

PORTFOLIO

An A3-sized Guide to the
collection of Architecture works



BY MAYANK HEDAU

MULTIFAMILY URBAN HOUSING COMPLEX

semester 8 project

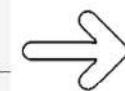


LOCATION & SITE DETAILS

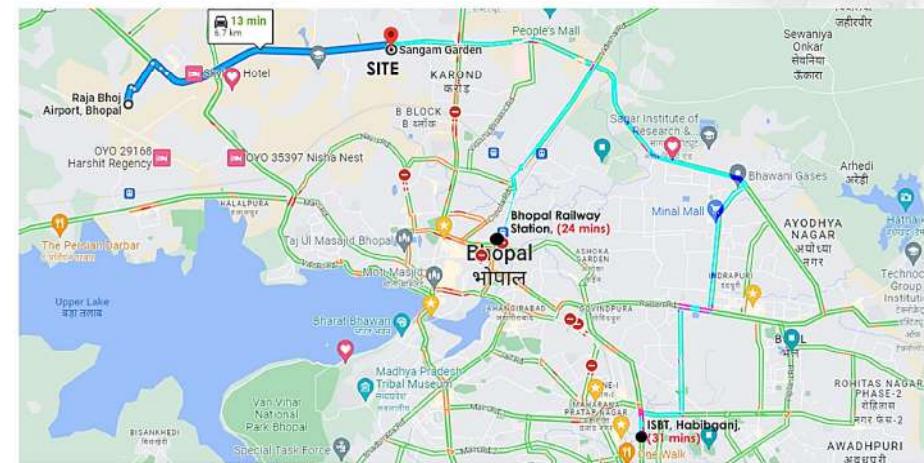
SITE LOCATION - 23.301384, 77.389020, near sangam garden, Karond bypass road, Bhopal



Map of MADHYA PRADESH



Map of BHOPAL



Map of SITE

SITE PARAMETRES

TOTAL SITE AREA – 14080 SQ MT (3.47ACRE)

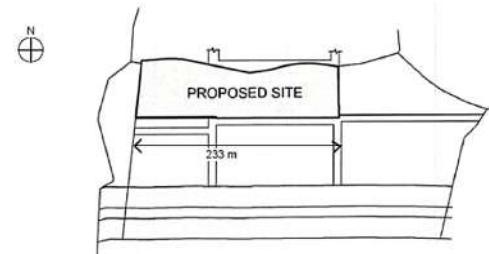
MAX GROUND COVERAGE – 30%

MAX F.A.R. – 1:1.25 SQ MT

MAX BUILDING HEIGHT – 18M

MOS – Front 8m, Sides 6.5m

Total no. of Flats – 2 BHK - 40, 3 BHK - 40, 4 BHK - 40



SITE ANALYSIS & SURROUNDINGS

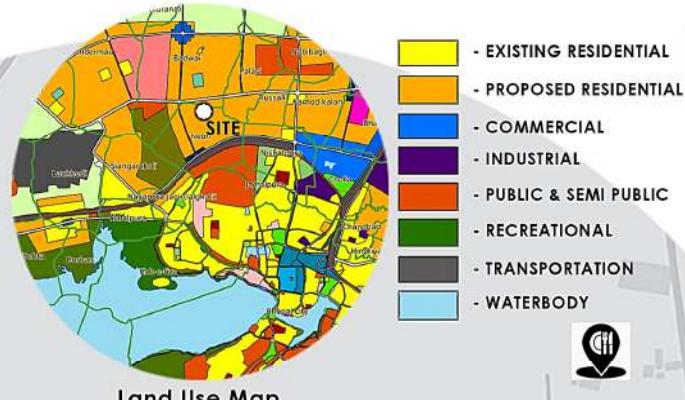
NORTH



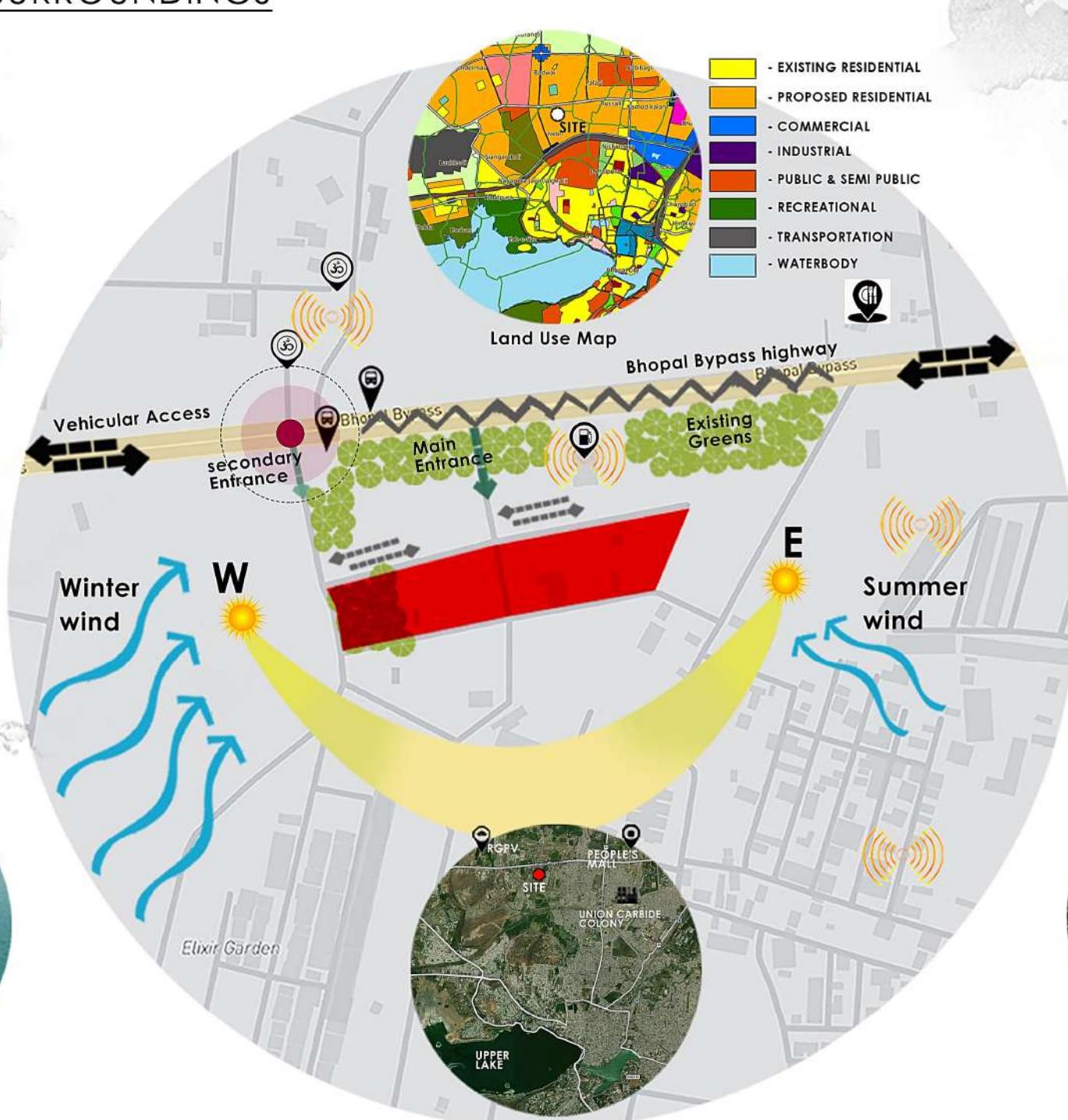
View towards NW Direction
(RGPV University)



View towards SW Direction
(Upper Lake)



Land Use Map



View towards NE Direction
(People's Mall)



View towards SE Direction
(Union Carbide Plant)

CASE STUDY - 01 KINGS HOUSE APARTMENTS

LOCATION - 4/7, Millers Rd, Vasanth Nagar, Bengaluru, Karnataka 560052

Occupying a strategic position in the heart of Bangalore, the site is in close proximity with some of the best hospitality, medical & commercial facilities in the city. The built form had to capture the richness of its vibrant & significant urban context of the city fabric.

Architect: The Purple Ink Studio.

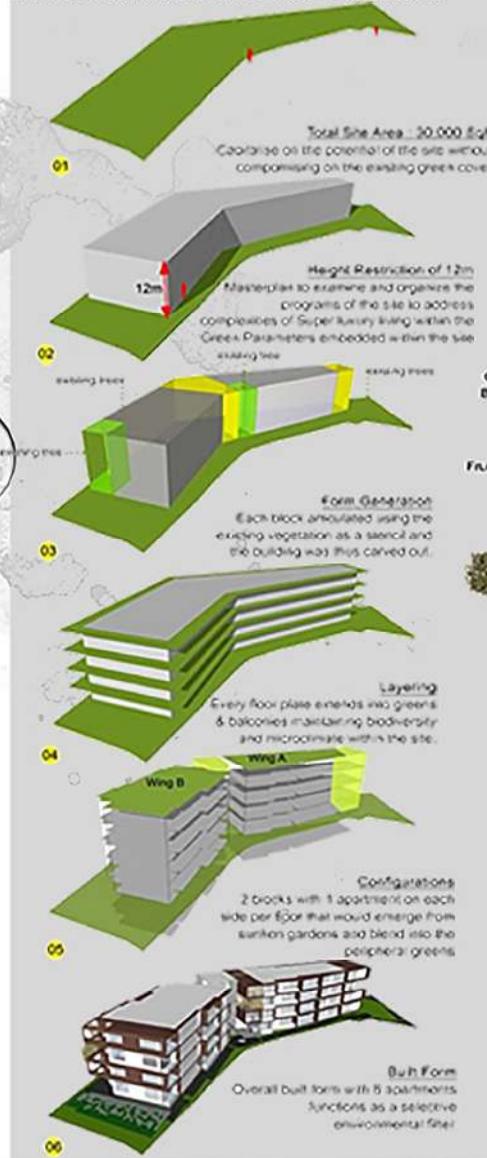
Structural Consultants: Design Ventures India Pvt Ltd.

Client/Owner: Kini Family (Dubai)

Interior Contractors: Ultimate Interior Solutions, Dubai

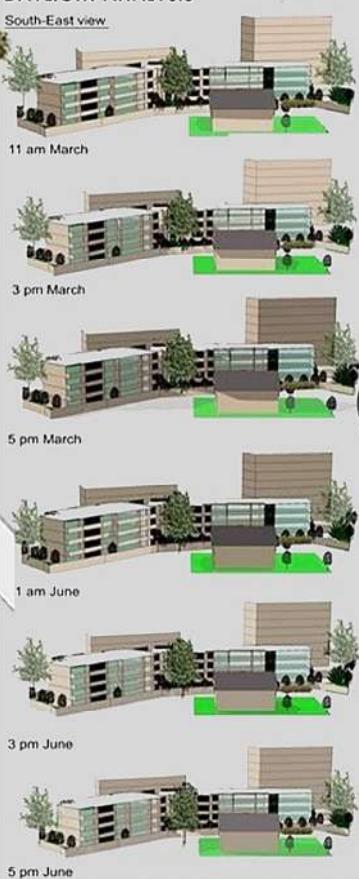
M.E.P Consultants: McD Built Environment Research LAB Pvt. Ltd.

SITE INTERPRETATION AND FORM GENERATION



The surface winds in Bangalore have seasonal character with the Easterly components predominating during one period followed by the Westerly in the other.

