THESIS REPORT ON

“MEDICAL COLLEGE, SULTANPUR”

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF:

BACHELOR OF ARCHITECTURE

BY

(ANJALI SINGH)

(1180101009

THESIS GUIDE

(AR. SHALINI DIWAKER)

SESSION

2022-2023

TO THE

SCHOOL OF ARCHITECTURE AND PLANNING

BABU BANARASI DAS UNIVERSITY

LUCKNOW.

SCHOOL OF ARCHITECTURE AND PLANNING
BABU BANARASI DAS UNIVERSITY, LUCKNOW (U.P.).

CERTIFICATE

I hereby recommend that the thesis entitled "MEDICAL COLLEGE, SULTANPUR" under the supervision, is the bonafide work of the students and can be accepted as partial fulfillment of the requirement for the degree of Bachelor's degree in architecture, school of Architecture and Planning, BBDU, Lucknow.

Prof. Mohit Kumar Agarwal Dean of Department	Prof. Sangeeta Sharma Head of Department

Recommendation Accepted

Not Accepted

External Examiner	External Examiner

BABU BANARASI DAS UNIVERSITY, LUCKNOW (U.P.).

Certificate of thesis submission for evaluation

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2. **Roll No. : 1180101009**
3. **Thesis Title : MEDICAL COLLEGE, SULTANPUR**
4. **Degree for which the thesis is submitted: BACHELOR OF ARCHITECTURE**
5. **Faculty of University to which the thesis is submitted: Yes**
6. **Thesis preparation guide was referred to for preparing the thesis. Yes**
7. **Specification regarding thesis format have been closely followed. Yes**
8. **The content of the thesis have been organized based on the guidelines. Yes**
9. **The thesis has been prepared without resorting to plagiarism Yes**
10. **All the sources used have been cited appropriately Yes**
11. **The thesis has not been submitted elsewhere for a degree. No**
12. **Submitted 3 hard bound copied plus one CD Yes**

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ACKNOWLEDGEMENT

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I also want to thank my parents, batchmates and friends and all those who supported me throughout my thesis by providing me help guidance and resources.

THANK YOU.

CHAPER-1

INTRODUCTION

INTRODUCTION:

In MEDICAL COLLEGES the academic environment of institutions is of major concern. The “activities the students undergo in their entire college life” and “the interactive space and learning environment they are well suited with”, are of great concern in planning. Institutions like these concern great detail of research on both, student’s studying behavior, and standard of technology in cooperated with curriculum. These institutions mostly are designed on the basis of function, where the space is described by activities to be held. Being an architect, it is of great concern that the plan should be such that the learning environment may increase without losing any interest. More over the function and the form both should in co-operate each other, having direct or indirect on student’s learning. Medical College is a live proposal in six district in UTTAR PRADESH.

AIM:

To derive guidelines for creating a medical education campus that promotes a conducive environment for learning. All buildings shall be sustainable, energy efficient and use space optimally. The entire campus should be designed as a zero discharge campus. Campus should be designed so as to leave enough space for future expansion.

OBJECTIVE:

- To study the different types of learning in a medical school campus
- To study the different types of activities and interactive spaces in a campus in general and then specifically in medical campus.
- To understand how the spaces incorporated assist in the stimulation of beneficial thinking among students, researchers, doctors, nurses and patients.
- To study the different types of interactive spaces in different campuses through case studies
- Derive guidelines for the design of conducive learning environment in a campus and implement in my design

SCOPE:

An educational institute plays a vital role in a developing nation. In the proposal study, will investigate how a medical institute will be design while considering the learning environment. The study will focus on the development of a medical college with the concern of the functionality and form along with the environment consideration.

LIMITATIONS:

The human behavioural aspects are studied through observation. As the study design is about the certain interactive spaces and learning environment of a campus. Due to the limitation of time, planning of teaching hospital and residential units for staff or students would not be the part of project but will be included in master planning. The limits of this study design are about the spaces of the medical college and its uses.

NEED OF THIS PROJECT:

On September 22, 2022, Uttar Pradesh Medical Education Principal Secretary Alok Kumar informed that the central government has given in-principle consent to open medical colleges in six districts of the state under the Viability Gap Funding (VGF) scheme. This work will be done under the 'One District One Medical College' program.

KEY POINTS

- Under the 'One District One Medical College' program, the process of opening medical colleges in Mahoba, Mainpuri, Baghpat, Hamirpur, Hathras and Kasganj districts on PPP mode has started. Investors will be selected through tenders for running medical colleges.
- In Uttar Pradesh, medical colleges are to be opened on PPP model in 16 districts. It will cost around Rs 1525 crore to open medical colleges in six districts. The central government will provide a subsidy of Rs 1012 crore in this. A college will get an average subsidy of Rs 160 crore each.
- Work has started by selecting investors to open medical colleges in Maharajganj and Sambhal. Apart from this, the process of opening medical colleges in Shamli and Mau is underway.

CHAPTER – 2

PROJECT INTRODUCTION

PROJECT INTRODUCTION

Medical College means an institution, whether known as such or by any other name, which provides for a programme, beyond 12 years of schooling, for obtaining recognized MBBS qualification from a university and which, in accordance with the rules and regulations of such university, is recognized as competent to provide for such programmes of study and present students undergoing such programmes of study for the examination for the award of recognized MBBS/PG Degree/Diploma qualifications.

Medical College means any institution by whatever name called in which a person may undergo a course of study or training including any post graduate course of study or training which will qualify him for the award of a recognised medical qualification.

DIFFERENCE BETWEEN HOSPITAL AND MEDICAL COLLEGE

A general hospital is medical treatment provider institute that serves the ill people only. Whereas, the university and college hospital serves the ill people and provides education and training to medical students also. They are usually medical school affiliated or run under any particular owner.

WHY THIS PROJECT

First of all, we have a lot of interest in the medical field, therefore, we choose the medical related topic for our thesis and main thing 2 years ago, the UP State Government brought this scheme, which is called 'One District One Medical College', with in this scheme 9 medical colleges have been proposed in the whole of Uttar Pradesh. The scheme aims to increase the availability of health professionals, correct the existing geographical imbalance in the distribution of medical colleges and effectively utilise the existing infrastructure of district hospitals.

CHAPTER-3

SITE ANALYSIS

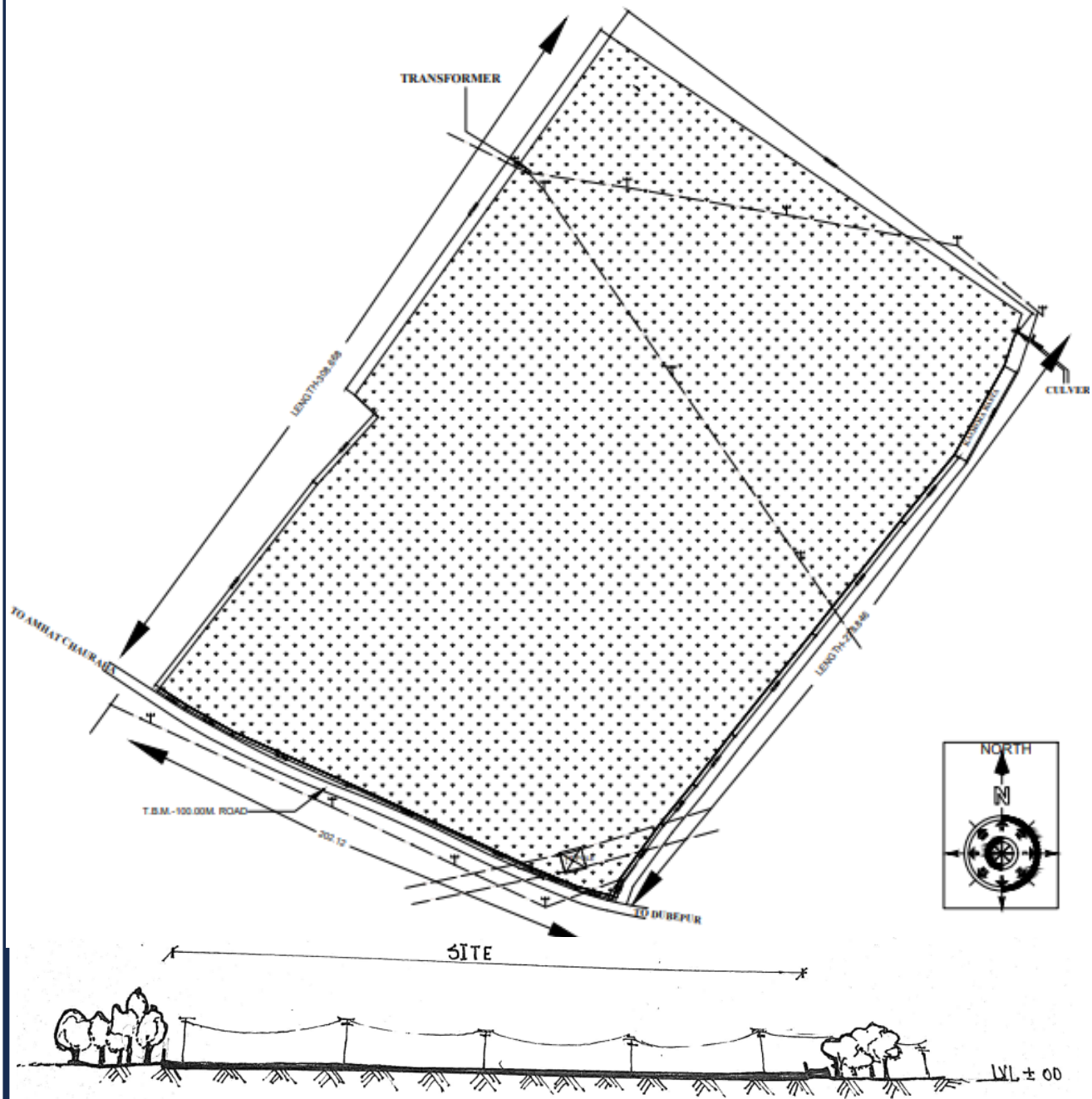
SITE ANALYSIS

SITE LOCATION

- Town - **DUBEPUR** (Development block)
- District - **SULTANPUR**,
- State - **UTTAR PRADESH**
- Country – **INDIA**
- The latitude for Sultanpur, Uttar Pradesh, India is: 26.2647757 and the longitude is: 82.0727061
- Name of project – **Medical College**
- Project type - **Institutional Building**
- Client **– Central government of INDIA**
- Funding of the project **– Department of medical education & State government**
- Architect - **Ar. Ashok Kumar**
- Status of the project -
- Levels & contours – **Flat site almost no contour**
- Earthquake zone – **III Zone**

SITE EXISTING PLAN

Site area – **15 acres**
Shape - **Rectangular**
Road on two side of site
Surrounding of site – **Farming land all around**.
Land mark – **Ganna Sambardhan Kendra, Amhat**
Police chauki , Amhat



CHAPTER-4

SITE BACKGROUND STUDY

APPROACH TO THE SITE

AIRPORT - **Allahabad Airport, Uttar Pradesh – 116.2 KM**

RAILWAY STATION - **Sultanpur junction – 6.7 KM**

BUS STATION - **Sultanpur bus station – 4.0 KM**

STATE HIGHWAY – **NH 330 – 9.7 KM**

SITE IMAGE

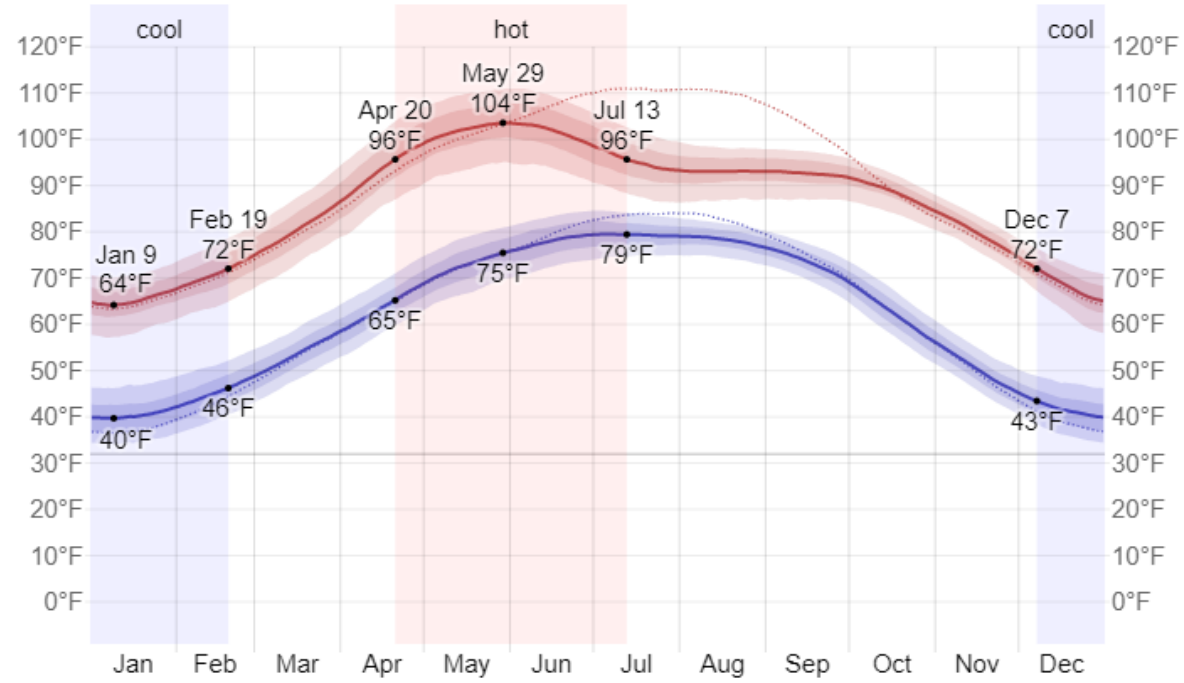


CLIMATE & WEATHER IN SULTANPUR

- CLIMATE – WARM AND TEMPRATE
- HIGH TEMP. - 42°C LOW TEMP. - 10°C MEAN TEMP. - 27°C
- PRECIPITATION - 49 %
- HUMIDITY - 25 %
- WIND SPEED - 4.4 Mile/H
- VISIBILITY - 2KM

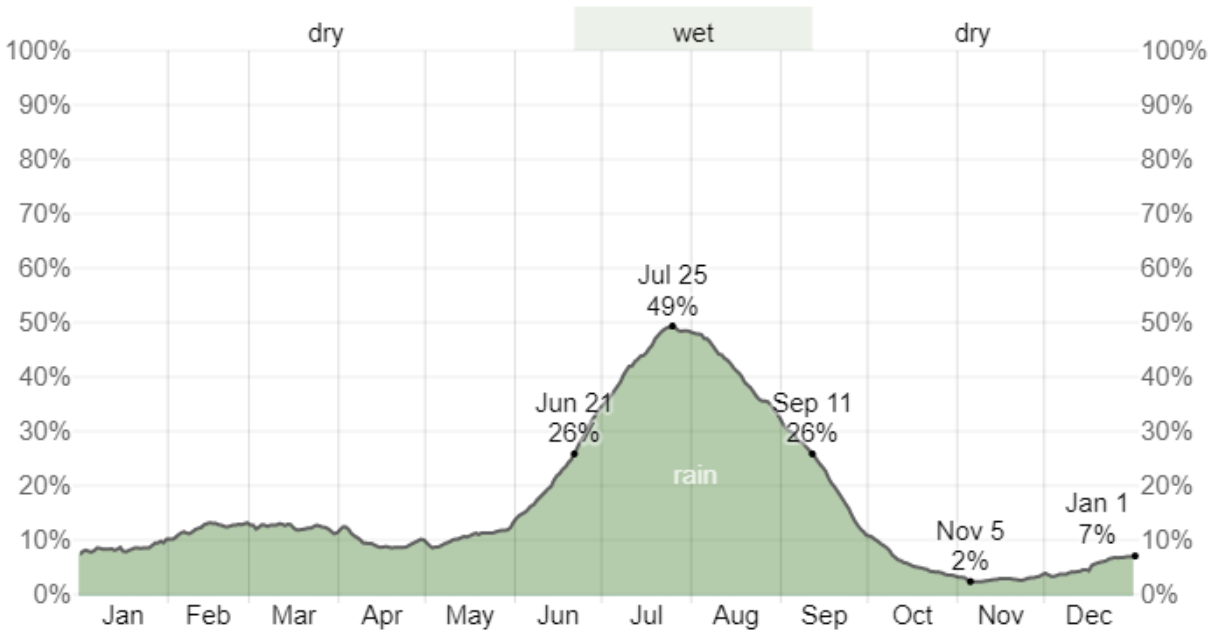
MINIMUM AND MAXIMUM TEMPRATURE IN MONTH

- The hot season lasts for 2.8 months, from April 20 to July 13, with an average daily high temperature above 96°F.
- The hottest month of the year in Sultanpur is June, with an average high of 102°F and low of 78°F.
- The cool season lasts for 2.4 months, from December 7 to February 19, with an average daily high temperature below 72°F.
- The coldest month of the year in Sultanpur is January, with an average low of 40°F and high of 65°F



