THESIS REPORT ON

MIXED USE BUILDING

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

BACHELOR OF ARCHITECTURE

BY

ARNAV DEO ARYA

1190101009

THESIS GUIDE

PROF. VERSHA VERMA

SESSION

2023-24

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 **"MIXED USE BUILDING "** 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

1. **Name : ARNAV DEO ARYA**
2. **Roll No. : 1190101009**
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4. **Degree for which the thesis is submitted: B.ARCH**
5. **Faculty of University to which the thesis is submitted: Yes / No**
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ACKNOWLEDGEMENT

I am overjoyed to express my deepest gratitude to PROF. VERSHA VERMA for her invaluable guidance, unwavering encouragement, and steadfast support throughout the duration of my thesis on a resort in Goa. His esteemed mentorship and continuous encouragement, from the project's inception to its completion, have been immensely appreciated and cherished.

I extend my sincere thanks to Ar. Mohit Kumar Agarwal, who graciously served as Dean, and Prof. Sangeeta Sharma, the esteemed Head of the Department, for their essential knowledge and insightful ideas shared during juries, which were instrumental in the successful execution of this endeavor.

My deepest thanks also go to Ar. Shailesh Kumar Yadav, who served as thesis coordinator, providing all the necessary resources and facilities for my work. His invaluable contributions in conducting meetings and juries at various times and fostering an environment that encouraged the exploration of innovative ideas are greatly appreciated.

Finally, I extend my profound gratitude to my parents and family for their unwavering encouragement, patience, and understanding throughout this journey.

I feel truly privileged to have had the support and guidance of such remarkable individuals and loved ones, and I will forever cherish their contributions to my success.

ABSTRACT

With the quick development in urban areas, the changing economy and urbanization of the world. The goal is to provide a walkable area within a convenient and healthy lifestyle.

Places near transit hubs have the potential to become vibrant public places. Places where people not only 'pass through' but also choose 'to be'. Transit Integrated development can synergize on the already existing footfall that
transit station receive along with the diverse functions that a mixed-use
development provides to create a vibrant public realm. From which the development and the transit node can both mutually benefited.
Mixed use creates new communities and energizes old by adding apartments, hotels, fitness corners, and commercial/retail -all at one place.

The study of this thesis began with the realization of immense potential the selected project site has to become an active public realm. A place which is accessible to the city's diverse residents. Key ideas is to design the place in a way which can activate site -physically, socially and economically and create a lively, robust public realm.

This thesis investigates how the integration of transit point with a mixed use development can lead to emergent synergies. Derivation of the area program is based on the prevailing TOD norms as well as contextual studies. An attempt in identifying the needs of the people and city and integrating it in the design has been made which can help instil a sense of ownership of the site in people's minds. The project has been envisioned not only as a place of transit or as a public place for the neighborhood but also as a destination for the residents of the city.

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List of References / Bibliography
Appendix A Copies of Synopsis / Literature Study / Case Study / Any other analysis done
Appendix B Copies of Final Sheets / Drawings

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

1.1.1 MOTIVATION

In the current situation, we as a whole ability troublesome lives have become. We go through hours on our everyday drive and reminder of the day is spent by us in our work environment. In the current situation we want all the things at one place. The word MIXED USE implies a spot where you can get everything at one single place.

Mixed-use developments embrace a challenge in terms of effective land use, especially in dense, supply-constrained urban markets. These create small cities within the larger environment. Not only does this encourage more compact stacking and conserve open space but they create walkable environments that infuses new life into communities. Consumers today demand convenience. They want to step outside their homes and be within walking distance to their workplace, coffee shops, restaurants, fitness facilities, grocery and spa options.

The goal is to provide a walkable area with all the ingredients for a convenient and healthy lifestyle. Mixed use creates new communities and energizes old by adding apartments, hotels, fitness corners, and offices – all at one place.

•Allow for a more balanced and integrated mix of uses that include retail, office, commercial services, housing and civic uses to create economic and social vitality.

•Provide options for commercial opportunities by designing flexibility into initial building to allow for subsequent reuse options.

•Promotes the development of affordable housing.

•Includes amenities and attractions that cannot be included in single purpose projects, such as public realm that can capitalize on the synergy of diverse uses.

1.1.2 JUSTIFICATION

- It allows more balanced and integrated mix of uses that includes retail, office, commercial services, housing and civic uses to create economical social vitality.

- It provides options for commercial opportunities by designing flexibility into initial building to allow for subsequent reuse options.
- It promotes the development of affordable housing.
- It includes amenities and attractions that cannot be include in single purpose projects, such as public realm that can capitalize on the synergy of diverse uses.
- It provides greater housing variety and density.
- Convince of live-work-play option in single location.
- It helps in maintaining stronger neighborhood characters.
- It promotes flexibility to adapt the changing needs, thus increasing the building's long term life cycle.
- It helps in increasing accessibility and walkability via transit, resulting in reduced transportation costs and environment damage.
- Often mixed use implies a combination of commercial, residential and industrial land uses as opposed to the segregation of residential land uses from non- residential land uses.

1.1.3 RESEARCH QUOTIENT

- To determine the factors that lead to the creation of the various mixed use development.
- To determine the various factors affecting people's decision as to where to live, work, play and learn.
- To study certain planned mixed use development and their effects on its residents and the urban environment as a whole.

1.1 SYNOPSIS

1.2.1 AIM

To design and plan a mixed use development which is a combination of residential, commercial, and hospitality keeping in view of the present requirements to contribute towards a healthier environment.

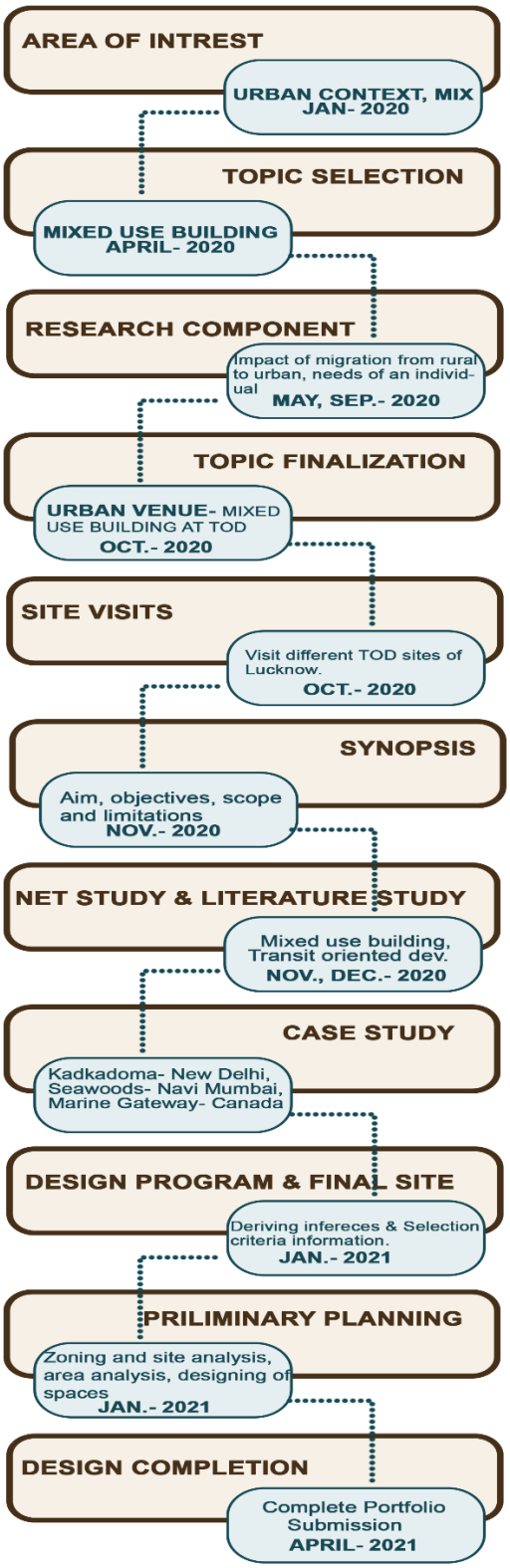
1.2.2 OBJECTIVES

- To meet the growing demands of commercial activities and overcome the shortfall of available commercial spaces.
- To achieve a better synergy between workplace, residence, and transportation.
- To allow access to commercial activities in the proximity of the residences and thus reduce the need of connecting across various zones in the city.
- To identify some of the urban design principles used in solving the urban design problems of congestion (vehicular and human) urban sprawl.
- To identify the various types and function of mixed use development.

1.2.3 SCOPE AND LIMITATIONS

- Attractive pedestrian environments, enhanced social interaction and restoration of richer, more vibrant and diverse urban life.
- Creation of economically efficient composition of compatible land uses by discouraging intensive office development.
- Provision of residential accommodation close to work and entertainment.
- Preservation of historic buildings and retention of scale and character of older areas.
- Reduction in the car ownership and usage by enabling people where work, shop and play is present.
- Construction efficiencies and more rapid realization of the site's potential.
- Benefits to service providers of activities as some supplement the competencies of others in the exchange of goods & services.
- Hard to dispose of the property due to multiple occupants.
- Require active management of property.
- Longer delivery and higher construction cost.

1.2.4 DESIGN METHODOLOGY



Chapter 2
DATA COLLECTION AND ANALYSIS

2.1 INTRODUCTION

The data collected during the research phase will help shape the design process and the planning considerations. Since it is a research-based topic, the literature study would also contain data about the research on the existing Norms of that particular place and TOD norms. This chapter is further divided to two parts. Literature study and case study.

2.2 LITERATURE STUDY

2.2.1 TRANSIT ORIENTED DEVELOPMENT

A transit oriented development (TOD) is a mixed use residential or commercial area designed to maximize access to public transport, and often incorporates features to encourage transit ridership. A TOD neighborhood typically has a center with a train station, metro station or bus station, surrounded by relatively high-density development with progressively lower-density development spreads outwards from the center.

2.2.2 WHY AND HOW T.O.D

New urbanism traditional neighborhood design (TND) and transit oriented development (TOD) and proposed that former is used in green field cases and latter in in-fill and redevelopment.

2.2.3 DESIGN OBJECTIVES AND IDEAS OF T.O.D

- To investigate about how the segregation of spaces is to be made taking into account the objectives of post-pandemic space planning.
- To cultivate and functioning of the two or three different types of buildings and incorporating with the different user groups.
- To investigate about how to maximize the security and safety.
- To learn how the harmony is related to bear the urban characteristics- high density, diversity, technology and around the clock.
- To learn the sense of spaces and how architecture can provide life to these spaces.
- Investigate and incorporating the perfect design program and preferences should be given with the demands.

2.2.4 RIGHT MIX MATTERS

2.2.5 ACTIVITY AND USER ANALYSIS

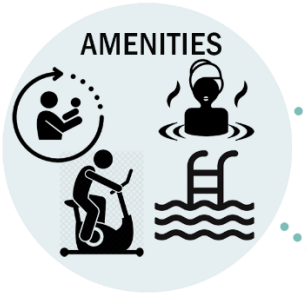
As this is the mixed use development project so there is large number of users which use this complex and every user is very important for such types of projects.

Users- Residents, residents in surrounding areas, existing crowed from Krishna nagar and Transport nagar. Shoping visitors, shokeppers, visitors.

Users- Residents, residents in surrounding areas, existing crowed from Krishna nagar and Transport nagar.

Users- Residents, residents in surrounding areas, existing crowed from Krishna nagar and Transport nagar. Office employes from krishan nagar and new development.

Events in shopping centers,offices, Residential community events.



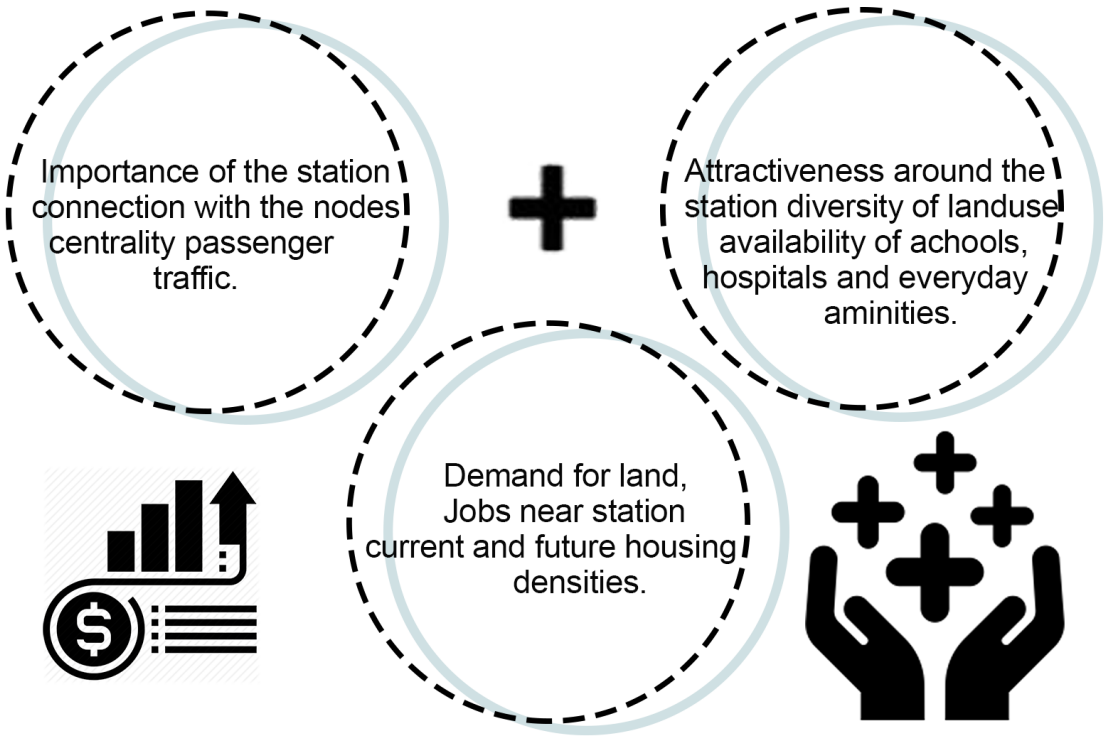
Users- Residents,metro station users, shopping centre users, employees, shopkeepers.

Users cannot be defined in this project and many different things are involved in this community.So it is hard to frezze the users.

Users- Residents, residents in surrounding areas, Office employeres,shoping centre visitors, shopkeepers,Metro users.

2.2.6 DEVELOPMENT CONTROL NORMS AND T.O.D RULES AND REGULATIONS

2.2.6.1 GUIDELINES FOR T.O.D SITE SELECTION



2.2.6.2 PRINCIPLES OF T.O.D

- Pedestrian and non-motorized (NMT) friendly environment.
- Connectivity and network density.
- Multi-model interchange.
- Inducing Modal shift.
- Place making and ensuring safety.

2.2.6.3 T.O.D POLICY FOR UTTAR PRADESH

Government of Uttar Pradesh has issued Zoning Regulations, Planning Norms and Building Bylaws for Mixed Land use and Transit Oriented Development in Major Cities of Uttar Pradesh. These regulations are summarized below.

2.2.6.4 PLANNING NORMS FOR MIXED USE BUILDING

The maximum of 20% of land is allowed for mixed land use development for new township/Integrated Township, Development nodes notified along the Expressway/Major Highways and Townships as per Master Plan/ Zonal Development Plan. The standard for various land use under mixed land use is presented below.

SHARE OF ALLOWABLE LAND USE UNDER MIXED USE DEVELOPMENT

S.No.	Landuse	Percentage
1.	Residential	40-60
2.	Office/Institutional	15-30
3.	Commercial	5-10
4.	Industrial (Pollution free service)	5-10
5.	Public Amenities and Services	5-10

2.2.6.5 OTHER PROVISIONS FOR MIXED USE BUILDING

- Additional FAR over the basis FAR will be allowed subject to provision of basic infrastructure facilities (i.e. drainage, sewage, water supply, electricity, solid waste management, park and open areas, educational, medical and public facilities) based the likely density of population as per the standards.

- In mixed land development, separate access shall be provided to residential area in case commercial area are also present in the same development. Similarly, separate parking provision shall be made for residential units.

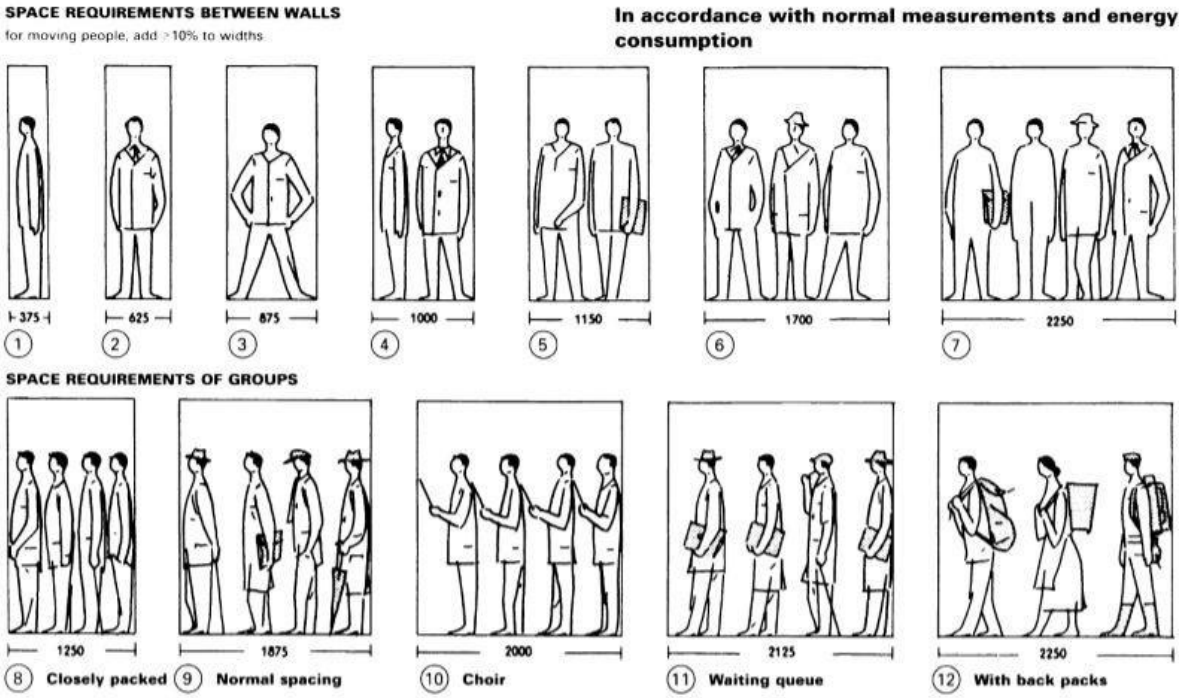
2.2.6.6 BUILDING BYE LAWS FOR MIXED USE BUILDING

The building by-laws for the mixed land use development in terms of minimum extent of land minimum width of the access road, ground coverage, FAR, parking, setback etc. is presented in the following Table.

