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A U T O M O B I L I T Y "The epicenter of a tectonic shift in mobility."
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AUTOMOBILITY

the epicenter of a tectonic shift in mobility.

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The epicenter of a tectonic shift in mobility.

SUBMITTED BY

ASHIYA IQBAL KHAN

A REPORT

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



University of Mumbai

2020-2021

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SCHOOL OF ARCHITECTURE

CERTIFICATE

This is to certify that the Design Dissertation titled Automobility is the bonafide work of the student Khan Ashiya from Final Year B. Arch of AIKTC School of Architecture and was carried out in college under my guidance.

Sign of the guide:

Name of the guide: Prof Raj Mhatre

Sign of the Dean: Raj Mhatre

Date: 12 Dec 2020

DECLARATION

I hereby declare that this written submission entitled

“Automobility”

represents my ideas in my own words and has not been taken from the work of others (as from books, articles, essays, dissertations, other media and online); and where others’ ideas or words have been included, I have adequately cited and referenced the original sources. Direct quotations from books, journal articles, internet sources, other texts, or any other source whatsoever are acknowledged and the source cited are identified in the dissertation references.

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This work, or any part of it, has not been previously submitted by me or any other person for assessment on this or any other course of study.

Signature of the Student:

Name of the Student: **ASHIYA KHAN**

Roll No: 16AR07

Date: 12 Dec 2020

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For the longest time I wanted nothing more than to write this acknowledgement and yet I find myself short of words This has been a very happening and tumultuous Journey and one that IS equally dear to me There are so many I owe thanks to, from those who helped make this project what It is and those who made the last 6 months (and by extension 4 years) most memorable.

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Acknowledgement

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A B S T R A C T

Over the past 100 years people are enthusiastic about automobiles and the advancements in the same. An automobile is not just an assembly of moving parts and materials but it has become a symbol. A symbol which reflects our status in society, a symbol which depicts our history and future i.e. where we came from and where we are going. It also reflects our ingenuity, progression and our ability to adapt to the future. The world is growing with need for new technologies to ease human workload wherever possible. A lot of technologies were invented over the period of time. Now a day has come where human is in trouble because of its own inventions. Here arises a need of knowledge of why and what is it exactly. The study tends to understand the path of execution for educating consumers, buyers and enthusiasts in the field of Automobile through Architecture. The project tends to understand the path of execution for educating consumers, buyers and enthusiasts in the field of Automobiles by demonstration and exhibition and also provides a platform for further convention over the years.



BACKGROUND STUDY

Automobiles has a great impact on human life and architecture. It is a phenomena or years, hence this research includes the understanding of it's history and early influences of automobiles in designers work.

The proposal is about bringing multiple functions such as display, workshops for enthusiasts, demonstration, educational program, manufacturing/ assembly plant etc in the field of automobiles under one roof so that it becomes a common interactive platform for users, enthusiasts, consumers and sellers.

Since assembly plant/ manufacturing is more of a mass production kind of program, it has very less scope of being creative in terms of desgining. whereas exhibiting, demonstrating etc kind of spaces has a broad scope for a designer; so it should be made sure that the focus of my proposal will be on programs other than assembling the automobiles but it can be a part of existing automobile manufacturing hub.

Bringing above mentioned different types of programs together here is the main concern and it should be dealt with importance.

Research Question

Why the history is repeating itself? what is pulling us back to peddling again?

Automobile has a great influence & impact on it's immediate built and un - built environment.

Thus the research question arises is How the changes in technology (advancemnt in automobiles) influences various architectural aspects of design?

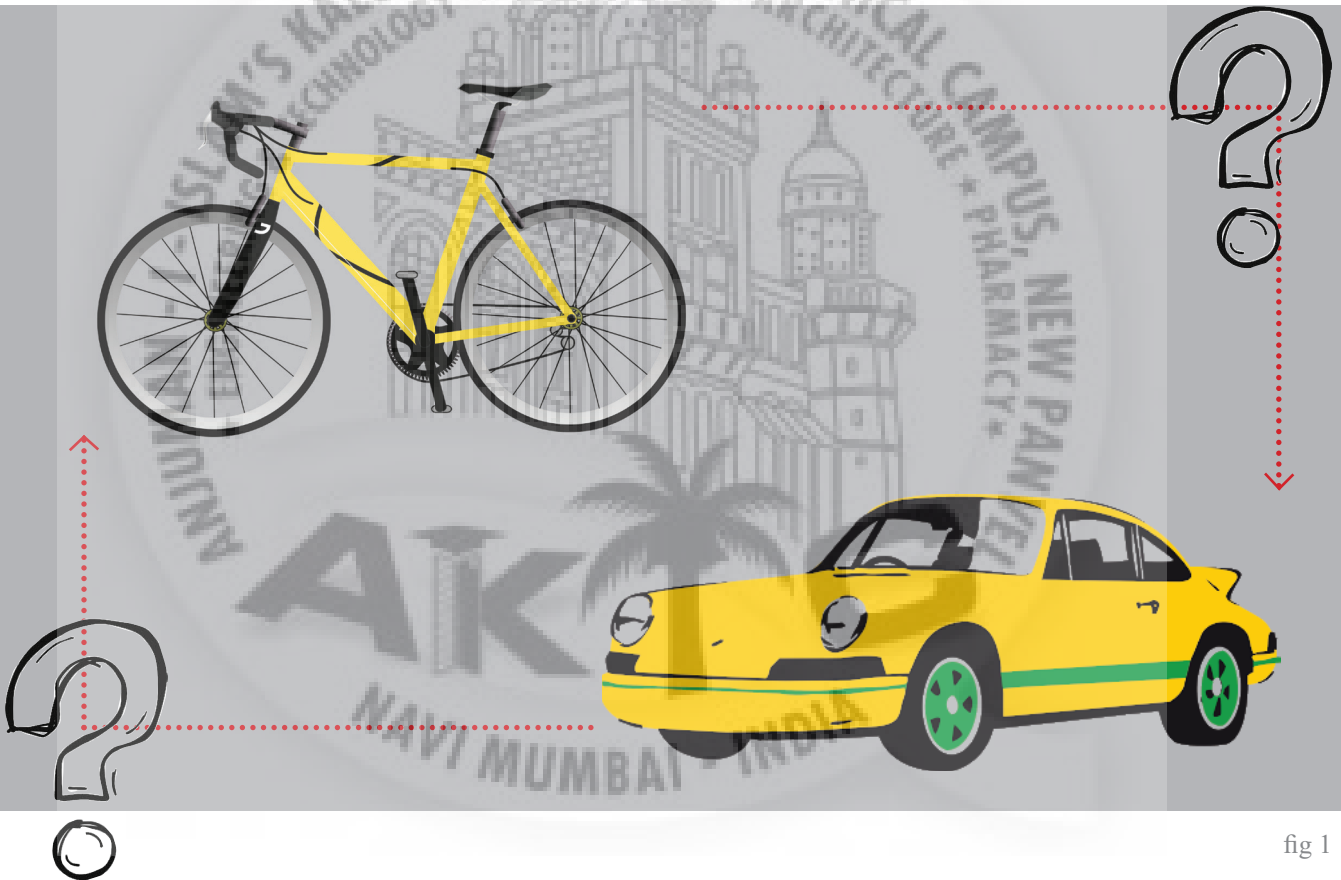


fig 1

A I M

To identify factors which create awareness about automobile advancement by understanding the global impact and to exhibit India's Auto Inventions and Heritage.

O B J E C T I V E

- To analyze the history of Indian Automobile.
- To understand the impact of using automobiles on the environment.
- To enhance the development into the automobile sector by promoting, educating and exhibiting.
- To find out government initiatives for the same.
- To provide a platform for social, economic, and professional development in this field.

S C O P E

As automobile industry is going under revolution and human life is majorly influenced by transportation. Here arises a need of knowledge of what exactly we are going to face in future. There's a need to understand the path of execution for educating people in this field by demonstration and exhibition and also provides a platform for further convention over the years.

L I M I T A T I O N

The study is concerned to Indian Automobile only & it will only focus on aspects of architectural design and not on issues caused by automobiles to urban designers or on city planing.



ROLE AND IMPACTS.....

What is the role of design proposal?

To represent Indian automobile globally through exhibits to enlighten automobile enthusiasts, buyers, consumers.

Who are the stake holders?

Indian auto-companies, automobile enthusiasts, buyers, consumers, investors in this field

What role and impacts above mentioned stake holders shall create on your further research and design proposal?

The above-mentioned stakeholders will dispense a major jolt on my innovation park exhibit as their reviews and feedbacks will improve my forthcoming exposures

LITERARY RESEARCH

How Vehicle Changed All Through The Long Haul...



Section 1

1.1 - Influence of automobile on architecture.

Section 2

2.1 - Influence of technological advancements on architecture

2.2 - Architecture after industrialization

Section 3

3.1 - Biography of Automobiles

3.2 - Understanding challenges faced by Indian Automobile Sector.

Section 4

4.1 - Evolution of Automobiles in Current Times.

4.2 - Global impact of revolutionized motors.

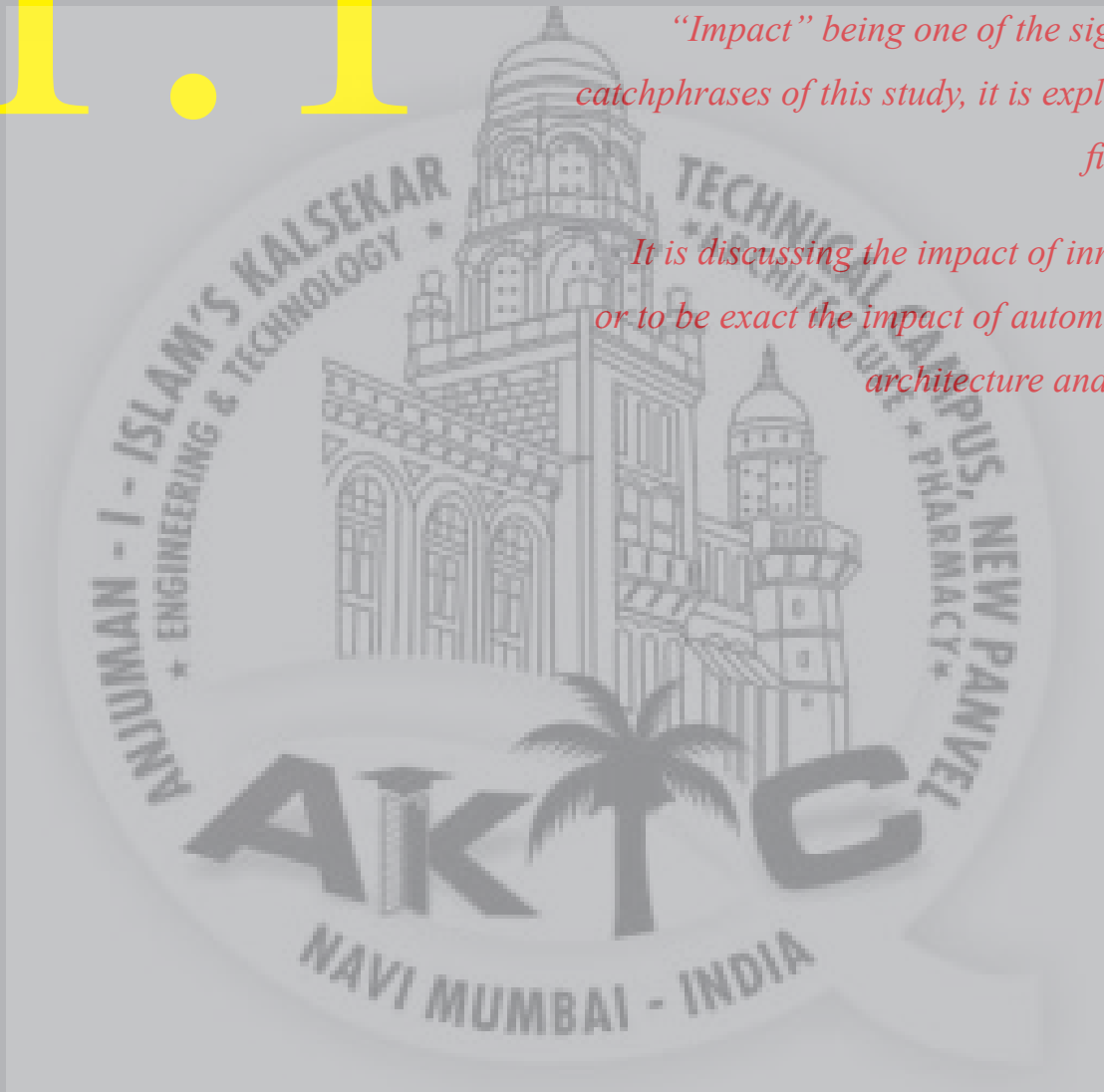
4.3 - Finding out Government Initiatives.

1.1

INFLUENCE IN ARCHITECTURE

“Impact” being one of the significant catchphrases of this study, it is explained in first part.

It is discussing the impact of innovation or to be exact the impact of automobile on architecture and design.



The word “influence” means, “The capacity to possess an effect on the character, development and behavior on someone, something or the effect on itself”. It also indicates “the power to shape policy or ensure a favorable treatment through someone”. For this research one is more interested in the first definition than the second, And one can easily be mistaken by misunderstanding influence as reaction to an action, like an impact.

Rather influence is something which is more subtle and minutely noticed. Its effects are visible & felt slowly. It can only be recognized at a distance from that object. The most crucial thing to understand influence on the object, person or phenomena is to recognize the change. Change is the only way one that can detect an influence & thus looking for forces & causes which triggered it. The post-modernist theory says that these causes aren't a neighborhood of a Meta narrative: instead there are various narratives which contest each other to influence the change. Art & architecture are two areas that immensely base themselves on influence. Though these fields demand creativity & uniqueness, it's entire foundation is based on history & factors that motivate and create it. For example Modernism, which is a consequence of the

scientific revolution & industrial age. It is not just historical age that influence an art movement; there are many other aspects like nature, technology, context etc. Similarly looking at architecture, one can study the influences through different lenses.

One of the first & the major influence is nature & climate. Environment, terrain & ecology are the most fundamental factors that affects the built space & architecture. The basic meaning of a shelter, (and thus architecture) is a building that protects from the environment & its dangers. From caves to the high-rises, the entire built try & create a sanctuary from the outside & thus orient them to achieve the same.

The context of architecture also shapes what the built form will be. Context is wide range of circumstance or fact surrounding a particular event/situation. People & their culture, rituals & practices form the relevant background to situate the particular built form. One can argue over the chronology of culture affects built form or vice versa. What is important is to summarize that man & the built continuously impact each other.

Only man alone cannot construct, he always needs tools to aid the process of construction.

Technology (which includes machinery and devices developed from scientific knowledge)

affects the ability of a man to choose certain method, materials and techniques. One always tries to push the technology to it's maximum limit, & innovate. The kind of volumes, spans that can be achieved using advance industrial materials, is a result of advancement in technologies & the skills & vision of an ambitious human. One can now place built form at the centre being dictated by nature, technology & people. But these aspects are momentary & only help us to locate a built-form in space. To understand the aspect of time & evolution one has to look into historical accounts of the nature, culture, people & the architect. An event or a series of events happened in the past eventually impact the evolution context, which in turn dictates the evolution of built form. This understanding of context from a historical perspective is important to locate a building in the certain era, & contemporary movements. Thus it can be established that architecture, unlike painting can not be seen in isolation. The entire process of designing and constructing is a contextual act, and there are different processes through which a man responds to these contextual impacts.

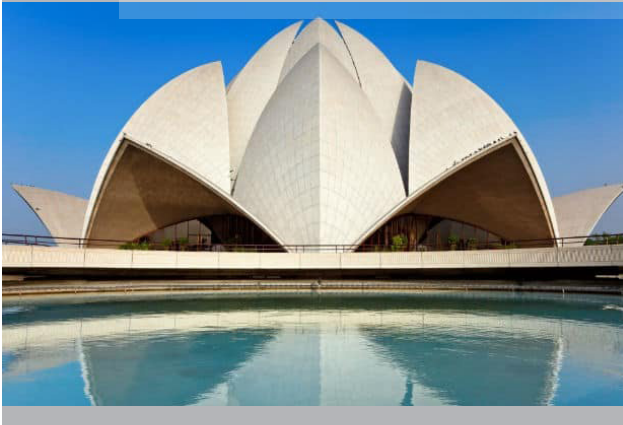
Missouri, USA (image 1)



Adidas shoe box, Amsterdam (image 2)



Lotus temple in Delhi, India (image 3)

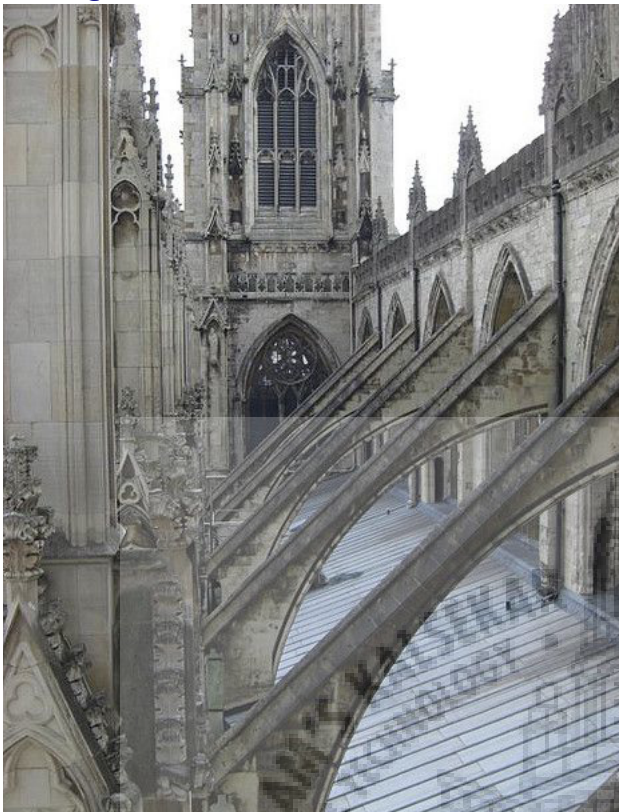


Literal Influence means directly copying something or, taking words in their usual/most basic sense without use of any metaphor/exaggeration. But literal influence in an architectural sense can be taken in terms of form & structure of building which may be influenced directly by an object. In many of the cases, the function of the building is in literal relation in influencing object of what this building serves.

