

AUTOMOBILE HUB

A THESIS

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

By

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(39210036)



**DEPARTMENT OF ARCHITECTURE
SCHOOL OF BUILDING AND ENVIRONMENT**

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY (DEEMED TO BE UNIVERSITY)
Accredited with Grade "A++" by NAAC | 12B Status by UGC | Approved by AICTE
JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI - 600 119**

MAY - 2024



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BONAFIDE CERTIFICATE

This is to certify that Thesis Report is the bonafide work of **KARTHIKEYAN M (39210036)** who carried out the Thesis entitled "**AUTOMOBILE HUB**" under our supervision from December 2023 to May 2024.

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Submitted for Viva voce Examination held on 23/5/24

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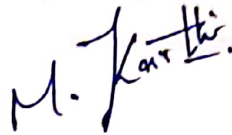
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DECLARATION

I, KARTHIKEYAN hereby declare that the Thesis Report entitled "AUTOMOBILE HUB" done by me under the guidance of Ar.Ramesh Kumar (Internal Guide), Ar.Selvendiran (Internal Review Member) and Ar. Kurlan George (External Guide) Sathyabama Institute of Science and Technology is submitted in partial fulfillment of the requirements for the award of Bachelor of Architecture Degree.

DATE: 23/05/2024.

PLACE: Chennai



SIGNATURE OF THE CANDIDATE

ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to Board of Management of **Sathyabama Institute of Science and Technology** for their kind encouragement in doing this Thesis and for completing it successfully. I am grateful to them.

I convey my thanks to **Dr.Devyani Gangopadhyay**, Dean and Head of the Department, School of Building and Environment, Our Design Chair **Ar.Sarath C.Kanth**, Thesis Coordinator **Ar.Mohana Gopiraj** for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Thesis Internal guide **Ar.Ramesh Kumar**, Internal Review member **Ar.Selvendiran** and External Guide **Ar.Kurian George** their guidance, suggestions and constant encouragement which paved the way for the successful completion of my Thesis work.

I wish to express my thanks to all Teaching and Non-teaching staff members of the **Department of Architecture**, who were helpful in many ways for the completion of the Thesis.

KARTHIKEYAN M

THESIS SYNOPSIS

The purpose of the project "AUTOMOBILE HUB" is, Chennai though an Urbanizing city is still in lacking in a lot of fields, one of it mainly being automobile sale. Separate showrooms for vehicles are found all around the city but are still not Convenient because, it puts people in a confused state of mind where they don't know What to choose, resulting in wrong choices that are regretted later. To bring a solution to this dilemma is the proposal of an automobile hub, Accommodation all brands under one roof, helping in precision and sense of Satisfaction.

Table of Contents

THESIS SYNOPSIS	v
LIST OF FIGURES	viii
LIST OF PLATES	ix
CHAPTER 1: INTRODUCTION	1
1.1 AUTOMOBILE HUB	1
1.2 AIM	3
1.3 OBJECTIVES	3
1.4 NEED FOR THE PROJECT	3
1.5 SCOPE	4
CHAPTER 2: LITERATURE STUDY	5
2.1 SHOWROOM DESIGN	5
2.1.1 Showroom Design – Position	6
2.1.2 Showroom Finish.....	7
2.1.3 Display Area.....	7
2.1.4 Location of the showroom	9
2.1.5 Customer Reception.....	9
2.1.6 Office	9
2.1.7 Meeting Room.....	10
CHAPTER 3: LITERATURE CASE STUDY	11
3.1 PORSCHE EXPERIENCE CENTRE	11
3.2 BMW EKRIS SHOWROOM	12
3.3 BENZ MUSEUM	13
CHAPTER 4: LIVE CASE STUDY	15
4.1 LANSON TOYOTA	15
4.2 LEXUS SHOWROOM	16
CHAPTER 5: ANALYSIS	17
5.1 SITE ANALYSIS	17
5.2 SITE ZONING	19

CHAPTER 6: DETAIL DESIGN DRAWINGS.....	24
CHAPTER 7: CONCLUSION	30
REFERENCES	31

LIST OF FIGURES

Figure i Exterior of Showroom	5
Figure ii Exterior finish of showroom	5
Figure iii Oblique approach.....	6
Figure iv Direct approach	6
Figure v Exterior display area of showroom	6
Figure vi Interior display area of showroom.....	7
Figure vii showroom interior finish	7
Figure viii Linear arrangement of cars	8
Figure ix Radial arrangement	8
Figure x Random arrangement.....	8

LIST OF PLATES

Plate 1 Porsche experience Centre	11
Plate 2 BMW Ekris showroom	12
Plate 3 Benz Museum	13
Plate 4 Benz Museum	14
Plate 5 Lanson Toyota	15
Plate 6 Lexus Showroom	16
Plate 7 Site Analysis.....	17
Plate 8 Site Analysis.....	18
Plate 9 Site Zoning	19
Plate 10 Standards.....	22
Plate 11 Standards.....	23
Plate 12 Concept.....	24
Plate 13 Site plan	25
Plate 14 Ground floor plan and Section.....	26
Plate 15 First floor plan and Elevation.....	27
Plate 16 Second floor plan	28
Plate 17 Views.....	29

CHAPTER 1: INTRODUCTION

1.1 AUTOMOBILE HUB

The history of urban transportation is first a story of the evolution of technology that has been gradually increasing with speed, vehicle capacity, and range of travel that has shaped cities and structured the lives of those who live in them. Daily Transport plays an important part in the economic growth and globalization. Transportation is a major necessity in most industrialized nations. Automobiles therein play an important role in promoting transport. Now speaking of automobiles there are a number of brands that launch different models of auto movers with unique styles, creating confusion in the buyers minds as to "what brand to buy or what is it that they really want?" Therefore, a cohesive conclusion for such confusion is an automotive complex, understanding the needs of the crowd, displaying all brands of transportation means and services under a single roof. The Automotive Complex Project plans to provide a place of international business for both domestic and overseas Automobile Corporations, where a large-scale, production-line manufacturing of affordable automobiles can be debuted. An automobile complex could be the fourth dimensional gateway to a new era of automobiles, thereby inviting new brands and dealers under a single roof. Creating a complex of auto movers is like a mile stone, definite and productive. Chennai, though a metro city still lacks in a lot of fields, when in comparison to other urban cities. One of the medians of communication with other well-renowned countries and cities is the magnanimous use of automobiles by the crowd today. Automobile seems to have become one of the basic necessities apart from food and clothes these days. When such a demand is being realized, it is time to take a step ahead in promoting an automobile complex which could pave a connection to other countries and in return increasing production sales and the economy on the whole which leads to the macroscopic development of the country in itself. An automobile complex is just an ignition spark, in promoting automobiles at a faster, easier and in a more satisfactory way to buyers of all classes. A thorough study is done on different classes of people and their needs and the sales and exhibits are categorized accordingly, to suit fashion and demand. Automobiles were once owned by lovers of luxury, but today has become a normal

commodity to suit one and all. There is a saying, "men walked the earth. This phrase has become a metaphor. Everything we see is techno based. Transportation, once considered difficult, is now one of the easiest. Everything we see or learn these days has been once insignificant and has stepped up to what it is today. Automotive complex though now considered significant is a sure boon to the automobile industry as well as the economic growth. Therefore, an automotive complex is a platform for a productive interaction between the buyers and sellers. As one of the national pillar industries and the, representative of complex product, automotive industry has already marched towards complete independent innovation nevertheless, automotive manufacturing enterprises always keep the innovation process tightly sealed in its internal environment, and would not like communicate and cooperate with other organization, especially with their competitors. Hence making marketing under a single roof, more profitable and competitive. Undoubtedly, they will restrict the optimized and controlled effects of progress, quality and cost factors of innovation process. The automotive industry in India is one of the largest in the world and one of the fastest growing globally. The level of technology change in the Motor vehicle Industry has been high but, the rate of change in technology has been medium. Investment in the technology by the producers has been high. System- suppliers of integrated components and sub-systems have become the order of the day. However, further investment in new technologies will help the industry be more competitive. Over the past few years, the industry has been volatile. Currently, India's increasing per capita disposable income which is expected to rise by 106% by 2015 and growth in exports is playing a major role in the rise and competitiveness of the industry. The role of the complex will primarily be in designing and manufacturing products of world-class quality establishing cost competitiveness and improving productivity in labor and in capital. With a combined effort, the automotive industry will emerge as the destination of choice in the world for design and manufacturing of automobiles. Determinants of demand for this industry include vehicle prices (which are determined largely by wage, material and equipment costs) and exchange rates, preferences, the running cost of a vehicle (mainly determined by the price of petrol), income, interest rates, scrapping rates, and product innovation.

1.2 AIM

The aim is to enable a coherent approach to planning and design, manufacture, transportation, storage, vehicle exhibition, sales and

- To bring all renowned brands of auto mobiles under one roof.
- To provide a single platform for dealers and sellers.
- To create a sense of awe to the buyers and also offering them a wide range of choice.
- To ensure distribution channels for completed automobiles and vehicle parts.
- To attract business functions related to the automotive industry.
- To built /create an Automobile hub and showroom along with a Experience Centre that gives live experience to the customers.

1.3 OBJECTIVES

- To study the alternative technologies in auto mobile industry.
- To create a sense of satisfaction to the crowd on what they need, providing a wide range of choice.
- To provide an infrastructure in such a way as to accommodate different brands of cars and help display efficiently.
- To ensure a healthy competition in the automobile launch.
- To give a real-life experience to the people about cars with real life simulation beds.
- provision of drive-in theatres and other recreational facilities, thereby making it not only place to buy automobiles but a fun place as well.

1.4 NEED FOR THE PROJECT

Chennai though an urbanizing city is still in lacking in a lot of fields, one of it mainly being automobile sale. Separate showrooms for vehicles are found all around the city but are still not

convenient because, it puts people in a confused state of mind where they don't know what to choose, resulting in wrong choices that are regretted later.

To bring a solution to this dilemma is the proposal of an automobile hub, accommodation all brands under one roof, helping in precision and sense of satisfaction.

1.5 SCOPE

The project is not only a buyer sealer platform, but also a recreational space having theatres and food courts accommodating the crowd who does not come to purchase cars as well. The market world today is fast moving and competitive. Thus, making the project a futuristic hub.

CHAPTER 2: LITERATURE STUDY

2.1 SHOWROOM DESIGN

The new car showroom performs a merchandising and advertising function for the entire dealership. The exterior should be designed, decorated, and lighted so it will stand out from its immediate surroundings in an appealing way as well as identify the business quickly and be inviting to potential customers, it represents the basic physical image of the dealership as it first appears to the customer, influencing not only his original valuation of the facility as a place of business but also his continual impression of it. It exerts an immeasurable but certain pressure on owner relation.



Figure i Exterior of Showroom

A typical showroom-built post 1995, would have a double height display area, often with a balcony used as sales Offices. Alternatively, such a showroom may have a high wall head in the display area. The front is sheet glass, giving a prominent display. The showroom area will include offices and customer toilets finished too the same standard as the showroom.

Older showrooms are normally single storey, with prominent glass frontage, and finishes often to a similar standard as the modern unit.



Figure ii Exterior finish of showroom

2.1.1 Showroom Design – Position

Showrooms and ancillary offices/ toilets should be measured on a Gross international basis. Workshops, stores, workshop offices and other uses should be measured on the same basis as comparable industrial buildings.

A showroom will normally face the main road, either directly or obliquely, and be visible from both directions along the road.

Usually, the Location is behind a car display, or landscaped area. No allowance should be made for such a location. The modern style of showroom often has a balcony or gallery area used as sales office. This area should be valued at the same rate as industrial offices.

- They are display areas for a particular product by which they get maximum exposure of all people of all walk of life.
- Generally, showrooms are located on besides highways or prominent place of people gathering and convenient for accessibility from all location of the particular town or city.
- Showrooms should have enough parking space beside it and also need attractive features externally to invite the people in form of landscaping, custom made light effects, musical fountain, natural waterfalls, and granite stroke marble facias.
- In the last few years, a new trend has developed like Alucobond and structure glazing facade to have a durable long-lasting maintenance _ free elevations with LEDs (light emitting displays) signage's, pylon signage's, colorful signage's were adopted.
- Trees are widely used in front of the showrooms for aesthetic purposes.



