION

Location: Government Medical College Aurangabad is situated on the east bank of Kham River in the northwest part of Aurangabad city, Maharashtra.

Proximity to Attractions: It is very close to famous tourist attractions like Panchakki, Bibi Ka Maqbara, and Dr. Babasaheb Ambedkar Marathwada University.

Transportation Accessibility: The college is conveniently located 4 km away from the Aurangabad Railway Station, 1.5 km from the central bus stand, and 11 km from the Chikkalthana Airport.

Infrastructure: Government Medical College Aurangabad comprises 30 buildings within 40 hectares of this 99-acre campus.

Commitment to Healthcare and Education: The institution is dedicated to advancing healthcare and medical education in a setting that combines history with modern medical science.

DESIGN CONCEPT

The architectural design concept for Government Medical College Aurangabad focuses on blending modernity with traditional elements, creating a harmonious and functional environment for learning and healthcare. The design concept aims to reflect the institution's commitment to healthcare excellence while paying homage to the rich cultural heritage of Aurangabad and its landmarks.



Fig 84. Isometric View GMC Aurangabad

Inclusivity and Accessibility

The design ensures that the campus is inclusive and accessible, with ramps, elevators, and other features that accommodate individuals with disabilities. This reflects the institution's commitment to providing equal opportunities for all.

Seamless Connectivity

The buildings are strategically connected through covered walkways or corridors to protect against the region's hot climate and monsoon rains, ensuring the convenience and comfort of students and faculty.

Ample Natural Light

Large windows and strategically positioned skylights are designed to flood the interiors with natural light, creating an environment that enhances the well-being of students and faculty.

Fig 80. Façade Section

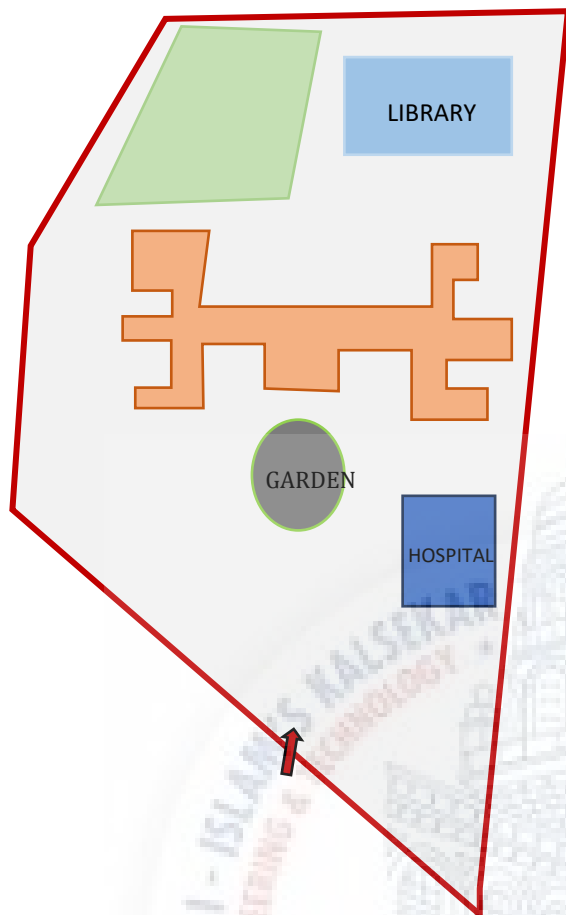


Fig 85. Master Plan GMC Aurangabad

The site planning for Government Medical College Aurangabad, with its focus on the careful arrangement of buildings and open spaces, creates a harmonious and efficient environment that promotes the integration of academic and healthcare functions.

AT THE CENTRAL WE HAVE MEDICAL COLLEGE

At the heart of the campus, a central area serves as the nexus that seamlessly connects the medical college. This area acts as a hub where students, faculty, and medical professionals can easily transition between academic learning and practical medical experience. The central core is designed with pathways and gathering spaces to facilitate interactions and collaboration.

Hospital Placement

The hospital or clinic is strategically located adjacent to the central core. This placement allows for immediate access to healthcare facilities for medical students, faculty, and staff. It also ensures that patients receive prompt care, as the hospital is at the center of the campus.

Library and Playgrounds:

On the opposite side, the site planning includes the placement of the library and playground facilities. The library, being a vital resource for students and researchers, is conveniently located to promote a quiet and focused environment for study and research. The playgrounds offer recreational spaces for students, providing opportunities for physical activity and relaxation.

The site planning incorporates a well-defined network of pathways and walkways, allowing students, faculty, and medical professionals to move smoothly between different areas of the campus. The paths are designed to minimize congestion and ensure efficient circulation, contributing to a conducive learning and healthcare environment

Fig 80. Façade Section

GROUND FLOOR

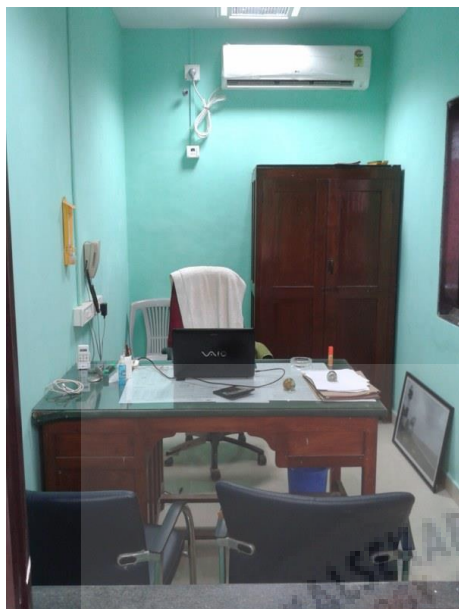


Fig 86. Office GMC Aurangabad



Fig 87. GMC Aurangabad

The ground floor of Government Medical College Aurangabad is a hub of activity and essential functions. At its center is the Dean's Porch, the main entrance, conveying authority and welcome. On this floor, there is a versatile auditorium for lectures and events, as well as the administrative department for easy access to academic services, registrations, and inquiries. This layout ensures efficient functionality and a central point for interaction between students and staff.



Fig 88. Auditorium GMC Aurangabad

LIBRARY



Fig 89. Library Building GMC Aurangabad

The library's location at the side of the main medical college facilitates the seamless integration of learning and research. Students can easily transition between classes, lectures, and the library, promoting a fluid exchange of knowledge and practical application of what they've learned



Fig 90. Library Siting Area GMC Aurangabad



Fig 91. Library Siting Area GMC Aurangabad

On the first floor of GMC Aurangabad, you will find key academic and research departments, including Pathology, Microbiology, and Development, as well as lecture halls.

On the second floor of G M C Aurangabad, They have the Community Medicine Department, the Physiology Department, and an examination hall.



Fig 92. Lab GMC Aurangabad



Fig 93. Anatomy Department GMC Aurangabad

On the third floor of GMC they have Anatomy Department, which is crucial for medical education, as well as lecture halls.

On the fourth floor of GMC they have the Biochemistry Department and the Pharmacology Department.



Fig 94. Lab GMC Aurangabad



Fig 95. Entrance MGM Aurangabad

INTRODUCTION

MGM Medical College was established in the year 1990. It is part of the Mahatma Gandhi Mission Trust, which runs several educational and healthcare institutions. The college is affiliated with the Maharashtra University of Health Sciences (MUHS), Nashik.

LOCATION

The college is located in Aurangabad, a city in the state of Maharashtra, India.

ABOUT

Attached to the college is the Mahatma Gandhi Mission Medical College and Hospital, which serves as a teaching hospital for the students. The hospital provides medical services to the local community and offers clinical training to the medical students. The college and hospital are equipped with modern facilities, laboratories, and technology to support medical education and patient care.

The college is recognized by the Medical Council of India (MCI), now known as the National Medical Commission (NMC), and the Indian Nursing Council (INC).

MGM Medical College is known for its research activities and academic excellence in the field of medicine. It conducts various research programs and conferences.

Commitment to Healthcare and Education: The institution is dedicated to advancing healthcare and medical education in a setting that combines history with modern medical science.



Fig 96. Isometric View MGM Aurangabad

MGM Medical College Aurangabad. It's common for medical colleges and hospitals to have multiple buildings to accommodate various functions and facilities.

1. College Building with OPD (Outpatient Department):

This building likely houses the academic and administrative departments of the medical college. It's where students attend lectures, laboratories, and conduct their academic activities. The presence of an OPD indicates that it's also where patients can access outpatient services and consult with doctors who are associated with the medical college.

2. Emergency Building:

This building is dedicated to handling emergency medical cases. It may house the emergency department (ED) of the hospital, which is equipped to deal with urgent medical situations, trauma cases, and other emergency care. It typically includes specialized facilities and staff to handle critical cases promptly.

3. Super Speciality Hospital:

This building is likely designated for providing specialized medical care. Super-specialty hospitals are known for their expertise in specific medical fields such as cardiology, neurology, oncology, and other specialized areas. They have advanced equipment and highly trained medical professionals to provide specialized treatments and surgeries.



Fig 97. Medical College View MGM Aurangabad

ARCHITECTURAL FEATUR

Modern Design: The college is likely designed with a contemporary architectural style, incorporating clean lines, geometric shapes, and a focus on functionality.

State-of-the-Art Facilities: Modern medical colleges often feature cutting-edge facilities, such as advanced laboratories, simulation centers, and high-tech classrooms.

Patient and Student-Focused Layout: The architectural plan should ensure easy navigation for patients and students, with clear signage, accessible pathways, and well-designed waiting areas.

Safety and Security: Incorporating security measures like surveillance systems and controlled access points is crucial for the safety of everyone on campus.

Natural Lighting: Many educational buildings incorporate ample natural light, which not only conserves energy but also creates a pleasant learning environment.

Community Engagement: The design may encourage community engagement by including spaces for health awareness programs, health camps, or public health initiatives.

Adaptive Spaces: Flexible spaces that can be adapted for various educational and healthcare purposes, providing versatility for changing needs.

ANATOMY LECTURE HALL



Fig 98. Anatomy Lecture Hall MGM



Fig 99. Anatomy Lecture Hall MGM Aurangabad

ANATOMY RESEARCH LAB



Fig 100. Anatomy Research Hall MGM



Fig 101. Anatomy Research Hall MGM Aurangabad

DISSECTION ROOM



Fig 102. Dissection Room MGM Aurangabad



Fig 103. Dissection Room MGM Aurangabad

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HISTOLOGY LAB



Fig 104. Histology Lab MGM Aurangabad



Fig 105. Histology Lab MGM Aurangabad



Fig 106. Histology Lab MGM Aurangabad



Fig 107. Histology Lab MGM Aurangabad

MUELSEM



Fig 108. Muelsem MGM Aurangabad



Fig 109. Muelsem MGM Aurangabad

IR@AIKTC-KRRC: SECOND FLOOR: PHYSIOLOGY, PATHOLOGY, AND PHARMACOLOGY DEPARTMENTS WITH ADDITIONAL LECTURE HALLS FOR MEDICAL EDUCATION

PHYSIOLOGY DEPARTMENTS



Fig 110. Physiology Hall MGM



Fig 111. Physiology Hall MGM Aurangabad

PATHOLOGY DEPARTMENT



Fig 112. Pathology Hall MGM Aurangabad



Fig 113. Pathology Hall MGM Aurangabad

PHARMACOLOGY DEPARTMENT



114. Pharmacology Hall MGM Aurangabad



115. Pharmacology Hall MGM Aurangabad

ON 3RD FLOOR WE HAVE MEDICINE DEPARTMENT

FORENSIC MEDICINE DEPARTMENT



Fig 116 Forensic Medicine Hall MGM



Fig 117. Forensic Medicine Hall MGM

COMMON MEDICINE DEPARTMENT

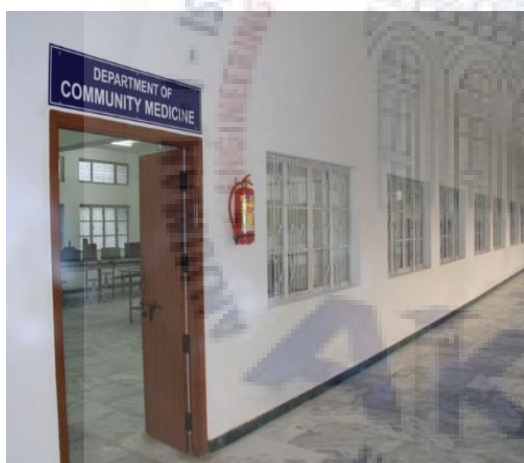


Fig 118. Common Medicine Hall MGM



Fig 119. Common Medicine Hall MGM Aurangabad

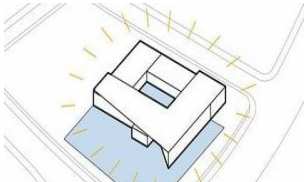

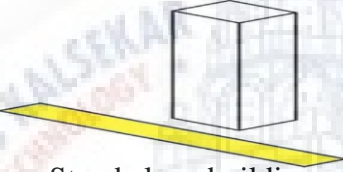
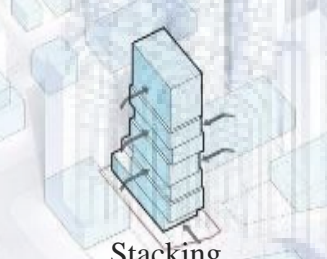
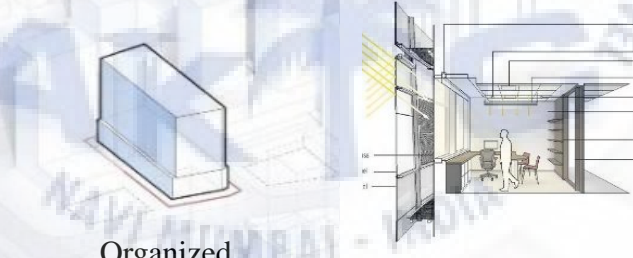
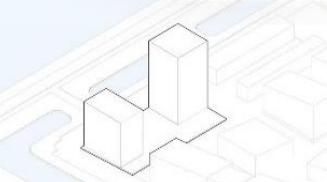
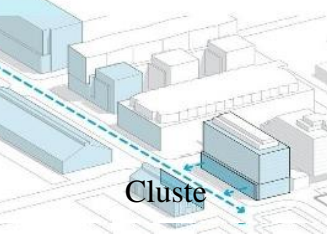