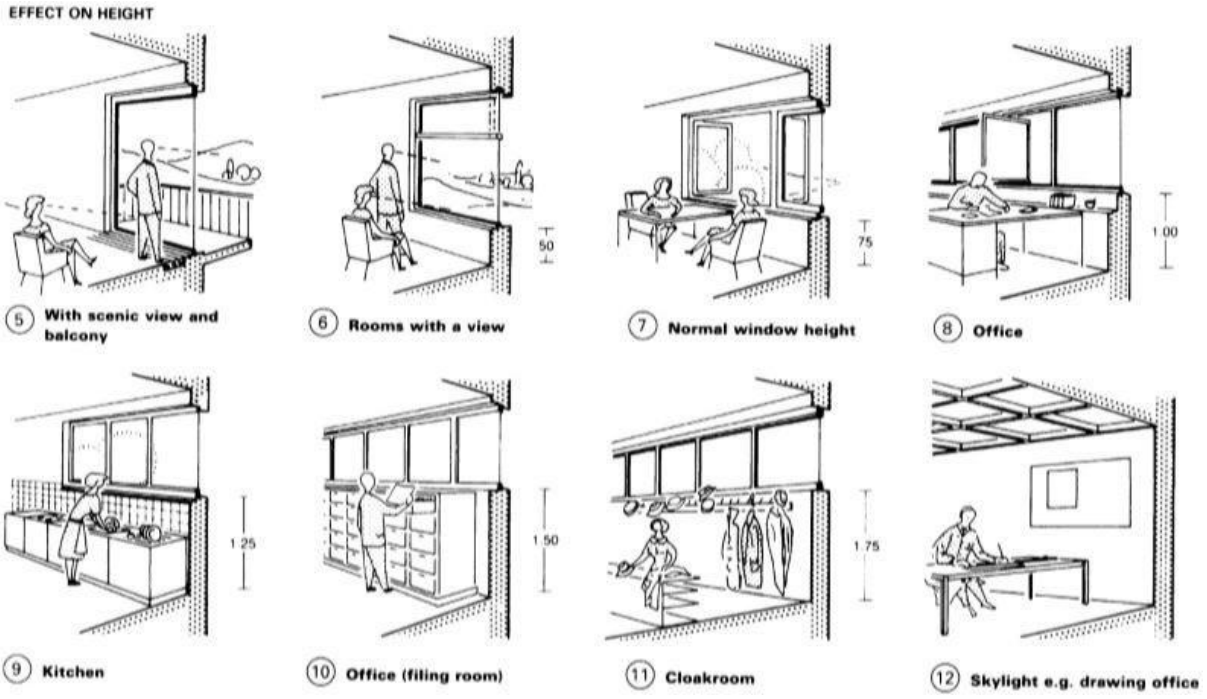
Development Parameters	Developed/ Built up Area(Only for Rehabilitation Schemes)	New/ Undeveloped Developed Areas
Minimum extent of land	4.0 ha	4.0 ha
Minimum width of Access Road	30m	30m
Ground Coverage	50%	40%
Basic F.A.R	1.5	2.0
F.A.R including the Sellable F.A.R	3.0	4.0
Set Back	As per prevailing Building by-laws	
Parking Norms	- 1.5 ECS for every 100 sq.m will be allowed. - For mixed vertical development, for evey residential unit, additional 2 sq.m area for cycle parking will be allowed.	

2.2.7 STANDARDS AND CONSIDERATIONS

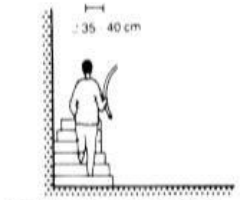
SPACE REQUIREMENTS



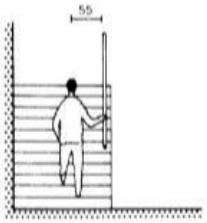
HEIGHT REQUIREMENT



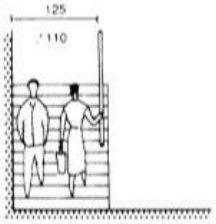
DETAILS OF STAIRCASE AND RAMPS



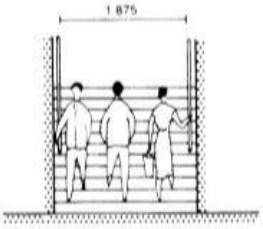
(10) If stairs are narrow or curved the distance of the line of walk to the outer string should be 35–40 cm



(11) If stairs are straight and wide the distance of the line of walk to the handrails should be 55 cm

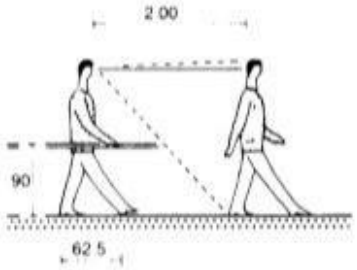


(12) Stair width allowing two people to pass

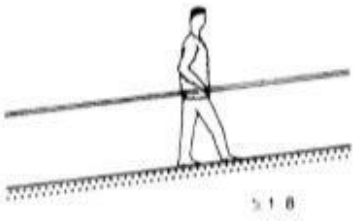


(13) Stair width allowing three people to meet and pass

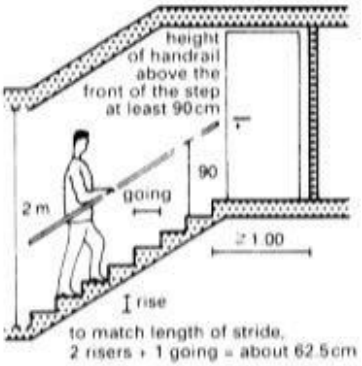
TYPES OF STAIECASE



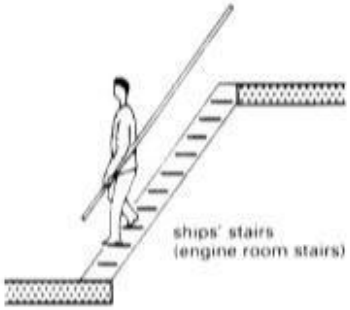
(1) Standard stride of an adult on a horizontal plane



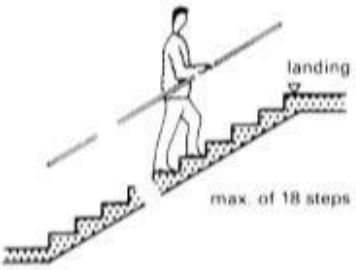
(2) On a ramp the stride is reduced proportionately (desirable slope 1:10–1:8)



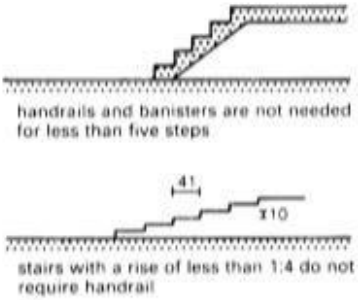
(3) Optimum rise-to-tread ratio 17/29



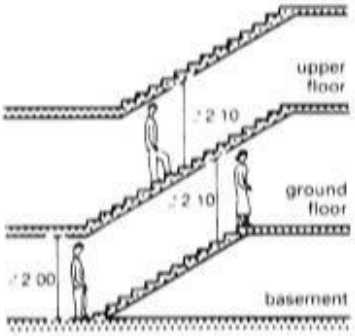
(4) Ladder stairs with a handrail



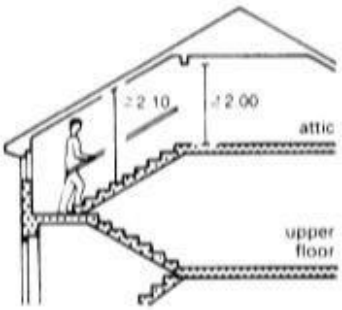
(5) Normal stairs 17/29; landing after a max. of 18 steps



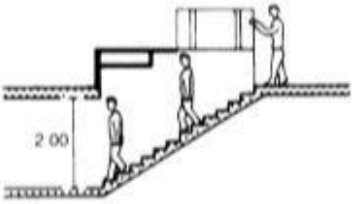
(6) Steps without a handrail



(7) Superimposed stairs save space

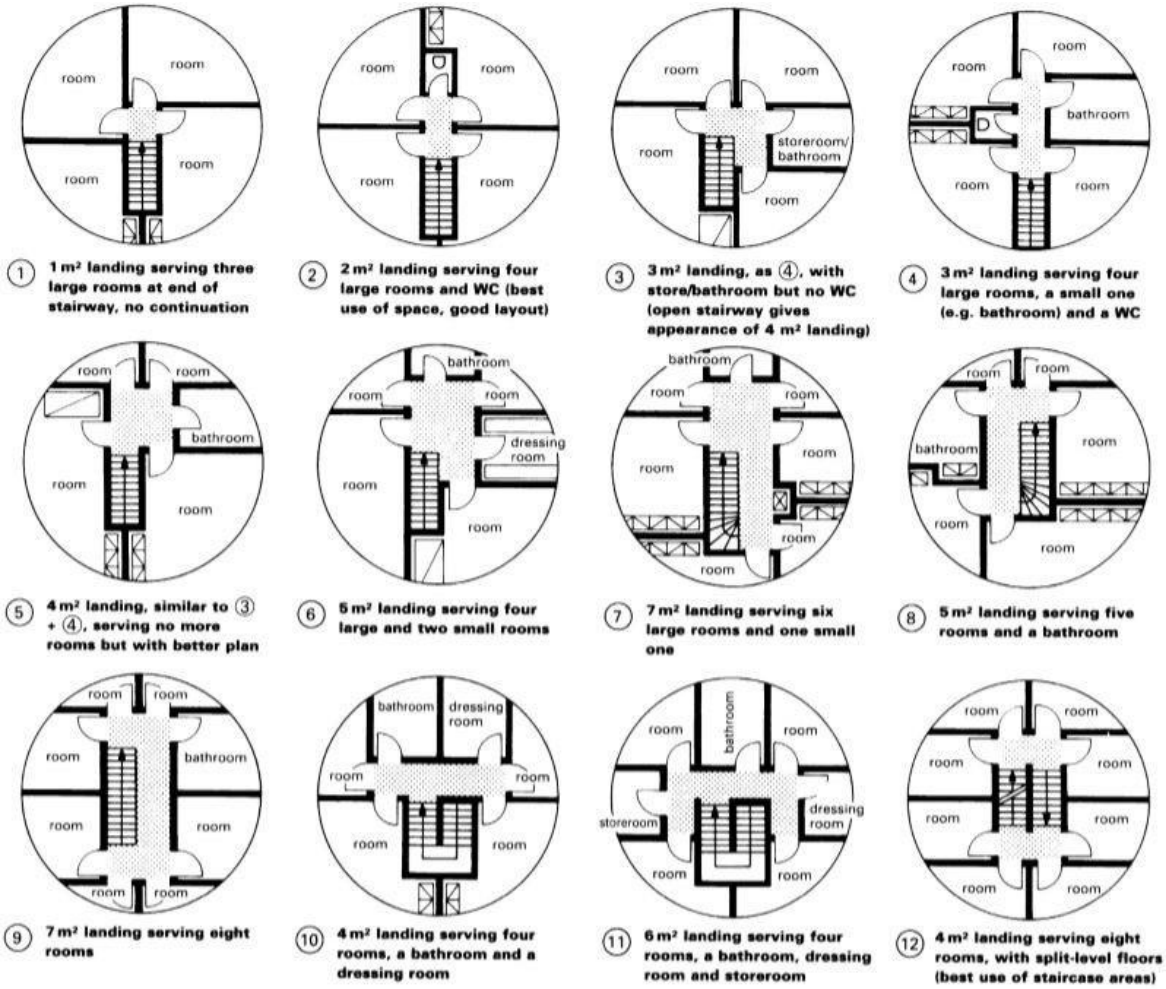


(8) Laying the rafters and beams parallel to the stairs saves space and avoids the need for expensive alterations



(9) Covered entrances to cellars and trapdoors should be avoided. However, this combination has advantages and is safe

TYPES OF LANDING



① 1 m² landing serving three large rooms at end of stairway, no continuation

② 2 m² landing serving four large rooms and WC (best use of space, good layout)

③ 3 m² landing, as ④, with store/bathroom but no WC (open stairway gives appearance of 4 m² landing)

④ 3 m² landing serving four large rooms, a small one (e.g. bathroom) and a WC

⑤ 4 m² landing, similar to ③ + ④, serving no more rooms but with better plan

⑥ 5 m² landing serving four large and two small rooms

⑦ 7 m² landing serving six large rooms and one small one

⑧ 5 m² landing serving five rooms and a bathroom

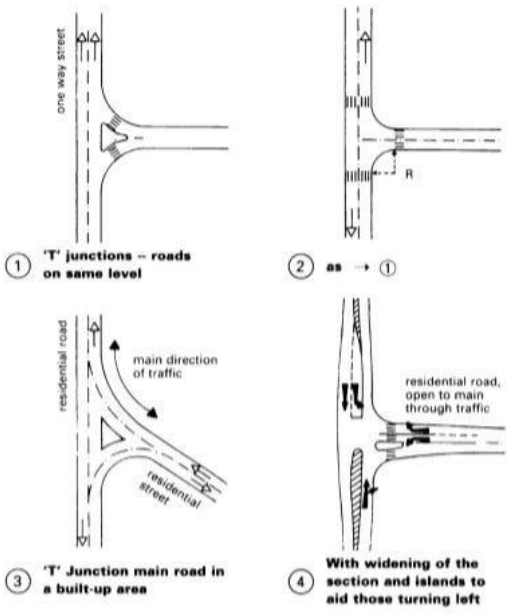
⑨ 7 m² landing serving eight rooms

⑩ 4 m² landing serving four rooms, a bathroom and a dressing room

⑪ 6 m² landing serving four rooms, a bathroom, dressing room and storeroom

⑫ 4 m² landing serving eight rooms, with split-level floors (best use of staircase areas)

TYPES OF ROAD JUNCTIONS



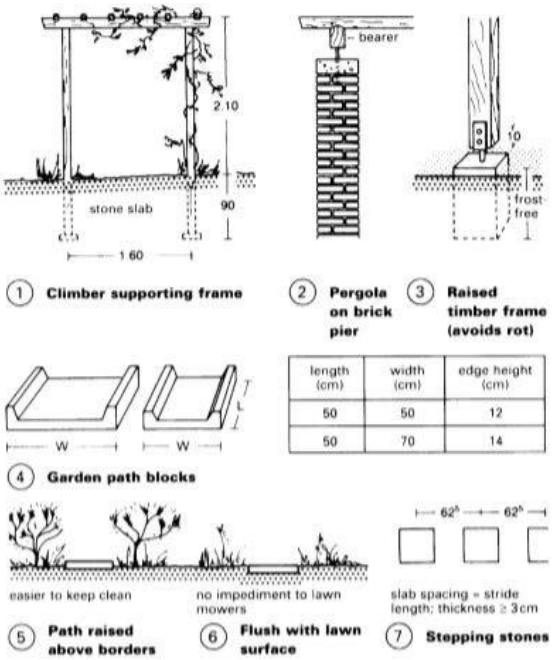
① 'T' junctions – roads on same level

② as → ①

③ 'T' Junction main road in a built-up area

④ With widening of the section and islands to aid those turning left

IDEA OF GREEN PATCHES



① Climber supporting frame

② Pergola on brick pier

③ Raised timber frame (avoids rot)

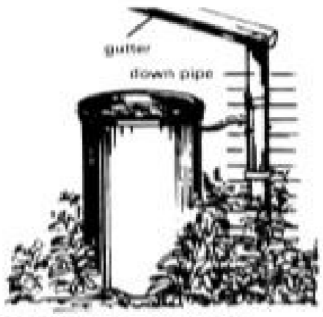
④ Garden path blocks

⑤ Path raised above borders

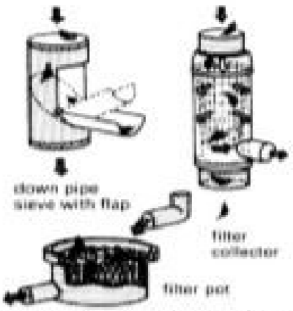
⑥ Flush with lawn surface

⑦ Stepping stones

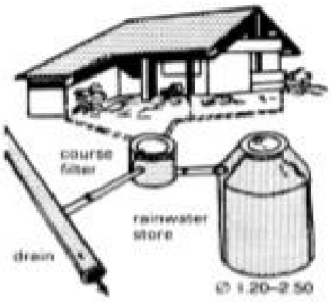
FUNCTION OF RAIN WATER HARVESTING



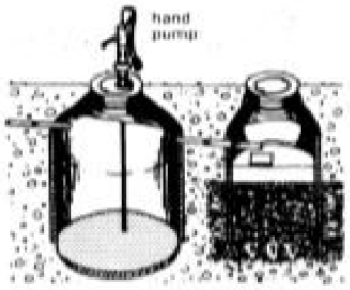
① Constant storage for watering (rainwater butt)



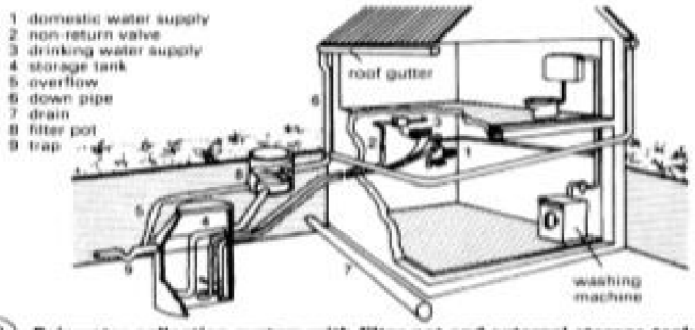
② Filter before the rainwater store



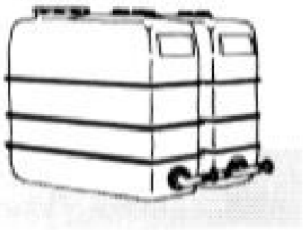
③ Eco rainwater storage up to 12 500 l



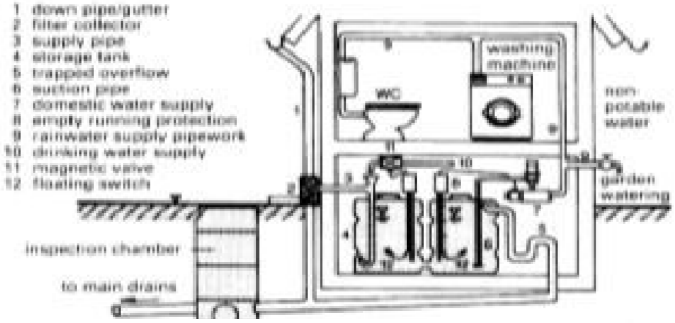
④ Rainwater storage with eco soakaway



⑧ Rainwater collection system with filter pot and external storage tank



capacity	length	width	height	weight
			1.33	53 kg
			1.00	81 kg
2000 l	2.05	12	1.64	130 kg