Figure iii Oblique approach



Figure iv Direct approach



Figure v Exterior display area of showroom

- Eloquence — showrooms are with the modern types of finishing with lot of luxury mixed with luxurious, expensive material to have a rich feeling in all their look which will attract the customer which loosens the high prices of vehicles.
- Showrooms, generally, display as many cars as much the showroom as many cars with many colours and varieties.
- Cars are also displayed externally just in front of the showroom without roof to attract people.
- It is all occasions we have noticed car display on externally on the water body, roof of the building.



Figure vi Interior display area of showroom

2.1.2 Showroom Finish



Figure vii showroom interior finish

- One flooring with combination of porcelain, vitrified tiles, parapet floor, ash tiles, granite marble with stainless steel strips.
- walls are mostly front side of the showroom will be of glass area, columns will be fitted stainless steel cladding.
- Showroom ceilings consists of very expensive Bari sole ceilings, metal ceilings.
- car display platform with the car moving and facility to rotate and rise the car at various heights.

2.1.3 Display Area

The showroom provides large display area for the product display in an attractive Manner were the customers can access the product touch and feel. The arrangements Of the products in the display area are sorted as follows:

Linear Arrangement

These arrangements are to be focused on less spaced area, the arrangement are meagerly to face the external glazed wall for better attraction.



Figure viii Linear arrangement of cars



Figure ix Radial arrangement

Random Arrangement

These arrangements require a large area and artificial environments to be created to add the beauty of the product, these arrangements are commonly seen in the luxury class vehicle showrooms.



Figure x Random arrangement

2.1.4 Location of the showroom

The showroom should be located in a position of unobstructed visibility-one that will readily attract the attention of people passing by. It should present at a glance an impressive and appealing view of the new cars on display. If the building site is on a corner, the showroom should be on the corner facing both streets for maximum customer visibility. Additional new unit display, if desired, can be provided outside the showroom under a canopy or roof extension, adjacent to the customer reception area or through use of a landscaped patio display area. These types of new unit display areas are relatively inexpensive to provide and can be very effective. The minimum space guide for inside showroom display is 50 square meter per unit. Leave at least 1.5m open around each car. This will allow space so that the customer may walk around and open the hood, doors, and trunk freely. Allow as much extra space as possible around the display, so that customers can stand back and get a good view of the car from all angles.

2.1.5 Customer Reception

The reception area should be immediately inside the display entrance, decorated, well lighted, and equipped to create the best possible impression and selling atmosphere. It is strongly recommended that the customer reception area be away from the productive service area. This concept has the following advantages since customers prefer a clean, quiet atmosphere to the normal noise, dirt and congestion of the shop area. Straight-through reception area is preferable and more conducive to service soiling. Traffic control also is much more efficient, with congestion and car maneuvering kept to minimum. Where local climate permits. The outdoor reception area can be designed to attractively complement the building architecture.

2.1.6 Office

The general office should be in a central location, convenient to all operating departments, the size of the general office is determined by the number of employees and the amount of office equipment. Sufficient space should be provided for the storage of stationery, office supplies, and promotional literature.

2.1.7 Meeting Room

When facilities have lunchrooms, these are frequently used as meeting rooms. If it's not possible to have a separate room for meetings, consider installing a folding wall between two small private offices so that they can be opened up into a meeting room. Or consider using the dealer's office for a meeting room. Wherever the meeting room is, it should be possible to darken it so that pictures can be projected. Equipment for film projection should either be permanently set up or be stored in a convenient cupboard. A blackboard and/or chart stand will also be useful.

CASE STUDY

PORSCHE NORTH AMERICA EXPERIENCE CENTER AND HEADQUARTERS

ARCHITECTS: HOK
BUILT UP AREA: 24155 SQM
YEAR: 2016
LOCATION: ATLANTA, UNITED STATES

INTRODUCTION

THE DESIGN OF PORSCHE'S NEW NORTH AMERICAN EXPERIENCE CENTER AND HEADQUARTERS COMBINES OFFICE, TRAINING AND DRIVING FUNCTIONS INTO ONE SLEEK, HIGH-PERFORMANCE FACILITY THAT ENCAPSULATES THE ESSENCE OF THE COMPANY'S BRAND, BRINGING TOGETHER 400 PORSCHE EMPLOYEES FROM FIVE DIVISIONS OF THE COMPANY. THE FACILITY SERVES AS A NEW DESTINATION FOR PARTNERS, CUSTOMERS AND CAR ENTHUSIASTS. AN ESTIMATED 30,000 GUESTS ARE EXPECTED TO VISIT THE PORSCHE EXPERIENCE CENTER EACH YEAR.

DESIGN CONCEPT:

THE DESIGN CONCEPT OF THE PORSCHE NORTH AMERICA EXPERIENCE CENTER AND HEADQUARTERS COMBINES MODERN ARCHITECTURE WITH THE BRAND'S COMMITMENT TO INNOVATION AND PERFORMANCE. THE BUILDING IS LIKELY TO REFLECT PORSCHE'S SLEEK AND DYNAMIC DESIGN LANGUAGE, INCORPORATING CLEAN LINES, GLASS FACADES, AND A LAYOUT THAT EXUDES SOPHISTICATION AND SPEED.

SITE PLAN:



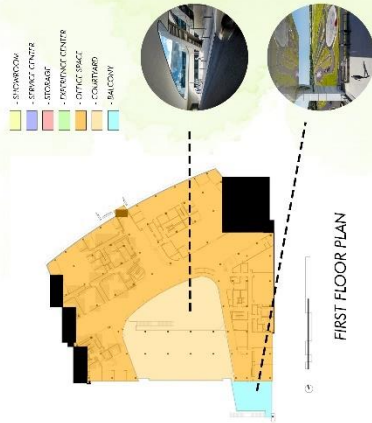
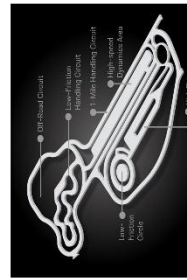
THE TRACK, WHICH RUNS THROUGH THE FACILITY'S COURTYARD, INCLUDES SIX DRIVING MODULES DESIGNED TO DEMONSTRATE THE CAPABILITIES OF DIFFERENT PORSCHE MODELS.



GROUND FLOOR PLAN

NOTABLE FEATURES

TEST TRACK:
 A DEDICATED ON-SITE TEST TRACK WHERE CUSTOMERS CAN EXPERIENCE THE FULL RANGE OF PORSCHE'S PERFORMANCE CAPABILITIES.
PORSCHE CLASSIC RESTORATION CENTER:
 A FACILITY FOR THE RESTORATION AND MAINTENANCE OF CLASSIC PORSCHE VEHICLES, EQUIPPED WITH SPECIALIZED TOOLS AND TECHNIQUES.
PORSCHE DRIVERS SELECTION BOULEVARD:
 A RETAIL SPACE OFFERING A RANGE OF PORSCHE-BRAND MERCHANDISE AND ACCESSORIES.
PORSCHE EXCLUSIVE MANUFACTURING STUDIO:
 A STUDIO WHERE CUSTOMERS CAN PERSONALIZE AND CUSTOMIZE THEIR PORSCHE VEHICLES, CHOOSING FROM A WIDE RANGE OF OPTIONS.
FINE DINING AND LOUNGE AREAS:
 UPGRADE DINING OPTIONS AND LOUNGES FOR VISITORS TO RELAX AND ENJOY THE OVERALL PORSCHE EXPERIENCE.



FIRST FLOOR PLAN

PLAN ANALYSIS

SHOWROOM AND EXHIBITION SPACE:
 A DEDICATED AREA SHOWCASING THE LATEST PORSCHE MODELS, CLASSIC CARS, AND INTERACTIVE DISPLAYS AND MULTIMEDIA PRESENTATIONS PROVIDING VISITORS WITH INSIGHTS INTO PORSCHE'S HISTORY AND TECHNOLOGICAL INNOVATIONS.
TRAINING AND DEVELOPMENT CENTER:
 A SPACE WHERE CUSTOMERS CAN TAKE DELIVERY OF THEIR NEW PORSCHE IN A SPECIAL AND PERSONALIZED MANNER.
MAINTENANCE AND REPAIR CENTER:
 A SPECIALLY DESIGNED TRACK OR AREA WHERE CUSTOMERS CAN EXPERIENCE THE PERFORMANCE CAPABILITIES OF PORSCHE VEHICLES UNDER CONTROLLED CONDITIONS.
EVENT SPACES:
 SPACES FOR PRODUCT LAUNCHES, CORPORATE EVENTS, AND AUTOMOTIVE-RELATED GATHERINGS.
CONFERENCE ROOMS:
 EQUIPPED WITH ADVANCED TECHNOLOGY FOR MEETINGS AND PRESENTATIONS.
SERVICE CENTER:
 A SERVICE AND MAINTENANCE CENTER EQUIPPED WITH THE LATEST TECHNOLOGY TO ENSURE PORSCHE VEHICLES RECEIVE TOP-NOTCH CARE.



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Plate 1 Porsche experience Centre

CASE STUDY

BMW EKRI SHOWROOM

ARCHITECTS: ONL
AREA: 27870 SQM
YEAR: 2007
LOCATION: UTRECHT, NETHERLANDS

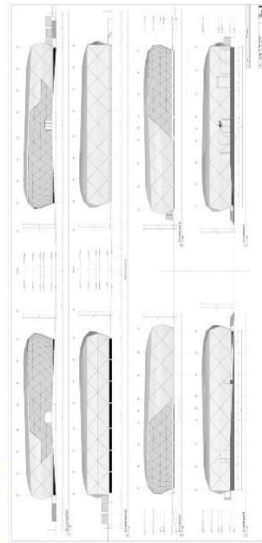
INTRODUCTION

THE PROJECT IS A TWIN FACILITY CAR SHOWROOM IN UTRECHT, NETHERLANDS. THE 2 VOLUMES TOGETHER FORM A COHERENT IMAGE WHICH REFERS TO THE 2 BMW GRILLES WITH SLIGHTLY TILTED BARS. IT IS ONE OF THE LARGEST BMW SHOWROOM IN NETHERLANDS. THE PROJECT IS CALLED EKRI HEADLIGHTS BECAUSE THE DESIGN WAS INSPIRED BY THE HEADLIGHTS OF A CAR. THE DOUBLE CURVED GLASS FACADE LITERALLY ROUNDS THE CORNER AS THE HEADLIGHTS OF THE BMW.

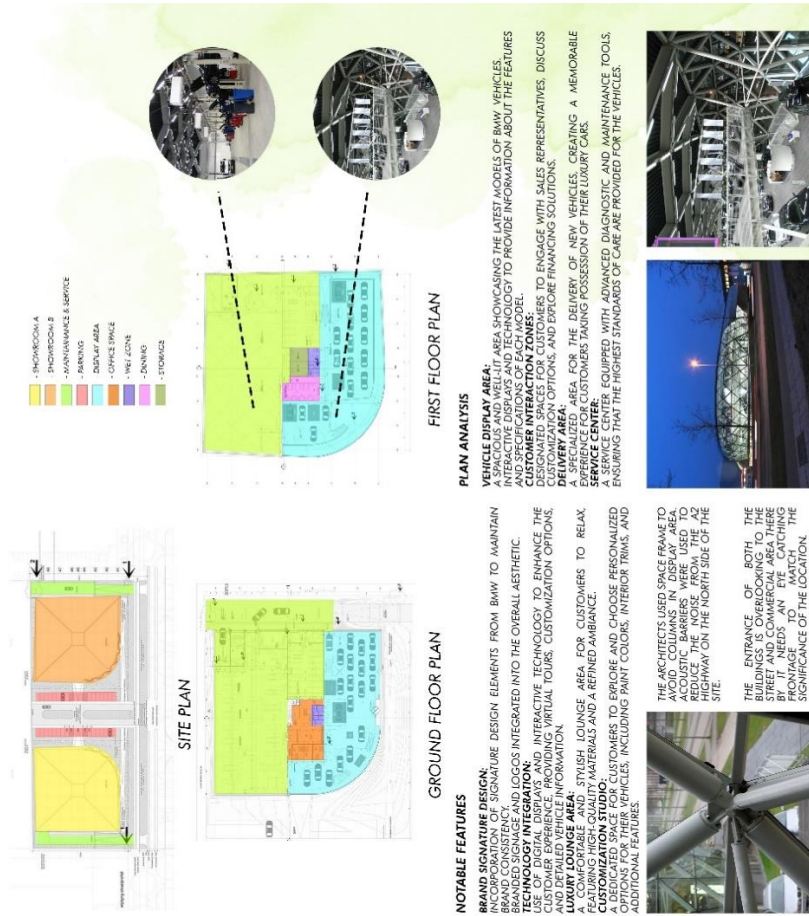
DESIGN CONCEPT:

THE DESIGN CONCEPT FOR THE EKRI SHOWROOM IN UTRECHT IS LIKELY TO INCORPORATE ELEMENTS THAT ALIGN WITH THE BRAND VALUES OF BMW, EMPHASIZING LUXURY, INNOVATION, AND PERFORMANCE. CLEAN LINES, MODERN AESTHETICS, AND ATTENTION TO DETAIL ARE EXPECTED TO BE KEY ELEMENTS IN THE DESIGN, CREATING A SPACE THAT COMPLEMENTS THE ELEGANCE OF THE VEHICLES ON DISPLAY.