DAYLIGHT ANALYSIS

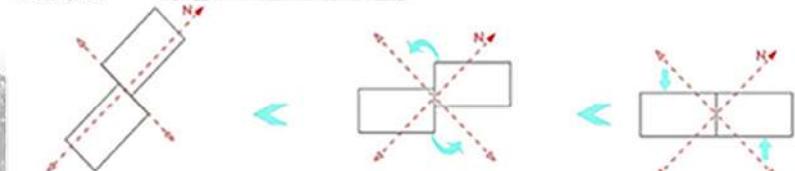


CONCLUSION
The building form, the exterior boxing design and the overall planning were regenerated to suit the design developed from the shade analysis that was carried out. This reduces the cooling energy to the maximum extent.

CASE STUDY - 02 ANOTHER SKY APARTMENTS

LOCATION - Horamavu Main Rd Nanjappa Garden, Horamavu, Bengaluru, Karnataka 560052
Architects: Designhaaus Solutions
Manufacturers: Kohler, Saint-Gobain, Wienerberger, Dalal Tiles, GFRC
Structure: Designtree
MEP Consultant: Designtree
Client: Livingwalls
site area: 420000 sq ft (9.6acre)
ground coverage – 30%
open area: 70%, Towers - 3, Floors - 18, Units - 117
Basement: - 2 lvs. & a sky lounge on 16th floor

CONCEPT



Both units were then rotated by 45°, oriented along true N-S, to compliance with Vastu principles.

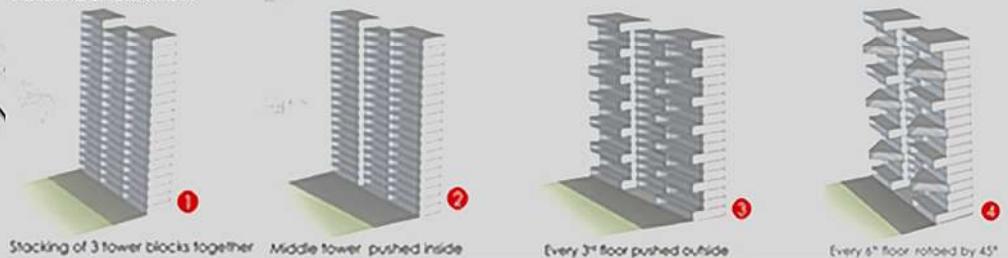
1 unit is then pushed inside to have 360° view angle, which minimizes common wall as well.

Initially, all units (23 in nos.) of each towers were stacked side by side as per site shape.

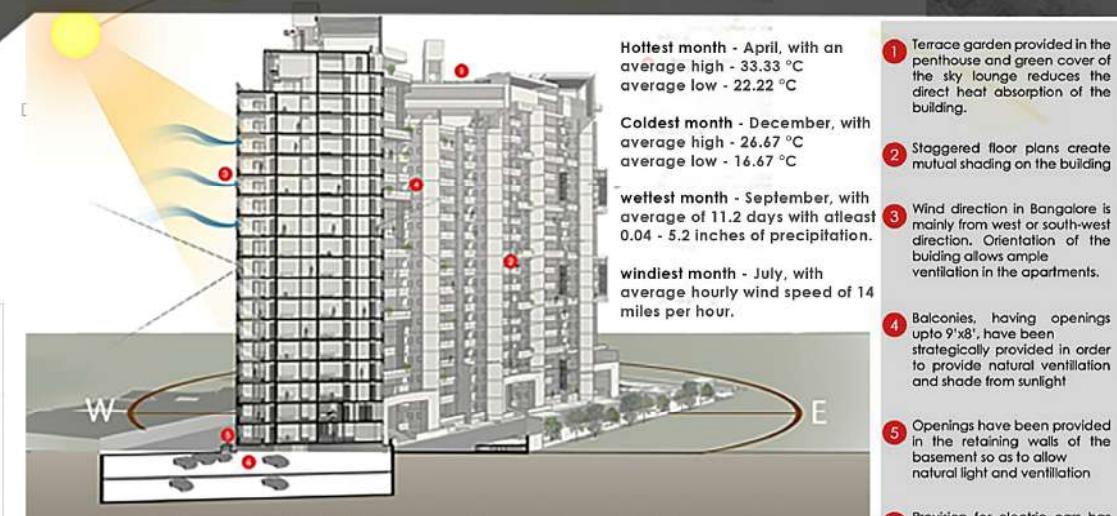
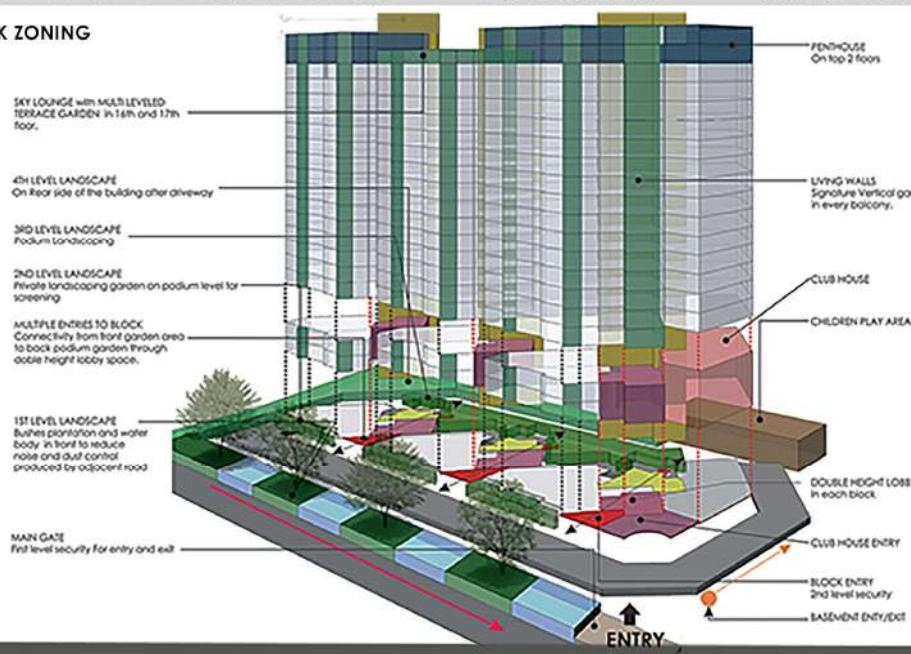
comprises of 117 elegantly designed 3 and 4 BHK lifestyle apartments that are well spaced in 3 (19 floor high) towers. It has 2 levels of basement, club house and a sky lounge on 16th floor.

Balconies between floors increases the self shadowing effect even during sunlit hours.

FORM GENERATION



BLOCK ZONING



Hottest month - April, with an average high - 33.33 °C average low - 22.22 °C

Coldest month - December, with average high - 26.67 °C average low - 16.67 °C

wettest month - September, with average of 11.2 days with atleast 0.04 - 5.2 inches of precipitation.

windiest month - July, with average hourly wind speed of 14 miles per hour.

① Terrace garden provided in the penthouse and green cover of the sky lounge reduces the direct heat absorption of the building.

②

③

Wind direction in Bangalore is mainly from west or south-west direction. Orientation of the building allows ample ventilation in the apartments.

④ Balconies, having openings upto 9'x8', have been strategically provided in order to provide natural ventilation and shade from sunlight.

⑤ Openings have been provided in the retaining walls of the basement so as to allow natural light and ventilation.

⑥ Provision for electric cars has been given in the basement. Separate space is allocated for bicycle parking.

BUILDING SECTION IN RESPONSE TO SITE ANALYSIS AND CLIMATOLOGY

INDEX

- ① Entry to Residential Block
- ② Exit
- ③ Visitors' Parking
- ④ Arrival Plaza
- ⑤ Entry to Clubhouse
- ⑥ Swimming Pool
- ⑦ Children's Play Area
- ⑧ Water Feature
- ⑨ Garden Landscaping
- ⑩ Services
- ⑪ Double Ht. Entry Foyer
- ⑫ Entry to Commercial Block
- ⑬ Ramp to Commercial Basement
- ⑭ Jogging Track
- ⑮ Private Terrace (For Second floor)
- ⑯ Surface Parking

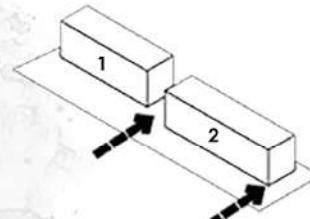


CONCLUSION

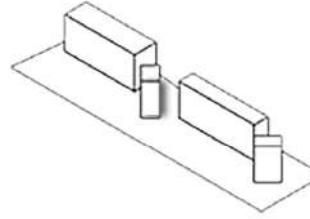
The Foyer, Living Room and Dining area have a beamless uninterrupted slab. The space with generous sized shaded balconies work as one large uninterrupted space ideal for entertaining guests. Vertical gardens on the side of balconies, looks stunning and brings you all the joys of gardening, on a different dimension. Sustainable process and material adopted like fly ash for plastering, dry fix of masonry instead of mortar, M sand instead of River sand, solar powered lighting for common areas and electric car charging points makes "Another sky" a unique and distinguished project in true sense.

SITE DEVELOPMENT & ZONING

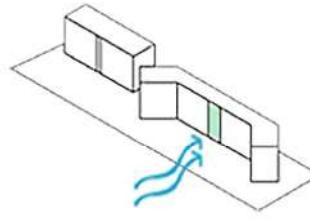
NORTH



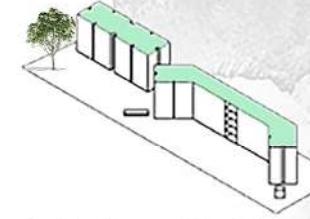
2 approach roads dividing the site into 2 parts making separate Entrance for each Block. Block 1 consists of 4BHK units & Block 2 consists of 2 & 3 BHK units(combined).



Breaking 2nd Block further into 3 blocks and rotating both blocks 45 degree to get shade from the harsh sun's rays moving from E to W during a day



Combining the 2nd Block to get a full enclosure of the building making the block complete and have privacy to the building



Dividing the 2nd Block into halves making green balconies between every floor of the building and acts as a merger of two building and a rooftop spaces above.

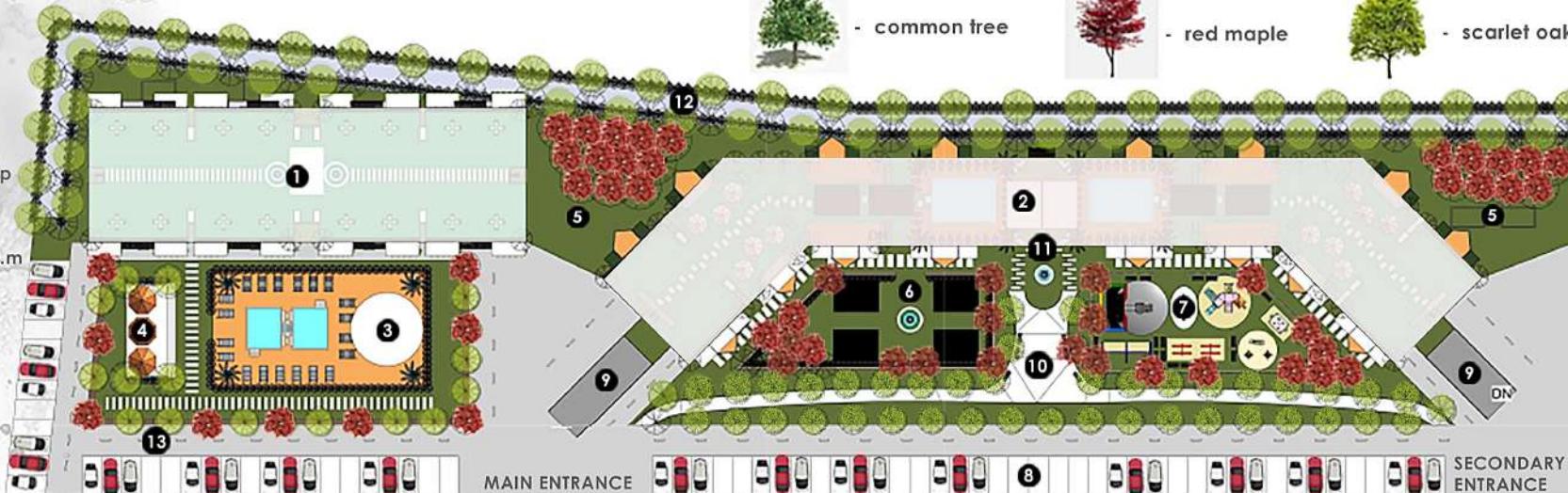
1. BUILD BLOCK 1

Area - 1320 sq.m

G+5 Structure with Rooftop garden at top

Total 4BHK units - 40
Area for one unit - 150 sq.m

Doesn't have basement car parking



2. BUILD BLOCK 2

Area - 2000 sq.m

G+5 Structure with Rooftop garden at top

Total 3BHK units - 70
Total 2BHK units - 10

Area for one 2BHK unit 84 sq.m
Area for one 3BHK unit type 1 - 100 sq.m
type 2 - 120 sq.m