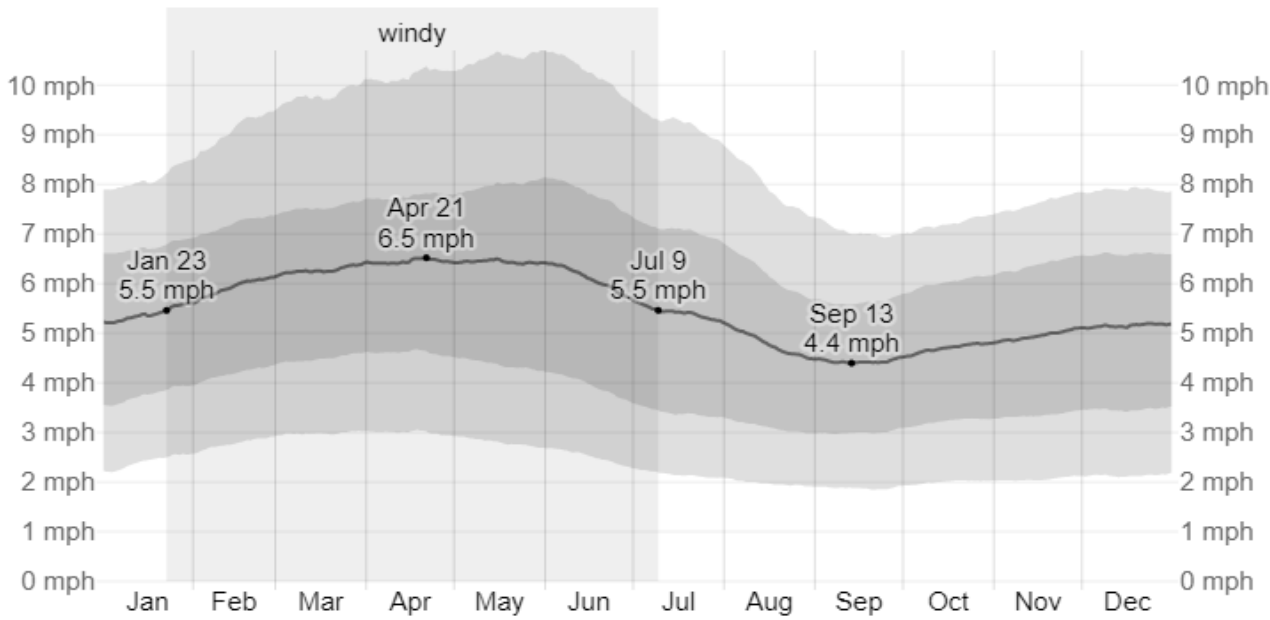
PRECIPITATION IN SULTANPUR

Among wet days, we distinguish between those that experience rain alone, snow alone, or a mixture of the two. The month with the most days of rain alone in Sultanpur is July, with an average of 13.8 days. Based on this categorization, the most common form of precipitation throughout the year is rain alone, with a peak probability of 49% on July 25



WIND SPEED & DIRECTION IN SULTANPUR

- The average hourly wind speed in Sultanpur experiences mild seasonal variation over the course of the year.
- The windier part of the year lasts for 5.6 months, from January 23 to July 9, with average wind speeds of more than 5.5 miles per hour. The windiest month of the year in Sultanpur is April, with an average hourly wind speed of 6.4 miles per hour.
- The calmer time of year lasts for 6.4 months, from July 9 to January 23. The calmest month of the year in Sultanpur is September, with an average hourly wind speed of 4.4 miles per hour.
- The wind is most often from the west for 2.7 weeks, from January 20 to February 8 and for 2.1 months, from May 5 to July 7, with a peak percentage of 46% on June 13.
- The wind is most often from the north for 2.9 months, from February 8 to May 5 and for 4.2 months, from September 14 to January 20, with a peak percentage of 42% on April 9.
- The wind is most often from the south for 2.0 months, from July 7 to September 7, with a peak percentage of 41% on July 25



ABOUT DISTRICT

- District Sultanpur belongs to Faizabad division of Uttar Pradesh.
- Its distance from Faizabad is 60 km and from Lucknow, the state capital, is 140 km.
- It is well connected with road and railways from these districts. Amethi, Pratapgarh, Jaunpur and Ambedkar Nagar districts are its neibouring districts.
- Sultanpur comprises of 1727 villages, 5 tehsils and 17 thanas.

DISTRICT PROFILE

	Sultanpur	Uttar Pradesh
Rural Population (In lakhs) (Census 2011)	24.14	1551.11
Number of Districts (RHS 2014)	1	75
Number of Sub District (Tehsil/Taluka etc.)Census 2011	5	312
Number of Villages (RHS 2014)	986	106704
Number of District Hospitals (RHS 2014)	2	160
Number of Community Health Centres (RHS 2014)	13	773
Number of Primary Health Centres (RHS 2014)	42	3497
Number of Sub Centres (RHS 2014)	245	20521

DEMOGRAPHY

- The district is located on Faizabad and Ambedkar Nagar on the northern border of Sultanpur, Barabanki in the northwest, Jaunpur and Azamgarh in the east, Amethi in the west and district Pratapgarh in the south.

- River Gomti river flows in the district, in a natural way, the district is divided into two parts. Gomti river enters this district near north-west and enters Jaunpur, near the steep ray of south-east Dwarka. Apart from this, the Garbhiya nala, Mazui nala, Jamurya nala, and bhat village Karkharva, Sobha Mahona etc. are lakes.

- The administrative district of Sultanpur district is five tahsils – Sadar, Bldirai, Jaysinghpur, Kadipur and lumbuwa and 14 development blocks – Akhand Nagar, Dostpur, Karoudi art, Kadipur, Motigrapur, Jaisinghpur, Kurhhar, Pratappur Kamacha, Lumbhwa, Bhadaiya, Dubepur, Dhapatganj, Kudwar and Bildirai

DEMOGRAPHY PROFILE

Indicator	Sultanpur	Uttar Pradesh
Total Population (In Crore) (Census 2011)	2.38	19.96
Decadal Growth (%) (Census 2001)		20.09
Crude Birth Rate (SRS 2014)	21.9	27.2
Crude Death Rate (SRS 2014)	7.4	7.7
Natural Growth Rate (SRS 2014)	15.4	19.5
Sex Ratio (Census 2011)	983	908
Child Sex Ratio (Census 2011)	941	899
Schedule Caste population (In Crore) (Census 2001)		3.51
Schedule Tribe population (in crore) (Census 2001)		0.011
Total Literacy Rate (%) (Census 2011)		69.72
Male Literacy Rate (%) (Census 2011)		79.24
Female Literacy Rate (%) (Census 2011)		59.26

SOIL CONDITION OF SITE

In Sultanpur district chief variation of soil are Dumat or loam which is mixture of sand and clay in various proportions , matiyar or clay and bhur or sand .
pre-dominant soil of the district is loam or Dumat occurring in central level land. Matiyar occurs in low laying areas while bhur is found along the river Gomti.



INFRENCE…

After looking at the demographic data of the Sultanpur district and doing the site analysis, it is proved that the establishment of a medical college here will be beneficial for the people and economic growth will be good. Best opportunity for the people here to move forward.

AMENITIES ON SITE

ELECTRICITY

- Here a high tension electric connection is passing through the site.
- 11 kilo volt electric pole also available in site.

WATER SUPPLY

- Here the ground water level is very good, so the source of water supply is ground water and some surface water is also there.

DRAINAGE

- Site by side there is a drain in which we can do the drainage of our entire site and also do water harvesting to make our building sustainable.

SOLID WASTE MANAGMENT

- Although this is a medical college building, solid waste management will have to be taken care of here. For this the back side one on the site itself. Solid waste management plant will be built and side road will be used to dispose it away.

VEGETATION

- Due to the agricultural land around the site, the vegetation here is very good. Good big shade trees can be planted here .

IMAGES

SWOT ANALYSIS

S

- Fertile agricultural land
- All basic amenities within reach
- High groundwater table
- Area rich in vegetation

W

- Minor availability of quality education and infrastructure.
- Low literacy rate
- Weak economic conditions

O

- Economy generation through agriculture
- resources available for building better infrastructure
- Scope of improving socio-economic conditions

T

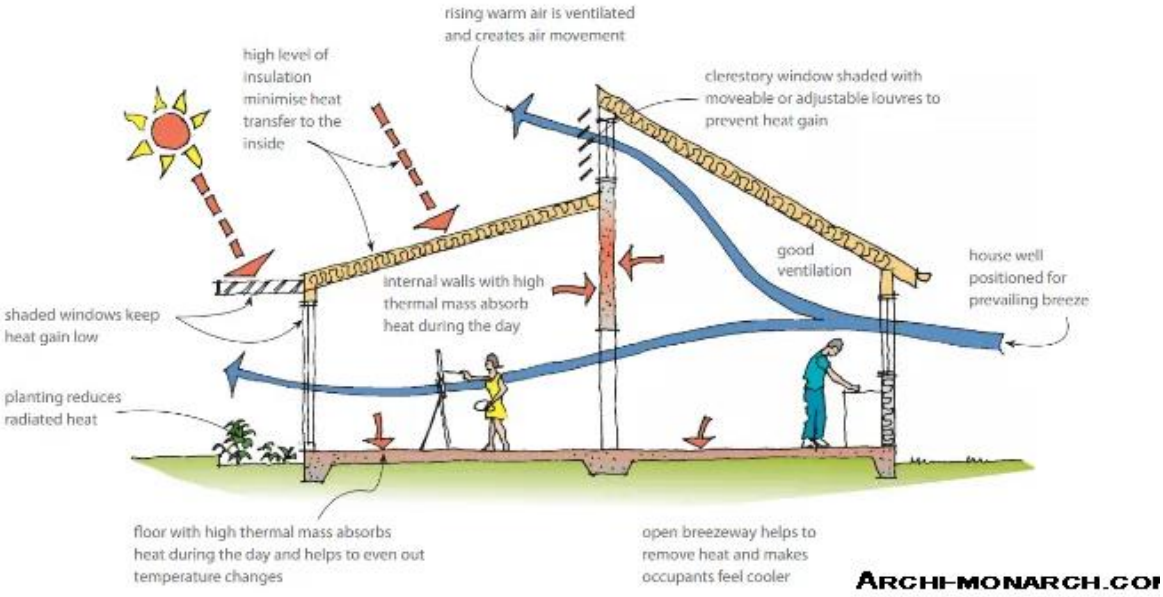
- Earthquake-prone area
- Road congestion due to less road width
- Lack of awareness about quality education

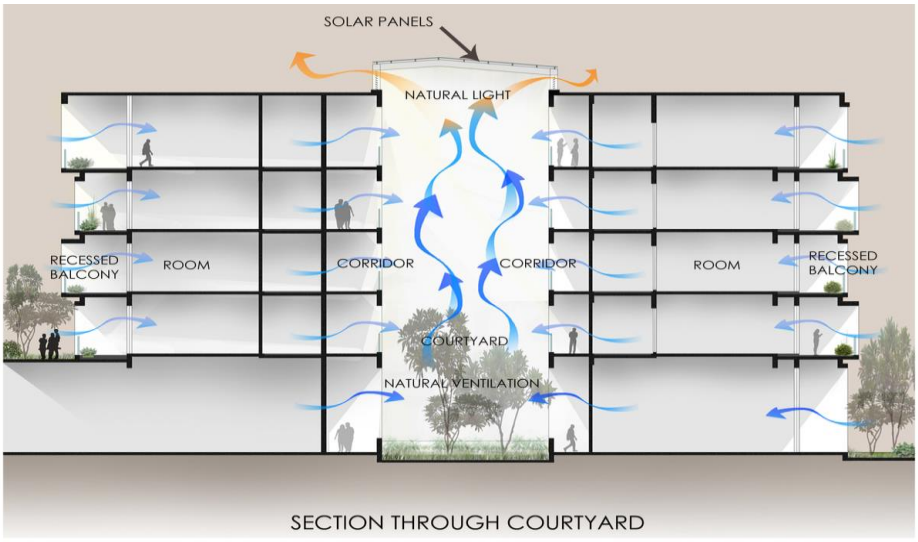
LOCAL CONSTRUCTION MATERIAL OF SULTANPUR

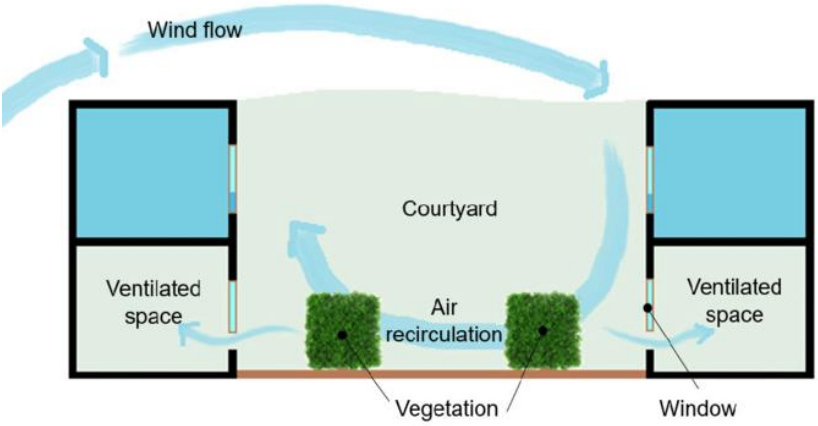
- ❑ Timber
- ❑ Sand
- ❑ Soil
- ❑ Roof material
- ❑ Fly ash bricks
- ❑ Bamboo
- ❑ Brick blocks
- ❑ Clay bricks
- ❑ Ferrocement walls
- ❑ metal

DESIGN CONSIDERATION

In composite climate, **the envelope should be designed so that it remains shaded for the greater part of the day**; the external walls should be so planned that they shade each other. of heat in evaporation and causes significant cooling







- Courtyard planning is best for composite climate.

CHAPTER-5

CASE STUDY

CASE STUDY - 1

INTRODUCTION

PROJECT NAME - **Weill Cornell medical college**

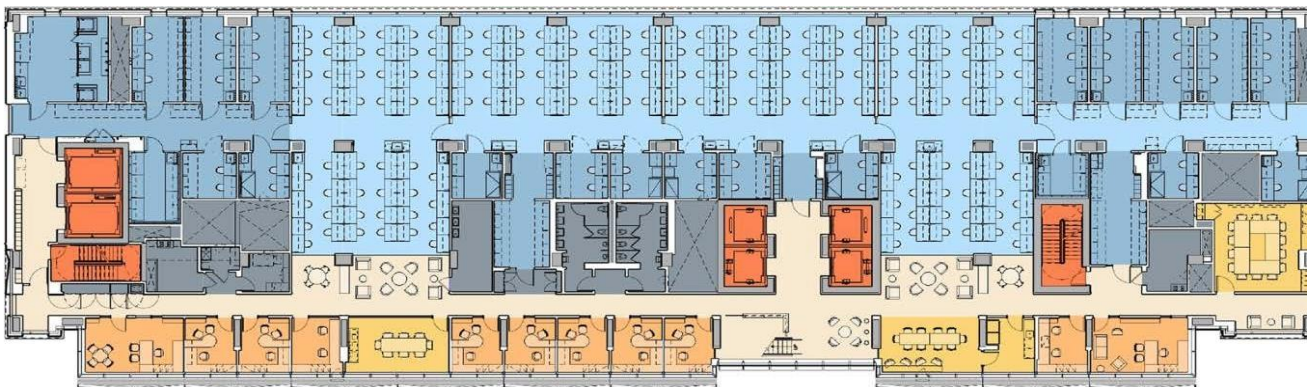
LOCATION - **New York 413 East 69th Street, , NY 10021, USA**
ARCHITECT - **Todd Schliemann ,Ennead Architects**
PROJECT MANAGER - **Lois Mate**
PROJECT ARCHITECT – **Craig McIlhenny**
AREA - **480000.0 sq.ft.**

- Weill Cornell Medical College biomedical research medical school Cornell University private Ivy League university New York Avenue Upper East Side Manhattan Weill Cornell Graduate School of Medical Sciences.
- Ennead's 2003 master plan for the campus, the design of the Belfer Research Building is intended to complement the National Healthcare Design Award-winning Weill Greenberg Center, the institution's flagship ambulatory care facility designed by Schliemann and opened in 2007.
- A two-story space extends from the Belfer entrance to a landscaped garden that connects the two buildings and creates an internalized campus green for Weill Cornell. Classrooms, conference rooms, lounge and study spaces, and a café are connected to the garden.
- **HISTORY -**

- The school was founded on April 14, 1898,with an endowment by Col. Oliver.
- H. PayneIthaca. It was established in New York City because , where the main campus is located, was deemed too small to offer adequate clinical training opportunities.
- A branch of the school operated in Stimson Hall on the main campus. The two-year Ithaca course paralleled the first two years of the New York City school.