ELEVATIONS:



THE DESIGN FOR THE EKRI BMW SHOWROOM IS IN ALL STYLING ASPECTS A THREE-DIMENSIONALLY SHAPED VOLUME LIKE THE MODERN CAR BODY ITSELF. THE 2 VOLUMES TOGETHER FORM A COHERENT IMAGE WHICH REFERS TO THE 2 BMW GRILLES WITH SLIGHTLY TILTED BARS.



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Plate 2 BMW Ekris showroom

CASE STUDY

MERCEDES-BENZ MUSEUM

ARCHITECTS: UNSTUDIO
AREA: 35000 SQM
YEAR: 2006
LOCATION: STUTTGART, GERMANY

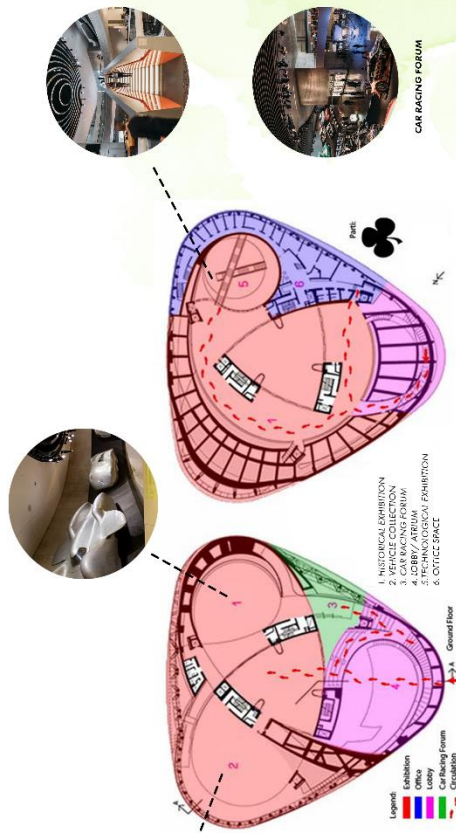
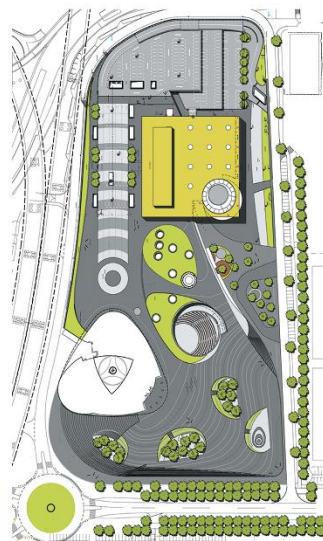
INTRODUCTION

THE MERCEDES-BENZ MUSEUM INTRICATELY COMBINES STRUCTURE AND CONTENT. THE MUSEUM IS DEDICATED TO A LEGENDARY CAR; ITS UNIQUE STRUCTURE HAS BEEN SPECIFICALLY DESIGNED TO SHOWCASE A COLLECTION IN WHICH TECHNOLOGY, ADVENTURE, ATTRACTIVENESS AND DISTINCTION ARE MERGED. IT IS ALSO A MUSEUM FOR PEOPLE TO FREELY MOVE THROUGH, TO DREAM, LEARN, LOOK AND LET THEMSELVES BE ORIENTED BY FASCINATIONS, LIGHT AND SPACE...

DESIGN CONCEPT

THE MERCEDES-BENZ MUSEUM IN STUTTGART, GERMANY, IS RENOWNED FOR ITS INNOVATIVE AND AVANT-GARDE DESIGN. CONCEIVED BY ARCHITECT BEN VAN BERKEL, THE BUILDING'S DESIGN CONCEPT REVOLVES AROUND A UNIQUE DOUBLE-HELIX STRUCTURE THAT CREATES A DYNAMIC AND IMMERSIVE EXPERIENCE FOR VISITORS. THE DUAL HELIX SERVES AS A SYMBOLIC REPRESENTATION OF THE BRAND'S PAST AND FUTURE, INTERTWINING HISTORY AND INNOVATION.

SITE PLAN:



GROUND FLOOR PLAN

NOTABLE FEATURES

SCULPTURAL FORM: THE EXTERIOR OF THE MUSEUM IS CHARACTERIZED BY A SLEEK AND MODERN GLASS FACADE. THE BUILDING'S SCULPTURAL FORM CONTRIBUTES TO ITS ICONIC STATUS.
PANORAMIC VIEWS: THE MUSEUM'S SCULPTURAL FORM CONTRIBUTES TO ITS ICONIC STATUS.
INNOVATIVE LIGHTING: THE USE OF INNOVATIVE LIGHTING ENHANCES THE AMBIENCE AND HIGHLIGHTS SPECIFIC EXHIBITS. THE MUSEUM EMPLOYS A COMBINATION OF NATURAL AND ARTIFICIAL LIGHTING TO CREATE A DYNAMIC AND VISUALLY ENGAGING ENVIRONMENT.
INTERACTIVE EXHIBITS: THE MUSEUM EMPLOYS A COMBINATION OF NATURAL AND ARTIFICIAL LIGHTING TO CREATE A DYNAMIC AND VISUALLY ENGAGING ENVIRONMENT.
AUDIO-VISUAL DISPLAYS: THE MUSEUM EMPLOYS A COMBINATION OF NATURAL AND ARTIFICIAL LIGHTING TO CREATE A DYNAMIC AND VISUALLY ENGAGING ENVIRONMENT.

FIRST FLOOR PLAN

PLAN ANALYSIS

DOUBLE-HELIX STRUCTURE: THE BUILDING CONSISTS OF TWO INTERWINDING HELICAL RAMPS, PROVIDING A CONTINUOUS JOURNEY THROUGH THE HISTORY OF MERCEDES-BENZ, WITH EACH LEVEL REPRESENTING A DIFFERENT ERA.
EXHIBITION SPACES: EXHIBITION SPACES ARE ORGANIZED ALONG THE RAMPS, SHOWCASING A DIVERSE COLLECTION OF VEHICLES, ARTIFACTS, AND INTERACTIVE DISPLAYS. THE DESIGN FACILITATES A CHRONOLOGICAL PROGRESSION, GUIDING VISITORS SEAMLESSLY THROUGH THE BRAND'S HISTORY.
CENTRAL CORE: AT THE CENTER OF THE DOUBLE HELIX, THERE'S A CENTRAL CORE HOUSING ELEVATORS AND SERVICE AREAS. THIS CORE PROVIDES A VISUAL FOCAL POINT AND ALSO PROVIDES ESSENTIAL SERVICES FOR THE MUSEUM'S OPERATIONS.
OPEN AND FLEXIBLE LAYOUT: THE DESIGN ALLOWS FOR ADAPTABLE AND FLEXIBLE LAYOUT, ENSURING THAT VISITORS CAN VIEW EXHIBITS FROM MULTIPLE ANGLES. THIS ENHANCES THE OVERALL EXPERIENTIAL QUALITY AND PROVIDES A SENSE OF EXPLORATION.



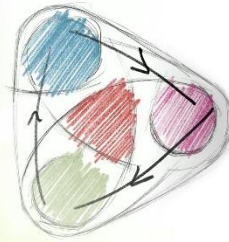
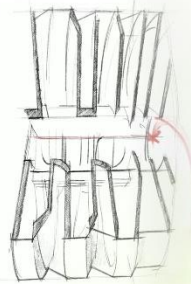
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Plate 3 Benz Museum

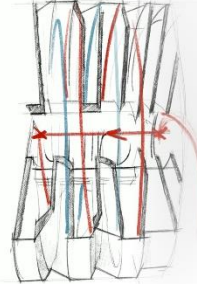
CASE STUDY

MERCEDES-BENZ MUSEUM

ARCHITECTS: UNSTUDIO
AREA: 35000 SQM
YEAR: 2006
LOCATION: STUTTGART, GERMANY



PLATFORM 1
 PLATFORM 2
 PLATFORM 3
 CENTRAL VOID



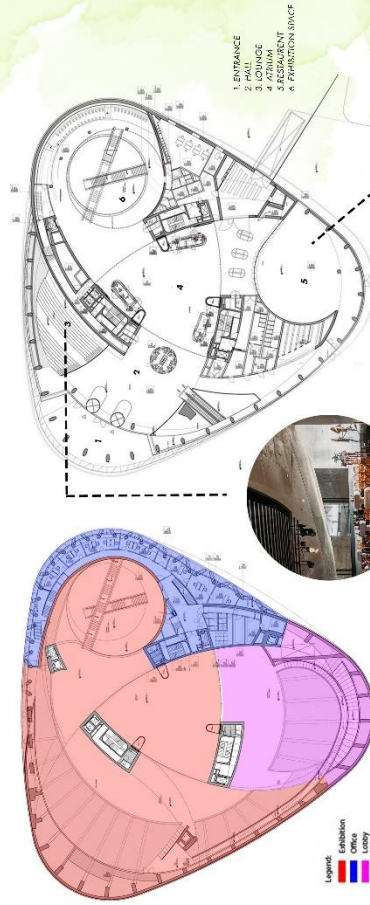
MUSEUM IS BUILT AROUND THE ARTWORK ITS THE ARTWORK THAT DEFINES THE QUALITY OF SPACES AND ATMOSPHERE. HERE THE ARTWORK IS MACHINE THAT HAS BEEN DESIGNED TO MOVE BUT DOESNT ANYMORE. THE MOVEMENT OF OBJECT IS WHAT DEFINES THE QUALITY OF SPACES IN THE MUSEUM A CONTINUOUS PATH THAT FLOWS.

CLOVER

THE BUILDING IS ORGANIZED AROUND AN OPEN AREA AND IT FEATURES THREE SPACES THAT REPEAT AROUND THE CENTRAL STEM ON DIFFERENT LEVELS AND INTO INTERLACED PATH. WHEN WE ACCESS THE BUILDING WE TAKE AN ELEVATOR TO THE TOP LEVEL AND DESCEND LEVEL BY LEVEL BY FOOT IN THIS CASE THE CONTINUOUS RAMP THAT FLOWS AROUND THE CENTRAL SPACE FROM ONE LEAF TO THE NEXT IN A DESCENDANT SEQUENCE AND THE CARS ARRANGED CHRONOLOGICALLY FROM OLD TO NEW.

ATRIUM

THIS SPACE CONTROLS ALL THE LEVELS AND CREATES A VISUAL CONNECTIONS BETWEEN THE RAMPS AND THE PLATFORMS AND ALLOWS TO SEE THE CARS FROM OPPOSITE PERSPECTIVE. THE CENTRAL SPACE THAT TRANSLATES THE CAR LANGUAGE INTO A BUILDING SOMEHOW.



FIRST FLOOR PLAN

GROUND FLOOR PLAN



M. KARTHIKEYAN - 39210036

Plate 4 Benz Museum

CASE STUDY

LANSON TOYOTA SHOWROOM

BUILT UP AREA: 3678 SQM
LOCATION: KOYAMBEDU, CHENNAI

OFFICE SPACE



THE ENTIRE LAYOUT IS SPLIT INTO 3 ZONES. SHOWROOM WITH RECEPTION FACING THE ROAD, STORAGE AND CAR WASH TO THE REAR, OFFICE BUILDING PLACED AT THE SIDE OF THE SHOWROOM AND SERVICE AREA WITH BODY & PAINT SHOP.

SERVICE AREA

SHOWROOM

INTRODUCTION

LANSON TOYOTA IS ONE OF THE LEADING AUTHORISED DEALER FOR TOYOTA INDIA (P) LTD. LANSON HAVE BEEN IN THE AUTOMOBILE BUSINESS OVER 30 YEARS ALL OVER TAMILNADU.