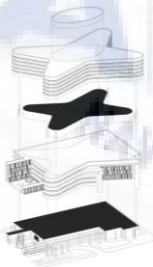
Fig 118. Common Medicine Hall MGM



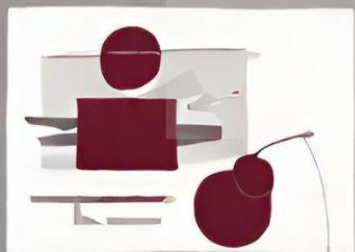
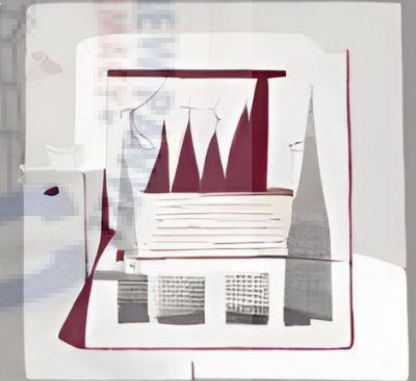
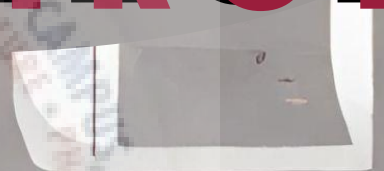
Fig 119. Common Medicine Hall MGM Aurangabad

NAME OF PROJECT	SITE	LOCATION	AREA
Vidya Devi Jindal Medical College		University Agroha, india	8360 m ²
Mackay Medical College		Sanzhi District, New Taipei, Taiwan.	400639 m ²
Harvest Medical College		Hyogo, Japan	794.82m ²
New Hospital Tower Rush University Medical		Chicago, United States	77109.5232 m ²
Weill Cornell Medical College		1305 York Ave. New York,	44593.4592 m ²
Government Medical College Aurangabad		Aurangabad city, Maharashtra.	27 acres
MGM Medical College In Aurangaba.		Aurangabad city, Maharashtra.	33985.10 m ²

NAME OF PROJECT	TYPOLOGY	LIGHT AND VENTILATION	VERTICAL CIRCULATION
Vidya Devi Jindal Medical College	 <p>Central Courtyard</p>	Assize climate control techniques.	3 VERTICAL CORES 2 lift 3 staircase
Mackay Medical College	 <p>Organic flow</p>	Due to staggered, the space is brightly illuminated	4 VERTICAL CORES 4 lift 4 staircase For academic block
Harvest Medical College	 <p>Stand alone building</p>	Use of mechanical ventilation and mechanical lighting	2 VERTICAL CORES 2 lift 2 staircase
New Hospital Tower Rush University Medical	 <p>Stacking</p>	Rooms have maximal outer area opening and good lighting	6 VERTICAL CORES 4 public lift 4 staircase 4 services lift
Weill Cornell Medical College	 <p>Organized</p>		3 VERTICAL CORES 4 public lift 3 staircase 2 services lift
Government Medical College Aurangabad	 <p>Establishing Links</p>	Rooms have maximal outer area opening and good lighting	2 VERTICAL CORES 1 lift 2 staircase
Mahatma Gandhi Mission Medical College In Aurangaba.	 <p>Cluste</p>	Maximum outside space openness and abundant illumination are features of the rooms.	4 VERTICAL CORES 4 lift 4 staircase

NAME OF PROJECT	BUILDING FEATURES	SPECIAL FEATURE
Vidya Devi Jindal Medical College	Corridor connects 	A triple-height marble jali wall, utilizing local materials for effective heat management, and an overhang to mitigate the impact of harsh regional climate
Mackay Medical College	Resembling a tree, 	Harmonious Healing Nexus inspired by nature, incorporating trees, rocks, and grapevines to promote connectivity in a multifunctional building serving teaching, research, sports, and dormitory functions.
Harvest Medical College	 Orthogonal Layout	An orthogonal layout with thoughtfully incorporated reflective surfaces that create a mesmerizing interplay of various colors, enhancing the building's aesthetic and ambiance
New Hospital Tower Rush University Medical		The efficient stacking of functions within the building, seamlessly blending natural elements with the medical facility, using a technical approach, and incorporating a roof garden for added wellness.
Weill Cornell Medical College	 Stackig of functios with building blocks	Effectively mitigates extreme temperature fluctuations on the exterior of the building, consequently reducing temperature variations on the interior glass surfaces.
Government Medical College Aurangabad	Design with effective mobility with a smooth, spontaneous flow.	Design focused on ensuring effective mobility within the building, promoting a seamless and spontaneous flow for occupants, enhancing accessibility and user experience.
MGM Medical College In Aurangaba	Building layout is organic and seamless for simple navigation.	An organic and seamless building layout, promoting simple navigation and creating a peaceful flow and circulation conducive to student well-being and comfort.

DESIGN RESEARCH



IR@AIKT@KPRC 5.1 MINIMUM STANDARD REQUIREMENTS FOR MEDICAL COLLEGE

No. MCI 35(1)98-med (ii) / 3492 In exercise of the powers conferred by section 33 of the Indian

Medical Council Act, 1956 (102 of 1956), the Medical Council of India with the previous sanction of the Central Government, hereby makes the following regulations namely:-

“Every medical college and Medical Institution shall have the following departments, namely:-

1. HUMAN ANATOMY
2. HUMAN PHYSIOLOGY
3. BIOCHEMISTRY
4. PATHOLOGY (INCLUDING BLOOD BANK)
5. MICROBIOLOGY
6. PHARMACOLOGY
7. FORENSIC MEDICINE INCLUDING TOXICOLOGY
8. COMMUNITY MEDICINE
9. MEDICINE
10. PAEDIATRICS
11. PSYCHIATRY
12. DERMATOLOGY, VENEREALOGY AND LEPROSY
13. TUBERCULOSIS AND RESPIRATORY DISEASES
14. SURGERY
15. ORTHOPAEDICS
16. RADIO-DIAGNOSIS
17. RADIOTHERAPY (OPTIONAL)
18. OTO-RHINOLARYNGOLOGY
19. OPHTHALMOLOGY
20. OBSTETRICS AND GYNAECOLOGY
21. ANAESTHESIOLOGY
22. PHYSICAL MEDICINE AND REHABILITATION(OPTIONAL)
23. DENTISTRY .

1. ADMINISTRATIVE BLOCK.

Accommodation shall be provided for – Principal/Dean’s office (36 Sq.m.),

Staff room (54 sq.m.),

College council room (80 Sq.m.)

Office superintendent’s room (10 Sq.m.),

Office (150 Sq.m.),

Record room (100 Sq.m.),

Separate common room for Male and Female students with attached toilets (200 Sq.m.each), cafeteria (400 Sq.m.).

2. CENTRAL LIBRARY

There shall be an air-conditioned **Central Library (4000 Sq.m)** with seating arrangement for at least **500 students for reading** and having good lighting and ventilation and space for stocking and display of books and journals. There shall be one room for 250 students inside and one room for 250 students outside. It should have not less than **20000 text** and reference books. In a new medical college the total number of books should be proportionately divided on yearly basis in five years. The number of journals shall be 100 out of which one-third shall be foreign journals and subscribed on continuous basis. The number of copies of textbooks in each subject of undergraduate teaching shall be ten.

There shall be provision for –

- a. Staff reading room for 50 persons;
- b. Rooms for librarian and other staff;
- c. Journal room;
- d. Room for copying facilities;
- e. Video and Cassette room (desirable);
- f. Air-conditioned Computer room with Medlar and Internet facility with minimum of 50 nodes.

As per the terms of Notification published on 03.07.2018 in the Gazette of India.

3. LECTURE THEATRE

There shall be minimum of **five lecture theatres** preferably air conditioned, of gallery

type in the Institution with seating **capacity for 250 students** each and one in the hospital with seating capacity of 250 students..

Lecture theatre shall be provided with necessary independent audio-visual aids including overhead projector, slide projector,

LCD projector and a microphone. These lecture theatres shall be shared by all the departments in a programmed manner. There shall be provision for E-class. Lecture halls must have facilities for conversion into E-class/Virtual class for teaching. The existing Colleges shall introduce these facilities in their lecture hall within one year.

As per the terms of Notification published on 03.07.2015 in the Gazette of India.

4. AUDITORIUM/EXAMINATION HALL (MULTI-PURPOSE)

There shall be an auditorium-cum-examination **hall of 2000 sq.m. area** in not more than three levels.

5. EXAMINATION HALL

There shall be three **Examination Hall of capacity 250 with area of 250 sq.m.** each which should be of flat type and should have adequate chairs with desks/writing benches in such a manner that there would be sufficient space between two students.

As per the terms of Notification published on 03.07.2015 in the Gazette of India.

6. CENTRAL WORKSHOP

There shall be central workshop having facilities for repair of mechanical, electrical and

A/c and Refrigeration equipment of college and the hospitals. It shall be manned by qualified personnel.

Department animal house may be maintained by the department of Pharmacology. In addition to the animal house, experimental work on animals can be demonstrated by Computer Aided Education.

For teaching Physiology and Pharmacology in UG curriculum, the required knowledge and skills should be imparted by using computer assisted module. Only an animal hold area, as per CPCSEA Guidelines is required.

#As per the terms of Notification published on 19.03.2014 in the Gazette of India.

DEPARTMENTS

DEMONSTRATION ROOM – there shall be four demonstration rooms (90 sq.mt.each) fitted with strip chairs, Over Head Projector, Slide Projector, Television, Video and other audiovisual aids, so as to accommodate at least 60-75 students.

RESEARCH

There shall be one research laboratory (50sq.m.area) for research purposes.

ACCOMMODATION FOR STAFF

1. Professor & Head of the Department- 1 (One room)(18 Sq.m.area);
2. Associate Professor/Reader- 3 (Three rooms) (15 Sq.m.area each);
3. Asstt. Professor/Lecturers -4 (Four rooms) (20 Sq.m.area each);
4. Tutor/Demonstrators-6 (Two rooms 20 Sq.m. area each)
5. Department office cum Clerical room - one room (12 Sq.m.area); and
6. Working accommodation for non-teaching staff (12sq.m. area)

DEPARTMENTAL LIBRARY

There shall be a Departmental library-cum-seminar room (30Sq.m.area) with at least 80-100 books. However, not more than two copies of anyone book shall be counted towards computation of the total number of books.

** As per the terms of Notification published on 22 . 01 . 2018 in the Gazette of India.*

1. DEPARTMENT OF ANATOMY

DISSECTION HALL

There shall be a dissection hall (500 sq.mt.) to accommodate at least 250 students at a time. It shall be well lit, well-ventilated with exhaust fans and preferably centrally air-conditioned. There shall be an ante-room for students with lockers and ten Wash basins. There shall be adequate teaching aids in the hall. In addition, there shall be an embalming room (12 sq.m.area), space for 3 storage tanks (one of 3 sq.m. & two of 1.5 sq.m.each) and cold storage room with space for 25-30 dead bodies (25 sq.m.area) or cooling cabinets.

MUSEUM

There shall be a museum (300 sq.m.)-provided with racks and shelves for storing and proper display of wet and dry specimen and embryological sections, models, revolving stands for skiagrams, CT scan, MRI and trolley tables, X-ray view boxes shall be multistand type to take 4 plates standard size 4 boxes (4 view boxes for 250 students). Adequate seating accommodation for 50 students to study in the museum shall be provided. There shall be two attached rooms (15 sq.mt. each) for the preparation of models/specimens and for artists and modellers.

HISTOLOGY

There shall be Histology Laboratory (375sq.mt.) with accommodation for work benches fitted with water taps, sinks, cupboards for microscope storage 11 and electric points for the students. There shall be a preparation room (18 sq. mt.) for technicians and storage of equipment.

** As per the terms of Notification published on 22.01.2018 in the Gazette of India.*

2. DEPARTMENT OF PHYSIOLOGY

DEMONSTRATION ROOM

There shall be four demonstration rooms (90 sq.mt.each) fitted with strip chairs, Over Head Projector, Slide Projector, Television, Video and other audiovisual aids, so as to accommodate at least 60-75 students

PRACTICAL ROOMS

The following laboratories with adequate accommodation shall be provided to accommodate 125 students.

Amphibian laboratory (one)-(300 sq.m.area) shall be provided with continuous working tables. Every seat shall be provided preferably with stainless steel washbasin. Every workings table shall have one drawer and one cupboard, an electric point with fire and steam proof top. One preparation room (14 Sq.m. area) shall be provided with the amphibian laboratory.

Mammalian laboratory (one)-(120 Sq.m. area) shall be provided with Ten tables (2mx0.6,) with stainless steel top and operating light. The laboratory shall have attached instrument rack,two large size wash-basins (stainless steel) and cupboards for storing equipments. One preparation room (14 sq.m. area) shall be provided with the Mammalian laboratory.

Human Laboratories:

a) Haematology Lab. (250 Sq.m.area) provided with continuous working tables. Every seat shall be provided preferably with stainless steel wash basin. Every working table shall have one drawer and one cupboard, an electric point and with fire/steam proof top including provisions of light sources on each table. One preparation room (14 Sq.m.area) shall be provided with this laboratory.

b) There shall be a Clinical Physiology Laboratory (120 Sq.m.area) provided with 12 tables (height 0.8 m.) with mattresses and adjustable hand-end.

** As per the terms of Notification published on 22.01.2018 in the Gazette of India.*

MUSEUM

There shall be a museum (150 Sq.mt.) for specimens, charts, models with a sitting capacity of at least 80-100 students. All the specimens shall be labelled and at least 10 copies of catalogues for student use be provided. In addition, there shall be an ante room.

AUTOPSY BLOCK

There shall be an Autopsy room (approx. 500 sq.mt. area) with facilities for cold storage, for cadavers, ante-rooms, washing facilities, with an accommodation capacity of 70-75 students, waiting hall and office. The location of mortuary and autopsy block should be either in the hospital or adjacent to the hospital in a separate structure and may be shared with the department of Forensic Medicine.

BLOOD BANK

There shall be an airconditioned Blood Bank (100 Sq. mt. Area) and shall include-

- (a) Registration and Medical Examination Room and selection of donors room with suitable furniture and facilities.
- (b) Blood collection room.
- (c) Room for Laboratory for Blood Group serology;
- (d) Room for Laboratory for Transmissible diseases like hepatitis, syphilis, Malaria, HIV antibodies etc;
- (e) Sterilisation and washing room;
- (f) Refreshment room; and
- (g) Store and Records room.

The equipment and accessories etc. shall be provided as prescribed in Part XII-B in Schedule F to the Drugs and Cosmetics Rules, 1945 amended from time to time.

** As per the terms of Notification published on 22.01.2018 in the Gazette of India.*

The following shall be added as under:

(1) There shall be Practical Laboratories for Morbid Anatomy and Histopathology/Cytopathology (375 Sq.mt. area) and for clinical Pathology/Haematology (375 sq.mt.area) with preparation room (14 sq.mt.area) with benches, fitted with shelves cupboards, sinks, water taps, light for microscopy and burners for the students to carry out exercises.