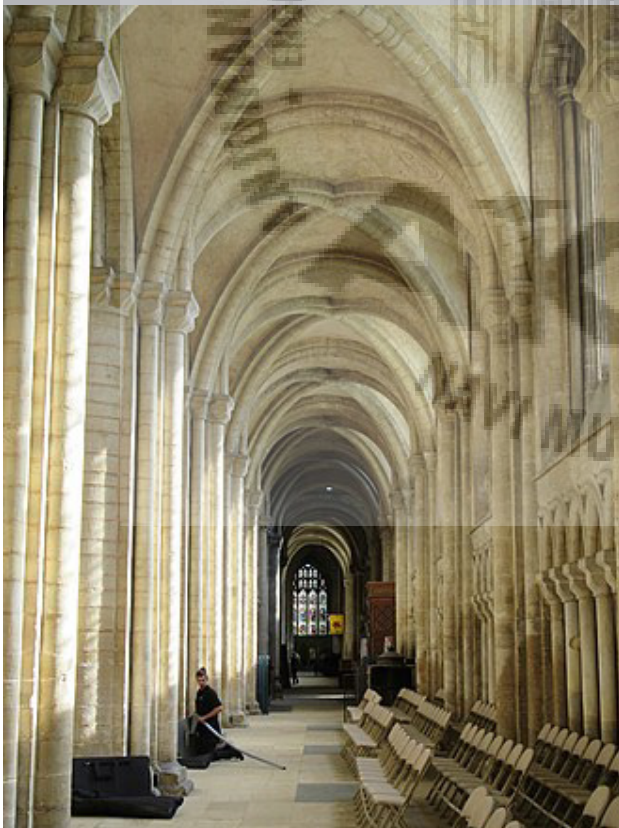
For example, Kansas City library in Missouri, USA (image 1), Adidas shoe box in Amsterdam (image 2). There are also many examples of literal influence on buildings where the influencing object does not have any direct relation to the function of building. For example Lotus temple in Delhi, India (image 3). This is the first layer of influence where the factual data is directly transferred to the form or structure of the building. Evolved Influence In architectural sense the influence of the object, phenomenon, etc has passed through a layer of processing to manifest itself as the reason of shift or change from the earlier condition of the building. This is the second layer of influence where there's a process of taking in and fully understanding the concept in order to translate into a built form or structure.

The process of translating can be based on many, for example; interpretations of designers. consequences of events in the past and properties of the influencing object.

For Example the invention of and flying buttresses(image 4), ribbed vaults(image 5) in gothic cathedrals, changed the way Roman churches were built in medieval Europe because of the evolution in construction system used.



flying buttresses(image 4)

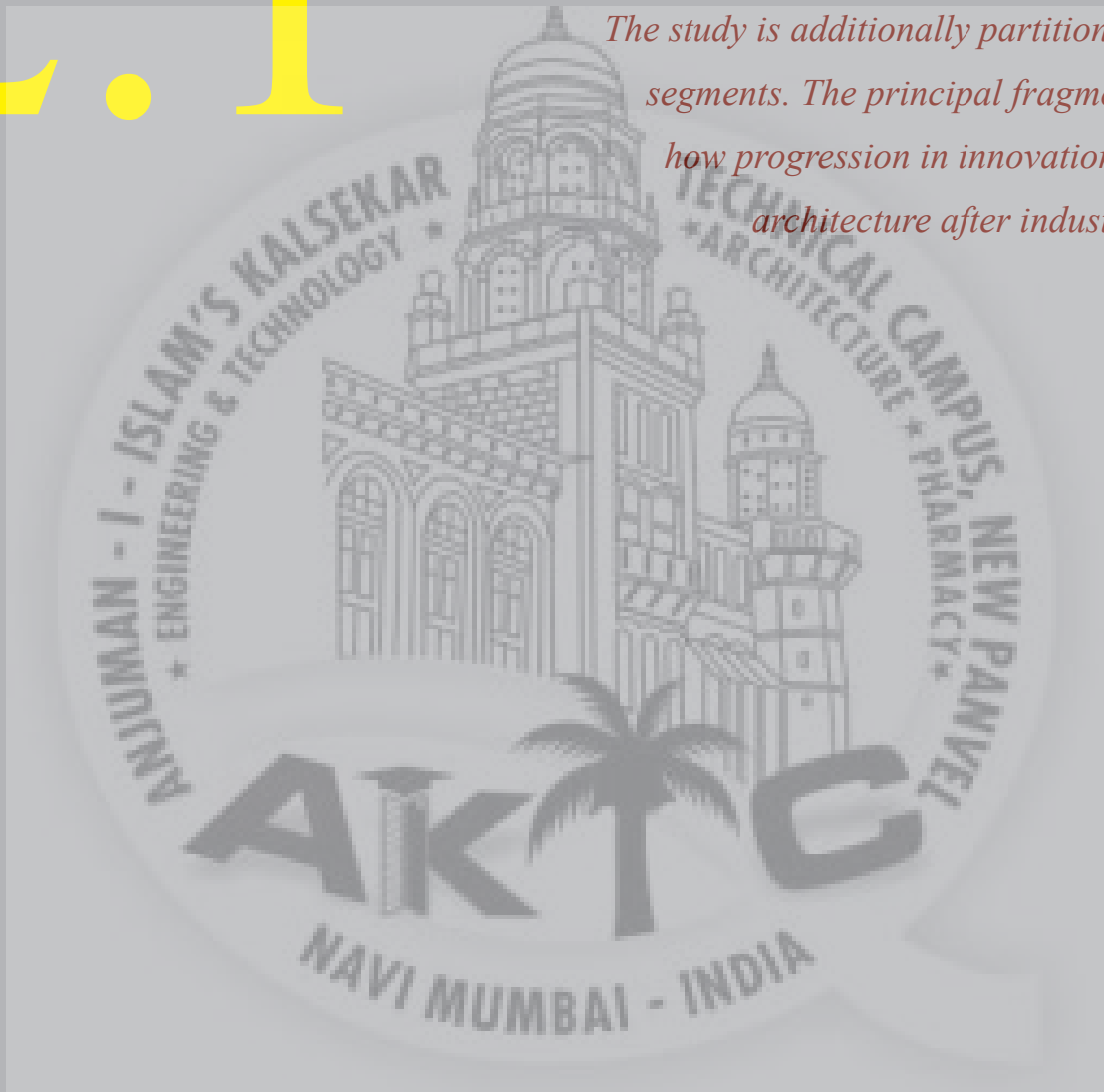


ribbed vaults(image 5)

2.1

INFLUENCE OF TECHNOLOGICAL ADVANCEMENT IN ARCHITECTURE

The study is additionally partitioned into two segments. The principal fragment clarifies how progression in innovation influences architecture after industrialization.



Application of technology to the design of building has impacted the building design process after Industrialization. As new materials arrived, new construction methods took place and thus design challenges increased. Also focus on the different elements of built environment has changed and at many times it has become dominant, which led to different kind of interaction between the elements. Stephen Emrnitt in one of his article said that “The relationship between building technology and design can be traced back to the enlightenment and the industrial revolution, a period when advances in technology and science were seen as the way forward, and times of solid faith in progress”. Advancement in Technology also led architecture to give more efficient/effective design solutions to achieve the satisfaction in performance and construction of buildings. It has helped converting developed designs/concepts into a buildable reality.

25 years Before Crist on imagining for the future Vitruvius quoted “Architecture is a science arising out of many sciences and adorned with much and varied learning”. This quote of Vitruvius has been realized very well in the lost century that has just passed.

For example, in Egyptian and Roman time the architecture had been developed more based on the law of forces on materials. Whereas in modern structures more possibilities were developed through questioning the strength of materials and integration of them. In that case planning of building becomes more and more complex due to technological influence, as compared to the past where one can perceive simplicity in planning.

There are many good examples in architecture that shows that they are designed and executed based on the technological advancement. Like Pompidou center in Paris (image 6), which was a giant Meccano set according to one of its designers Richard Rogers, who also said “it is a machine whose purpose was to create social interaction within the city’

Another example is Millennium Bridge in central London (image 7) and many more designs of Norman Foster: which seeks for innovation in every project with a deep understanding of how architecture profits from the transfer of technologies from other industries.

2.2



Pompidou center in Paris (image 6)

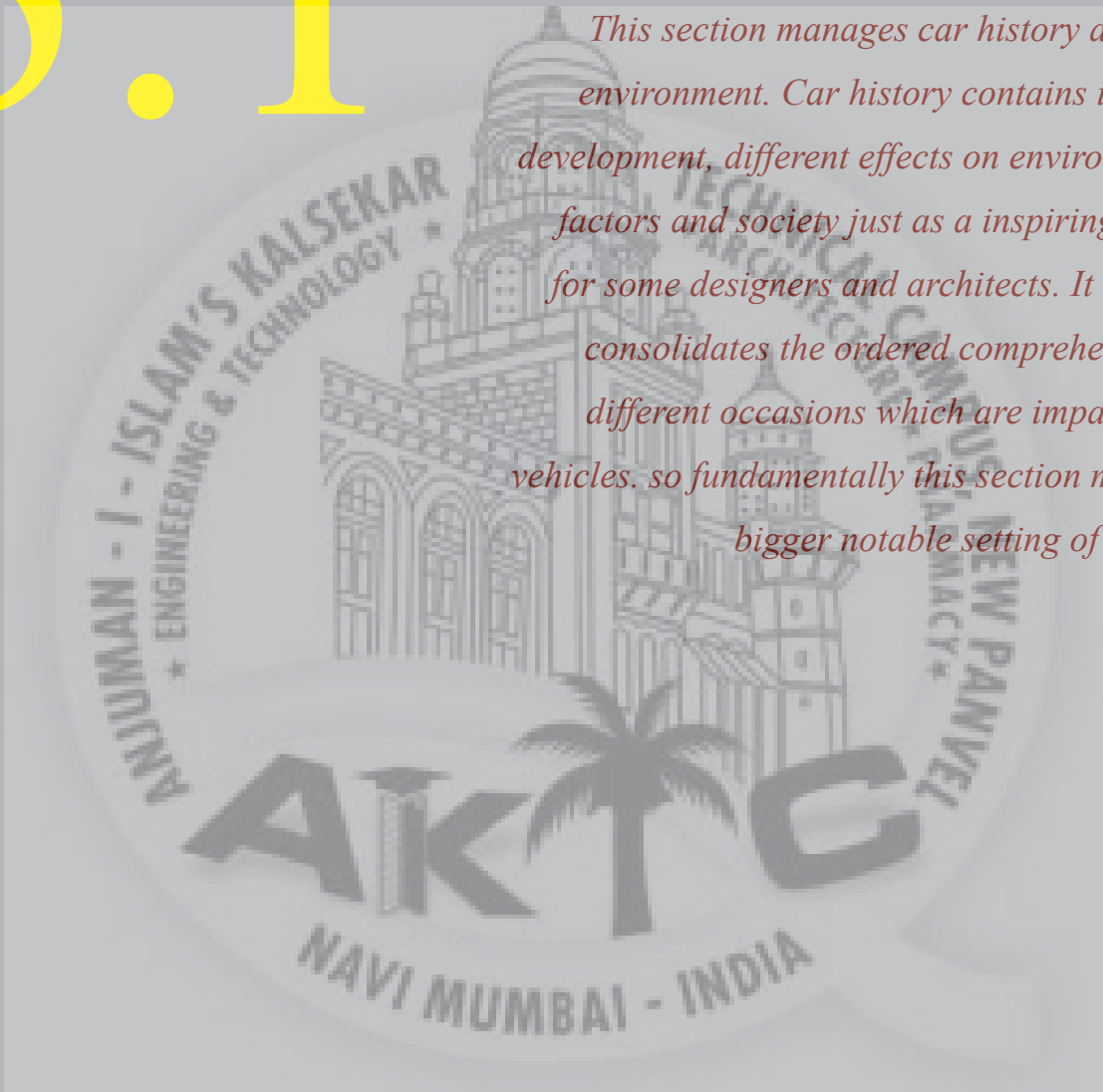


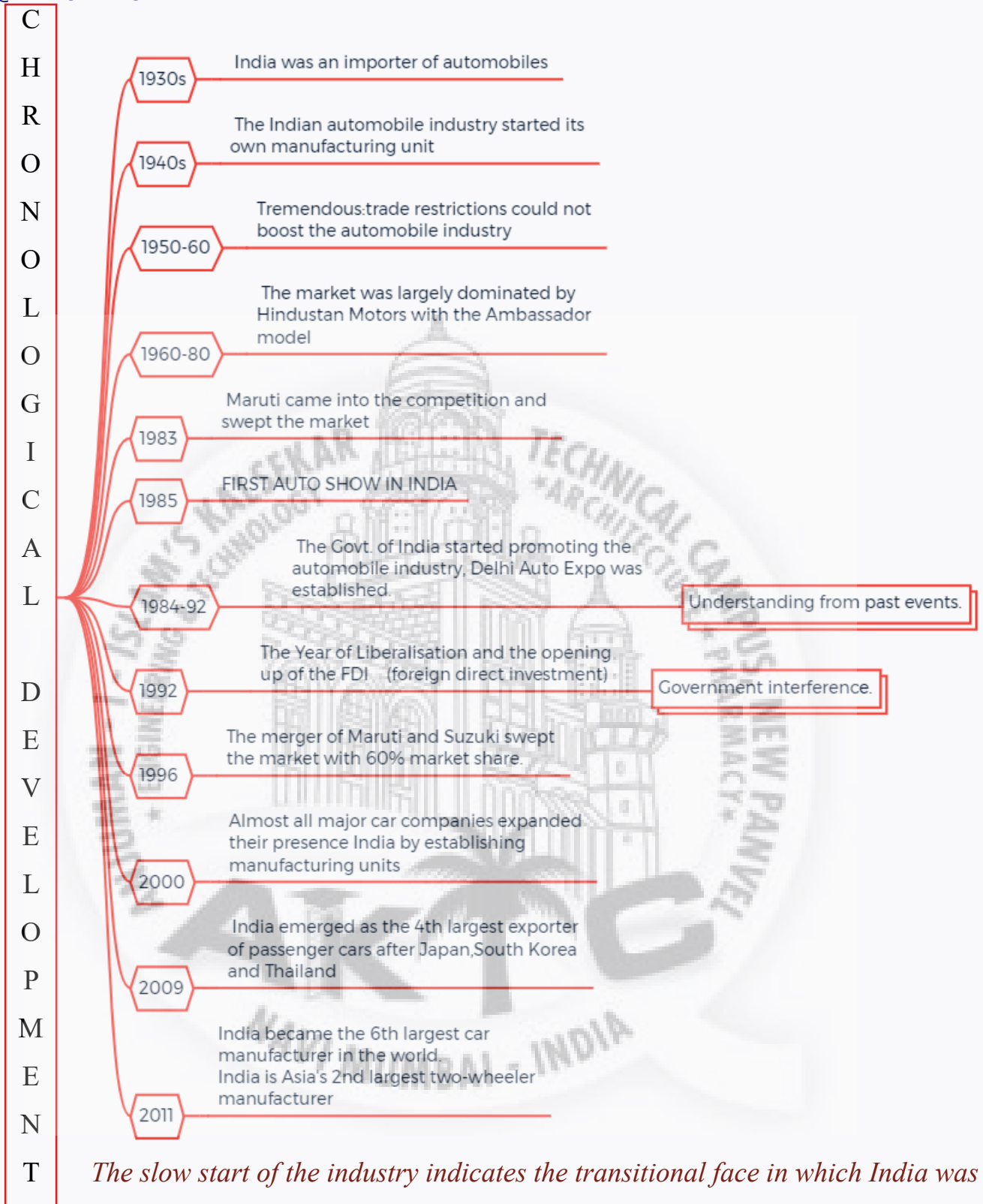
*Millennium Bridge in central London
(image 7)*

3.1

THE BIOGRAPHY OF AUTOMOBILES.

This section manages car history and built environment. Car history contains its birth, development, different effects on environmental factors and society just as a inspiring article for some designers and architects. It likewise consolidates the ordered comprehension of different occasions which are impacted via vehicles. so fundamentally this section manages bigger notable setting of vehicle.