SERVICE ENTRY

DESIGN CONCEPT:

THE DESIGN CONCEPT OF LANSON TOYOTA IN KOYAMBEDU PRIORITIZE FUNCTIONALITY, SUSTAINABILITY, AND A MODERN AESTHETIC. IT WOULD LIKELY INCORPORATE TOYOTA'S GLOBAL DESIGN PRINCIPLES, FOCUSING ON EFFICIENCY, ENVIRONMENTAL RESPONSIBILITY, AND A WELCOMING CUSTOMER EXPERIENCE.



DIRECT ENTRY TO SHOWROOM



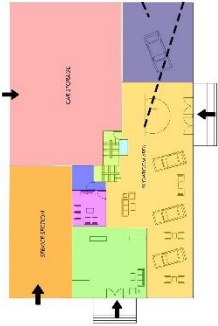
ISLAND DISPLAY



MEZZANINE FLOOR

- SHOWROOM
- ISLAND DISPLAY
- CAR STORAGE
- SERVICE INQUIRY DESK
- SERVICE SECTION
- CUSTOMER KIOSK
- WAIT
- STAFF CAR
- NET AREA

THE SERVICE ZONE AND THE SHOWROOM ARE CLEARLY SEPERATED WITH SEPERATE ENTRIES.



GROUND FLOOR PLAN

PLAN ANALYSIS

VEHICLE DISPLAY AREA: SPACIOUS AREA FOR DISPLAYING A RANGE OF TOYOTA MODELS, FEATURING CLEAR SIGNAGE AND INFORMATION ABOUT EACH VEHICLE.

ISLAND DISPLAY: THE SHOWROOM HAS A HIGHLIGHTING FEATURE WHERE THE FAST MOVING VEHICLE HAS A SEPERATE ISLAND DISPLAY.

CUSTOMER INTERACTION ZONES: DESIGNATED AREAS FOR CUSTOMER CONSULTATIONS, DISCUSSIONS, AND EXPERIENCE OF TOYOTA'S FEATURES AND TECHNOLOGIES.

SERVICE CENTER: INTERACTIVE DISPLAYS OR TECHNOLOGY FOR PRESENTING DETAILED INFORMATION ABOUT TOYOTA MODELS AND THEIR SPECIFICATIONS.

SERVICE CENTER: A DEDICATED SERVICE AREA EQUIPPED WITH STATE-OF-THE-ART EQUIPMENT FOR VEHICLE MAINTENANCE AND REPAIRS.

FORM AND FUNCTIONS:

THE FORM OF THE LANSON TOYOTA PRIORITIZE FUNCTIONALITY, CREATING A SPACE THAT ALIGNS WITH TOYOTA'S COMMITMENT TO QUALITY, DURABILITY, AND RELIABILITY. THE FUNCTIONS GO BEYOND SHOWCASING AND SELLING VEHICLES; THE FACILITY SERVES AS A HUB FOR CUSTOMER INTERACTION, VEHICLE MAINTENANCE, AND COMMUNITY ENGAGEMENT.

NOTABLE FEATURES

TOYOTA BRANDING ELEMENTS: INTEGRATION OF TOYOTA'S BRANDING ELEMENTS, INCLUDING THE DISTINCTIVE TOYOTA LOGO, CORPORATE COLORS, AND BRAND MESSAGING.

SUSTAINABLE DESIGN: INCORPORATION OF SUSTAINABLE DESIGN ELEMENTS SUCH AS ENERGY-EFFICIENT LIGHTING, ECO-FRIENDLY MATERIALS, AND POSSIBLY GREEN SPACES.

TECHNOLOGY INTEGRATION: USE OF DIGITAL DISPLAYS, TOUCHSCREEN INTERFACES, AND OTHER TECHNOLOGY TO ENHANCE THE OVERALL SHOWROOM EXPERIENCE, OFFERING VIRTUAL OR AUGMENTED REALITY FOR INTERACTIVE VEHICLE PRESENTATIONS.

COMMUNITY ENGAGEMENT SPACES: AREAS DESIGNED FOR COMMUNITY ENGAGEMENT, SUCH AS HOSTING EVENTS, CAR LAUNCHES, AND COLLABORATIONS WITH LOCAL ORGANIZATIONS.



CAR LIFTS IN WORKSHOP

TWO TYPES OF LIFTS USED IN THIS WORKSHOP FOR REPAIRING AND WASHING OPERATED BY ELECTRO MECHANICAL DEVICES. FLAT TYPE FOR LIGHTER CATEGORY (1500-2000KG), LEG TYPE FOR HEAVIER CATEGORY 3.4 TONS.

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Plate 5 Lanson Toyota

CASE STUDY

LEXUS SHOWROOM

ARCHITECTS: DS2 ARCHITECTURE
BUILT UP AREA: 800 SQM
YEAR: 2018
LOCATION: BANGALORE, INDIA

INTRODUCTION

THE LEXUS SHOWROOM IS A COMMERCIAL INTERIOR DESIGN PROJECT BY DS2 ARCHITECTURE IN BANGALORE, INDIA. THE IDEA FOR THE FACADE WAS DERIVED FROM THE ICONIC GRILL DESIGNS OF THE LEXUS CARS THAT RESEMBLE A SPINDLE. THE DESIGN IS AN AMALGAMATION OF IDEAS AND CULTURES. IT ROOTS LEXUS TO INDIA AND MAKES IT FAMILIAR AND INTIMATE FOR THE NEW CUSTOMER.



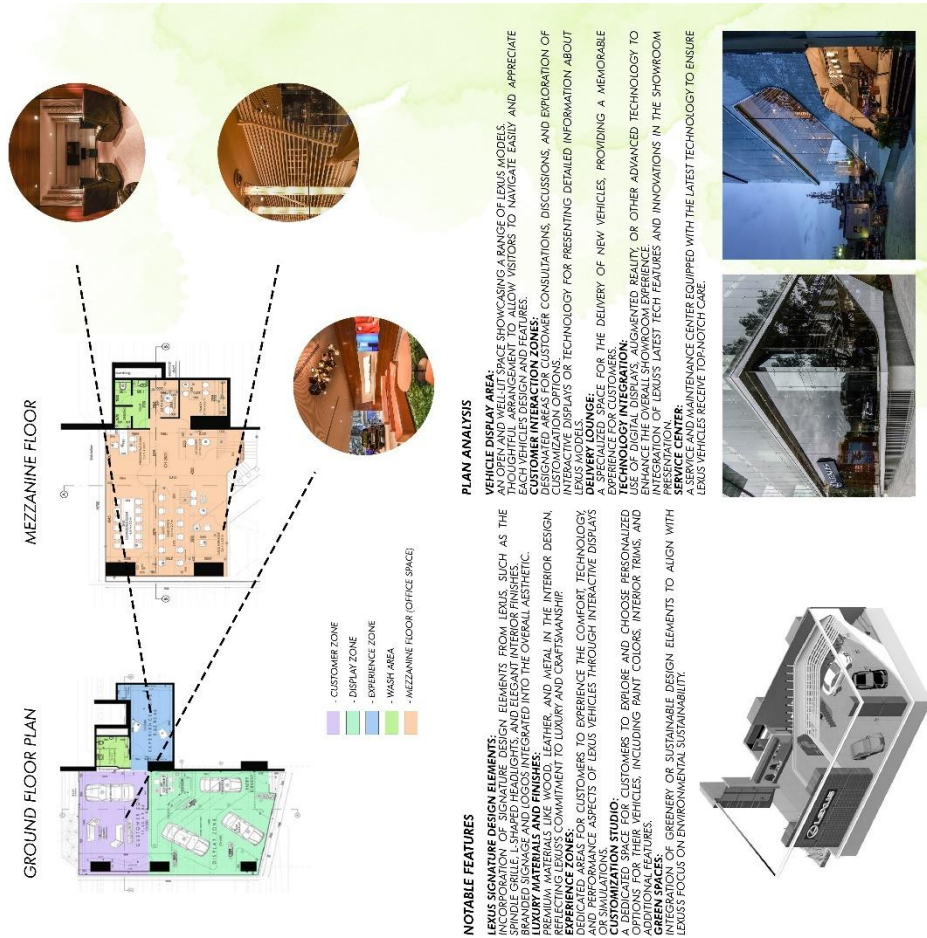
DESIGN CONCEPT:

THE LEXUS SHOWROOM IS A DESIGN AND CULTURAL CONFLUENCE OF KARNATAKA AND JAPAN. THE DESIGN MERGES ELEMENTS THAT TRAVERSE TIME, LANGUAGE, CONTEXTS AND ETHOS. FROM SPACE PLANNING TO ACACADE TO LIGHTING FIXTURES, ALL THE ELEMENTS INTERACT TO CREATE IN JINSON LEXUS'S BRAND SLOGAN "EXPERIENCE AMAZING".

HIS HAND CARVED STONE MURAL REPLICATES THE ICONIC STONE "HARIO" FROM HAMP, A UNESCO WORLD HERITAGE SITE IN KARNATAKA. THE INSPIRATION BEHIND THE MURAL IS TO BRING OUT AN INTERESTING VISUAL CONTRAST BETWEEN A 14TH CENTURY BC PRIMITIVE VEHICLE AND A "HYBRID" MODERN VEHICLE. THE MURAL ADDS A SENSE OF VISUAL "CONTRAST, HISTORY AND ALSO PUTS IN THE GEOGRAPHICAL CONTEXT VITO THE SPACE.

THE DESIGN CONCEPT FOR THE LEXUS SHOWROOM IN BANGALORE BY DS2 ARCHITECTURE LIKELY REVOLVES AROUND CAPTURING THE ESSENCE OF LEXUS'S COMMITMENT TO LUXURY, INNOVATION, AND CRAFTSMANSHIP.

4.2 LEXUS SHOWROOM



NOTABLE FEATURES

LEXUS SIGNATURE DESIGN ELEMENTS: BRAND LOGO, SPINDLE GRILLE, SHARP HEADLIGHTS, AND ELEGANT INTERIOR FINISHES. THE DESIGN MERGES ELEMENTS THAT TRAVERSE TIME, LANGUAGE, CONTEXTS AND ETHOS. FROM SPACE PLANNING TO ACACADE TO LIGHTING FIXTURES, ALL THE ELEMENTS INTERACT TO CREATE IN JINSON LEXUS'S BRAND SLOGAN "EXPERIENCE AMAZING".

PLAN ANALYSIS

VEHICLE DISPLAY AREA: THE VEHICLE DISPLAY AREA IS A DEDICATED SPACE FOR THE DELIVERY OF NEW VEHICLES. PROVIDING A MEMORABLE EXPERIENCE FOR CUSTOMERS. THE DESIGN MERGES ELEMENTS THAT TRAVERSE TIME, LANGUAGE, CONTEXTS AND ETHOS. FROM SPACE PLANNING TO ACACADE TO LIGHTING FIXTURES, ALL THE ELEMENTS INTERACT TO CREATE IN JINSON LEXUS'S BRAND SLOGAN "EXPERIENCE AMAZING".

M KARTHIKEYAN - 39210036

Plate 6 Lexus Showroom

CHAPTER 5: ANALYSIS

5.1 SITE ANALYSIS

SITE ANALYSIS

LOCATION

SITE: SHOLINGANALLUR, TAMILNADU, INDIA
CO ORDINATES : 12.8790635°N 80.2246709°E

INTRODUCTION

THE IT CORRIDOR OF CHENNAI, SHOLINGANALLUR ENJOYS STRATEGIC CONNECTIVITY TO KEY URBAN CENTERS, INDUSTRIAL ZONES, AND TRANSPORTATION HUBS. THIS PRIME LOCATION NOT ONLY FACILITATES EASY ACCESSIBILITY FOR RESIDENTS BUT ALSO CATER TO A DIVERSE AUDIENCE, DRAWING INDIVIDUALS FROM VARIOUS DEMOGRAPHICS.

ACCESSIBILITY

SHOLINGANALLUR IS SITUATED ALONG THE OMR, A MAJOR ARTERIAL ROAD CONNECTING CHENNAI TO THE IT CORRIDOR AND OTHER KEY AREAS.