(2) There shall be a separate service laboratory each (40 Sq.mt.) for histopathology, cytopathology, Haematology and other specialised work in the hospital suitably equipped.

4. DEPARTMENT OF BIOCHEMISTRY

PRACTICAL CLASS ROOM

There shall be a laboratory (375 Sq.m.) with benches fitted with shelves and cupboards, water taps, sinks, electric and gas connections so as to accommodate the students. Two Ante rooms (14 Sq.m. area) each for technicians, stores, preparation room, balance and distillation apparatus shall also be provided.

** As per the terms of Notification published on 22. 01. 2018 in the Gazette of India.*

5. DEPARTMENT OF MICROBIOLOGY

MUSEUM

There shall be a museum (120 Sq. mt.) for specimens, charts, models, with a seating capacity of at least 75 students. All the specimens shall be labelled and at least 20 copies of catalogues for students use be provided

The following shall be added as under:-

(A) Practical laboratories: There shall be a Practical Laboratory(375 sq. m..area) with benches, fitted with shelves cupboards, sinks, water taps, light for microscopy and burners for the students and preparation room(14 sq. m.area) .

(B) There shall be a separate service laboratory each (40 Sq.mt.) for

1. Bacteriology including Anerobic,
2. Serology
3. Virology
4. Parasitology
5. Mycology
6. Tuberculosis and
7. Immunology .

Separate accommodation for

1. Media Preparation and storage (20 sq.m.)
2. Auto Claving (12 sq.m.)
3. washing & Dying room with regular and continuous water supply(12sq.m.)

for contaminated culture plates, test tubes and glassware shall be provided.

** As per the terms of Notification published on 22 . 01 . 2018 in the Gazette of India.*

PRACTICAL LABORATORIES

There shall be a Practical laboratory with accommodation for 125- 150 students for the following, namely:-

- i. Experimental Pharmacology (300 Sq.m. area) with ante-room (14 Sq.m.area) for smoking and varnishing of kymograph papers.

MUSEUM

There shall be a museum (175 Sq. mt.) for specimens, charts, models, with a separate section depicting "History of Medicine", with a seating capacity of at least 75 students. All the specimens shall be labelled and at least 20 copies of catalogue for students use be provided.

7. DEPARTMENT OF FORENSIC MEDICINE INCLUDING TOXICOLOGY

MUSEUM

There shall be a museum (225 Sq.m.area) to display medico-legal specimens charts, models, prototype fire arms, wax models, slides, poisons, photographs etc. with seating arrangements for 75 students. All the specimens shall be labelled and at least 20 copies of catalogues for student use be provided.

LABORATORY

There shall be a laboratory (275 Sq. m. area) for examination of specimens, tests and Forensic histopathology, Serology, anthropology and toxicology.

There shall be an Autopsy room (approx.500 sq. mt. area) with facilities for cold storage, for cadavers, ante-rooms, washing facilities, with an accommodation capacity of 75-100 students, waiting hall, office etc. The location of mortuary/autop syblock should be either in the hospital or adjacent to the hospital in a separate structure and may be shared with the department of Pathology.

8. DEPARTMENT OF COMMUNITY MEDICINE

MUSEUM

There shall be a museum (175 Sq.m. area) for the display of models, charts, specimens and other material concerning communicable diseases, Community Health, Family Welfare planning, Biostatistics, Sociology, National Health Programmes, Environmental Sanitation etc.

“URBAN TRAINING HEALTH CENTRE” SHALL BE SUBSTITUTED AS UNDER

Every medical college shall have one Urban Health Training Centre affiliated to it. This Urban Health Training Centre shall be owned by the college or it should be affiliated to Government owned Health Centre. Academic control shall be with the Dean of the college for training of students and interns in community oriented primary health care and rural based health education for the rural community attached to it. Adequate transport (both for staff and students) shall be provided for carrying out field work and teaching and training activities by the department of Community Medicine.

** As per the terms of Notification published on 22.01.2018 in the Gazette of India.*

TEACHING HOSPITAL GENERAL REMARKS

Accommodation shall be provided for Dean (36 Sq.mt.) and Medical Superintendent (36 Sq.mt.) and hospital offices for the supportive staff, Nursing Superintendent's room and office, waiting space for visitors along with computer and internet facility in each department. There shall also be accommodation for :

- (a) Enquiry office,
- (b) Reception area (300 Sq.mt.) including facilities for public telephone, waiting space for patients and visitors, drinking water facility with nearby toilet facilities.
- (c) Store rooms.
- (d) Central Medical Record Section (250 Sq.m.)
- (e) Linen Rooms.
- (f) Hospital and Staff Committee room (75 Sq.mt.)

As per the terms of Notification published on 03.07.2015 in the Gazette of India.

CLINICAL DEPARTMENTS IN THE HOSPITAL.

Requirement of Beds and units:

The number of beds required for 100 admissions annually. They may be distributed for the purposes of clinical teaching as under, namely: -

(i) MEDICINE AND ALLIED SPECIALITIES:-

No. of beds and units required Beds/units**

1. General Medicine 120/4

2. Paediatrics 60/2

180/5

Note: The size and number of staff rooms shall be as per the guidelines in the pre and para clinical departments for the prescribed number of staff members in a department

*** As per the terms of Notification published on 03.11.2010 in the Gazette of India.*

(ii) SURGERY AND ALLIED SPECIALITIES:

No. of beds and units required**

1. General surgery 120/4
2. Department of Orthopaedics 50/1
3. Department of Ophthalmology 10/1
4. Oto-Rhinolaryngology 10/1

190/7

(iii) OBSETETRICS AND GYNAECOLOGY

No. of beds and units required**

Obstetrics 30

Gynaecology 20

Postmortem 10

60/5

CLINICAL DEPARTMENTS-INDOOR

The following accommodation shall be available with each ward, namely:.

1. Accommodation in a General Ward shall not exceed 30 patients and distance between the two beds shall not be less than 1.5m.
2. Nurses Duty Room/Nursing Station.
3. Ward should be constructed in such a way that the Nurse from her Nursing Station is able to have an overview of all the patients in the wards.
4. Examination and Treatment room.
5. Ward Pantry.
6. Store room for linen and other equipment.
7. Resident Doctors and students Duty Room.
- 23
8. Clinical Demonstration Room.

** As per the terms of Notification published on 22.01.2018 in the Gazette.*

OPERATION THEATRE UNIT:

The Operation Theatre Unit shall have the following facilities; namely:-

1. Waiting room for patients.
2. Pre-Anaesthetic/Preparation room
3. Operation theatre.
4. Post-operative recovery room
5. Soiled Linen room.
6. Instrument room.
7. Sterilisation room.
8. Nurses rooms.
9. Surgeon's and anaesthetist's room (separate for male and female).
10. Assistant's room.
11. Observation gallery for students.
12. Store rooms
13. Washing room for Surgeons and Assistants; and
14. Students washing up and dressing up room.

Five such units may be provided for General Surgery, one for ENT; one for Orthopaedics; one for Ophthalmology and two for Obstetrics and Gynaecology and one for septic cases”.

Other surgical specialities shall have independent separate OT.

Additional space need to be provided for various Endoscopy procedures.

Minor Operation Theatre – one minor operation theatre in addition to above shall be provided for surgical departments in casualty/emergency unit and one such theatre in O.P.D.

CENTRAL CASUALTY DEPARTMENT

There shall be well equipped and updated intensive care unit (I.C.U) -5 beds, Intensive

Coronary Care Unit (I.C.C.U.)-5 beds, Intensive Care Paediatric/Neonatal Unit -5 beds and preferably Intensive Care in Tuberculosis and Respiratory Diseases. The number of beds in casualty trauma unit shall be 20. ICU should be located near casualty. These shall

be functional at the time of inception of the college.

CENTRAL LABORATORIES:

There shall be well-equipped and updated central laboratories preferably along with common collection entire for all investigations in histopathology, cytopathology, haematology, immunopathology, microbiology, biochemistry and other specialized work if any.

CENTRAL KITCHEN

The Central Kitchen shall be commodious, airy, sunny, clean with proper flooring with exhaust system. The cooking should be done either by electricity or by gas. It should be

provided with proper and clean working platforms. A separate store area with proper storage facilities should also be provided. The services trolleys for food should be hot and closed stainless steel ones.

HOSPITAL WASTE MANAGEMENT

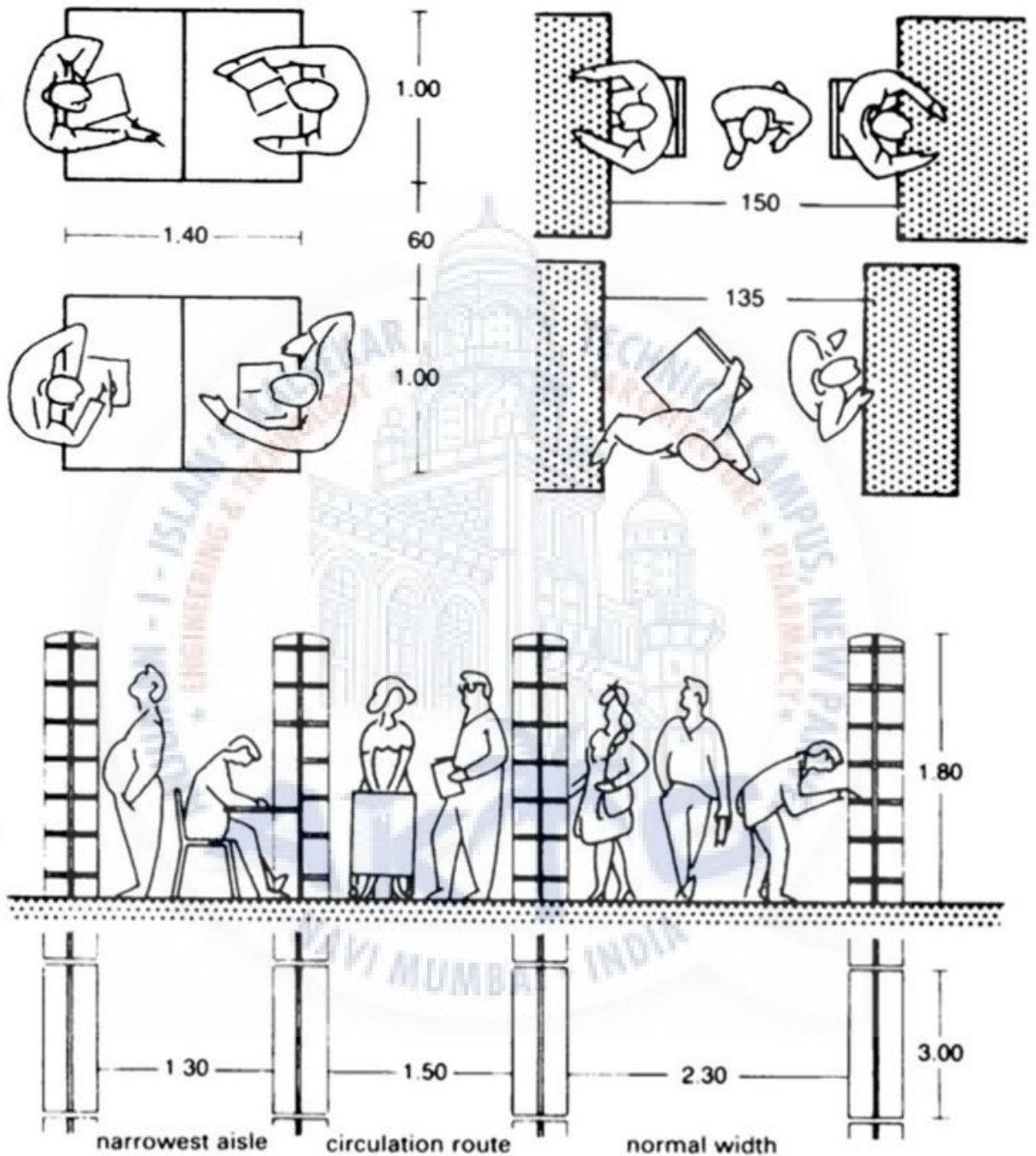
Facilities for hospital waste management, commensurate with the State Regulatory

Authorities etc. shall be provided.

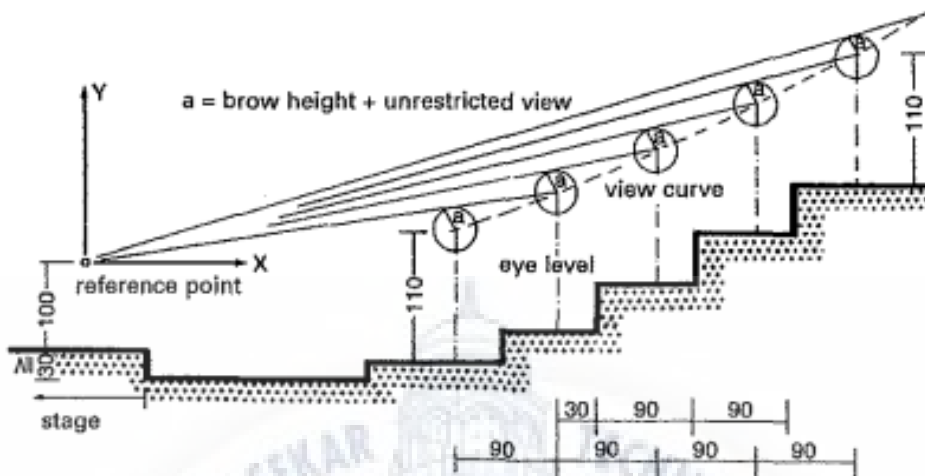
** as per the terms of notification published on 22.01.2018 in the gazette of india.*