The slow start of the industry indicates the transitional face in which India was emerging as a developed nation and was gaining an important reputation. As of now India has become a superpower in the field of automobile which has led to a lot of foreign investment in the same, boosting India's economy. India has now become one of the largest producers of automobile in the world and is ranked 4th in world as one of the largest automobile markets across the world.

3.2

UNDERSTANDING CHALLENGES FACED BY INDIAN AUTOMOBILE SECTOR.

Though the automotive industry is one of the ripest industries in India, it still faces challenges and issues few of which are unanswered. Overcoming these challenges will enable the Indian automotive industry to become one of the biggest disruptors in the global market.

Key challenges in the automotive sector

There are some pressing questions that are currently worrying the automotive market in India:

- Will there be a decline in car ownership with the rise of autonomous driving?
- How will the make of the vehicles change with the government's increasing focus on fuel efficient technology?
- How should the automakers modify their business strategies as sales slowdown in mature markets demands and demographics start shifting?

As the automotive world gears up to answer these questions, there are five key challenges that form the crux of these indispensable areas of concern in Indian automotive world.

4.1

ANALYSING THE EVOLUTION OF AUTOMOBILES IN CURRENT TIMES.

Though measures are being taken by car makers, these levels are being ignored by people outside the industry, car makers often don't talk about their technology in these specific SAE terms. The big potential promise for people is either car that drive themselves for a large part of a person's highway commute (level 3) or cars that can drive themselves almost as long as you live in a covered metropolitan area (level 4).

Defining "Self-Driving" in Levels

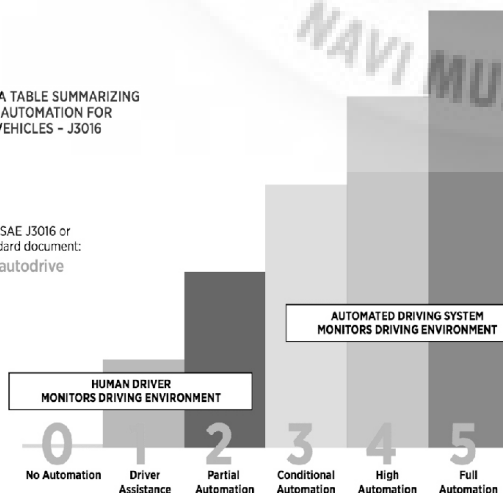
"Self-driving" is a rather vague term with a vague meaning. We'll be referencing the "self-driving levels" as defined by the SAE International, which can be viewed below:

This means the vehicle can safely drive itself under specific conditions but the driver will need to quickly intervene when called on. This is a car that could drive itself on the highway while you watch a movie but would need you to take control when you get off the highway.

Some may view this as only partially self-driving.

▶ OVER FOR A TABLE SUMMARIZING LEVELS OF AUTOMATION FOR ON-ROAD VEHICLES - J3016

Learn more about SAE J3016 or purchase the standard document: www.sae.org/autodrive



(image 8)



Level 1

Automation some small steering or acceleration tasks are performed by the car without human intervention, but everything else is fully under human control.



Level 2

Automation is like advance cruise control or original autopilot system on some Tesla vehicles, the car can automatically take safety actions but the driver needs to stay alert at the wheel



Level 3

Automation still requires a human driver, but the human is able to put some “safety-critical functions” to the vehicle, under certain traffic or environmental conditions. This poses some potential dangers as humans pass the major tasks of driving to or from the car itself, which is why some car companies (Ford included) are interested in jumping directly to level 4



Level 4

Automation is a car that can drive itself almost all the time without any human input, but might be programmed not to drive in unmapped areas or during severe weather. This is a car you could sleep in.



Level 5

It means full automation in all conditions.

(image 9)

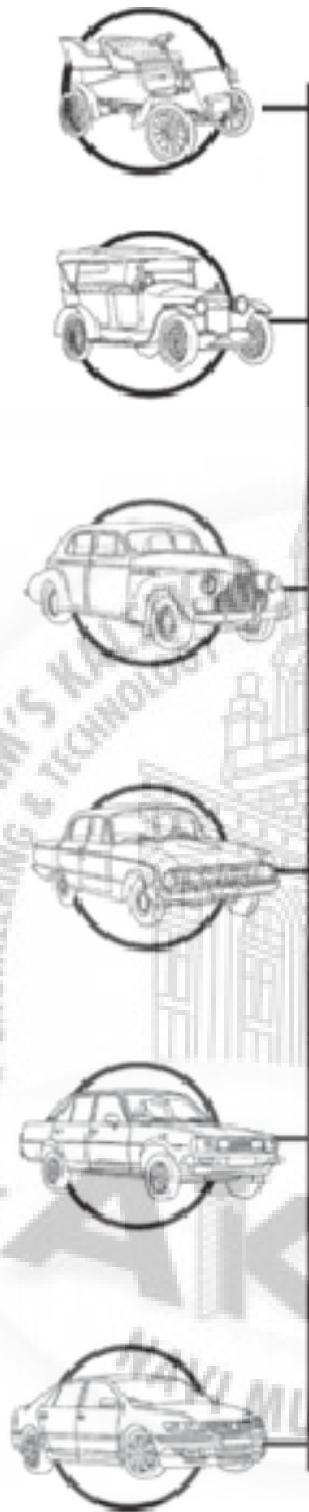
4.2

GLOBAL IMPACT OF REVOLUTIONIZED MOTORS.

Digitization, automation and new business models are revolutionizing the industry, and the automotive industry is facing similar challenges. The Indian automotive industry has also started experiencing the global disruption effects now.

The Government aims to develop India as a global manufacturing centre and R&D hub. The Government of India has shortlisted 11 cities in the country for introduction of EVs in their public transport systems under the FAME (Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles in India) scheme. The Government will also set up incubation centre for start-ups working in the EVs space.

India has a lot to gain by converting its ICE vehicles to EVs at the earliest. Its oil-import bill would considerably reduce. ICE vehicles are a major contributor to pollution in cities and their replacement with EVs will definitely improve air quality. There is a considerable possibility that we can become leaders in small and public electric vehicles.



India has over 170 million two-wheelers. If we assume that each of these vehicles use a little more than half a liter of petrol per day or about 200 liters per year, the total amount of petrol used by such vehicles is about 34 billion liters. At ₹70 per liter, this would cost about ₹2.4 lakh crores. Even if we assume that 50% of this is the cost of imported crude (as tax and other may be 50%), one may save ₹1.2 lakh crores worth of imported oil. There is a real possibility of getting this done in the next five to seven years. This would however require innovations, a policy regime that encourages access to latest technologies and a concerted effort by the Indian industry to achieve global competition through acquiring the necessary scale and using cutting edge technology.

(image 01)

4.3

FINDING OUT GOVERNMENT INITIATIVES

New Delhi hosts Annual Auto Expo once in two years. Pragati Maidan was the shortlisted venue for this annual Expo, it has now been shifted to India Expo Mart, greater Noida due to improper management of human resources and crowd too. The viewers as well as the common businessman get to see it for few days. People don't get enough exposure to view their products and observe the competitors properly. Also due to lack of awareness and more of crowd, the waiting seems endless which leads to less interaction space and time.



ARCHITECTURAL RESEARCH.

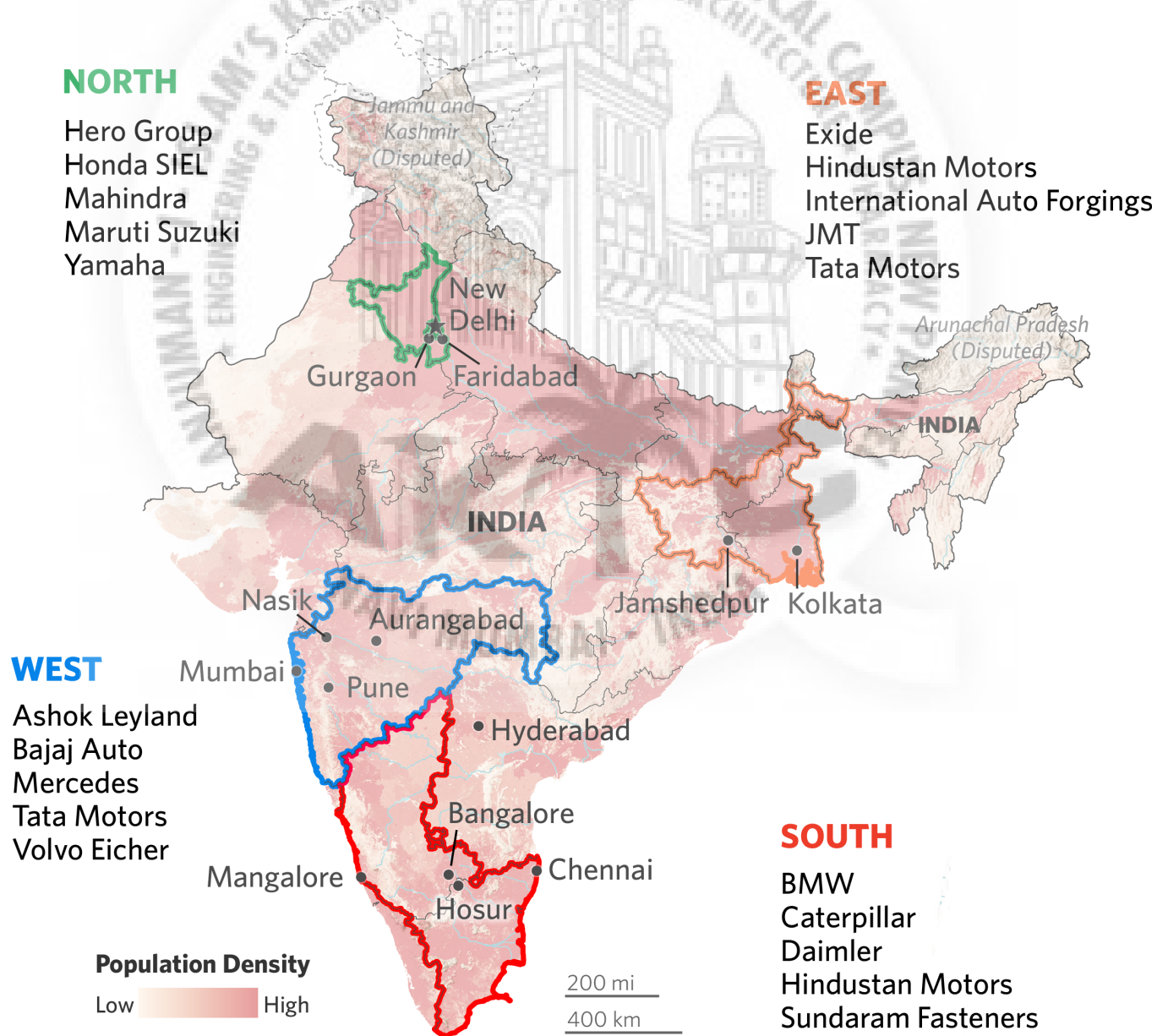
Case Studies and Site Selection



Chapter 3.5

IDENTIFYING INDIAN AUTOMOTIVE MANUFACTURING ASSEMBLY

India is having an annual production capacity of 17.5 million vehicles & we have the manufacturing bases across our country for all range an types of vehicles. However, 2 hubs have grown in enormous size in past two decades – Chennai Auto Hub (TamilNadu) & Pune Auto Hub (Maharashtra).



4.1.1

Criteria for selecting Case Studies...

	<i>Ferrari world</i>	<i>Mercedes Benz Museum</i>	<i>Enzo Ferrari Museum Modena(birthplace)</i>
CATEGORIES	INNOVATION IN PROGRAM, TECHNOLOGY & EXPERIENTIAL	INNOVATION IN TECHNOLOGY	AESTHETICS, FORM
Typology	<i>Indoor Amusement Park</i>	<i>Museum</i>	<i>Focused on the life and work of Enzo Ferrari,</i>
(Site Context)Impact of project on the location	<i>Located on the island of Yas, United Emirates, in an area where the temperatures rise above 40° and where before there was only sand. Close to international airport</i>	<i>The proximity to the Mercedes-Benz parent plant in Stuttgart-Untertürkheim breaches the gap between tradition and modernity: the Museum shows that automotive history is always also directed towards the future.</i>	<i>Museo Casa Enzo Ferrari is a museum in Modena focused on the life and work of Enzo Ferrari, the founder of the Ferrari sports car marque. The museum complex includes two separate buildings, a former house and workshop that belonged to Enzo Ferrari's father, and a new building</i>
What was the necessity or intent of the project	<i>The structure is dedicated to an Italian car manufacturer, Ferrari. It includes an F1 circuit. It faithfully reproduces the entire history of the "Cavallino Rampante" ("prancing horse"), offering the visitor every type of attraction related to the brand. (to attract tourism)</i>	<i>This Museum celebrates the automobile invented by Carl Benz in 1886: it relates its history and tells its stories, bringing both alive by placing them in the context of technology, day-to-day life, social history and popular culture.</i>	<i>Established with the aim of promoting the Modena region's motoring tradition and create a museum dedicated to Enzo Ferrari in Modena.</i>
Users	<i>Tourists, students,</i>	<i>Enthusiasts</i>	<i>Enzo Ferrari's father. The exhibits feature Ferrari, Alfa Romeo and Maserati cars.</i>
Program	<i>GO KARTING, RACING Leisure, souvenir shop, cafeteria, simulation room. Ferrari World Abu Dhabi's Coaster Lab is a unique exploration of physics that is the first-of-its-kind in the UAE.</i>	<i>Museum for the city, a new landmark to celebrate the enduring passion of Stuttgart's most famous inventor and manufacturer.</i>	<i>The new Exhibition Gallery houses a flexible mounting representing story, figures, places and races of the Modenese sport motor racing. Documentation Centre, an Educational Centre, a conference room, a store and a cafeteria and represents an elegant place to exhibit beautiful cars, and a space to organise conference, and cultural events.</i>

Criteria for selecting Case Studies...

	<i>Heritage Transport Museum</i>	<i>Sudha Car Museum</i>	<i>Auto world vintage car museum</i>
<i>CATEGORIES</i>	<i>Space and functionality</i>	<i>First and only handmade wacky car museum</i>	
<i>Typology</i>	<i>Showcases the evolution of transportation in India</i>	<i>The museum displays "crazy cars" that resemble everyday objects.</i>	<i>This museum presents a striking presentation of the rare vehicles.</i>
<i>(Site Context)Impact of project on the location</i>	<i>Located on NH-8, Haryana, just two hours from New Delhi.</i>	<i>Hyderabad, Telangana</i>	<i>one of the top tourist places in Ahmedabad.</i>
<i>What was the necessity or intent of the project</i>	<i>HTM was conceptualized out of consideration for people's look out for places for recreational learning with a twist of fun.</i>	<i>The Sudha Cars Museum was invented by one Sudhakar Yadav, for whom crazy cars are a lifelong obsession</i>	<i>This museum came into existence as a result of the immense love and passion that the late Pranlal Bhogilal had for cars.</i>
<i>Users</i>	<i>Tourists, Family Groups, School students, Engineering & Architecture students, Incentive Groups, Photographers, Artists, Film Makers</i>	<i>Tourists, school children, enthusiasts, workshop</i>	<i>Tourists, car enthusiasts</i>
<i>Program</i>	<i>exhibition space, a library and reference center, a mini auditorium, a museum souvenir shop, seminar rooms and a refreshment area.</i>	<i>Cafeteria, Auditorium, Souvenir shop</i>	<i>auditorium, a small play zone for kids, cafetria and a souvenir shop</i>

4.1.2

HERITAGE TRANSPORT MUSEUM, HARYANA

Location - Mewat, Haryana

Architect - J R A (Jyoti Rath and Associates)

Building type - Museum

Site area - 9000 sq.m.

Site gradient - Flat land



(image 11)



(map 3)

A built up area of over 90,000 square feet of air conditioned space spread over four floors houses the exhibition galleries, library and reference centre, conference rooms, mini auditorium, the museum shop, and a restaurant facility.

The exhibition hall is completely open for genuinely handicapped guests or wheel seat clients. All exhibitions are available by slopes or lifts. Vehicle display exhibits the development of the Indian vehicle industry, just as vehicles that have been utilized in India since the coming of motoring. In plain view are more than 75 vintage and exemplary vehicles - left close by a reproduced Indian road scene from bygone eras, wearing vintage Ephemera. A vintage petroleum siphon with save parts memorabilia has additionally been reproduced, while an uncommon segment exhibits the function of vehicles in Bollywood. Movies on transportation are screened in a scaled down assembly hall on this floor. The Heritage Transport Museum is arranged on a three section of land plot, off National Highway 8 at Tauru-Gurgaon.



