



THESIS REPORT

MIXED USE DEVELOPMENT



THESIS REPORT ON
“MIXED USE DEVELOPMENT, MOHALI, CHANDIGARH”

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

BACHELOR OF ARCHITECTURE
BY

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THESIS GUIDE
AR URAVASHI TIWARI

SESSION
2021-22

TO THE
SCHOOL OF ARCHITECTURE AND PLANNING
BABU BANARASI DAS UNIVERSITY
LUCKNOW.



**SCHOOL OF ARCHITECTURE AND PLANNING
BABU BANARASI DAS UNIVERSITY, LUCKNOW
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Bachelor’s degree in architecture, school of Architecture and Planning, BBDU,
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Recommendation Accepted

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<u>MIXED USED DEVELOPMENT</u>

INTRODUCTION

A mixed-use building is a single building that houses three or more significantly-sized, revenue-producing businesses or ventures. While this might include several businesses, it is not the same as an office building, which has only business offices. It should have Business offices, Retail stores, Restaurants, Hotels, Entertainment.

HISTORY AND BACKGROUND

Historical examples can be found in the old market squares of ancient Rome where shops, apartments, administrative offices, and often a library were intermixed.

NEED OF TOPIC AIM AND OBJECTIVE

A mixed-use building aims to combine three or more uses into one structure such as residential, hotel, retail, parking, transportation, cultural, and entertainment. Whatever the combination, it brings together several uses within either one building or a small area.

AIM AND OBJECTIVE

To promote the efficient utilization, acquisition and disposition of land as a limited resources; Make sure there is enough for our future generations to use and enjoy while addressing the needs of the present times.

The objective of this Act is to ensure that the use of land and water areas and building activities on them create preconditions for a favourable living environment and promote ecologically, economically, socially and culturally sustainable development.

SCOPE AND LIMITATION OF THE PROJECT SITE DETAILS

The mixed-use building not only sustainably utilizes resources and precious space, but also provides city inhabitants with neighbourhoods that integrate work, home, shopping, transportation, and even green spaces. The concept also allows planners to flexibly adapt building uses as times change

SITE DETAILS

Location – Sector 62, YPS Chowk, Mohali, Chandigarh



MASTER PLAN



PROPOSED STE



CLIENT NAME AND BRIEF.

Panjab Urban Development Authority

TENTATIVE PROJECT REQUIREMENT WITH ESTIMATE BUILT UP

Larger community outdoor space area. Each residential unit of the mix use project may reserve a portion of the outdoor space for each unit. Offices, restaurant, schools, music classes, dance schools and all needful facilities required.

METHODOLOGY

- Site analysis
- Land use analysis
- Literature study
- Case study
- Concept
- Planning
- Elevation and view

SWAT

- It helps to increase the life style of neighbourhood market and society.
- It may create problem with future over population, it will be hard to manage traffics in commercial market.
- There is lots of opportunity for future extension of markets as per requirement of local area persons can engaged with commercial area.
- It may be cause of supply-chain problems, shifts in market requirements, or a shortage of recruits. It is vital to anticipate threats and to take action against them before you become a victim of them and your growth stalls.



CASE STUDY – I

NEHRU PLACE

PROJECT DETAILS:-

Project Name	: Nehru Place, New Delhi
Client	: Delhi Municipal Corporation
Type of Development	: Mixed Use Development
Floor Area	: 3,22,695 sq. mt
Year	: 2007

SITE DETAILS:-

Site Area	: 96 Acres
Location	: Nehru Place, New Delhi
Coordinates	: 28° 32' N 77° 15' E
Elevation	: 213.36 m Above Sea Level
Climatic Zone	: Composite



SITE APPROACH :

Metro Station	: 0.100 Kms
Bus Station	: 0.100 Kms
Railway Station	: 7.00 Kms

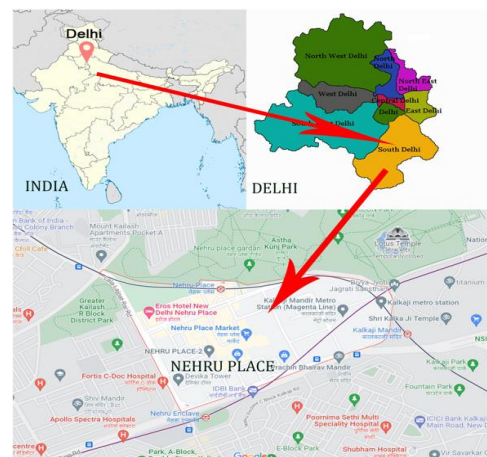
INTRODUCTION

Nehru Place market is named after the first Prime Minister of India Jawahar Lal Nehru and one of its initial commercial buildings was constructed in the year 1980 with a four floor buildings which fringe a large pedestrian courtyard with an underground parking in Delhi.

Nehru Place is large commercial, financial and business centre in Delhi. Today, is one of the Asia's largest IT hubs. Commercial Centre including service industries (52 acres), work cum industrial centres (70 acres) & government office (14 acres). Hundreds of shops sell hardware from computers to spare parts, second hand products and pirated softwares. From textile and digital printing shops to multinational technology companies and howkers. Nehru Place is a confluence of informal and corporate labour bringing 1,30,000 people daily from all corners of Delhi.

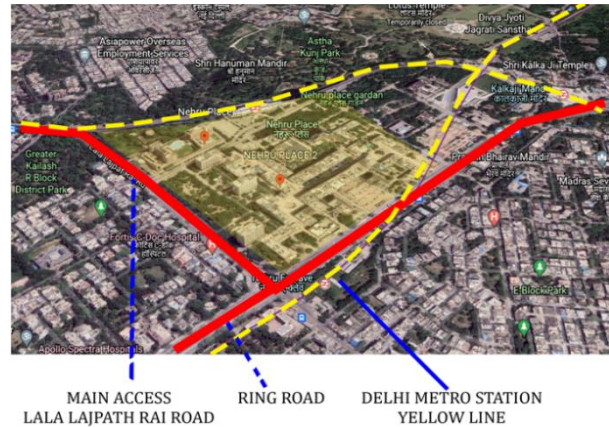
LOCATION:-

- Nehru place is located in South Delhi, it lies next to the Outer Ring Road.
- One edge of the site their lie the road towards Iskcon Temple.



ACCESSIBILITY

Nehru place is accessible by all forms of public transport, as it lies next to the Outer Ring Road, an arc that encompasses major parts of South Delhi. In addition, bus services are very frequent, usually once every five to eight minutes. Private taxis are also available, as well as paid parking for cars and motorcycles.



SITE ZONING

The site is divided in three zones:

- Commercial and Office Zone
- Re-creational Zone
- Public Building Zone
- Office tower at outer periphery to reduce chaos.
- Re-creational Area in front of shops in form of piazza to cater informal activities.
- Piazzas created on levels to create interest.



It comprises of -

- + Nehru Place Metro Station
- + Multi Level Parking
- + Bus Terminal
- + Eros Corporation Tower
- + Modi Tower
- + Informal Shops
- + Satyam Multiplex
- + Commercial Building
- + Official Building

* Inadequate circulation space, congestion at the entry and exit points.

SITE LAYOUT LAND USE PATTERN



- COMMERCIAL AND OFFICE BUILDING
- COVERED PARKING
- PEDESTRIAN AND LANDSCAPE
- OPEN PARKING
- INTERNAL SERVICE ROADS
- Circulation of office employees And users
- Circulation of commercial shop users

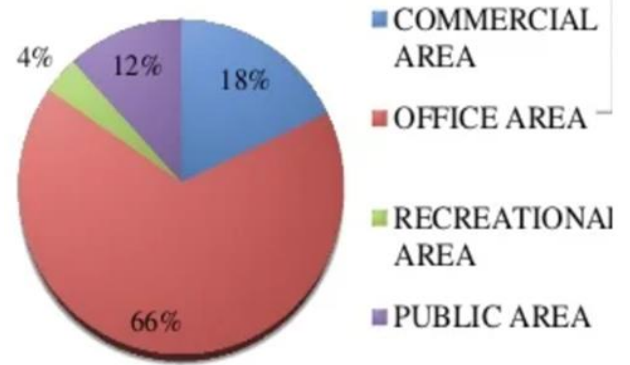


The total site area is 96 acres :

+ Total Floor Area	: 3,88,498 Sq. mt
+ Total Commercial Area	: 60,650 Sq. mt
+ Total Office Area	: 2,22,285 Sq. mt
+ Total Re-creational Area	: 12,100 Sq. mt
+ Total Public Area	: 39,760 Sq. mt
+ Ground Coverage	: 39,605 Sq. mt
+ FAR	: 1.5

Green Areas - 27,000 Sq. mt i.e. 13.5% of the site area.

Parking Area - 47,000 Sq. mt i.e. 23.5% of the site



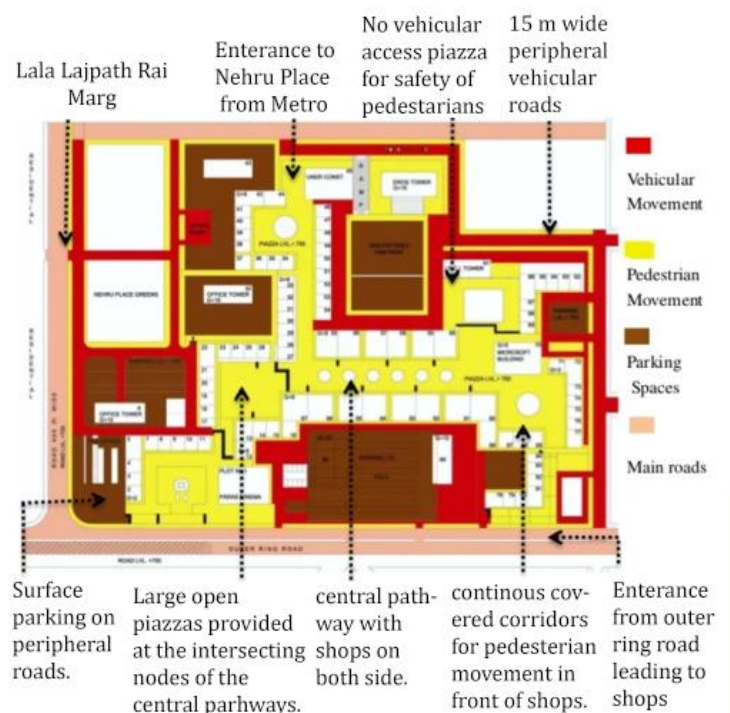
AREA DISTRIBUTION

CIRCULATION

Parking Area - 47000 Sq. mt

Vehicular Movement - 2100 Sq. mt

- All vehicular roads are on periphery, thus resulting into less chaos in central piazza.
- Width of vehicular road within site is 15m.
- Pedestrian Movement - 6400 Sq. mt
- There are two major pedestrian approaches
 - from metro station = 55' wide
 - from bus terminal = 60' wide
- The Central Pathway is about 98' wide.
- The piazza and pedestrian are paved by red sand stone.



Central Pathway



Interconnecting Piazzas



PARKING :-

Types of parking provided in Nehru Place are-

- Open Parking provided along the periphery of the complex to reduce chaos (open - 1400).
TOTAL SURFACE PARKING - 47,000 sq. mt
- Multi-level Parking is owned by private company and has solved the parking problem in complex a lot (Multi-level - 1000).
TOTAL MULTI-LEVEL PARKING - 24,000 sq. mt
- Basement Parking has also been provided but it is not used much since it is dark and dingy. (Basement - 400).
- TOTAL BASEMENT PARKING - 2,600 sq. mt
- TOTAL PARKING AREA - 74,6000 sq. mt



Car Parking



Multi-level Parking

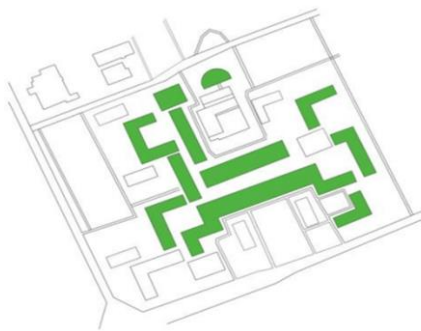


Basement Parking



2-Wheeler Parking

FORMAL ACTIVITIES

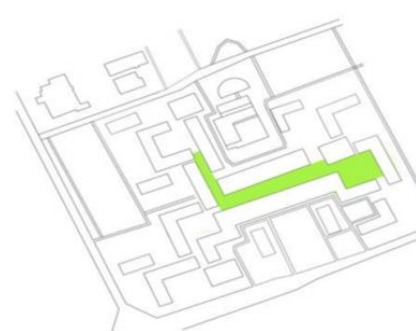


Total formal retail area - 12877.81 sq.mt

The main plaza is 4-storey complex, home to around 1500 offices, 400 resiters IT dealers, computer retailers, textile and digital printing shops and eatries.

The common areas of plaza are dotted with 600 Hawkers.

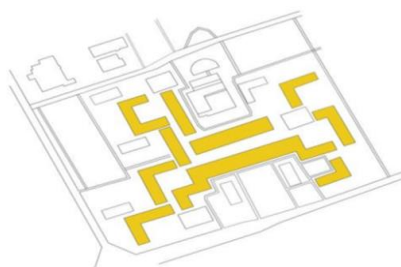
INFORMAL ACTIVITIES



Total paved area - 16501.70 sq. mt

Total informal retail area - 9900 sq.mt

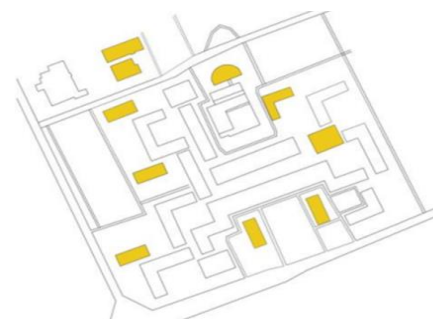
CORE OFFICE COMPLEX



Total core office area - 1,40,000 sq, mt

Maximum Height - G+8

TOWER



Total area of tower located around office complex - 1,70,000 sq.mt



DEMOGRAPHICS



Morning - 10:00 am
+ High density in office complex
+ Consumers sparse



Afternoon - 2:00 pm
+ Office-goers visit the plaza for lunch
+ Consumers increases in number.



Evening - 5:00 pm
+ Office-goers leave.
+ Plaza extremely crowded with shoppers and howkers.



CASE STUDY – II

SANKET DISTRICT CENTRE

PROJECT DETAILS:-

Project Name : District Center Saket
Developers : DDA
Type of Development : Mixed Use Development
Year : 2007

SITE DETAILS:-

Site Area : 54 Acres
Location : Saket, South Delhi
Coordinates : 28° 31' N 77° 13' E
Elevation : 227 m Above Sea Level
Climatic Zone : Composite



INTRODUCTION:-

The Saket District Centre is spread over 54 acres (220,000 m²). It is planned that the district centre consists of 1,500,000 sq of retail space boasting of top Indian and international brands, two multiplexes and a hotels. There are five functional malls: Select Citywalk, DLF Avenue (Formerly DLF Place), Metropolitan Mall, Southern Park, Rectangle One and Square 1 Mall.

ACCESSIBILITY:-

- Direct connectivity to Mehrauli-Badarpur Road
- It is situated 18 km away from International and National Airport
- 15 km away from New Delhi Railway Station.
- 8 km away from South Extension.
- 4 km away from Greater Kailash.

SURROUNDINGS:-

- Modi Hospital is located on the right side of the site.
- Residential area is on the left side of the site.
- Existing nala on the rear side of the site
- affluent neighboring colonies like C C.R. Park, Sainik Farms, Haus Khas, Panchsheel Enclave

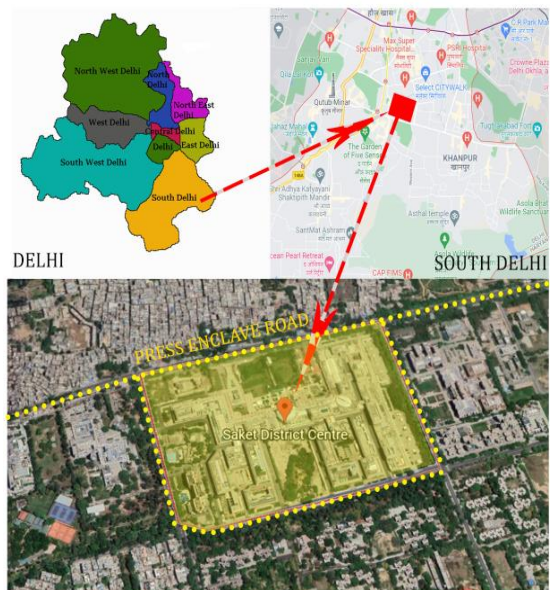
Site Area - 54 Acres

Topography - Flat Terrain

Shape - Site is quadrilateral

Orientation - Site is North-South oriented.