5.2. MEDICAL COLLEGE STANDARDS

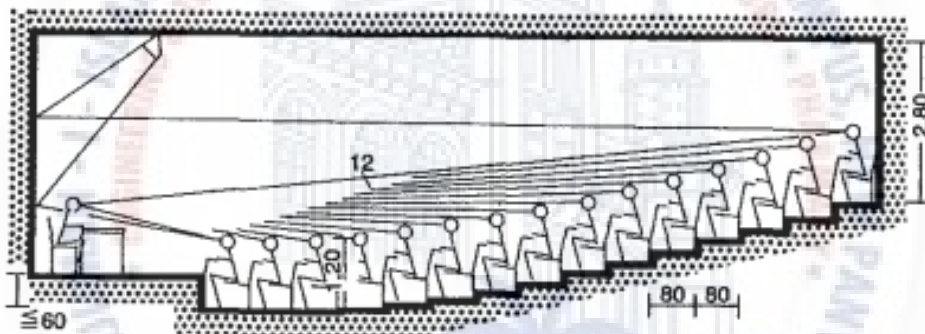
CENTRAL LIBRARY



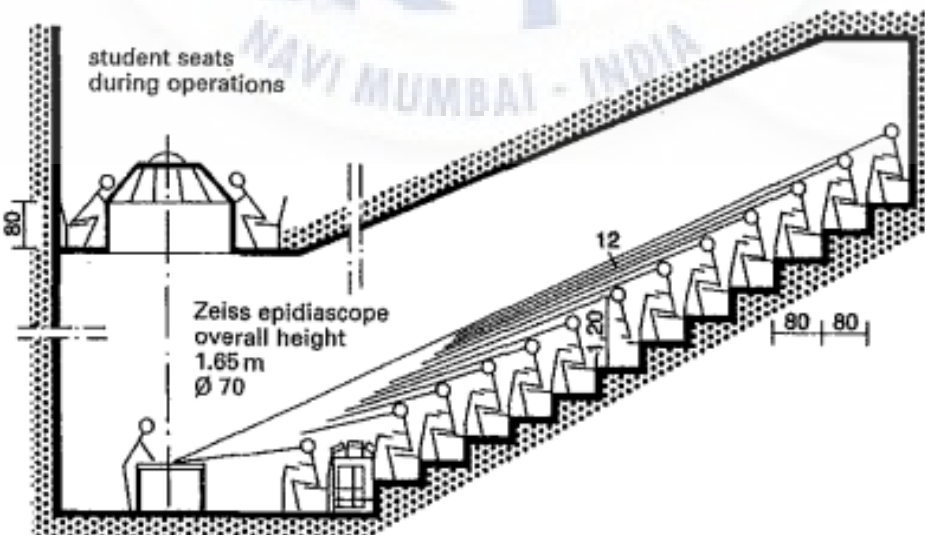
1 Scheme of university facilities



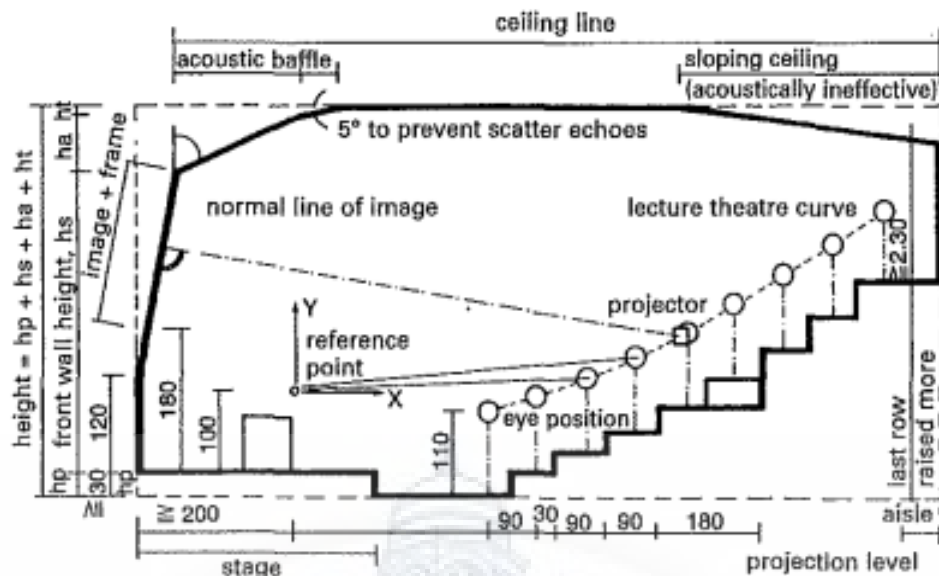
2 Geometrical determination of the listener curve



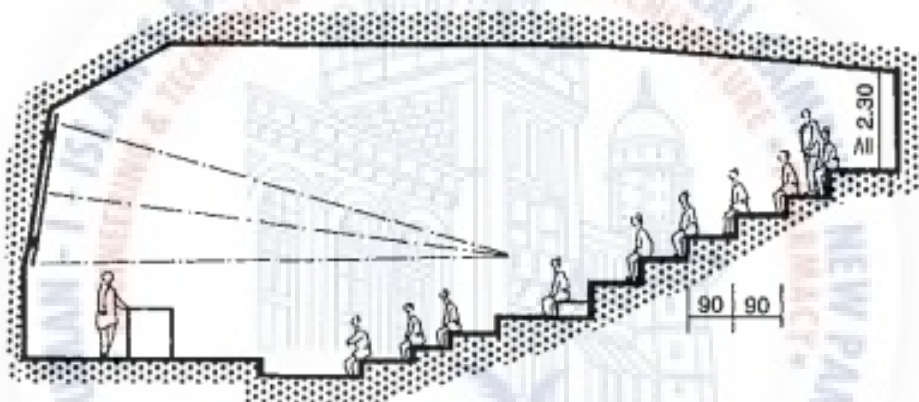
3 Normal lecture theatre design (humanities)



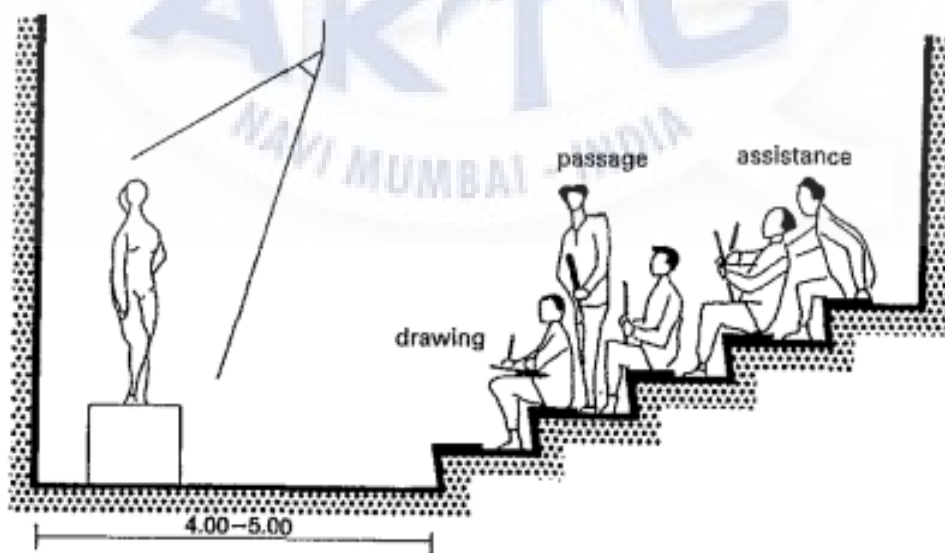
4 Lecture theatre for demonstrations on a bench (medicine)



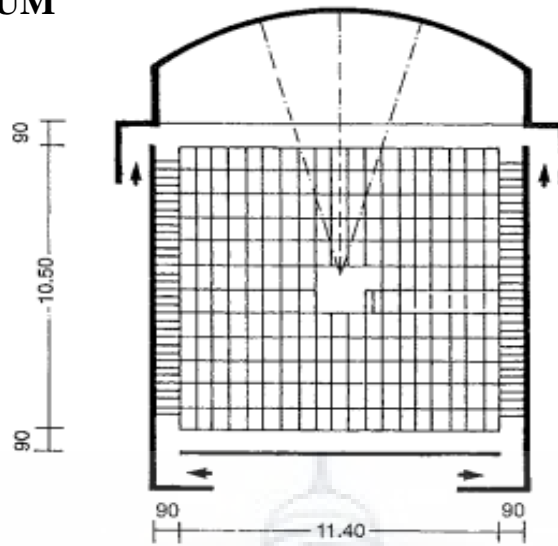
5 Longitudinal section through a lecture theatre



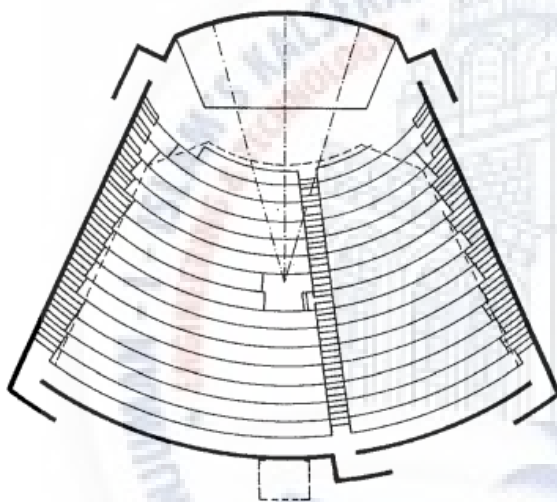
6 Steeply raked lecture theatre (natural sciences)



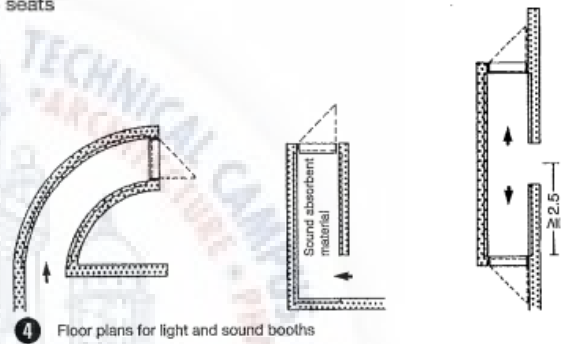
7 Steps in life drawing class with seated area of 0.65 m^2 per student (technical artistic subjects)



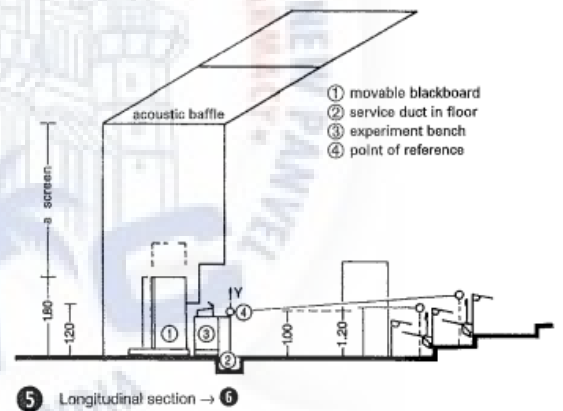
1 Rectangular lecture theatre with 200 seats



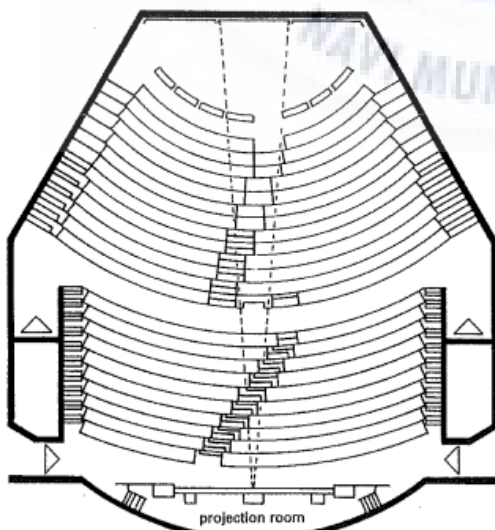
2 Trapezoidal lecture theatre with 400 seats



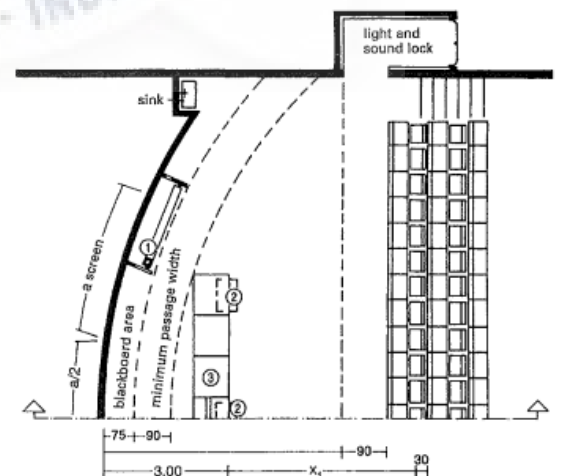
4 Floor plans for light and sound booths