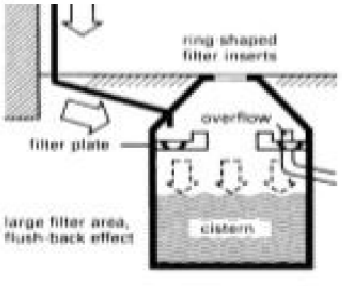


PARKING STANDARDS

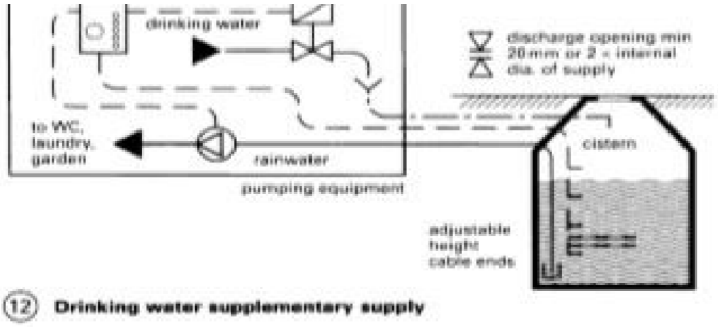
Table 1. Parking lot dimensions

Angle of Parking	Stall width	Curb length per car	Stall depth	Minimum driveway width	Lot width 1 row + 1 driveway	Sq ft per car	Lot width 2 rows + 1 driveway	Sq ft per car	Lot width 3 rows + 2 driveways	Sq ft per car	Lot width 4 rows + 2 driveways	Sq ft per car
Along curb = 0°	9′	23′	9′	12′	21′	483	30′	345	51′	391	60′	345
	10′	23′	10′	12′	22′	506	32′	368	54′	414	64′	368
30°	9′	18′	17′4″	11′	28′4″	510	45′8″	411	66′2″	397	83′6″	376
	10′	20′	18′3″	11′	29′3″	585	47′6″	475	68′0″	453	86′2″	431
45°	9′	12′9″	19′10″	13′	32′10″	420	52′8″	336	79′0″	376	98′10″	315
	10′	14′2″	20′6″	13′	33′6″	490	54′0″	383	80′4″	379	100′10″	358
60°	9′	10′5″	21′0″	18′	39′0″	407	60′	313	95′0″	330	116′0″	305
	10′	11′6″	21′6″	18′	39′6″	455	61′	351	95′6″	366	116′6″	335
90°	9′	9′	19′	24′	43′	387	62′	279	105′	315	124′	279
	10′	10′	19′	24′	43′	430	62′	310	105′	350	124′	310

Refer to Fig. 1.



⑦ In-flow filter



⑫ Drinking water supplementary supply

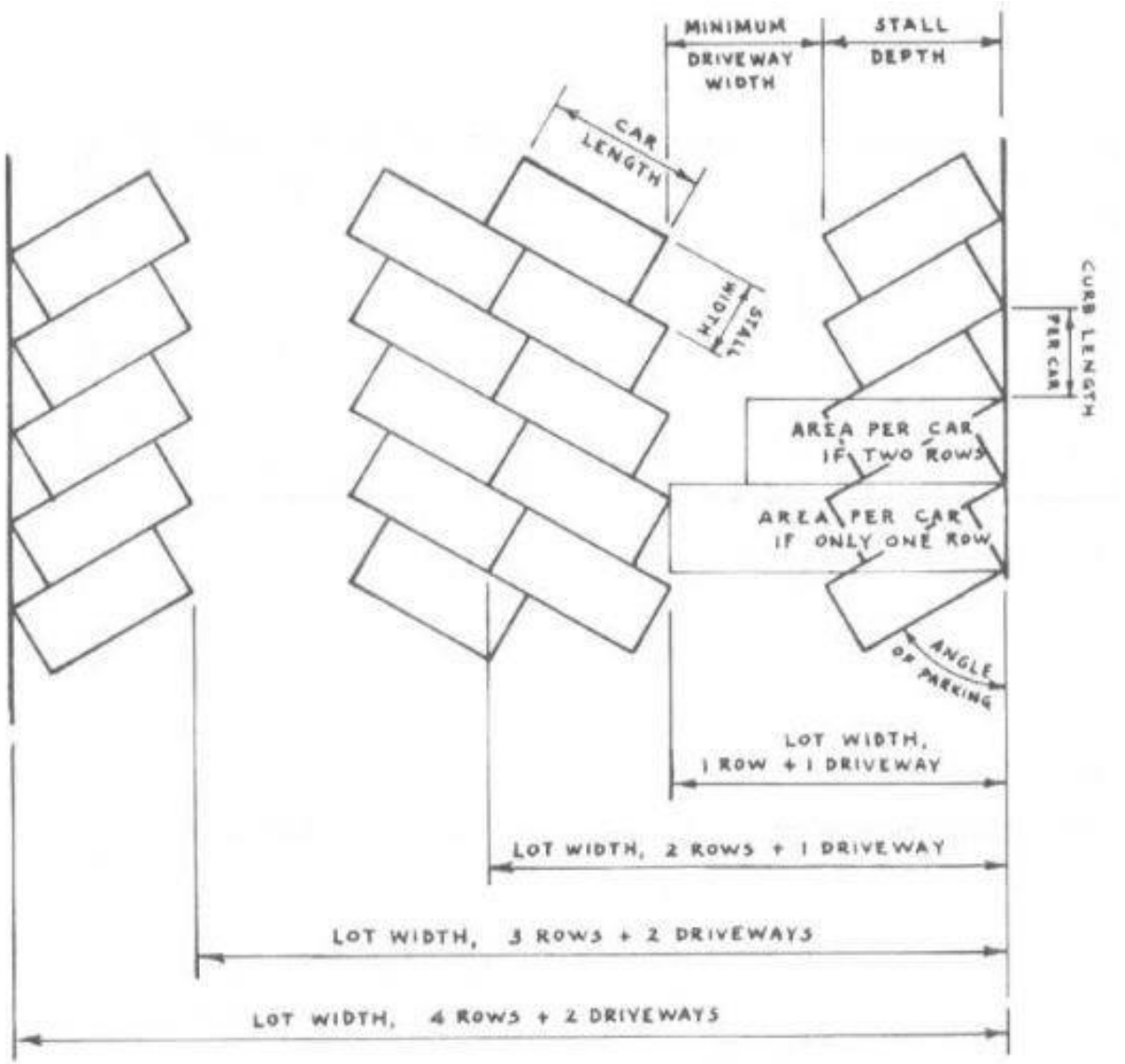
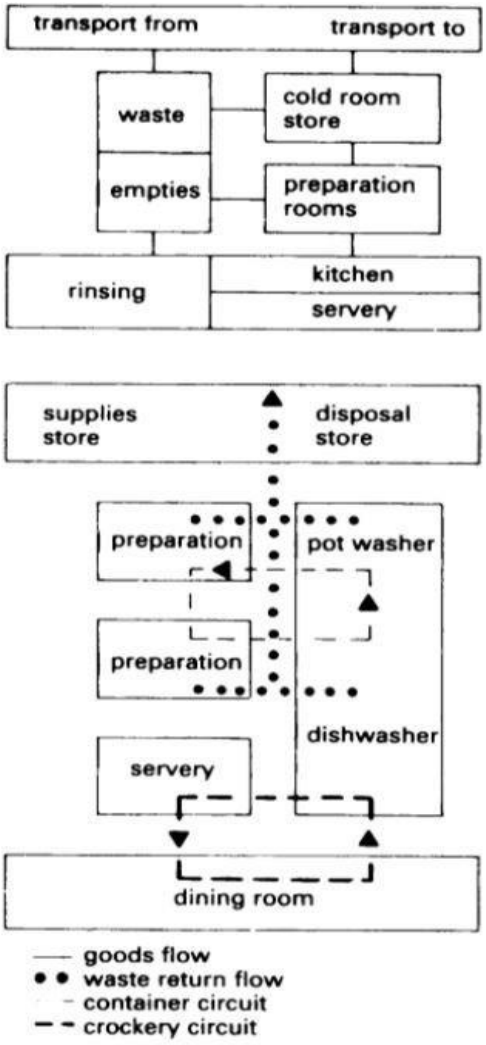
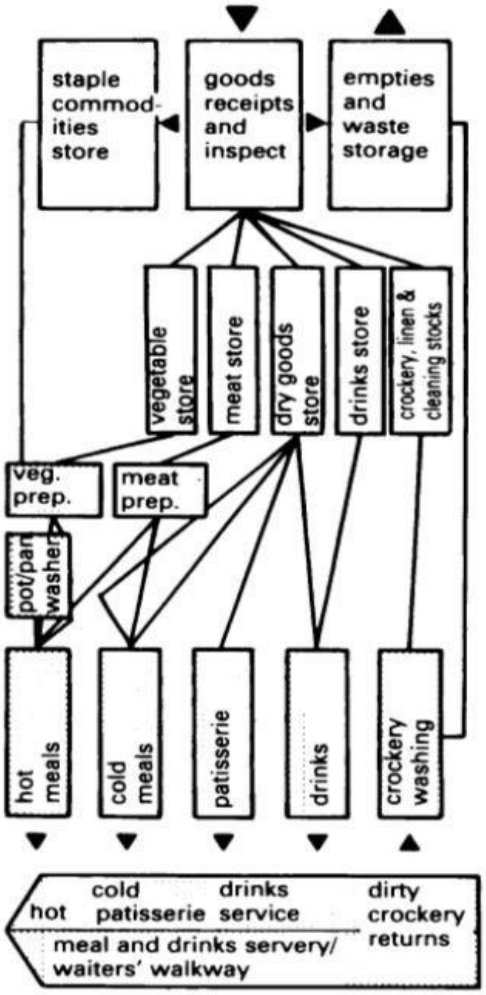

MINIMUM
DRIVEWAY
WIDTH
STALL
DEPTH
CAR
LENGTH
STALL
WIDTH
CURB LENGTH
PER CAR
AREA PER CAR
IF TWO ROWS
AREA PER CAR
IF ONLY ONE ROW
ANGLE
OF PARKING
LOT WIDTH,
1 ROW + 1 DRIVEWAY
LOT WIDTH, 2 ROWS + 1 DRIVEWAY
LOT WIDTH, 3 ROWS + 2 DRIVEWAYS
LOT WIDTH, 4 ROWS + 2 DRIVEWAYS

Fig. 1

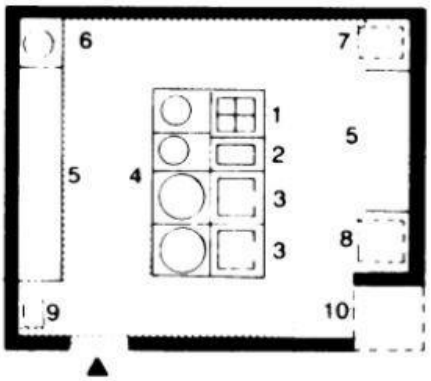
KITCHEN STANDARDS



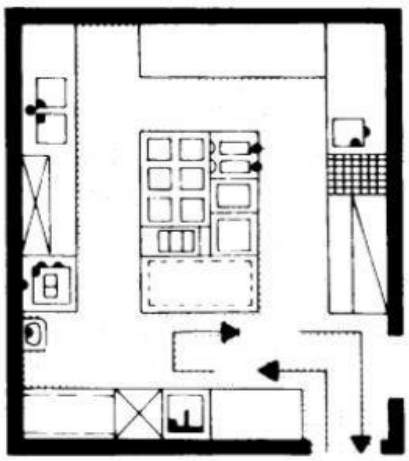
(1) Restaurant kitchen – function



(2) Restaurant kitchen – organisation



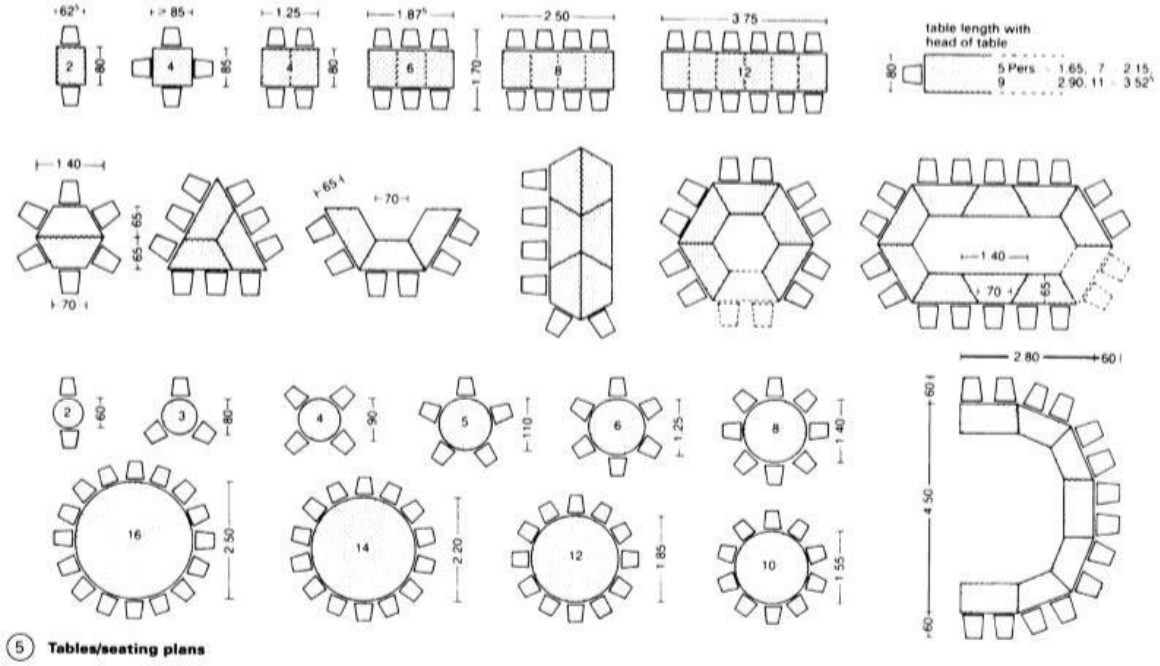
(1) Basic organisation of kitchen → (2) – (3)



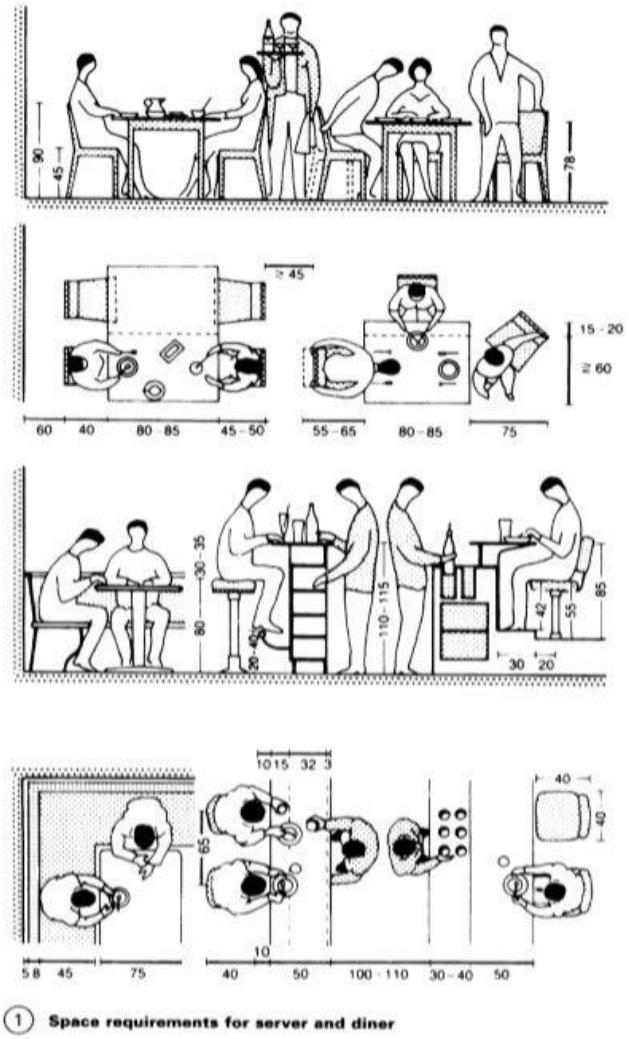
1. production in block

(2) Kitchen for restaurant with 60–100 seats

SEATING AREA STANDARDS

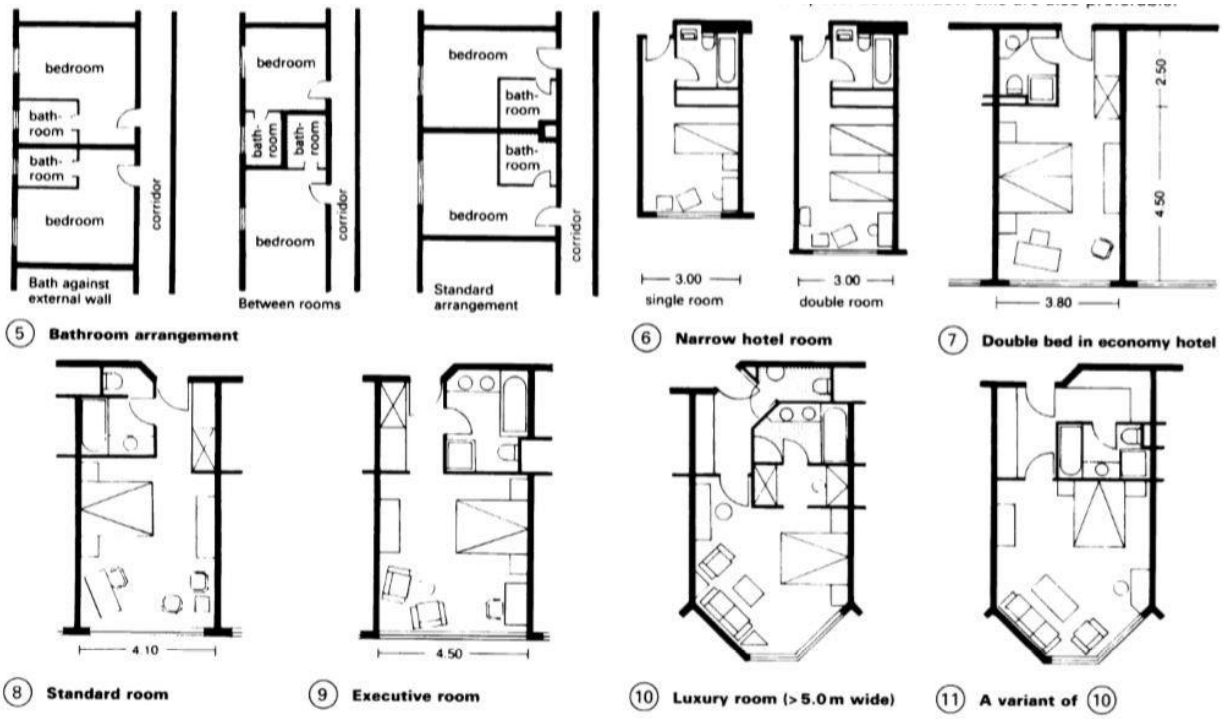


(5) **Tables/seating plans**



(1) **Space requirements for server and diner**

HOTEL ROOM STANDARDS



(5) Bathroom arrangement (6) Narrow hotel room (7) Double bed in economy hotel

(8) Standard room (9) Executive room (10) Luxury room (> 5.0 m wide) (11) A variant of (10)

2.2.8 CONCLUSION

The standards to be followed and the design consideration have been derived partially with the help of the first part of data collection. There will be intervention in the following elements of spaces:

- Space requirement for the calculation of capacity.
- Height of particular spaces according to their function and demand.
- Movement pattern inside the building.
- Form of structure.
- Segregation of spaces.
- Parking standards for the total number of parking slots.
- Functioning of rain water harvesting.
- Details of staircase, ramps and landings.