Contains basement car parking for 100 cars



4

3

6

11



- golden malay palm

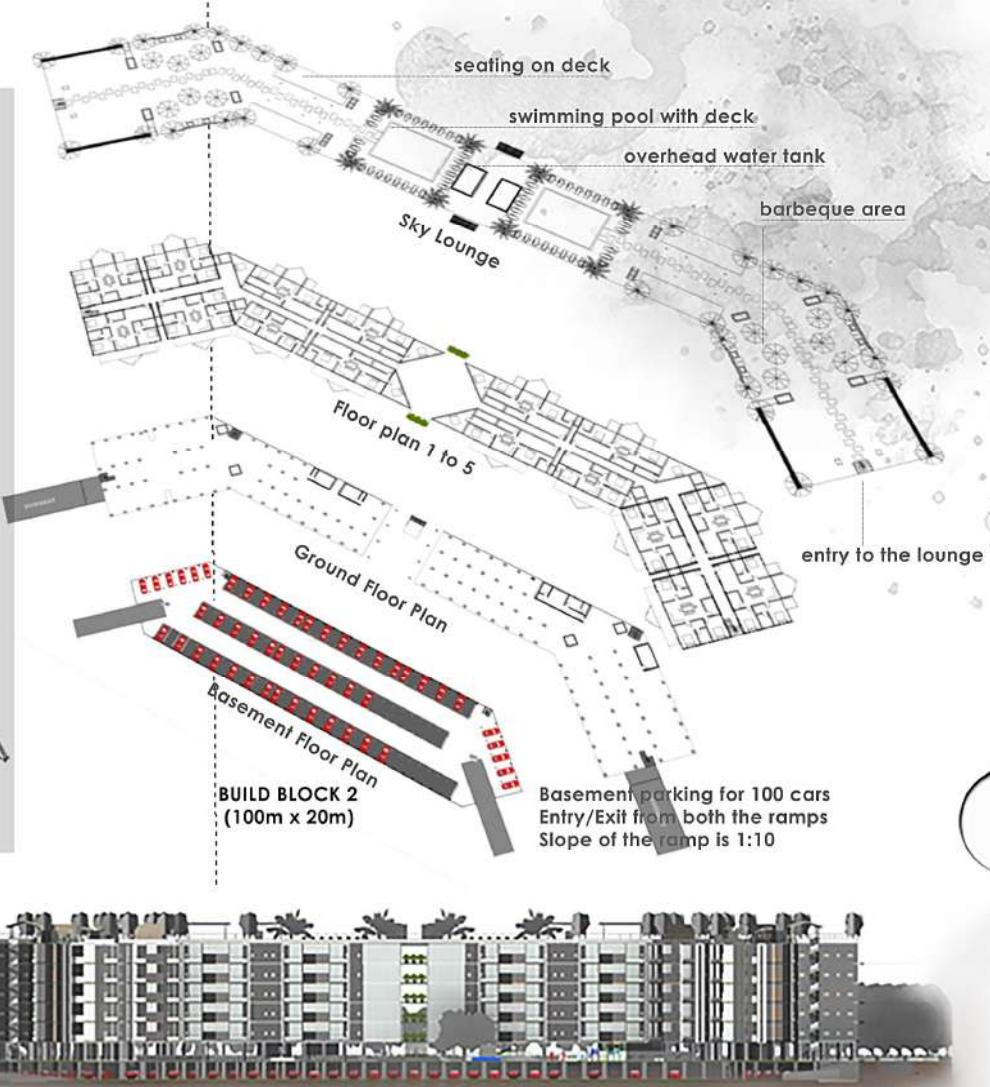
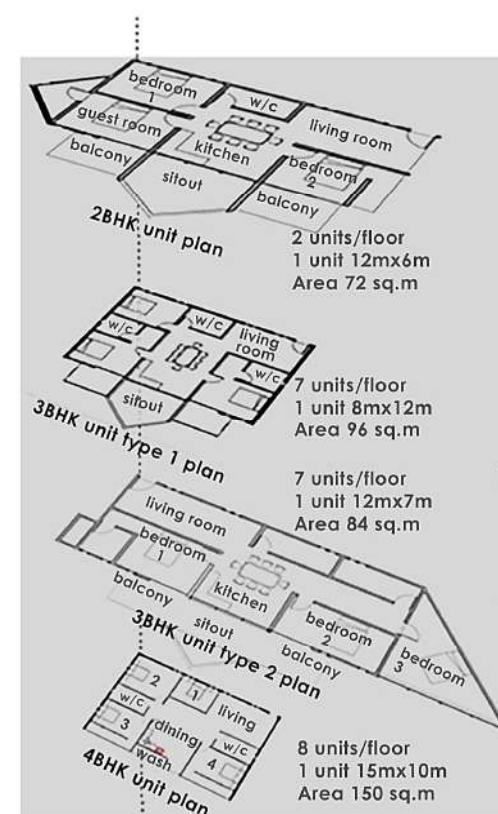
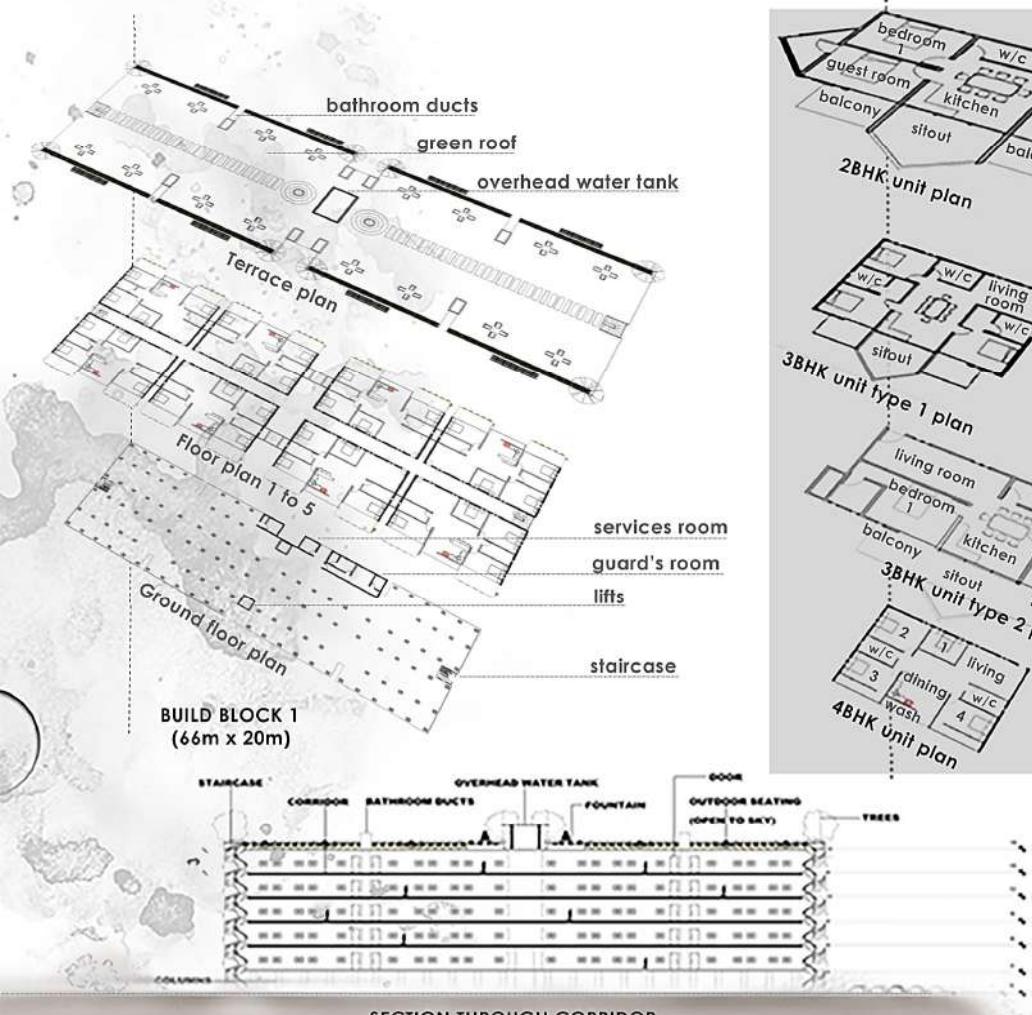


- bushes/shrubs



- grass

FLOOR PLANS & SECTIONS



HIGH RISE COMMERCIAL RESORT DESIGN

semester 7 project



LOCATION & SITE DETAILS



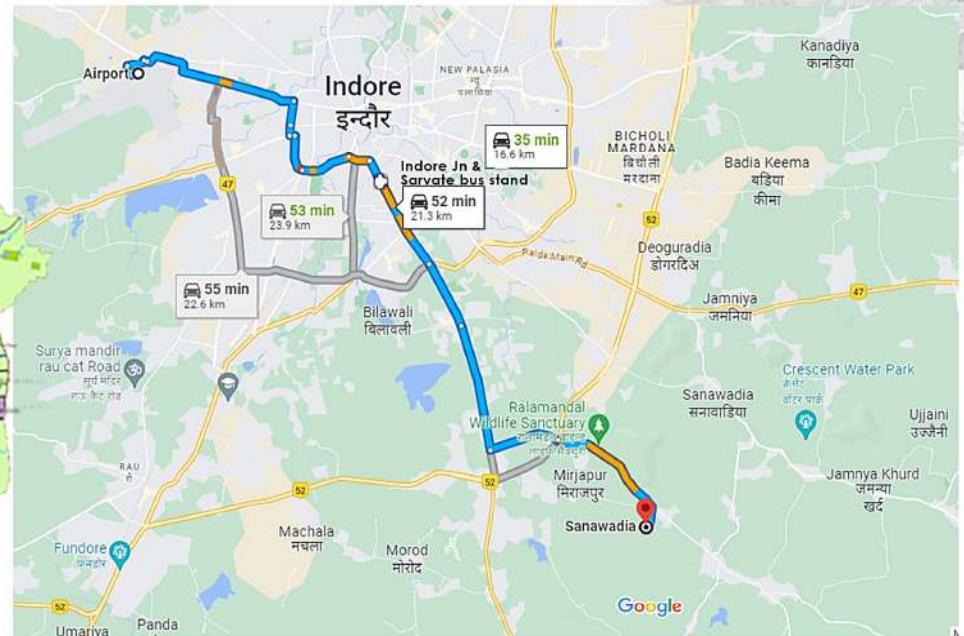
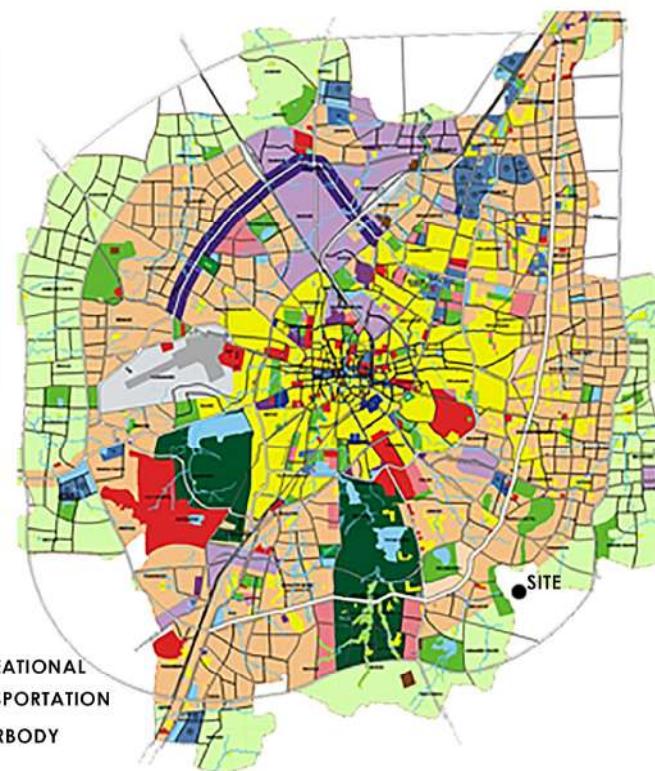
SITE LOCATION - 22°37'43.7"N, 75°55'25.3"E, Sanawadia, Indore