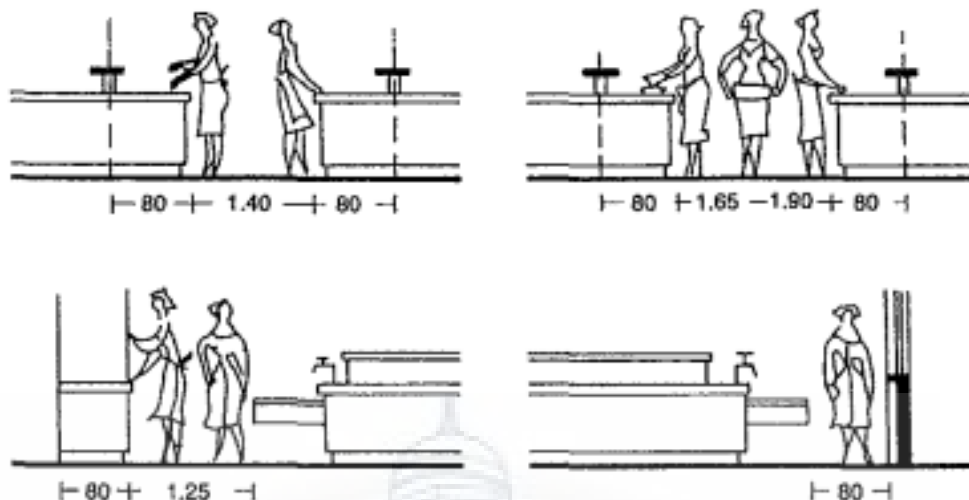
5 Longitudinal section → 6



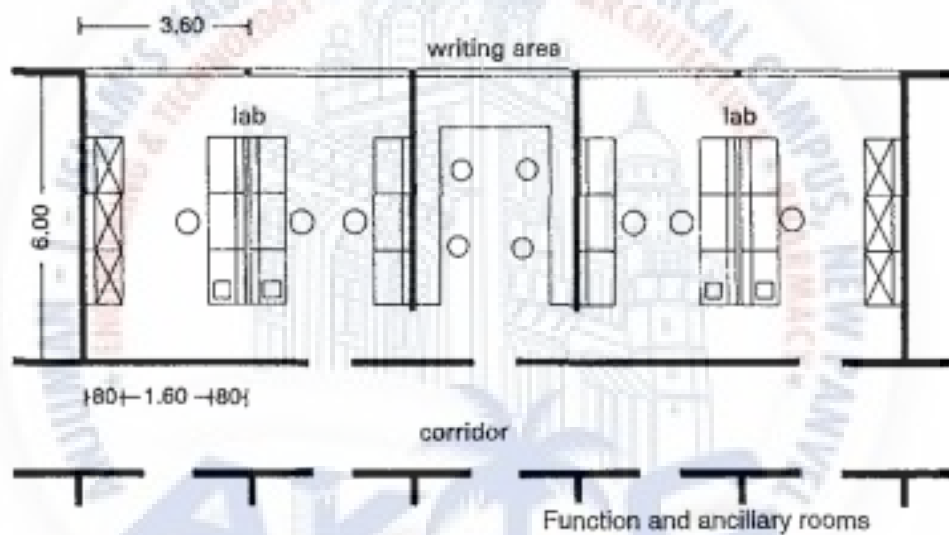
3 Lecture theatre with 800 seats



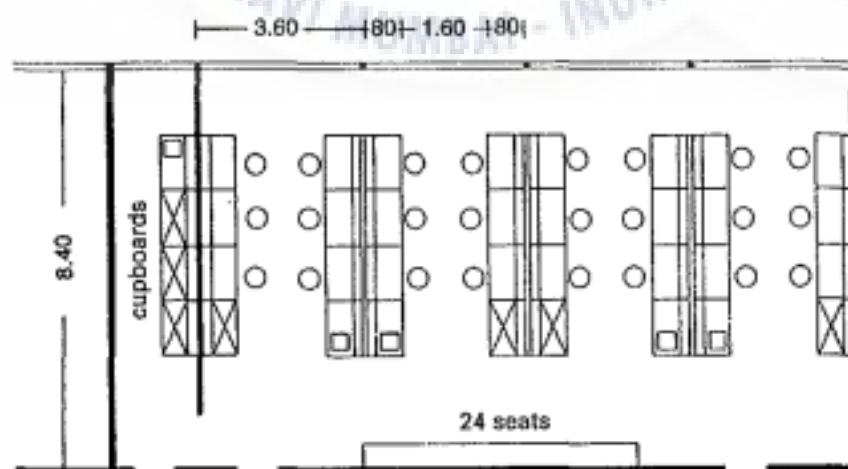
6 Plan of podium area



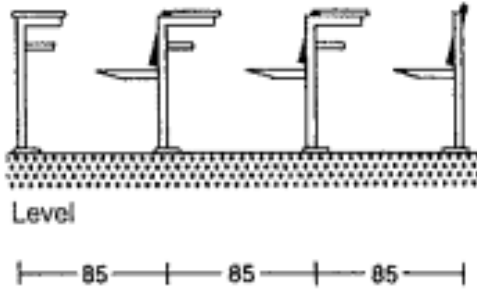
1 Minimum passage width at workstations



2 Research laboratory

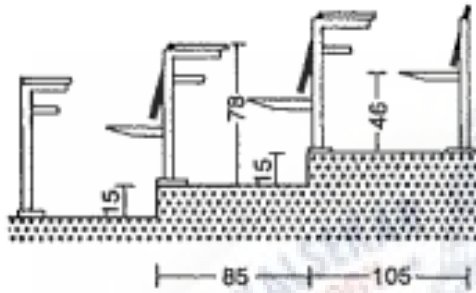


3 Teaching and practical laboratory



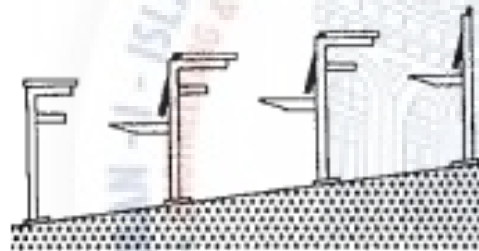
Level

85 85 85



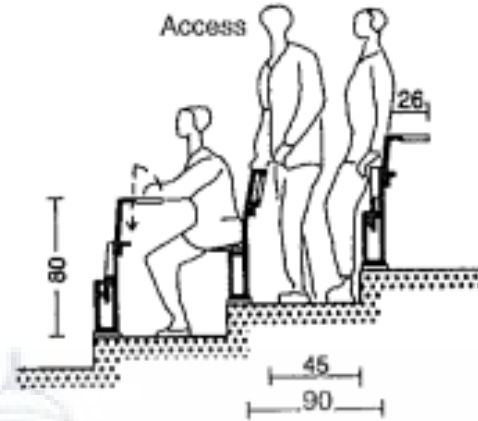
On 15 cm steps

85 105

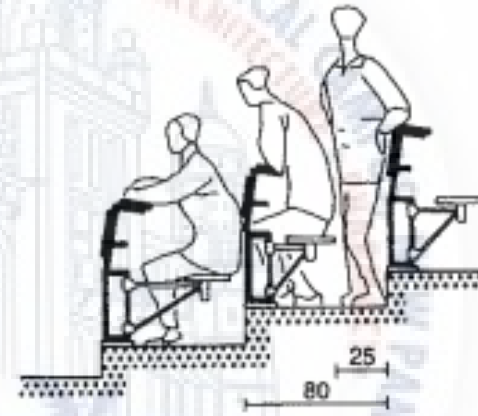


Sloping floor up to 12% incline

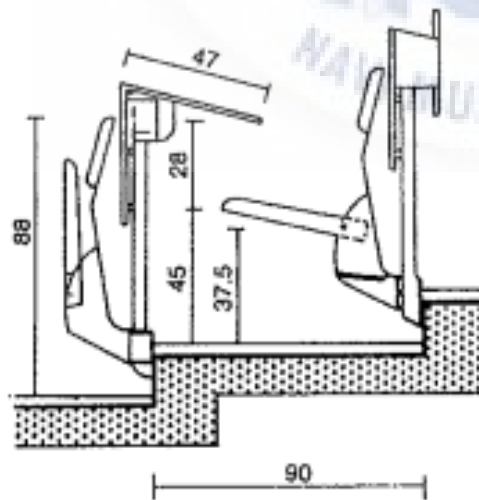
1 Lecture theatre seating



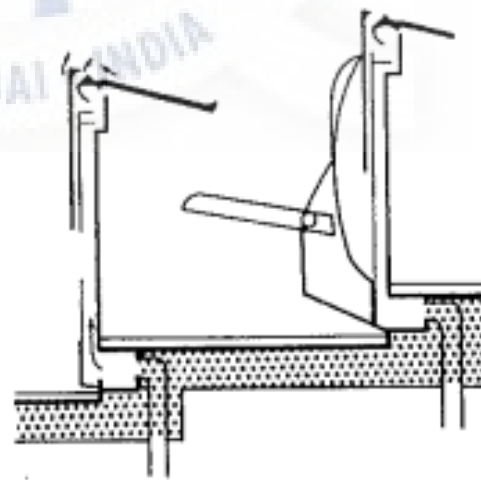
2 Seating arrangement with tip-up seats and desks



3 Arrangement with fixed desks and rotating seats (required space)

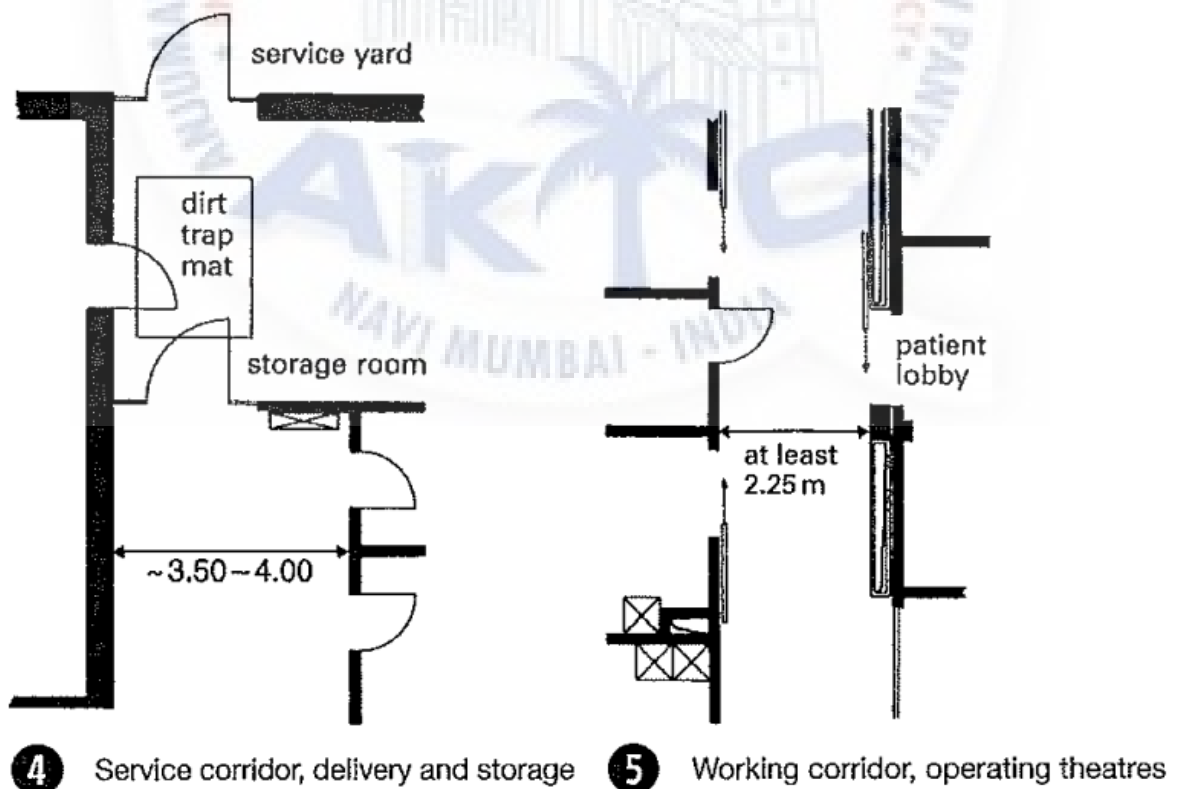
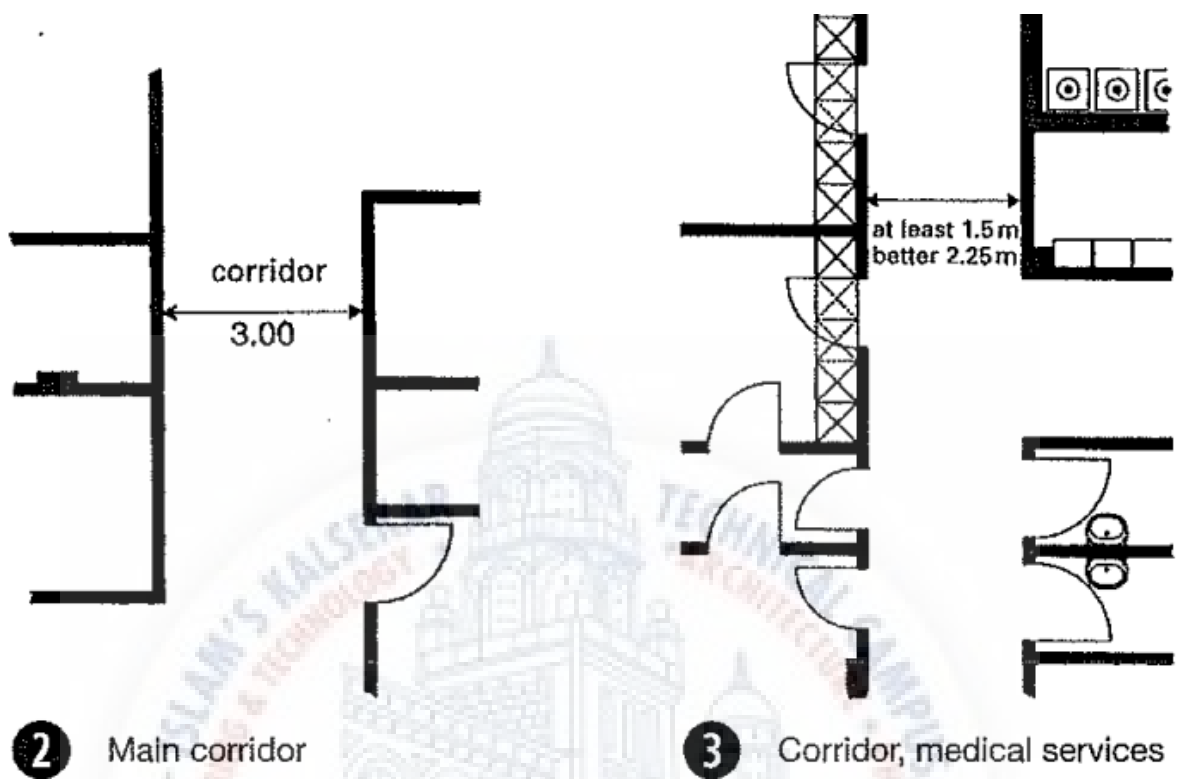