2.3 CASE STUDY

2.3.1 INTRODUCTION

Since there are large numbers of case studies of this project are available for Mixed-used building and for Transit oriented development both, even many number of live case studies are also available in India, but due to covid we are unable to do any live study. So all the case studies and part studies are done with the help of net only. I also get various pages like archdaily, urbandesignlab etc. where these case studies are available in detail. So I am able to get the things in detail.

The case studies which are done by me are of various scale, different type of mixes and different approach towards the design and I implemented some of the things in my design.

The study has to be conducted in parts depending on the data to be collected from each study which are as follows:

- **Seawoods grand central, Navi Mumbai**
- **Mantri square mall, Banglore**
- **Kadkadooma TOD project, New Delhi**
- **Nehru Place, New Delhi**
- **Cyber Hub, Gurugram**
- **Marine Gateway, Vancouver, Canda**

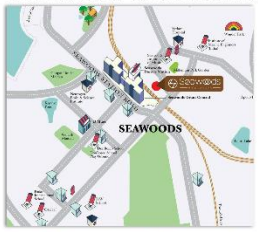
Two part studies are also done:

- **Supertech supernova, Noida, U.P**
- **Hudson Yards, New York City**

2.3.1.1 SEAWOODS GRAND CENTRAL AT NAVI MUMBAI

INTRODUCTION

Seawoods-Darave is a newely developed railway station on the Harbour line of the Mumbai Suburban Railway in the Nerul node.
It's being developed as Seawoods Grand Central by L&T Ltd. The Seawoods Grand Central complex has large office spaces, malls and entertainment area whch is likel to transform the image of the city. The entry/exit subway of the west side of the station is directly connected to Seawoods Grand Central. (source- author)



Location- Navi Mumbai
Architects- Hok USA, F+AArchitects USA
Total area- 40 acres
Mall- 4 floors- Area- 0.092 million sqm
Parking- 3 level basement parking
Offices- tower1 and tower2 - 11 floors
Area- 0.14 million sqm
(source- L&T Reality-Seawoods grand central report)

VIEW OF SITE

MASTER PLAN

SEAWOODS GRAND CENTRAL - NAVI MUMBAI

(source- L&T Reality-Seawoods grand central report)

MEASURES OF TODINESS

Seawoods is the first TOD project which has come up in Mumbai. The building uses inclue retail, offices, parking, entertainment, and a Railway station.
The development is inclusive of housing. (source- author)

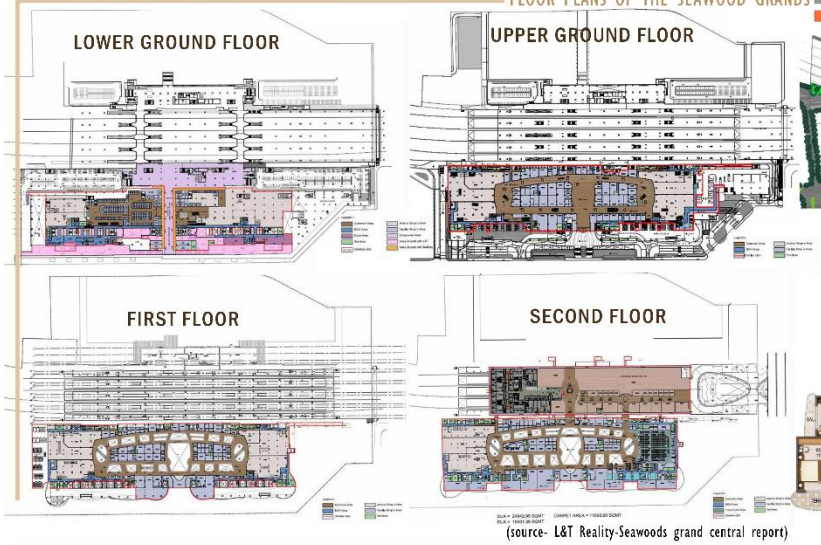
ENTRY/EXIT

Seawoods railway station has two enteries and exits, one from the main road and the other from lower ground level of the seawoods development.
Apart fron the ticketing the concourse consists of retail stores. The stairways on the sides lead to each platform as shown in Lower ground plan. (source- author)

SITE PLAN

(source- L&T Reality-Seawoods grand central report)

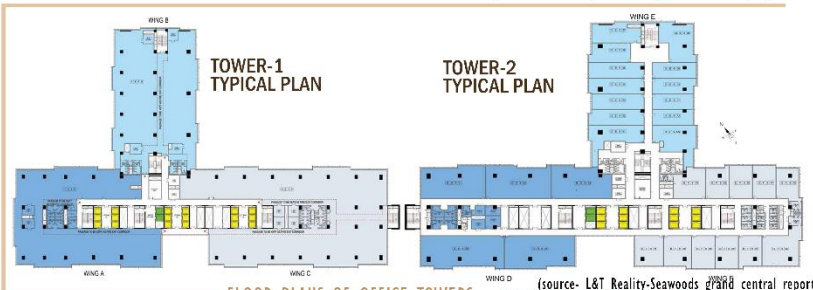
FLOOR PLANS OF THE SEAWOOD GRANDS



(source- L&T Reality-Seawoods grand central report)

(source- L&T Reality-Seawoods grand central report)

TYPICAL PLANS OF RESIDENTIAL BLOCKS



(source- L&T Reality-Seawoods grand central report)

FLOOR PLANS OF OFFICE TOWERS

THE MALL

The mall is naturally lit through atrium at various points. The atrium with glass roofing, which allows the circulation area to be used without artifical light during day time. (source- author)

MAIN ENTRANCE

The main entrance to upper ground level which leads to the mall. The entrance of the office towers are comepletely srgregated from the mall entrance. (source- author)

THE RAILWAY STATION

- Currently 2 railway lines operational with 234 trains per day.
- LTSPL to rebuild entire station and add 2 more lines.
- Current commuter flow of 65,000 people per day.
- Commuter flow projected to be 100,000 by 2022. (source- author)

2.3.1.2 MANTRI SQUARE MALL AT BANGLORE

MANTRI SQUARE MALL - BANGLORE

INTRODUCTION

Sampige road metro station has been constructed by Mantri Developers with the joint agreement of land. Mantri mall, Mantri centrium consisting of two towers- residenntial and commercial complex on either sides of the station. Sampige Road, officially named Mantri square Sampige Road, is a metro station on the Gree Line of Namma Metro serving the Malleswaram area of Banglore. (source- author)


(source- Mantri developers)

Location- Malleshwaram, Bangalore
Architects- MA Architects
Client- Mantri Developers, BMRCL
Station area- 1,77,885.10 sqm
Mall- 0.11 million sqm
Residential tower- 112.9 meters
Commercial tower- 100.85 meters
This project is a joint of BMRCL and Mantri Infrastructure and Private Limited.

(source- Mantri developers)
(source- Mantri developers report, MA Architects)


(source- Mantri developers report)

MEASURES OF TODINESS

The residence and commercial space is built right next the metro station with the idea that the building users will also depend on the metro as their primary mode of commute making it a Transit Oriented project.

ENTRY/EXIT (source- author)

- The Sampiage Square Road metro station has 2 entry/ exits.
- The main entrance is at ground level which is connected to the main road.
- The second entrance is from Mantri mall. There is a ticket counter at the bridge which connects the metro station to the mall. Metro is the primary mode of transport to access the shopping centre. (source- author)

MASTER PLAN

(source- Mantri developers)

VIEW OF SITE PLANS OF MANTRI SQUARE MALL

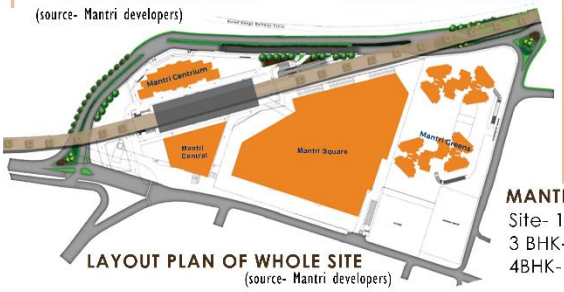
SITE PLAN


(source- Mantri developers)

(source- Mantri developers)

MANTRI SQUARE MALL

Total site area- 6.12 acres
Total retail area- 85,800 sqm
No. of floors- 5
Parking 1800 car parks 550 two wheelers
(source- author)



LAYOUT PLAN OF WHOLE SITE
(source- Mantri developers)

TYPICAL PLANS OF RESIDENTIAL BLOCKS


(source- Mantri developers)

MANTRI CENTRIUM- residential

Site- 1.16 acres
3 BHK- 3100 sq ft.
4BHK- 4490 sq.ft.
These apartments are nestled in total 180 units.
It has 4 level car parking with 34 floors in each apartment within 2 wings.
(source- author)

2.3.1.3 KADKADOOMA T.O.D PROJECT AT NEW DELHI

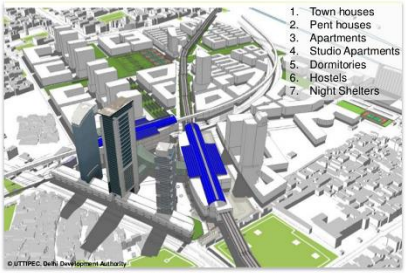
KADKADOOMA T.O.D PROJECT - DELHI

INTRODUCTION

East Delhi Hub conceptualized to be a new Transit Oriented Development that imbibes the core values of a sustainable "Smart City". As a pilot project that experiments with the new TOD policy drafted by DDA, our approach was to incorporate an "organic density" that introduces extensive vertical mixed-use development to tackle the issue of high density and ensure 24-hours active, safer spaces. This includes commercial, residential, medical, and recreational facilities and an iconic 100 storey LEED platinum rated tower that will be a new landmark in Delhi.

(source- UTTIPEC, DDA)

(source- UTTIPEC, DDA)



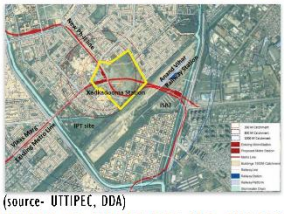
Location- Kadkadooma,
New Delhi, India
Total area- 74 acres
Builtup area- 15 million sq.ft.

(source- UTTIPEC, DDA)

(source- UTTIPEC, DDA)

MASTER PLAN

SITE PLAN

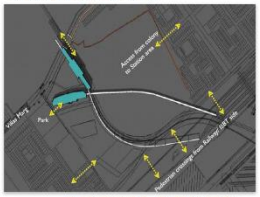


(source- UTTIPEC, DDA)

Area Statement

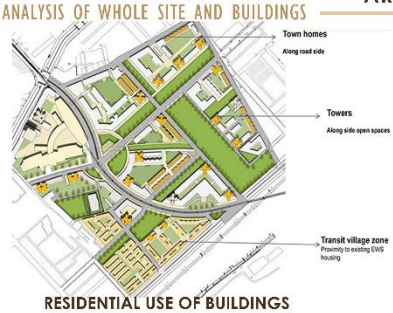
	Approx. Land Area	
	Area [Sq. M]	Area [Ha]
Overall DDA Land Area as per survey dt.2012 (to be re-verified by lands dept.)	2,99,469	29.95
Land north of Vikas Marg (to be retained as bus terminal as per previous layout plan	1,170	0.12
Existing G.D. Goenka School	6,295	0.63
Primary School Plot for Vikramshila Society (allotted vide TC decision dt. 17.02.2014)	4,200	0.42
Developable Site Area for comprehensive TOD Scheme:	2,87,804	28.78
Land Area under Mixed-Use Blocks 54%	1,53,185	15.32
Land area under utilities 4%	11,113	1.11
Land under roads and circulation (incl. pedestrian only streets) 22%	64,560	6.46
Land area under green/ recreational Area 20%	58,945	5.89

AREA STATEMENT

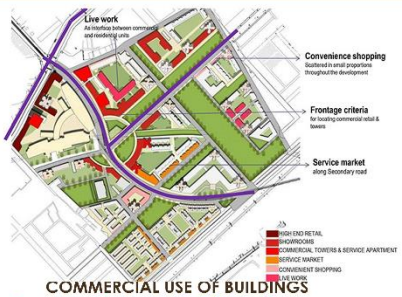


ACCESS POINTS

ANALYSIS OF WHOLE SITE AND BUILDINGS

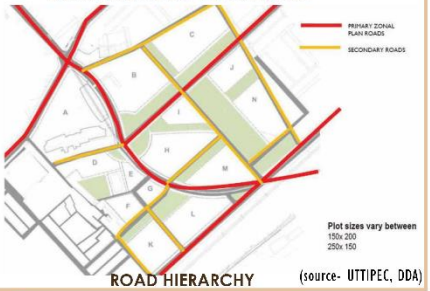


RESIDENTIAL USE OF BUILDINGS



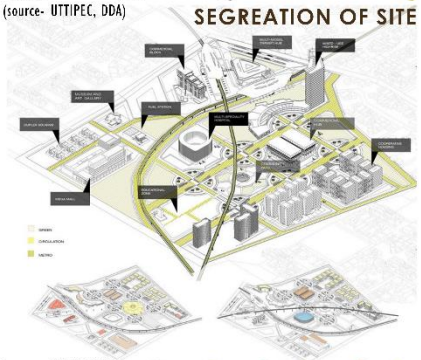
COMMERCIAL USE OF BUILDINGS

CIVIC USES OF BUILDINGS



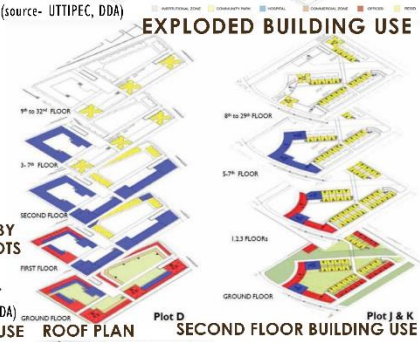
ROAD HIERARCHY

(source- UTTIPEC, DDA)

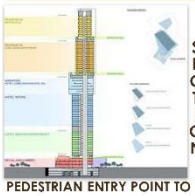


SEGREATION OF SITE

(source- UTTIPEC, DDA)



EXPLODED BUILDING USE



PEDESTRIAN ENTRY POINT TO THE RESIDENTIAL BLOCK

CONNECTIVITY WITHIN BLOCKS

PARKING

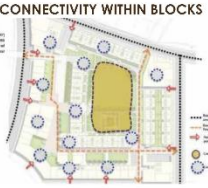
SEGREGATION OF THE WHOLE SITE AND NEARBY IMPORTANT SPOTS WHICH ARE FAMILIER TO US.

(source- UTTIPEC, DDA)

GROUND FLOOR BUILDING USE

ROOF PLAN

SECOND FLOOR BUILDING USE



2.3.1.4 NEHRU PLACE AT NEW DELHI

INTRODUCTION

Nehru Place is a large commercial, financial, and business centre in Delhi. Nehru place is s prominent commercial area in south Delhi and houses the headquaters of several Indian firms.Today it is one of the Asia's largest IT hubs. Nehru place is a confluence of informal and corporate labour, bringing 1,30,000 peoples daily.