- EXISTING RESIDENTIAL
- PROPOSED RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- PUBLIC & SEMI PUBLIC

DESIGN INTENT

To understand the concept of Climate Responsive Architecture and the related Construction techniques to work with reference to the Site Responsive Design, i.e. – Design in Context to site. To understand the needs of multiple user groups and their interrelationships & to create a more userfriendly environment



SITE PARAMETRES

Total site area - 3.9 Acres (15794 sq.m)
Minimum front set back of 9 meters and minimum of 6 meters on all sides.
Maximum permissible ground coverage of 35%
Parking for two wheelers and four wheelers including cars, vans and mini buses for visitors and staff as per standard building guidelines
Other Requirements such as F.A.R., Building heights, Lighting & Ventilation, Firefighting, etc will be as per the local authority guidelines.

SITE DEVELOPMENT & ANALYSIS

NEARBY ATTRACTIONS & SURROUNDING VIEWS



View towards North
(Ralamandal hill top)



SITE ON MAP



View towards North East
(crescent water park)



View towards South
(chhota mandal pahad)



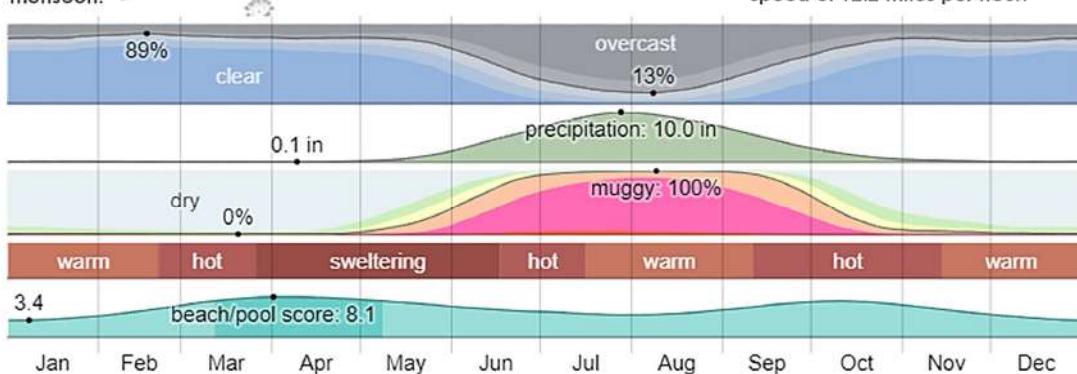
View of the Approach road
(Tillore road from ralamandal square)

SITE CLIMATIC DATA

Indore lies on a borderline between a humid subtropical climate (Köppen climate classification Cwa) and a tropical savanna climate (Aw).

Because of its high elevation and inland location even during the hottest months the nights are relatively cool, which is known as Shab-e-Malwa. Three distinct seasons are observed: summer, monsoon and winter.

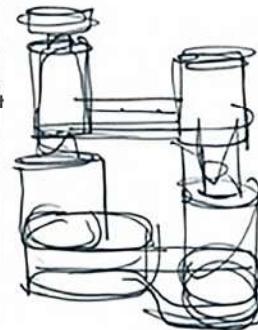
Indore gets moderate rainfall of 700 to 800 millimetres (28 to 31 in) during June–September due to the southwest monsoon.



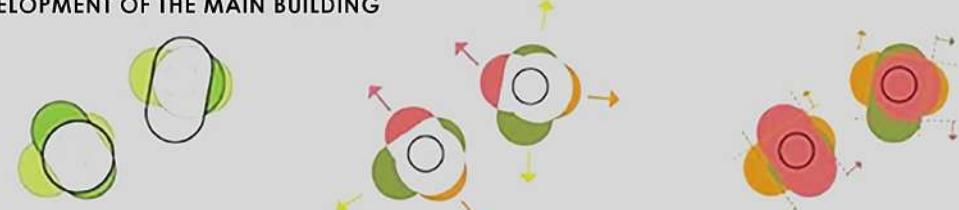
CONCEPT

The Circle symbolizes unity, stability, rationality. It is also the symbol of infinity, without beginning or end, perfection, the ultimate geometric symbol. It represents a completeness which encompasses all space and Time. Inspired by the symbolism of the Circle, I have used the geometric round shape in my building design. Curved the edges of the structure from top to bottom to create a simple yet elegant building that would possess the calm, ideal beauty of the classical architecture.

The building is composed as a dynamic arrangement of stacked volumes that are a formal and programmatic counterpoint to the extrusion of massing that exemplifies the Highrise as a building type. By breaking down the scale and massing of the two distinct towers into interconnected circular volumes. Each volume consist of a collection of roof gardens, shared amenities, recreational zone and internal circulation around light filled open atrium space, the vertically distributed massing elements creates a unique 8 storey commercial structure with a rooftop lounge on the skyline.

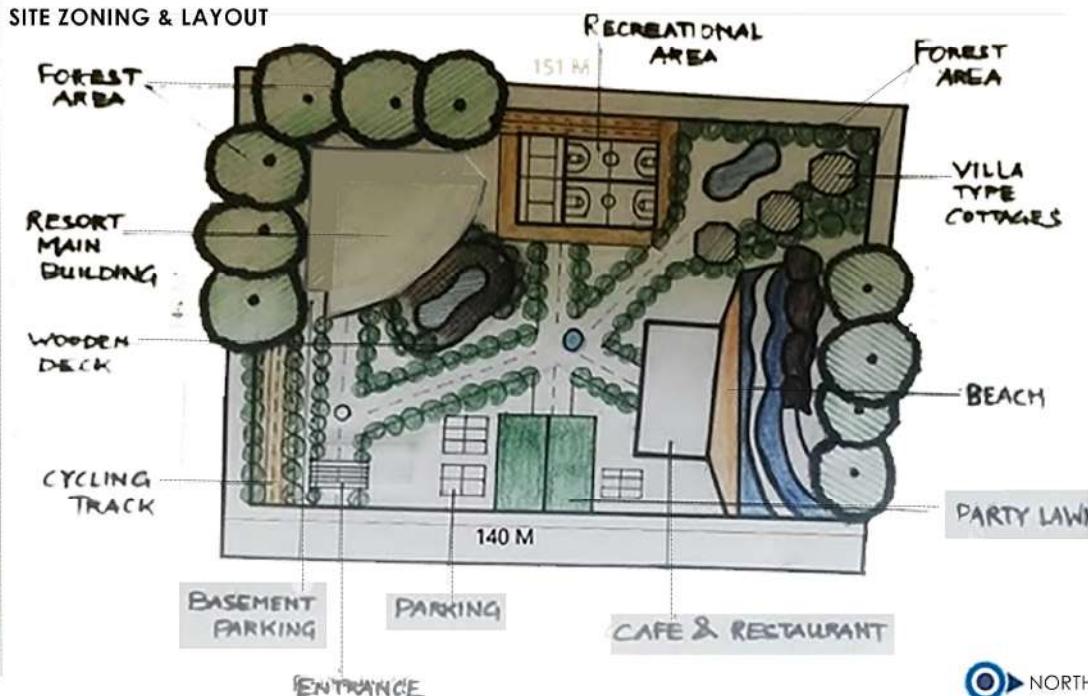


DEVELOPMENT OF THE MAIN BUILDING



The main building which is a resort tower consists of three major components: a base, the stacked volumes, and a sky bridge. At the base, a plinth connects the towers and provides space for park side condominiums and a covered drop off area beneath. Secondly, the stacked volumes provide gardens, open-air stacks through the cores and a sense of discrete communities within the larger complex. Thirdly, a sky bridge high above not only structurally connects the two towers cores, but also provides public amenities in the sky overlooking the whole area around.

SITE ZONING & LAYOUT



SITE PLAN & VIEWS

- 1. CHECKING AREA
(Marking of Vehicles)
- 2. BUILD BLOCK 1
(Resort Main Building)
- 3. ENTRANCE PLAZA
(Entry/Exit common)
- 4. DROP OFF & EXIT
(For Public Vehicles)
- 5. WAY TO BASEMENT PARKING
- 6. SWIMMING POOL
(With Deck Seating)
- 7. RECREATIONAL AREA
(Tennis & Basketball Court)
- 8. PARTY LAWNS
(2 in no.)
- 9. BEACHSIDE CAFETERIA
(Artificial Beach)
- 10. VOLLEYBALL COURT
(Beachside)
- 11. FUTURE EXPANSION
(Villa Type Cottages)
- 12. FOREST AREA (Artificial)
- 13. CYCLING TRACK
(Around 200m)
- 14. ON SITE PARKING
(Two + Four Wheel)