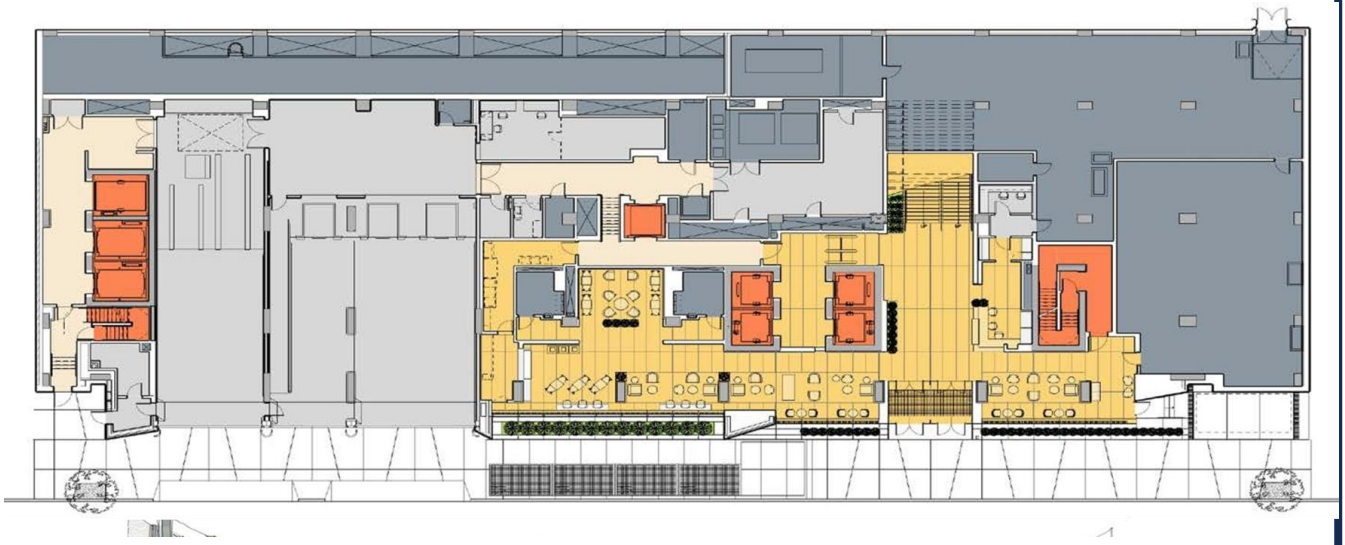
SITE LAYOUT

FRONT ELEVATION

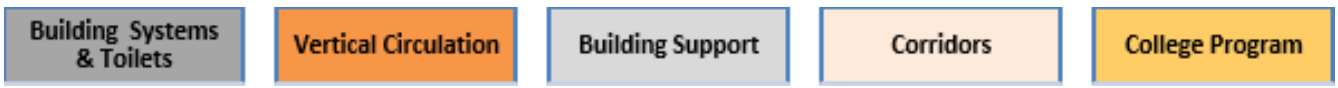


GROUND FLOOR PLAN

FIRST FLOOR PLAN



SECOND FLOOR PLAN

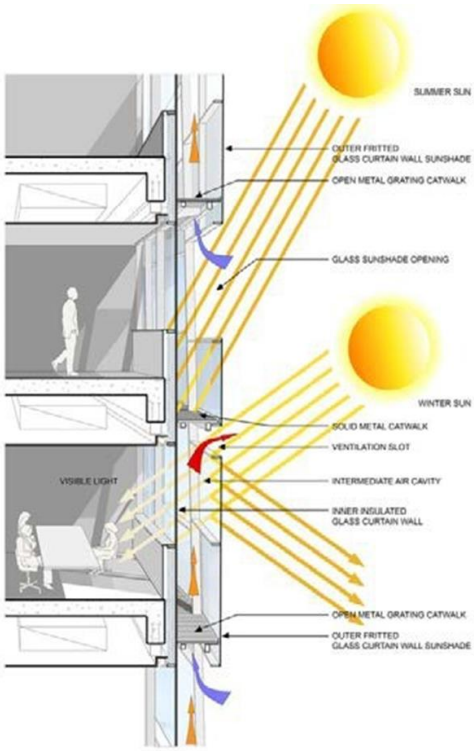


LEGENDS

SECTION

SILENT FEATURES:

A humanistic research environment, the building is designed to facilitate high-impact translational research, providing both state-of-the-art efficiency and optimal quality of life on thirteen floors of laboratories, three floors of academic programs and floors of research support space. Design theme is “reflection of various colors”. The building uses six primary colors in interior, exterior, furniture and signs. Natural light is optimized throughout the building as transparency between the office and the laboratory. The building envelope features a high-performance double-skinned, fritted-glass curtain wall that defines the building’s formal identity and maximizes energy efficiency.



GL-1 INSULATED GLASS UNIT:
-3/8" LOW-IRON OUTER LITE
-LOW-E COATING #2 SURFACE
-1/2" AIR SPACE WITH ARGON GAS FILL
-1/4" LOW-IRON INNER LITE

GL-2 LAMINATED SPANDREL GLASS:
-5/8" LOW-IRON LAMINATED W/ 50% COVERAGE FRIT PAT. #2 SURF. AND OPAQUE WHITE INTERLAYER

GL-6 LAMINATED FRITTED GLASS SCREEN:
-5/8" LOW-IRON LAMINATED W/ 75% COVERAGE FRIT PAT. #2 SURF. (BLACK & WHITE DOUBLE PASS FRIT)
(APPROX. SC= TBD SHGC= TBD)

GL-7 LAMINATED FRITTED GLASS SCREEN:
-5/8" LOW-IRON LAMINATED W/ 50% COVERAGE FRIT PATTTERN #2 SURF. (BLACK & WHITE DOUBLE PASS FRIT)
(APPROX. SC= 0.68 SHGC= 0.59)

1 NOT USED

2 NOT USED

3 PAINTED ALUMINUM 4-SIDED STRUCTURALLY GLAZED CURTAIN WALL W/ LAMINATED GLASS PANELS

4 16 GAUGE STAINLESS STEEL CABLE @ 2" O.C. HORIZONTAL SPACING. WIRES TENSIONED ACROSS OPENING

5 PAINTED STEEL CATWALK GRATING, 50% OPEN SUPPORTED ON PAINTED STEEL CATWALK STRUCTURE ANCHORED TO BUILDING STRUCTURE

6 CURTAIN WALL GRAVITY LOAD CONNECTION

7 INTERIOR PAINTED GYP BD FINISH

8 INTERMEDIATE VENTILATED CAVITY

9 RADIANT CEILING PANEL

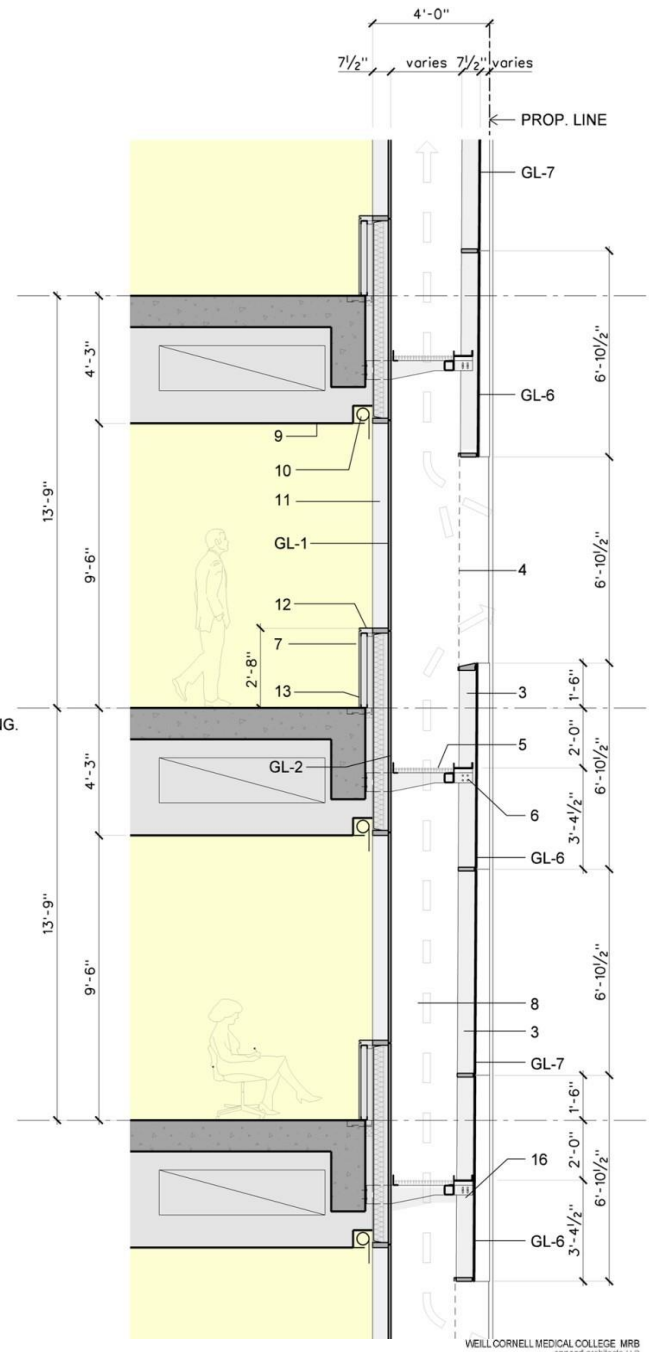
10 CONCEALED ROLLER SHADE POCKET

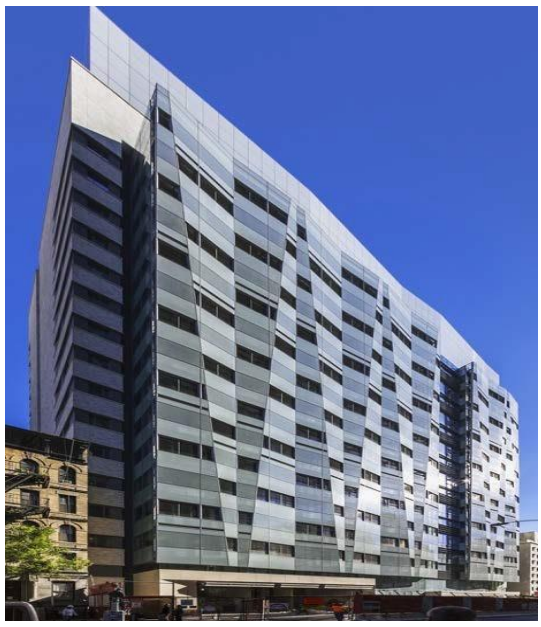
11 PAINTED ALUMINUM 4-SIDED STRUCTURALLY GLAZED CURTAIN WALL W/ INSULATED GLASS PANELS

12 PAINTED ALUMINUM SILL COVER (1/8" THK.)

13 4" SEMI-RIGID MINERAL WOOL INSULATION W/ GALV. STEEL BACKPAN ASSEMBLY

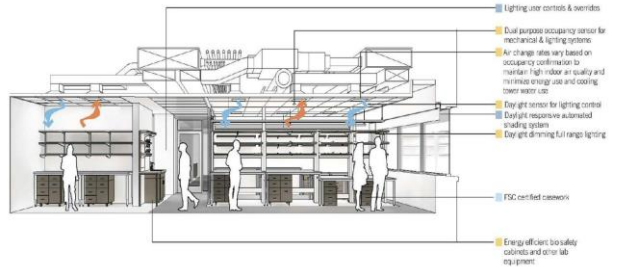
14 TYPICAL OFFICE PARTITION WITH PAINTED ALUMINUM PARTITION ENCLOSURES AT VERTICAL CURTAIN WALL MULLION INTERFACE





WEILL CORNELL MEDICAL COLLEGE MRB
ennead architects LLP

The building's high performance envelope and careful lighting design reduce conditioning loads, which are then met with an efficient mechanical system design. The mechanical systems, including variable speed drives on the chillers, AHU fans, and pumps, air-side heat recovery, water-side economizer and premium efficiency motors on chilled water and hot water pumps, reduce the energy required to remove the large heat loads and condition the building.

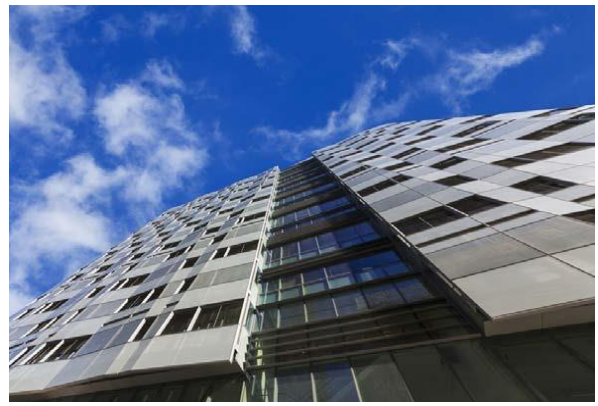


MECHANICAL SYSTEMS

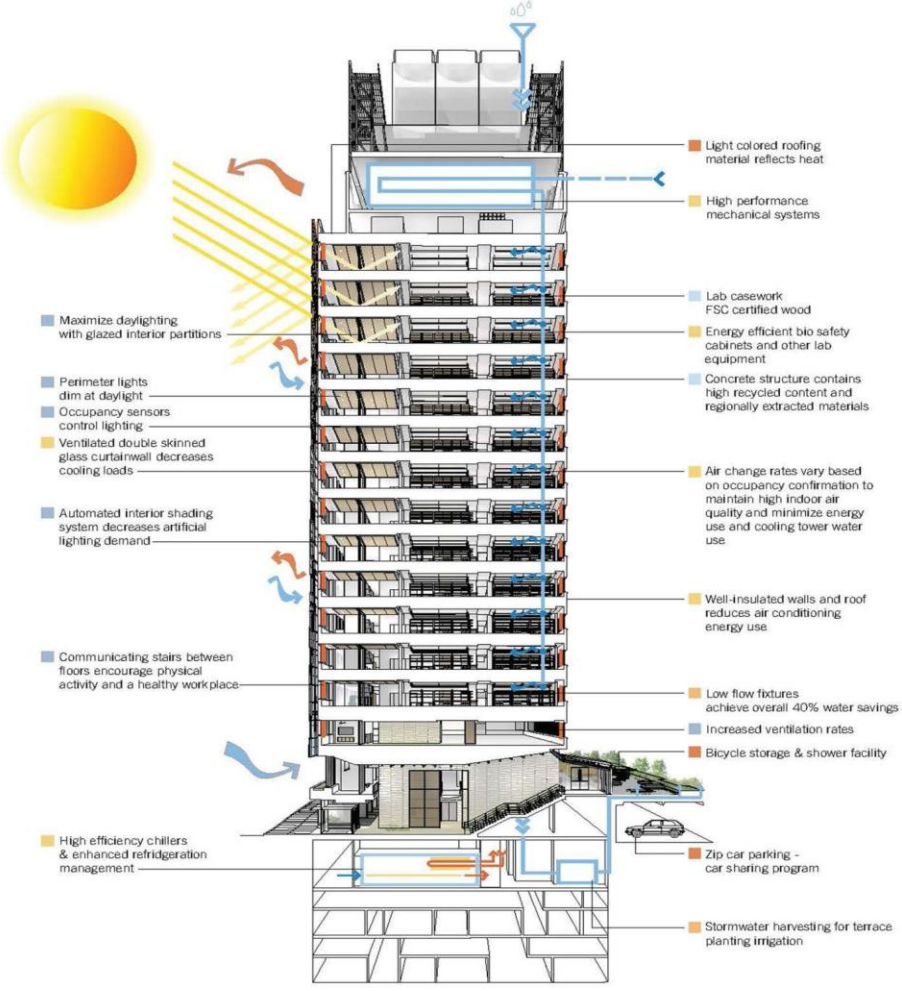
MECHANICAL SYSTEMS ENERGY SAVINGS
-MRB reduces annual energy use 21% below ASHRAE 90.1-2004

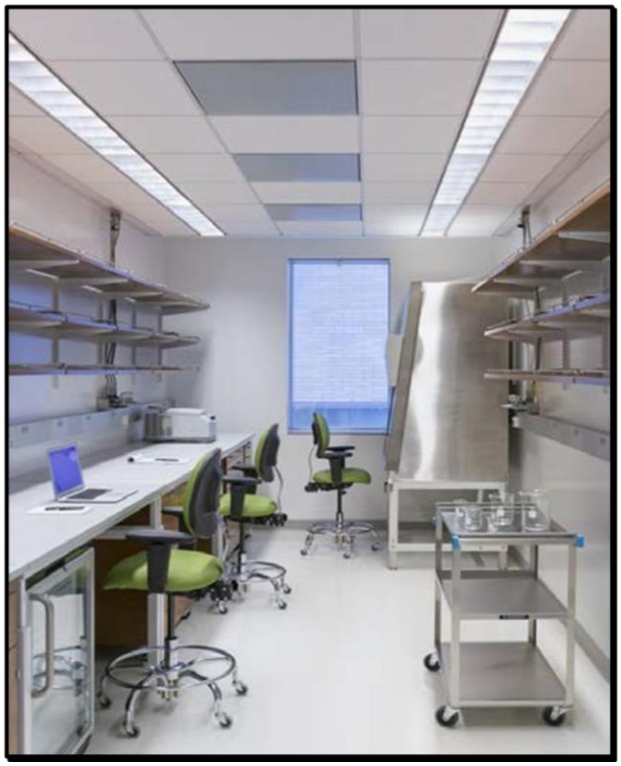
VERIFICATION
-Measurement and verification of all HVAC and lighting systems
-Post-occupancy thermal comfort survey