- CHENNAI AIRPORT - 21KM
- KUMARAN NAGAR BUS STOP - 30M
- TAMBARAM RAILWAY STATION - 25KM

JUSTIFICATION OF SITE

SHOLINGANALLUR'S LOCATION IN THE SOUTHERN PART OF CHENNAI PLACES IT WITHIN CLOSE PROXIMITY TO THE IT CORRIDOR, ATTRACTING A DIVERSE AND TECH-SAVVY POPULATION. SHOLINGANALLUR IS WELL-CONNECTED VIA MAJOR ROADS SUCH AS OLD MAHABAIIPURAM ROAD [OMR] AND EAST COAST ROAD [ECR]. THIS ACCESSIBILITY ENSURES EASY COMMUTE FOR VISITORS AND CUSTOMERS FROM VARIOUS PARTS OF CHENNAI.

THE SITE'S LOCATION ALONG MAJOR ROADS MAKES IT STRATEGICALLY ADVANTAGEOUS FOR ESTABLISHING AUTOMOTIVE SHOWROOMS AND EXPERIENCE CENTERS. IT FACILITATES VISIBILITY AND EASY ACCESS FOR POTENTIAL CUSTOMERS. THE RAPID RESIDENTIAL GROWTH IN SHOLINGANALLUR INDICATES A GROWING AND DIVERSE POPULATION. THIS PROVIDES A SUBSTANTIAL CUSTOMER BASE FOR AUTOMOTIVE SHOWROOMS AND EVENTS, INCLUDING CAR MEETUPS AND DRIVE-IN THEATER EXPERIENCES.

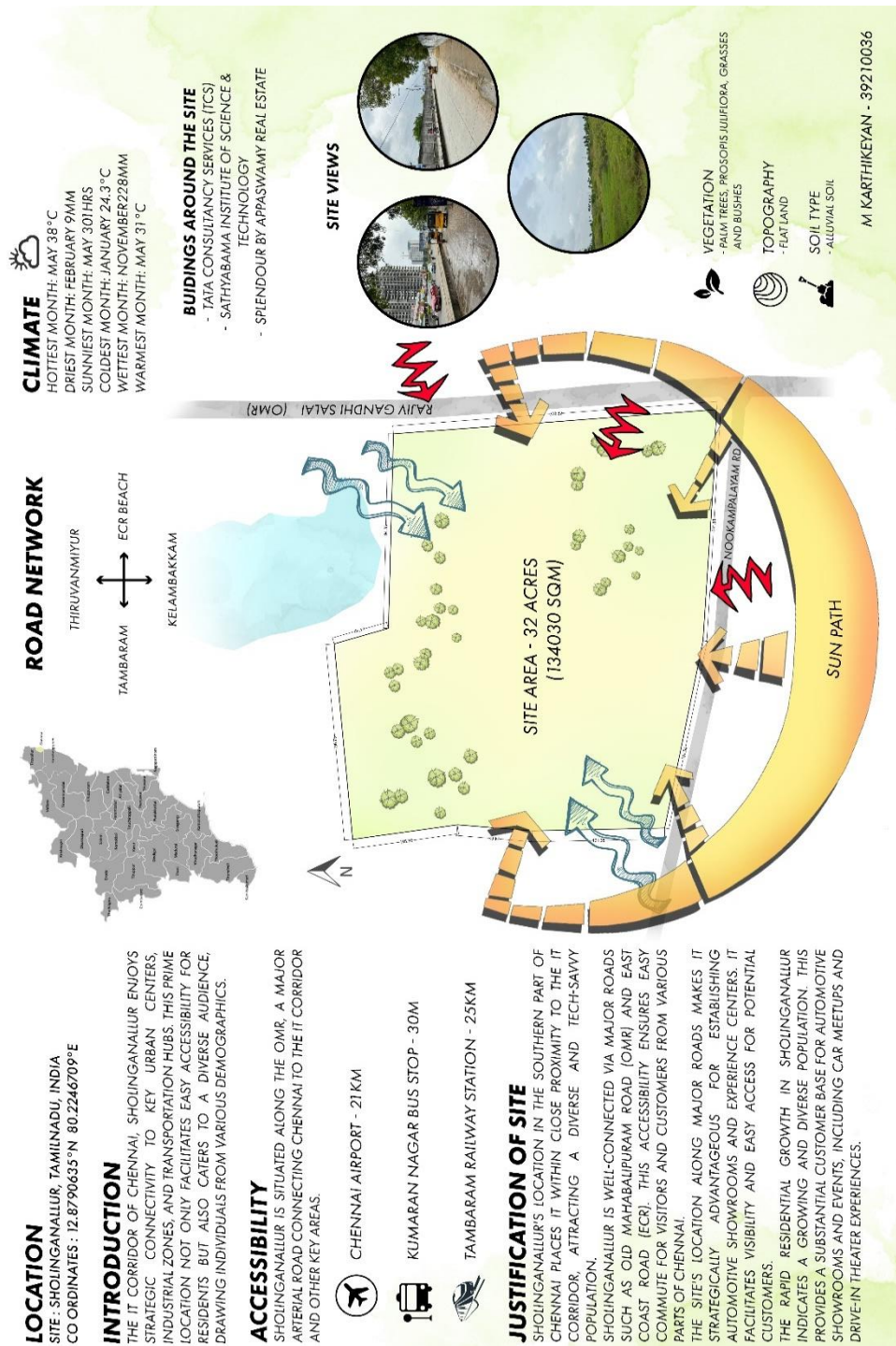
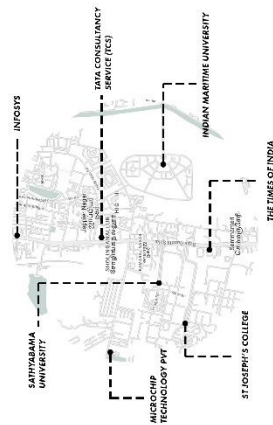


Plate 7 Site Analysis

SITE ANALYSIS

NEIGHBOURHOOD CONTEXT



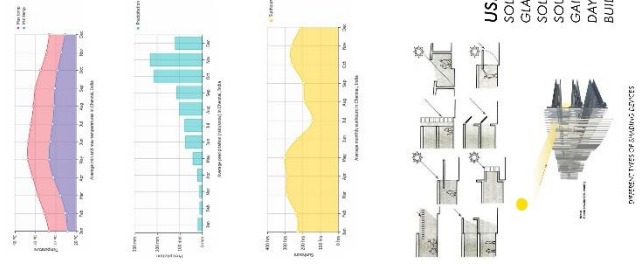
LANDUSE MAP



OPENING AND SHADING DEVICES

- TO INCREASE THE CROSS-VENTILATION LARGE OPENINGS CAN BE DESIGNED. HOWEVER IN THAT CASE SOLAR RADIATION CAN PENETRATE DIRECTLY INTO THE INTERIOR OF THE BUILDING IF THEY ARE NOT CORRECTLY SHADED.
- IF THE WINDOWS ARE UNSHADED, THE GLASS AREA HAS TO BE LIMITED TO 15% OF THE FACADE AREA.
- AN INCREASE OF THE GLASS AREA TO 30% WILL INCREASE THE ROOM COOLING POWER NEEDED BY 30%-50% AND FACADES TO THE WEST ARE MOST AFFECTED.

CLIMATE ANALYSIS



USE OF SHADING

SOLAR CONTROLS SHOULD BE CONSIDERED FOR ALL GLAZED OPENINGS EXPOSED TO DIRECT SUNLIGHT. SOLAR CONTROL IS PARTICULARLY IMPORTANT ON SOUTH TO WEST FACING FACADES, SINCE THE SOLAR GAINS WILL COINCIDE WITH THE HOTTEST PART OF THE DAY. SOLAR CONTROL IS ALSO VITAL FOR LIGHTWEIGHT BUILDINGS WITH LARGE AREAS OF GLAZING.

DIFFERENT TYPES OF SHADING DEVICES

- A LOW COST SOLUTION FOR CREATING A SHADING DEVICE IS BY PROVIDING VEGETATION RICH ENVIRONMENT, CREATING A MICRO CLIMATE THEY ARE DESIGNED IN SUCH A WAY THAT IT DOES NOT HINDER THE AIR MOVEMENT.
- ANOTHER EFFICIENT SOLUTION IS TO GROW A GREEN COVER OVER ROOFS AND WALLS.



SWOT ANALYSIS

STRENGTHS:

- SHOLINGANALLUR'S STRATEGIC LOCATION IN THE SOUTHERN PART OF CHENNAI PROVIDES EASY ACCESSIBILITY VIA MAJOR ROADS SUCH AS OMR AND ECR.
- THE AREA HAS EXPERIENCED RAPID RESIDENTIAL GROWTH, PROVIDING A SUBSTANTIAL AND DIVERSE CUSTOMER BASE FOR AUTOMOTIVE-RELATED BUSINESSES.
- SITE IS LOCATED ADJACENT TO THE HIGHWAY SO ACCESS TO THE SITE IS MORE EASIER.
- SITE IS SURROUNDED BY INSTITUTIONS AND IT PARKS SO LOT OF YOUNG CAR ENTHUSIASTS EXPECTED TO VISIT THE AUTOMOBILE HUB.

WEAKNESSES:

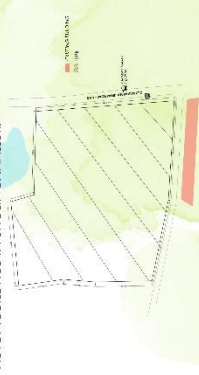
- SHOLINGANALLUR EXPERIENCE TRAFFIC CONGESTION, PARTICULARLY DURING PEAK HOURS, WHICH COULD IMPACT THE EASE OF ACCESS FOR CUSTOMERS.
- EXISTING BUILDINGS IN THE EAST SIDE OF THE SITE COULD AFFECT THE VIEWS OF THE BUILDING.

OPPORTUNITIES:

- GROWING MARKET DEMAND FOR AUTOMOBILES IN THE REGION CAN BE AN OPPORTUNITY FOR THE HUB TO THRIVE.
- THE GROWING COMMUNITY IN SHOLINGANALLUR PRESENTS OPPORTUNITIES FOR COMMUNITY ENGAGEMENT EVENTS, CAR MEETUPS, AND AUTOMOTIVE-THEMED ACTIVITIES.

THREATS:

- VULNERABILITY TO NATURAL DISASTERS, SUCH AS CYCLONES, COULD POSE A THREAT TO THE INFRASTRUCTURE AND OPERATIONS OF THE AUTOMOBILE HUB.
- CHANGES IN REGULATIONS OR ZONING RESTRICTIONS MAY IMPACT THE ESTABLISHMENT AND OPERATIONS OF AN AUTOMOBILE HUB IN SHOLINGANALLUR.