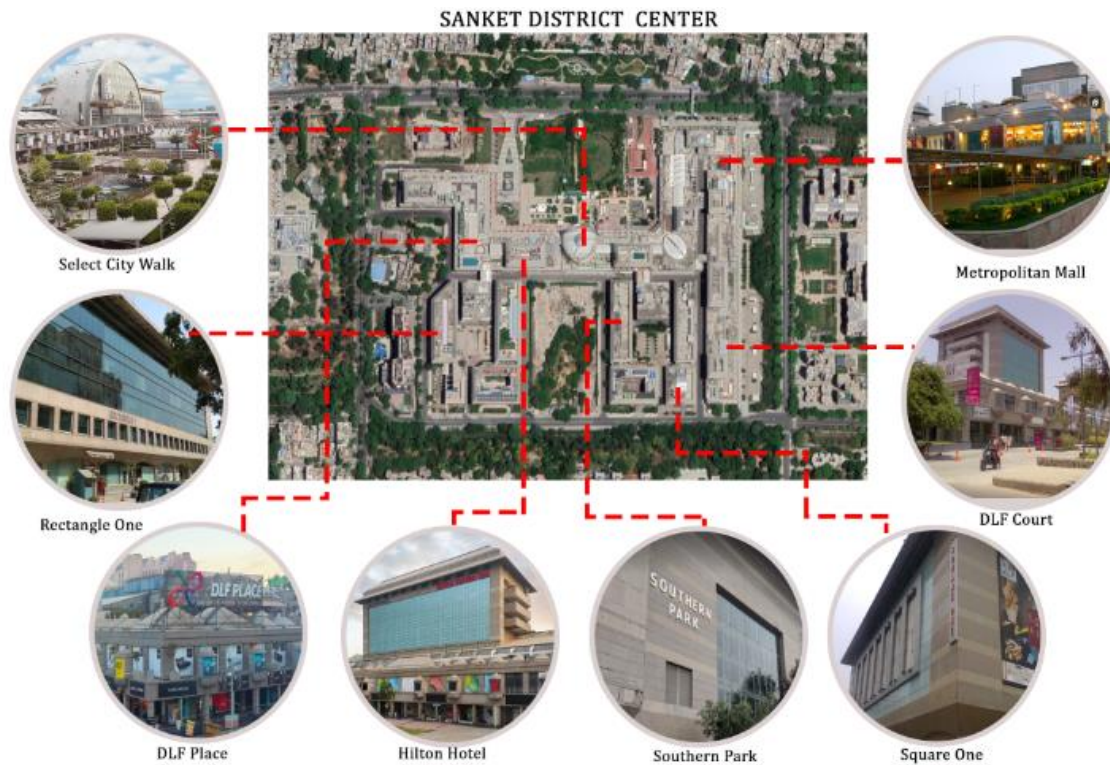
- It is easily accessible through PUBLIC TRANSPORT i.e. DTC buses, Metro rail, Auto rickshaws, And hrough



private vehicles.

- There is problem in crossing of road as no Pedestrian facility like FOB, Subway is provided near by to it. So, number of modal conflicts are more.





SITE ZONING

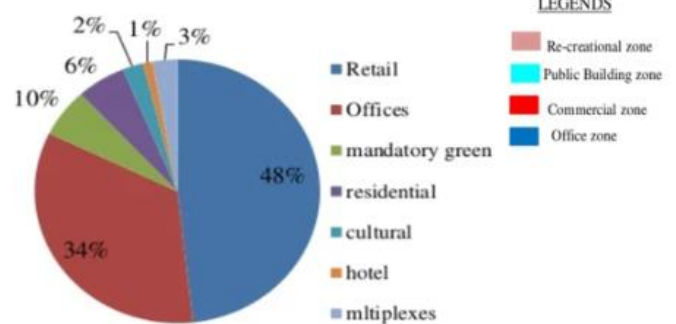
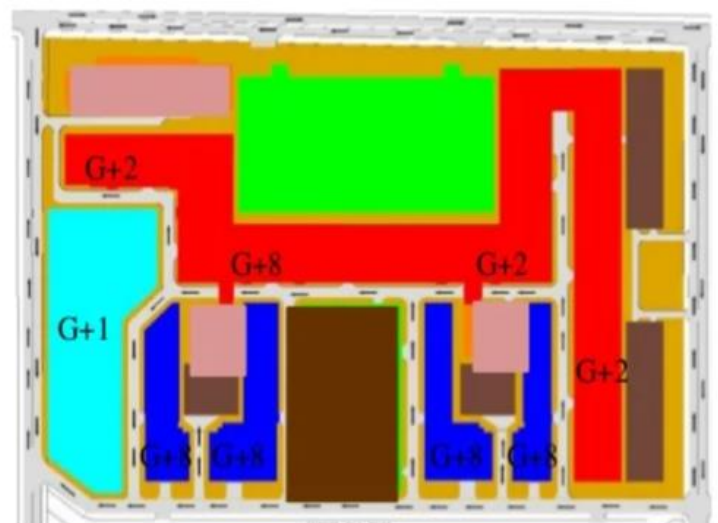
The Whole Site Is Divided In To Four Zones.

- Commercial Zone
- Office Zone
- Re-creational Zone
- Public Building

PROPOSED AREAS:

Total Site Area - 20, 000sq. mt
 Total Buitup Area - 22,38,893 sq. mt
 Total Retail Area - 91,287 sq. mt
 Total Office Area - 91,613 sq. mt
 Hotel Area - 2,797 sq. mt
 Service Apparment Area - 15,079 sq. mt
 Multiplexs Area - 7,650 sq. mt
 Cultural Centers - 6,360 sq. mt
 FAR - 1

- Office building on periphery to avoid chaos in complex.
- Interconnected zones- office zone and commercial zones segregated still remains interconnected.
- Open plazas in front of commercial zone act as breathing space



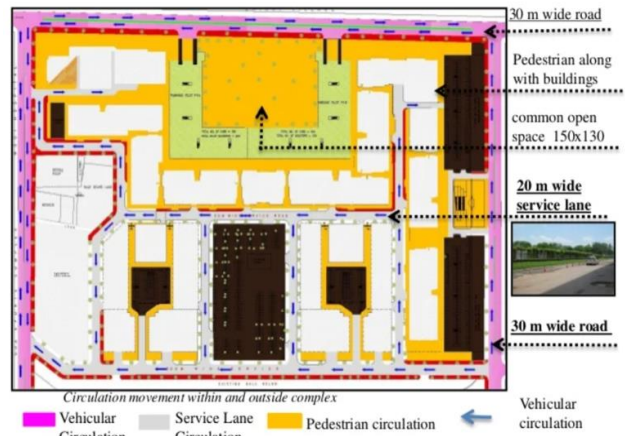
CIRULATION

VEHICULAR MOVEMENT:

- 20m wide road within complex for vehicular movement.
- Interconnected vehicular roads within complex connecting various zones.
- Area Under Road - 26513.8 sq. mt i.e. 12.3%

PEDESTRIAN MOVEMENT:

- 5m wide pedestrian along with building.
- Peepal and Satpatti trees along pathways.
- Piazza forming main circulation in front of commercial zone.
- The circulation pattern is constant through out the site.
- The pedestrian traffic and the vehicular traffic is segregated.
- Area Under Pedestrian - 38487.5 sq. mt i.e. 17.6%



PARKING

Types of parking provided in complex –

- Surface Parking
- Basement Parking
- Total no. of car parking in complex – 5650
- Total no. of car surface parking – 1600
- Total no. of car parking provided in basement – 4050
- Complex don't have adequate parking for 2-wheelers.



MASS SPACE RELATIONSHIP:-

- Piazza's provided at the front facade to create a interesting visual experience.
- The spaces enclosed by office buildings pose the maximum sense of enclosure.
- Offices provided at the outskirts of the complex to avoid the movement of the employees through the commercial area
- The Heights in the entire site have been restricted according to the use. Hence the open space-built form relationship has been maintained in a controlled manner.
- G+8 for office tower G+1/G+2 for shopping /commercial building
- Overall ,the varied enclosure gives the visitor a rich, interesting experience, as the spaces open out into each other according to the usage of the respective block. There is dynamism and clarity in the layout.
- The piazza acts as a common open space for the shopping and commercial areas. The visitor experiences a full panoramic view of the entire district centre.



Office at the outskirts

LAND USE:-

Saket District Center basically comprise of five major mall namely-

- DLF Place
 - the DLF Place - Shopping Mall
 - Developed by - DLF Group
 - Total Area - 37,,000 sq. ft
 - Six-Screen DT cinemas multiple and dinner,
 - A food court, Hard Rock Cafe, Gourmet Outlets,
 - Office Complex and Hilton Hotel.
- The South Court
 - The South Court - Shopping Mall
 - Developed by - DLF Group
 - Total Area - 4,00,000 sq. ft (37,000 sq. mt)
 - Retail, Office, A food Court, Gourmet outlets, a hotel.
- Metropolitan Mall
 - Metropolitan Mall - Shopping Mall
 - Developed by - MGF Group
 - Total Area - 11000 sq. mt
- Southern Park
 - Southern Park - Mall cum
- Select City Walk
 - Select City Mall - Shopping Mall
 - Developed by - Select Group
 - Area - 13,00,000 sq. ft
 - Retail, a multiplex, serviced apartments, offices and public space.
- Commercial Complex
 - Developed by - TDI Group
 - Area - 9,000 sq. mt
 - Spread over five floors
 - Two tiers of basement parking



SERVICES:-

Service core comprises of:

- Water supply pipes
- Drainage
- Telecommunication wires
- Fire safety pipes
- Electrical supply pipes
- Fire fighting system is installed for each building.

HVAC System:

- The main air conditioning plant room is situated in the basement and cooling
- Towers are on the terrace. Each shop has been provided with their own
- A.H.U.'s so that they can maintain temperature individually. For the purpose of air conditioning of atriums ducts are provided along the atrium with water nozzles.
- To impart a natural flow of air large exhausts are installed at terrace along the atrium

SERVICES AT DIFFERENT FLOORS:

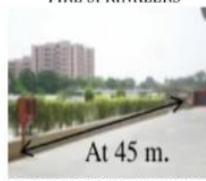
- There are well placed lift cores, providing or more than adequate



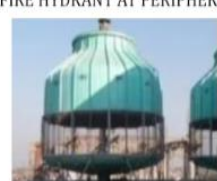
FIRE SPRINKLERS



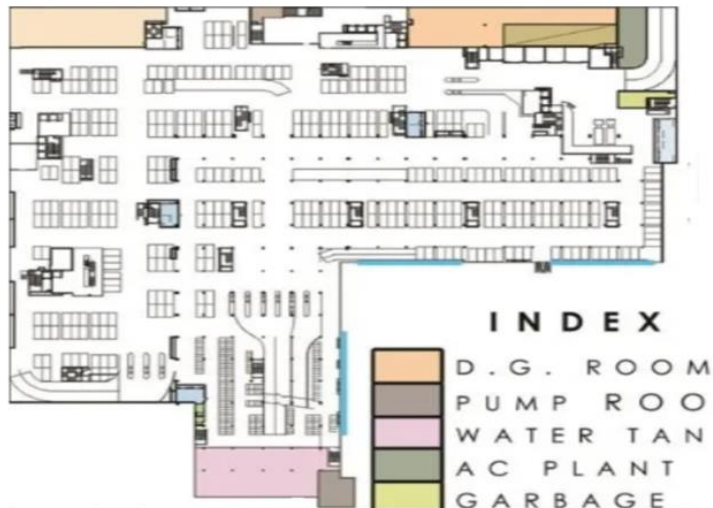
FIRE HYDRANT AT PERIPHERY



DIST. B/W TWO HYDRANT



COOLING PLANT



ELECTRIC PANEL



SERVICE CORRIDOR



EXHAUST ALONG ATRIUM



WATER PUMP ROOM



CONTROL ROOM

elevators, for both passengers and freight.

- Individual AHU and FCU have been provided for individual shops.
- AHU rooms provided for common area.

BASEMENT1:

- 5 nos DG SETS
- 3nos 2000kva+2nos 1000kva
- Garbage dumping rooms provided at basement.

BASEMENT2:

- 4 water supply tanks- fire water tank
- Domestic, raw water , fire water , soft water tanks.
- The help desk is also provided in second basement.
- Staff dinning and changing rooms also provided at second basement.
- Fire alarms are provided at regular intervals in the basement.
- Control room provided in basement.
- Big exhaust fans provided



LITERATURE STUDY – I

BHIKAJI CAMA PLACE

INTRODUCTION:-

Bhikaji Cama Place was constructed on the named after great freedom fighter Bhikaji Cama and one of its initial building is constructed in 1973. Designed by renowned Architect Raj Rewal the whole city is developed into levels. Individual buildings has their own basement parking. Also the original structure still exist the central area is paved in 2005.



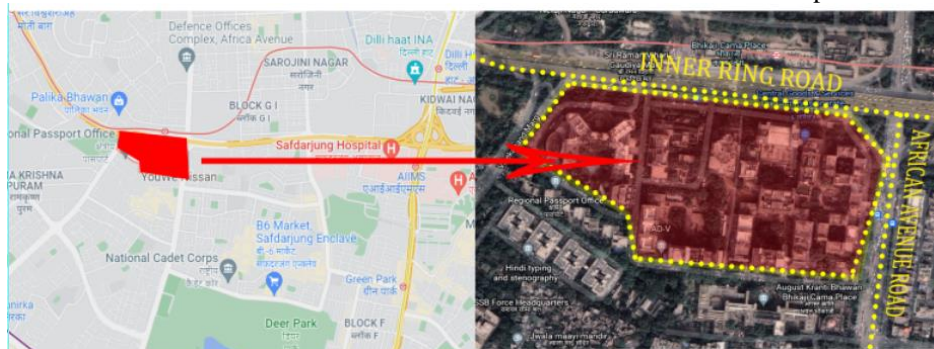
PROJECT DETAILS:-

Project Name : Bhikaji Cama Place, Delhi
Client : Delhi Municipal Corporation
Architect : NBCC Limited
Consultant : NBCC Limited
Type of Development : Mixed Use Development
Year : 1980, Redesign In 2005
Floor Area : 4,66,971 sq. mt

Ground Coverage : 50,051 sq. mt
FAR : 2.91

SITE DETAILS:-

Site Area : 36 Acres
Location : R K Puram, New Delhi
Coordinates : 28° 33'N 77° 11' E
Elevation : 213 m Above Sea Level
Climatic Zone : Composite



ACCESSIBILITY:-

- The distance of the nearest metro station is 100 m.
- The District Center is designed to cater Neta Ji Nagar, Nauro Ji and Safdarjung Enclave RK Puram and Sarojini Nagar.
- There are two vehicular approaches: one from the Ring Road and the other from the Africa road.
- The main catchment areas are:

- Netaji Nagar
- Sarojini Nagar

- Safdarjung Enclave
- RK Puram

- Krishna Nagar





NBCC TOWER



HYATT REGENCY



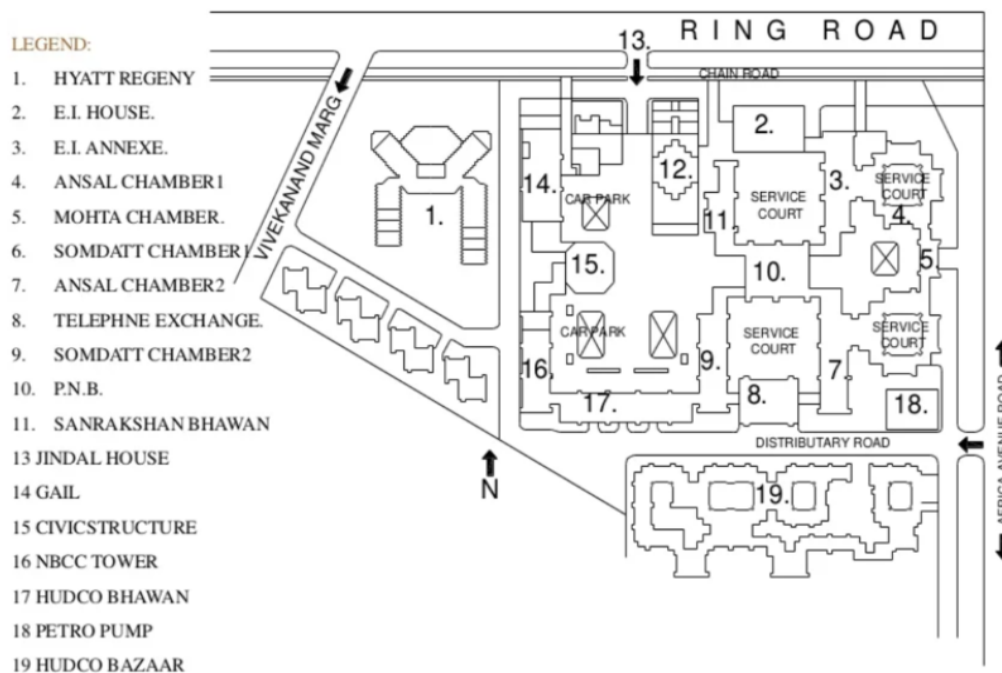
ENGINEERS INDIA



BHIKAJI METRO STATION

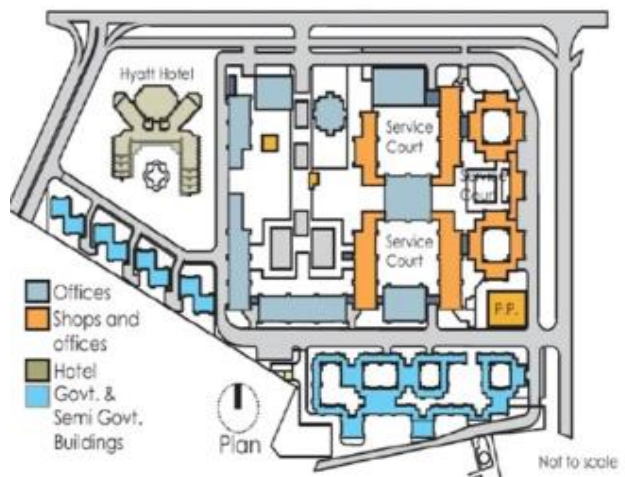
LANDMARKS

SITE LAYOUT



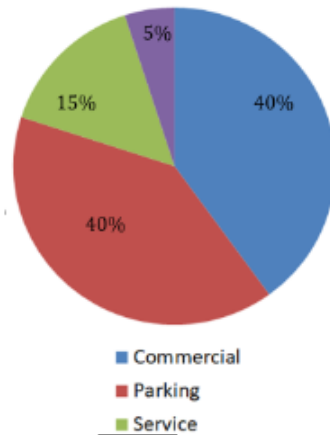
ZONING

- The plan shows courtyard planning and spatial zoning.
- The basic zoning in the complex is Commercial, Business and Administrative.
- The offices dominate over the shopping area.
- The hotel and the informal sector have been designed as separate zones which give them an identity.



SITE AREA

- Site Area - 1,45,690 sq. mt
Ground Coverage - 30%
- Commercial -
Office- 35% , Shop
4%, Bank 1%
- Parking -
Basement- 15%
Surface 25%
- Services - 15%
Fire Station, Service
Block, Petrol Pump
etc
- Re-creational - 5%
Hotel, Eating joints.



Area Program		
Function	Area (Sq.m)	% of Total Built
Office	115302.91	39.96
Hotel	37350.56	12.95
Retail	24340.00	8.44
Mall	23414.86	8.12
Multiples	16403.55	8.44
Food Court	15484.21	5.37
Auditoria	14741.11	4.18
Library	10113.54	3.51
District Services	6013.24	2.08
Fire Station	5958.30	2.07
Multi-Purpose	4010.16	1.39
Hall		
Informal Market	3224.63	1.12
Surface Parking	6725 (5446 Cars)	
Basement	2569.20 (8564 Cars in 3Levels)	

ENGINEERS INDIA HOUSE

- India Engineer House forms a part of commercial district center at Bhikaji Cama Centre NEW DELHI
- houses administrative, design, financial, and public relations offices of a public

CONCEPT.

- The concept is based on four cores on the corners containing lifts, staircase and services, resulting in a large Hall in the middle for flexible office planning.
- These cores act as major structure element and along with four central shear walls support an average office floor of 54mts by 24.6mts.
- The form of the building is derived from the point of view of saving energy. The structural cores are designed in such a way that they also serve a dual purpose of cutting down the effect of harsh climate.
- It was also decided to face larger parameter of the building north-south and further use the structural elements of the core and floor overhangs to create micro-climate floor plan for engineer's India house engineer's India house

ELF HOUSE

- The EIL house is entered on the ground floor directly from the road by car and has two level of parking
- Pedestrian enter the upper ground floor by mean of external steps or directly from central plaza.
- The central part of the entrance has the height of 10 mts and give access to the mezzanine at 3 levels providing changing views of information and exhibition spaces.
- The shear walls and structural cores are clad, externally and internally with 2.5cm thick beige sandstone.
- The internal stone cladding is polished to harmonies with flooring and teak wood paneling.
- The partition with in the hall are demountable and vary according to the functional requirement of typical floors.
- The lower two floors are used as public relation offices and contain exhibition space and small conference rooms.



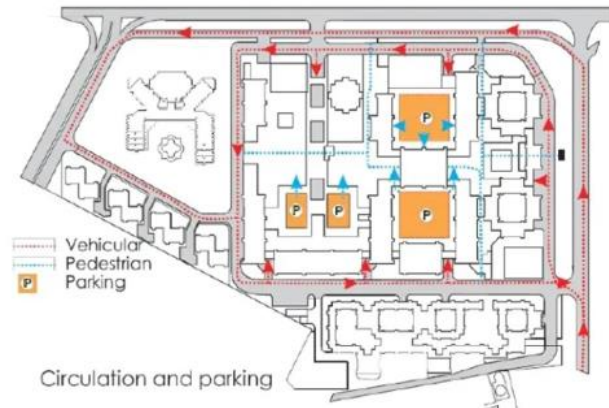
HUDCO BAZAR:-

- One side of complex facing the bhikaji cama place contains large shops and offices in 3 stories stepped building.
- The building developed has one basement and 4 floors above it.
- The front elevation has the concept of offsetting, which is the basic architectural character of the complex.
- The central courtyard is very well landscaped, unlike the rest of the open spaces.

CIRCULATION AND PARKING

There are generally two types of parking-

- General
- Private



CLIMATIC CONDITION:-

- Delhi's climate is in fact characterized by extremes. The sky is overcast during monsoons. Maximum temperature touches 45 degree every year and minimum may touch 4 degree.
- Taking in consideration the climate of Delhi, the main feature in the center is the "offsetting" which allows maximum sunlight to enter from the North Side and avoids the South sunlight.
- Screening is provided in the North-West direction to protect against the cold winter winds by use of evergreen trees.
- The buildings have protection from the over head summer sun but on the other hand, in winters, the sunlight is captured.



LITERATURE STUDY – II

CITY SALT LAKE

INTRODUCTION:-

Salt Lake City or Bidhannagar as it is popularly called, is a planned satellite town in the India state of West Bengal. It was developed between 1958 and 1965 to accommodate the burgeoning population of Kolkata, the state capital. It was supposed to be placed for middle income group people fleeing the unbearable conditions and density of inner city.

City Center Salt Lake is Kolkata's first integrated and unconventional hangout and shopping option that has successfully erased the mid-market and up-market divide. The mall has 4.5 lakh sq.ft. of commercial and entertainment spaces on five acres of land, City Centre Salt Lake attracts crowds from all over Kolkata, not just the catchment area.



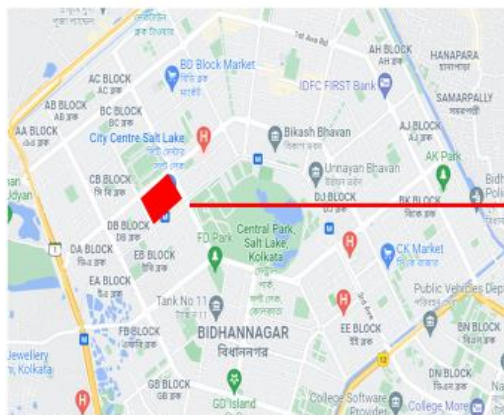
PROJECT DETAILS:-

Project Name : City Center Salt Lake
Client : Ambuja-Neotia Group
Architect : Charles Correa
Type of Development : Mixed Use Development
Year : 2004

No. of Parking : 4-Wheeler: 250;
: 2-Wheeler: 100
Approach Road Width : 32 Meters
Floor Height : Varying from 4-6 Meters
Location : DC Block, Sector-1, Kolkata
Coordinates : 22° 35' N 88° 24' E
Elevation : 5m Above Sea Level
Climatic Zone : Hot & Humid

SITE DETAILS:-

Site Area : 4.9 Acres (20,000)
Ground coverage : 2.78 Acres (approx)



Salt Lake Town, Kolkata



City Center Salt Lake

ACCESSIBILITY:-

The site contains total of 14 access and have road on all four sides. Site is at walking distance from nearest metro station.



DESIGN CONCEPT:-

Charles Correa designed City Center such that it fits in inherent lifestyle of its catchment area and further enhances it. It was design to creat the essence of twas very crucial aspects of its users lifestyle, 'adda'(a hangout space in local language) and 'Kund'(Central located sit-out space around a water body). This was done to seamlessly integrate retail with community and create a rich urban realm that attract footfall for reasons more that just that of retail. It was concieved as microcosm of the whole metropolis, such that it caters to multiple land uses and diverse income profiles.



SITE PLAN AND ITS ORGANISATION:-

- Clustured organisation relies on physical proximity to relate its space to one another.
- Often consists of repetitive, cellular space having similar function and share common visual trail such as shape of orientation.
- The site has total of 14 access points all varying in size and nature depending upon the mode of transportation a user would choose to reach the site.

PLANNING AND SERVICES:-

It offers wide range and nature of spaces ranging from a small 'dukkan' to large air conditioned boutique and anchor stores.

These varying activities all arranged in a fine grained mix, are generated by a complex system of spaces, from broad colonnaded public arcades to narrow street 'gullies' to large terrace piazzas culminating in the 'kund' in the center of complex. Coffee shops and restaurants strategically placed at pivotal locations provide opportunities to engage in social interactions further reinforcing the concept of integration of retail with community through formation of adda.

The city center has no compound walls. This helps in creating a permeable edge condition and renders a porous appearance to the compound. Closely placed orthogonal built forms help in creating narrow streets that give rise to interesting movement patterns through the compound.



SITE PLAN



GROUND PLAN

KEY OBJECTIVES

- + Openings of South-West and South-East direction to facilitate tunnel effect between blocks.
- + Kund in South-East direction to have sun in day time
- + The interlinking corridors facilitate constant air circulation and end at the kund space
- + The kund space is provided on the longer axis of the site to have maximum exposure to the road side.
- + Segregation of activities through levels define uninterrupted user specific moment.

LEGEND

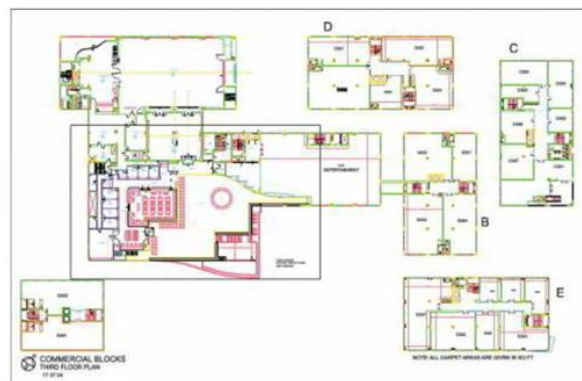
A- Retail B- Office C- Office
D- Health E- Restaurant F- Retail



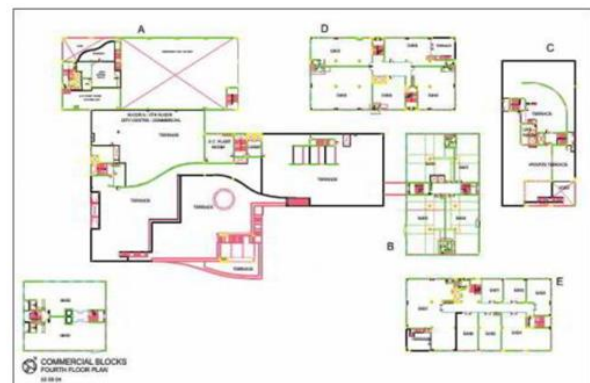
FIRST FLOOR PLAN



SECOND FLOOR PLAN



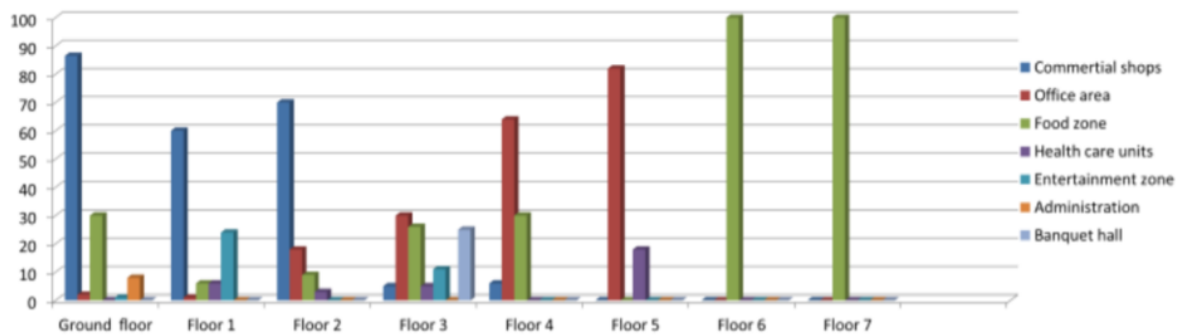
THIRD FLOOR PLAN



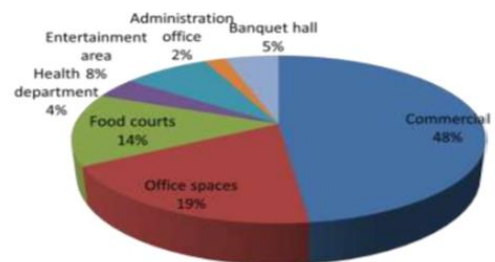
FOURTH FLOOR PLAN



BUILDING COMPONENTS



CIRCULATION PATTERN:-

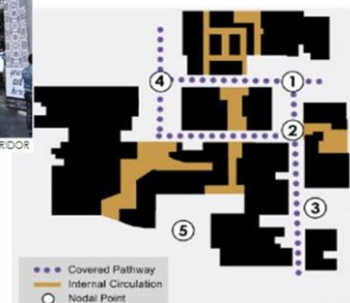


- Parametric vehicular movement for parking and movement through.
- Parking is distributed through out the site to enhance the all utility area of site.
- Pedestrian movement at random natural movement inside project.

NODAL POINTS:-

In a built environment, it is crucial to distinct nodal points and that is exactly how city center has been conceived. Nodal point here act as hinge that facilitate the interrelation of different type of uses of same facility and aid in smooth transition from one character of space to another. City Center clearly highlight the nodal design language of this compound. Distinct nodal point are created across the site which are then connected through network of covered Bazaar street. For ease of access and increased penetration through the built mass there are some internal circulation routes as well.

It is interesting to note how these nodal points differ to each other in order to poses distinct identity and render meaning to the spaces around them offering incentive to various user groups to visit all nodes subject to changing time and needs.