(source- UTTIPEC, DMC)

Location- Nehru Place
New Delhi, India
Total area- 93 acres
Builtup area- 580000sqm.
Client- Delhi Muncipal Corporation.
Parking- 9530 cars
(source- UTTIPEC, DMC)

NEHRU PLACE - NEW DELHI

EXISTING CONDITION OF THE NEHRU PLACE

PROPOSED BUS TERMINAL AND OFFICE PLACE

EXISTING PLAN

AREA STATEMENT

OFFICE COMPLEX AREA:
1,70,000 sqm

TOTAL FORMAL RETAIL AREA:
12,877.81 sqm

TOTAL INFORMAL RETAIL AREA:
9,900.281 sqm

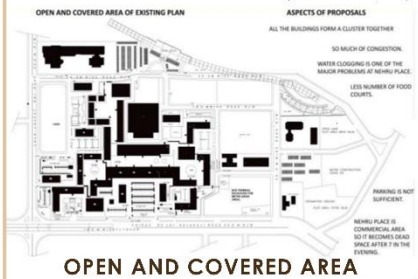
CORE OFFICE COMPLEX AREA:
1,40,000 sqm
Max. height= G+8

Commercial centre including service industries 62 acres, work cum industrial centre 17 acres, and goverment offices 14 acres.
Functioned more as regional, commercial, financial and business centre. (source- UTTIPEC, DMC)

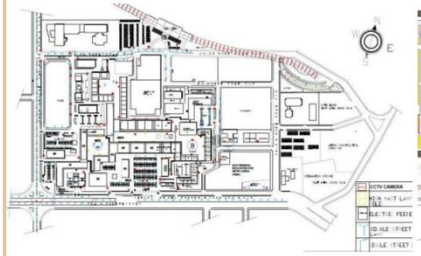
PEDESTRIAN AND THE ROAD LINKAGES ON SITE

ANALYSIS OF WHOLE SITE AND BUILDINGS

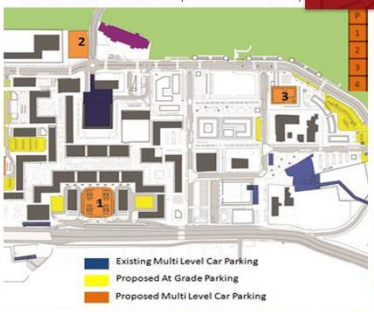
(source- UTTIPEC, DMC)



OPEN AND COVERED AREA
(source- UTTIPEC, DMC)



SERVICE PLAN
(source- UTTIPEC, DMC)

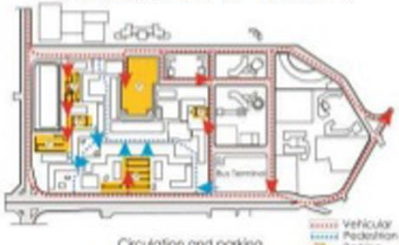


SEGREGATION OF PARKING

LAYOUT AND THE SEGREGATION

SITE PLAN
(source- UTTIPEC, DMC)

SITE ZONING
(source- UTTIPEC, DMC)



CIRCULATION AND PARKING

BUILT FORM
(source- UTTIPEC, DMC)

2.3.1.5 CYBER HUB AT GURUGRAM

INTRODUCTION

DLF CYBER HUB is a premium socializing zone, part of the corporate park, DLF cyber city which is considered one of the largest hubs of IT activity in Delhi-NCR, catering to over 2.5 lakh employees. The site is long and linear with multiple entrances and three levels to cater to an average footfall of 25,000. Cyber Hub not only caters to the people working in corporate business hubs in the vicinity but also to the catchment in and around Gurgaon. Besides being a food and entertainment area, it also hosts art and culture shows, media launches, displays, lifestyle shoots, TV programmes.

(source- archdaily and cyber hub report)

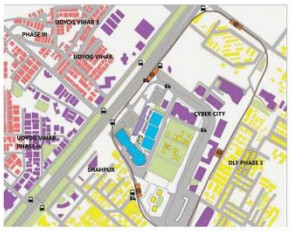
CYBER HUB - GURUGRAM

(source- archdaily and cyber hub report)

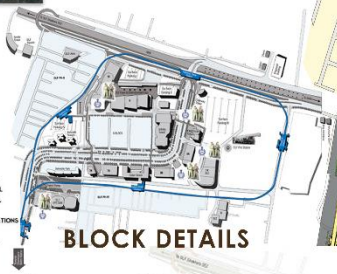
Location- Gurugram
Architects- M.Paul friedberg and patners+Hafeez Contractor + AWA lighting designers
Total area- 21 acres
Builtup - 4,00,136sqm
F.A.R- 3.75
Ground coverage- 39,332 sqm
Developers- DLF
(source- archdaily and cyber hub report)

SITE PLAN

(source- archdaily and cyber hub report)



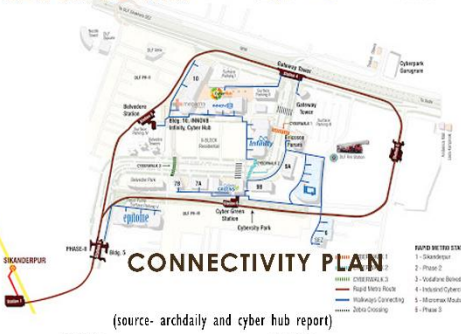
LAND USE PLAN



BLOCK DETAILS

MASTER PLAN

Cybercity Park



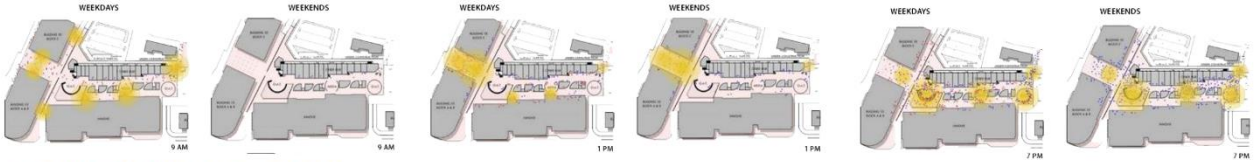
CONNECTIVITY PLAN

(source- archdaily and cyber hub report)

SITE ZONING

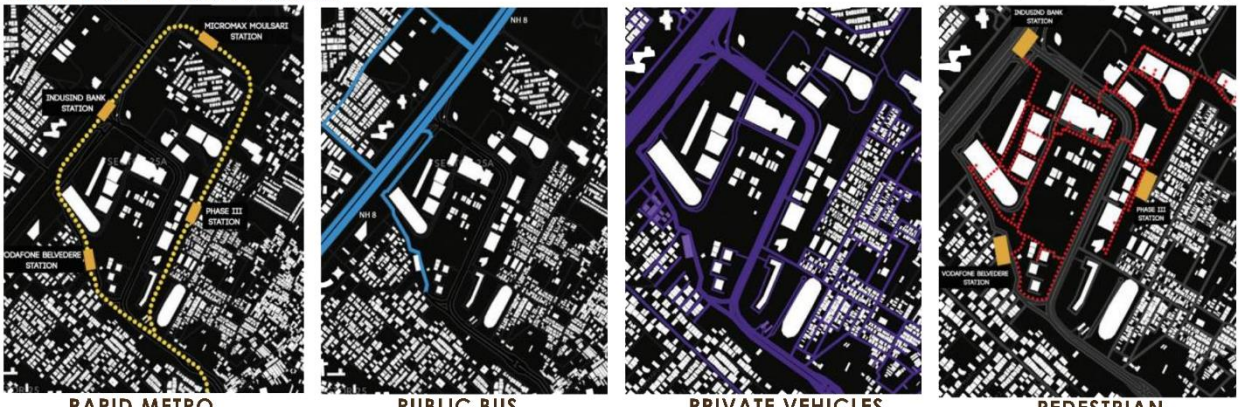
(source- archdaily and cyber hub report)

ACTIVITY PATTERN



(source- archdaily and cyber hub report)

CONNECTIVITY AND ACCESS



RAPID METRO | PUBLIC BUS | PRIVATE VEHICLES | PEDESTRIAN

(source- archdaily and cyber hub report)

2.3.1.6 MARINE GATEWAY AT VANCOUVER CANADA

MARINE GATEWAY, VANCOUVER - CANADA

INTRODUCTION

Vancouver that has reinvented the concepy of transit-oriented development (TOD) to one that is transt-integrated. Unlike typical TODs that are designed around or near a central Transit hub, Marine Gateway seamlessly integrates a transit hub into the design of the community itself, creating convenient access. (source- Archdaily)

Location- Vancouver, C.C, Canada
Architects- Perkins+Will
Buliding uses- Retail, Office, Residential, Metro station.
(source- Archdaily)

ABOUT DESIGN

The first phase of a larger development Marine gateway is comprised of two neighbourhood plazas, 15 storeys of office space, a 3 storey retail podium an 11-screen cinema and two residential towers at 25 and 35 storeys. Integral to the design is the integration of a Rail Rapid Transit station and bus loop exchange that provides convenience of mobility for residents, workers, shoppers and visitors (source- Archdaily)

HIGH STREET

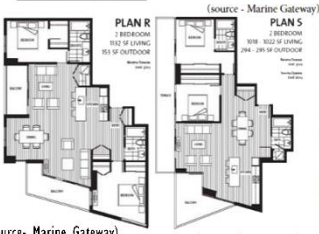
The project focuses around a pedestrian dedicated 'high street that offers retail, entertaiment, and convenience shopping.
- The design of the high street and public plazas were one of the most important aspect to the projects sucess by bringing people into pedestrian enviroment and into retail spaces.
- It also has green roofs and parks foe pedestrian. (source- Archdaily)
- By providing a clear connection from transit to the neighbourhood's major throughfare. (source- Archdaily)

LEVEL-2 FLOOR PLAN

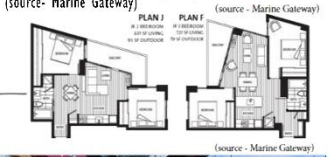
(source- Marine Gateway)

LEVEL-3 FLOOR PLAN

TYPICAL PLANS OF RESIDENTIAL BLOCK

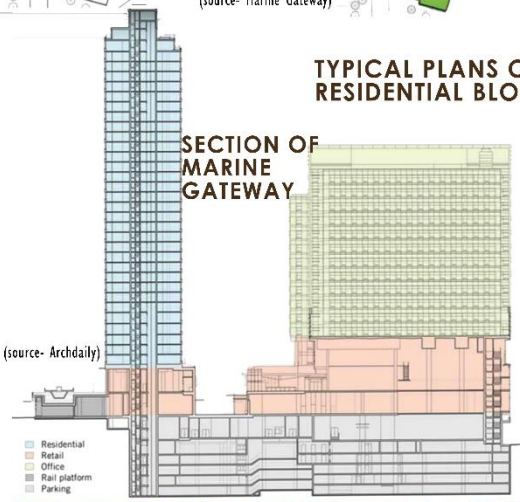


(source - Marine Gateway)



(source- Marine Gateway)
(source - Marine Gateway)
(source - Marine Gateway)

SECTION OF MARINE GATEWAY



(source- Archdaily)

SPACE BETWEEN TWO TOWERS

ENTRANCE OF MARINE GATEWAY

WALKWAYS FOR PEDESTRIANS

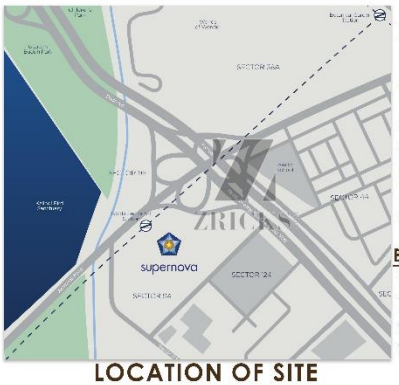
ENTRANCE PRICENT

2.3.1.7 SUPERTECH SUPERNOVA AT NOIDA

SUPERTECH SUPERNOVA - NOIDA

INTRODUCTION

Supernova - a new mixed-use development of unimaginable scale and splendor. This supreme arena redefines luxury and places modern comvenience and green living at the nerve centre of NCR. This oioneering LEED platinium certified mixed-use development featues five breathtaking towers rising from the banks of meandeing Yamuna River, appearing in perfect harmony thanks to the flowing curve and shining facades of the design.



Location- Sector 94, Noida, Uttar Pradesh
Architects- London based architect, Benoy.
Construction- Supertech
Site Area- 70002 sq.m.
No. of Towers- 05 towers
No. of units- 2765 units
Status- 60% completed

Building Material

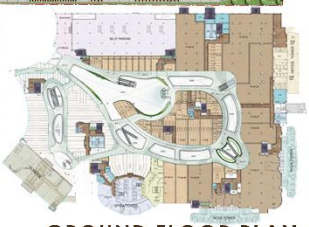
Frame stucture, Pile foundation, M50 -M80 grade of concrete in used in the whole structure.

LOCATION OF SITE

SITE PLAN

MASTER PLAN

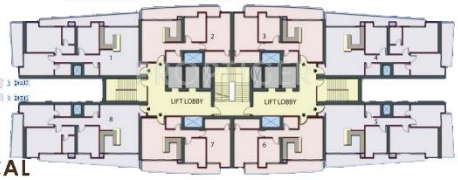
FIRST FLOOR PLAN



GROUND FLOOR PLAN

LAYOUT PLAN

DETAIL PLAN

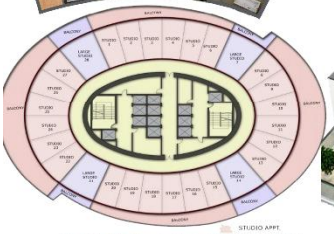


Villa plans
LVL= 58-66

LUXARY TYPICAL LAYOUT

TYPICAL PLAN RESIDENTIAL TOWERS

RESIDENTIAL NOVA EAST AND WEST TOWERS



STUDIO APARTMENT TOWERS

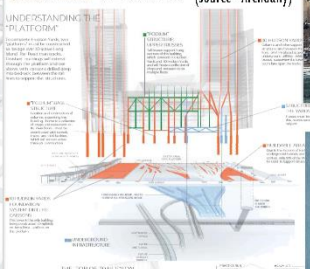
TYPICAL LAYOUT OF STUDIO

2.3.1.8 HUDSON YARDS AT NEW YORK CITY

INTRODUCTION

Hudson yards is unlike anything ever built before - a living, breathing that champions first to New York experience. Built from the ground up it's a triumph of culture, commerce and cuisine. Aplace to live, work and play. (source- Archdaily)

Location- New York City
Architects- PKPF (Kohn pedersen Fox Associates), David Childs/ SOM (Skidmore Owings and Merrill).
Construction- Tishman Construction Tutor Perini
Site Area- 24 acres (source- Archdaily)



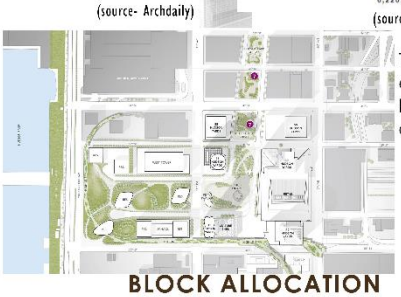
LAYOUT OF SITE (source- Archdaily)

DIVISION OF PHASES

DIVISION IN THE TOWER AND ACTIVITY SEGREGATION

(source- Archdaily)

USE MAPPING PLAN

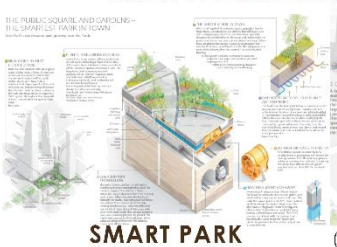


BLOCK ALLOCATION

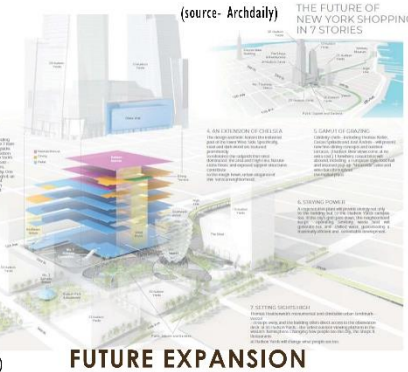
ROAD LAYOUT PLAN

This site has diverse nature because it is a combination of various programes like commercial which is eastern phase 1 and hospitality and institutional which is phase 2. On an whole this is the core point of the whole city.

(source- Archdaily)



SMART PARK (source- Archdaily)



FUTURE EXPANSION

HUDSON YARDS - NEW YORK CITY

(source- Archdaily)

WESTERN YARD		EASTERN YARD			
Office	2,000,000	10 Hudson Yards	1,800,000	Retail Pavilion	50,000
Residential	4,000,000	30 Hudson Yards	2,600,000	Hotel	220,000
Retail	100,000	50 Hudson Yards	2,900,000	Residential	1,870,000
School	120,000	55 Hudson Yards	1,300,000	The Shed	200,000
	6,220,000 SF	The Shops & Restaurants	1,000,000		11,940,000 SF

(source- Archdaily)

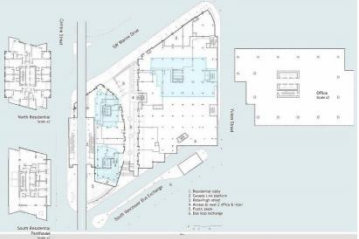
SITE PLAN

This site is going to be developed in two phases eastern yard phase-1 and western yard phase-2 From which eastern yard is already developed and functioned and phase 2 is still ongoing.