(image 12)

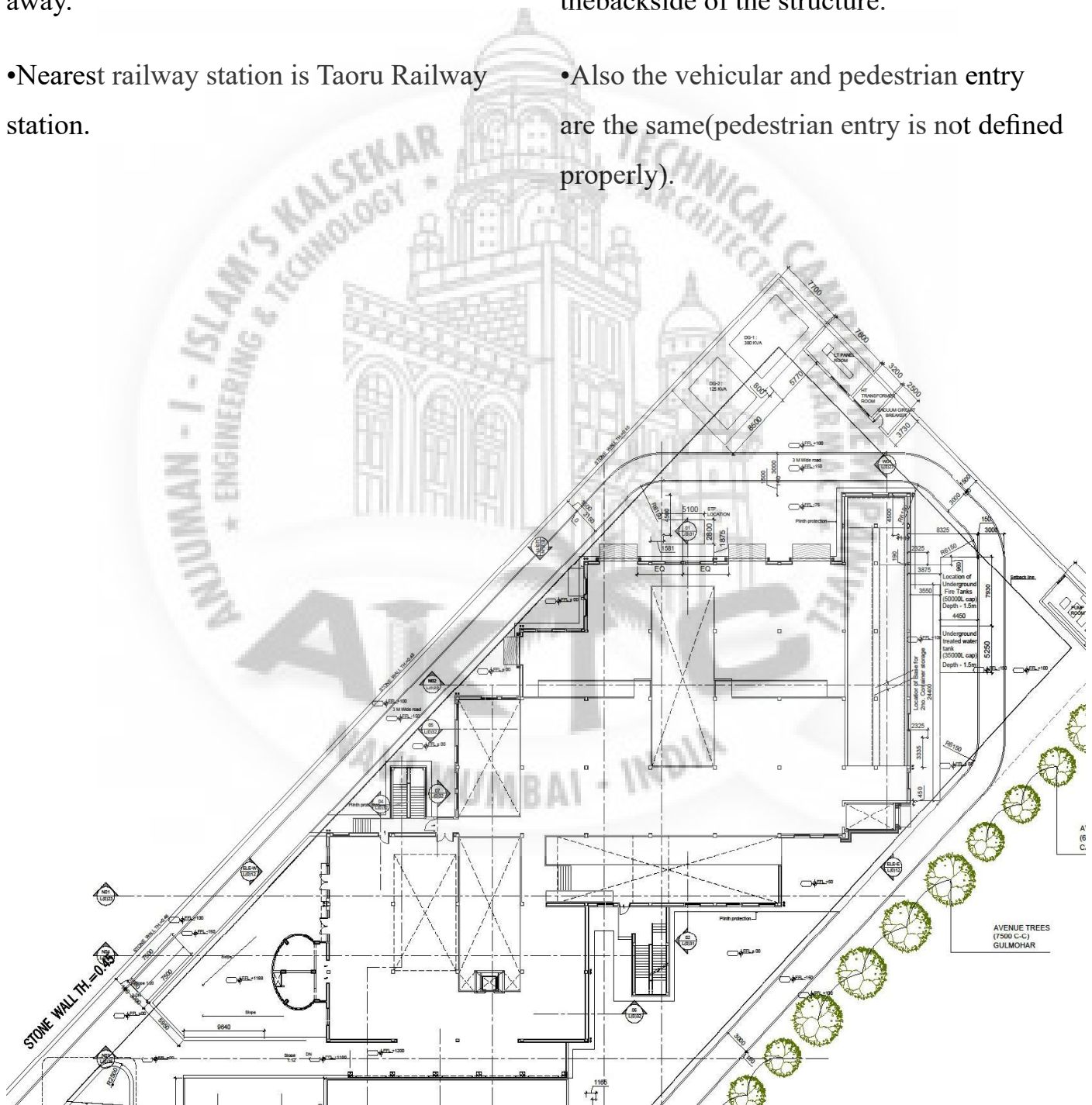
IR@AIKTC-KRRC

Access:

- Regular buses run back and forth from Gurugram bus stand to Heritage transport museum
- Indira Gandhi International Airport is 30km away.
- Nearest railway station is Taoru Railway station.

Layout :

- There is only one entry for the premises which consist of a single building.
- There isn't any separate service entry for the premises but a small service area in the backside of the structure.
- Also the vehicular and pedestrian entry are the same (pedestrian entry is not defined properly).



(image 13)

Amenities and spaces provided :

Cafe : Capacity of 50-60 people with square table and four chairs. Area of cafeteria is around 50 sq.m.



(image 14)

Mini Auditorium : The mini auditorium will have regular screenings of films on transportation. The capacity is 15-20 people per screening.



(image 15)

Souvenir shop : A small souvenir shop is provided next to the cafeteria. Area of the souvenir shop is 15sq.m.



(image 16)

Library and Reference centre : A small library and reference centre is provided

Level 3 : Books and magazines related to cars and transport are available for readers.

Conference room : An enormous gathering room with a limit of more than 300 individuals might be utilized for corporate or extraordinary occasions. Available from the gathering room is a sweeping porch. The meeting room can be divided with soundproof collapsing screens to make two rooms of equivalent size so more modest occasions might be held all the while.



(image 17)
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Exhibitions include :

- Automobile gallery
- Two wheelers
- Railways
- Art gallery
- Aviation
- Maritime gallery
- Rural transportation

AUTOMOBILITY

Concept : The insides and the outsides of the gallery utilizes a solid mechanical language and makes an impression of a manufacturing plant that may have been utilized to create huge numbers of the displays. Huge numbers of them are shown in settings where they would be required to be found, all things considered, roads, before shops and noticeable all around

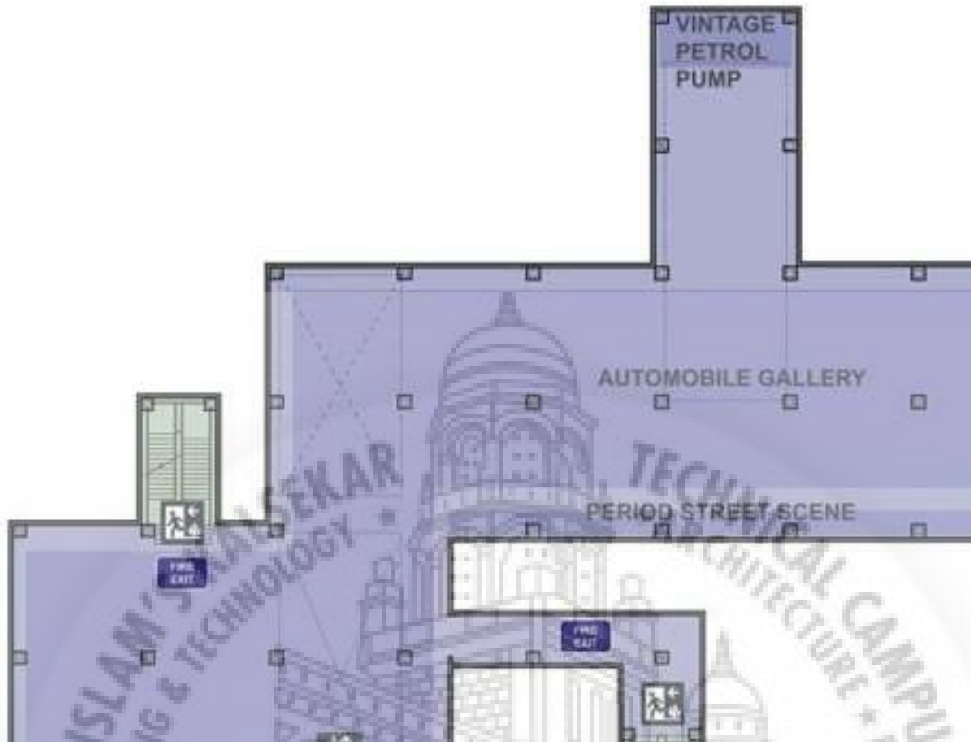
(image 18)



Inferences :

- The entry for the museum is not welcoming as it is supposed to be for a public place like a museum. It has No separate service entry.
- The museum is well planned for all the types of people (including handicaps)
- The use of natural light is avoided, which puts strain on energy consumption by encouraging the use of artificial lighting.

Floor layouts:

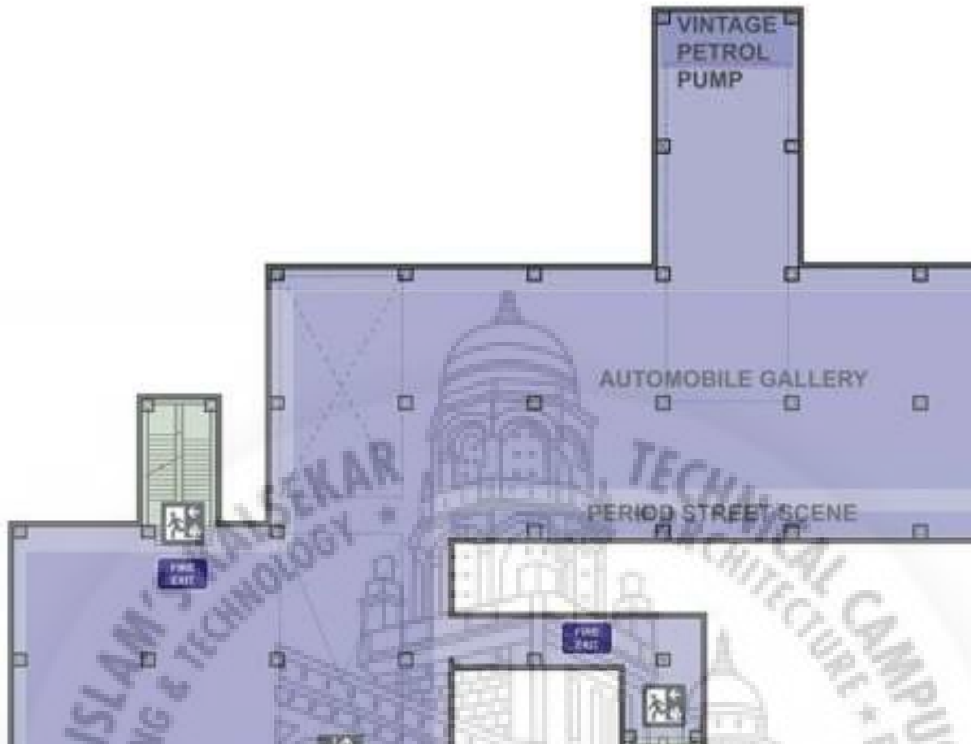


(image 18) Basement Layout of Heritage Transport museum (source– Jyothi Rath and Associates)



(image 19) Ground Floor Layout of Heritage Transport museum (source– Jyothi Rath and Associates)

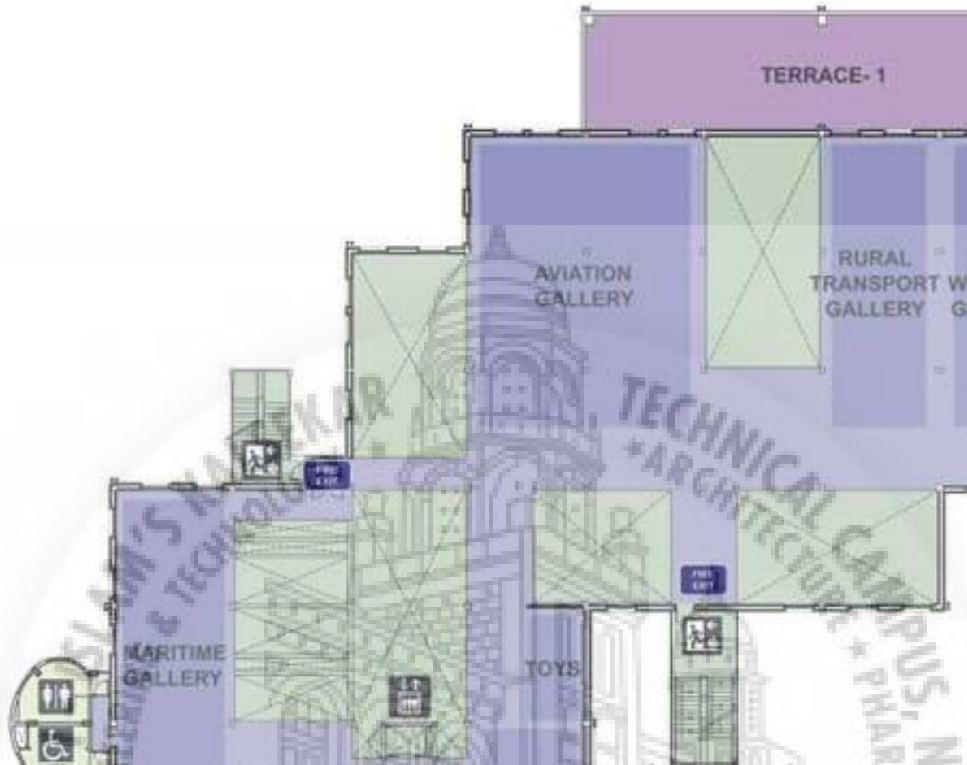
Floor layouts:



(image 20) Basement Layout of Heritage Transport museum (source– Jyothi Rath and Associates)



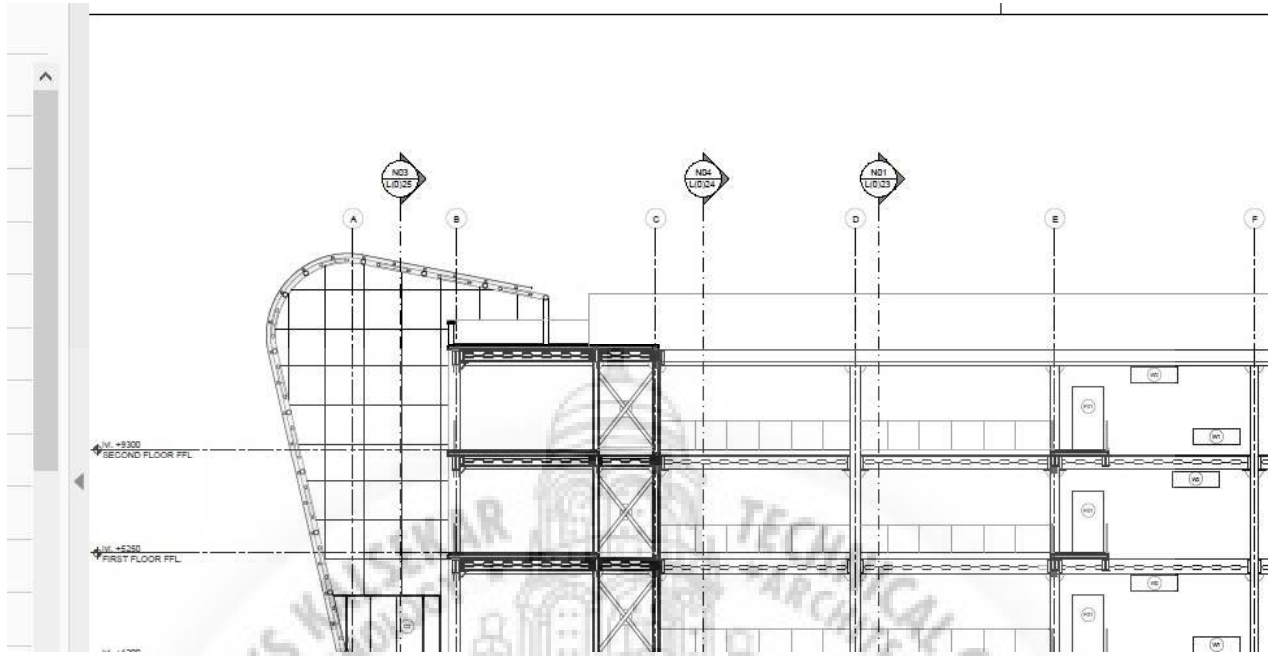
(image 21) Ground Floor Layout of Heritage Transport museum (source– Jyothi Rath and Associates)



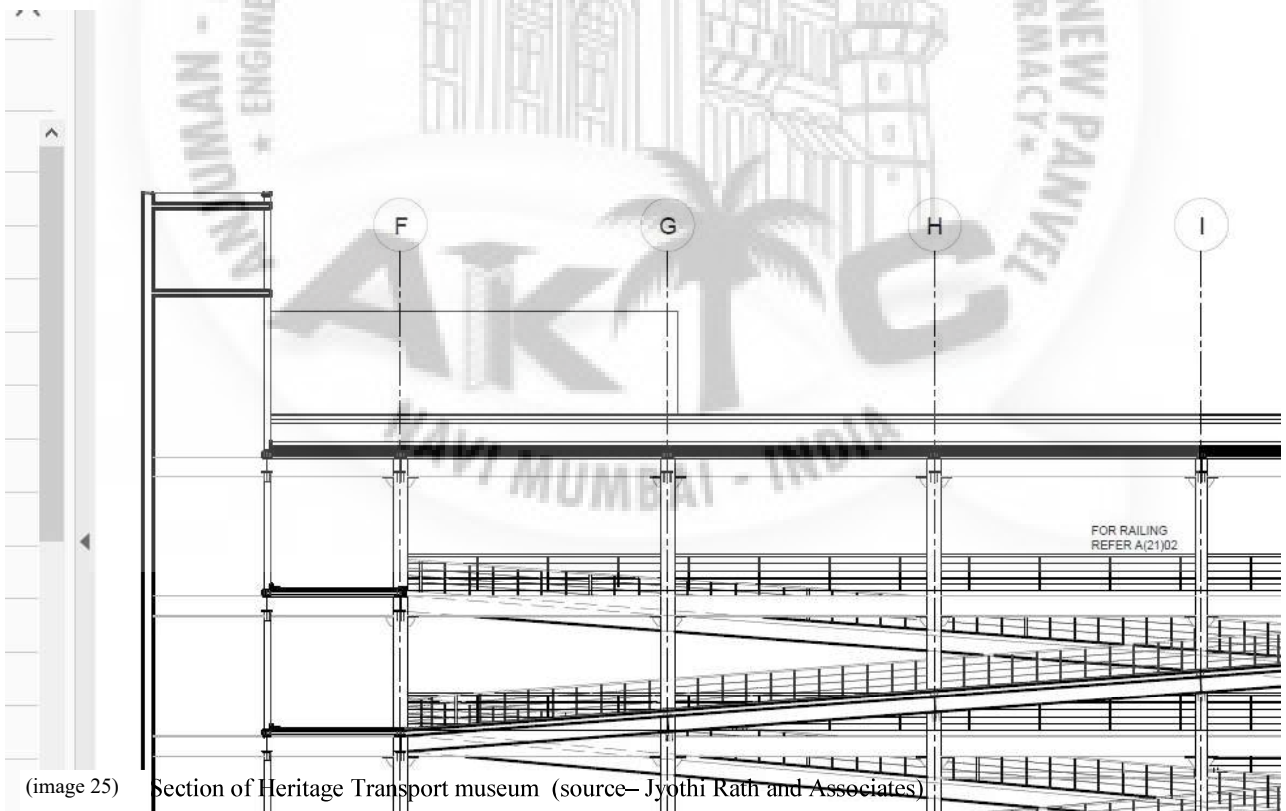
(image 22) First Floor Layout of Heritage Transport museum (source— Jyothi Rath and Associates)