STREET SYSTEM:-

City Center is widely regarded as Hybrid Mall. This largely owing to its unusual combination of mall design mixed with the convention of street system replication on Indian Bazaar. It is believed that as per the original design the streets were not ment to be covered, allowing full exposre to the outside climate. However the streets now have been covered with translucent fiber roofing system and puncher are left at very few predefined spots for the plantation in the street below.



FUSHING THE 'BAZAAR' AND THE MALL:-

The concept of an Indian 'bazaar' is that of a highly personalized seller customer interaction in settling of variety of goods and services all placed together mostly along a narrow street. They are mostly characterized by their organic nature and humanized scale.

The westem concept of mails on the other hands is that of a large than hu man scape space planned and de igned exclusively to cater to a dedicated user group.

City Centre successfully brings the two together by carefully placing them in conjunction with each other, where the bigger boutique store are placed at the corners of each block and the smaller retailers are given spaces aligned in a series along narrow street cutting through these blocks extending from one edge of the compound to another.



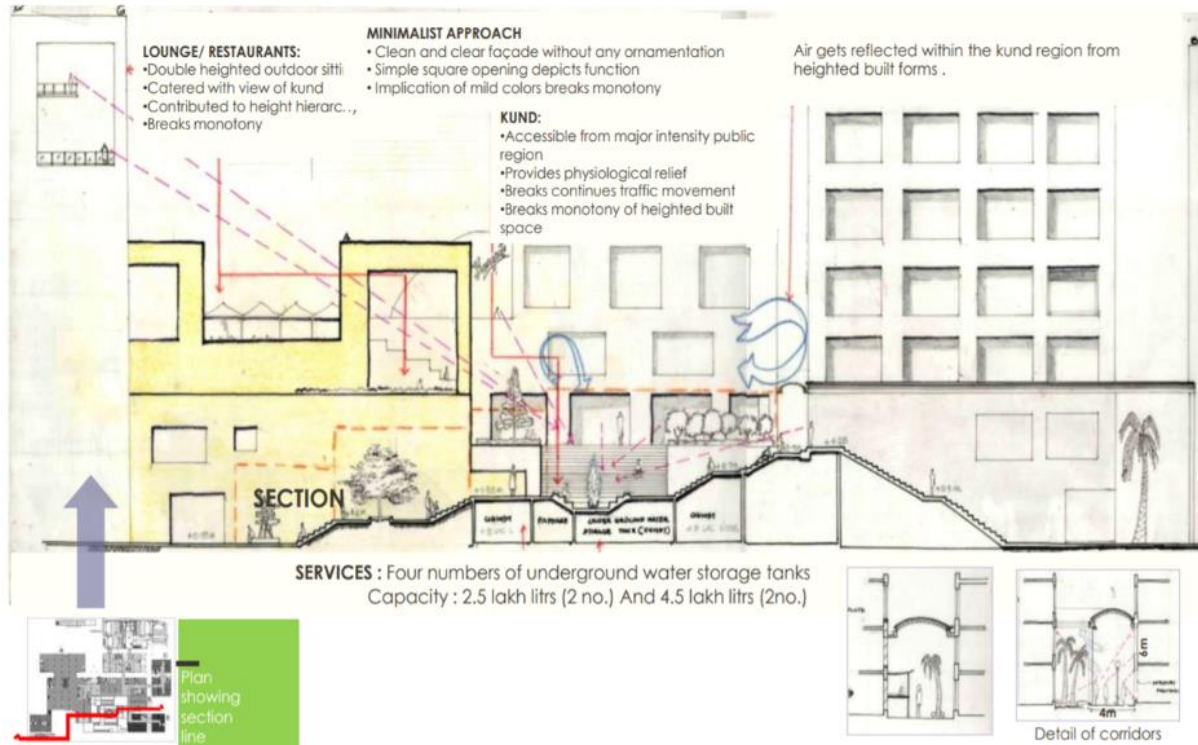
INTEGRATING INFORMAL BAZAAR:-

An Informal pazaar is characterized by its temporary nature and ease of access. Such a typology brings opportunities of engagement in an urban realm. The open space along the kund is used for Informal bazaar to enable users to easily access the Kiosks and ensure increased activity in the primary court. Since the court is opening on the outer edge it also helps in drawing footfall and adds to the urban realm around it. Fusion be tween organized and unorganized retail is a sure shot crowd puller.



STUDY OF SHADOW PATTERN:-

- The play with light and shadow is entertained by people at different time and different sense of spaces.
- As plaza is interconnecting element the activity performed in this place imparts much leisure.
- The shopping with entertainment concept of shoppertainment.



LINKAGE ELEMENTS/SPACE:-

- Connecting corridors specially hidden line between outer streets towards inside. It Inclusiveness for one. With no boundaries to separate it from the street. It is open to everyone all income group and age groups.
- Material used for pavement of malresembles the street.
- Tree placement In pathways and t light arrangement.



LIBRARY STUDY

INTRODUCTION:-

Mixed-use Development is defined as development which comprises a mixture of two or more land uses. Either comprised within a single building (horizontally or vertically) or multiple buildings of different uses within a distinct development site.

TYPES OF MIXED USE DEVELOPMENTS:

- Vertical Mixed Use Buildings.
 - Combo of different users within the same building
 - Generally the lower floor would be utilized by a commercial user with residential use located above.
- Horizontal Mixed Use Sites
 - Single use buildings on district parcels in a range of land uses within one planned development project.
- Mixed-Use Walkable Areas
 - Combine both vertical and horizontal mix of uses in an area within an approximately 10 minute walking distance to core activities

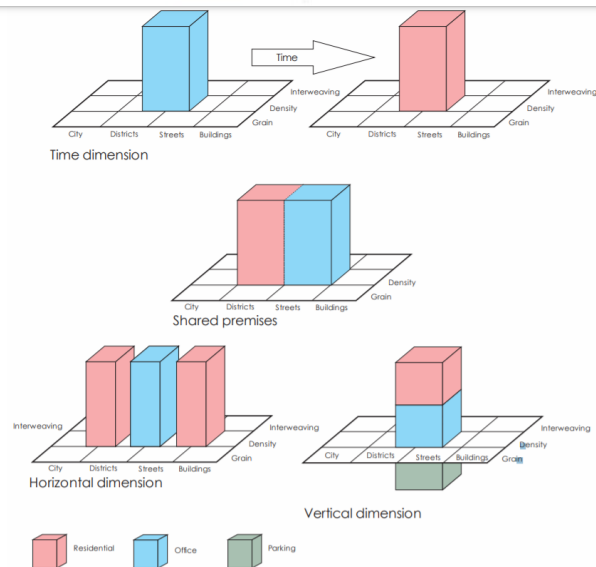
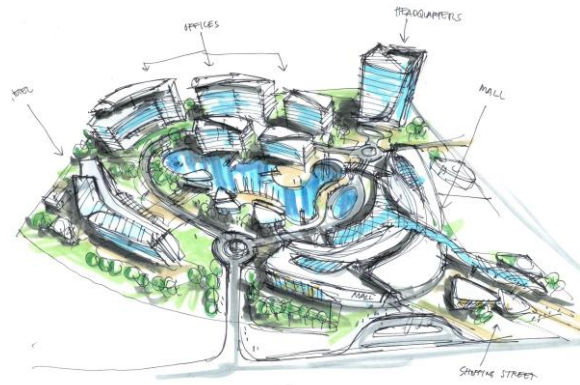


Figure 3.4 Mixed-use development model (Hoppenbrouwer and Louw, 2005, p.973)

Mixed-use Development Needs a Minimum of Three Revenue-producing Uses

- | | |
|-----------------|-----------|
| ▪ Residential | ▪ Office |
| ▪ Manufacturing | ▪ Hotel |
| ▪ Entertainment | ▪ Retail |
| ▪ Community | ▪ Parking |
| ▪ Cultural | |
| ▪ Religious | |

A mixed use was the norm before the development of modern zoning and land-use practices such mixed-use commercial and residential areas

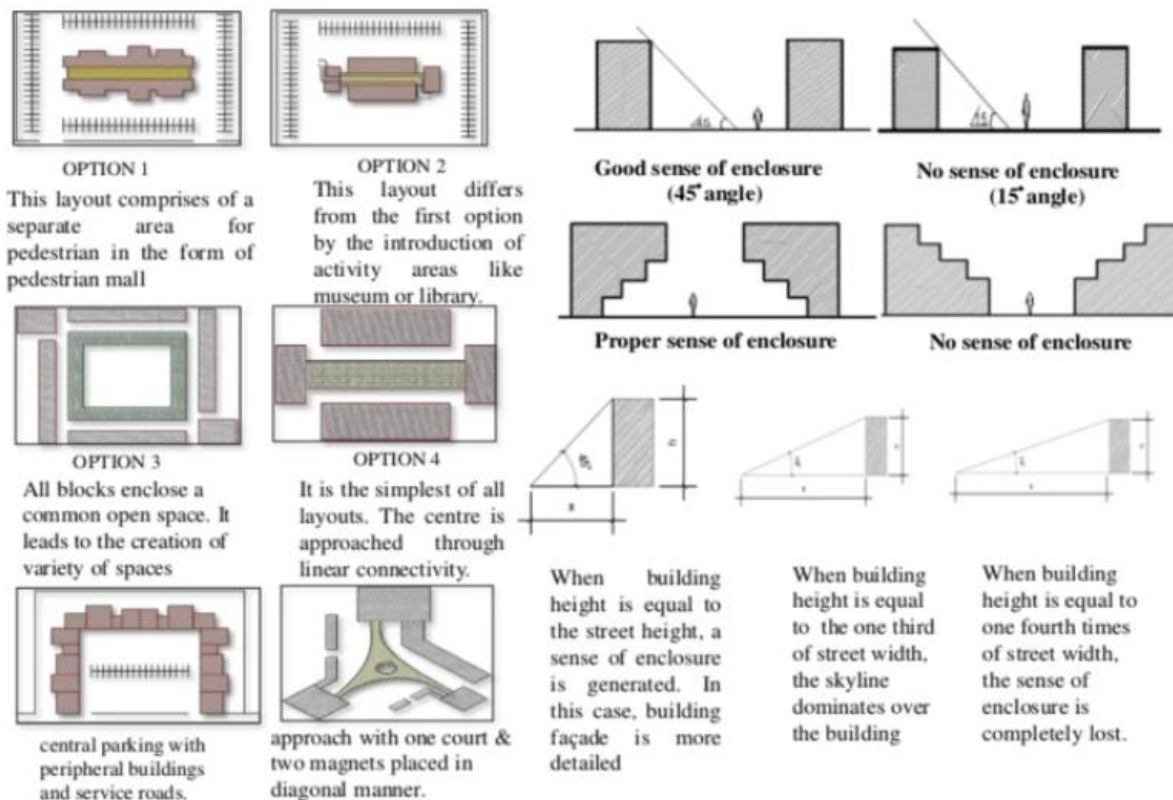
PRIMARY USER IN MIXED USE DEVELOPMENTS

PRIMARY USE	Office	Residential	Hotel	Retail	Recreation/ Cultural
Office		**	*****	*****	***
Residential	***		***	*****	*****
Hotel	*****	*****		*****	*****
Retail	*****	*****	*****		*****
Recreation/Cultural	****	*****	*****	***	

* - very weak or no synergy, ** - weak synergy, *** - moderate synergy, **** - strong synergy, ***** - very strong synergy



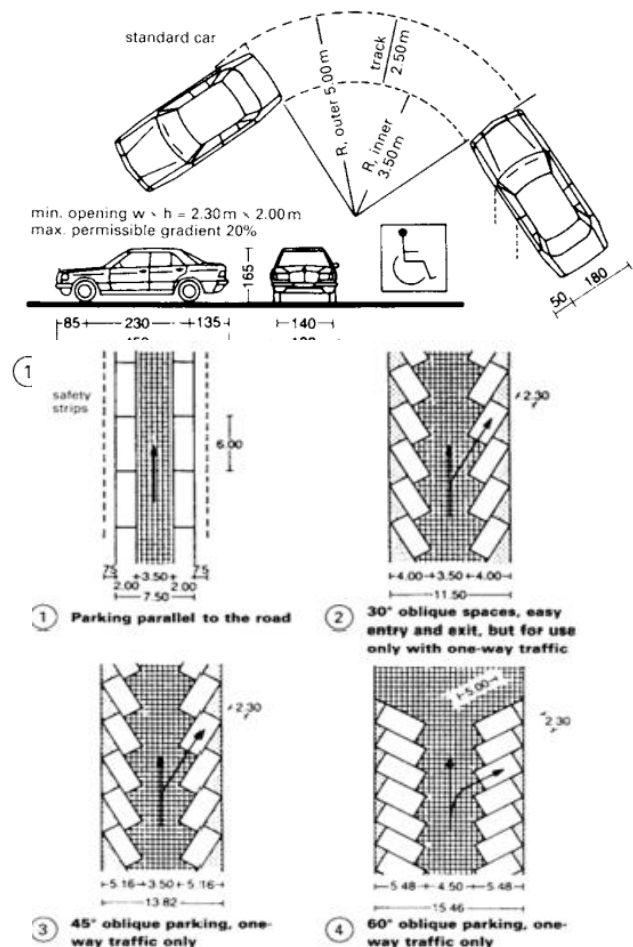
thrived into the twentieth century. often at intersections and transit stops.



LAYOUT SECTION

PARKING:-

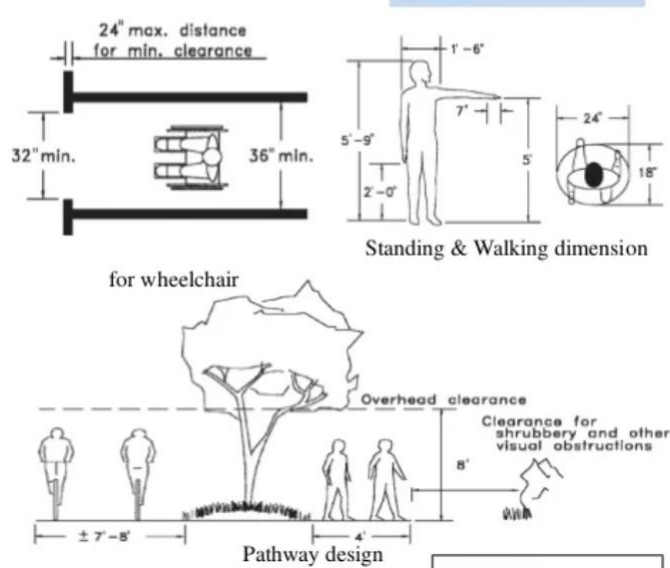
- Parking requirement/E.C.S 1)0° - parallel to road. Entry and exit to parking bay difficult. Suitable for narrow roads.
- 30°- angle to access road. Easy entry to parking bay and exit. Uses a large area.
- 45°- angle to access road. Good entry to parking bay and exit. Relatively small parking space.
- 60°- angle to access road. Relatively good entry and exit to parking bay; small parking space. Arrangement often used.
- Right angles to road (parking spaces 2.50 m wide). Sharp turn needed for entry and exit.
- Right angles to road (parking spaces 2.30 m wide). Small area needed for parking space. Ideal for compact parking layouts, used frequently.
- 2 wheeler parking : 1.2 x 2.1 m
Car - Parking : 2.5 x 5 m - Turning