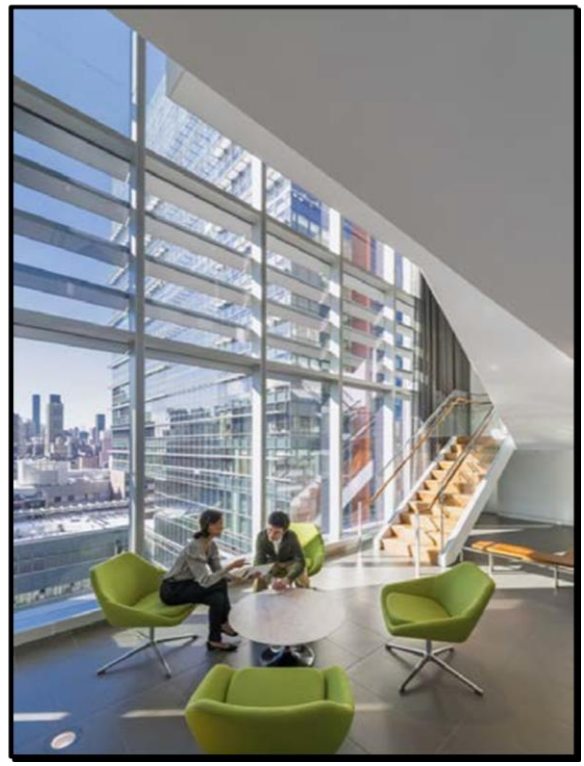
SUSTAINABLE SITES
WATER EFFICIENCY
ENERGY / ATMOSPHERE
MATERIALS / RESOURCES
INDOOR ENVIRONMENTAL QUALITY
INNOVATION & DESIGN PROCESS

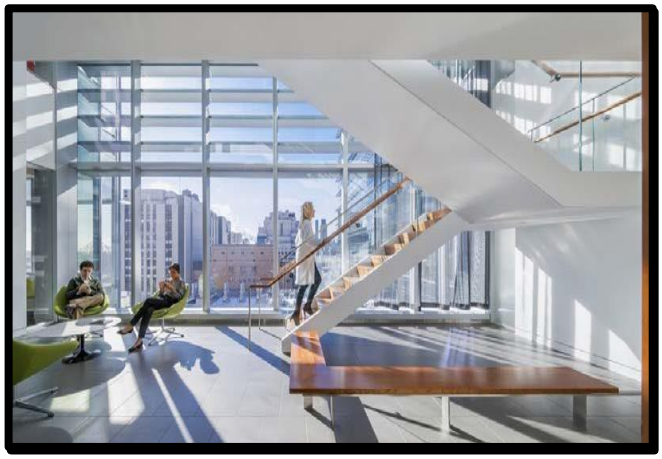


Mechanical System of W.Cornell Medical College









INTERIORS IMAGE

CASE STUDY -2

Project name –

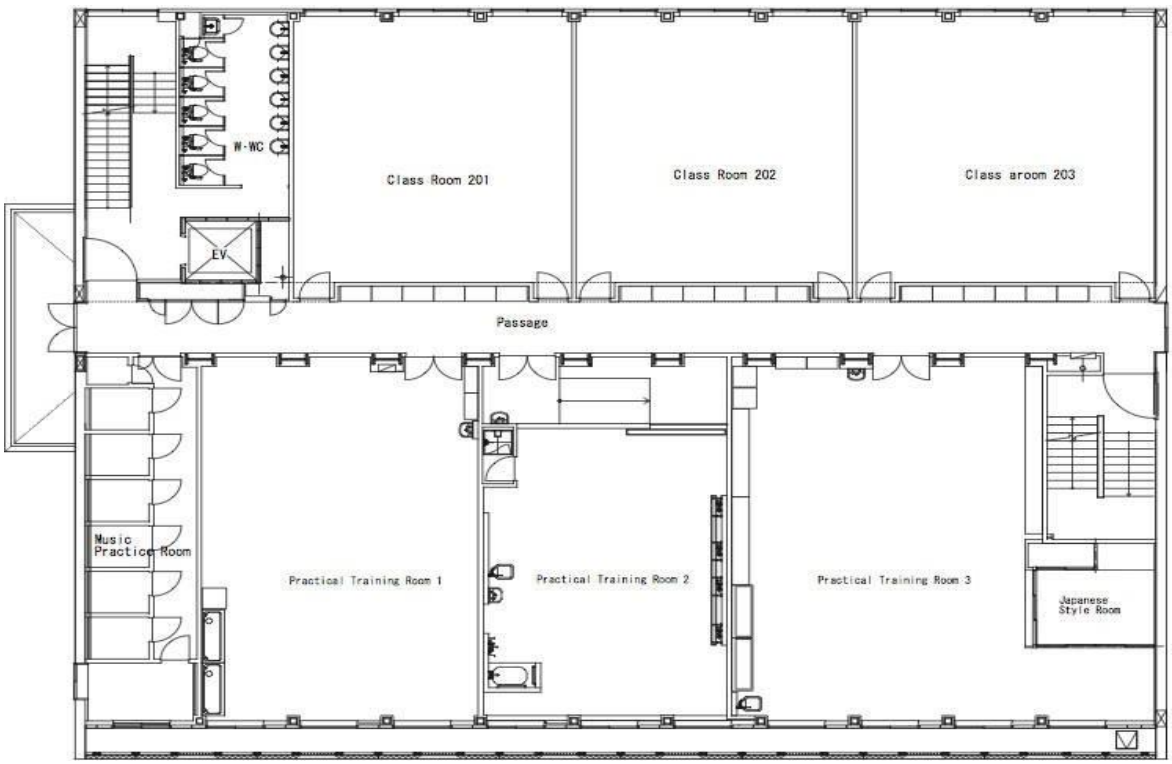
Harvest Medical College

Location - **Hyogo, Japan**
Architect - **Shogo Iwata**
Site area - **1,494.48SQ.M**
Total floor area - **3,802.50SQ.M**
Building area - **794.82 SQ.M**

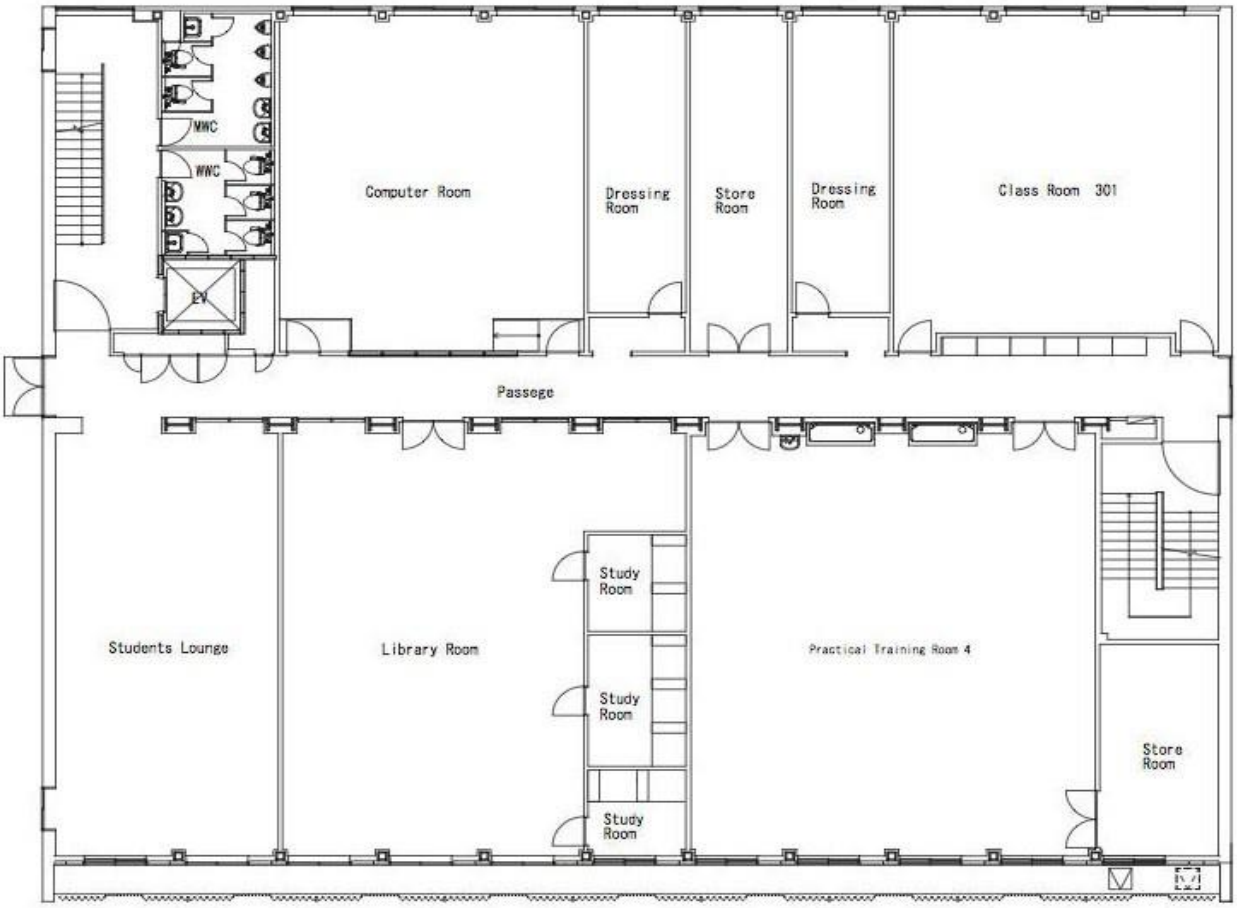
This building is considered as not just a medical welfare college but also an information center about medical and welfare for neighborhood. Therefore, the entrance lounge is used not only as student's communication space but also people's counseling space and the auditorium is also used as rehabilitation and eurhythmics lecture space.