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Plate 8 Site Analysis

5.2 SITE ZONING

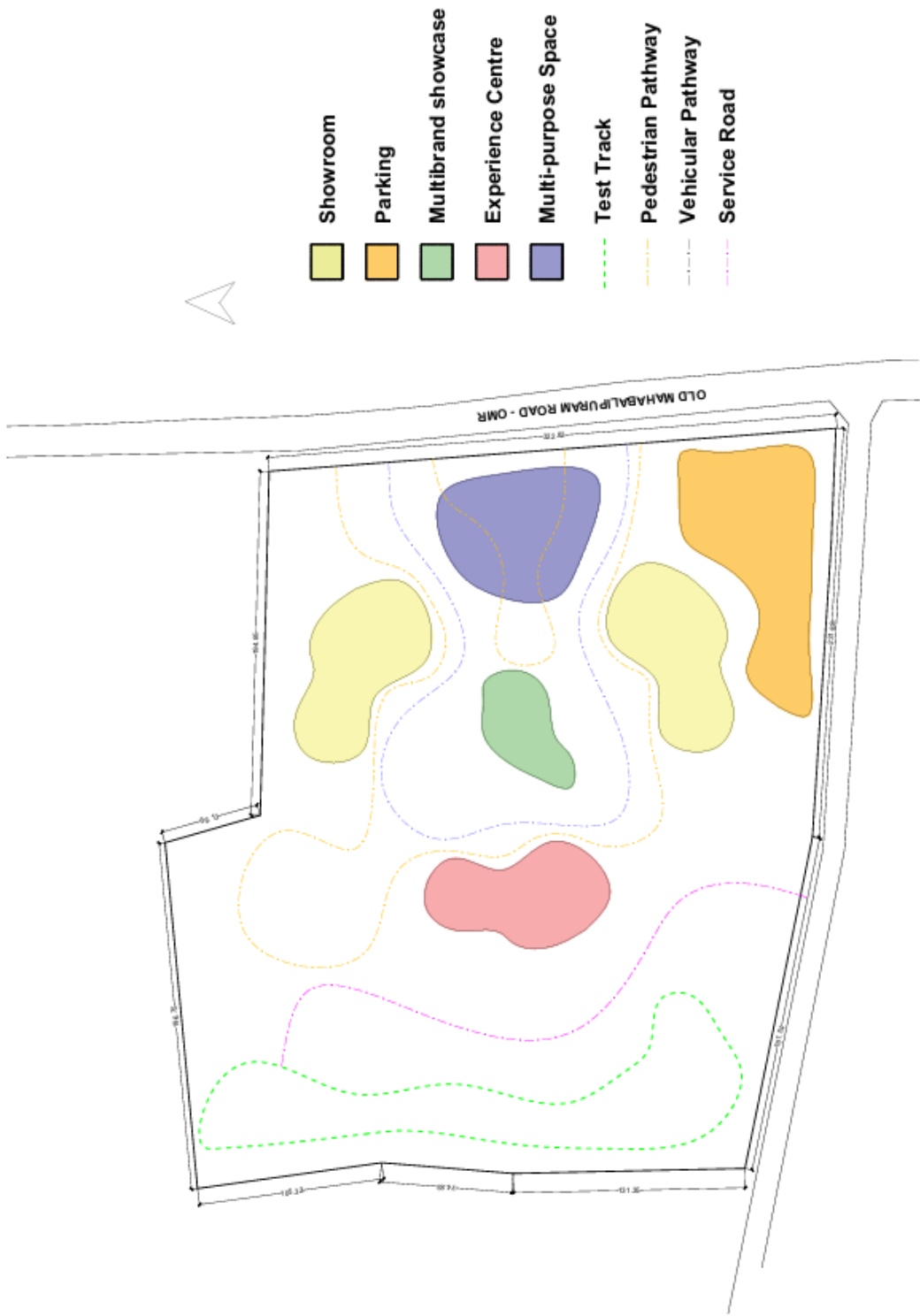


Plate 9 Site Zoning

5.3 AREA STATEMENT

PROGRAMMES	AREA (SQ.M)
ADMIN OFFICE 1. RECEPTION 2. WORKING AREA 3. MANAGER ROOM 4. STOREROOM	20 50 25 30 125
NORMAL CLASS SHOWROOM 1. RECEPTION 2. DISPLAY AREA 3. LOUNGE 4. MANAGER ROOM 5. PART DISPLAY AREA 6. REST ROOM 7. STAFF CABIN	10 1000(6-8 cars +circulation) 50 40 20 30 160 1310
LUXURY CLASS SHOW ROOM 1. RECEPTION 2. DISPLAY AREA 3. LOUNGE 4. MANAGER ROOM 5. PART DISPLAY AREA 6. REST ROOM 7. CONFERENCE ROOM 8. STAFF CABIN 9.EXPERIENCE ZONE 10.PERSONAL DESIGN STUDIO	10 1200(6-8 cars+ circulation) 60 40 30 30 100 200 120 100 1860
EXPERIENCE CENTRE 1.EXHIBITION SPACE 2.AUDITORIUM 3.EVENT SPACE 4.INTERACTIVE ZONES 5.BRAND GALLERY 6.VIP LOUNGE	2000 1500 500 500 700 150 5350
PLAZA 1.AUTO PARTS STORE 2.AUTO ACCESSORIES	250 250

3.PERFORMANCE PARTS	200
4.BOOK SECTION	250
	950
RESTAURANT	
1.DININIG AREA	1350
2.KITCHEN	200
3.STORAGE	110
4.RESTROOM	100
OPEN SPACE	
1.TEST TRACK	
LENGTH	960m
STORAGE	80
2.MULTIPURPOSE SPACE	8000
SERVICE AREA	
1.SUB STATION	550
2.AHU	50
3.SERVER ROOM	60
4.HVAC	60
5.ELECTRICAL ROOM	50
6.PUMP ROOM	200
	970

5.4 STANDARDS

Site

The ideal would be a wide, level, rectangular lot on the corner of a primary thoroughfare.

If an interior lot must be used, it should have wide frontage for display purposes and sufficient depth for future expansion. While in some cases the suburbs may provide the ideal dealership site, in metropolitan areas with space limitations it may be necessary to plan on expanding upward, by adding levels to present facilities, to relieve growing pains.

Showroom

The new car showroom performs a merchandising and advertising function for the entire dealership. The exterior should be designed, decorated, and lighted so it will stand out from its immediate surroundings in an appealing way as well as identify the business quickly and be inviting to potential customers.

It represents the basic physical image of the dealership as it first appears to the customer, influencing not only his original valuation of the facility as a place of business but also his continual impression of it. It exerts an immeasurable but certain pressure on owner relations.

Locating the Showroom

The showroom should be located in a position of unobstructed visibility—one that will readily attract the attention of people passing by.

It should present at a glance an impressive and appealing view of the new cars on display. If the building site is on a corner, the showroom should be on the corner facing both streets for maximum visibility of its interior. On an inside lot the showroom should be projected in front of the major portion of the facilities to increase visibility and exposure time.

Always provide maximum customer visibility. Additional new unit display, if desired, can be provided outside the showroom under a canopy or roof extension, adjacent to the customer service reception area or through use of a landscaped patio display area. These types of new unit display areas are relatively inexpensive to provide and can be very effective.

The minimum space guide for inside showroom display is 500 square feet per unit. Leave at least 5 ft open around each car. This will allow space so that the customer may walk around and open the hood, doors, and trunk freely. Allow as much extra space as possible around the display, so that customers can stand back and get a good view of the car from all angles.

Customer Reception

The reception area should be immediately inside the service entrance, decorated, well lighted, and equipped to create the best possible impression and selling atmosphere.

Customer Waiting Room

A special waiting area should be provided for customers who wait for service repair on their cars. Comfortable chairs, table, T.V., and a public telephone are desirable. Some dealers provide a waiting area in the showroom. However, a separate room, near the customer reception area and cashier, is desirable. The room size will be determined by the potential business.

Stall Dimensions

The width of stalls is made up of "car width" plus workspace on each side of the vehicle.

The total width varies from 10 ft to 14 ft according to stall function.

Whenever a stall is next to a wall, add 2 ft to its width. Local building or fire codes supersede these recommendations if they conflict.

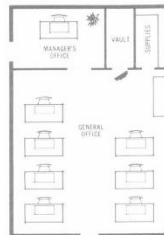
Stall function	Width, ft	Length, ft
Customer reception (aisle)	14	25
Lubrication (overhead equipment)	12	24
Mechanical repair	12	24
New car conditioning	12	24
Polishing and sheet metal	12	24
Paint spray booth	14	28
Wash rack	14	25
Parking	10	20

Service Stall

General-purpose service stalls should be 12 ft in width. In special situations, an 11-ft width may be acceptable, but only when structural requirements or land limitations impose the need. In buildings with direct drive-in stalls, 12-ft widths are mandatory, since lack of aisleway means minimum walk-around and working areas.

Average office size

	Average size, ft	Area, sq ft
Dealer	12 by 15	180
General manager	12 by 15	180
Sales manager	10 by 12	120
Owner relations manager	10 by 12	120
Truck manager	8 by 10	80
Used car manager	8 by 10	80
Sales closing office	8 by 8	64
Men's and ladies' rooms	8 by 8	64
Meeting room	20 sq ft per person	
General office	100 sq ft + 160 sq ft x number of office employees	



Service bay

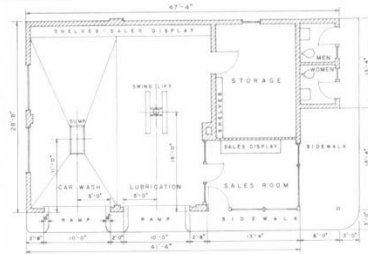


Fig. 1. Plan of typical two-bay service station building

Drawings show the standard plan of a major oil company for a two-bay service station. Additional bays may be added for larger installations. Minimum recommended dimensions for bay door opening is 10 by 10 ft. Overhead type doors are the most effective. Servicing pits have become obsolete, the mechanical lift being considered more practical.

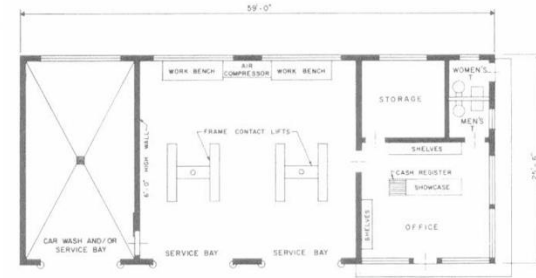
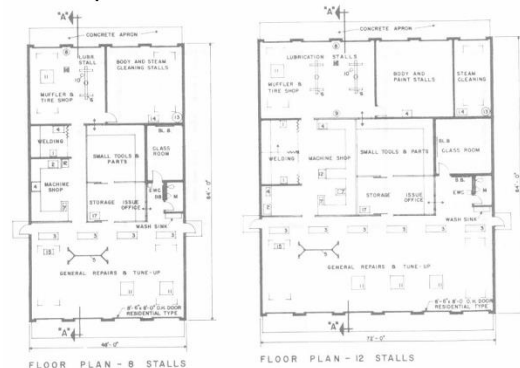


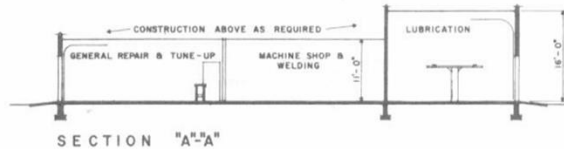
Fig. 6 Two- and three-bay stations.

Automotive shops



FLOOR PLAN - 8 STALLS

FLOOR PLAN - 12 STALLS



SECTION "A-A"

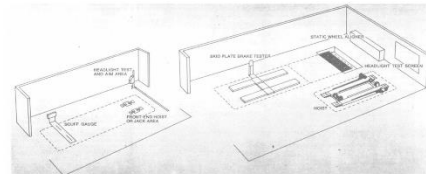


Fig. 13 Single-bay safety inspection station.

Fig. 14 Two-bay safety inspection station.

PARKING GARAGES

Ramp Systems

number of different interfloor ramp systems can be used to enable vehicles to traverse : approximately 10-ft (3-m) elevation between parking levels. Some of these systems are described below. In general, ramps, while often making use of continuous spiral floors and interfloor travel, may be straight, curved, or a combination. No single ramp system is best for all applications. The choice should be based on the specific needs of the building along demand characteristics. Ramps may be designed for one-way or two-way traffic in either direction. However, one-way ramps should not be operated on a reversible basis. The site topography will allow for access to several floor levels from a single ramp system. This is a desirable feature, since it leaves more space for parking and provides more flexibility for the distribution between the street system and parking facility. As an exception to the rule, ramps may be designed for one-way or two-way traffic in either direction. However, one-way ramps should not be operated on a reversible basis.

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Vehicle of Ramp Movements

ramp system includes any portion of ramp floors used by vehicles moving between levels. Nearly every successful ramp system requires vehicles to follow on a approximately circular path when traveling between levels. The radius of the circular path is determined by the width of the ramp and the parking structure. Right-angle turns are not recommended, particularly in high-rise buildings.

It is generally desirable to limit the maximum number of complete rotations to five or six, depending on the specific needs of the building. The maximum desirable number of rotations should be limited to the number of rotations a driver must pass during a single trip.

There are sometimes distracted or disoriented drivers who may become lost when traveling between levels. This can be avoided if parking levels extend past the adjacent buildings. To reduce driver distraction, parapet walls along driving ramps should be designed to provide a view of the surrounding outside parking structure.

Spiral and Adjacent Ramp Types

Two ramp systems may be divided into two types, based on the amount of interference between ramp travel and parking-unparking motion. Ramp systems designed on the basis of a principle provide interfloor travel that is completely separated from potentially conflicting parking-unparking movements.

Ramp systems in which part or all of the ramp travel is performed on access roads may be called the "adjacent parking" type. The number of parking stalls adjacent to the ramp may vary from a small number to the entire parking structure. In general, adjacent parking systems provide the most efficient movement with least delay and, except for sloping floor designs, are preferred for self-park designs.

However, the clearance ramp system is seldom feasible for small garage designs. In general, the clearance ramp system leaves one-way parking and because of the wide use of level paths, and consequently can be used to advantage on smaller land parcels. However, adjacent-parking ramp designs are more susceptible to traffic movement delays and potential accident-causing situations.