(source- Archdaily)

2.3.2 CASE STUDY MATRIX WITH PARAMETERS

PARAMETERS	SEAWOODS GRAND CENTRAL	MANTRI SQUARE MALL	KADKADOOMA, NEW DELHI
LOCATION	Navi Mumbai, India	Maileshwaram, Banglore,India	New Delhi, India
YEAR OF COMPLETION	Phase-1 (2018), Phase-2 (2019)	March, 2014	Phase-1 (2015), Phase-2 (ongoing)
ARCHITECT	Hok USA,F+AA Architect,USA	MA Architects	C.P Khukreja Architects
SITE AREA	40 Acres	56 Acres	74 Acres
BUILTUP AREA	4.8 lakh sqm	1.5 million sq ft.	15 million sq ft.
NO. OF FLOORS	11 floors	34 floors	42 floors
ENTRY	Primary entrance- Main road, Secondary entrance- Railway station and Tertiary entrance- Elevated road.	Primary entrance- Main road, and Secondary entrance- Metro station.	Primary entrance- Main road, Secondary entrance- Metro station, and Tertiary entrance- ISBT station.
CONNECTIVITY	Metro station is connectedby the ramp on the ground floor and from staircase from lower ground floor.	Metro station is connected with the mall by the bridge at first floor.	Metro station is connected with the main road between this complex and the metro station.
PLANNING	Mall on the first 4 floors with offices in the towers, station is on the ground floor with access from basement and ground floor. 	Dedicated buildings for mall, resident apartments and commercial complex with dedicated acess points on ground level. 	This complex consists of commercial hub, Handicraft market, residential apartments, Sports hub, Mega mall, museums and art galleries, hospital. with dedicated acess points on ground leve 
CIRCULATION	Dedicated service core with common lobby for office users, no overlapping and confusion.	Multiple vertical circulation points planned inside each building with dedicated acess points on the ground level.	Service core of every block is segregated because the use is within the complex not within the building.
ZONING	Offices and mall are alined together with the railway station towards the backside of the development.	Metro station is located in the centre with the mall, apartments and commercial complex to mall	Road pattern is made in the grid pattern and along that the individual buildings are being placed.
CHARACTER OF BUILDING	Unified design elements for mall, office and railway station, glass being the main material used.	Building material and design are different for mall, metro station and apartment building.	Building are design and placed in the site in such a way that the site plans looks organised and clean.
FORM	High rised towers shows verticality with the mall spead in a linear manner horizontally.	Form of each building is different from the other spead more vertically than horizontally.	Form of each building is different from the other spead more vertically than horizontally especially residential part.
ACTIVITY AND OPEN SPACES	Shopping and offices are the most commonly used spaces. Building specific activities with absence of open spaces.	Shopping being the main activity, the mall has an open seating and circulation space at the entrance.	Landscape being the main focus factor and the grren pockets are much organised and compliments each other.
SERVICES	Scattered within the building.	Separate block and scattered within the building.	Separate blocks with different uses.
MATERIALS USED	Brick, glass, concrete, steel and double skin facade.	Brick, glass, concrete, steel and building facade is covered with brown stone.	Brick, glass, concrete, steel and buildings which is covered with full glass.
FACILITY STATEMENT	Commercial, retail, railway, public green spaces, offices.	Commercial, retail, metro, public green spaces, mall, clock tower.	Commercial, handicraft retails, residential, sports hub, mega mall, museums, art gallery and hospital.
PARKING	On site parking 800 cars.	On site and basement 9530 cars.	Basement in 3 levels with 1700 cars.
VEGITATION	Small heighted planters and green patches in the public spaces.	Small heighted planters with less vegitation and tress on the periphery.	Open green spaces.
LAND USE	Mix Land Use	Mix Land Use	Mix Land Use

PARAMETERS	NEHRU PLACE	CYBER HUB	MARINE GATEWAY
LOCATION	New Delhi, India	Gurugram,India	Vancouver, Canada
YEAR OF COMPLETION	1980's	March, 2013	2015
ARCHITECT	Vinay Gupta and Architects	M. Paul Friedberg and patners	Perkins + Will
SITE AREA	93 Acres	25 Acres	74 Acres
BUILTUP AREA	580000 sq.m.	4,00,136 sq.m.	15 million sq ft.
NO. OF FLOORS	6 floors	17 floors	36 floors
ENTRY	Entry in the site is from the main road.	Entry in the site is from the main road.	Primary entrance- Main road, Secondary entrance- Metro station.
CONNECTIVITY	Metro station and bus terminal is connected with the main road and internal roads	Metro station is connected the main road and then to the site which has a direct access through road.	Metro station is connected with the main road between this complex and the metro station.
PLANNING	This whole complex consists of offices, commercial building, public services, bus terminal, metro station, plazas all have the different individual buildings 	Dedicated buildings for mall, resident apartments and commercial complex, recreational with dedicated acess points on ground level. 	This complex consists of commercial hub, residential and ofiice building. In the front part retial and office is there and on the back side of the site residential tower is placed. 
CIRCULATION	Dedicated service core with common lobby for office users, no overlapping and confusion.	Multiple vertical circulation points planned inside each building with dedicated acess points on the ground level.	Service core of every block is segregated because the use is within the complex not within the building.
ZONING	All blocks with different activites are placed in the site, every block has different activity program.	Metro station is located in the left of the site and has direct access to parking first then to the whole site.	After the evaluation of form the road layout is being liad on the whole site.
CHARACTER OF BUILDING	Unified design elements for mall, office and railway station, glass being the main material used.	Building material and design are different for mall, metro station and apartment building.	Building are design and placed in the site in such a way that the site plans looks organised and clean.
FORM	Form of each building is different from the other spead more vertically than horizontally.	High rised towers shows verticality with the mall spead in a linear manner horizontally.	Form of each building is different from the other spead more vertically than horizontally especially residential part.
ACTIVITY AND OPEN SPACES	Shopping and offices are the most commonly used spaces. Building specific activities with absence of open spaces.	Office spaces being the main activity in the site wwith the variation in the category of offices.	Residential and office becomes the most important spaces and retail on both the towers which are used by the residents and staffs.
SERVICES	Scattered within the building, with separate blocks on site.	Separate block and scattered within the building.	Two blocks in which both have retail, residential in one and office in other.
MATERIALS USED	Brick, glass, concrete, steel and double skin facade.	Alternating nature of large glass facades. Lower floors respond to human scale.	Brick, glass, concrete, steel and buildings which is covered with full glass.
FACILITY STATEMENT	Commercial, retail, residential, public green spaces, offices.	Commercial, retail, metro, public spaces, recreational, residential.	Commercial, residential and offices.
PARKING	On site parking 9530 cars.	3 basement with 7800 cars	Basement in 5 levels with 10,000 cars.
VEGITATION	Small heighted planters and green patches in the public spaces.	Extremely active because of F&Bs	Open green spaces.
LAND USE	Mix Land Use	Mix Land Use	Mix Land Use

2.3.3 COMPHREHENSIVE ANALYSIS OF CASE STUDIES: OBSERVATION AND INFERENCES

SEAWOODS GRAND CENTRAL - NAVI MUMBAI

MANTRI SQUARE MALL -BANGLORE

KADKADOOMA -NEW DELHI

NEHRU PLACE -NEW DELHI

CYBER HUB -GURUGRAM

MARINE GATEWAY -CANADA

STUDY OBJECTIVES

- To understand the zoning and the space allocation.
- To know the basic layout.
- No. of Entry/Exit because they play very important role.
- To understand the orientation of building.
- To know the entrance nodes.
- The connectivity made between mall and the metro station.
- To understand how the site is being segregated with such large program.
- To understand the grid pattern of the road, which is find intresting in this project.
- To understand how the office spaces is being prioritized.
- To understand how the place as a whole amalgamates with the enviroment and the surroundings.
- To understand how the activites around the site like connectivity and access nodes.
- To know the functioning of the spaces with the help of time.
- To understand the vertical zoning of huge structures and the activity alocation.
- To know the area distribution according to the need and privacy.

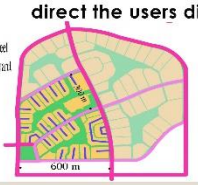
OBSERVATIONS

INFERENCES

ACCESSIBLITY AND ENTRY

1. Primary entrance- Main road, Secondary entrance- Railway station and Tertiary entrance- Elevated road.
2. Primary entrance- Main road, and Secondary entrance- Metro station.
3. Primary entrance- Main road, Secondary entrance- Metro station, and Tertiary entrance- ISBT station.
4. Entry in the site is from the main road.
5. Entry in the site is from the main road.
6. Primary entrance- Main road, Secondary entrance- Metro station.

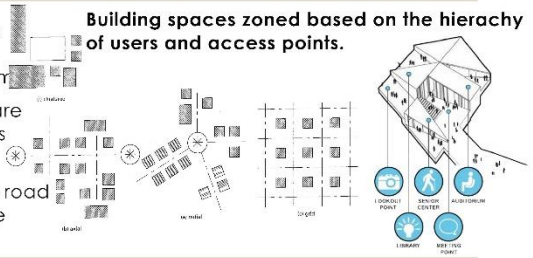
Hierarchy of entrances and access points to direct the users directly to their destinations.



ZOINING

1. Offices and mall are alined together with the railway station towards the backside of the development.
2. Metro station is located in the centre with the mall, apartments and commercial complex connected to m
3. Road pattern is made in the grid pattern and along that the individual buildings are being placed.
4. All blocks with different activites are placed in the site, every block has different activity program.
5. Metro station is located in the left of the site and has direct access to parking first then to the whole site.
6. After the evaluation of form the road layout is being liad on the whole site.

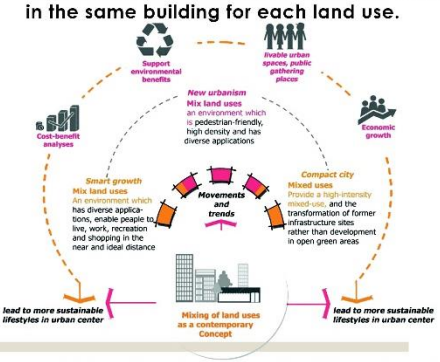
Building spaces zoned based on the hierachy of users and access points.



PLANNING

1. Mall on the first 4 floors with offices in the towers, station is on the ground floor with access from basement and ground floor.
2. Dedicated buildings for mall, resident apartments and commercial complex, with dedicated acess points on ground level.
3. This complex consists of commercial hub, Handicraft market, residential apartments, Sports hub, Mega mall, museums and art galleries, hospital. with dedicated acess points on ground level.
4. This whole complex consists of offices, commercial building, public services, bus terminal, metro station, plazas all have the different individual buildings.
5. Dedicated buildings for mall, resident apartments and commercial complex, recreational with dedicated acess points on ground level.
6. This complex consists of commercial hub, residential and ofiice building. In the front part retial and office is there and on the back side of the site residential tower is placed.

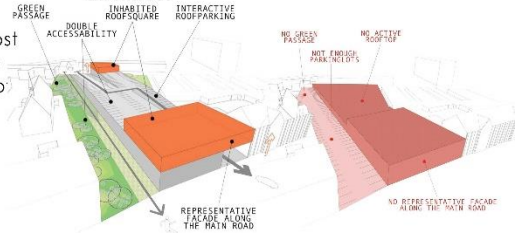
Mixed landuse buildings planned with users in the same building for each land use.



ACTIVITY AND OPEN SPACES

1. Shopping and offices are the most commonly used spaces. Building specific activities with absence of open spaces.
2. Shopping being the main activity, the mall has an open seating and circulation space at the entrance.
3. Landscape being the main focus factor and the grren pockets are much organised and compliments each other.
4. Shopping and offices are the most commonly used spaces. Building specific activities with absence o open spaces.
5. Office spaces being the main activity in the site wwith the variation in the category of offices.
6. Residential and office becomes the most important spaces and retail on both the towers which are used by the residents and staffs.

Multi functional spaces with different peak times makes the space safe and usable at all times.



COMPREHENSIVE ANALYSIS OF CASE STUDIES - OBSERVATIONS AND INFERENCES


SEAWOODS GRAND CENTRAL - NAVI MUMBAI

MANTRI SQUARE MALL -BANGLORE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NEHRU PLACE -NEW DELHI


CYBER HUB -GURUGRAM


MARINE GATEWAY -CANADA

STUDY OBJECTIVES

- To understand the zoning and the space allocation.
- To know the basic layout.
- No. of Entry/Exit because they play very important role.
- To understand the orientation of building.
- To know the entrance nodes.
- The connectivity made between mall and the metro station.
- To understand how the site is being segregated with such large program.
- To understand the grid pattern of the road, which is find intresting in this project.
- To understand how the office spaces is being prioritized.
- To understand how the place as a whole amalgamates with the enviroment and the surroundings.
- To understand how the activites around the site like connectivity and access nodes.
- To know the functioning of the spaces with the help of time.
- To understand the vertical zoning of huge structures and the activity alocation.
- To know the area distribution according to the need and privacy.

OBSERVATIONS

INFERENCES

CONNECTIVITY

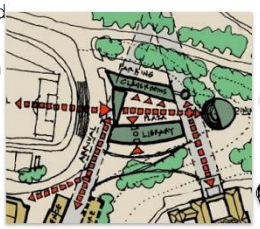
1. Metro station is connectedby the ramp on the ground floor and from staircase from lower ground floor.
2. Metro station is connected with the mall by the bridge at first floor.
3. Metro station is connected with the main road between this complex and the metro station.
4. Metro station is connected the main road and then to the site which has a direct access through road.
5. Metro station is connected the main road and then to the site which has a direct access through road.
6. Metro station is connected with the main road between this complex and the metro station.

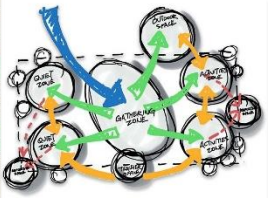
Basement connectivity or elevated bridge used to connect the station with the development.

CIRCULATION

1. Dedicated service core with common lobby for office users, no overlapping and confusion.
2. Multiple vertical circulation points planned inside each building with dedicated acess points on the ground level.
3. Service core of every block is segregated because the use is within the complex not within the building.
4. Dedicated service core with common lobby for office users, no overlapping and confusion.
5. Multiple vertical circulation points planned inside each building with dedicated acess points on the ground level.
6. Service core of every block is segregated because the use is within the complex not within the building.

Circulations planned to avoid confusion and direct users to a specific direction.





CHARACTER OF BUILDING

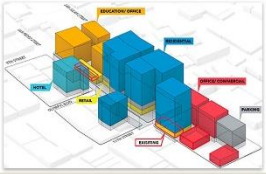
1. Unified design elements for mall, office and railway station, glass being the main material used.
2. Building material and design are different for mall, metro station and apartment building.
3. Building are design and placed in the site in such a way that the site plans looks organised and clean.
4. The cluster of offices, recreational, hotel,commercial and residential.
5. The cluster of offices, recreational, hotel,commercial and residential.
6. Building material and design are different for mall, metro station and apartment building.

Similar design elements and materials make the space look unified.

FORM

1. High rised towers shows verticality with the mall spead in a linear manner horizontally.
2. Form of each building is different from the other spead more vertically than horizontally.
3. Form of each building is different from the other spead more vertically than horizontally especially residential part.
4. Form of each building is different from the other spead more vertically than horizontally especially residential part.
5. High rised towers shows verticality with the mall spead in a linear manner horizontally.
6. Form of each building is different from the other spead more vertically than horizontally especially residential part.

A balance between vertical and horizontal spread at the building integrated with open spaces.



VEGITATION

1. Small heighted planters and green patches in the public spaces.
2. Small heighted planters with less vegitation and tress on the periphery.
3. Open green spaces.
4.
5. Extremely active because of F&Bs
6.

More the green spaces the more will be the healthier society. So try to give more and more green patches in the site.

2.4 SUMMARY

- A building has to constructed which would be iconic to pull the crowdand also have a serene impact on the psychology of the people.
- A feeder road should be proposed in order to maintain the traffic.
- The curved lines impact the psychology of people in a positive way;hence the form of the landscape will be inspired from an organic shape.
- The vehicular movement should be restricted to the periphery of the site to have safe pedestrian movement though out.
- Maximizing the user interface with nature with the help of the movement pattern and the spaces to be designed.
- Natural lighting helps with enhancing the mood of an individual, thus optimum use of natural lighting to be done in the project.
- Natural foliage is to be grown and used to act as a visual barrier,provide shed during the day and also for aesthetic purposes.
- It will be a state level project which will cater people from the nearby states.
- Repetitive street elements to be used to give a feeling of unity throughout the site.

Chapter 3
SITE STUDY

3.1 INTRODUCTION

The proposed site is located on the National Highway- 230, Lucknow Kanpur Highway in the "CITY OF NAWABS"- LUCKNOW, Uttar Pradesh. This is the proposed project by L&T Infrastructure. This site is very popular owned by the government of U.P. and known as LITERACY HOUSE: Environmental Protection Organization. Address of the site is Vishulok Colony, Vijay Nagar Colony, Alambagh, Lucknow, Uttar Pradesh, 226023.

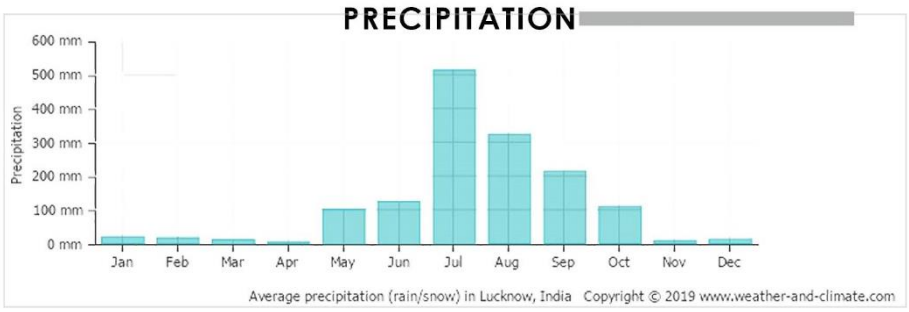
3.2 SITE DETAILS

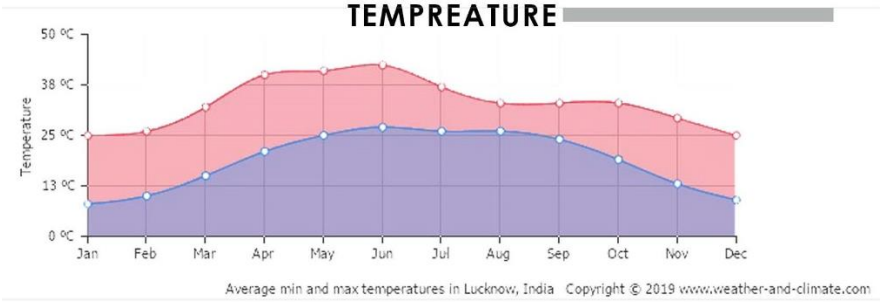
3.2.1 LOCATION AND ACCESSIBILITY

The site is located on NH-230 and it comes under the Government of U.P. and this site work as Environmental Protection Organization.
It is 9.5 km away from Charbagh Railway Station through NH-230. The International Airport Chaudhary Charan Singh is 4.6 km away from the site. The site is in between of two metro stations which are in 1km radii Krishan Nagar and Transport Nagar Metro Station.

3.2.2 METROLOGICAL ASPECTS

Lucknow being a city with hot and dry climate, focus has to be given to have cooler interior spaces in my site. Average temperature ranges between 33.9'C to 26'C. Rainy season lasts from the month of April to November, however maximum rainfall is observed in the month of July with precipitation 20mm to 550mm.
For the detailed understanding go through the charts give below showing the precipitation, rainfall and temperature throughout the year.





3.2.3 WHY THIS SITE?

- The selected site is next to one of the busiest junctions of the city and next to the Transport Nagar and Krishna Nagar metro stations with an average daily footfall of 10,000. (LMRC).
- The chosen site is among the 19 selected sites by the Municipal Corporation of Lucknow (MCL) for mixed use developments along with innovation hub (SCM 2016).

- Located on the Kanpur road NH-230, the site falls under the ABD (Area Based Development) of Lucknow and is part of the TOD zone (SCM 2016).

3.2.4 PERTIMENT INFORMATION

- FRONT SETBACK: 18m area from the front side as this site is on the National Highway and metro line is also going through this NH.
- F.A.R: Permissible FAR is 3.5 then we can purchase FAR up to 4.5.
- HEIGHT: Maximum permissible height is 50m with the abutting road of 18m width.
- AIRPORT RESTRICTIONS: Building height to be restricted up to 45m.

3.2.5 SITE POTENTIALS

- Site functions as a mediator in the city, setting the stage for social interaction, commercial hub, identities and experiences.
- After development, the project can contribute for the overall urban regeneration for the surrounding under developed precincts.
- It would facilitate the transition from the crowd as it facilitate all things at one place.