EXTERIOR VIEW

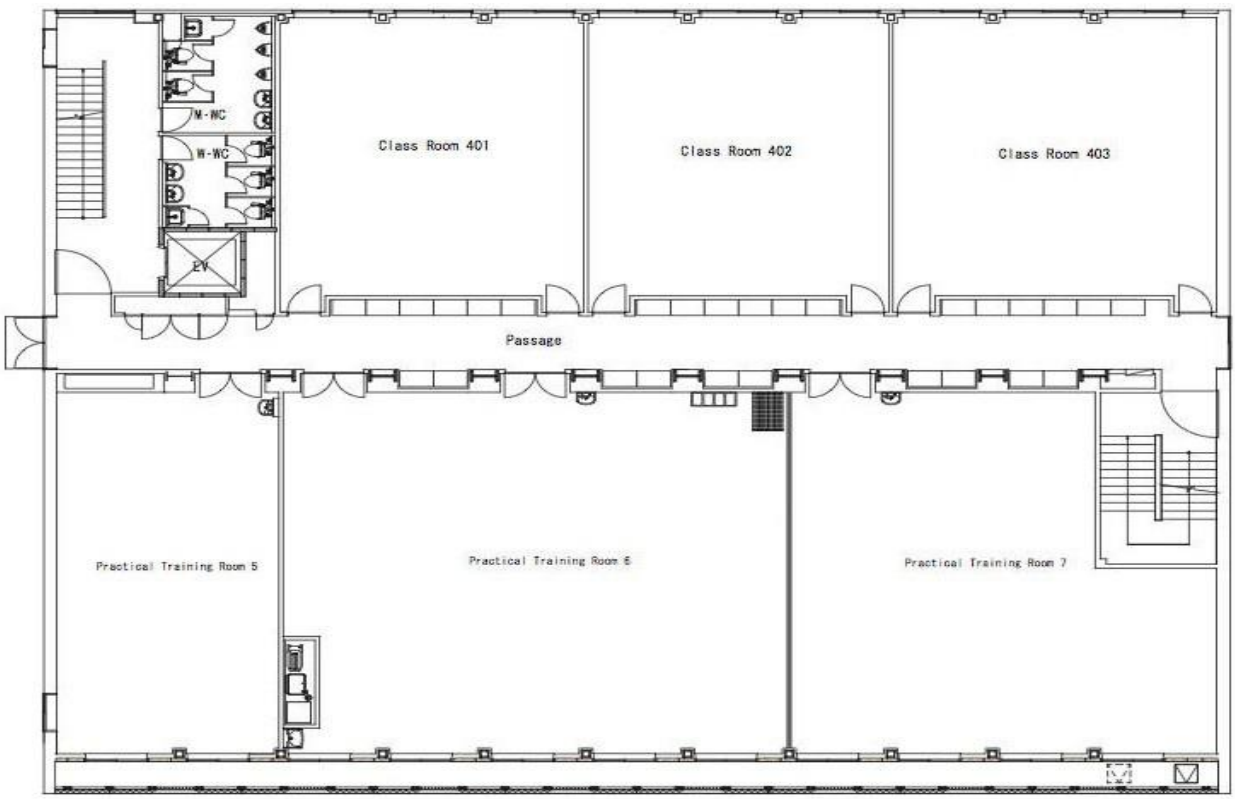
GROUND FLOOR PLAN



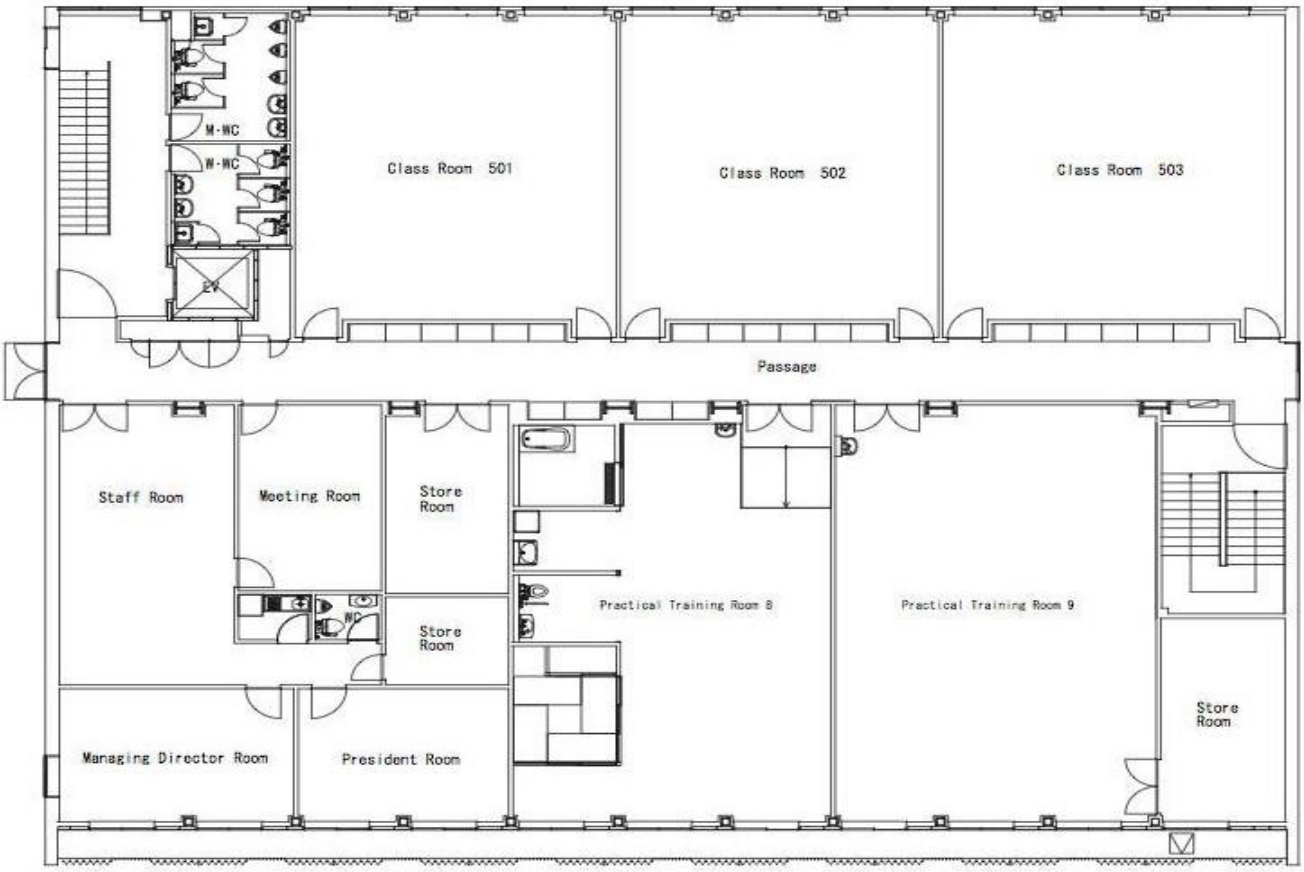
FIRST FLOOR PLAN



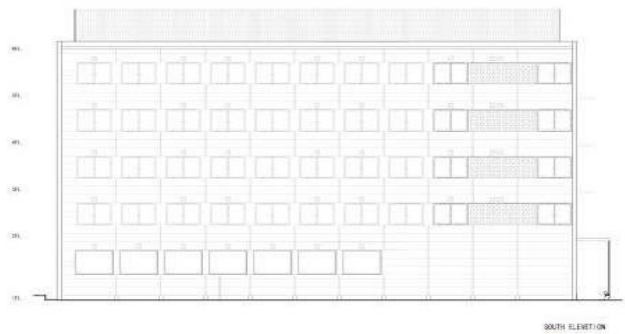
SECOND FLOOR PLAN

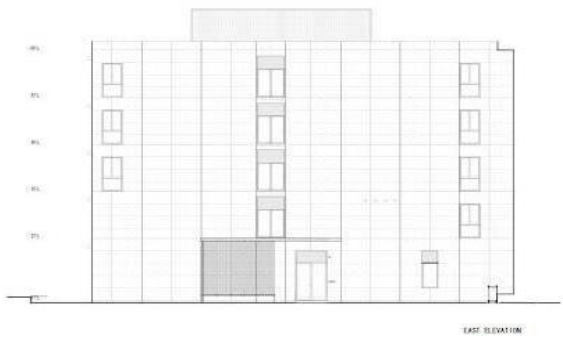


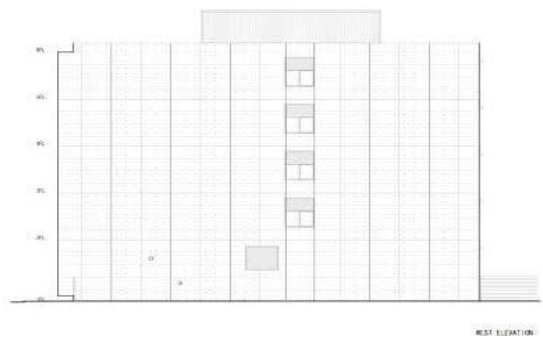
THIRD FLOOR PLAN



FOURTH FLOOR PLAN



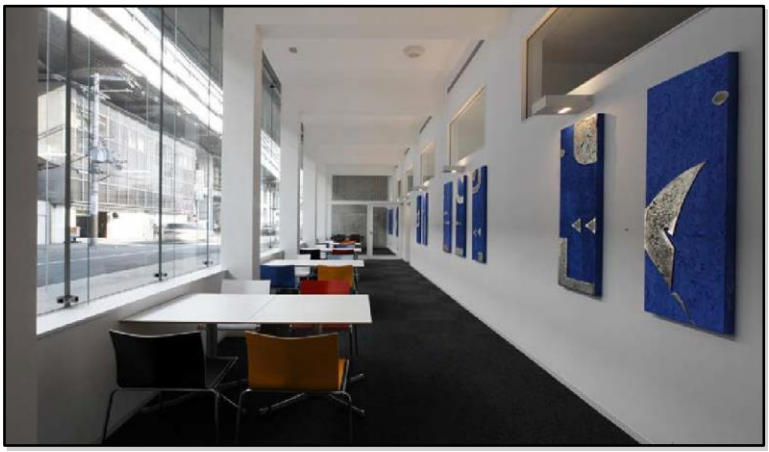




ELEVATION

SPECIAL FEATURE

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



INTERIOR VIEWS OF HARVEST MEDICAL COLLEGE

ANALYSIS

- The planning pattern, a single building block divided by landscaped courtyards is a good solution to avoid wastage of space, construction materials, unnecessary walkways and discomfort in moving from department to department in moving from department if separated by individual building blocks.

- As seen, laboratories of some departments are separated by other functional space like a seminar hall or they are either placed on separate floors. This disperse a class and cause more movement and hence noise. This could have been avoided if all labs and lecture rooms of a particular department would have been placed closely and interconnected

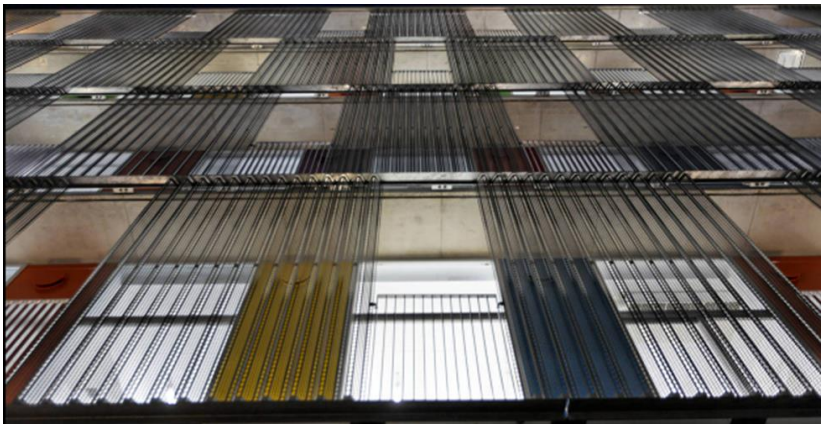
- The courtyards here lack any facility to sit and enjoy the greenery in them. Garden furniture and gazebos are usually missed by the students.

- The college building has a good looking exterior but one feel to be moving in a hospital, as far as the interior is concerned. It is primarily due to the finishes and their arrangement. There is nothing of interest in the interior except the green courtyards. The white and light yellow painted walls and white tiled dados in corridors especially when they get double loaded, give an impact of a common hospital.

- The building design is making it very difficult to extend the department if required in future. A very sensible criteria will be required that might not disturb the present circulation and symmetry of form

- The placement of college building in relation to other facilities is quite good and no problem was seen or reported about that. This might be basically because due to a convenient walking distance between them,

which is experienced regularly by every student



CASE STUDY-3

INTRODUCTION

PUNJAB INSTITUTES OF MEDICAL SCIENCES

- **Multi speciality hospital and Medical institute.**
- Designed by **Ar. Gautum shah.**
- Ahemdabad and Nandi & associates, Jalandhar.
- Construction company Larsen and Toubro.
- It is located in the center of Punjab (ie. Jalandhar).
- it is in the close proximity with major cities like Ludhiana, Amritsar

LAYOUT PLAN

BUILDING BLOCKS ON SITE

- ✓ MEDICAL COLLEGE
- ✓ HOSPITAL
- ✓ OFFICE BUILDING
- ✓ RESIDENTIAL BUILDINGS
- ✓ HOSTEL
- ✓ AUDITORIUM
- ✓ CLUB HOUSE

SITE LAYOUT

EMERGENCY BLOCK/ O.T BLOCK

PARKING

EMERGENCY ENTRANCE

MAIN ENTRANCE

PIMS HAS THREE ENTRANCE:

- TO EMERGENCY.

- TO OPD.

- TO INSTITUTION AND HOSPITAL.

SERVICE RELATED TO SITE

- service roads and ramps are strategically placed which do not hinders the main roads.
- service ramps are made to approach the basement to top floor.

Service yard for the trucks to work properly

- Located in the heart of Jalandhar city on Garha road at walking distance from bus stand.
- Main approach road is 10 m wide.

INTERNAL CIRCULATION

- Main approach road is 30 m wide and internal roads are 12 m wide.
- 2.5 to 3 m wide pedestrian paths are provided along the approach road and internal roads.
- Separate roads have been provided for OPD block and emergency block or OT block which provide a complete segregation of traffic as per use.

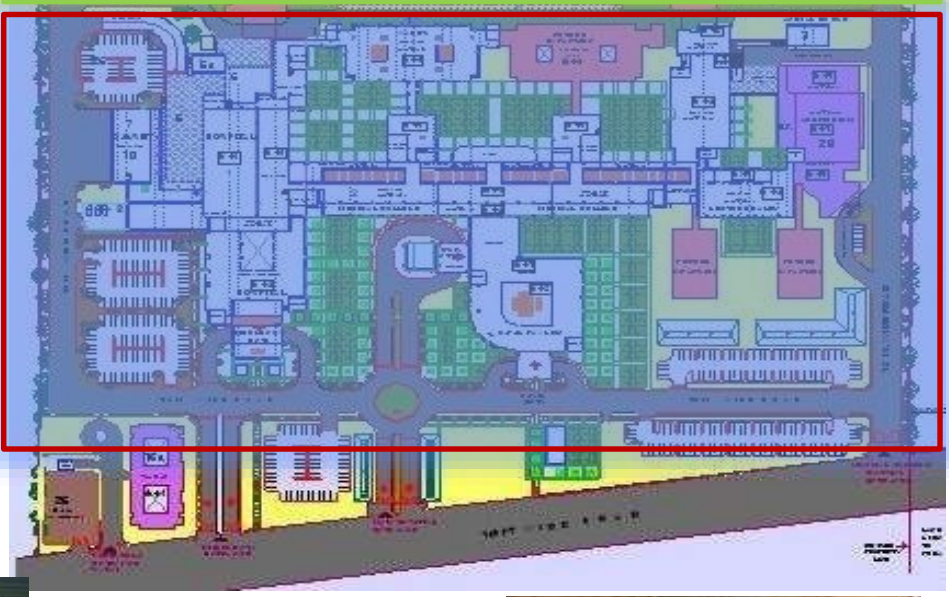
ZONING

The complex spreaded over 56 acres.

The overall complex is divided into two phases.

PHASE – 2
RESIDENTIAL FLATS, AUDITORIUM AND HOSTEL.
TOTAL FLOOR AREA = 45.000

PHASE – 1
MEDICAL COLLEGE AND INSTITUTE.
TOTAL FLOOR AREA = 90,000 SQ. MT.



EMERGENCY BLOCK CORRIDOR

BASEMENT CORRIDOR

OPD CORRIDOR

VERTICULAR CIRCULATION

- A total number of 16 staircases and 16 lifts have been provided throughout the hospital at easily accessible distance.
  All floors are connected vertically through centrally located ramp.
- The operation theatre consists of separate internal staircase for doctors an nurses.
- A main corridor runs through the whole complex connecting the various sections of the hospitals.
- Further main corridor divided into 3 part.

1. Clean corridor
2. Sterile corridor
3. Dirty corridor

ORIENTATION

- The hospital is a south – west facing building.
- The OT and treatment areas are located in the most suitable orientation (In north – east).
- General wards are facing north- east which just allows the morning sun to penetrate inside.
- No rooms are placed in east and west direction which helps in avoiding deep sun.

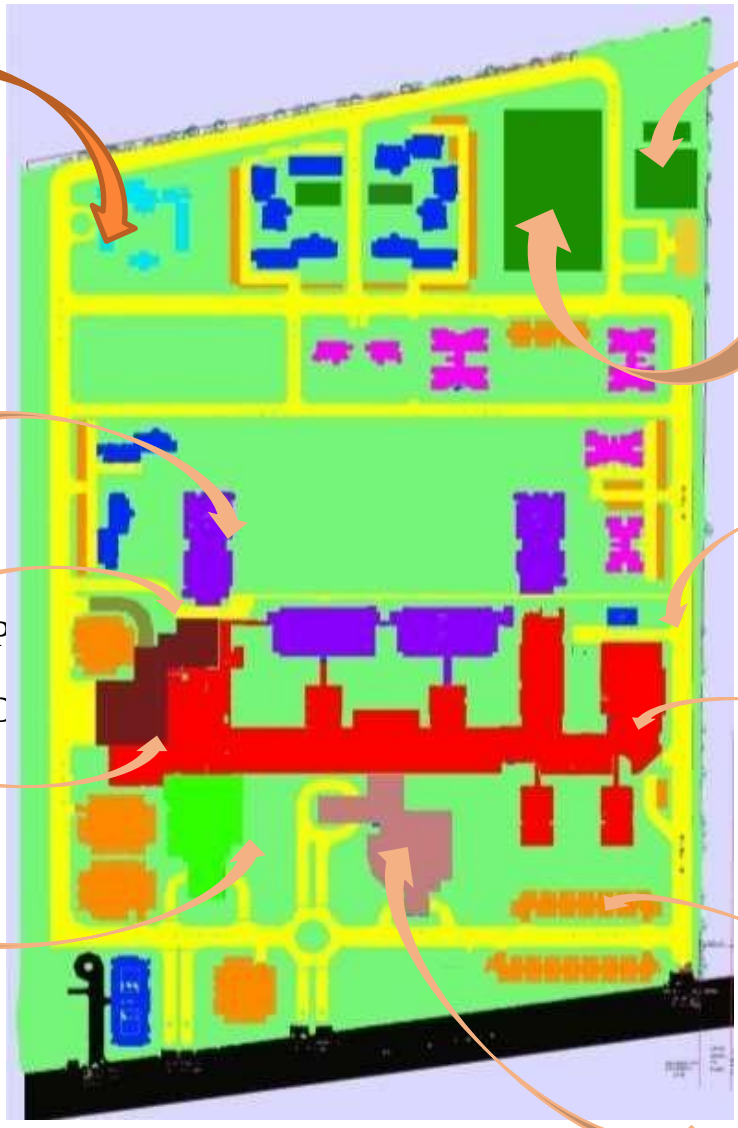
GOOD SPACE ON ENTRANCE

VIEW OF SKYLIGHTS,PLACE ABOVE THE ATRIUM AREA, FROM THE CORRIDOR.

WAITING AREAAND RECEPTION PROVIDED NEA THE CIRCULATION CORE.

NO. OF STAIRS	WIDTH	NO. OF LIFT CORES	NO. OF LIFTS
16	2M	4	16

LANDSCAPING



- In front of hospital entrance a water pool has been constructed which creates a soothing effect in summers.
- Provision of land scape has provided along the which bring a lot of light inside the building and creates an effect of green space inside the building.
- Soft areas are in the form of small square boxes which has been formed in between hard areas having provision of a tree in the center along with uplighting. on one side of this box sitting is also provided which allow people to sit in open with a tree shading above them.

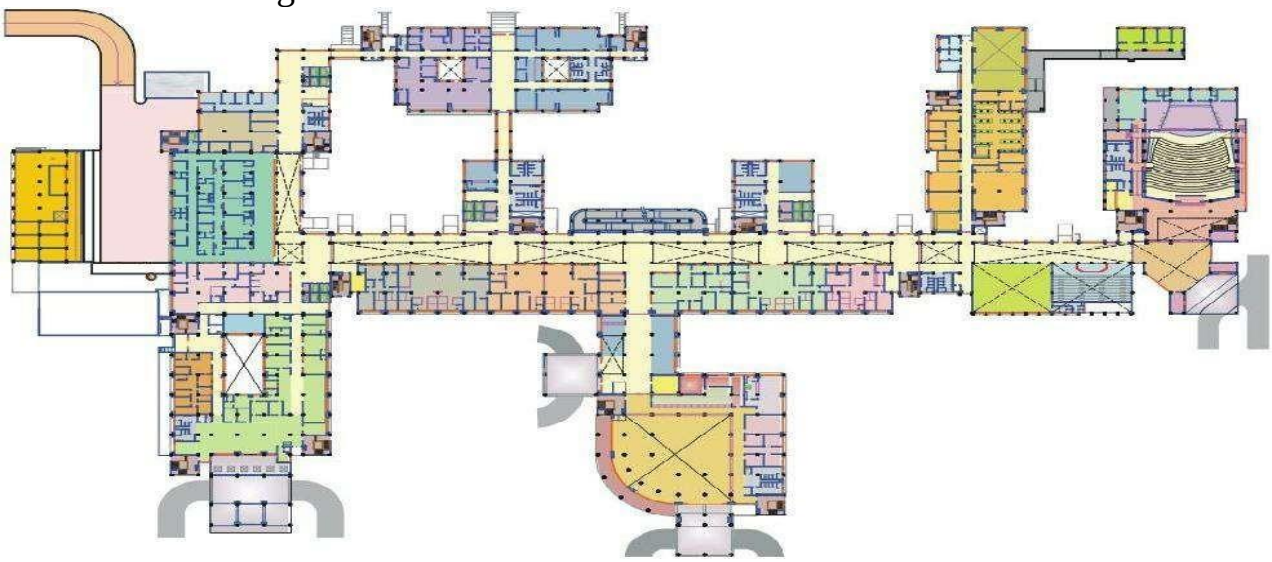
GROUND FLOOR

GROUND FLOOR AREA : 22122.33 SQ.M
GROUND FLOOR AREA : 22122.33 SQ.M
CIRCULATION : 3500 SQ.M.
CIRCULATION : 3500 SQ.M.

- OPD PAVILLION : 1100 SQ.M.
- BLOOD BANK : 230 SQ.M.
- 4 OPD'S : 2300 SQ. M.
- EACH OPD : 575 SQ.M.