4 Lecture theatre seating / desk ventilation

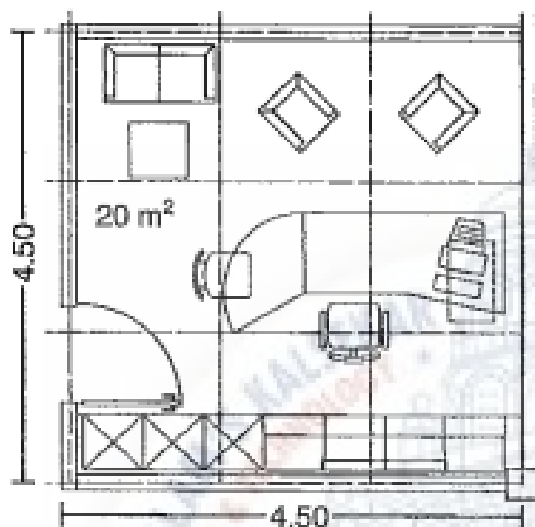


5 Desk ventilation / air flow

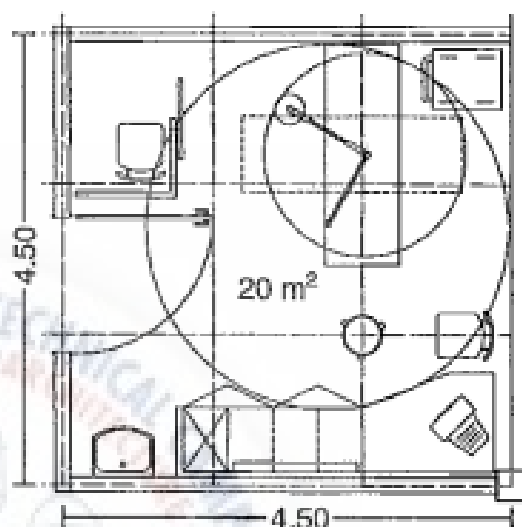
CORRIDORS



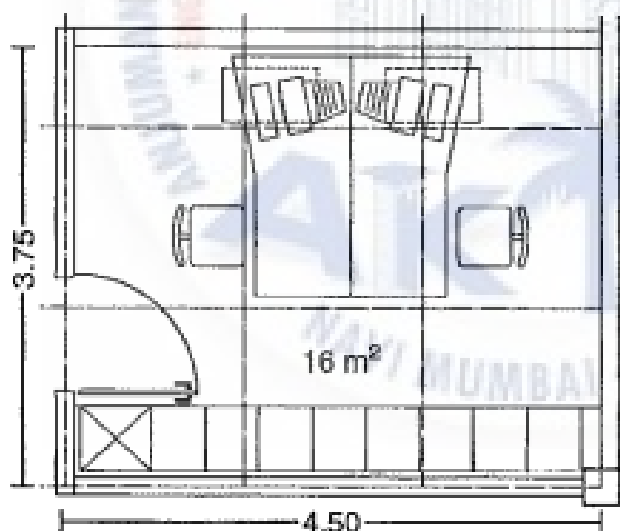
CONSULTATION ROOM



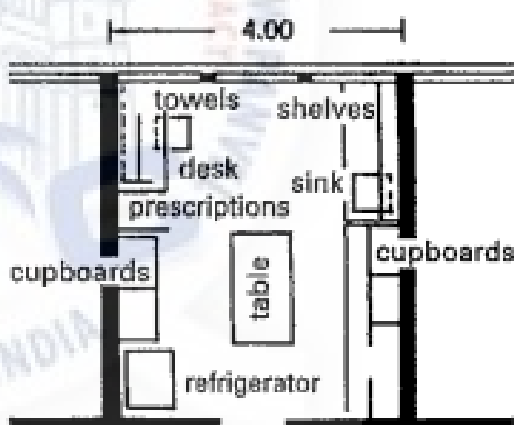
1 Senior doctor's office



2 Examination and treatment room

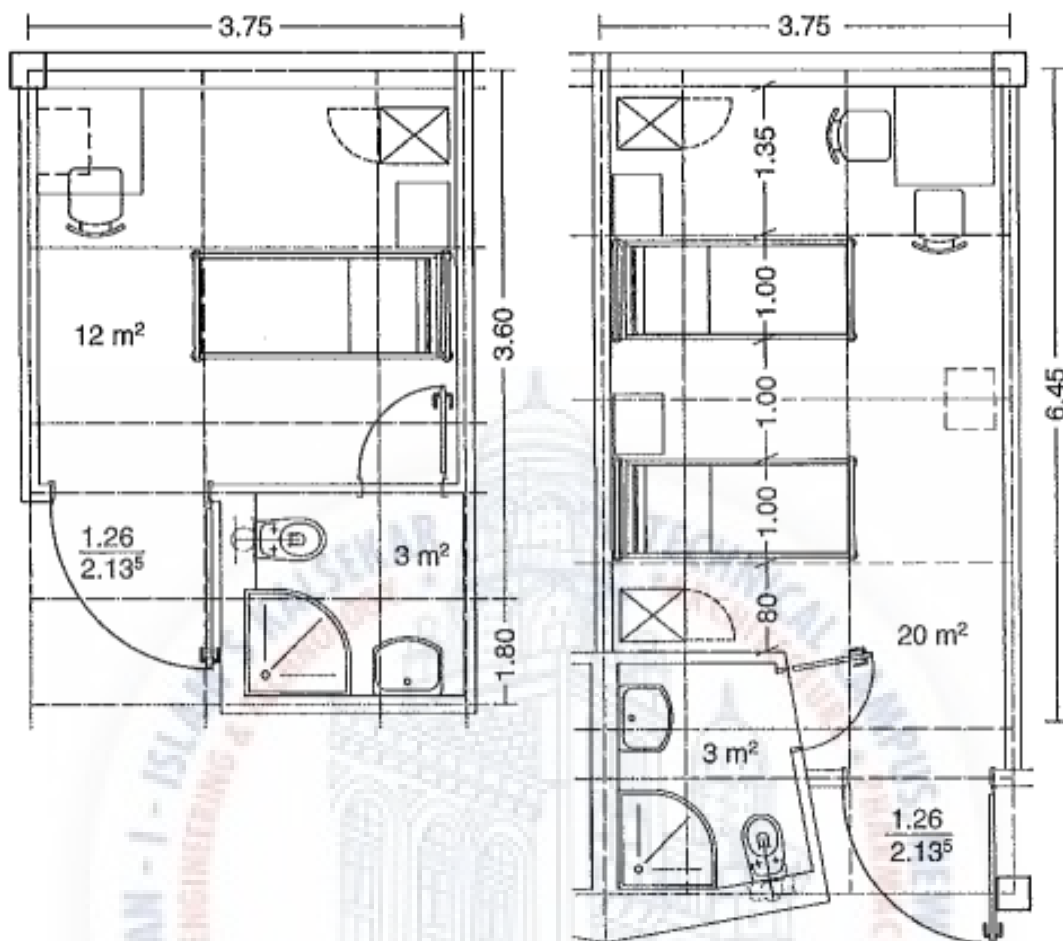


3 Ward doctor's office



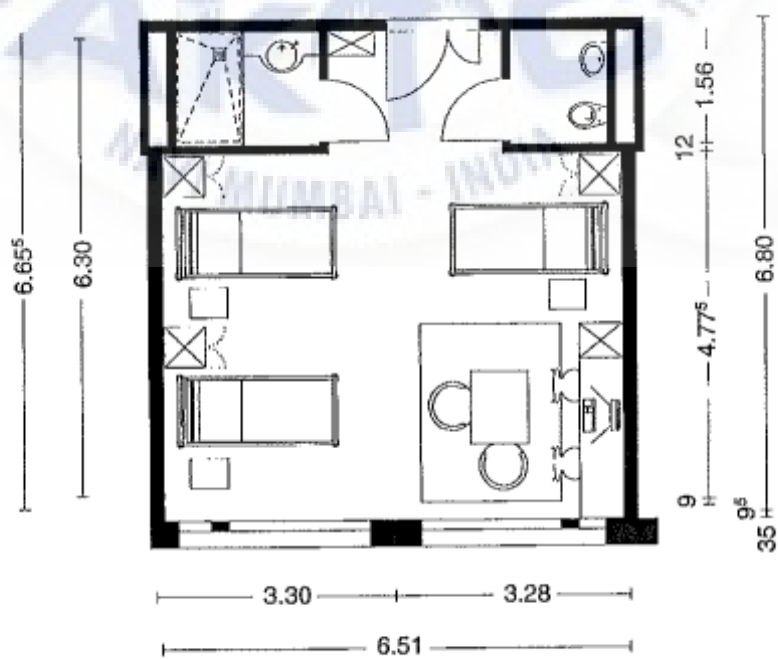
4 Clean/medication workroom

ROOM DIMENSION



1 One-bed patient room

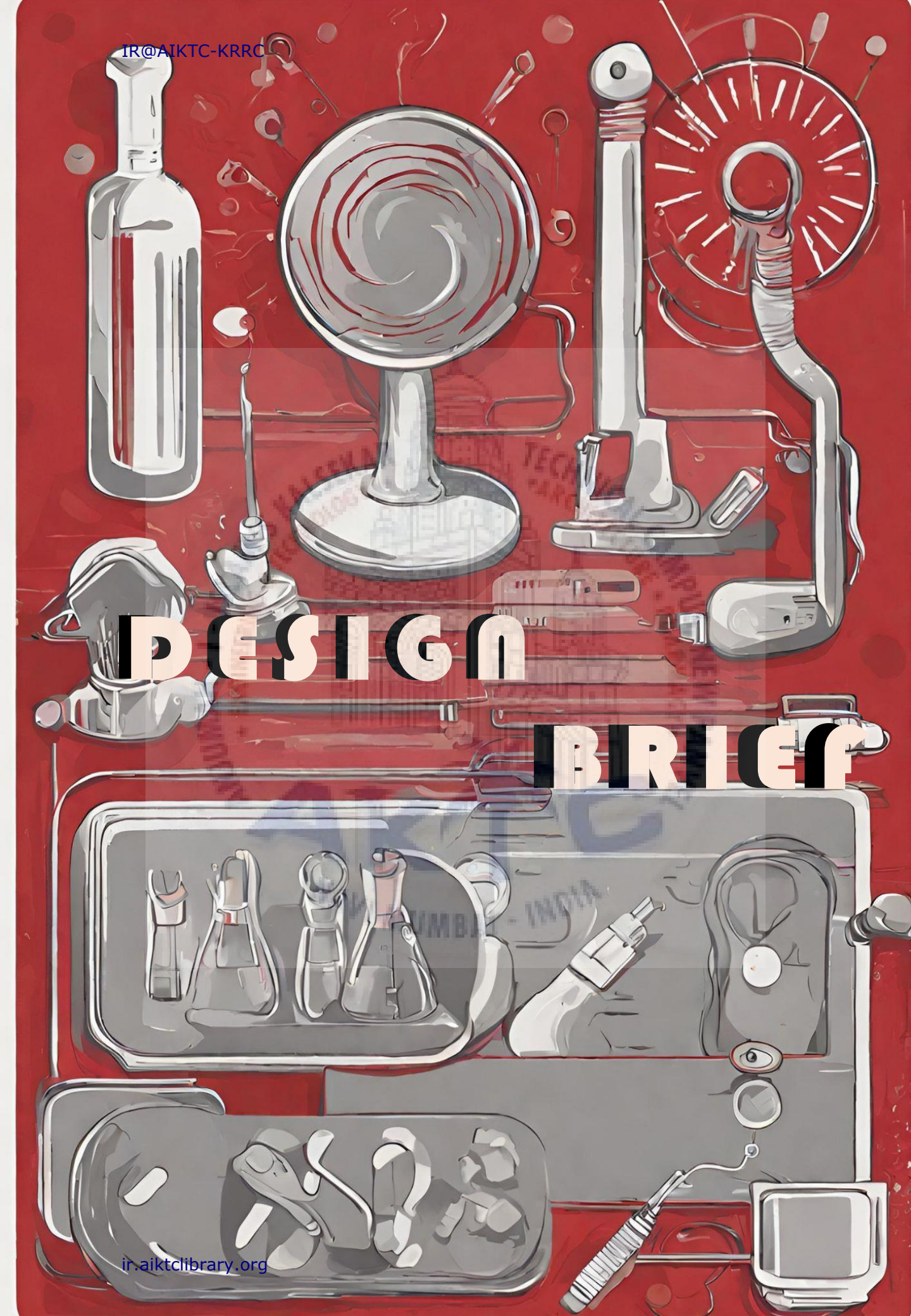
2 Two-bed patient room



5 Three-bed patient room (superior)

DESIGN

BRIEF



DESIGN BRIEF

In this architectural endeavor, The goal is to design an innovative medical institute in Parbhani Marathwada, addressing the region's increasing demand for high-quality healthcare education.

Ultimate aim is to craft a learning environment that not only nurtures academic excellence but also embraces sustainability and efficiency.

Utilizing natural and locally sourced materials, inherently eco-friendly and harmonious with the local climate, design will offers innate heat resistance, diminishing the demand for energy-intensive cooling systems, thus conserving energy. This dedication to sustainability and climate adaptability underscores our endeavor.

To energy efficiency and eco-friendliness extends to every facet of the architectural design. By employing sustainable building practices and innovative technologies, institute will not only minimize resource consumption but also leave a smaller environmental footprint. This commitment ensures that the building operates in harmony with nature, optimizing both functionality and ecological responsibility. Will meticulously incorporate energy-efficient systems to reduce energy consumption and make certain that the entire structure is a model of sustainability and environmental stewardship in the field of architecture.

Green areas aren't just for aesthetics; they will play a vital role in creating a mentally healthy environment for students. These spaces will be more than just pretty landscapes; they'll be peaceful havens that promote well-being and enhance the learning experience.

Mission is to craft not just a medical institute but an educational legacy that offers a conducive atmosphere for mental and academic growth. It's about creating spaces that inspire and adapt, meeting today's needs and preparing for the challenges of tomorrow.

PROGRAM

MEDICAL COLLEGE

ADMINISTRATIVE DEPARTMENT			
	No.	Area in sqm	Total Area
Principle / Dean office	1	36	36 SqMt
Staff Room	1	54	54 SqMt
College Council Area	1	80	80sqMt
Admin Office	1	150	150sqMt
Office superintendents	1	10	10 SqMt

ACADEMIC PROGRAM			
	No.	Area in sqm	Total Area
Central library	1	4000	4000 SqMt
Auditorium	1	2000	2000 SqMt
Exam hall	1	250	250 SqMt
Lecture hall	5	300	1500 SqMt
Canteen	1	400	400 SqMt
Restrooms for male and female	2	100	200 SqMt

1. ANATOMY DEPARTMENT			
	No.	Area in sqm	Total Area
Demonstrations room	2	45	90sqm
Dissecting hall	2	250	500 sqm
Museum	1	300	300sqm
STAFF			
Professor & Head of the Department	1	18	18 sqm
Associate Professor/Reader	1	15	15 sqm
Asstt. Professor/Lecturers	2	10	20 sqm
Department office cum Clerical room	1	12	12 sqm
Working accommodation for non-teaching staff	1	12	12 sqm

2. DEPARTMENT OF PHYSIOLOGY			
	No.	Area in sqm	Total Area
Demonstrations room	2	45	90sqm
STAFF			
Professor & Head of the Department	1	18	18 sqm
Associate Professor/Reader	1	15	15 sqm
Asstt. Professor/Lecturers	2	10	20 sqm
Department office cum Clerical room	1	12	12 sqm
Working accommodation for non-teaching staff	1	12	12 sqm

3. DEPARTMENT OF PATHOLOGY			
	No.	Area in sqm	Total Area
Demonstrations room	2	45	90sqm
Blood Bank	1	100	100sqm
Museum	1	150	150 sqm
STAFF			
Professor & Head of the Department	1	18	18 sqm
Associate Professor/Reader	1	15	15 sqm
Asstt. Professor/Lecturers	2	10	20 sqm
Department office cum Clerical room	1	12	12 sqm
Working accommodation for non-teaching staff	1	12	12 sqm