The actual travel speed for free-moving vehicles on the two types of ramps do not vary greatly. Delays on the adjacent-parking type ramp system caused by parking-unparking movements are difficult to measure but must be recognized as a significant factor. Delays will be greater on parking levels nearest the street level, since these levels always have larger numbers of vehicles in the circulation system.



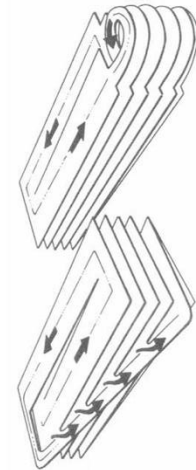
Clearway and adjacent parking types.



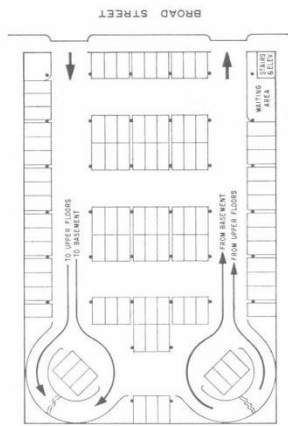
Concentric Versus Tandem Ramp Design

Ramp systems also can be classified as concentric or tandem, depending on whether the travel paths of vehicles moving between levels are adjacent or separated. Helical-ramp systems are usually built concentrically to save space and provide better grades. Straight ramp systems are designed in either concentric or tandem configurations.

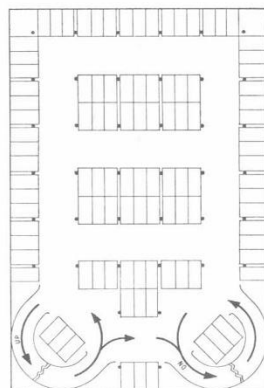
When operating on a ramp system, any vehicle entering or exiting a ramp system may cause a counter-clockwise or clockwise counter-clockwise rotation. It is generally preferred in the United States and other countries where drivers customarily sit on the left side of vehicles since it places drivers on the inside of turns, enabling better vehicle handling.



Examples of straight and helical express and ramps.



MAIN FLOOR



TYPICAL PLAN

Functional plan for twin-spiral garages.

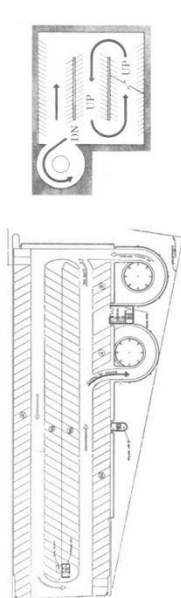
Ramp Turn Superelevation
Vehicles traveling on curved paths are acted on by centrifugal force proportional to the square of the velocity and inversely proportional to the radius of curvature. This centrifugal force must be balanced by other forces that are developed by side-friction of the tires on pavement, and superelevation (banking) of the ramp surface. Although speeds in parking garages are low, turning radii are much smaller than those required for street or highway travel. As a result, the centrifugal force may be so great that vehicles may have difficulty negotiating turns from the inside edge of the ramp pavement and fast drivers may be encouraged to drive at speeds greater than conditions of grade and sight-distances safely permit.

Garage ramp superelevation should be approximately 1/2 in./ft (approximately 4 cm/m) of ramp width at the point of steepest turning, with lesser amounts adjacent to straight sections or storage floors in any comparison of ramp types. Actual travel time or ramps varies little among different ramp system types; however, some ramp systems have more potential for delay caused by conflicting traffic movements than others.

Other factors that may influence ramp design include accident hazards, construction cost, and ability to accommodate vehicles and drivers conveniently.

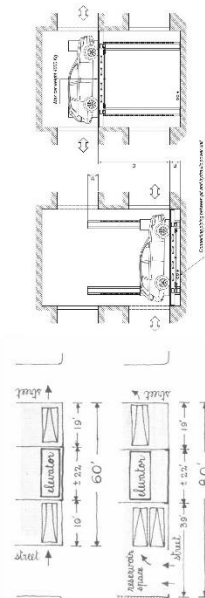


Helical ramp dimension standard.



Helical ramp systems can often be advantageous for structures situated on odd-shaped sites.

Helical ramps such as this one can be used effectively for express exiting.



Car elevator dimension standards and section.

CHAPTER 6: DETAIL DESIGN DRAWINGS

CONCEPT SKETCHES

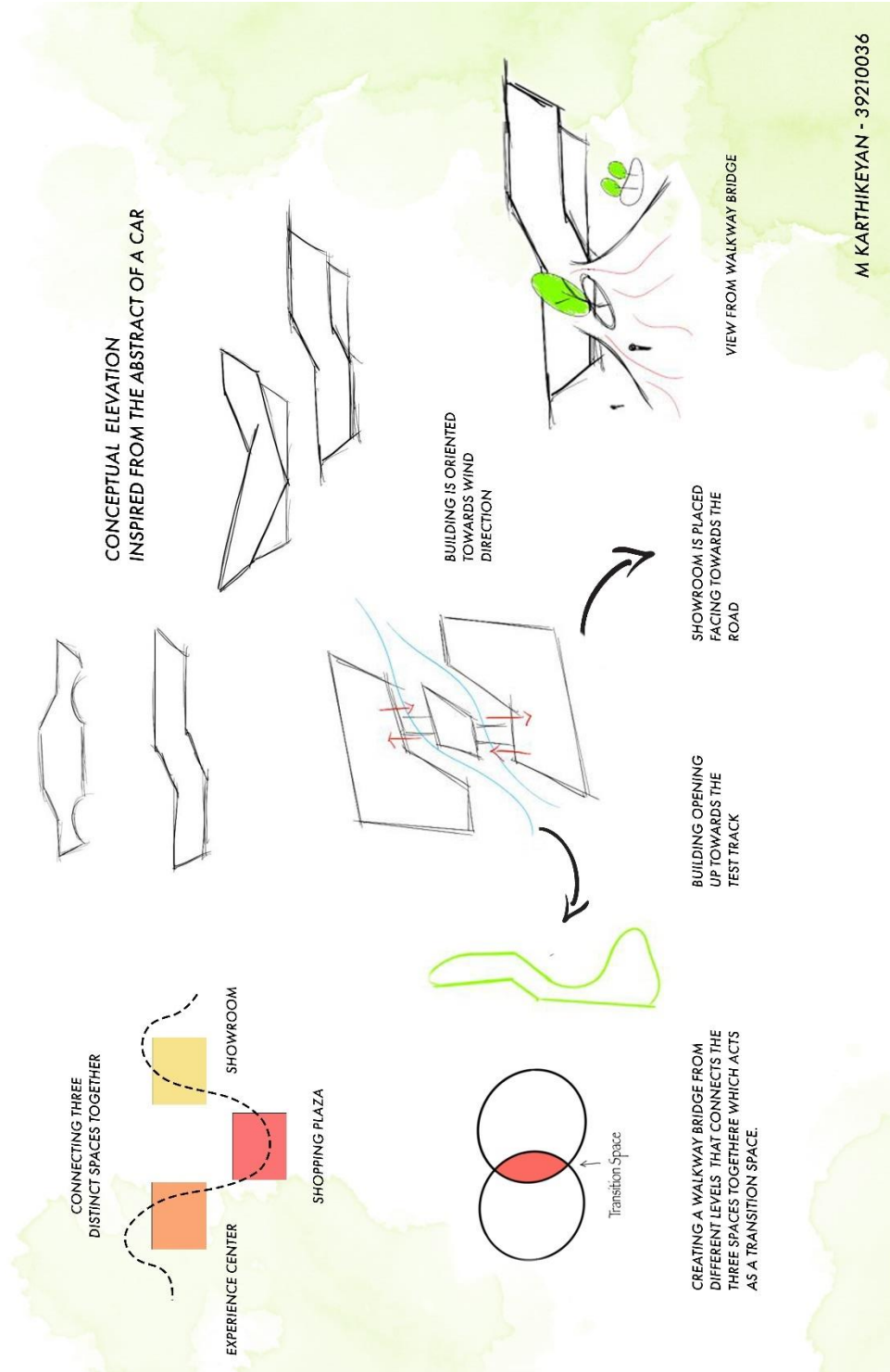


Plate 12 Concept

AUTOMOBILE HUB

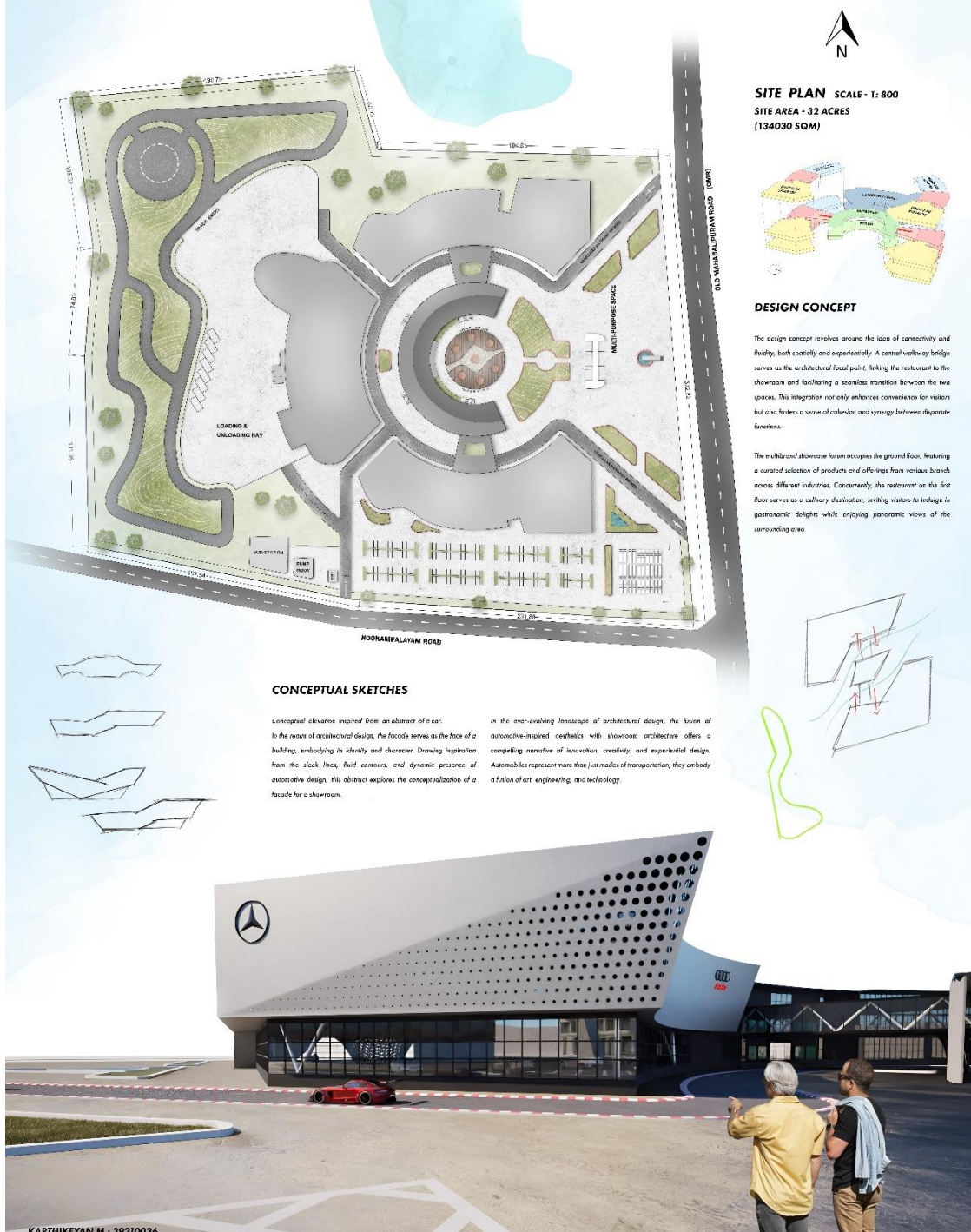
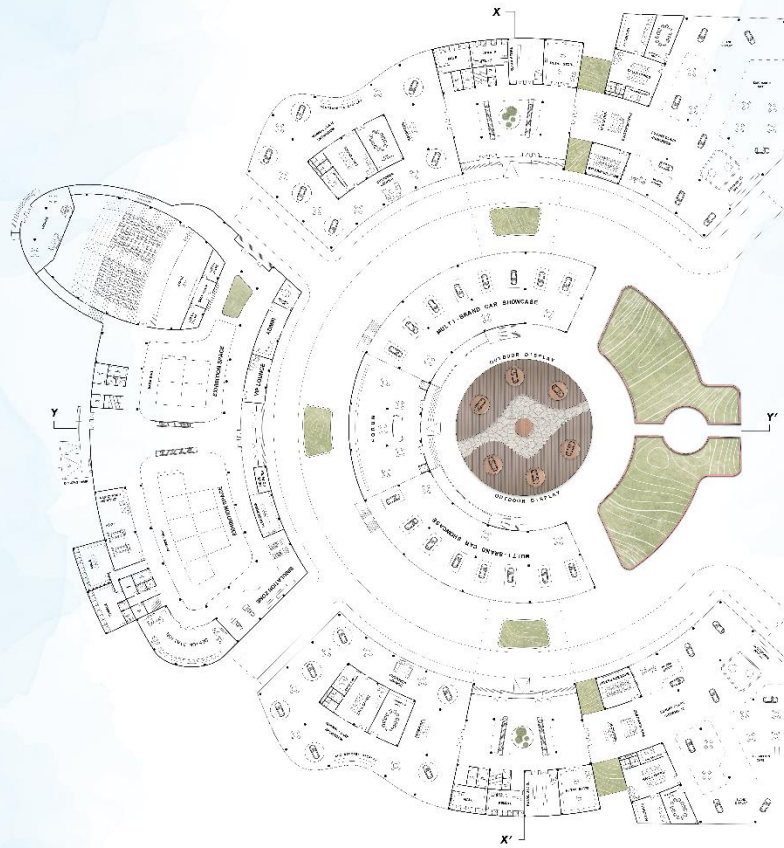