The ground floor is broadly divided into 4 parts :

1. OPD
2. Emergency block
3. Diagnostics block
4. Medical college



Interior view of gallery. atrium 7.2 m wide

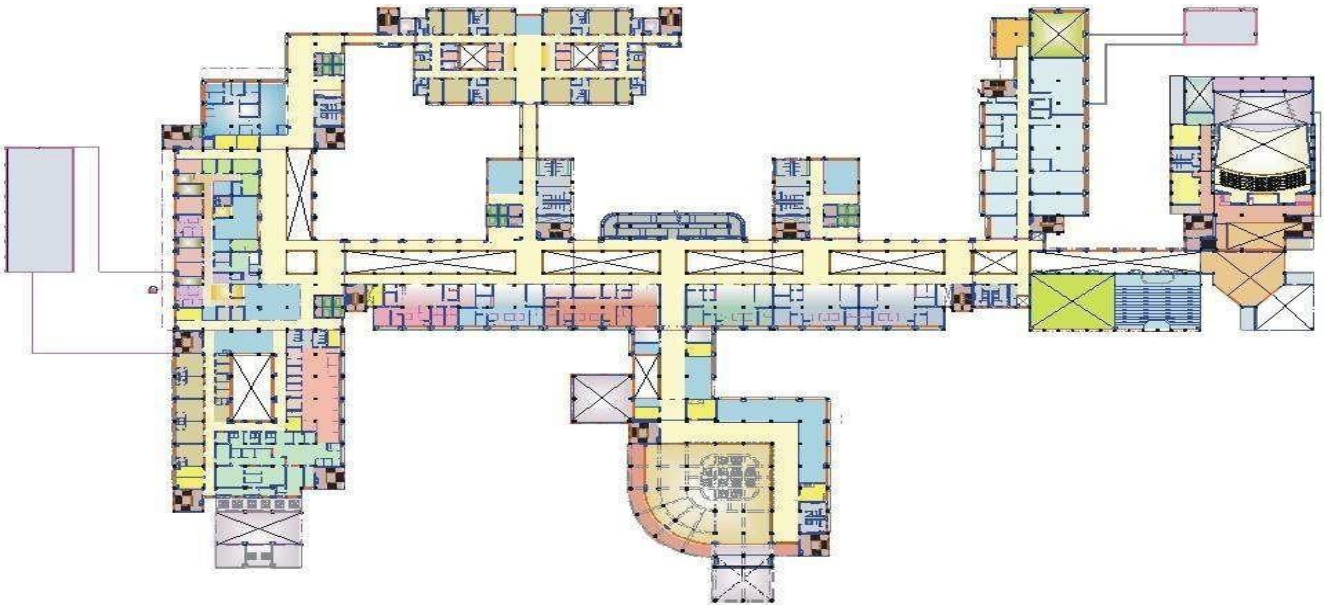
View of the cafeteria. (7m wide) view of hospital entrance

Area providing a grand look which creates on open environment without any shout of suffocation in presence of large no. of people OPD Entrance (35 x 28 m)

14 m wide main entrance.

FIRST FLOOR PLAN

- FIRST FLOOR AREA : 16009.66 SQ.M.
- CIRCULATION ; 2800 SQ.M.
- ICU : 495 SQ.M.
- MINOR OT : 600 SQ.M.



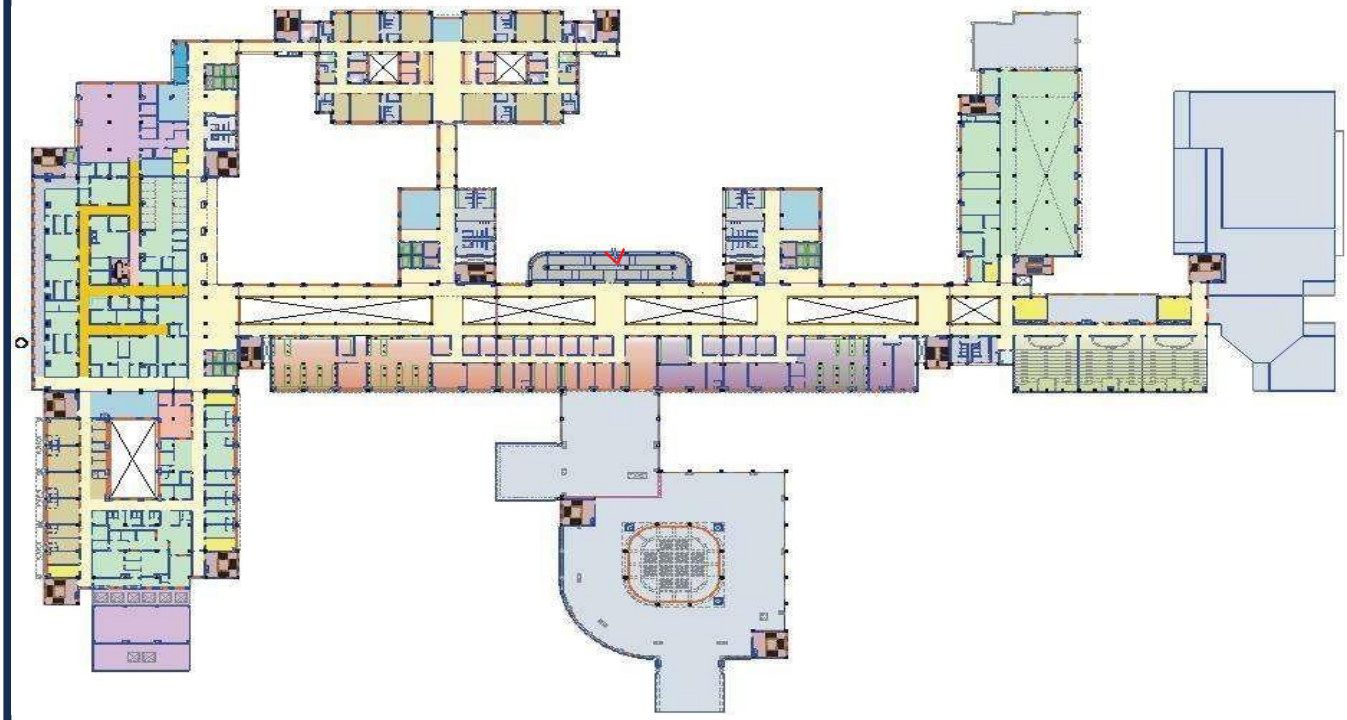
GENERAL WARDS

CORRIDORS

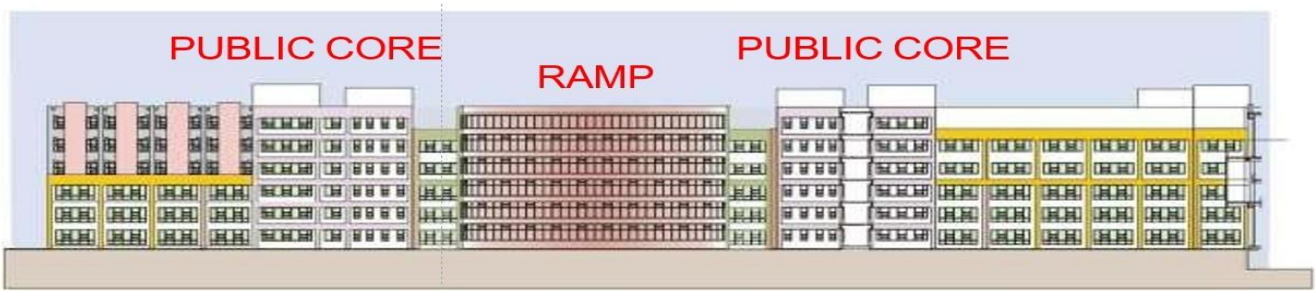
STAIRS

SECOND FLOOR FLOOR

- GROUND FLOOR AREA : 16298.13 SQ.M
- CIRCULATION : 2400 SQ.M.
- OT COMPLEX : 2100 SQ.M.
- MINOR OT : 500 SQ.M.
- RECOVERY : 625 SQ.M.
- LABOUR ROOM : 350 SQ.M



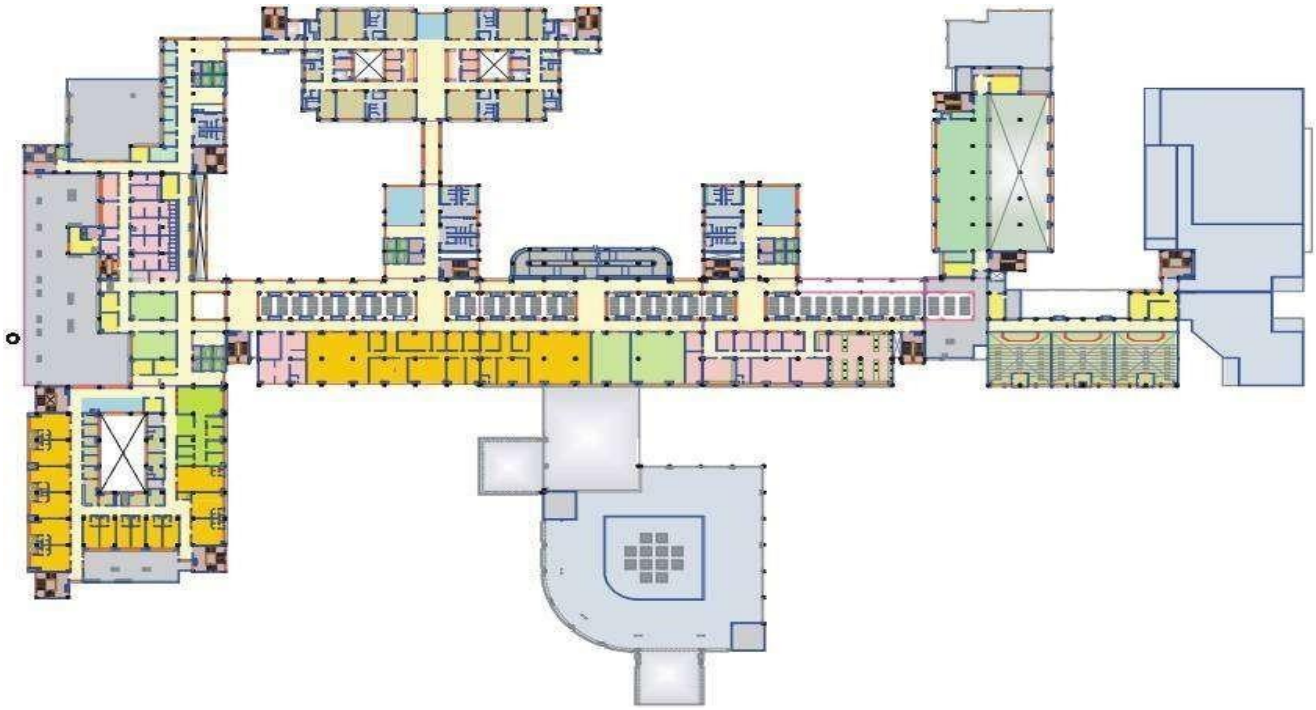
FRONT ELEVATION



BACK SIDE ELEVATION

THIRD FLOOR

- GROUND FLOOR AREA : 11411.21 SQ.M
- CIRCULATION : 2400 SQ.M.
- PEDIA WARDS : 400 SQ. M.
- NEO-NATAL. : 350 SQ.M



NORTH SIDE ELEVATION

SOUTH SIDE ELEVATION

ARCHITECTURAL CHARACTER

The architectural form directly follows the function with a very simple and straight line building façade.

The facade is simple according to the planning of spaces, and no special efforts havebeen incorporated to highlight the form of the building.

The front facade comprises of five floors one above the other catering to the major functional areas of the hospital and medical college while the sixth floor has been recessed from the building line which comprises of the administrative.

INTERNAL PLANNING

- Building is divided into 5 main block connected with main corridor.
- Service yard has been provided in the basement which has a direct access through a service ramp connected to periphery road.

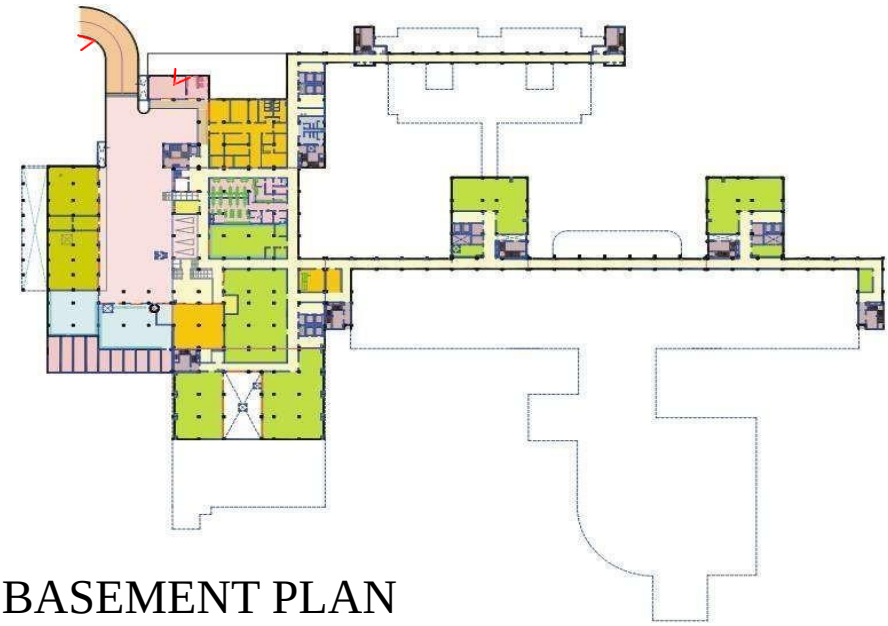
SERVICES

AIR CONDITIONING

- For air conditioning a chill water system was installed
- A.C. plant room was located in the basement .
- Four air chilled centrifugal chillers were there to provide chilled water supply to A.H.U.
- Three hot water generator of 400kw capacity were provided for heating .
- There are 4 no's condenser water pumps and 3 no's hot water pumps located in the plant room.
- A.C. ducts were covered by metallic false cieling.
- All AC ducts were properly insulated by glass wool .

ALL THE MAJOR SERVICE AREAS WERE IN THE BASEMENT :

- ✓ RECEIVE STORE
- ✓ CSSD
- ✓ LAUNDR
- ✓ MEDICAL GASES
- ✓ ELECTRIC ROOM
- ✓ INCINERATOR
- ✓ WATER TANKS
- ✓ AC PLANT.
- ✓ BOILER



BASEMENT PLAN

- There was a separate entrance ramp for large trucks to enter service yard.
- There were total 9 stairs leading to different parts of building.

Coolers are also provided on the terrace to cool down the air during summer. (stack effect)

A.C DUCTS

FIRE FIGHTING:

- ✓ Over head tank for sprinkler system .
- ✓ Diesel engine pump and electric
- ✓ Fire sprinklers.
- ✓ underground static water tank for fire fighting .
- ✓ sprinkler system was used in which building
- ✓ all pipes for this system coverage of special
- ✓ type of false ceiling (metal false ceiling).

Fire hydrant pipes under false ceiling.

Fire fighting system on each floor

WATER SUPPLY SYSTEM

- A R.O. plant was there filteration of water and then supply it to special areas.
- Fully automatic steam boilers are there for hot water supply

WATER TANK

GAS VALVE

MEDICAL GAS SUPPLY SYSTEM

- Medical gases like oxygen and nitrous oxide etc were supplied through out the building through centralised supply system.
- All equipment for gas supply were present in each ward.

GAS STORAGE ALARM

CHILLERS

CHAPTER-6

LITERATURE STUDY

STANDARDS

The medical college or medical institution shall be housed in a unitary campus near its teaching hospital having room for future expansion. However the existing medical colleges shall make efforts to have their teaching hospital within a radius of five kilometer of the campus. The medical college or medical institution shall be housed in a unitary campus of not less than 25 acres of land. However, this may be relaxed in a place especially in urban areas where the population is more than 25 lakhs, hilly areas, and notified tribal areas where the land shall not be in more than two pieces and the distance between the two pieces shall not be more than 10 kms. The hospital, college building including library and hostels for the students, interns, PGs/Residents and nurses shall be in one piece of land which shall not be less than 10 acres. Other facilities may be housed in the other piece of land. Proper landscaping should be done.