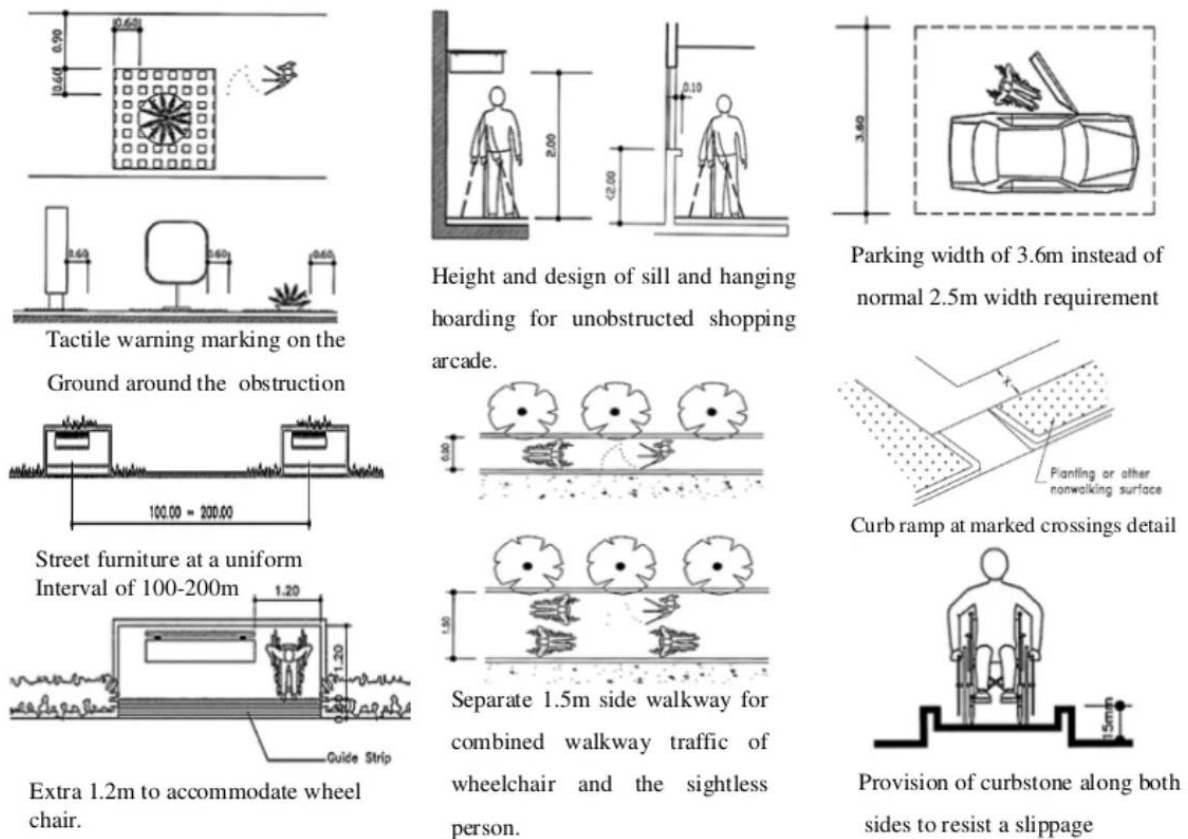
Radius 5m
 Bus - Parking : 3.5 x 12 m -
 Turn
 ing Radius
 12.2m

PEDESTRIAN

- No shortage of sources for site furnisngs today.
- Range of all well designed and durable materials in many style forms which the desiner may choose.
- A fundamental concept of design for the pedestrian is the pathway or side-walk.
- The sidewalk width must be designed to provide the level of service suited to the user.
- The paramneters of sidewalk width are determined accrding to the:
 - Aniiipated volume of foot traffic
 - The spread at which the pedestrians will be walking and the desired destiny of traffic.

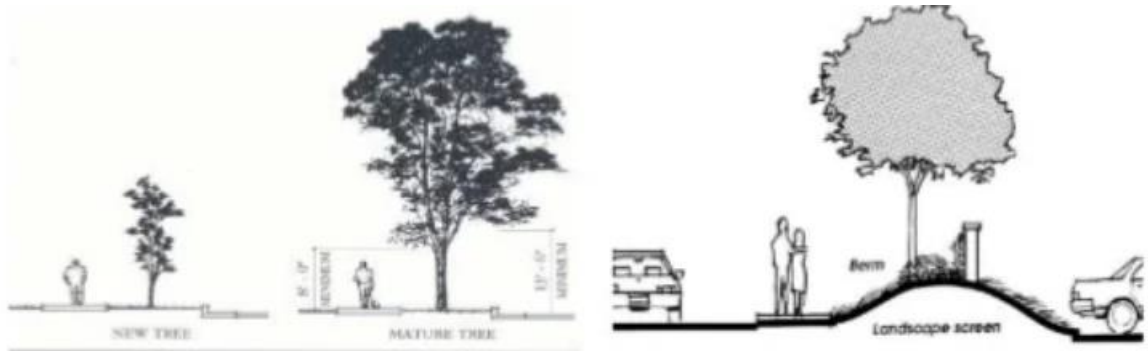


BARRIER FREE ENVIROMENT



LANDSCAPING:-

- Trees shall be provided along major pedestrian corridors.
- Trees shall not be placed closer than 30 feet from intersections. They shall remain out of the clear vision triangle.
- Branch height of mature trees on traffic side shall be no less than 13'-6" above the street.
- Branch height on pedestrian side shall be no less than 8' above the sidewalk.
- Proper irrigation systems shall be installed to establish and maintain healthy growth.
- Tree species shall be selected that can withstand the harsh conditions of the urban environment. When an area is to be unified, plant only one species.
- Mature tree height and canopy fullness shall not obscure important building features or business identification.



Shady trees – sitting can be provided under shady trees

Neem – azadirachta indica
Peepal – ficus religiosa
Golden fig – ficus benjamina

Ornamental trees – for aesthetics
Royal palm – oreodoxa regia
Palmyra – borassus flabellifer

Flowering trees – for aesthetics
Amaltas – cassia fistula
Gulmohar – delonixx fistula
Kachnar – bauhinia frandosa

Avenue trees –
Silver oak – gravilla robusta
Ashoka – polyalthia longifolia

RETAIL SHOPS AND STORES:-

Retail outlets can be broadly divided into

- Small Shops – 20 sq m
- Medium Shops – 50 sq m
- Large shops – 150 sq m
- Departmental Stores Or
- Supermarkets – 350 sq m

PLANNING GUIDELINES

- Occupation in stores - 1 person per 5 to 6 sq m; 1 person per 1.8 sq m in peak hours
- Shelf Units - Shelf units should not be higher than 1.8m and not lesser than 0.3m.

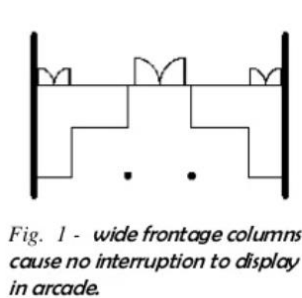


Fig. 1 - wide frontage columns cause no interruption to display in arcade.

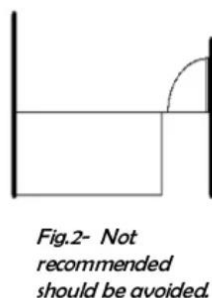


Fig. 2- Not recommended should be avoided.

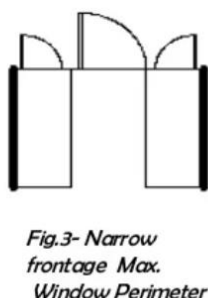
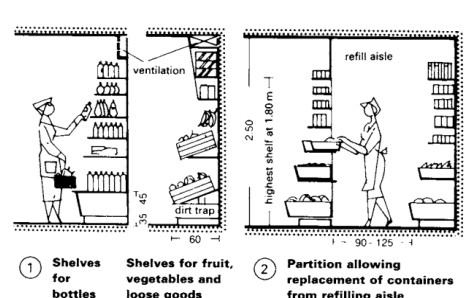
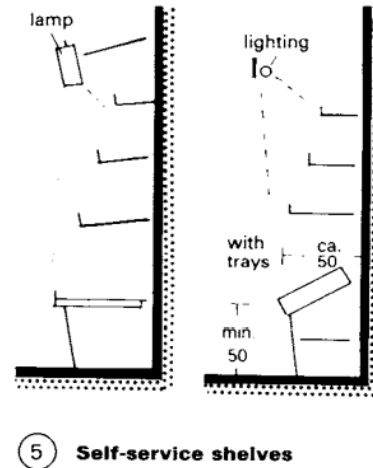
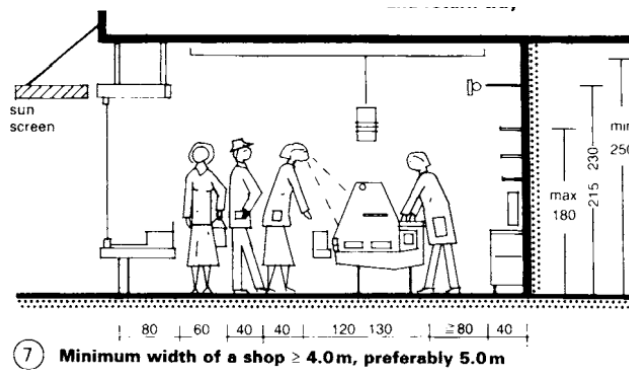


Fig. 3- Narrow frontage Max. Window Perimeter



① Shelves for bottles Shelves for fruit, vegetables and loose goods
② Partition allowing replacement of containers from refilling aisle





SHOP WIDTH :-

- This is the most important dimension as it involves column spacing and frontage of stores.
- The most common used shop widths are 6 , 7.6, 9.14 m the last being the most flexible one.

SHOP DEPTH – It can vary according to the frontage Covered verandahs

- Covered verandahs must be provided for shade and protection against sun and rain.
- Width can vary from 1.85m to 3.04 m depending upon the type of shop.

STRUCTURAL GRID

Large units between 7.3m to 10.9m frontage & 9.14m depth. Small units between 5.18m to 5.8m frontage and total depth.

DEPARTMENTAL STORES

Department stores are large complex shops, invariably extending over several floor levels, selling a wide variety of goods, particularly clothes.

BOOTHES

Booths are smaller in size than shops having min area 6sq.m. Booths frontage vary from 2,2.5 & 3m .

PLANNING

Minimum heights for shop spaces of the following are as follows:

- + Up to 400 sq m retail floor space 3.00 m +
- Over 400 sq m retail floor space 3.30 m +
- Over 1500 sq m retail floor space 3.50 m

SHOWROOMS

Showrooms are larger in size than shops having min area 95 sq m

LOCATIONS

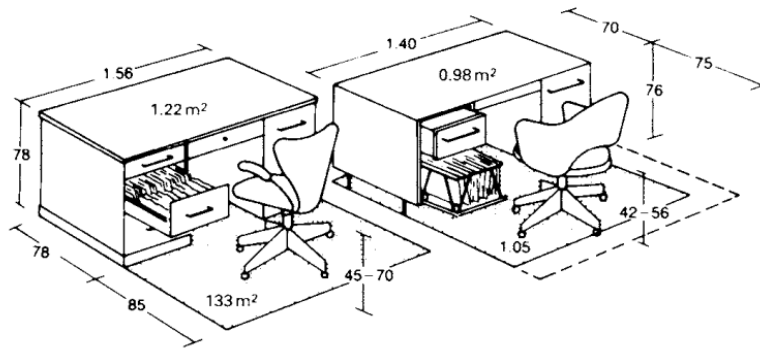
The main aisles are 2.2 to 2.5m wide increasing to 2.8 to 3.2m.

OFFICE:-

Modern office buildings are of the following types:

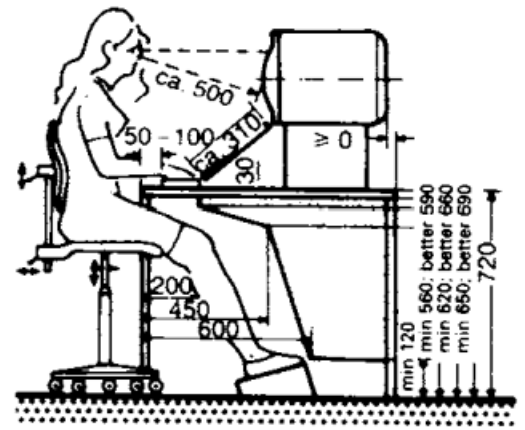
- Close Plan offices – They have full height walls or partitions dividing the space into offices with doors.
- Private offices – They are typically located along a window wall.
- Open Plan Offices – In open plan offices, all workstations are located in an open space with no ceiling height division or doors.
- Modified Open Plan Offices – They combine the feature private and open plan offices. Partition, window, ceilings, window modules, effect office layouts 1.5 sq m of area is required for circulation per person



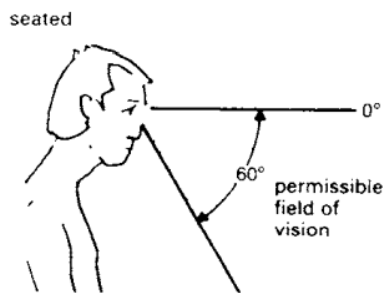


① Standard writing desk with drawers

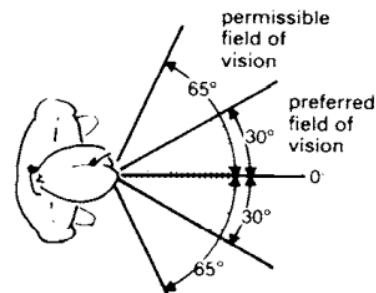
② Office desk; 0.5m² less floor space than ①



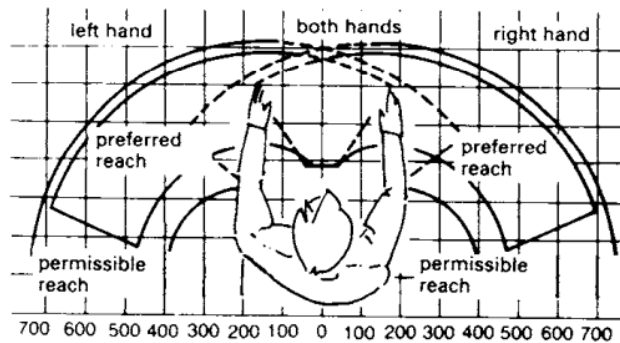
⑤ Ergonomic VDU workstation with fixed-height table



① Vertical field of vision



② Horizontal field of vision



③ Preferred and permitted area of reach

Single/ Group Office	Normal	Maximum
Depth of Office	3.75 – 7.50 mt	9.25 m
Dist. b/w Windows	1.00 – 3.25 mt	6.00 m
Dist. b/w Columns	1.75 – 7.50 mt	11.00 m
Main Corridor Width	1.75 – 2.50 mt	3.25 m
Side Corridor Width	1.50 – 2.00 mt	2.50 m
Height of Office	2.50 – 4.00 mt	5.00 m

Different modules for office layout



AREA ANALYSIS

		NEHRU PLACE	SAKET PLACE	BHIKAJI CAMA PLACE	CITY SALT LAKE CENTER
TOTAL FLOOR AREA		3,88,498 Sq.mt	2,17,999 Sq.mt	4,66,971 Sq.mt	54,529 Sq.mt
F.A.R.		1.5	1	1.5	2.75
OFFICE		2,22,288 Sq.mt (60%)	74,119 Sq. mt (34%)	1,15,302 Sq.mt (39.69%)	11,451 Sq.mt (21%)
COMMERCIAL	RETAIL		1,04,639 Sq.mt (48%)	24,340 Sq.mt (8.44%)	
	MALL			23,414 Sq.mt (8.12%)	26,174 Sq.mt (48%)
	HOTEL	60,650 Sq.mt (18%)	2,179 Sq.mt (1%)	37,350 Sq.mt (12.96%)	
	FOOD COURT			15,484 Sq.mt (5.37%)	7,634 Sq.mt (14%)
RE-CREATIONAL		12,100 Sq.mt (4%)	4,359 Sq.mt (2%)	10,113 Sq.mt (3.51%)	4,362 Sq.mt (8%)
SERVICE AREA			1,400 Sq.mt	11,571 Sq. mt (4.15%)	
	SURFACE	48,000Sq.mt (1400 cars)	1600 cars	6,725 Sq.mt (5446 cars)	800 cars
PARK-ING	BASE-MENT	2,600 Sq.mt (400 cars)	4050 cars	2569 Sq.mt (8564 cars - 3 Level Parking)	
	MULTI-LEVEL	24,000Sq.mt (1000 cars)			

REQUIERMNTS

REQUIREMENTS	STANDARDS	PROPOSED AREA
COMMON AREAS		
A FOYER		
B ENQUIRY		
C ENTERENCE/ATRIUM		
SHOPS		
A SMALL	45 Sq. Mt	50 Sq. M
B MEDIUM	136 Sq. Mt	150 Sq. M
C LARGE	310 Sq. Mt	320 Sq. M
D ANCHOR STORES		1000 Sq. M
E DEPERATMENTAL STORES		
WASHROOM		
A GENTS		
B LADIES		
C DIFFERENTILY DISABLED		



OFFICE	PER 4SQ MT	
A SMALL		150 SQ MT
B MEDIUM		300 SQ MT
C LARGE		500 SQ MT
CINEMA	3 SQ MT PER PERSON	800 SQ MT
A WAITING LOBBY		
B SNACK BAR		
C WASHROOMS		
D PROJECTOR ROOM		
FOOD COURT		
A FOOD STALL		
B KITCHEN	40% OF DINNING	
C KIOSK		
D RESTURENT		
GAME AND KIDS ZONE		
A WAITING LONGUE		
B GAME LOUNGE		
SERVICES		
A CONTROL ROOM		
B FIRE CONTROL		
C AC PLANT		
D AHU PLANT		
E GARBAGE AREA		
LOADING UNLOADING		
A L/U STAGE		
B BIN CENTER		
C STORAGE		



CONCEPT

INTRODUCTION -

About City - Mohali, officially known as Sahibzada Ajit Singh Nagar, is a planned city in the Mohali district in Punjab, India, which is a commercial hub lying south-west of Chandigarh. It is the administrative headquarters of the Mohali district. It is also one of the six Municipal Corporations of the State. It was officially named after Sahibzada Ajit Singh, the eldest son of Guru Gobind Singh.