(image 23) Second Floor layout of heritage Transport museum (source – jyothi Rath Associates)



(image 24) Section of Heritage Transport museum (source– Jyothi Rath and Associates)



(image 25) Section of Heritage Transport museum (source– Jyothi Rath and Associates)

4.1.3

SUDHA CAR MUSEUM, HYDERABAD

Location — Bahadurpura, Hyderabad

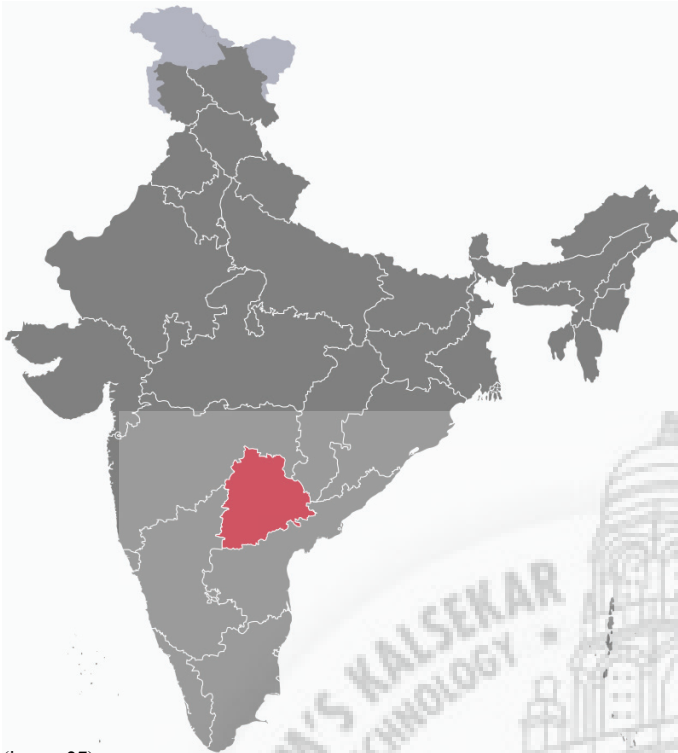
Building type — Museum

Site area —1.5 acres

Site gradient - Flat land



(image 26)



(image 27)



(image 28)

Sudha vehicle Museum is the sole high quality Wacky Car historical center on the planet. It is the mind offspring of Mr. K. Sudhakar, a Guinness World record Holder for making the biggest tricycle on the planet. Mr. Sudhakar got snared on to this interest directly from his school days. At the age 14, he previously planned a bike and the following year at 15 years old he made his first 'simple rider motorbike'. He gave his hands a shot a four-wheeler when he was concentrating in Intermediate II year and made a staggering, tough looking 'rise rabbit'.

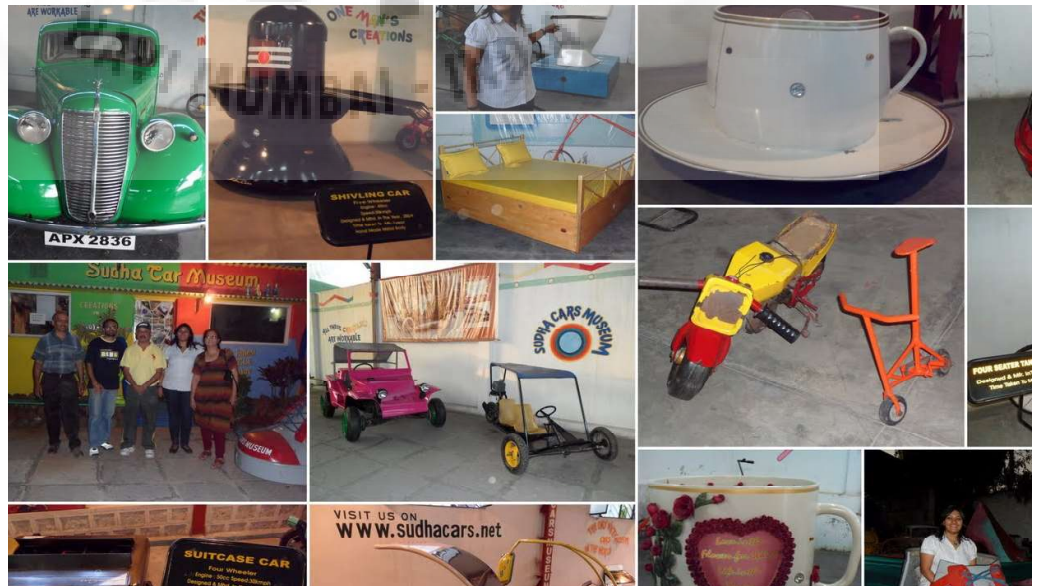
This historical center houses a lucky assortment of smaller than usual bicycles, cycles, transports and vehicles in every single imaginable shape and sizes. There are three displays in the exhibition hall. While the first has a grouping of reproductions of vehicles, race vehicles, and cycles that one would ordinarily observe out and about, the second and third exhibition have an assortment of whacky plans. The plans of the vehicles and bicycles have been roused by a wide range of things going from ball, football, work station, wellspring pen, billiards table, blossoms, bed, western style cabinet, brinjal, Shivaling, camera, saucer, and head protector among different items.



(image 29) - Location of Sudha Car Museum (source- www.googleearthmaps.com)

Zoning of the site:

1. Parking
2. Built in play area
3. Admin office
4. Outdoor exhibition areas
5. Workshop area
6. Cafeteria
7. Small play area
8. 3 galleries
9. Toilets



(image 30)

About the structure:

- The entry to the site is from west.
- The entire structure is ground structure.
- As we enter there is a stopping region on the left side, as we proceed we get to the ticket counter and afterward we get to the outside show. The cafeteria and administrator are on the left half of the outside displays.
- There are three exhibitions in the gallery.

I. The first has a combination of copies of vehicles, race vehicles, and cycles that one would regularly observe out and about.

ii. The second and the third display have an assortment of whacky plans. The plans of

the vehicles and bicycles have been enlivened by a wide range of things going from ball, football, PC, wellspring pen, billiards table, blossoms, commode, brinjal, shivaling, camera, saucer and cap among different items

Organization:

- The historical center is administered by Mr. Sudhakar who is the chief and proprietor of the gallery.
- Security : 2 authorities
- Cleaning and support of vehicles on week after week premise and there are around 10 representatives for it
- The income got from the historical center is utilized for redesigning and keeping up the exhibition hall.

Inferences :

•The museum is regarded as one the most interesting museum around the world but it fails to impress architecturally.

•The museum is spread on an area of 5 acres without any efficient planning of spaces.

•In terms of innovation the museum can compete with worlds top museum's but in terms of architecture it fails miserably.

•The services are also not planned accordingly.

•As it is a museum and functions throughout the week, power backup were also missing as a part of services.

4.1.4

Auto World Vintage Car Museum, Ahmedabad

Location — Kathwada, Ahmedabad

Building type — Museum

Site area — 5 acres

Site gradient - Flat land



(image 31)



(image 32)



(image 33)

‘Auto world’ is a piece of one the main assortments of antique-vehicles, Motorcycles, utility vehicles and Buggies, and so on worked by group of Shri. Pranalal Bhogilal, throughout the only remaining century. It speaks to a few of the best marques of vehicles from everywhere the world, everything being equal, and ages. Shri. Pranalal Bhogilal is an authority of vintage vehicles. He has changed over his private assortment of vehicles into exhibition hall named Auto World Car Museum at Dastan Farm House.

Auto world features that season of the set of experiences when a car was not a simple methods for transport but rather image of abundance, force and style. The powerful formal limousines, the convertibles and the smart games vehicles, horse drawn carriages, boat followed wooden speedsters were all the piece of his presentation at his private ranch house.

At Auto World, different structures based on sections of land of verdant grounds exhibit more than of the best vehicles on the planet, for example, Rolls-Royce, Bentleys, Langondas, Mercedes, Maybach, Packard, Cadlillac, Lincoln, Chryslers and numerous other recognized makes from USA, UK and Europe.



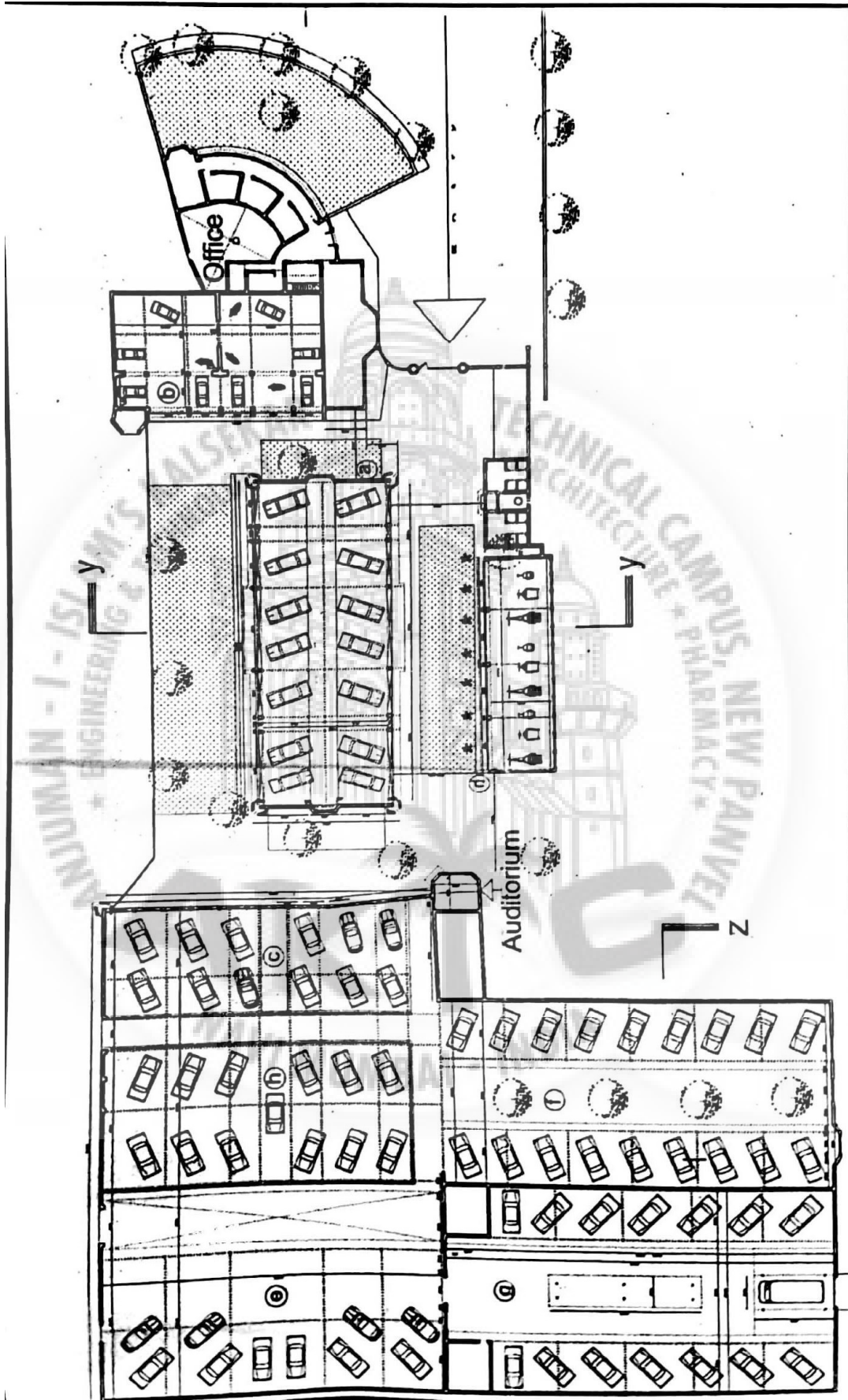
(image 34) Location of Auto World Car Museum (source- www.googleearthmaps.com)

Zoning of the site :

1. Admin office and souvenir shop
 2. Cafeteria
 3. Vintage village restaurant
 4. Fun world (play area for kids)
 5. Auto world museum
- Sardar Patel Ring Road (-----)



Plan of the museum :



(image 35) Ground Floor Layout of Auto World history Museum (source– Author, 2017)

by family of Shri. Pranalal Bhogilal.

- The concept of the museum was to create a CASTLE like structure.
- The Museum is designed for 1000-1500 people.
- The whole museum is ground structure. The displays are kept in semi open areas.

Administration

- The museum is governed by Mr. Bhailal Patel who is the director of the museum.
- Security : 5 officials
- Cleaning and maintenance of cars is on weekly basis by 15 to 20 employees.
- The revenue obtained from the museum is used for donation by the royal family.

About the structure:

- The entry to the site is from the west direction, landscaping provides a well-structured entry to the museum.
- There are a total of 7 galleries which are organized according to the car type, namely:
 - i. American cars
 - ii. British cars
 - iii. Grand classic cars
 - iv. Sports cars
 - v. Chariots
 - vi. Early cars
 - vii. Mixed cars
- The museum is established and maintained

Inferences:

- *The museum house 105 vintage cars but the exhibition of these cars are not visually appealing. They are just placed adjacent to each other which resembles a parking lot.*
- *As the farm was converted in to a museum the important design parameters of a museum were not been incorporated.*
- *As it is a museum and functions throughout the week, power backup were also missing as a part of services.*
- *The services are also not planned accordingly.*

Mercedes Benz Museum, Stuttgart

•Architects: UN Studio

•Location: Stuttgart, Germany

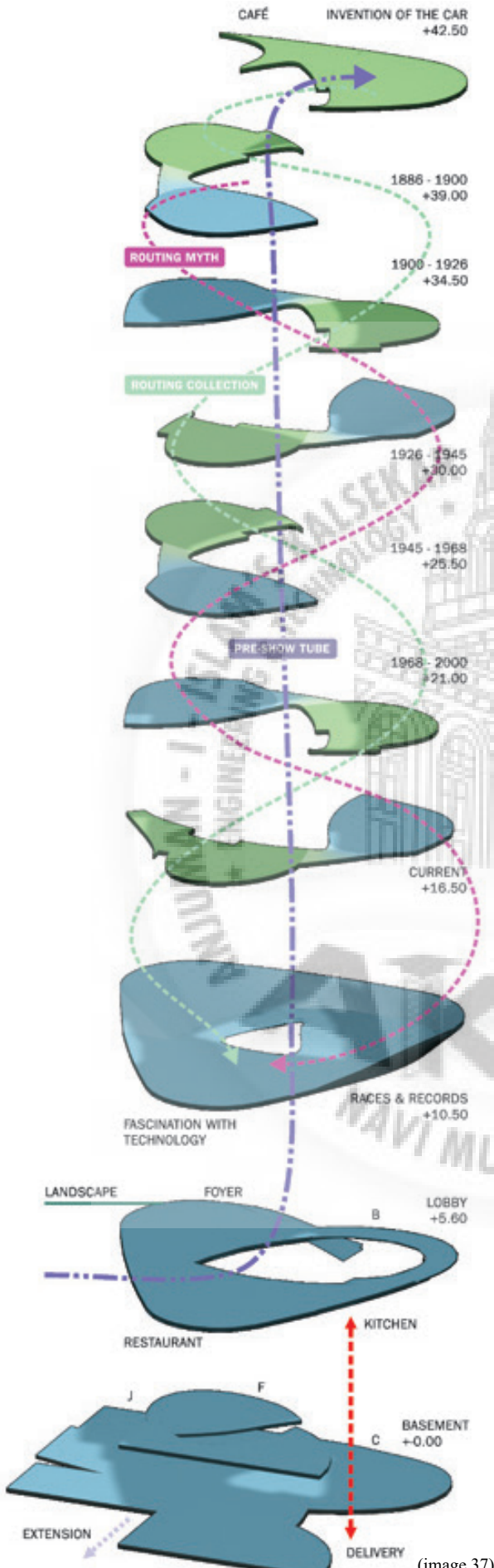
•Architect in Charge: Ben van Berkel

•Area: 25000.0 sq m

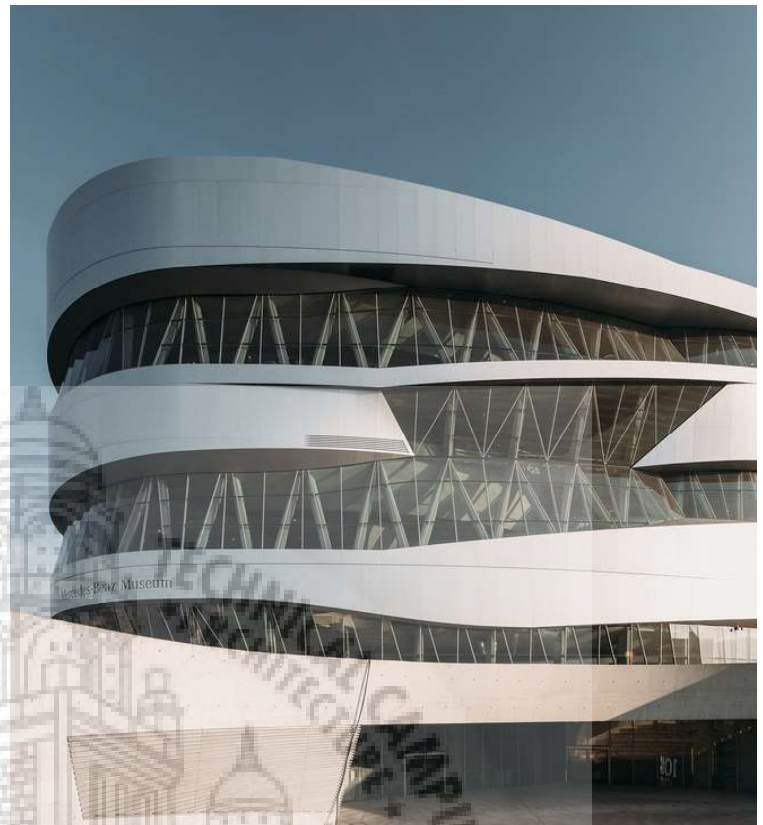
•Project Year: 2006



(image 36)