MEDICAL INSTITUTION FOR 100 M.B.B.S ADMISSIONS ANNUALLY SHALL HAVE THE FOLLOWING DEPARTMENTS:-

(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
(18) OTO-RHINOLARYNGOLOGY
(19) OPHTHALMOLOGY
(20) OBSTETRICS AND GYNAECOLOGY
(21) DENTISTRY

MINIMUM STANDARD REQUIREMENTS FOR THE MEDICAL COLLEGE FOR 100 ADMISSIONS ANNUALLY

BUILT UP AREA REQUIREMENTS (100 ADMISSIONS & 500 BEDDED)

ITEM DETAILS	No.	AREA	Total	Remarks
		(Sq.m.) Each	(Sq.m.)	
(1)	(2)	(3)	(4)	(5)
Administrative Block				
Principal/Dean's Office		36	36	
Staff Room		54	54	
College Council Room		80	80	
Officer Superintendent's Room		10	10	
Office		150	150	
Record Room		100	100	
Examination room		300	300	
Common Room – Boys		100	100	
Girls		100	100	
Cafeteria		200	200	
Central Library		1600	1600	
Lecture Theatres	3	330	990	120 Seating Capacity
	1	660	660	250 Seating Capacity
Auditorium	1	800	800	500-700 Seating Capacity
Common Laboratories	6	170	1020	
	2	75	150	
Central Research Laboratory	1	100	100	

BUILT UP AREA REQUIREMENTS (100 ADMISSIONS & 500 BEDDED)

ITEM DETAILS	No.	AREA	Total	Remarks
		(Sq.m.) Each	(Sq.m.)	
(1)	(2)	(3)	(4)	(5)
Departmental Library		30	30	at least 80-100 books with 2 copies
Research		50	50	
Accommodation for Staff				
Professor & Head	1	18	18	
Asso. Prof./Reader	1	15	15	
Asst. Prof./Lecturer	1	12	12	
Tutor/Demonstrators	4	15	60	
Department Office/Clerical Room	1	12	12	
Non-teaching staff room	1	12	12	

BUILT UP AREA REQUIREMENTS (100 ADMISSIONS & 500 BEDDED)

ITEM DETAILS	No.	AREA	Total	Remarks
		(Sq. m.) Each	(Sq. m.)	
(1)	(2)	(3)	(4)	(5)
Asst. Prof./Lecturer	3	20	40	
Tutor/Demonstrators	4	15	60	
Department Office/Clerical Room	1	12	12	
Non-teaching staff room	1	12	12	
Department Total				
Physiology including Bio-physics				
Demonstration Room	1	45	45	Accommodate at least 50-60 Students
Lecture Theatre				As per item A.1.5.
Practical rooms	60			
Amphibian laboratory		150	150	Preparation room 14 sqm
Mammalian laboratory		60	60	Preparation room 14 sqm
Human Laboratories				
Haematology Lab.		150	150	Preparation room 14 sqm
Clinical Physiology Laboratory		60	60	Preparation room 14 sqm
Departmental Library		30	30	at least 80-100 books with 2 copies
Research		50	50	
Accommodation for Staff				
Professor & Head	1	18	18	
Asso. Prof./Reader	1	15	15	
Tutor/Demonstrators	4	15	60	
Department Office/Clerical Room	1	12	12	
Non-teaching staff room	1	12	12	
Department Total				
Biochemistry				
Demonstration Room	1	45	45	Accommodate at least 50-60 Students
Lecture Theatre				As per item A.1.5
Practical rooms	1	150	150	Two Ante rooms (14 Sq.m. area) each

BUILT UP AREA REQUIREMENTS (100 ADMISSIONS)

ITEM DETAILS	No.	AREA	Total	Remarks
		(Sq. m.) Each	(Sq. m.)	
(1)	(2)	(3)	(4)	(5)
Dean's Room		36	36	
Medical Superintendent's Room		36	36	
Hospital offices for the supportive		150	150	
staff				
Waiting space for visitors		300	300	
Enquiry office		50	50	
Reception		300	300	
Store Rooms		500	500	
Central Medical Record Section		200	200	
Linen Rooms		500	500	
Hospital & Staff Committee Room		60	60	

BUILT UP AREA REQUIREMENTS (100 ADMISSIONS & 500 BEDDED)

ITEM DETAILS	No.	AREA	Total	Remarks
		(Sq. m.) Each	(Sq. m.)	
(1)	(2)	(3)	(4)	(5)
Washing room		10	10	
Central Sterilisation Unit		10	10	
Laundary		10	10	
Total for 10 O.T.s				
Labour Room				
Waiting room for patients Preparation		15	15	As per 10905 (Part-2) 1984 in table for Part 2 : Medical and hospital services as per table for beds for obstetric and gynae
Preparation room Labour Room		15	15	
Labour Room		100	100	
Post Partum Recovery		75	75	
Soiled Linen room		15	15	
Instrument Room		15	15	
Sterilisation Room		15	15	
Nurses Room		20	20	
Surgeon's and Anaesthetist's room	2	20	40	
Assistant's Room		20	20	
Observation Gallery for students Store rooms		30	30	
Store rooms		15	15	
Dressing up room		10	10	
Washing room		10	10	
Eclampsia Room		75	75	
Laundary		10	10	
Total for Labour Room				

BUILT UP AREA REQUIREMENTS (100 ADMISSIONS & 500 BEDDED)

ITEM DETAILS	No.	AREA	Total	Remarks
		(Sq. m.) Each	(Sq. m.)	
(1)	(2)	(3)	(4)	(5)
Blook Bank (includes)		100	100	
Registration & Medical Examination Room				
Blood Collection Room				
Room for Laboratory for Blood Group Serology				
Room for Lab. For Transmissible diseases like Hepatitis, Syphilis, Malaria, HIV antibodies, etc.				
Sterilisation and Washing Room				
Refreshment Room				
Microbiology				
Service Laboratory	7	25	175	Each for Bacteriology,
				Serology, Virology,
				Parasitology, Mycology,
				Tuberculosis and
				Immunology
Lecture Theatre				As per item A.1.5.
Demonstration room	50-60	45	45	
Practical laboratories	60	150	150	a preparation room (14 sq. m. area)
Departmental Library		30	30	at least 80-100 books with 2 copies
Research		50	50	
Museum	25	60	60	
Accommodation for Staff				
Professor & Head	1	18	18	
Asso. Prof./Reader	1	15	15	
Asst. Prof./Lecturer	2	12	24	
Tutor/Demonstrators	3	15	45	
Department Office/Clerical Room	1	12	12	

BUILT UP AREA REQUIREMENTS (100 ADMISSIONS & 500 BEDDED)

ITEM DETAILS	No.	AREA (Sq.m.) Each	Total (Sq.m.)	Remarks
(1)	(2)	(3)	(4)	(5)
Non-teaching staff room	1	12	12	
Department Total				
Pharmacology				
Demonstration Room	1	45	45	Accommodate at least 50-60
				Students
Lecture Theatre				
Practical laboratories				
Experimental Pharmacology	50-60	150	150	one ante-room (14 sq.m. area) for technicians
Clinical Pharmacology and Pharmacy	50-60	150	150	one ante-room (14 sq.m. area) for technicians
Departmental Library		30	30	at least 80-100 books, 2 copies of each
Museum		50	50	
Accommodation for Staff				
Professor & Head	1	18	18	
Asso. Prof./Reader	1	15	15	
Asst. Prof./Lecturer	2	12	24	
Tutor/Demonstrators	2	15	30	
Department Office/Clerical Room	1	12	12	
Non-teaching staff room	1	12	12	
Department Total				
Forensic Med. IncludingToxicology				
Demonstration room	1	45	45	Accommodate at least 50-60
				Students
Autopsy Block	1	400	400	

BUILT UP AREA REQUIREMENTS (100 ADMISSIONS & 500 BEDDED)

ITEM DETAILS	No.	AREA (Sq. m.) Each	Total (Sq. m.)	Remarks
(1)	(2)	(3)	(4)	(5)
Non-teaching staff room	1	12	12	
Department Total				
Pharmacology				
Demonstration Room	1	45	45	Accommodate at least 50-60
				Students
Lecture Theatre				
Practical laboratories				
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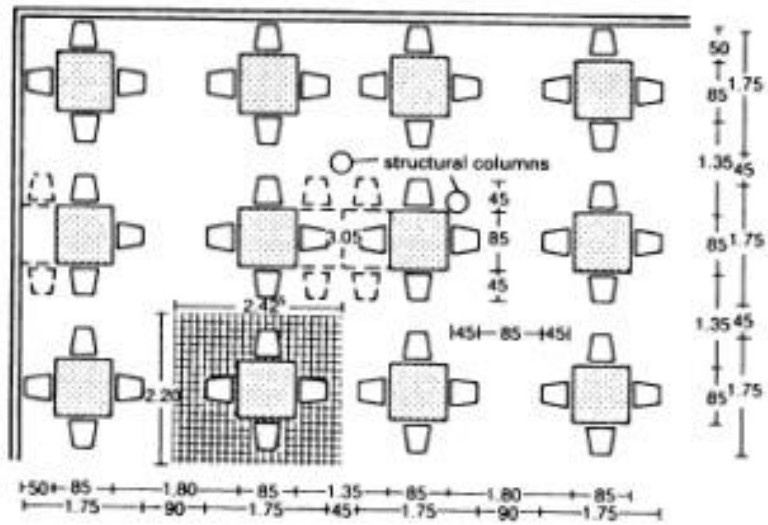
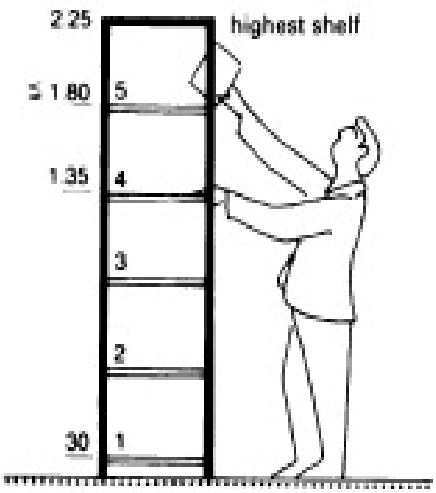
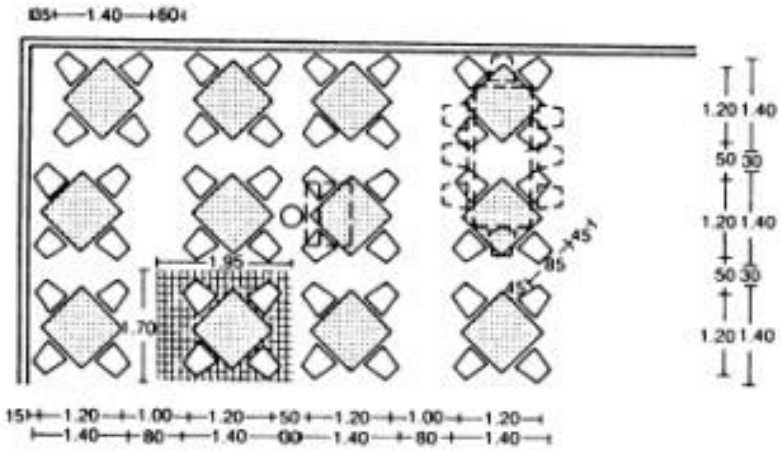
STANDARDS OF NBC FOR LIBRARY



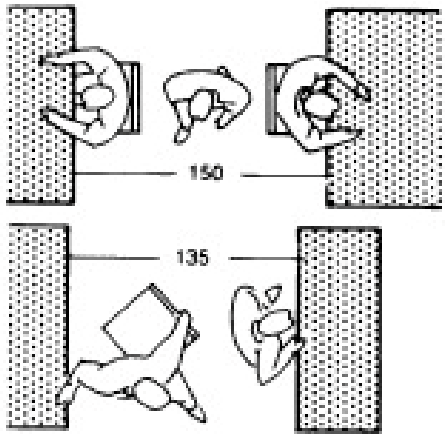
(3) **Parallel table arrangement**



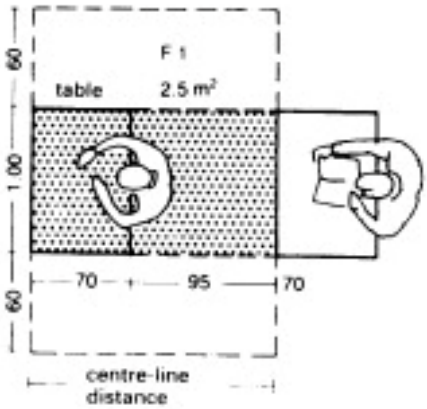
(10) **Height of five-shelf unit**



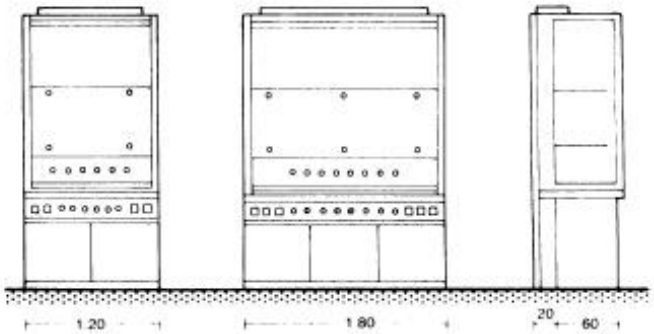
(4) **Diagonal table arrangement**



(8) **Minimum free space in reading area** → (9)

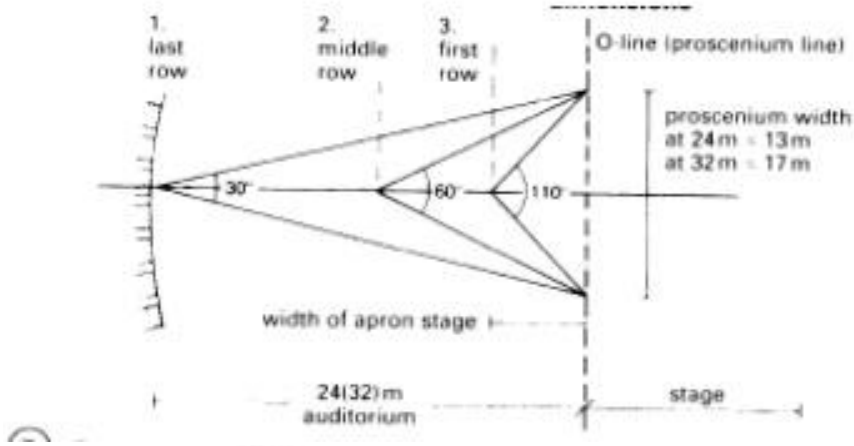


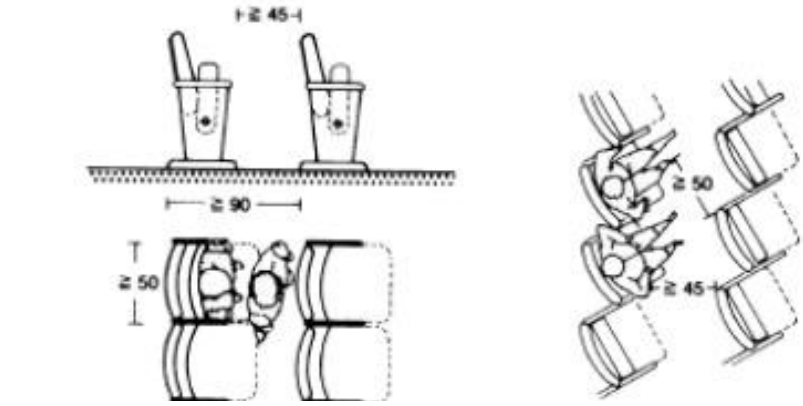
(1) **Floor area for an individual workstation**

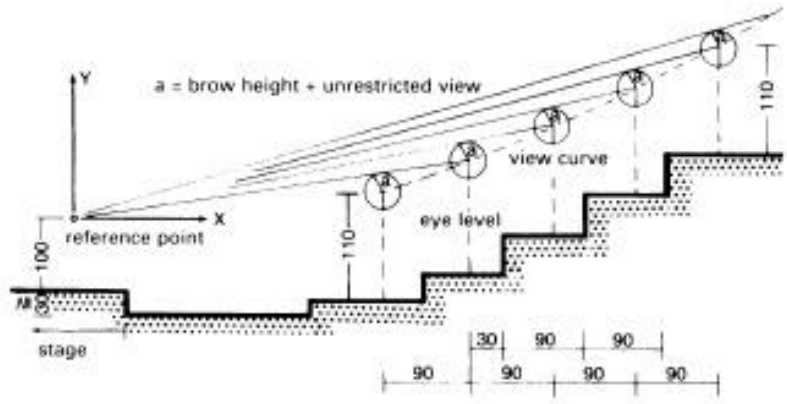


(7) **Digestors (fume cupboards)**

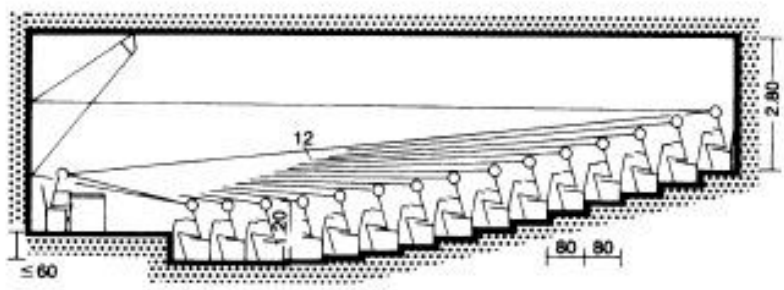
STANDARDS OF NBC FOR AUDITORIUM







(2) **Drawing for calculating view curve**



- **CONCLUSION -**

From the observed data and analysis following major conclusions could be drawn;

a)The quality of views from the site is a very important aspect. As in case of the site to be designed, it has extraordinary breath taking views of the surrounding. The design must have such criteria as to incorporate this quality boldly both as a functional and a recreational element.

b)The access to other facilities primarily hospital from the college must be on a convenient walking distances. To achieve this, it is very important to control the vehicular and pedestrian traffic and noise of the neighboring building.

c)Individual or combined, each department should be self-sufficient of all facilities and services. This makes it very easy to administer and even help the visitor and student to manage their circulation and access.

d)The administration should be placed as to provide easy access guest and visitors. This could avoid the mingling of administration and teaching affairs.

e) Some special features should be introduced to create focal points, nodes and landmarks as they help in defining the hierarchy of spaces and building clear mental maps.

f)Courtyards are a good element to enjoy the natural climate, to invite natural in the interior and if landscaped properly, could prove a place of great attraction. Selection of functional garden furniture and shading devices like gazebos are inevitable.

g)In designing the interior common spaces, it should be considered that the study of medical sciences require a lot of brain effort and is really hard. So the spaces should be relaxing and equally live to provide nervous relaxation and mental refreshment. Natural light, air and a sensible selection of finishing materials can help to achieve this. Keeping this point in mind, spaces specially lecture rooms and teaching halls should be designed accordingly.

h) Room for future growth should be provided beforehand with a very special attention to already designed circulation and form.

CHAPTER-7

CONCEPT

CONCEPT

When I went to the medical college case study, I met medical students there, talking to whom I came to know that they have a lot of responsibility regarding their work and hospital duties, due to which they are very stressed.
I as an Architect cannot reduce their syllabus stress or their responsibilities, but the building and campus of medical college can be made such that they get some relaxation so that they can better work in their field.