4. DEPARTMENT OF BIOCHEMISTRY

	No.	Area in sqm	Total Area
Demonstrations room	2	45	90sqm
STAFF			
Professor & Head of the Department	1	18	18 sqm
Associate Professor/Reader	1	15	15 sqm
Asstt. Professor/Lecturers	2	10	20 sqm
Department office cum Clerical room	1	12	12 sqm
Working accommodation for non-teaching staff	1	12	12 sqm

5. DEPARTMENT OF MICROBIOLOGY

	No.	Area in sqm	Total Area
Practical laboratories	1	375	375 sqm
Service Laboratory	7	40	280 sqm
Museum	1	120	120 sqm
STAFF			
Professor & Head of the Department	1	18	18 sqm
Associate Professor/Reader	1	15	15 sqm
Asstt. Professor/Lecturers	2	10	20 sqm
Department office cum Clerical room	1	12	12 sqm
Working accommodation for non-teaching staff	1	12	12 sqm

6. DEPARTMENT OF PHARMACOLOGY

	No.	Area in sqm	Total Area
Demonstrations room	2	45	90sqm
Museum	1	100	100 sqm
STAFF			
Professor & Head of the Department	1	18	18 sqm
Associate Professor/Reader	1	15	15 sqm
Asstt. Professor/Lecturers	2	10	20 sqm
Department office cum Clerical room	1	12	12 sqm
Working accommodation for non-teaching staff	1	12	12 sqm

7 DEPARTMENT OF FORENSIC

	No.	Area in sqm	Total Area
Demonstrations room	2	45	90sqm
Museum	1	200	200 sqm
Autopsy Laboratory	1	400	400 sqm
STAFF			
Professor & Head of the Department	1	18	18 sqm
Associate Professor/Reader	1	15	15 sqm
Asstt. Professor/Lecturers	2	10	20 sqm
Department office cum Clerical room	1	12	12 sqm
Working accommodation for non-teaching staff	1	12	12 sqm

8 .DEPARTMENT OF COMMUNITY MEDICINE

	No.	Area in sqm	Total Area
Museum	1	100	100 sqm
STAFF			
Professor & Head of the Department	1	18	18 sqm
Associate Professor/Reader	1	15	15 sqm
Asstt. Professor/Lecturers	2	10	20 sqm
Department office cum Clerical room	1	12	12 sqm
Working accommodation for non-teaching staff	1	12	12 sqm

TEACHING HOSPITAL

ADMINISTRATIVE DEPARTMENT	
Dean	36 Sq.Mt
Medical Superintendent Room	36 Sq.Mt
Hospital Supportive Staff Room	120 Sq.Mt
Enquiry Office,	60 Sq.Mt
Reception Area	600 Sq.Mt
Store Rooms.	500 Sq.Mt
Central Medical Record Section	250 Sq.Mt
Hospital And Staff Committee Room	75 Sq.Mt
Central Laboratories	150 Sq.Mt
Central Casualty	150 Sq.Mt
Central Pharmacy	100 Sq.Mt
Central Kitchen	200 Sq.Mt

CLINICAL DEPARTMENTS IN THE HOSPITAL.		
DEPARTMENTS	No. Beds	No.units
General Medicine	120	4
Paediatrics	60	2
General surgery	120	4
Orthopaedics	50	2
Ophthalmology	10	1
Oto-Rhinolaryngology	10	1
Obstetrics	30	2
Gynaecology	20	1
Gynaecology	10	1
Totale	430	

OPERATION THEATRE UNIT	
Waiting Room For Patients.	15 Sq.Mt
Washing Room	10 Sq.Mt
Dressing Up Room	10 Sq.Mt
Central Sterilization Unite	10 Sq.Mt
Sterilisation Room	15 Sq.Mt
Pre-Anaesthetic/Preparation Room	15 Sq.Mt
Instrument Room.	15 Sq.Mt
Operation Theatre.	75 Sq.Mt
Surgeon's And Anaesthetist's Room	40 Sq.Mt
Assistant's Room.	20 Sq.Mt
Observation Gallery For Students.	40 Sq.Mt
Soiled Linen Room	15 Sq.Mt
Sterilisation Room	15 Sq.Mt
Post-Operative Recovery Room	30 Sq.Mt
Nurses Rooms.	20 Sq.Mt
Store Rooms	15 Sq.Mt

LABOUR ROOM	
Waiting Area For Patient	15 Sq.Mt
Preparation Room	15 Sq.Mt
Labour Room	100 Sq.Mt
Postpartum Recovery Room	75 Sq.Mt
Soiled Linen Room	15 Sq.Mt
Instrument Room	15 Sq.Mt
Sterilisation Room	15 Sq.Mt
Nursing Room	20 Sq.Mt
Surgeon's And Anaesthetist's Room	40 Sq.Mt
Store Rooms	15 Sq.Mt
Washing Room	10 Sq.Mt
Dressing Up Room	10 Sq.Mt
Eclampsia Room	75 Sq.Mt
Laundry	10 Sq.Mt

SITE SELECTION AND ANALYSIS

7. SITE ANALYSIS AND SELECTION

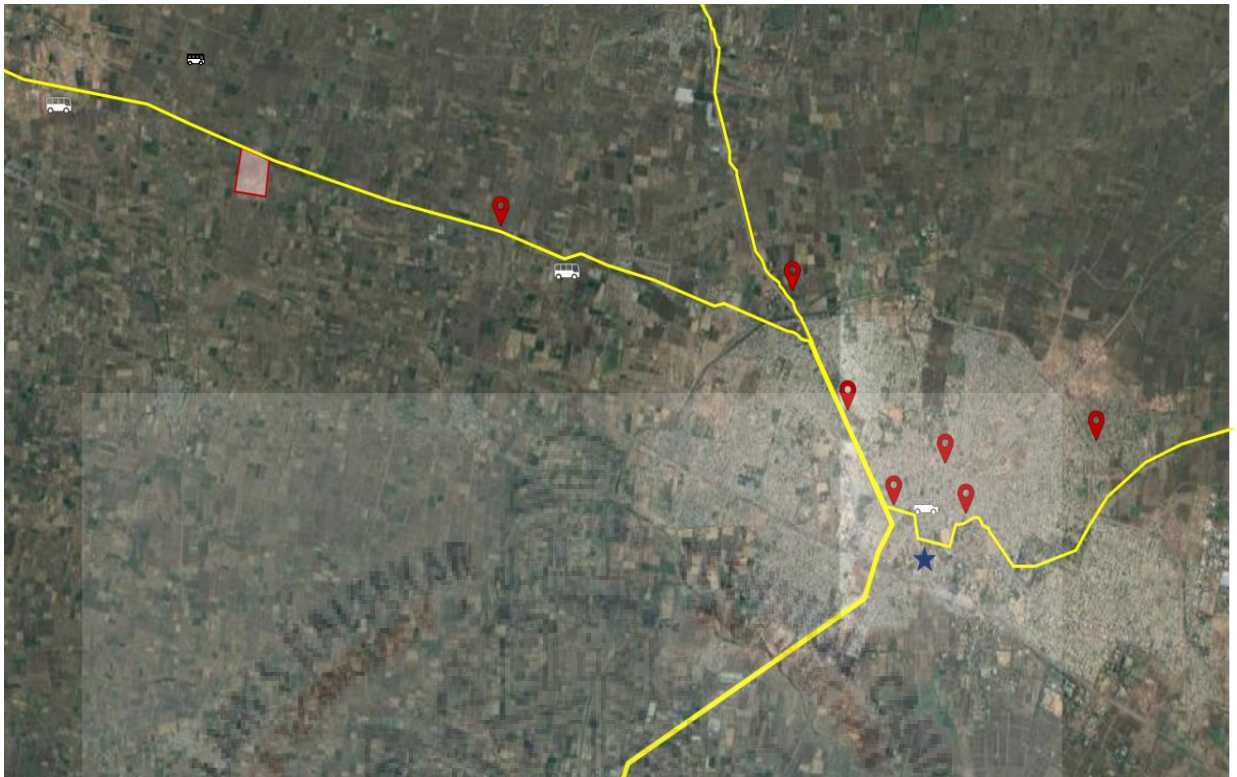


Fig 120. Parbhani Map

Parbhani is situated to the northwest of Hyderabad, Telangana, and to the south of Aurangabad in the Marathwada region of Maharashtra, forming a pivotal geographical point within the state

 National Highway 61

 Multispeciality Hospital

 Bus Stop

 Railway Station

CLOSE PROXIMITY OF SITE

Nearest Bus Depot : Bramhpuri bus stop 2km

Nearest Railway Station : Pergaon Railway Station 2km .

National Highway : 61

Nearest Multi speciality Hospital : Dr Prafulla Patil multi speciality Hospital parbhani 4km.

The Site is easily accessible from all means of transport.

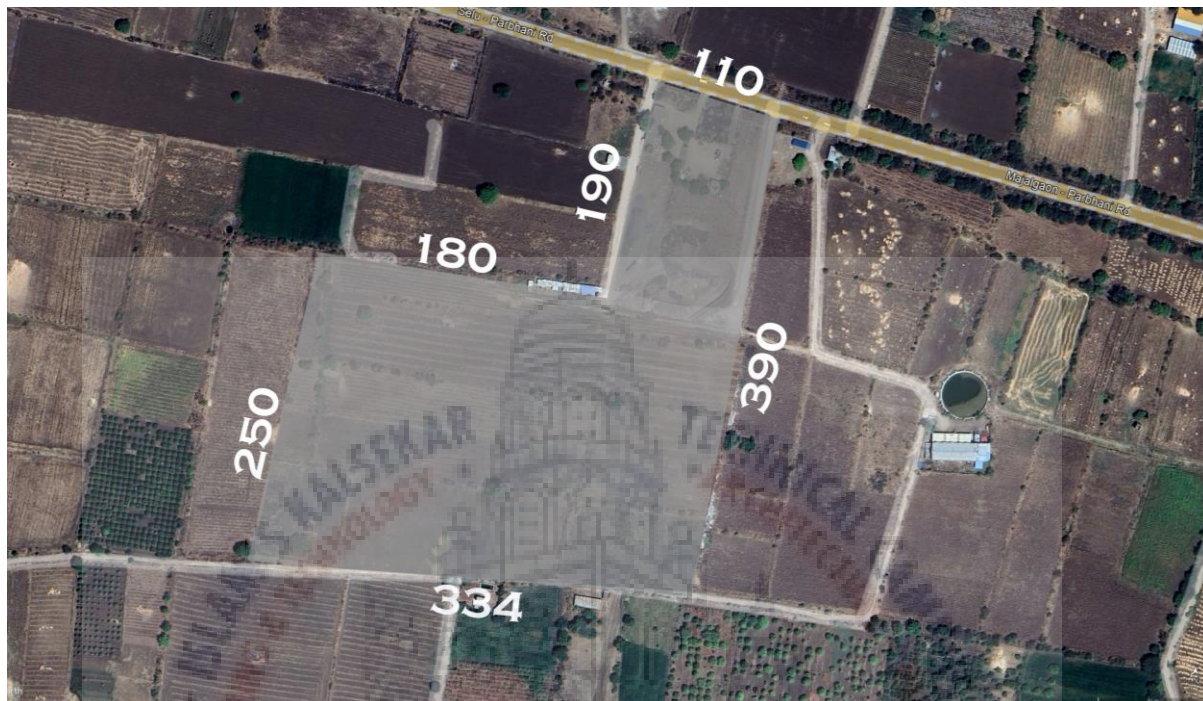


Fig 121. Site Map

The new Government Medical College and Hospital attached to it at Parbhani, Mauje Bramhpuri, Tt. Dist. Industries, Energy and Labor Department at Parbhani in his name Group No. 2, 20, 47, 53 for a total of 52.06 R. This required land is approved to be transferred free of cost to the revenue department. Also, approval is being given to transfer the said land free of charge to the Medical Education Department through the Revenue Department. Also, approval is being given to shift the new government medical college and affiliated hospital in the said place.

Average temperatures and precipitation

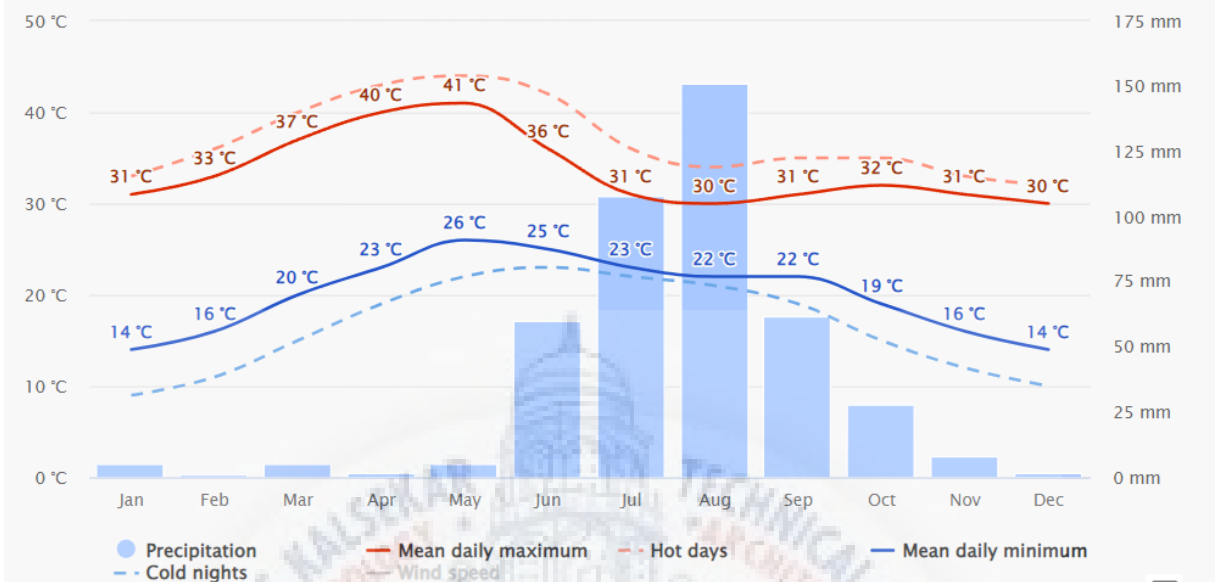


Fig 122. Average Temperature

The temperature chart displays mean daily maximum and minimum temperatures in parbhani, with dashed lines indicating the hottest day and coldest night. Precipitation data helps anticipate seasonal effects.