LEISURE ZONE AT 5TH FLOOR



ENTRANCE PLAZA



PORCH AREA AT 2ND FLOOR



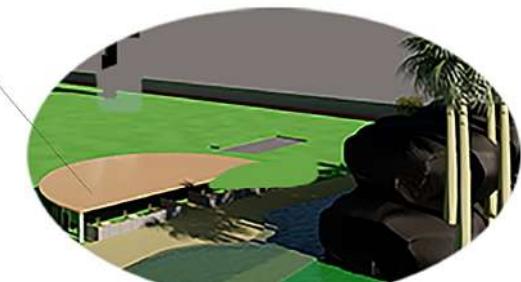
ROOFTOP LOUNGE



SEATING AREA OF THE ROOFTOP LOUNGE



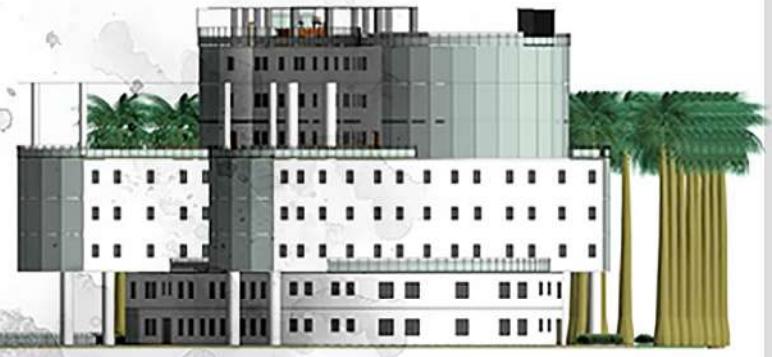
VIEW OF BEACH FROM INSIDE THE CAFETERIA



BEACHSIDE CAFETERIA & RESTAURANT

FLOOR PLANS, SECTIONS, ELEVATIONS

ELEVATIONS



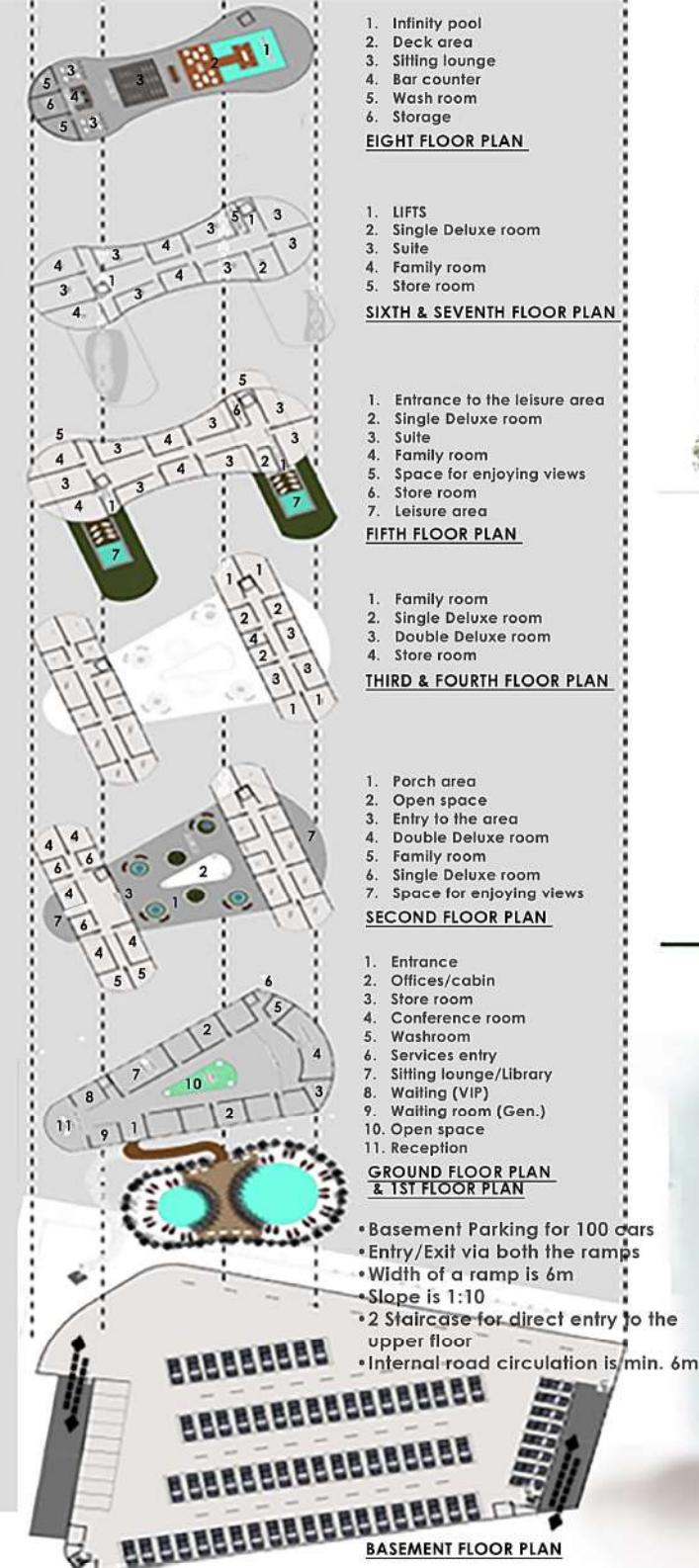
NORTH



EAST



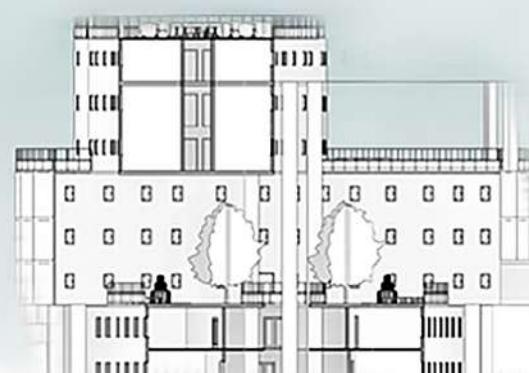
SECTION THROUGH BASEMENT



SOUTH



WEST



VERTICAL SECTION

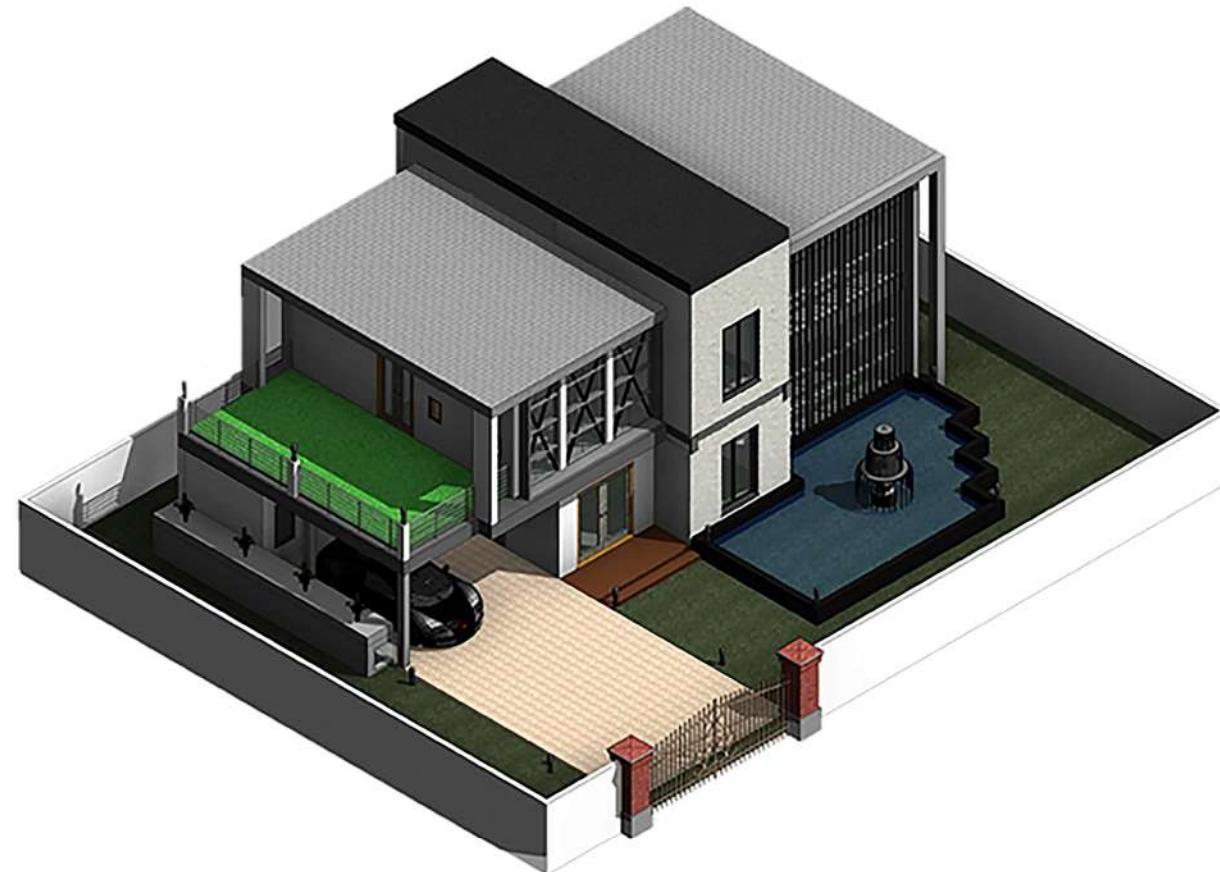
3D MODEL/RENDER



MODERN RESIDENCE

22m X 17m

self project



DESIGN PROPOSAL

DESIGN BRIEF

DESIGN BRIEF: Modern residence refers to a type of residential architecture and interior design that emphasize simplicity, clean lines, functionality, and minimalism. It is characterized by a sleek, contemporary aesthetic that utilizes modern materials, such as glass, steel, and concrete, to create open, light-filled spaces.

Modern residences typically feature large windows, open floor plans, and minimalist decor, with a focus on maximizing natural light and creating a seamless flow between indoor and outdoor spaces. Furniture and accessories are often chosen for their clean lines and lack of ornamentation, and the color palette tends to be neutral, with white, black, and gray being prominent.

Overall, modern residences prioritize function and practicality, while still providing a comfortable and stylish living environment.

AIM

To create a beautiful and luxury Duplex residence for a family of 4 with the modern design principles mentioned above.

To create a stunning building facade which can cater to the neighbouring surroundings with the provision of water fountain at front and surrounded by green cover from all the sides.