Sahibzada Ajit Singh Nagar District has been carved out of areas falling in Ropar and Patiala district as 18th District of Punjab on 14th April 2006. Because of its connectivity with the union territory of Chandigarh, the district has been formed to achieve growth of development as this area is emerging as major I.T.

Roads have been built to create networks between Mohali and Chandigarh International Airport to boost its international connectivity.

SITE PROFILE :-

- Proposed site for mixed-use.
- Site is divided into two blocks, first for commercial and second for office and hotel.
- Site zoning is done according to the requirement of locality and by taking reference from case studies and literature studies.
- Total Site Area - 50830 sq. mt
- FAR - 1:3
- Ground Coverage - 35% i.e. (17,000 sq. mt)
- Commercial and office Coverage - 10,000 sq. mt
- Hotel - 7,000 sq. mt
- Max Floor Area - 1,52,490 sq. mt
- Achieved Area - (percentage referred from literature study)
 - Commercial -
 - Retail - 10% of total floor area, (15,000 sq. mt)
 - Mall - 12% of total floor area, (18,000 sq. mt)
 - Food Court - 6% of total floor area, (4,000 sq. mt)
 - Re-creational - 10% of total floor area, (7,000 sq. mt)

CONCEPT DESIGN:-

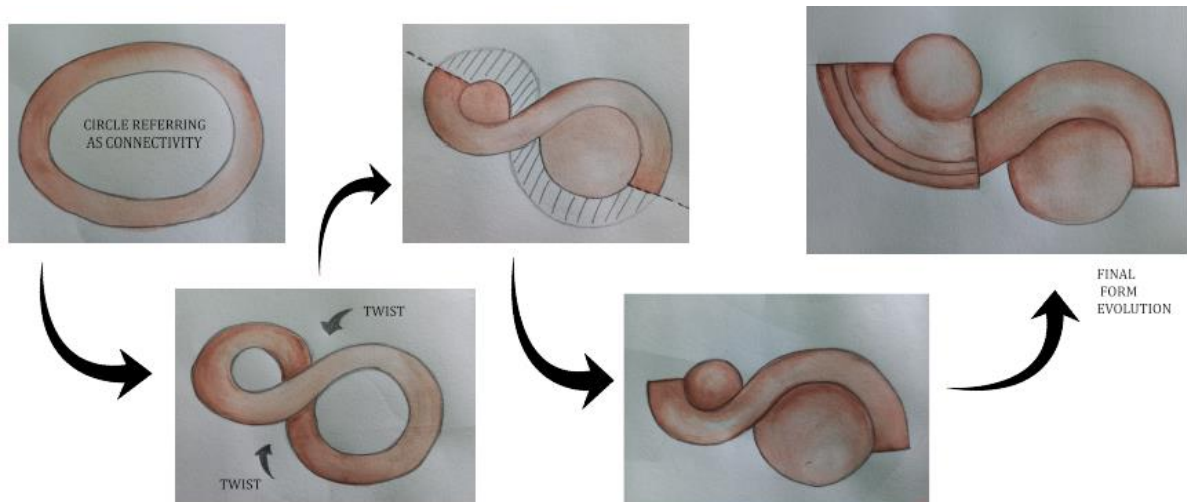
CONNECTIVITY –

- Connectivity is the state of being connected or interconnected. This can relate to direct connectivity between physical things such as people via proximity or transport networks, or indirect connectivity via communications networks.
- Connectivity is becoming increasingly important, so that our communities are in touch and we are better able to deal with emerging global challenges such as population growth, urbanisation and climate change.

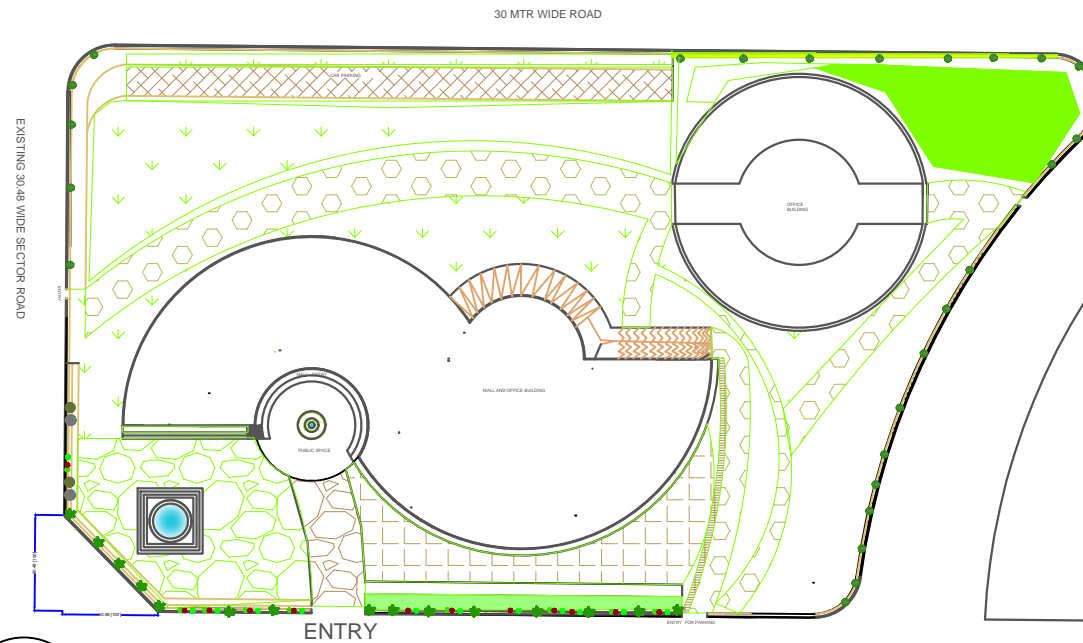


- Connectivity architecture connects main functional blocks or entities of a system with well-defined interfaces enabling interoperability, fluent data flows and information sharing in timely manner.
- Proposed site is located in Mohali, a district of punjab, along with Chandigarh which has countagious border with Punjab which shows connectivity of all three communities.
- Proposed site is a mixed-use type building which will show connectivity through out the site.

EVOLTION



MIXED USE DEVELOPMENT
 MOHALI
 TOTAL AREA -12.15 ACRE
 - 50830SQ M
 F.A.R - 3.0
 TOTAL BUILT-UP AREA -15,2490.
 GROUND COVERAGE-35%
 GROUND COVERAGE-17500
 MALL AND OFFICE- 10000
 OFFICE BUILDING -7000