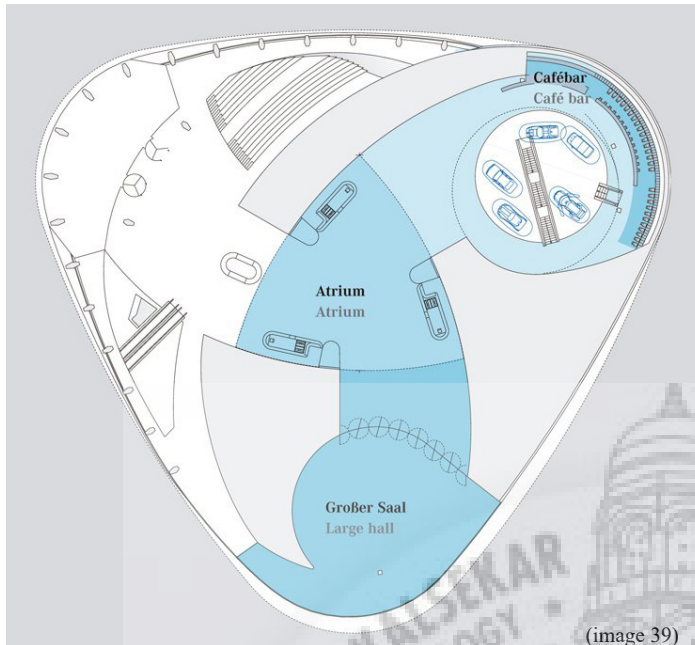
(image 37)



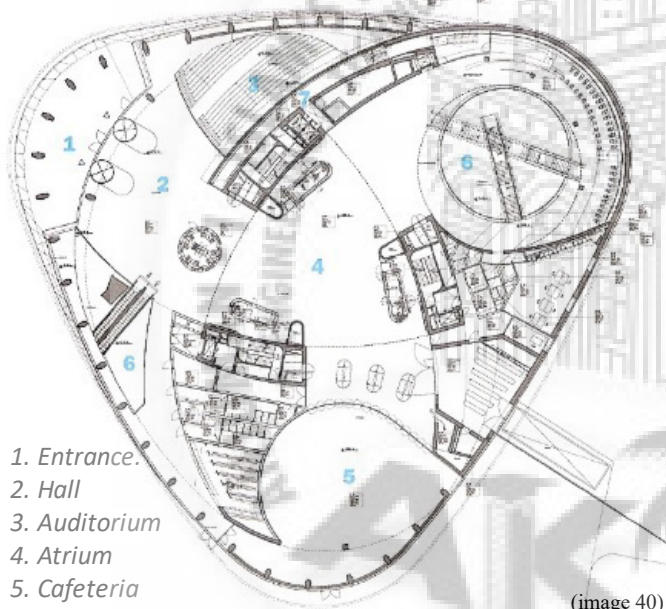
(image 38)

•The Mercedes Benz Museum complicatedly consolidates structure and substance. The Museum is devoted to an unbelievable vehicle; its interesting structure has been explicitly formulated to feature an assortment in which innovation, experience, engaging quality and differentiation are consolidated. It is likewise a Museum for individuals to openly travel through, to dream, learn, look and let themselves be arranged by interests, light and space.

About the Museum -



(image 39)



(image 40)

assortment of vehicles and trucks, and the second the interfacing Mythos rooms, which are the optional presentations identified with the historical backdrop of Mercedes Benz. The two spiraling directions cross each other consistently, mirroring the intertwining strands of a DNA helix, consequently making it feasible for the guest to change directions.

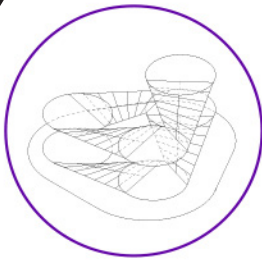
The 25,000 m² Mercedes Benz Museum is arranged close to the Daimler-Chrysler Untertuerkheim plant on a raised stage which additionally offers space to the Vehicle Center. Guests enter the structure from the northwest corner. The passageway hall acquaints with the guest the authoritative arrangement of the Museum, which involves the circulation of the two kinds of presentations more than three 'leaves', which are associated with a focal 'stem' as a chamber. The passageway anteroom, other than viable capacities, contains an elevator that leads to the cold earth level, and three lifts that take guests up to the highest point of the structure.

The guest continues through the Museum start to finish; during the ride up the chamber, guests are furnished with a sight and sound Preshow introduction. The two parts of the museological game plan, the assortment of vehicles and trucks and the Myths, are requested sequentially through and through, beginning with the three most seasoned vehicles at the highest level in the showcase devoted to the innovation of the vehicle. From this beginning stage at the top, the +eight level, the guest may take one of two spiraling slopes down; the main chain connecting the

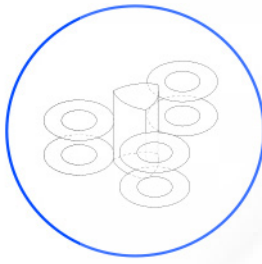
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THEMES**INITIAL DIAGRAMS**

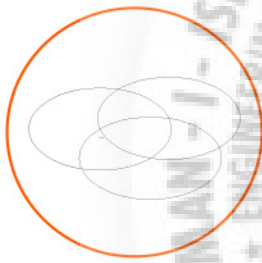
Spaces:

**FORM AND FUNCTION**

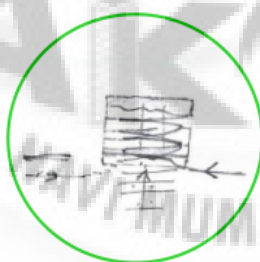
Mercedes-Benz Museum has a base zone of 4,800 square meters, a stature of 47.5 meters and fabricated an inward volume of 210,000 cubic meters.

**ORGANIZATION**

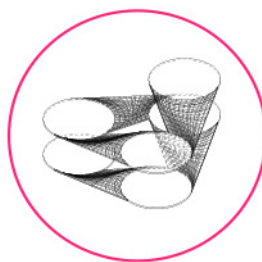
It takes two hours least to visit the gallery, guests on an excursion through time, permitting them to praise the 120 years of history of the vehicle. There are two courses, called “Fantasies” and “Assortments. These are autonomous, yet permit guests to invest any energy in one another.

**GEOMETRY**

Upon appearance, you can get to a wide esplanade with steps and an open air square of rock, where premium and the possibility of development.

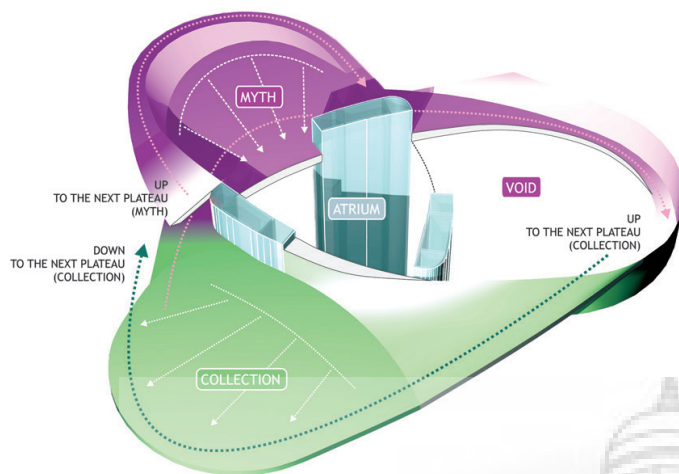
**CIRCULATION**

Indeed, even before guests entering the exhibition hall invites a determination of Mercedes-Benz vehicles from past ages with a fantastic lighting enhancing the underground leaving. This is a different display called “Interest strategy” which is available from an external perspective. In a few scenes, made with extraordinary abundance out of subtleties, guests can investigate the day by day work of architects from the divisions of advancement of Mercedes-Benz, remembering points of view for the eventual fate of the car.

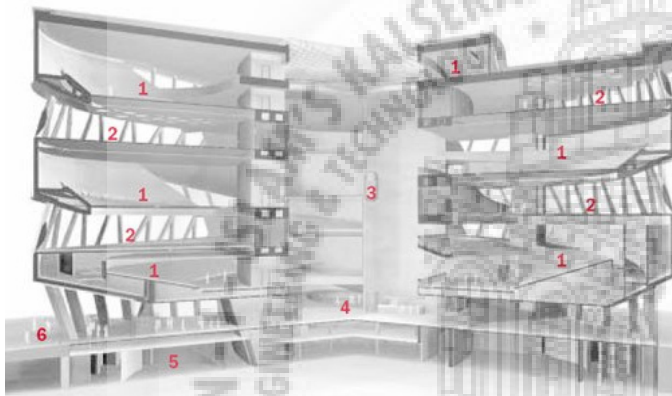
**FORM, STRUCTURE & TYPOLOGY**

(image 41)

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(image 42)



1. Car / Truck Exhibition Area
2. Historical Exhibition
3. Lift
4. Atrium
5. Aisle
6. Entrance.

(image 43)

The second visit through the exhibition hall mirrors an alternate origination. In contrast to the first, sequentially requested, the “Assortments” are grouped by sort of vehicle use.

Every assortment has a room itself, with adequate expansiveness of introduction to countless articles identified with the subject since the commencement of the vehicle.

The immediate connection with the nearby presentation of the Mercedes-Benz Center Stuttgart ensured the continuation of Mercedes fantasy from the verifiable models and vintage to current items. Through a lift from the stopping will go to the gathering.

Effectively in receipt of the gallery, guests pass along a data work area, which is a ring with 16 plasma screens suspended and go to the chamber, where unexpectedly we can see the exhibition hall. To arrive at the upper level with three lifts that arrives at a tallness of 42 meters.

“Fantasies” is an ordered excursion through the historical backdrop of the car since its innovation to the present. The seven rooms where is joined by an incline 80 meters in length. The incline, exchanging with level areas, permitting access for all individuals.

Except for the first and last room of the course, which individually, to the creation of the car and the historical backdrop of sports rivalry, the arrangement of the rooms because of a uniform example: the slope covers a wide bend of the outside divider a leaf clover center area and prompts the guests from the vehicles, which are the focal point of every scene.

Materials and services:

(image 44)



(image 45)



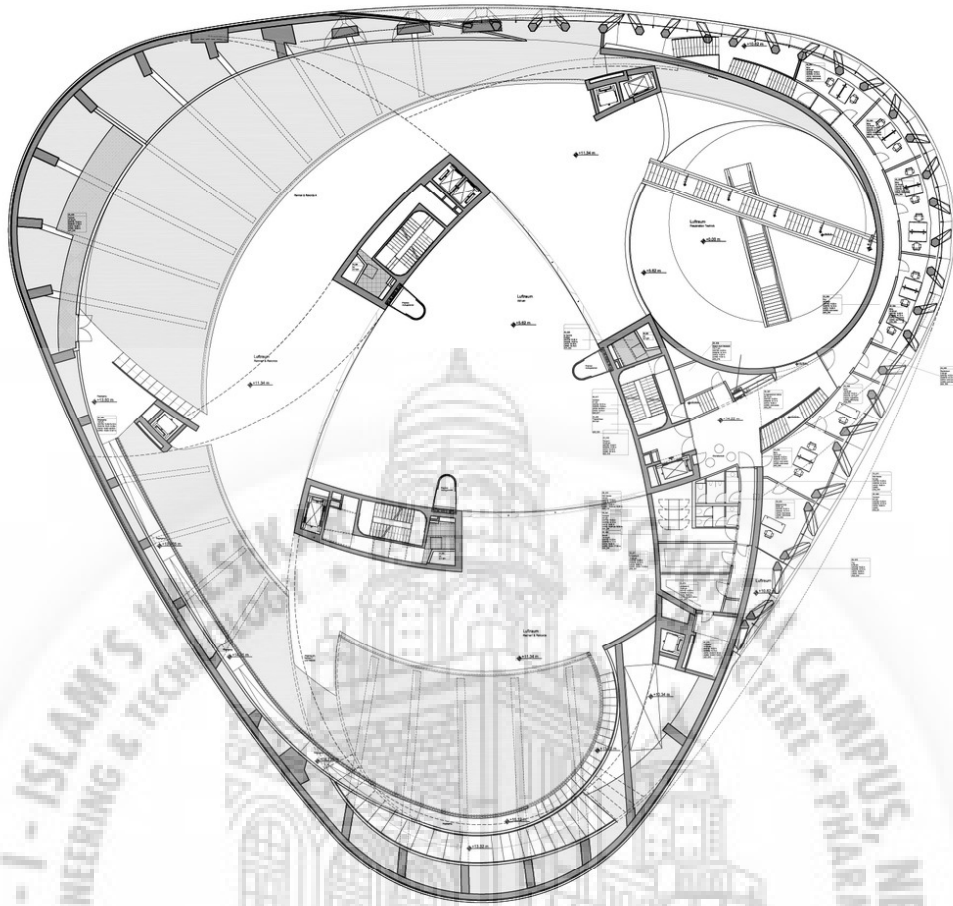
(image 46)

In the development of the gallery more than 110,000 tons of cement was utilized. For the façade aluminum plates and glass were utilized. The slopes were covered with parquet wood cut from dull cap. Glass and aluminum are folded over the solid base which incorporates the slanted segments. The glass is treated as the front window and still help along the edge of the display. The windows are made of trapezoidal boards, vertical and inclining whose limits were made according to the profiles of steel. The glass is clear, dull and is utilized as a protection. On the glass there were blunted stepping focuses which decreased the effect of daylight and is applied in all the boards giving the impression of a twofold dimensionality façade. The utilization of daylight were permitted in the rooms that were too enormous which end up being a critical energy saver.

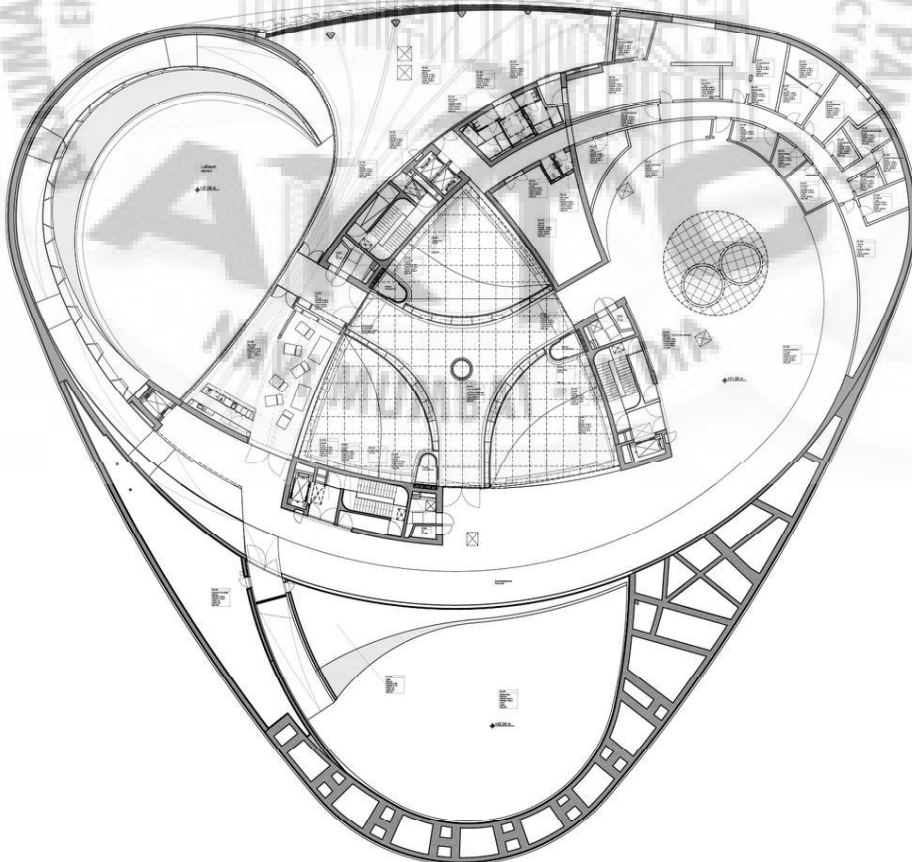
The ventilation framework depends on a head of movement. All pipes were incorporated into three-dimensional bended structure and were housed in the slopes. Inside the floor boards, electrical extractor and fire and smoke alarms were found, limiting the obstruction and interruption into the show zones.