These are some of the topics keeping in mind this building will be design……

1. **FORM FALLOW FUNCTION**
2. **GREEN CAMPUS**
3. **NET ZERO**
4. **GOOD ORIENTATED BUILDING**
5. **PHYCOLOGICAL RELAX**

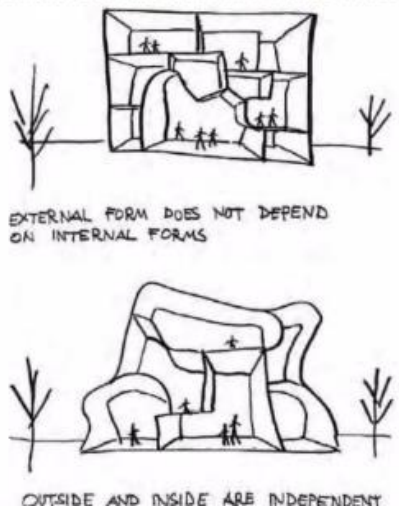
FORM FALLOW FUNCTION

The shape of a building or object should directly relate to its intended function or purpose. When Function Follows Form, the Result Can Be Innovative Architecture.
When we designed the buildings undoubtedly intended to satisfy your functional needs. Further, the design probably intended the overall form of the buildings to fit their purpose and bespeak that purpose aesthetically.

function follows form

This means that the form of a building should be the primary consideration in the design.
Ornamentation
(Classical)
Aesthetics
Classical repose
Sensory delight
Lack of rules (freedom)
Architectural Designers?

form and function are one



form follows function

(Louis Sullivan)
This means that the purpose of a building should be the starting po for its design
Plainness
(Modernism)
Practical necessities
Dynamic tension
Logical structure
Rational order (rules)
Architectural Technician

BENIFITS

- It gives a building or space a more unique shape form while still severing the same purpose and function.
- Emphasis on buildings, facades, street composition, dimensions.
- Regulatory focus on form, instead of density and use. Perspective and proscriptive Frank Lloyd Wright's work demonstrated the idea of "Function Follows Form"

GREEN CAMPUS

- Green Campuses can have tremendous benefits, both tangible and intangible.
- The most tangible benefits are the reduction in water and energy consumption right from day one of occupancy.
- The energy savings could range from 20 -30 % and water savings around 30 - 50%.
- Improved Indoor Environment: Quality of Life
- Saving Water: Reduce, Reuse, Replenish
- Enhanced Health: Eco-Friendly For Life
- Reducing The Strain: Shared Resources, Increased Efficiency
- Reduced Operational Cost and Maintenance: Traditional vs. Green
- Carbon Footprint Reduction: Saving The Planet One Step At A Time
- Efficient & Sustainable Material: Minimal Use For Maximum Impact.



GREEN CAMPUS CAN BE MADE BY FOLLOWING WAYS :-

Suitable trees, plants and shurbs on my site




- Ficus religiosa (Peepal tree)
- Bauhinia variegata (Orchid tree)
- Azadirachta indica (Neem)
- Saraca asoca (Sita asoka)
- Mangifera (Mango)
- Bismarck nobilis (Bismarck palm)
- Millingtonia hortensis (Jasmine/ indian cork)
- Argemone Mexicana (Mexican prickly poppy)
- Calotropis gigantea (Crown Flower)




The main aim of the landscaping educational institutions is to control noise, storm, and dust and to provide shade and screen some ugly places with the help of plants

For enhancing the scenic beauty, it is suggested to plant a row of flowering trees with different blooming seasons, in front of the large trees along the periphery.

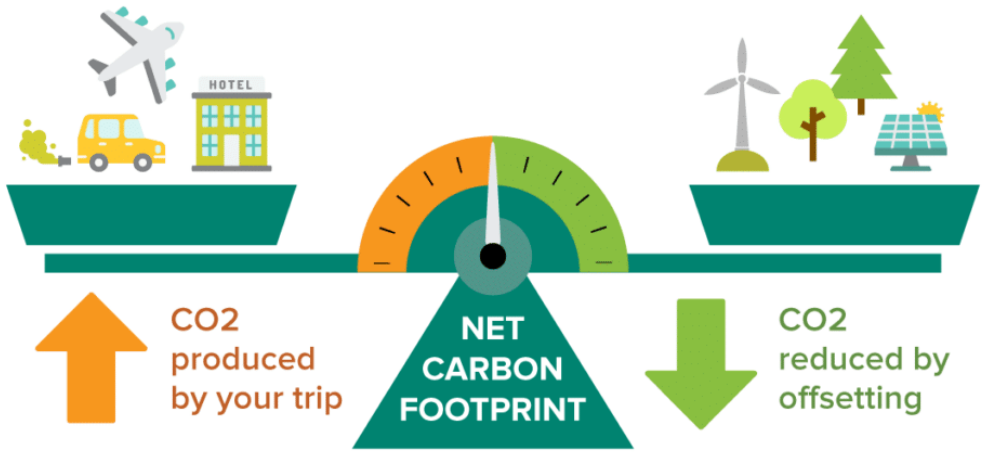
NET ZERO

A target of completely negating the amount of greenhouse gases produced by human activity, to be achieved by reducing emissions and implementing methods of absorbing carbon dioxide from the atmosphere.

Being a medical campus, it is very difficult to make this campus completely NetZero, but most of the things will be done for NetZero.

Following can be done to make net zero campus:-

- Landscape
- Rain water harvesting
- Water treatment plant
- Waste composting
- Solar panel
- Orientation



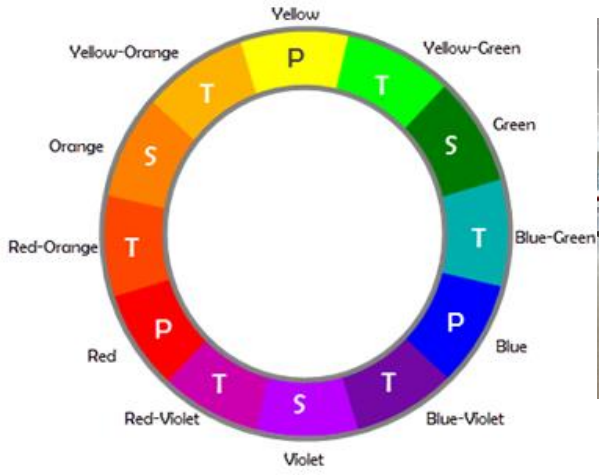
MENTAL RELAXATION

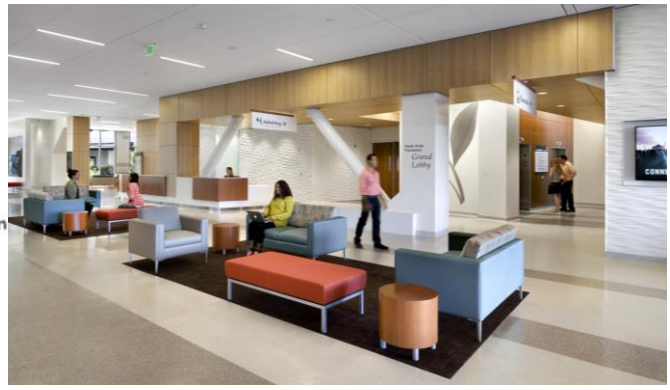
Relaxation in psychology is the emotional state of low tension, in which there is an absence of arousal, particularly from negative sources such as anger, anxiety, or fear. Relaxation is when the body and mind are free from tension and anxiety.

- **Physical activity space its always promotes wellness**
- **A connection to nature is imperative for good mental health**
- **Prioritizes natural light**
- **Outdoor space for social interaction and personal spaces also.**
- **Colour and pattern**

Neuroarchitecture has increasingly focused on outside spaces as instruments that may directly affect the brain, similar to charging a cell phone battery. Outdoor spaces, regardless of their amount of greenery, are critical for taking a break and recharging our batteries. Whatever the scale, the idea is to recognize the importance of physical space in the mental health of individuals who use it, as well as how certain measures may improve people's quality of life.

The building uses six primary colors in interior, exterior, furniture and signs. The composition of these colors reflects embracing diversity that we regard as the primal concept of medical and welfare. The frontal facade consists of the composition of primal colors. The checker board patterned steel porous folded plates layered in front of it make the facade rich and ephemeral.





WARM COLOURS

COOL COLOURS

Interactive spaces and learning environment

It is visible architecture makes an educational space more successful to obtain a functional academic institute performing as a successful medical educational institute.

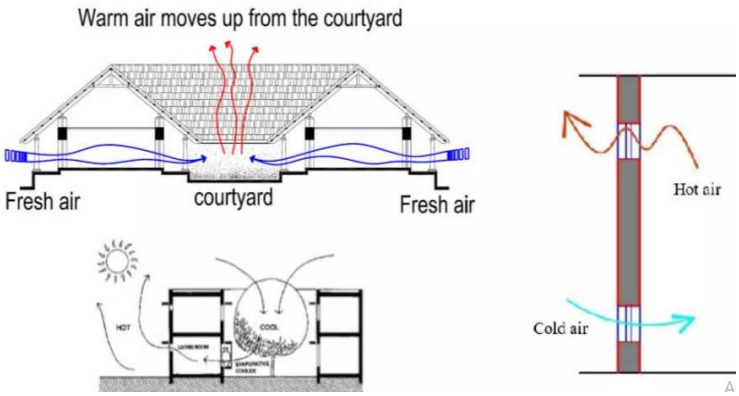
BYE LAWS FOR MEDICAL COLLEGE (SDA NORMS)

- TOTAL SITE AREA – 15 ACRES (60,702.84 M²)
- GROUND COVERAGE - 35%
- SET BACK – 15 M (Front)
- 9 M (All sides)
- FLOOR AREA RATIO – 1.5
- HIEGHT – 36 M Max.(AAI Norms)
- LANDSCAPE – 100 Trees per ha of open space or 20% of plot area
- The width of the main street on which the building abuts shall not be less than 12.0 m.
- Open spaces around the building should be at least 6m.
- Main access to the building at lest 5m.
- PARKING BUILDINGS EQUIVALENT CAR SPACES -
- (ECS) per 100 sq. m. of floor area HOSPITALS,

FORM OF BUILDING

- The form of my building is yet to be decided as it is working on the function.
- My academy block will be based on courtyard planning and rest of the building form will be in addition subtraction form
- The building should match the landscape perfectly.

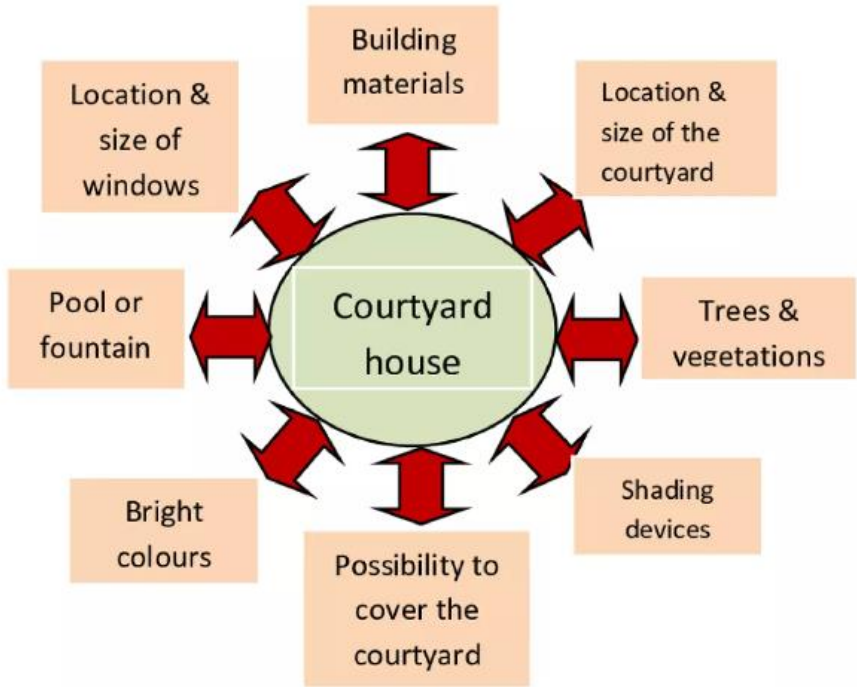
STACK EFFECT IN COURTYARD



BENEFITS OF COURTYARD

- Architectural benefits
- Socio-cultural benefits
- Climatic benefits
- Economic benefits
- Religious benefits
- Psychological benefits.

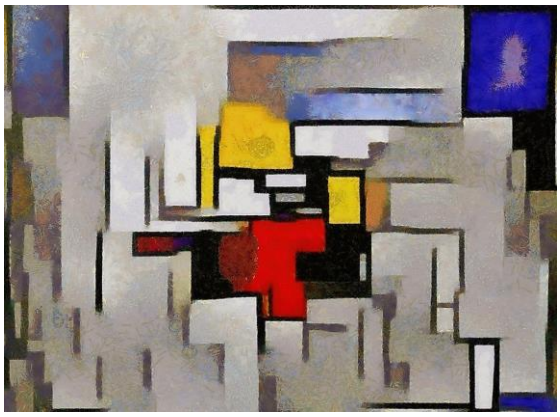
INFLUENTIAL FACTORES FOR IMPROVED MICROCLIMATIC CONDITION IN COURTYARD SYSTEM

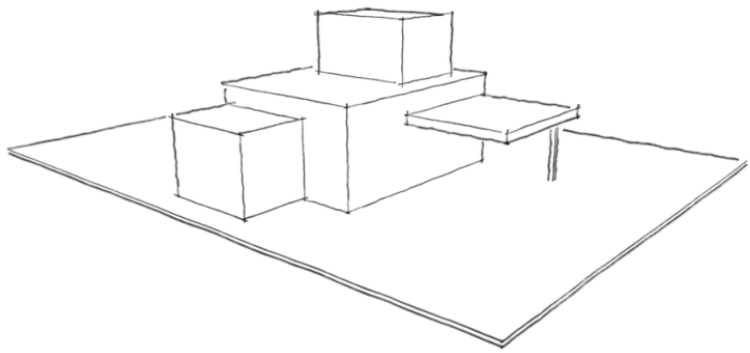


BUILDING FORM

Cubist Architecture:

The common characteristics of the buildings of the Cubist movement were transparency, spatial ambiguity, form-faceting, and multiplicity. Architects also borrowed and played with concepts like abstraction, geometrization, symbolism, distortion, fragmentation, and illusion.



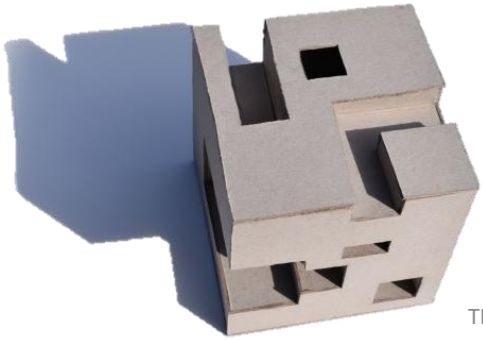


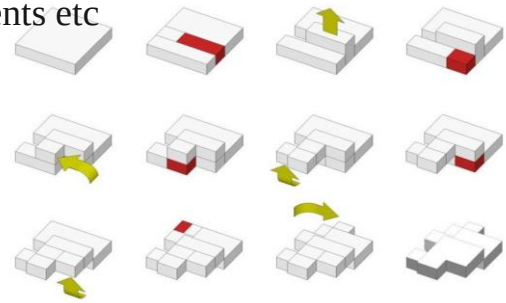
Cubism, an influential art movement that emerged in the early 20th century, primarily focused on painting and sculpture. However, its principles and aesthetic concepts have also influenced other artistic disciplines, including architecture. While cubist architecture is not as prevalent as cubist art, some architects have incorporated cubist elements into their designs.

Cubism, pioneered by artists like Pablo Picasso and Georges Braque, sought to depict objects and subjects from multiple viewpoints simultaneously, challenging traditional notions of representation. This approach involved breaking down forms into geometric shapes, such as cubes, spheres, and cones, and reassembling them in abstract and fragmented compositions.

ADDITION AND SUBSTRACTION

For this method we need to start off with a solid volume that exceeds the requirements set out by the design brief but also sits comfortably within the given site. Elements of this mass are then removed and shaped according to site factors, design brief requirements, accommodation placements etc





ADDITION AND SUBSTRACTION

CHAPTER-8

PLANNING

BIBLIOGRAPHY

The following book references have been used in this thesis –

- COMPENDIUM OF NORMS FOR DESIGNING OF HOSPITAL & MEDICAL INSTITUTE By Medical council of India
- ARCHITECT'S DATA By Ernst Neufert
- NATIONAL BUILDING CODE 2016
- CAMPUS DESIGN IN INDIA BY Achyut Kavinde
- ALL INDIA COUNCIL FOR TECHNICAL EDUCATION (AICTE)
- SULTANPUR DEVELOPMENT AUTHORITY BYELAWS
- CITY DEVELOPMENT PLAN OF SULTANPUR

The following website references have been used in this thesis –

- Weatherspark.com
- Googleimages
- Google maps
- Google earth
- Times of India newsletter
- Census2011
- Issu.com