57 MTR WIDE ROAD

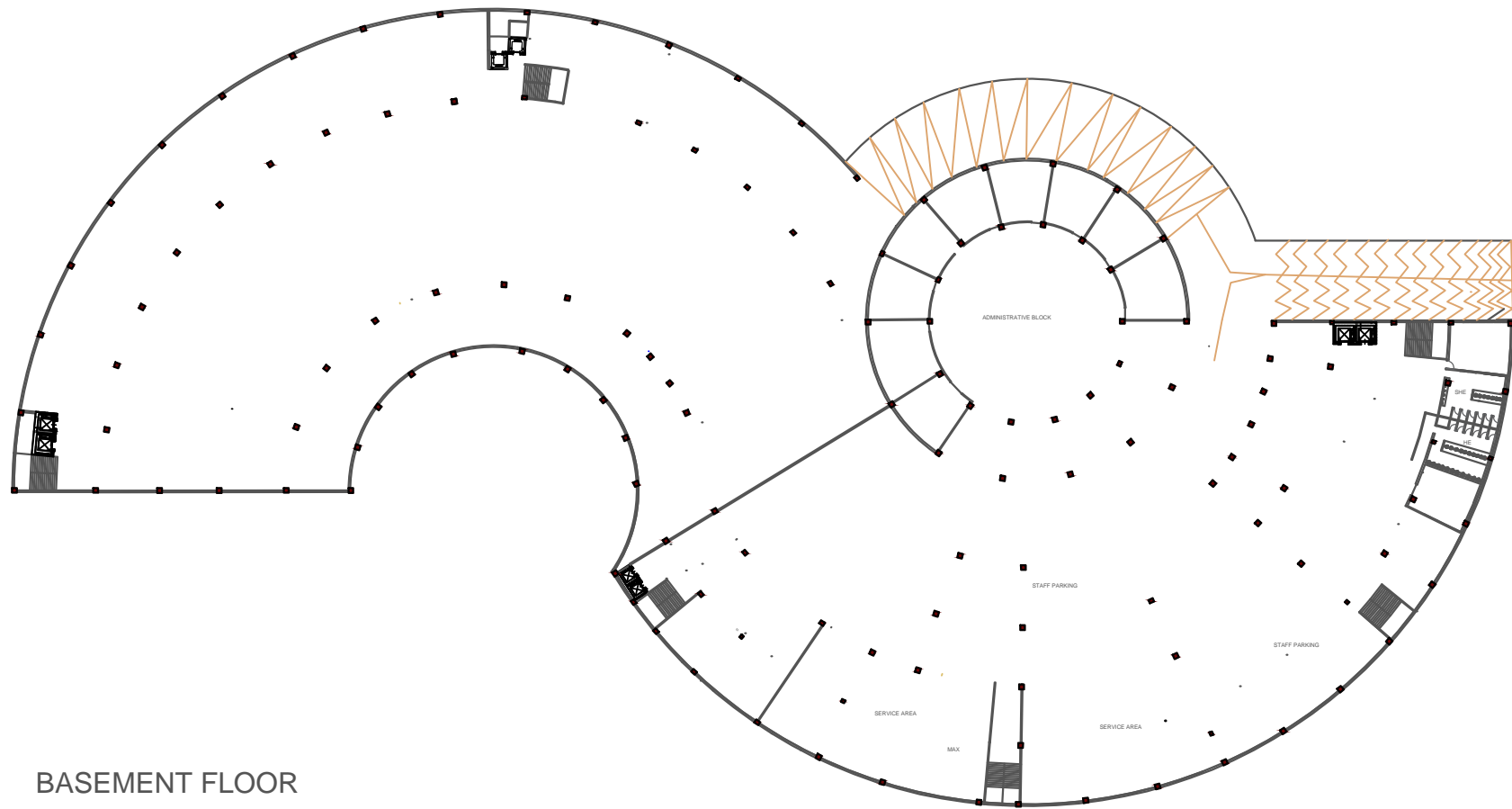
SITE PLAN

MIXED USE DEVELOPMENT

SCALE - 1:500
 THESIS- 2021-2022

NAME - KM. PRIYA
 5TH YEAR, 10 SEM.
 1170101016

SCHOOL OF ARCHITECTURE AND PLANNING, BBDO, LUCKNOW

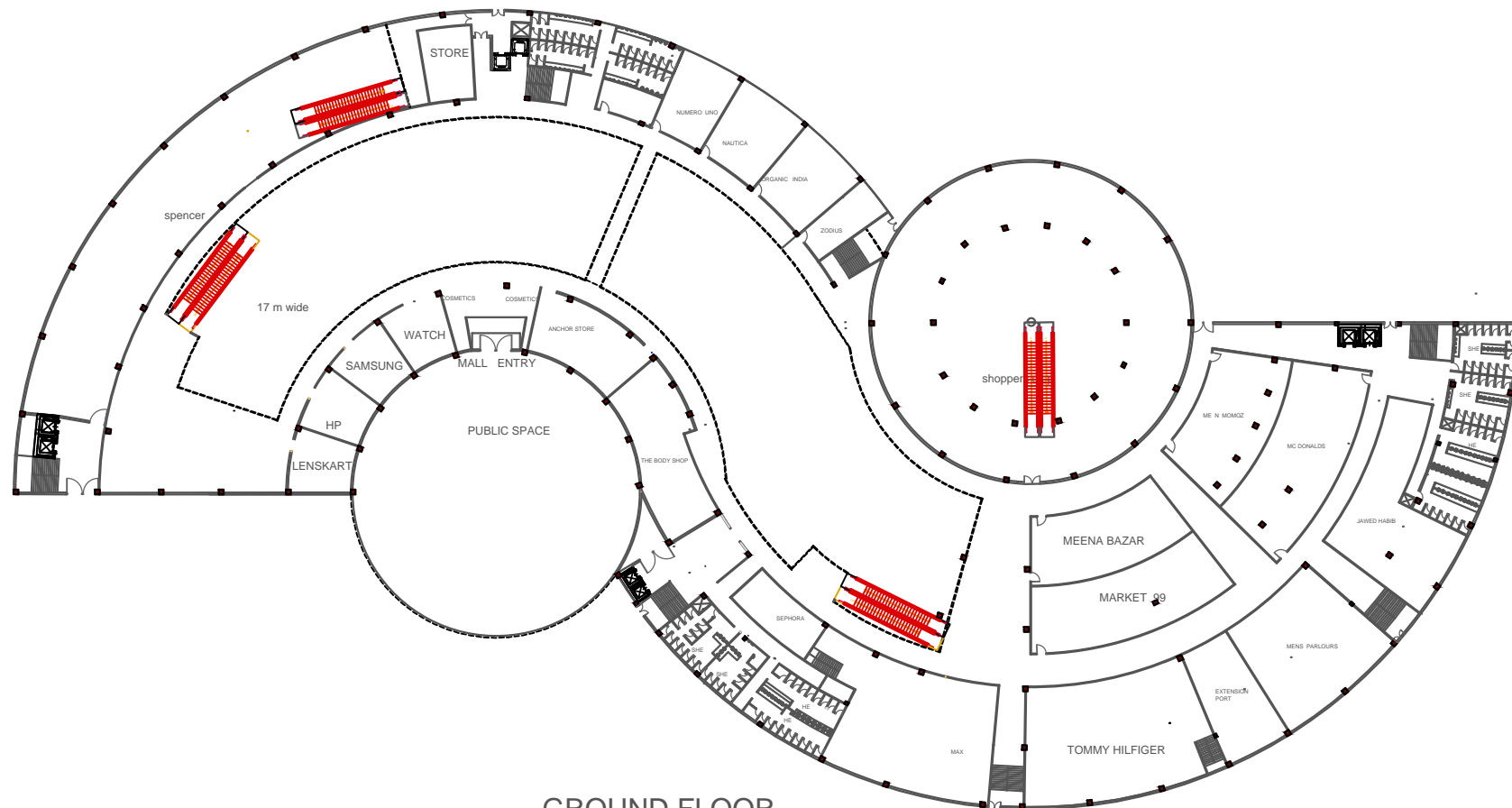


MIXED USE DEVELOPMENT

SCALE - 1:250
 THESIS- 2021-2022

NAME - KM. PRIYA
 5TH YEAR, 10 SEM.
 1170101016

SCHOOL OF ARCHITECTURE AND PLANNING, BBDO, LUCKNOW



GROUND FLOOR

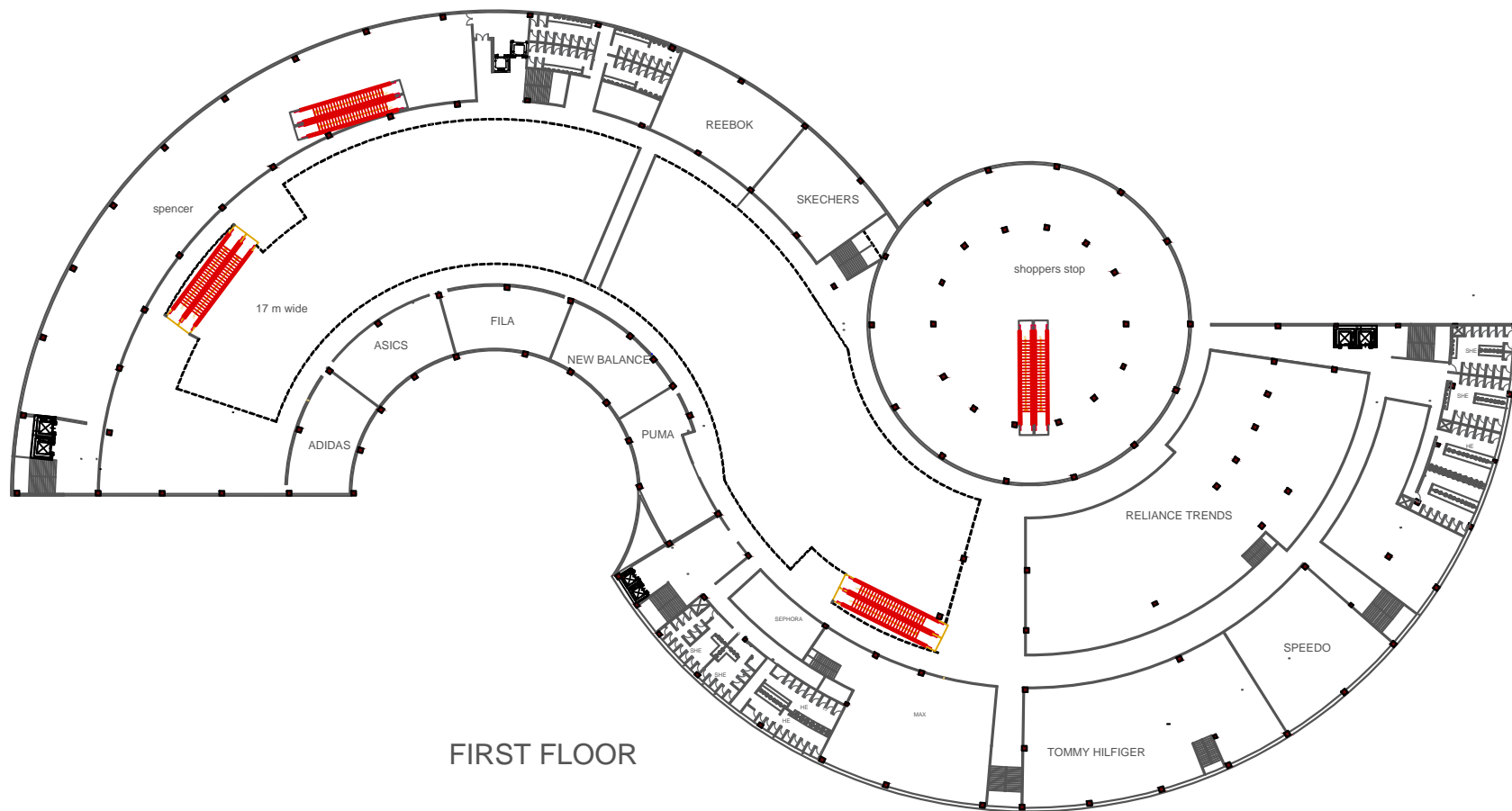


MIXED USE DEVELOPMENT

SCALE - 1:250
THESIS- 2021-2022

NAME - KM. PRIYA
5TH YEAR, 10 SEM.
1170101016

SCHOOL OF ARCHITECTURE AND PLANNING, BBDO, LUCKNOW



FIRST FLOOR

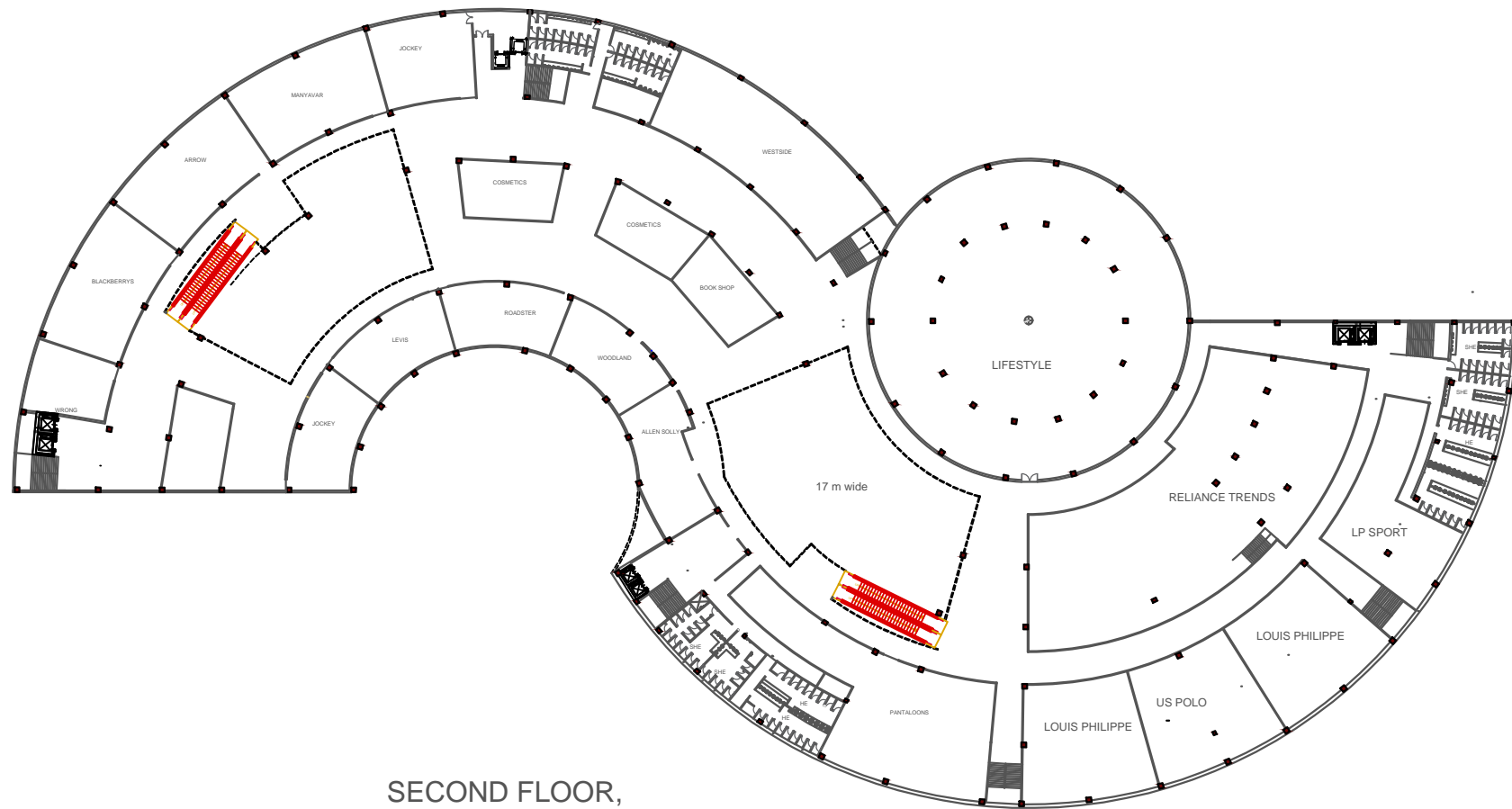


MIXED USE DEVELOPMENT

SCALE - 1:250
THESIS- 2021-2022

NAME - KM. PRIYA
5TH YEAR, 10 SEM.
1170101016

SCHOOL OF ARCHITECTURE AND PLANNING, BBDU, LUCKNOW

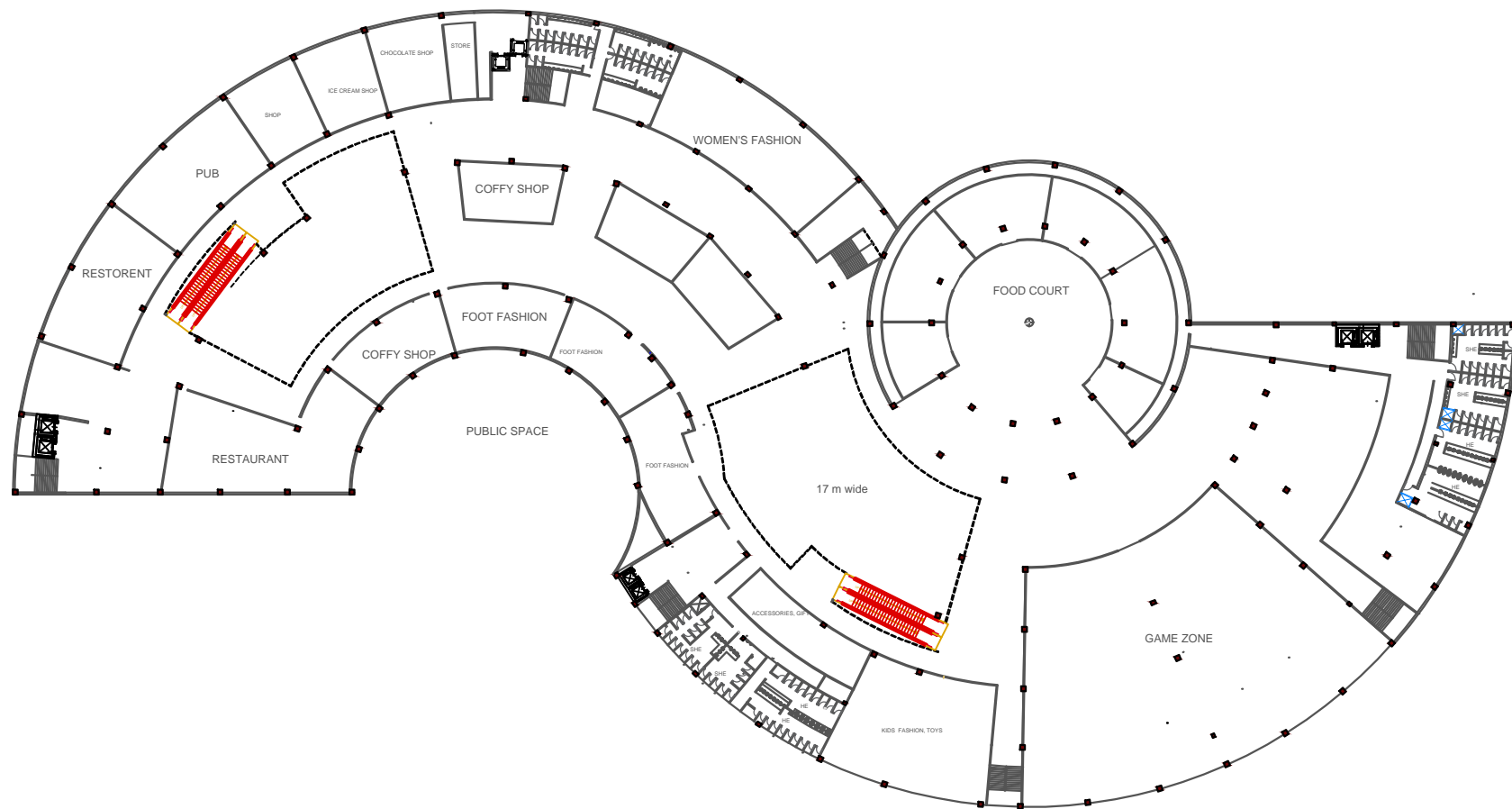


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SCALE - 1:250
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 5TH YEAR, 10 SEM.
 1170101016

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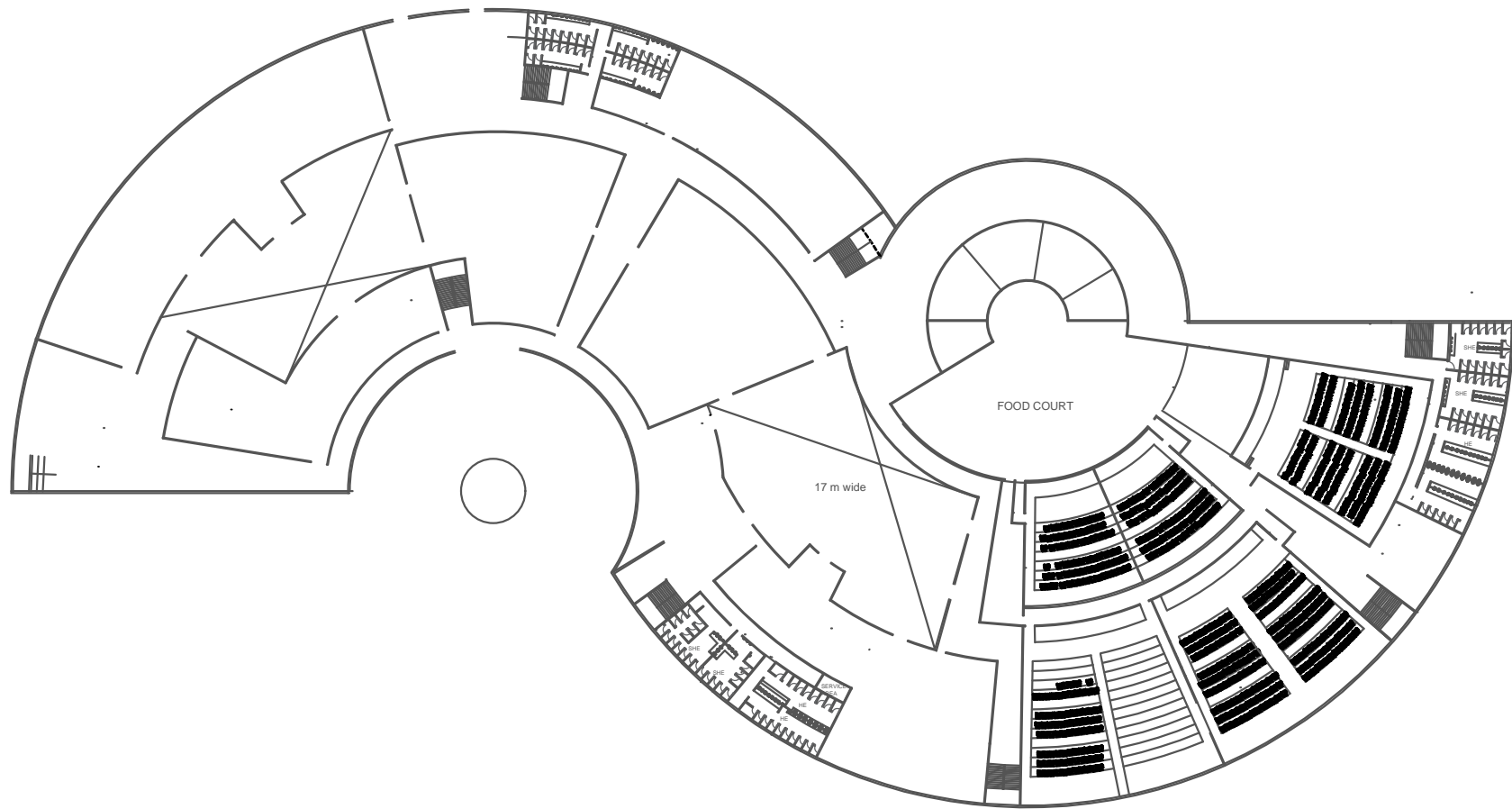