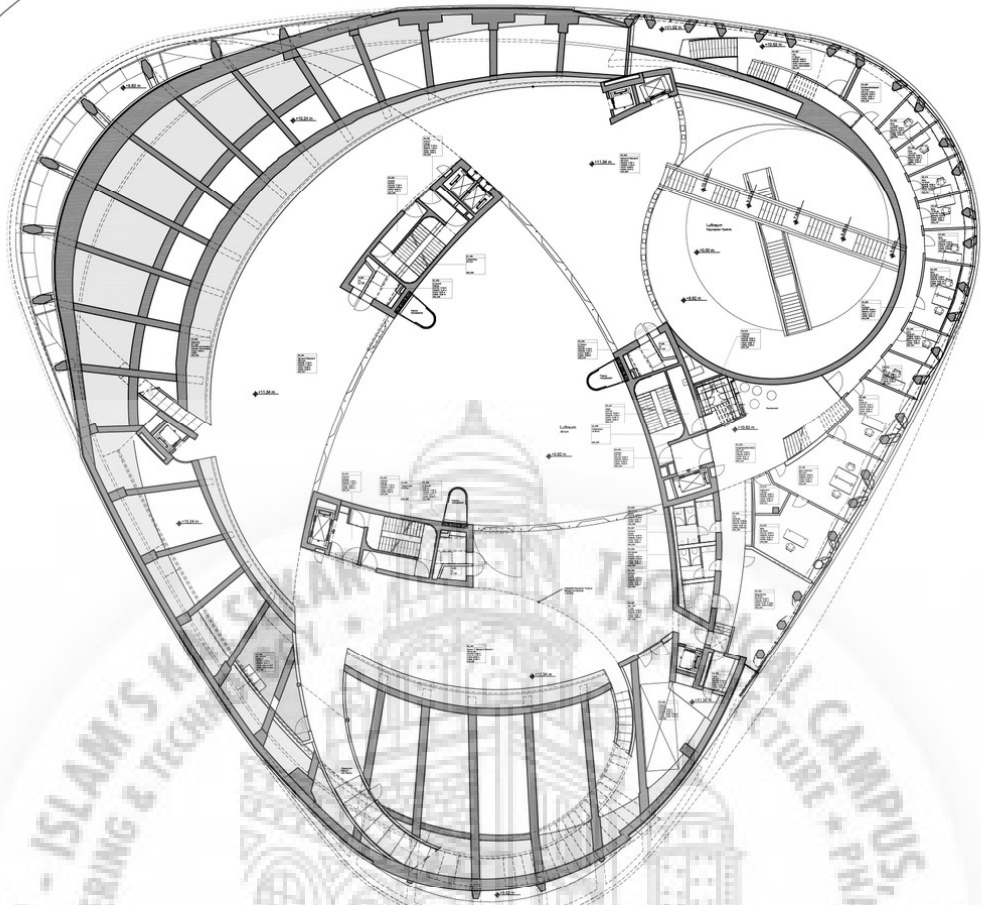
Incase of damage, the smoke is kept away from the areas with positive display. The smoke is pumped out of the building by a fan through the roof. The central atrium act as a chimney

while providing light deep inside the building.

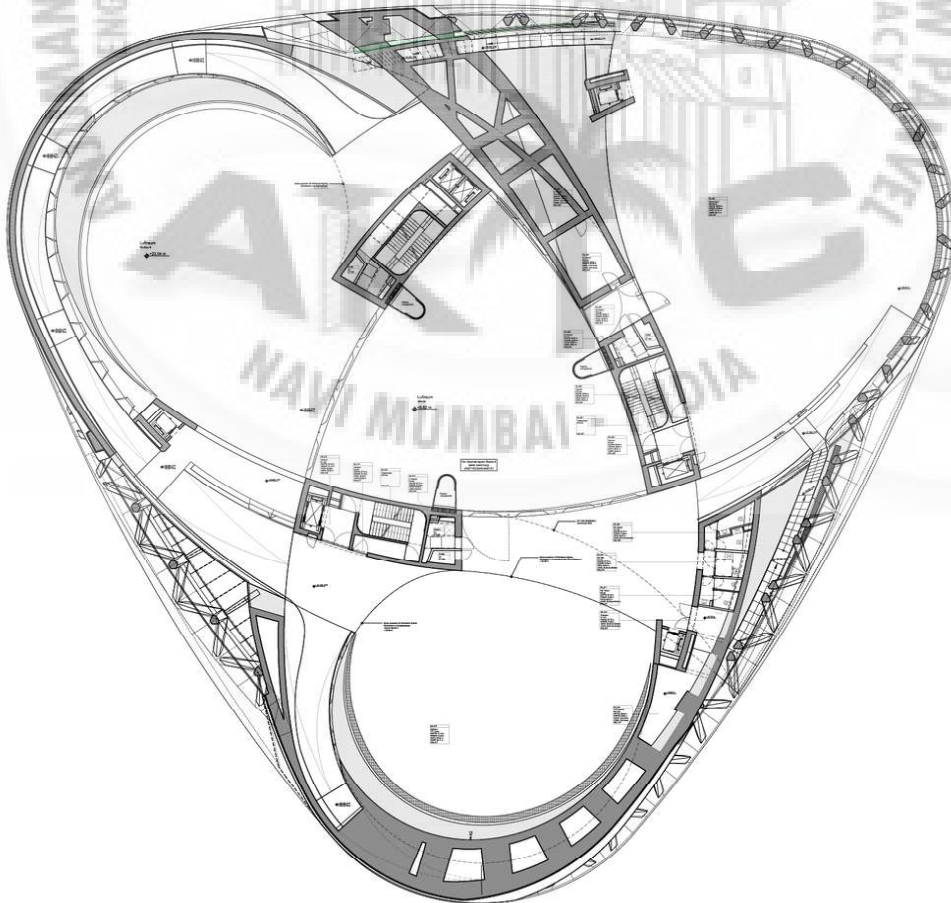


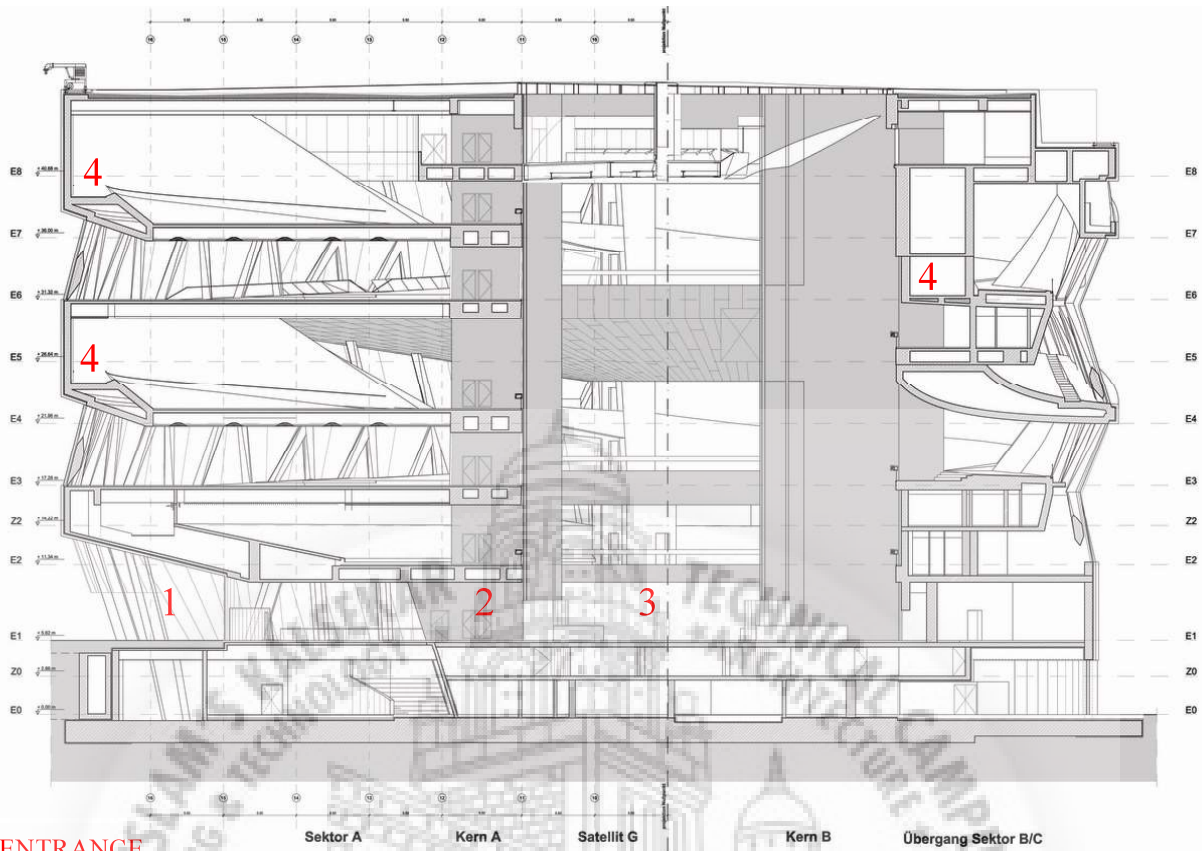
(image 47) — First Floor Layout (source— www.archdaily.com)





(image 48) - Third Floor Layout (source— www.archdaily.com)





- 1 . ENTRANCE
2. HALL
3. ATRIUM
- 4 RAMPS

(image 49)

- Section of Mercedes Museum (source— www.archdaily.com)

Inferences:

- *Organization of space* – The major space of museum which is an exhibition space is planned on 2 circular ramps which have different themes and for viewing the exhibits viewers / visitors have to start from the top floor and for that they have to go through the central atrium which gives them a glimpse about the whole exhibition theme and creates a curiosity in them.
- *The proximity to the Mercedes-Benz parent plant in Stuttgart-Untertürkheim breaches the gap between tradition and modernity*

4.1.5

FERRARI WORLD, ABU DHABI

• Architects: Benoy Architects

• Location: Yas Island, Abu Dhabi

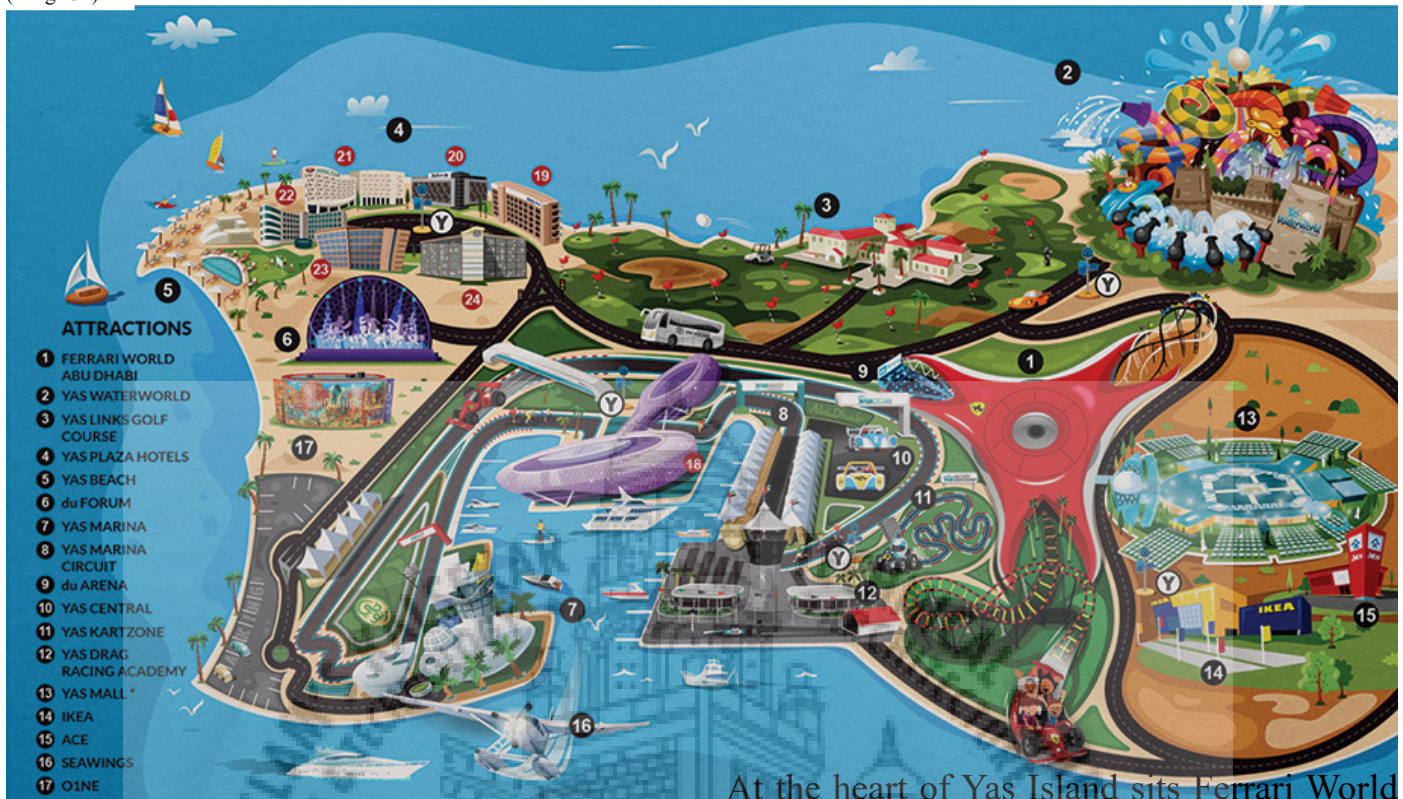
• Area: 172,000 sq m

• Project Year: 2007

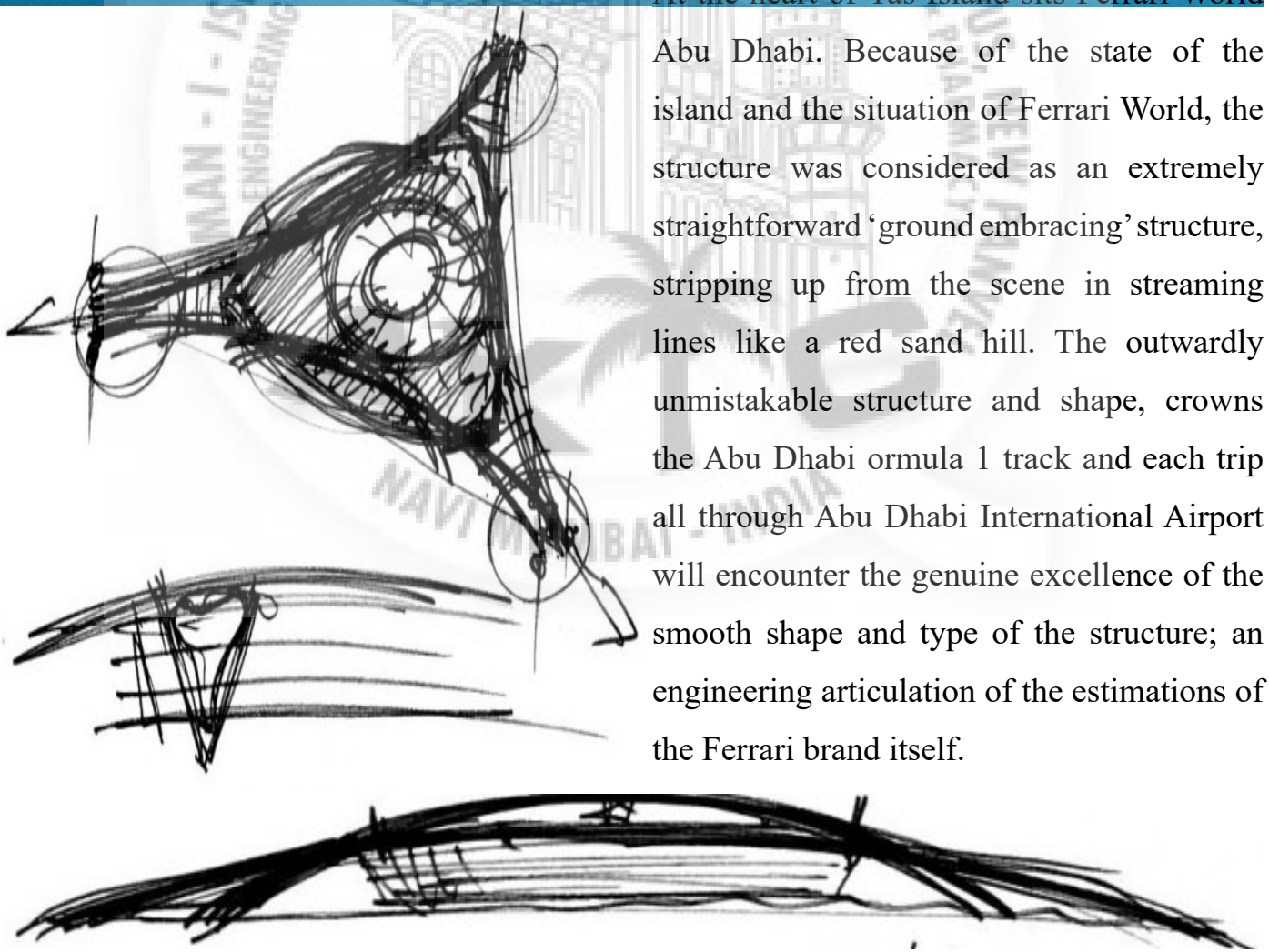


(image 50)