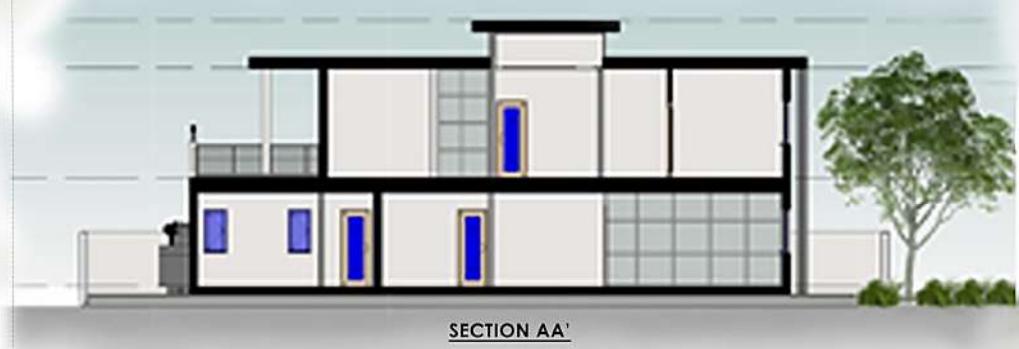
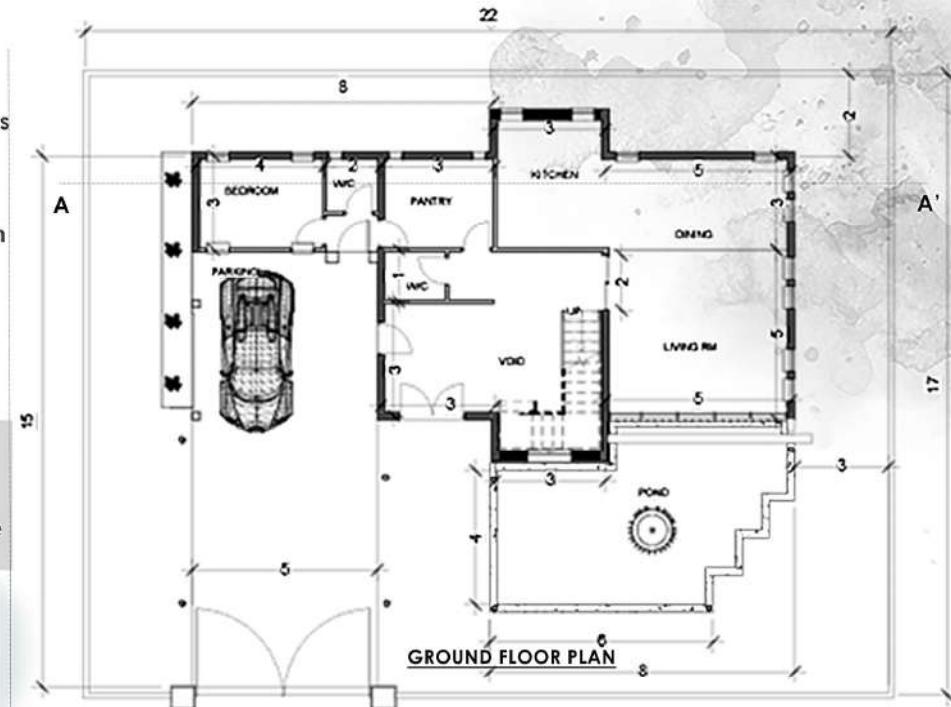
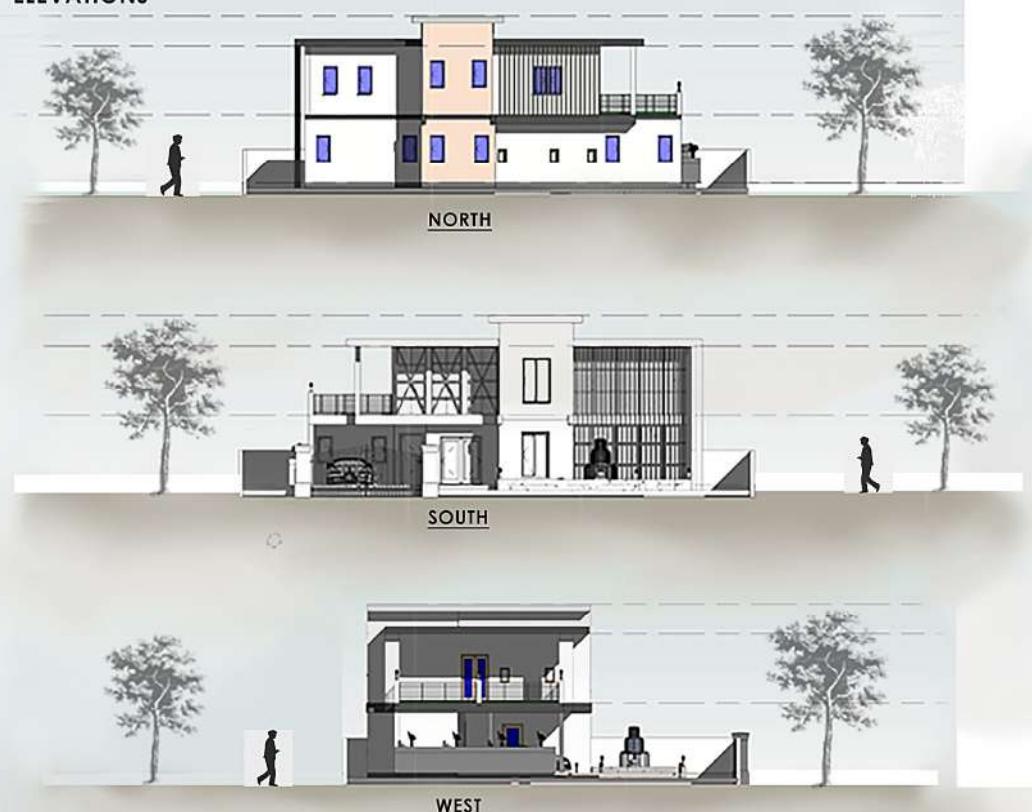
SIZE - 22m x 17m

BUILT UP USED - 30%, REST - for landscaping/green cover

STR. - G+1, no provision for terrace area

Should have atleast 1 guest bedroom, Car parking for 2 to 3 cars and a multipurpose hall for all the activities and gathering in a single go.

ELEVATIONS



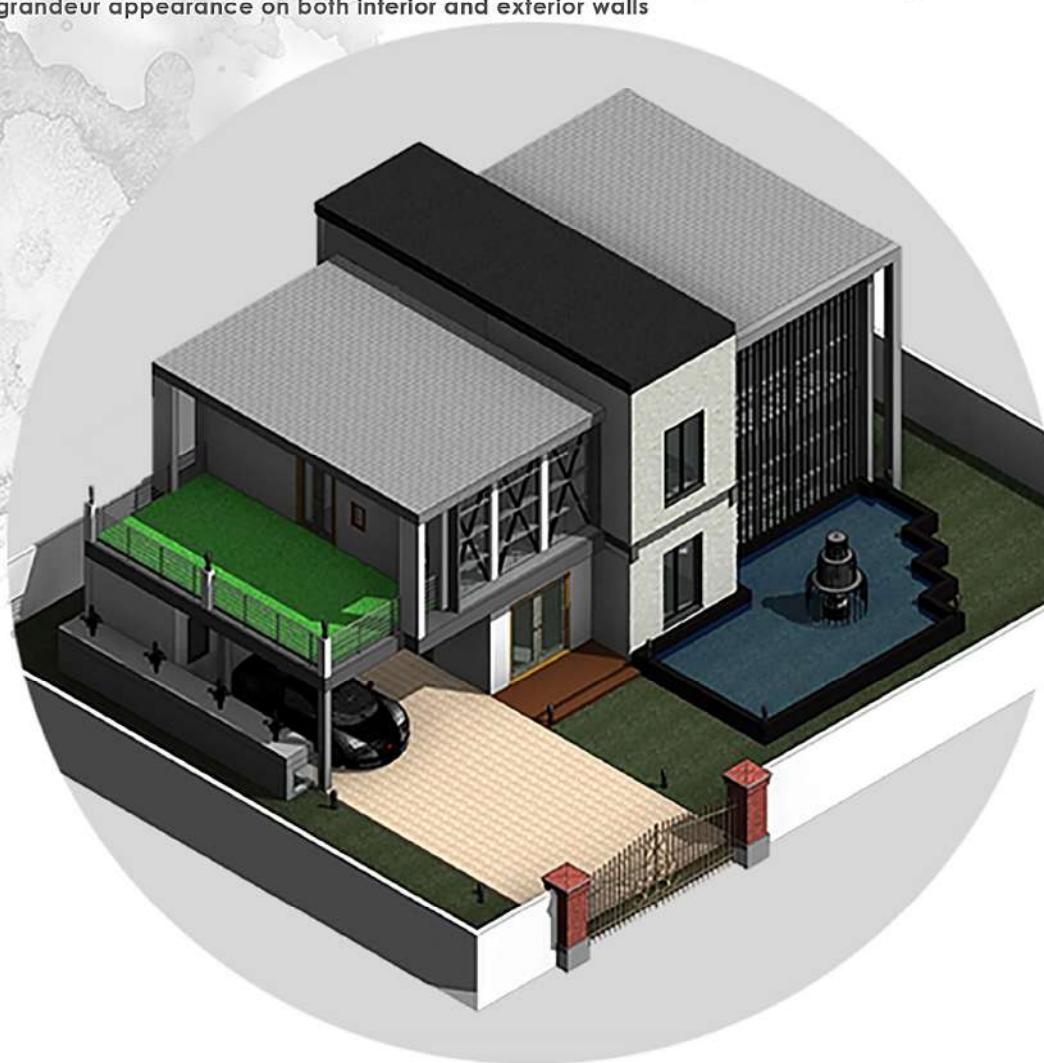
3D MODEL/RENDER

FACADE - EXTERIOR & INTERIOR

This is a South Facing House with 4 bedroom and a multipurpose hall at the upper floor, a guest room at the ground floor with a pantry separate from house kitchen and a water fountain in front surrounded by lush green landscape. All in all this is what a family of 4 needs. Also there is plenty of space to extend and that with a sensible scheme there shouldn't be any problems in doing it. The front entrance leads to a huge void area which has a W/C and a staircase that leads to upper floor area, beneath the staircase there's a multipurpose storage unit. This void can make leaving and entering your home a smoother process and clutter free with well designed Foyer space which could accommodate a bench, or a console table, or a bench with a niche behind it for 'home tone display'.

The house is a beauty from the front because of its facade, the center which is extended 1.5m from the entrance and is made up of wood which functions as a protector from extreme weather such as heat, rain, and strong winds also prevent direct sunlight from entering the house which keeps the temperature inside stable. Choosing the right house facade materials, such as wood or stone, is proven to be able to absorb and remove moisture which keeps the humidity in the house stable. In addition to humidity, choosing the right material can also absorb and store heat during the day. This is of course very useful in keeping the room temperature warm at night and also helps to keep the air in the house fresh and clean.

Apart from it the windows which acts as a house storefront with some horizontal and vertical panels attached on it serving as the sun shade device which adds the aesthetic value and character to the house. The double heighted railing and the pilaster with 4mm grooves on it is a unique structural element is a copy from the roman architecture which provides grandeur appearance on both interior and exterior walls

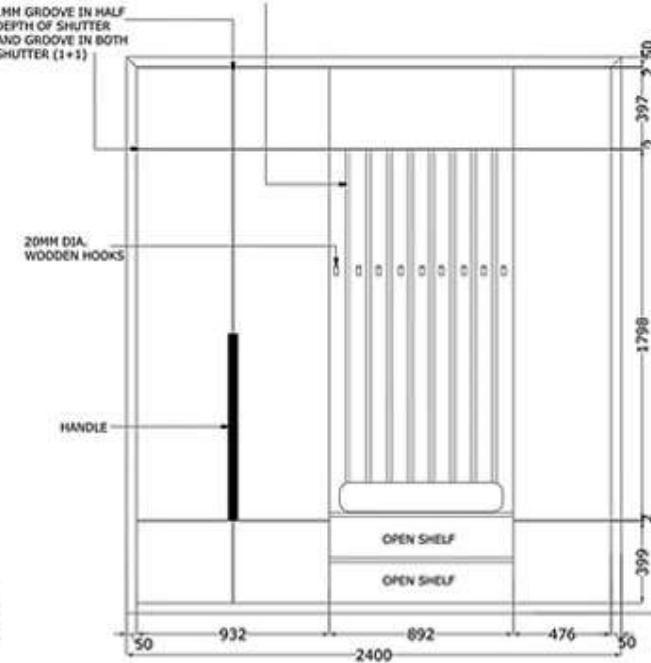
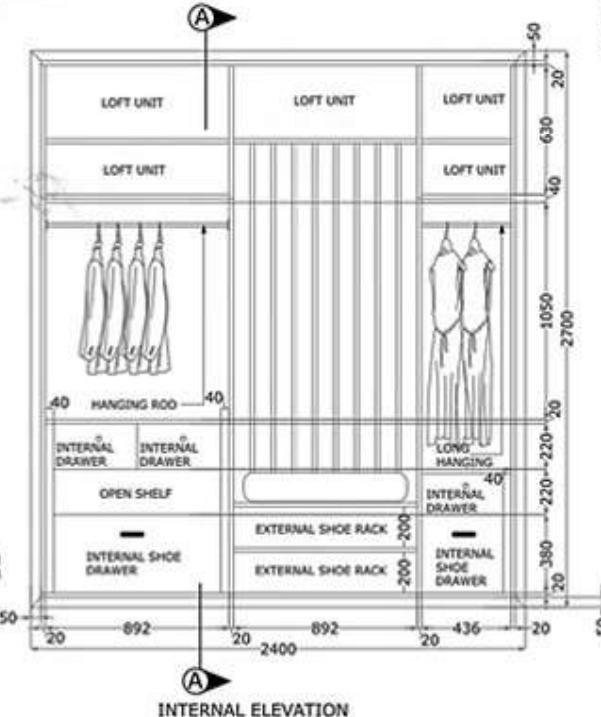
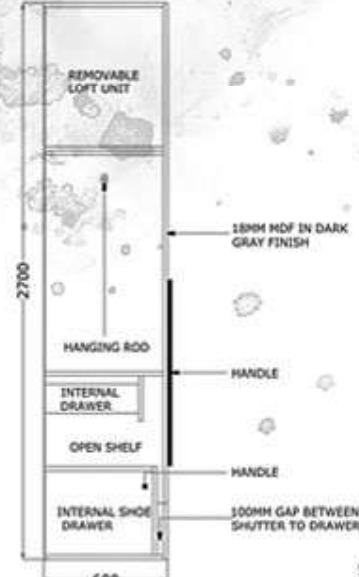
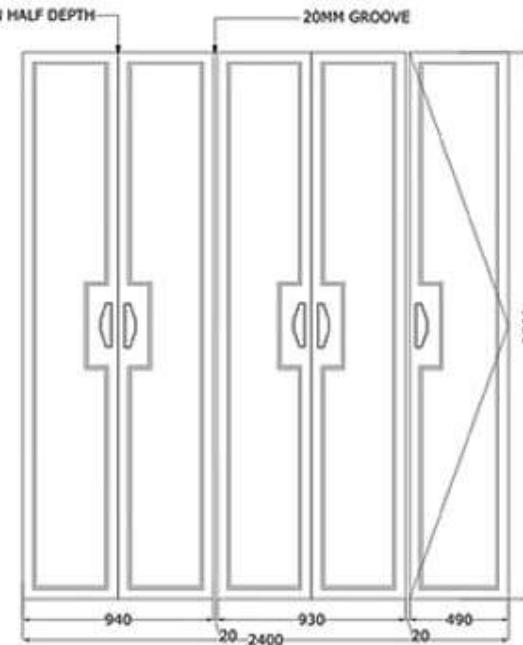
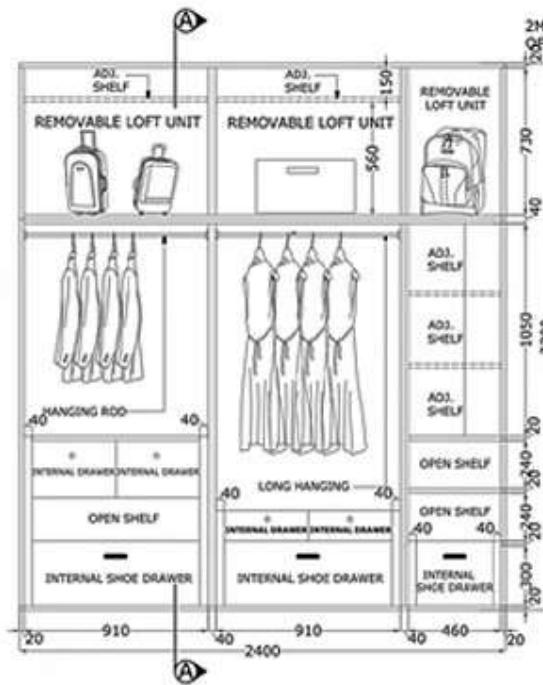