MIXED USE DEVELOPMENT

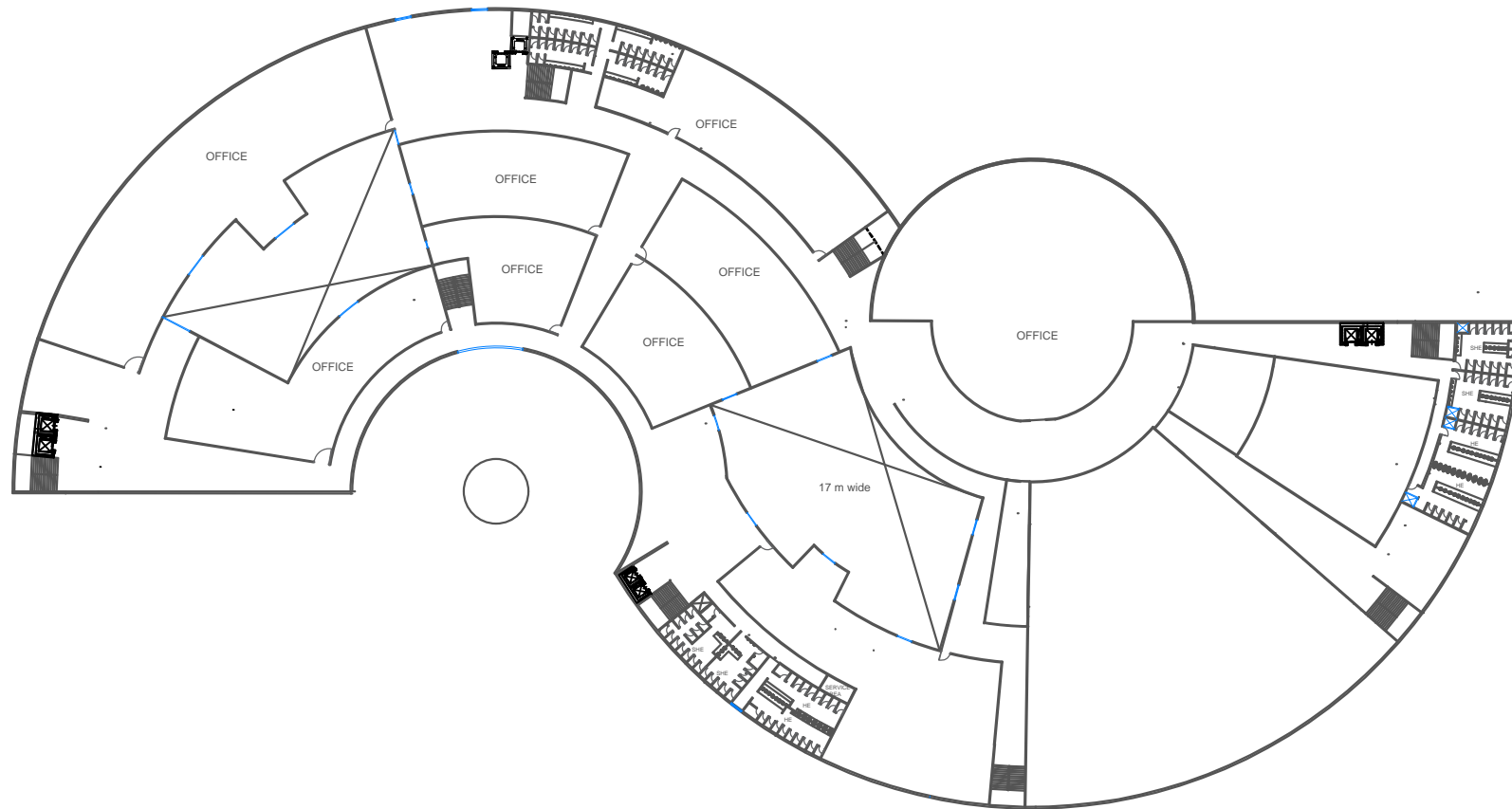
SCALE - 1:250
THESIS- 2021-2022

NAME - KM. PRIYA
5TH YEAR, 10 SEM.
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FOURTH FLOOR



FIFTH FLOOR

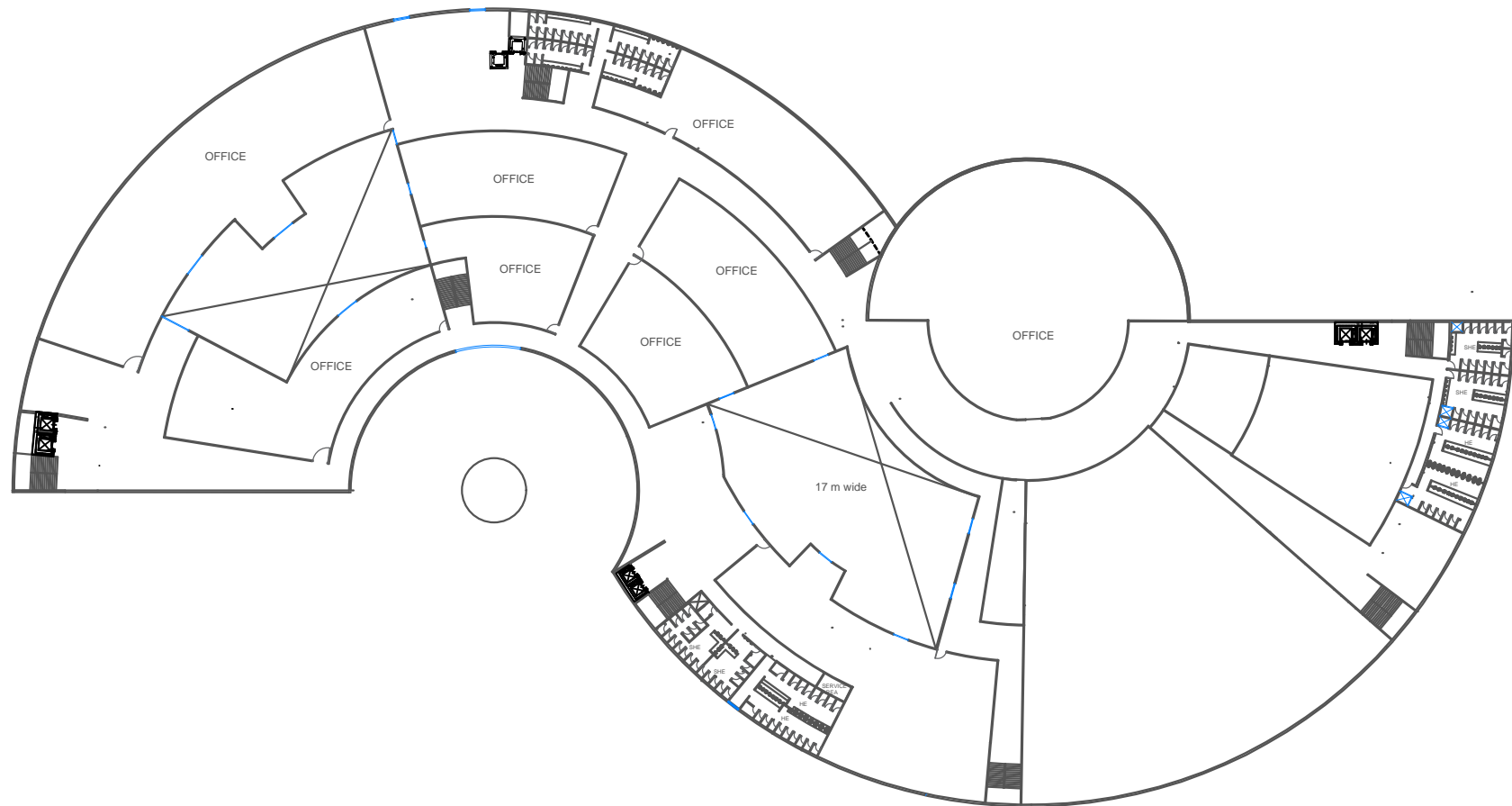


MIXED USE DEVELOPMENT

SCALE - 1:250
THESIS- 2021-2022

NAME - KM. PRIYA
5TH YEAR, 10 SEM.
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FIFTH FLOOR

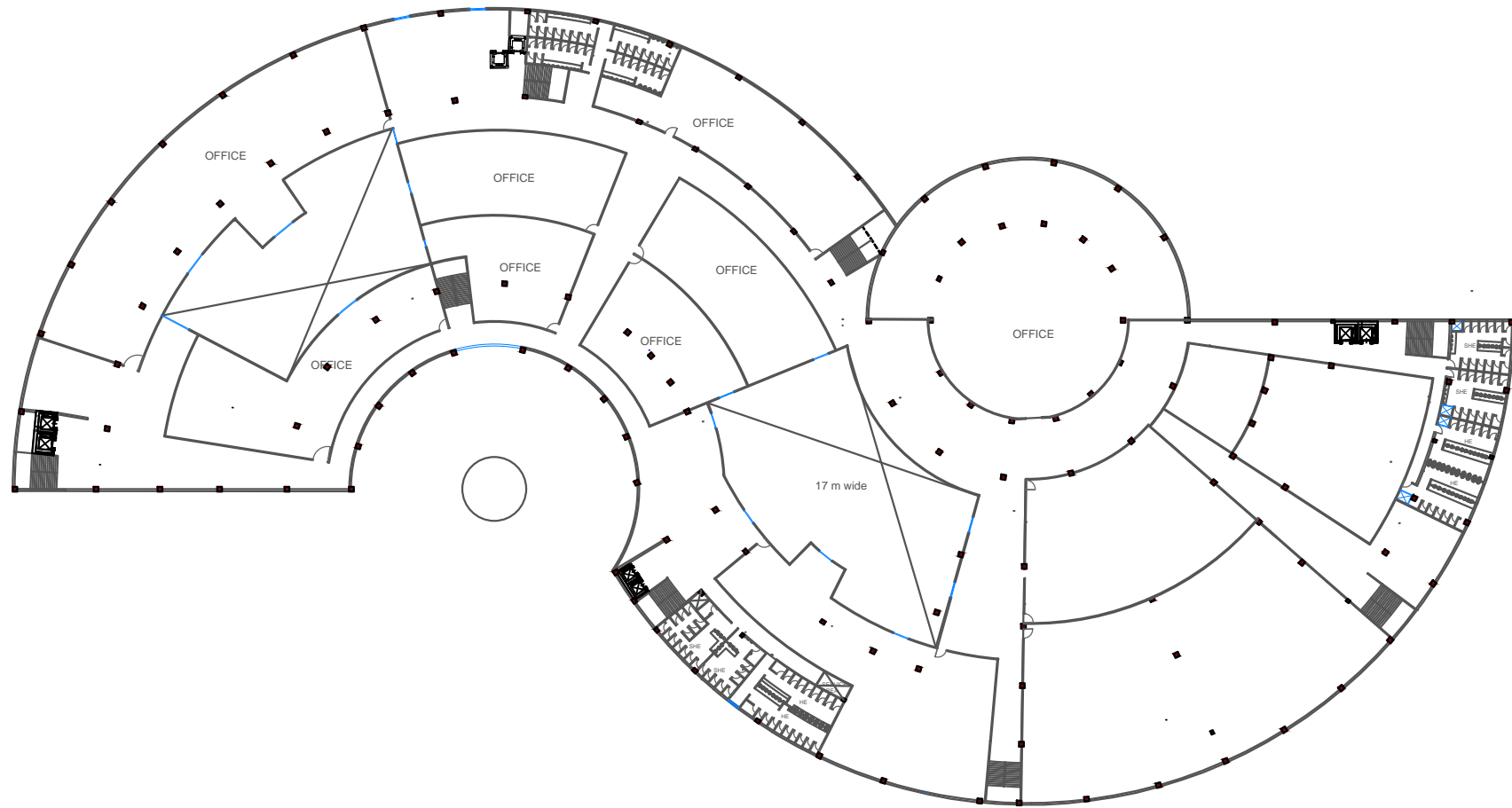


MIXED USE DEVELOPMENT

SCALE - 1:250
THESIS- 2021-2022

NAME - KM. PRIYA
5TH YEAR, 10 SEM.
1170101016

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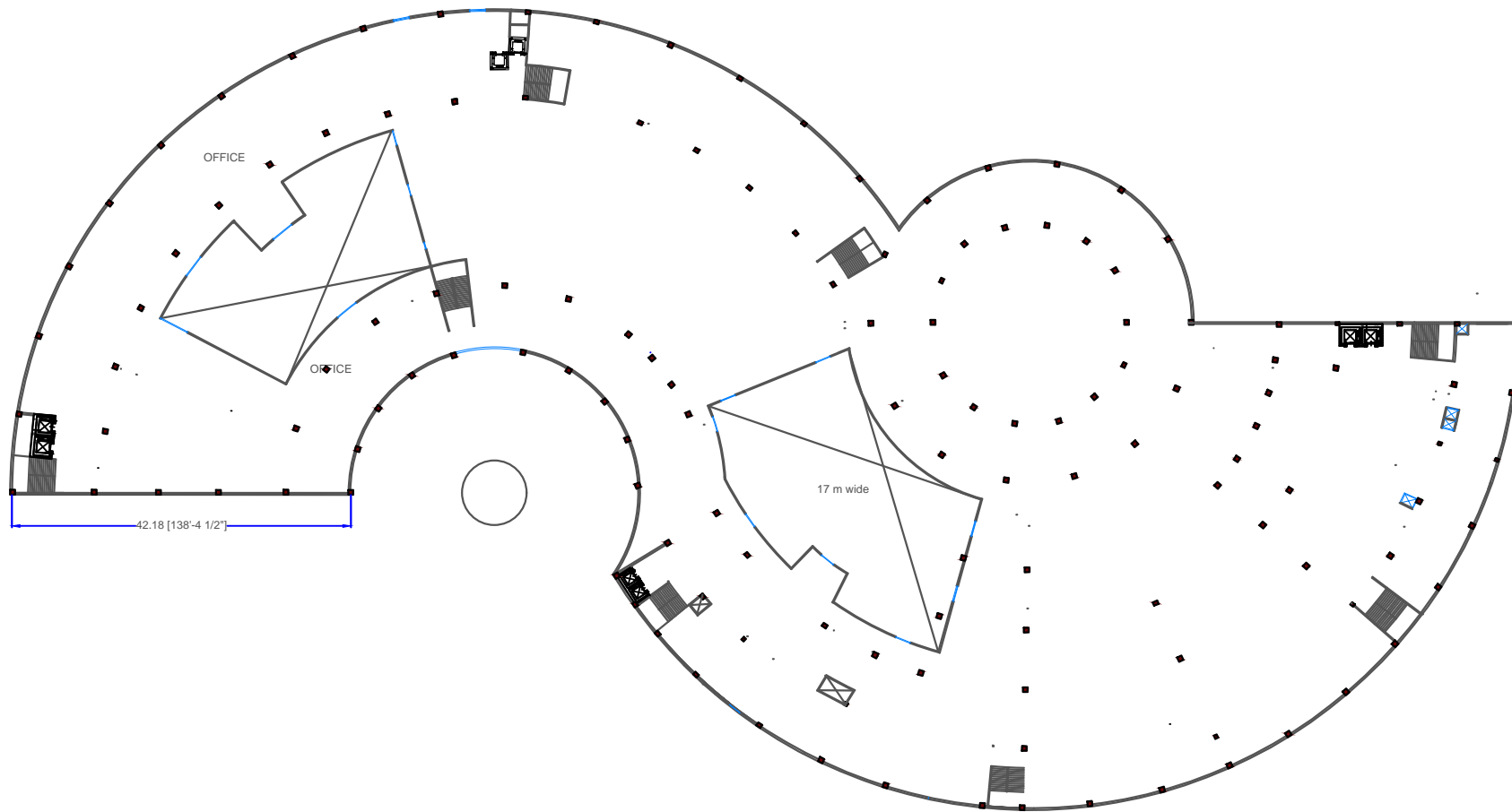
SEVENTH FLOOR



MIXED USE DEVELOPMENT

SCALE - 1:250
THESIS- 2021-2022

NAME - KM. PRIYA
5TH YEAR, 10 SEM.
1170101016



ROOF PLAN



MIXED USE DEVELOPMENT

SCALE - 1:250
THESIS- 2021-2022

NAME - KM. PRIYA
5TH YEAR, 10 SEM.
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