3.2.6 SITE SURROUNDINGS

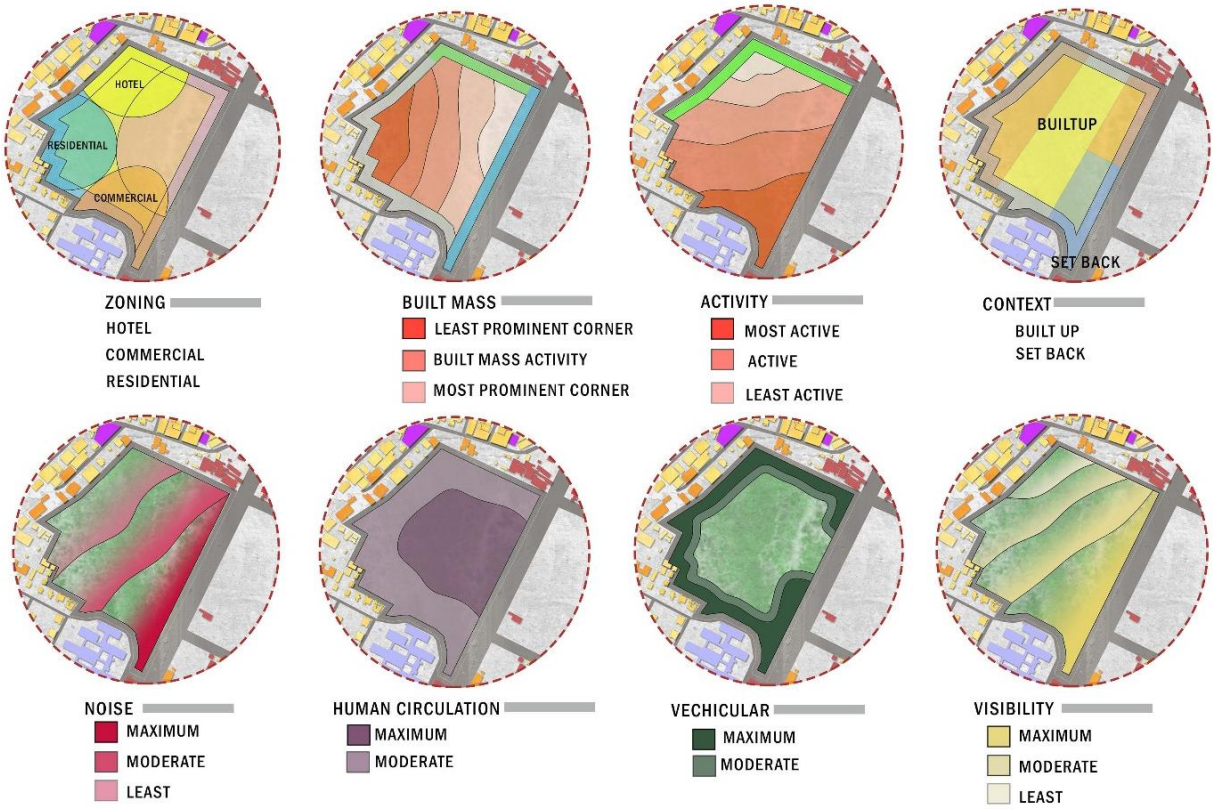
JJ MART

KRISHNA NAGAR POLICE STATION

ESI HOSPITAL

3.2.7 SITE ANALYSIS

The analysis of site is done on the basis of following factors like the basic zoning of the site, built masses on the site, the level of noise achieved at the certain parts of the site, the measure of human and vehicular circulation is done on the site, activity zoning is also done, the visibility of the site is also shown in this analysis as from the NH how is site visible from different parts which will help in designing of the project on the site.



3.2.8 SWOT ANALYSIS

STRENGTH

- Vacant land is available with great existing vegetation.
- Various activities due to presence of residential, commercial and institutional buildings in surroundings.
- As this is a TOD site there are large number of users available and multiple activities are also happening within the site.

WEAKNESS

- No proper space for informal activities around the site.
- Narrow pedestrian flow.
- Trucks and delivery vehicles conflicts with pedestrian flow.

OPPOURTUNITY

- Vacant land is available.
- As a metropolitan city, the acceptance of project could be expected easily.
- The proposal would help the neighborhoods to grow as a whole.

THREAT

- Narrow pedestrian flow.
- The climate of the city might not favor people to use the certain spaces during the day time.

3.2.9 INFERENCES

- Vehicular movement to be restricted till the public zones on the site.
- Provision of cycle track and cycle stand.
- The building will be located in the central part of the site standing as an iconic structure.
- According to the typology of the project maximum ground coverage should not exceeds 40%.
- The main focus is on the landscaping of the site as it plays an important role in the project.
- Since there is a highway adjacent to the site, adequate measures are to be taken in order to control the traffic noise.
- Considering the climate of the city, shading of the open spaces has to be kept in mind while designing the whole place.

Chapter 4
DESIGN PROGAM AND AREA ANALYSIS

4.1 INTRODUCTION

Amalgamating the consequences of the data interpretation and the site analysis, the system for the mixed use is to be defined. The site will be developed in three phases as it is proposed by the government so I am only developing the first phase of the site and it consists the mix of commercial, hotel and residential.

4.2 DESIGN PROGRAM

4.2.1 SCALE OF PROJECT

The scale of the project is huge because it is a mixed use development, which consists of mix of residential, commercial and hospitality. But this particular is proposed to be developed in three phases so I am working on the first phase only.

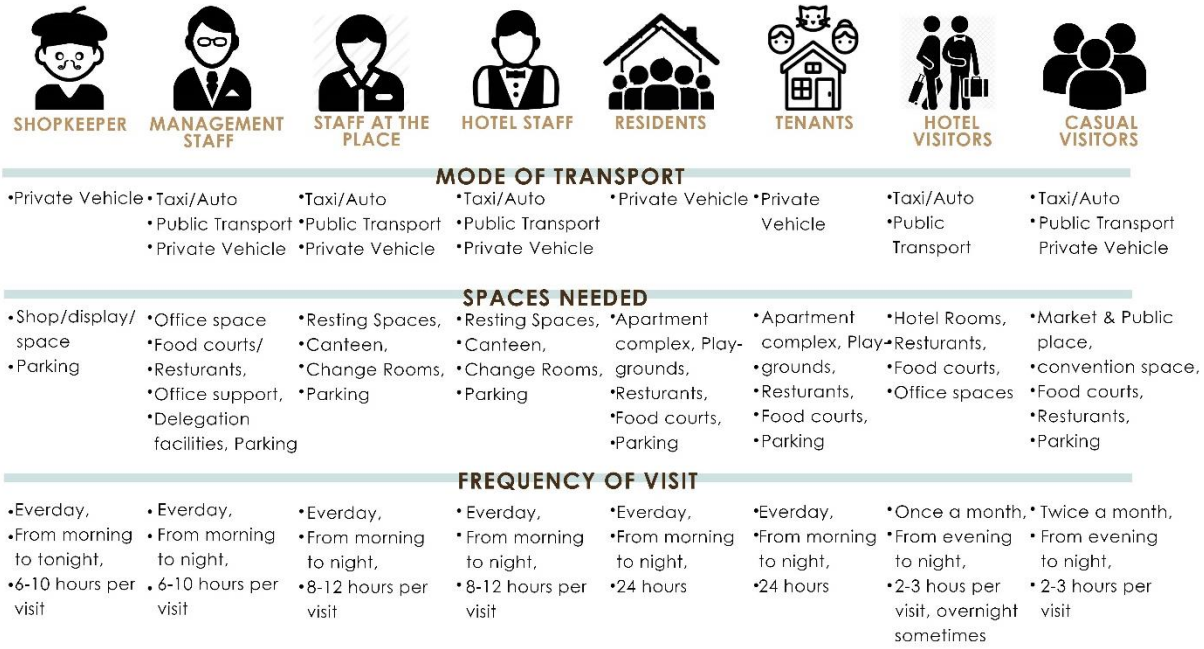
4.2.2 USER ANALYSIS

This analysis is done because as this is a mixed use project so there are large number of users with different activities and it is very important to find the same that which mode of transport they are using to get into the site, and what are the spaces used by the individual users and what is their frequency to visit the site.

Users would be varied in nature given the kind of spaces proposed:

- Shopkeepers & Artisans of Lucknow
- Casual visitors.
- Employees working in offices.

- Hotel visitors.
- Local residents & Residents inside community
- Tenants.
- Staff members.



The average regular footfall of the place is expected to be high on weekends and moderate or low on the weekdays. The peak hours of activity will be 7-10 in the morning and 6-9 in the evening. The place is going to be exclusive for the people in the accommodation. There will be day time visitors as well the visitors who are the residents they use the site at any time of the day and visitors for hotel cannot be judged as it depend on the capacity of the rooms. The expected average footfall per day – 1500-2000 per day which includes people for various uses like commercial, residential and hotel throughout the day.

4.2.3 KEY PARAMETERS

The following are the key parameters based on which the design development takes place - from a basic massing to a resolved

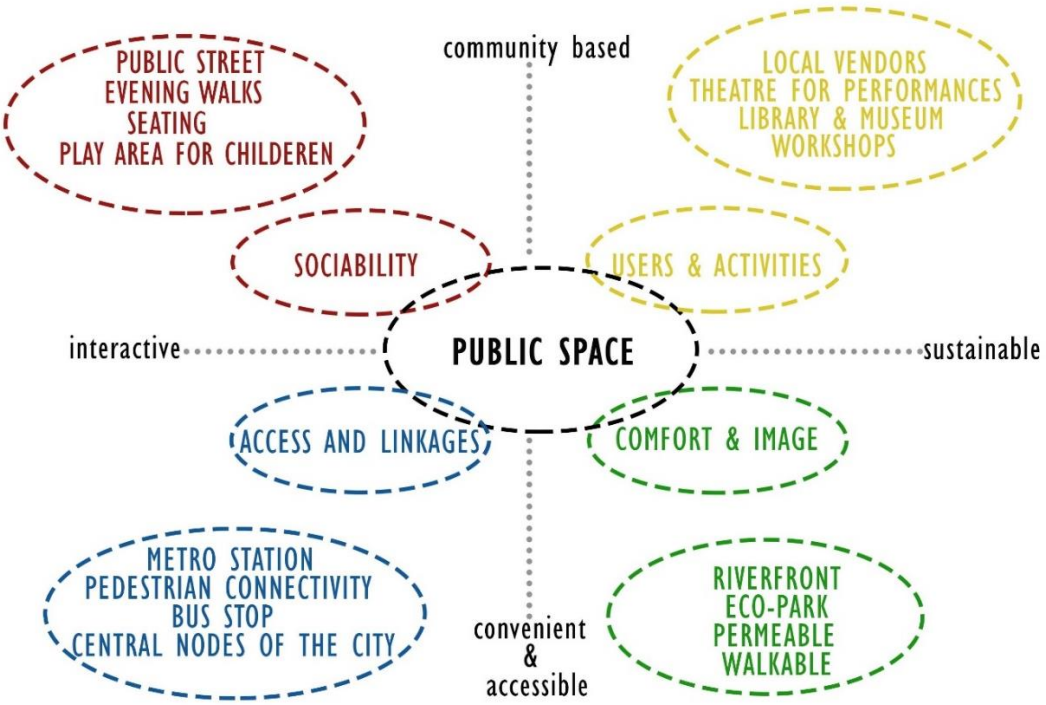
product. There are sub- parameters each, which have been discussed with the relevent stage of development.

4.2.4 SEGREATION OF ZONES

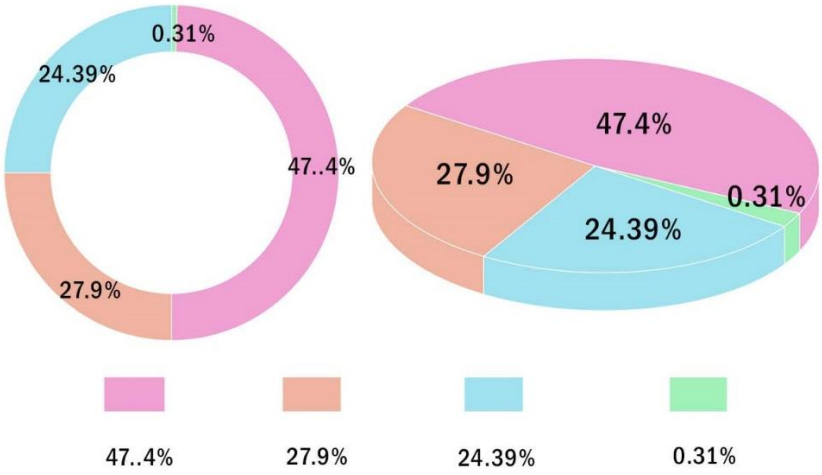
Public spaces are placed in with every block, commercial core is placed in front of the site because it contains large no. of user

residential zone is placed at the private zone of the site and hotel part is placed in the private zone because it needs privacy also.

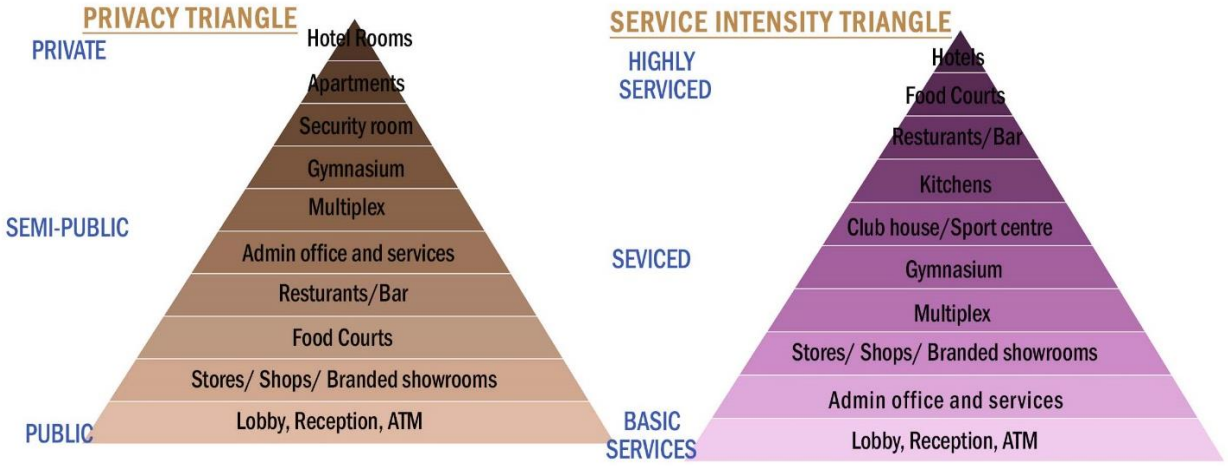
4.2.5 APPROACH TO DESIGN



4.2.6 AREA DISTRIBUTION



4.2.7 ZONING DETERMINENTS



4.2.8 DEGREE OF ENCLOSURE

ENCLOSED SPACES *SEMI- ENCLOSED SPACES* *OPEN SPACES*

4.2.9 IDENTIFICATION OF SPACE, ACTIVITY, TIME AND USERS

SPACE vs ACTIVITY vs TIME chart

SPACE	ACTIVITY	TIME									
		22-7	7-8	8-9	9-11	11-12	12-13	13-17	17-19	19-21	21-22
Housing type A	Relaxation										
Housing type B	Relaxation										
Club House	Meetup Space										
Sport Centre	Fitness										
Stores	Revenue Gen.										
Brand Stores	Revenue Gen.										
Shops	Revenue Gen.										
Resturant	Eating										
Food Court	Eating										
Coffee Shop	Eating										
Food Kiosk	Eating										
Gymansium	Workout										
Multiplex	Entertaiment										
Hotel Rooms	Relaxation/Stay										
Resturant/Bar	Eating/Drinking										
Canteen	Eating										
Playscapes	Entertaiment										

SPACE vs ACTIVITY vs USER chart

SPACE	ACTIVITY	USER
Housing type A	Relaxation	N.D
Housing type B	Relaxation	N.D
Club House	Meetup Space	250
Sport Centre	Fitness	250
Stores	Revenue Gen.	150
Brand Stores	Revenue Gen.	880
Shops	Revenue Gen.	300
Resturant	Eating	600
Food Court	Eating	300
Coffee Shop	Eating	50
Food Kiosk	Eating	50
Gymansium	Workout	230
Multiplex	Entertaiment	500
Hotel Rooms	Relaxation/Stay	20
Resturant/Bar	Eating/Drinking	200
Canteen	Eating	10
Playscapes	Entertaiment	10
Security	Monitoring	2

These charts help us decide the hierarchy of spaces and the size of spaces to be provided according to the user groups and the amount of time a person spends in that particular activity. This would also help

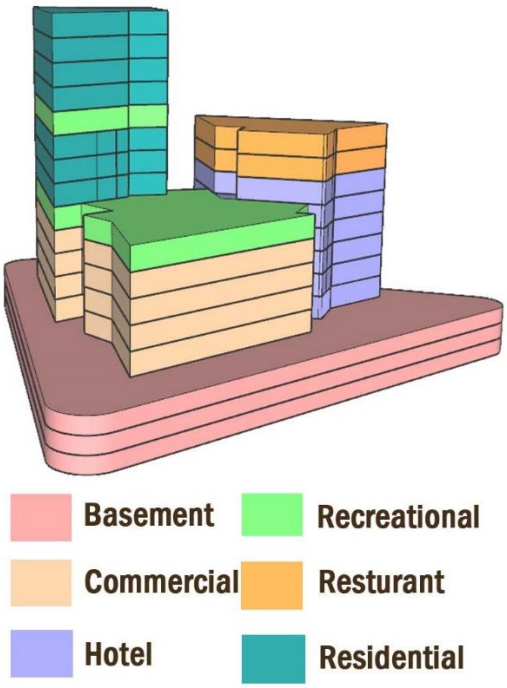
us decide the closed- semi open and open spaces according to the timeline of the activity.