INTERIOR DESIGN WORKS

semester 5 project

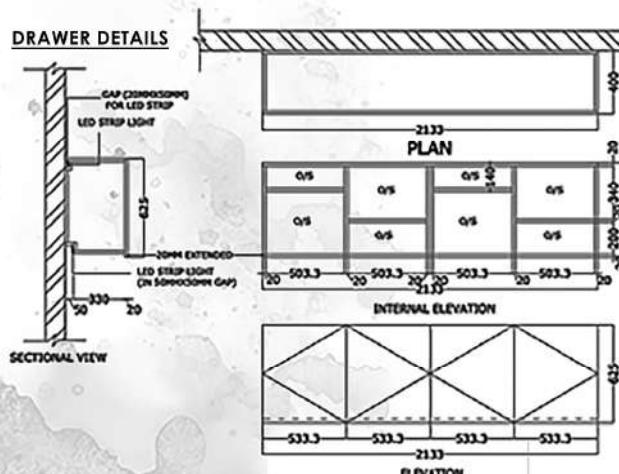


CUPBOARD DESIGN & DETAILING



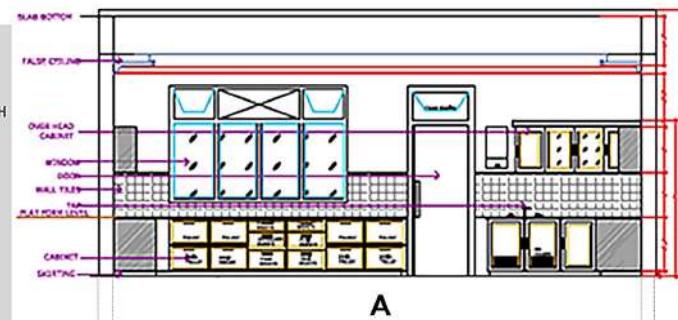
KITCHEN INTERIOR & DETAILS

DRAWER DETAILS



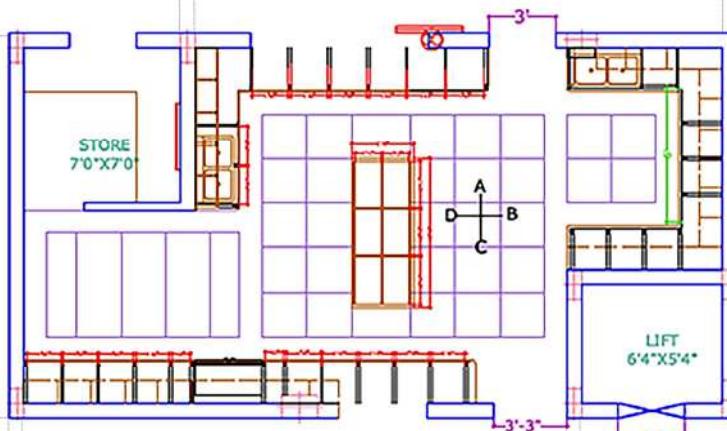
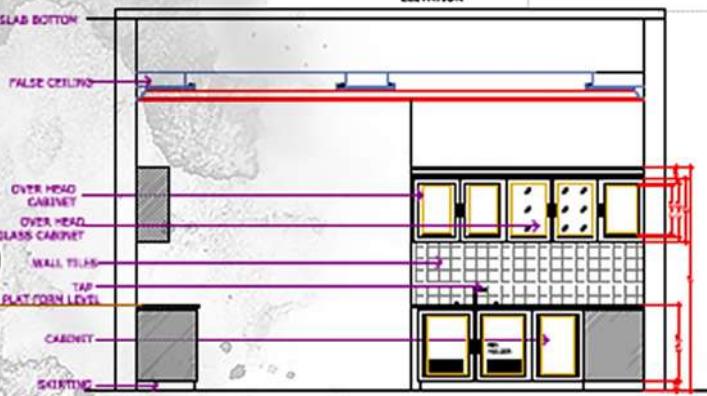
NOTE -

- S IN 18MM
PLYWOOD IN PU FINISH
IN PU FINISH
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ROM HETTICH
ED STRIP LIGHT WILL BE
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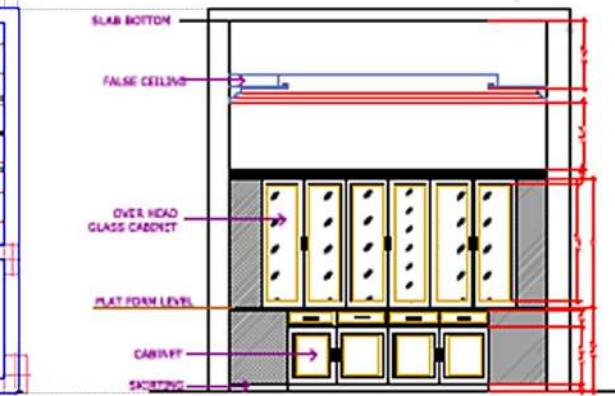
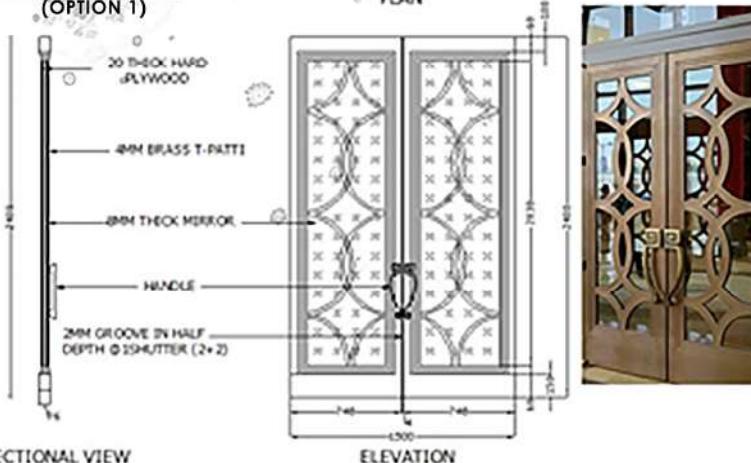


SCHEDULE OF DRAWERS -

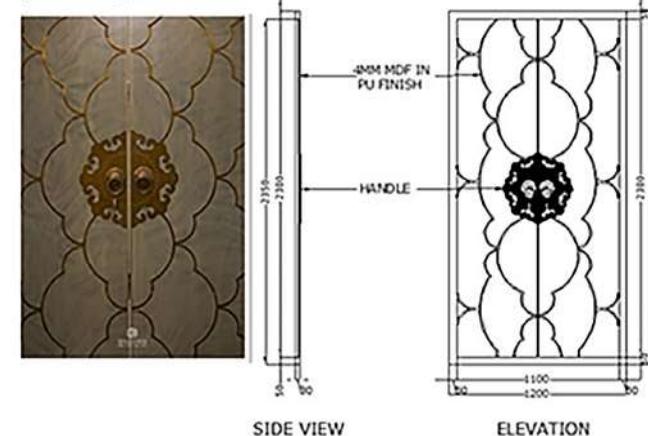
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CUTLERY BASKETS	19"	20"	6"	20"	PULLOUT	19"	20"	12"	20"
PLAIN BASKETS	19"	20"	6"	20"	CYLINDER PULLOUT	19"			
PARTITION BASKETS	19"	20"	8"	20"	BOTTLE PULLOUT	19"	20"	12"	20"
CUP/Saucer BASKETS	19"	20"	8"	20"	GRAIN TROLLEY	19"	20"	12"	20"
THALI BASKETS	19"	20"	8"	20"					



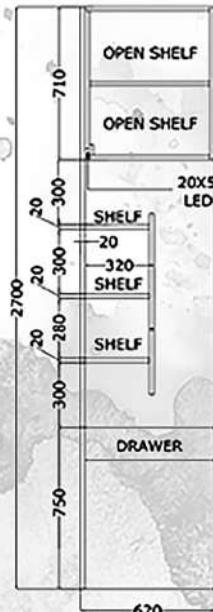
DOOR DETAILS
(OPTION 1)



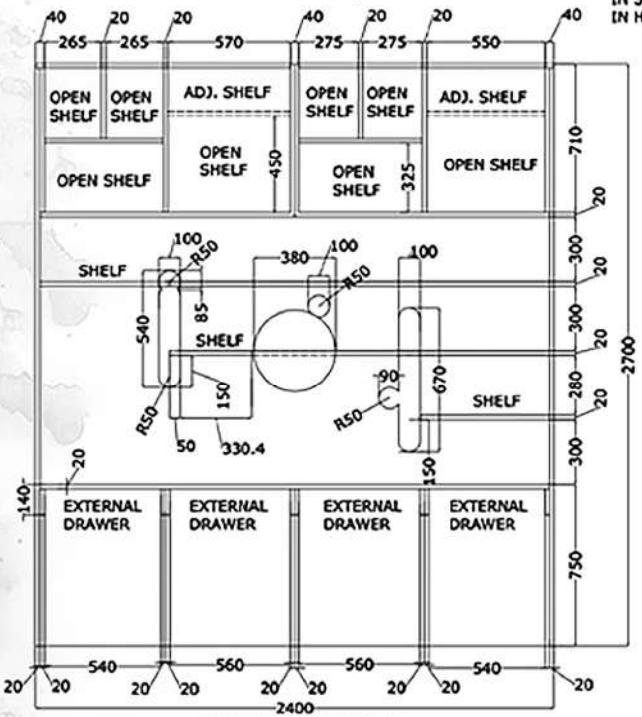
DOOR DETAILS
(OPTION 2)