Maximum temperatures

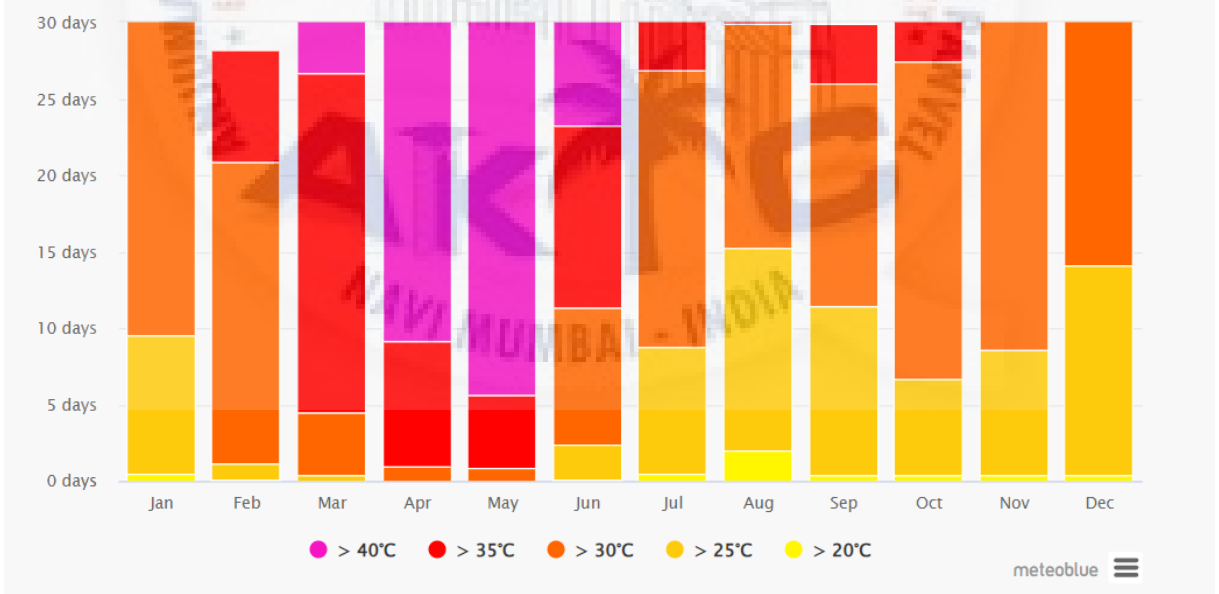


Fig 123. Max Temperature

The temperature diagram for Parbhani illustrates the frequency of days each month reaching specific temperatures. It highlights the extreme heat in Dubai during July and the cold winters in Moscow.

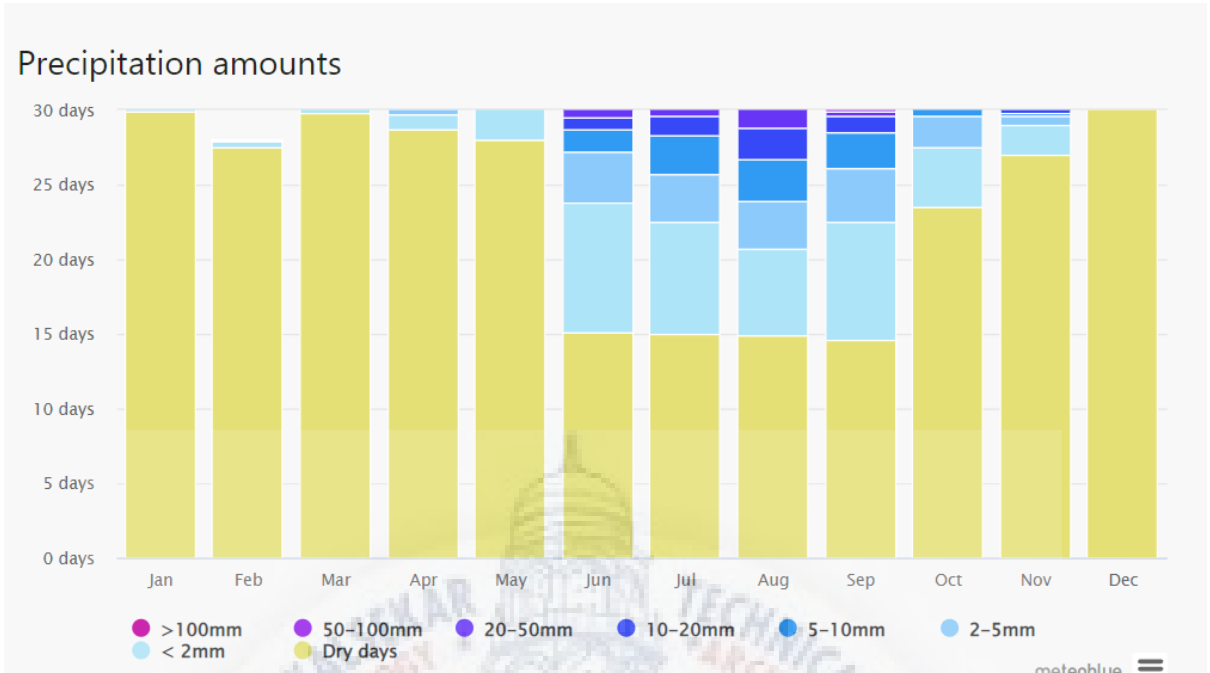


Fig 124. Precipitation

Parbhani's precipitation diagram indicates the number of days per month with specific precipitation levels. Note that in tropical and monsoon climates, these amounts may be underestimated

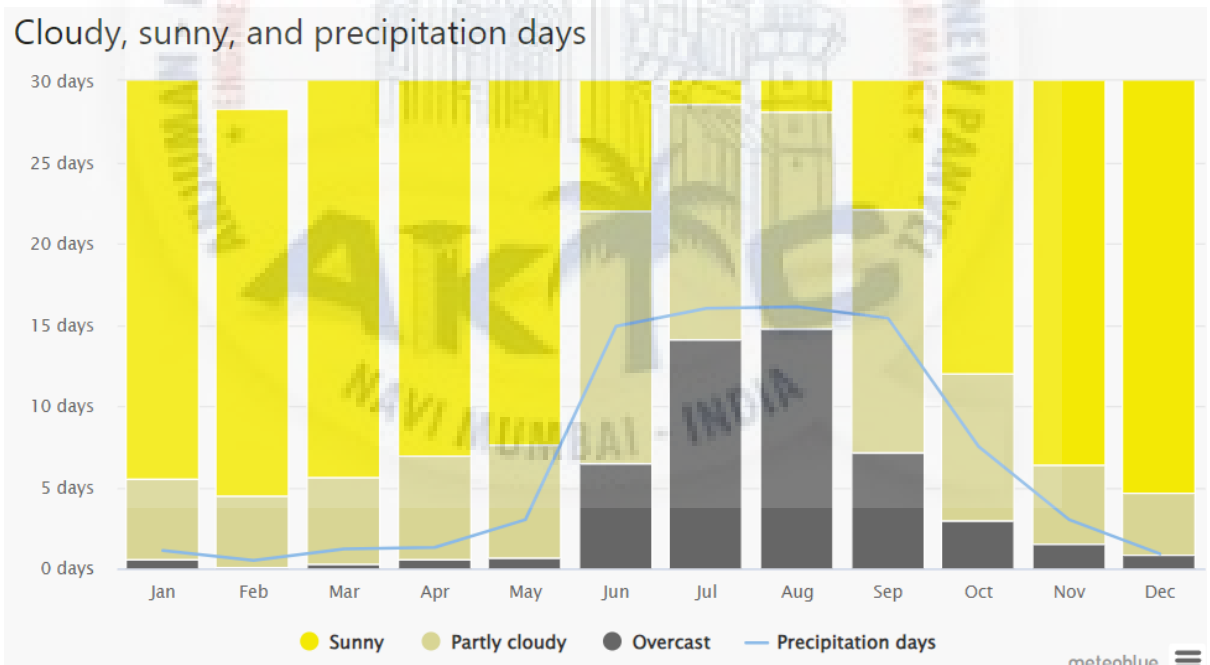


Fig 125. Cloudy And Sunny

The graph displays the monthly count of sunny, partly cloudy, overcast, and precipitation days. Definitions: <20% cloud cover is sunny, 20-80% is partly cloudy, >80% is overcast. Reykjavík in Iceland is typically overcast, while Sossusvlei in the Namib desert enjoys abundant sunshine..

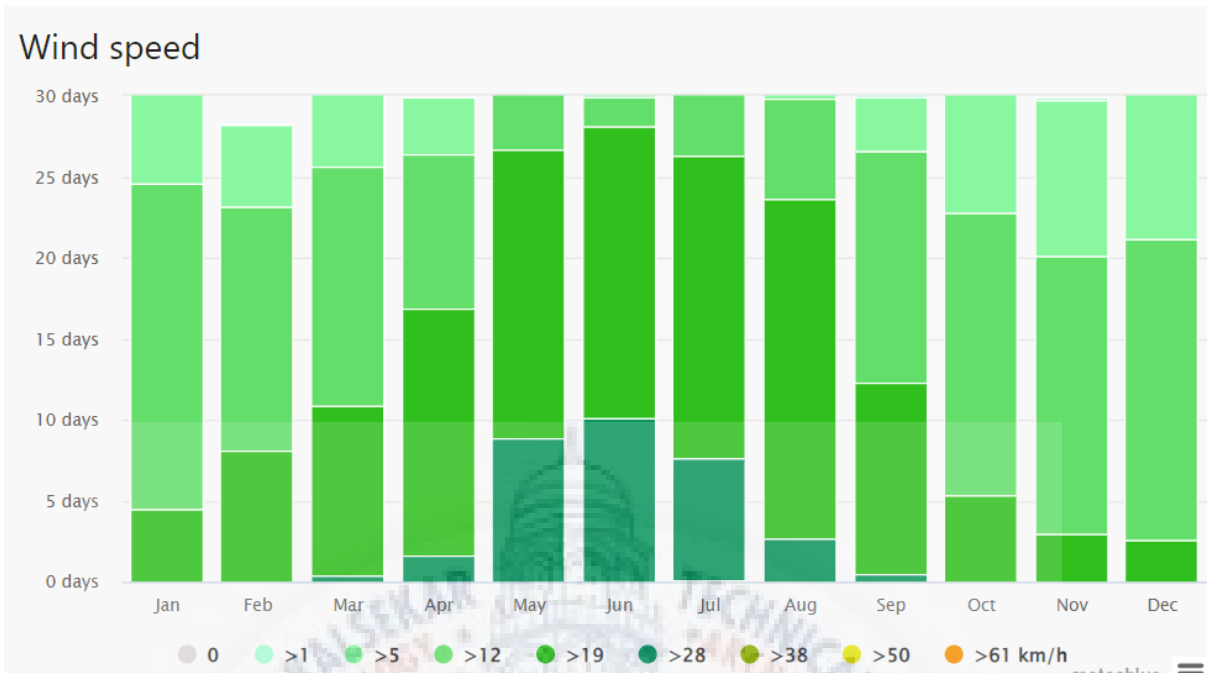


Fig 126. Wind Speed

The Parbhani diagram depicts the number of days each month with specific wind speeds. Notably, the Tibetan Plateau experiences strong, steady winds from December to April due to the monsoon, with calm winds from June to October.

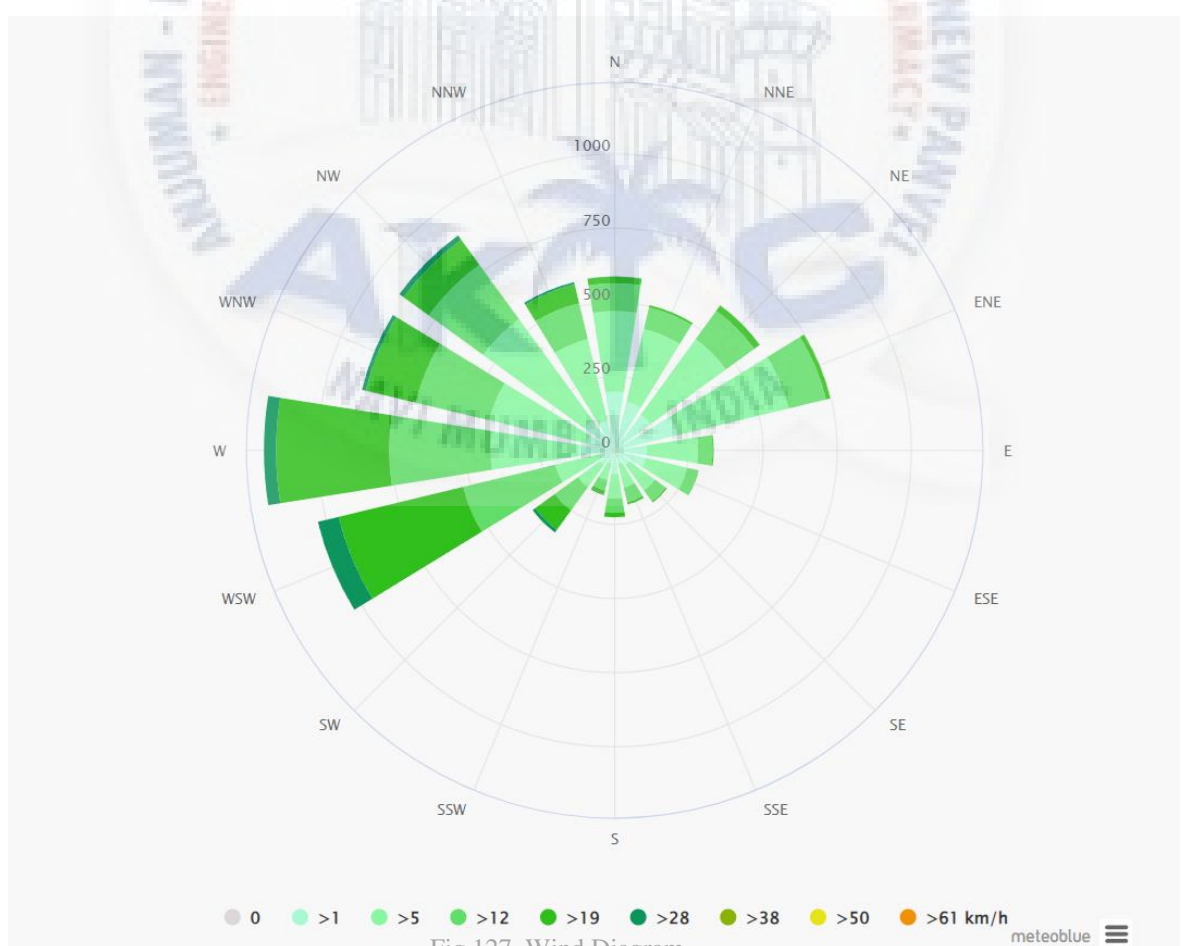


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