4.2.10 AREA ANALYSIS

S.No.	SPACE	AREA IN SQ.M.	TOTAL CAPACITY	NATURE OF SPACE	DAYLIGHT REQ.	NEED FOR GROUND	AREA ON GROUND	CARPET AREA IN SQ.M.
1.	RESIDENTIAL							
1.1	Housing unit type A	130sq.m	6	PRIVATE	YES	NO	–	780sq.m
1.2	Housing unit type B	75sq.m	16	PRIVATE	YES	NO	–	1200sq.m
1.3	Club house cum sports centre	10sq.m	50	SEMI-PUBLIC	YES	NO	–	500sq.m
	SUB TOTAL OF CARPET AREA							**2480sq.m**
	Add @ 40% of wall, public area, circulation system							992sq.m
	TOTAL OF BUILT UP AREA							**3472sq.m**
2.	COMMERCIAL (Retail & Food court)							
2.1	**RETAIL**							
2.1.1	Super Market	530sq.m	3	PUBLIC	NO	NO	–	1590sq.m
2.1.2	Anchor/Brand Stores- Large	167sq.m	2	PUBLIC	NO	NO	–	334sq.m
2.1.3	Anchor/Brand Stores- Medium	70sq.m	2	PUBLIC	NO	NO	–	140sq.m
2.1.4	Anchor/Brand Boutique Stores	576sq.m	1	PUBLIC	NO	NO	576sq.m	576sq.m
2.1.5	Large Shops	55sq.m	2	PUBLIC	NO	NO	–	110sq.m
2.1.6	Medium Shops	35sq.m	2	PUBLIC	NO	NO	–	70sq.m
2.1.7	Small Shops	30sq.m	2	PUBLIC	NO	NO	–	60sq.m
2.1.8	Store	25sq.m	1	PUBLIC	NO	NO	–	25sq.m
	SUB TOTAL OF CARPET AREA							**2905sq.m**
2.2	**HOSPITALITY**							
2.2.1	Food court with 74 seating	576sq.m	1	SEMI-PUBLIC	YES	NO	–	576sq.m
2.2.2	Resturant with 46 seating	167sq.m	1	SEMI-PUBLIC	YES	NO	–	167sq.m
2.2.3	Belgium waffle store with 16 seating	70sq.m	1	SEMI-PUBLIC	YES	NO	–	70sq.m
2.2.4	Ice cream palour	25sq.m	1	SEMI-PUBLIC	YES	NO	–	25sq.m
	SUB TOTAL OF CARPET AREA							**838sq.m**
2.3	**SERVICES**							
2.3.1	Meter Room	34sq.m	1	PRIVATE	NO	YES	34sq.m	34sq.m
2.3.2	Generator Room	24sq.m	1	PRIVATE	NO	YES	24sq.m	24sq.m
2.3.3	Stilt parking	408sq.m	1	PRIVATE	NO	YES	408sq.m	408sq.m
	SUB TOTAL OF CARPET AREA							**466sq.m**
	Add @ 40% of wall, public area, circulation system							1683sq.m
	TOTAL OF BUILT UP AREA							**5892sq.m**
3.	HOSPITALITY (Business Hotel)							
3.1	Room type-1	24sq.m	15	PRIVATE	YES	NO	–	360sq.m
3.2	Room type-2	38sq.m	5	PRIVATE	YES	NO	–	190sq.m
3.3	Room type-3	51sq.m	10	PRIVATE	YES	NO	–	510sq.m
3.4	Speciality Resturant and Bar	485sq.m	1	PRIVATE	NO	NO	–	485sq.m
3.5	FOH(Lobby, reception)	215sq.m	1	PUBLIC	NO	YES	215sq.m	215sq.m
3.6	Admin and Management office	45sq.m	1	SEMI-PUBLIC	NO	YES	45sq.m	45sq.m
3.7	GYM	103sq.m	1	SEMI-PUBLIC	NO	YES	103sq.m	103sq.m
	SUB TOTAL OF CARPET AREA							**1908sq.m**
	Add @ 40% of wall, public area, circulation system							764sq.m
	TOTAL OF BUILT UP AREA							**2672sq.m**
4.	MISCELLEANOUS							
4.1	Toilet Complex	36sq.m	4	SEMI-PUBLIC	NO	YES	36sq.m	144sq.m
4.2	Staff Room	22sq.m	1	PRIVATE	NO	NO	–	22sq.m
4.3	House keeping	28sq.m	2	PRIVATE	NO	NO	–	56sq.m
4.4	Laundary	28sq.m	2	PRIVATE	NO	NO	–	56sq.m
	SUB TOTAL OF CARPET AREA							**278sq.m**
	Add @ 40% of wall, public area, circulation system							111sq.m
	TOTAL OF BUILT UP AREA							**389sq.m**
5.	BASEMENT							
5.1	1 BASEMENT	5036sq.m		PUBLIC	NO	NO	–	5036sq.m
5.2	2 BASEMENT	5036sq.m		PUBLIC	NO	NO	–	5036sq.m
5.3	3 BASEMENT	5036sq.m		PUBLIC	NO	NO	–	5036sq.m
	SUB TOTAL OF CARPET AREA							**15108sq.m**

TOTAL OF CARPET AREA (Residential, Commercial, Hotel and Miscellanous) = 8875sq.m
TOTAL OF BUILT UP AREA = 12425sq.m
TOTAL GROUND COVERAGE=2192sq.m
TOTAL AREA OF BASEMENT=15220sq.m
PERMISSIBLE PARKING IN TOD PROJECTS IS 1.33 ECS PER 100SQ.M OF BUILT UP AREA= 164 CAR PAKINGS

4.2.11 DISTRIBUSTION OF USES



4.2.12 CONCLUSION

Basing on the area analysis and design programme, the main planning and zoning can be decided. The area of whole site is 22 acres but in phase 1 I have to develop only 4-5 acres to have a built to open ration of 40 to 60. The total built up area will be up to 12,425 sqm including the circulation area through the building.

Chapter 5
PLANNING, ZONING AND DESIGN CONSIDERATIONS

5.1 PLANNING AND DESIGN CONSIDERATIONS

5.1.1 PLANNING CONSIDERATIONS

The principles of design that are to be followed are:

- Maximizing human interface with different uses of activities and it should is adopted by them easily.
- No kiosk in the mixing of the three uses commercial, hotel and residential.
- Simple layout of the plans.
- The principle of way-finding.
- Activation of positivity and ease through spaces.
- Interactive zones so that is acts as mixed use building.
- Architectural interventions in hotel in such a way it is easily adopted by the users.
- Dramatization of elements so that it is easy to approach for the user.
- Mimicking certain elements of nature.
- Open terraces for the change.

5.1.2 DESIGN CONSIDERATIONS

- Articulated open spaces where needed.
- Green open spaces exclusive for people residing in the building.
- Creating a public plaza with tress and with water body, thereby creating a space for both active and passive engagement.
- Playing with volumes to create green spaces on various levels, connecting open spaces on various levels visually, thereby also creating interest in form.

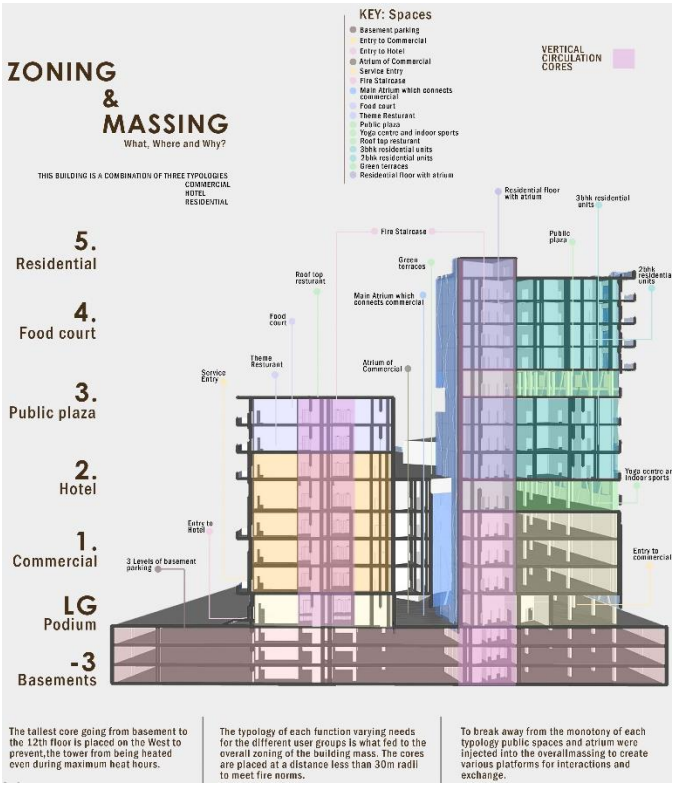
- Create coherent massing.
- Re-articulation of the entrance plaza as an angled entry to face people driving by on the highway.
- Further articulation of retail areas and hotel spaces.

5.2 ZONING AND CONCEPT

5.2.1 ZONING

The zoning of building will be based on 7 essential deciding factors:

- Functionality.
- Sun path and sciography analysis.
- Possible Viewp oints.
- Wind flow through the site.
- Circulation Pattern to be followed.
- Acoustical zoning.
- Volume Distribution.
- Possible entry and exists.



5.2.1 CONCEPT

Its sun sliced geometry results form required minimum daylight exposure as required to the surrounding urban fabric prescribed by code and calculated by the precise geometry of sun angles.

The form and organisation of the built mass has been derived upon by carefully studying the sun angle and solar penetration, keeping in mind the urban fabric, so as to not cut off the sunlight from its immediate surroundings. The building have been placed at a certain angle to the site, so that all the grounds of the sun angle is being fulfilled.

As this building consists of mix of the three commercial, hotel and residential, all the three needs their privacy and division of the three mixes in a single building will be incorporated either by the stack division or by the individuality provided within a single building.
The block has been isolated into 3 different zones and wings but are connected together without hampering the purpose. The main aim is to make the building user friendly. The first wing will be commercial, second hotel and third is a combination of commercial and residential.

Chapter 6
DESIGN DEVELOPMENT AND FINAL OUTCOME

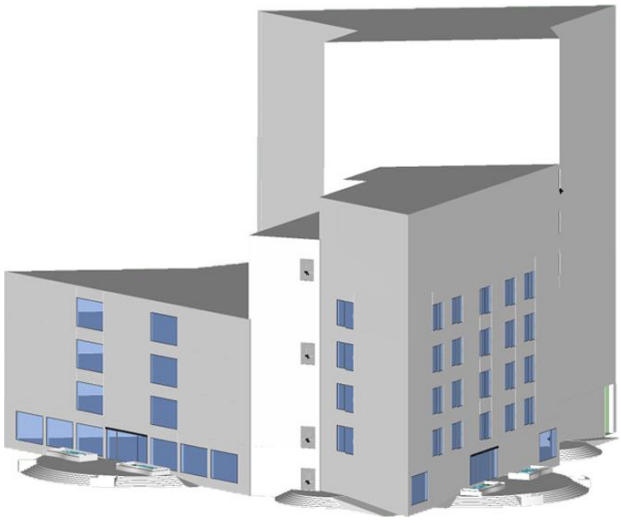
6.1 INTRODUCTION

Based on earlier evaluations and examinations, the structure has been created. At this stage, the significant arranging and contemplations of the fabricated and unbuilt spaces will come without hesitation.

6.2 DESIGN DEVELOPMENT

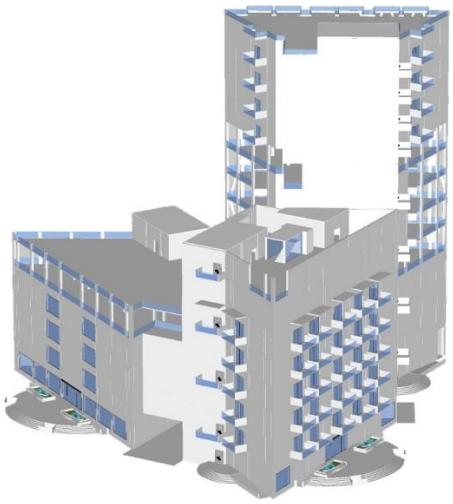
6.2.1 STAGE 1

Initially all the block are closely packed and there the natural and ventilation becomes the major issue as all the functions are being inserted in the single building. Entire podium level forms the public realm, with commercial, hotel and recreational activities also extending to the basement.



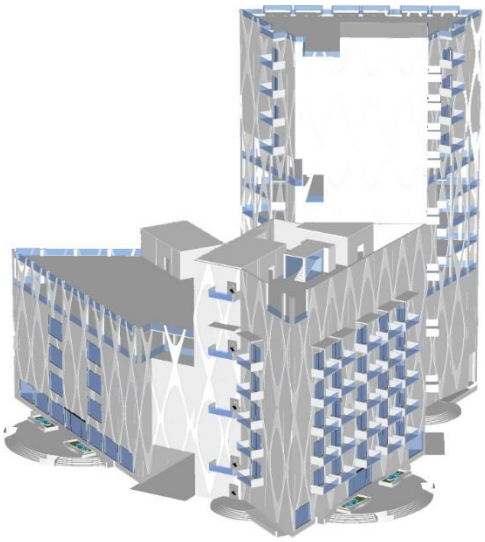
6.2.2 STAGE 2

Then there is the variation in the form in the ground floor, all the blocks got separate in the ground floor and then connection is made from the first floor and connections are made from onwards. Every block has separate entry in the ground floor and then connected from then onwards.



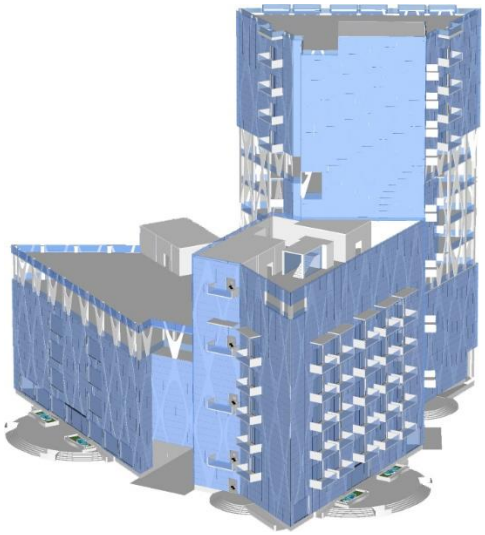
6.2.3 STAGE 3

To stay true to the initial ideology of creating new datum planes for greater interaction public spaces, atrium and plazas were added. Their primary aim was to act as the binding factor for these HYBRID TYPOLOGIES.



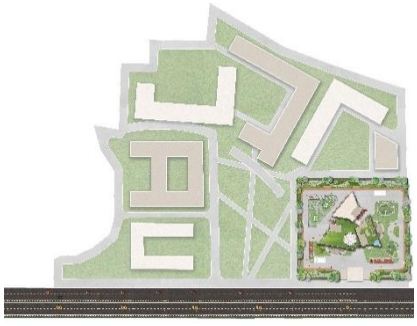
6.2.4 STAGE 4

Merging with the form and the materials the typologies led to the form development of the scheme with the interactive spaces bring coherent to the built whole. Glazing is added in the building for the aesthetic purpose and this glazing acts as photovoltaic cell.



URBAN VENUE is a building that proposes a system of collaboration rather than isolation. The aim was to create a series of interactive spaces that creates the optimum conditions for encounters and exchanges between the various groups of users pertaining to commercial, Hotel and Residential, since a single community space does not effectively caster to the varying needs of the different user groups.

6.3 PROPOSED SITE PLAN



6.3 FINAL OUTCOME

6.3.1 SITE PLAN

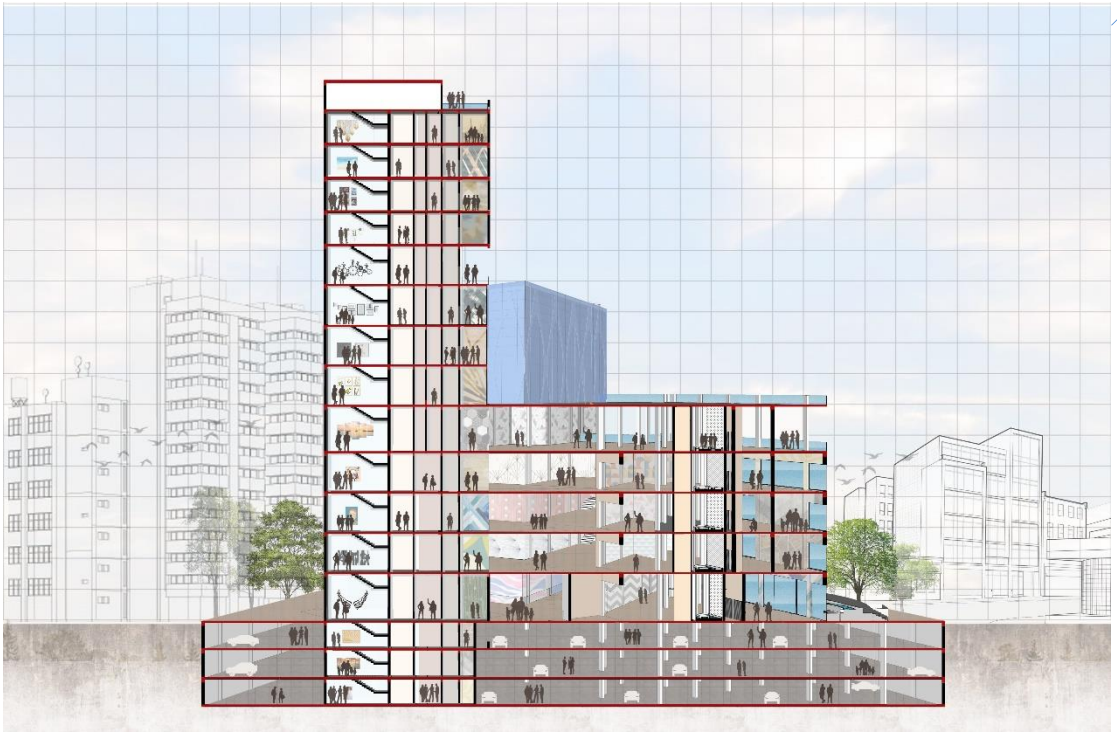
Justifying the objectives of the project, the site plan has been finalized. The 1 pathways with three different mixes connected together to form a triangular shaped form because there is a mix of three typologies commercial, hotel and residential in single building with three entrance for each of the typologies.

Keeping the design philosophy in mind, the intentional flow of activity has been decided to flow from a fast to slow. So that when a person goes back to their daily lives, they would crave the peace and want to come back again.

6.3.2 AXONOMETRIC SECTIONS

Section at aa

Section at bb



Section at cc

6.3.3 SUMMARY

The URBAN VENUE which had been proposed to be created on a site of 3.48acres for first phase, the total site area is 22 acres of land would speculatively help individuals to be fulfilled and glad. The activities that have been included in the project would help the client as well as the viewer to feel better.

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