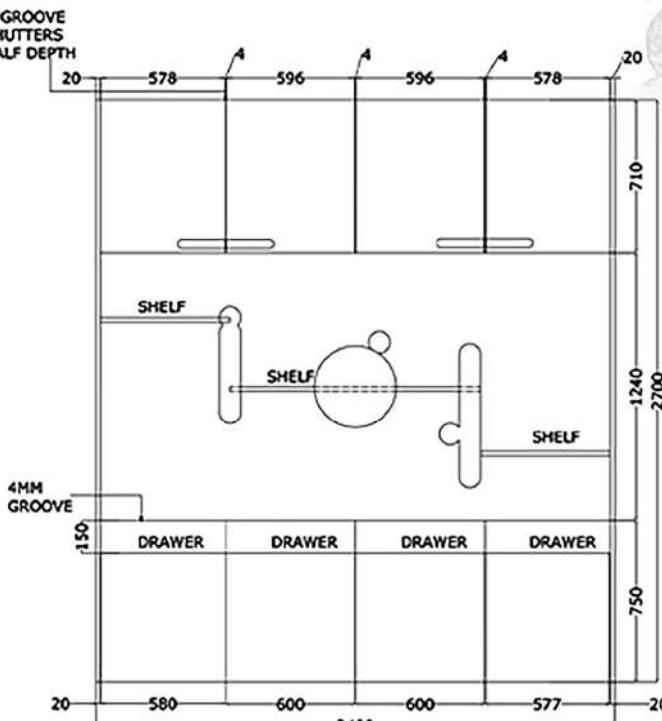
OFFICE WALL & DESK DETAILS



**SECTIONAL
SIDE VIEW**



INTERNAL ELEVATION



EXTERNAL ELEVATION



RENDER IMAGE

TOP VIEW - BEDROOM



- 18MM PLYWOOD IN LAMINATE FINISH
(IN DOOR)
- 20MM PLYWOOD IN LAMINATE FINISH
(IN CUPBOARD WITH 4MM GROOVES)
- 8MM BOX TYPE DESIGN IN DARK GRAY PU FINISH
(STORAGE FOR TV UNIT)
- SOME PARTS IN GOLDEN PU FINISH
- SKIRTING CONSIDERED 50MM
- 10MM DIA. METALLIC HOOKS IN CUPBOARD
(FOR OPENING OF THE CABINET)
- BED CARCASS IN BWR PLYWOOD IN LAMINATE & PU POLISH
- HEADBOARD IN BWR PLYWOOD IN FOAM AND LEATHER QUILTING FINISH
- BED DETAILS AS PER 150MM THICK MATTRESS
- WOODEN LEG OF 50MM DIA. IN BLACK PAINT FINISH
- BED HEADBOARD WILL BE 50MM UP FROM FLOOR

SIZE - 4000MM X 4000MM



DRAWING ROOM - 6X5 (30SQ.M.)

PRODUCT DESIGN

semester 6 project



PRODUCT DESIGN - SMART COMPASS

WHAT IS PRODUCT DESIGN ?

Product design describes the process of imagining, creating, and iterating products that solve users' problems or address specific needs in a given market.



WHAT DOES THE PRODUCT DESIGN PROCESS LOOK LIKE ?

The details of the product design process will vary from company to company, but these professionals do tend to follow a similar philosophy or framework when it comes to design thinking. The design-thinking process involves several steps:



IMPACT OF TECHNOLOGY ON PRODUCT !

- Technology has revolutionized the way companies conduct business by enabling small businesses to level the playing field with larger organizations – to develop competitive advantages in the economic marketplace.
- Small business owners can use technology to reduce business costs.
- To create secure environments for maintaining sensitive business or consumer information.
- Helps small businesses improve their communication processes. Emails, texting, websites and apps, for example, facilitate improved communication with consumers & also improves inter-office communication as well.
- Allows small businesses to reach new economic markets. Rather than just selling consumer goods or services in the local market, small businesses can reach regional, national and international markets.
- Allows companies to outsource business functions to other businesses in the national and international business environment. Outsourcing can help companies lower costs and focus on completing the business function they do best. Technical support and customer service are two common function companies outsource.
- E-commerce allows small businesses to reach wider audiences that are outside of their geographical area, which can be particularly useful for small niche offerings.



THE FUTURE

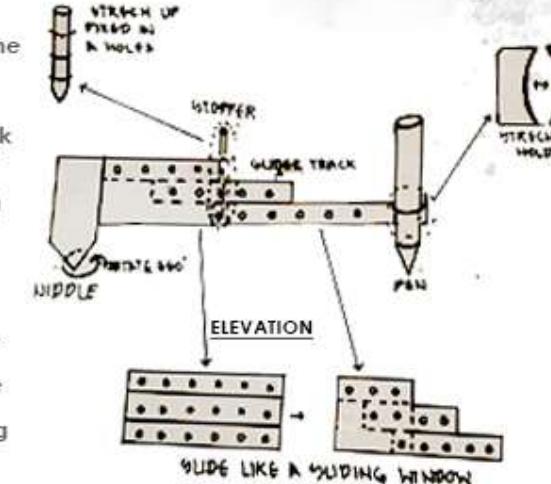
Modern information technology has gained popularity rapidly since the mid-twentieth century, and the trend is likely to continue into the future. As IT solutions continue to increase the efficiency and effectiveness of business operations and communications, businesses will continue to rely on IT for success.

WHAT IS THE NEED OF SMART COMPASS/DRAWBACKS IN A REGULAR COMPASS

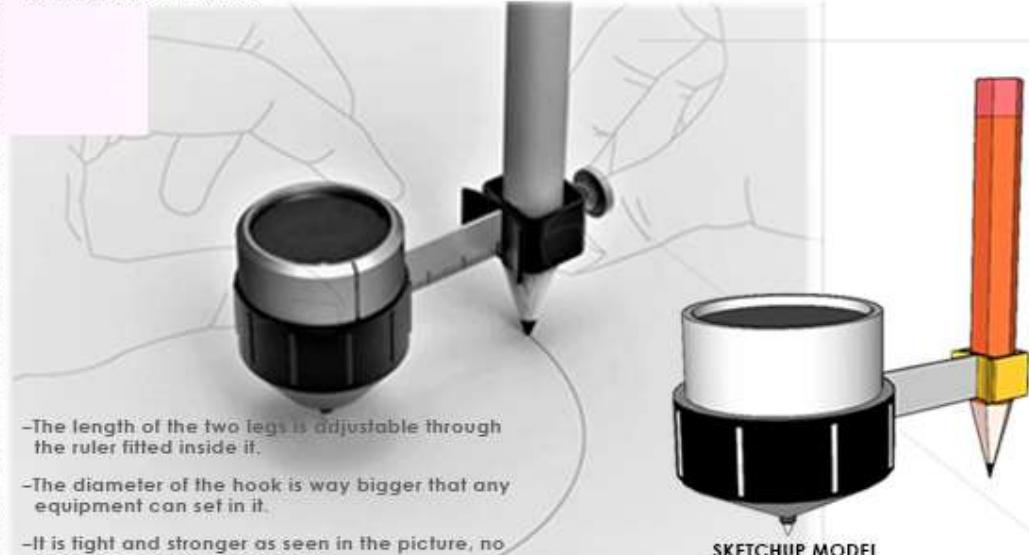
- The existing compass couldn't draw a circle of wanted size without a ruler. As well, one must have drawn a circle by measuring with a ruler and set the wanted size whenever you draw a circle. We need a ruler to use a compass. Without a ruler, we cannot draw a circle with wanted size of radius.
- Distance between the two legs of a normal compass is so small, that bigger circles are not even possible.
- The diameter of the hook hanged sideways is also small, only pencil or diameter likewise to it is possible.
- The bolts and screws become too loose when the compass gets old.

CONCEPT GENERATION

- We need to make the distance between the two legs flexible, such that distance shouldn't matter.
- We need to make the diameter of the hook adjustable, so that any kind of equipment should be set in it (including pen, pencil, markers, touchwood, rendering pens, etc)
- Compass must draw a wanted size circle easily without measuring the size with a ruler every time.
- When you move a leg of the compass, the gradation will revolve to show the radius. When you move a leg of the compass, the gear connected with the leg of the compass will express the radius by moving the center axis.



3D MODEL & RENDER



HORTICULTURE CREATIONS

self project







2D RENDERINGS

self project







DUPLEX - 23'7" X 35'4"



PLOT SIZE - 32' X 55'



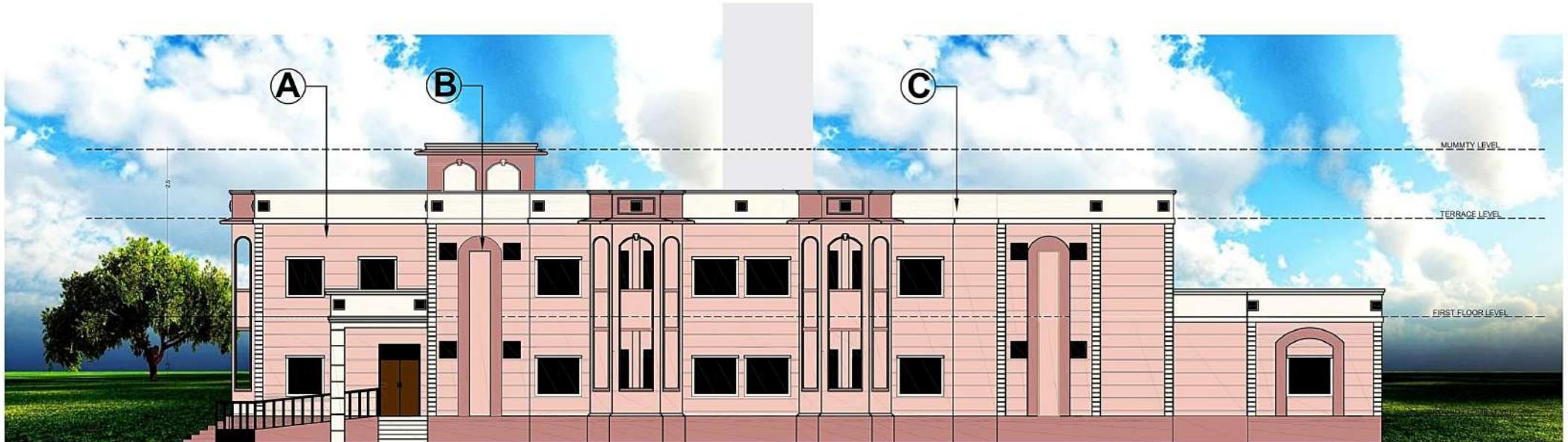
MULTY/APARTMENT



SHOP CUM RESIDENCE - 56'3" X 50'4"



MULTY/APARTMENT



FRONT ELEVATION

(A)



NURSERY PINK
(8058)

(B)



PINK SANDSTONE
(K223)

(C)



ABSOLUTE WHITE
(CODE - L161)

60 SEATER HOSTEL BUILDING

3D RENDERINGS

self project





600 sq. ft. DUPLEX



DUPLEX PLOT - 45'X55'



CLASSICAL ELEVATION DESIGN - 27.2mX19.7m



CLASSICAL DESIGN OF RESIDENCE - 16.69mX13.31m



HOUSING SOCIETY CONSISTS OF DUPLEXES - 23'7"X35'4"