Plate 13 Site plan

AUTOMOBILE HUB



GROUND FLOOR PLAN
SITE AREA - 32 ACRES
(134030 SQM)

SPATIAL LAYOUT

The multibrand showroom occupies one wing of the building, showcasing an array of automotive brands and models in a gallery-style setting. The showroom features spacious display areas, interactive exhibits, and customer lounges, creating an engaging and informative environment for car enthusiasts and potential buyers alike drive-in theater experiences.

Adjacent to the showroom, the multibrand showcase forum occupies the other wing of the building. The concept of a multibrand showcase forum with an integrated restaurant on the first floor represents a dynamic fusion of retail, hospitality, and community engagement. This architectural endeavor aims to create a vibrant and inclusive space that not only celebrates diverse brands and products but also serves as a gathering place for the public, fostering connections and enriching experiences.

The multibrand showcase forum encompasses a spacious and open-plan layout, with designated zones for each participating brand. Each zone is designed to reflect the brand's identity and ethos, featuring immersive displays, interactive exhibits, and product demonstrations. The layout encourages exploration and discovery, allowing visitors to navigate freely and engage with their preferred brands at their own pace.

Ascending to the first floor via staircases or elevators, visitors are greeted by the restaurant—a vibrant and inviting space that blurs the boundaries between indoor and outdoor dining. Large windows and glass walls flood the interior with natural light, creating a warm and welcoming ambiance. The restaurant layout incorporates flexible seating arrangements, private dining areas, and an open kitchen, catering to various dining preferences and group sizes.

SECTION XX'



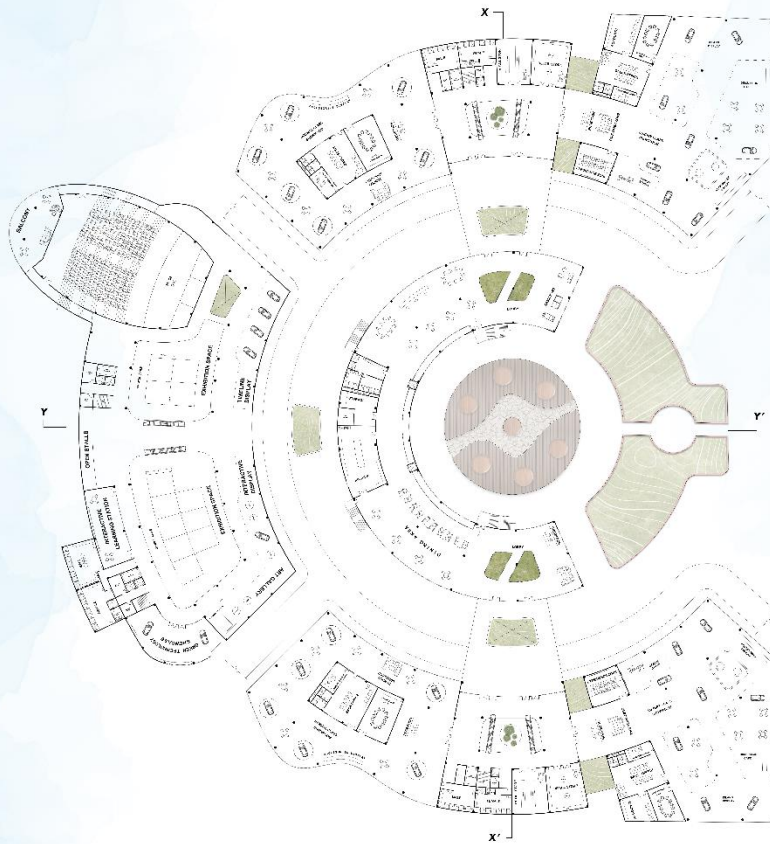
SECTION YY'



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Plate 14 Ground floor plan and Section

AUTOMOBILE HUB



FIRST FLOOR PLAN SITE AREA - 32 ACRES (134030 SQM)

DESIGN FEATURES

In the realm of architectural design, the facade serves as the face of a building, embodying its identity and character. The facade of the building is constructed primarily of steel, the facade evokes a sense of strength and sophistication, while its perforated design allows indirect sunlight to filter into the showrooms, creating a play of light and shadow that accentuates the showcased vehicles.

The interior layout of the national car showroom and experience centre is designed to facilitate seamless navigation and exploration. The showroom area is divided into distinct zones for each brand, with dedicated display areas, interactive exhibits, and customer lounges. Meanwhile, the experience centre offers immersive attractions such as virtual reality simulation, driving simulation, and interactive displays, providing visitors with a hands-on opportunity to engage with automotive technology and innovation.

INTEGRATION FEATURES

- The integration of the car showroom with the experience centre is seamless, allowing visitors to transition effortlessly between browsing vehicles and participating in interactive experiences.
- The strategic use of steel facades with perforated patterns allows natural light to permeate the interior spaces, creating a bright and inviting atmosphere while reducing the need for artificial lighting. This design feature enhances the visibility of the showcased vehicles and contributes to a more sustainable and energy-efficient environment.
- Cutting-edge technology is integrated throughout the showroom and experience centre, offering visitors a range of interactive experiences and digital enhancements. Touchscreen displays, augmented reality applications, and interactive kiosks provide additional layers of engagement, allowing visitors to customize their experience and delve deeper into the world of automotive innovation.

ELEVATIONS



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Plate 15 First floor plan and Elevation

AUTOMOBILE HUB

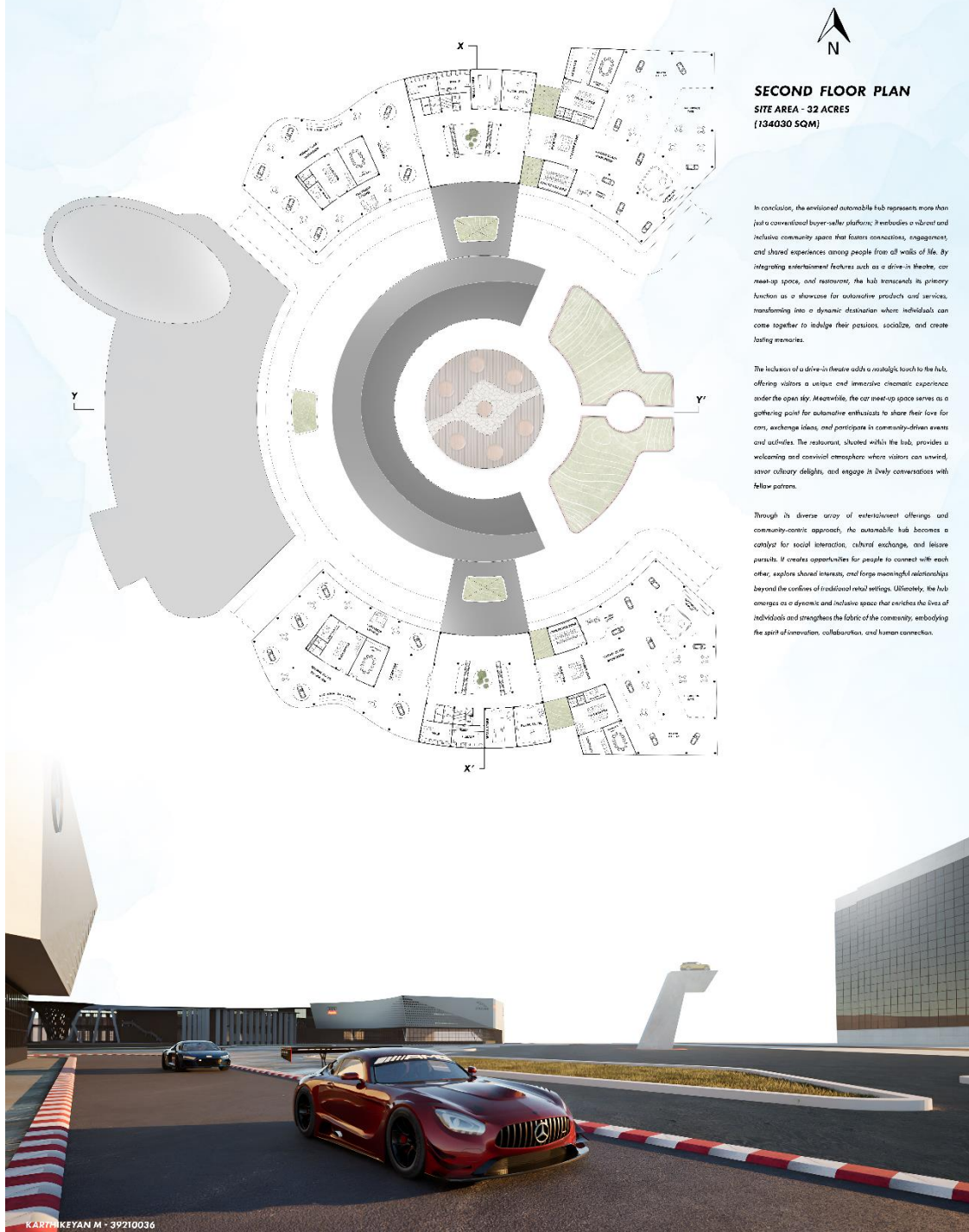


Plate 16 Second floor plan

AUTOMOBILE HUB



Plate 17 Views

CHAPTER 7: CONCLUSION

In conclusion, the envisioned automobile hub represents more than just a conventional buyer-seller platform; it embodies a vibrant and inclusive community space that fosters connections, engagement, and shared experiences among people from all walks of life. By integrating entertainment features such as a drive-in theatre, car meet-up space, and restaurant, the hub transcends its primary function as a showcase for automotive products and services, transforming into a dynamic destination where individuals can come together to indulge their passions, socialize, and create lasting memories.

The inclusion of a drive-in theatre adds a nostalgic touch to the hub, offering visitors a unique and immersive cinematic experience under the open sky. Meanwhile, the car meet-up space serves as a gathering point for automotive enthusiasts to share their love for cars, exchange ideas, and participate in community-driven events and activities. The restaurant, situated within the hub, provides a welcoming and convivial atmosphere where visitors can unwind, Savor culinary delights, and engage in lively conversations with fellow patrons.

Through its diverse array of entertainment offerings and community-centric approach, the automobile hub becomes a catalyst for social interaction, cultural exchange, and leisure pursuits. It creates opportunities for people to connect with each other, explore shared interests, and forge meaningful relationships beyond the confines of traditional retail settings. Ultimately, the hub emerges as a dynamic and inclusive space that enriches the lives of individuals and strengthens the fabric of the community, embodying the spirit of innovation, collaboration, and human connection.

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