(image 51)



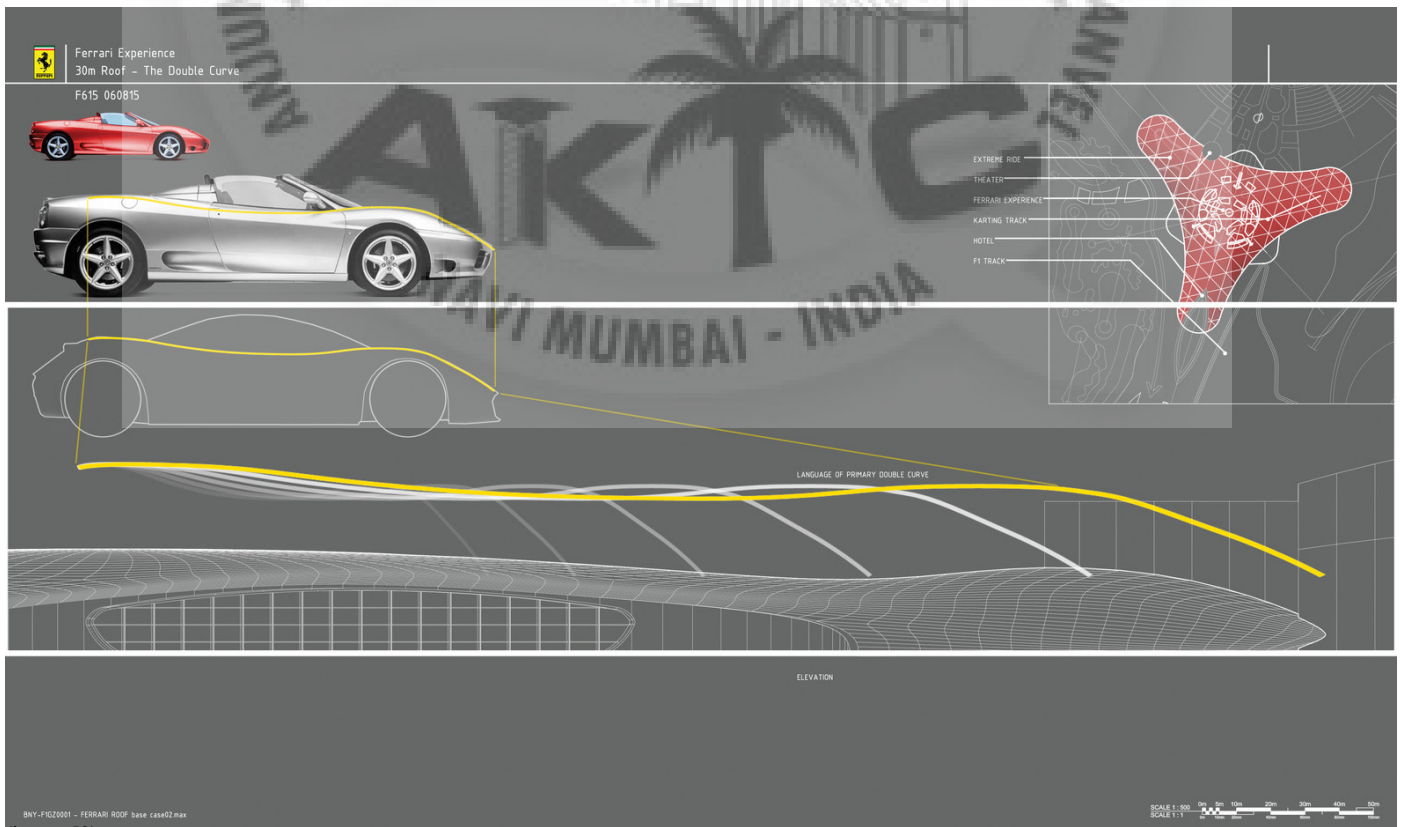
At the heart of Yas Island sits Ferrari World Abu Dhabi. Because of the state of the island and the situation of Ferrari World, the structure was considered as an extremely straightforward ‘ground embracing’ structure, stripping up from the scene in streaming lines like a red sand hill. The outwardly unmistakable structure and shape, crowns the Abu Dhabi formula 1 track and each trip all through Abu Dhabi International Airport will encounter the genuine excellence of the smooth shape and type of the structure; an engineering articulation of the estimations of the Ferrari brand itself.



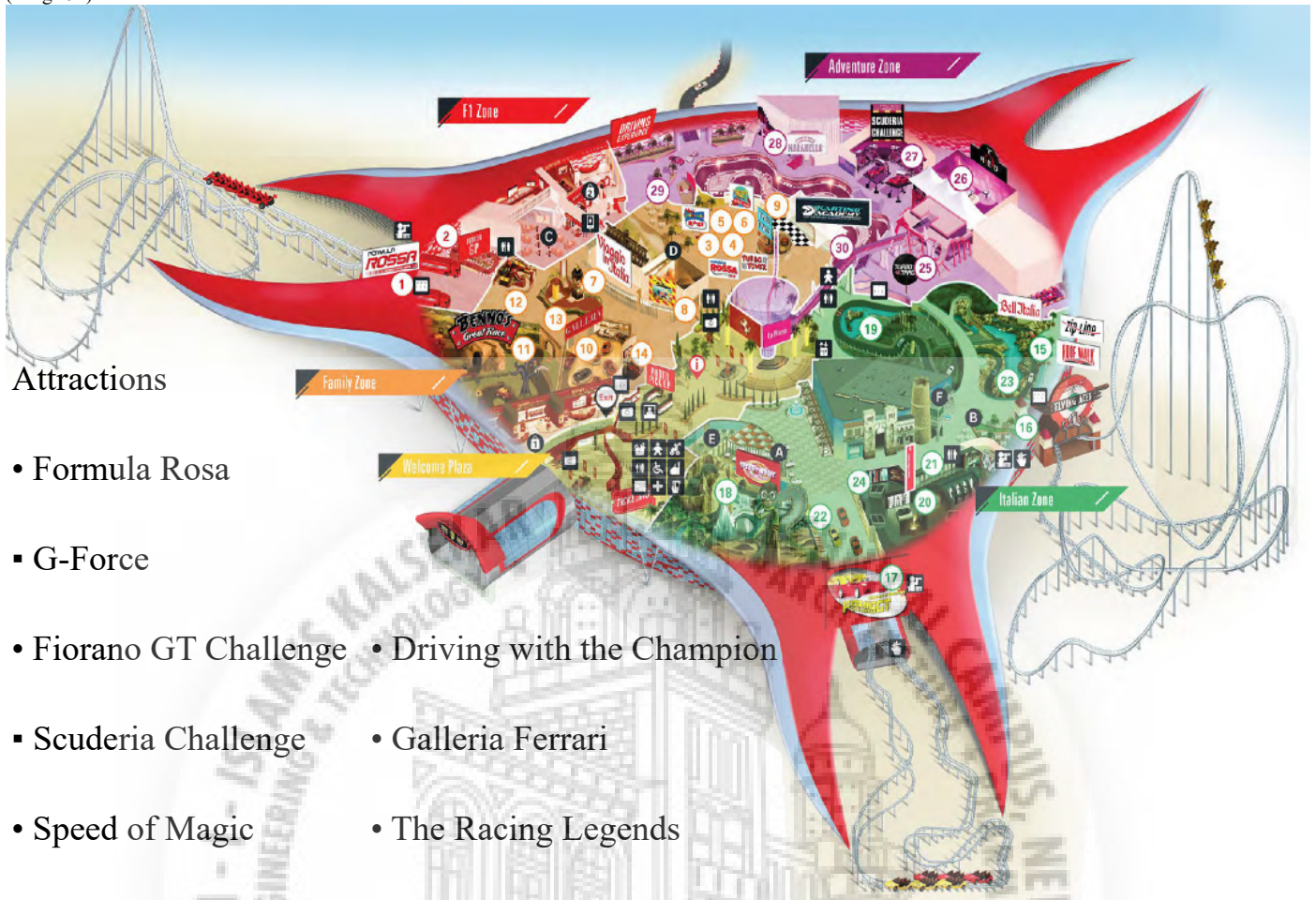
(image 52)

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Abu-Dhabi's Yas Island is a social milestone and artificial wonder. At the core of this scene, first since forever Ferrari Theme Park was fabricated. The area, scale and reason for this significant advancement required an intense and imaginative vision, while giving proper respect to the famous Ferrari brand. Benoy's plan was a transformation, mirroring the celebrated crooked type of the Ferrari GT suspension with the brand's unique tone and twofold bends. An exciting brand experience like no other and a multi-tactile festival of a plan symbol – Ferrari World is a milestone relaxation objective that reflects both the honesty of the Ferrari brand and the desire of Abu Dhabi.

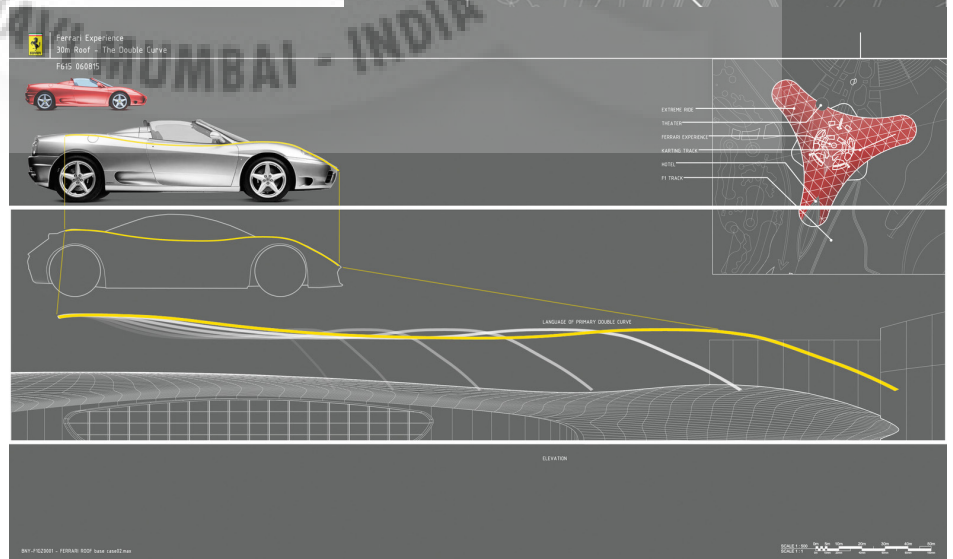


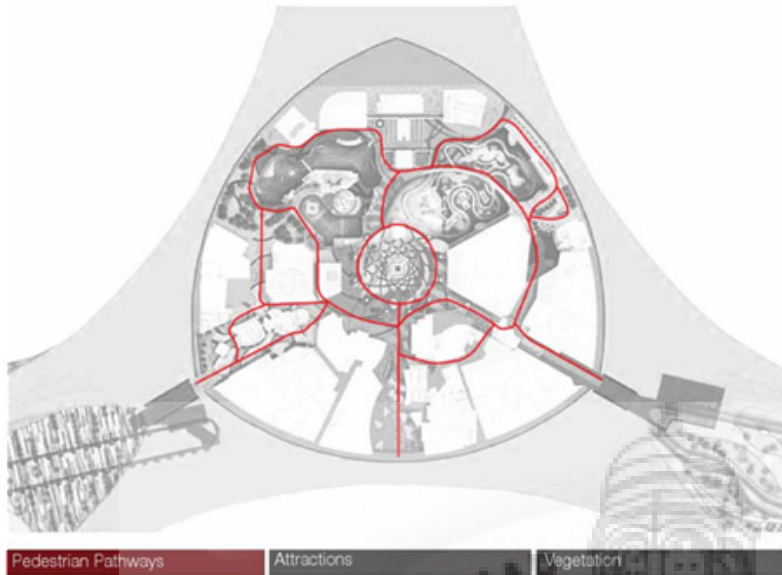
(image 54)



Attractions

- Formula Rosa
- G-Force
- Fiorano GT Challenge
- Scuderia Challenge
- Speed of Magic
- Bell'Itaila
- Tyre Twist
- Junior GT
- Junior GP
- Junior Training Camp
- Made in Maranello
- Fast Lane: The Interactive Game Show
- Paddock
- Cinema Maranello
- Driving with the Champion
- Galleria Ferrari
- The Racing Legends
- V12
- Red
- Viaggic in Italia
- Motor Midway Games

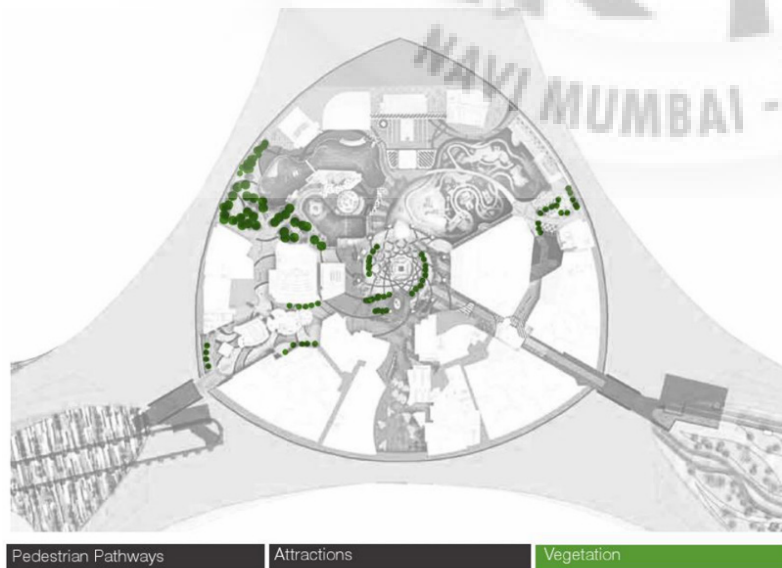




(image 55)



(image 56)



(image 57)

The scene the two supplements and differences with the design, cooperating to make a symbol. The symmetrical lattice of the scene capacities like a rug, upgrading the natural bends of the design, allowing the structure to building. As this example approaches the center of the building, it changes into clearing bends, wrapping the super structure retaining into the speed of the Ferrari Experience.

4.1.6

Enzo Ferrari Museum, Modena, Italy

• *Architects: Future Systems + Shiro Studio*

• *Location: Modena, Italy*

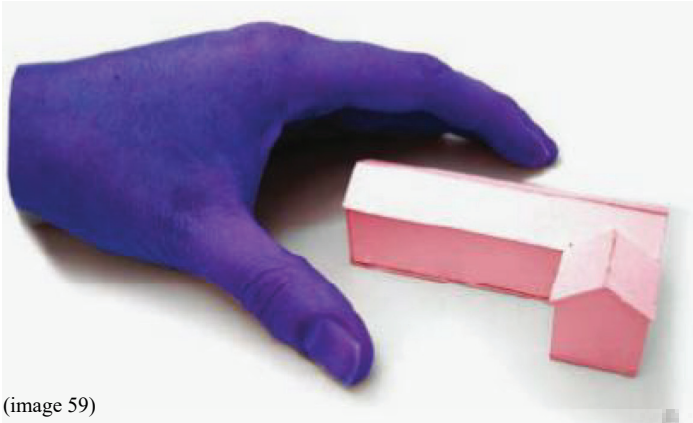
• *Site Area: 10,600 sq m*

• *Gross Floor Area: 5200 sq m*

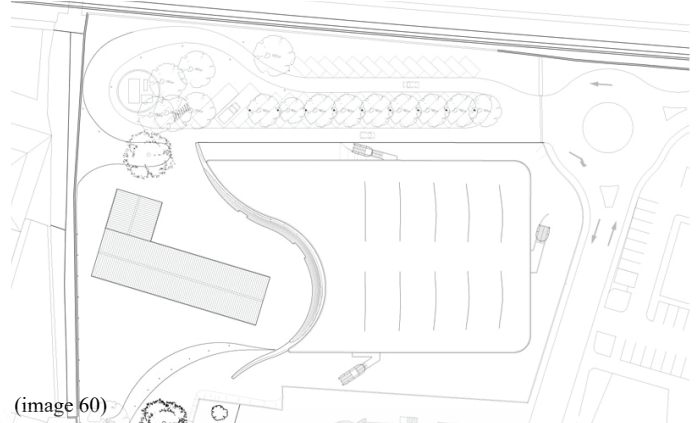
• *Project Year: 2012*



(image 58)



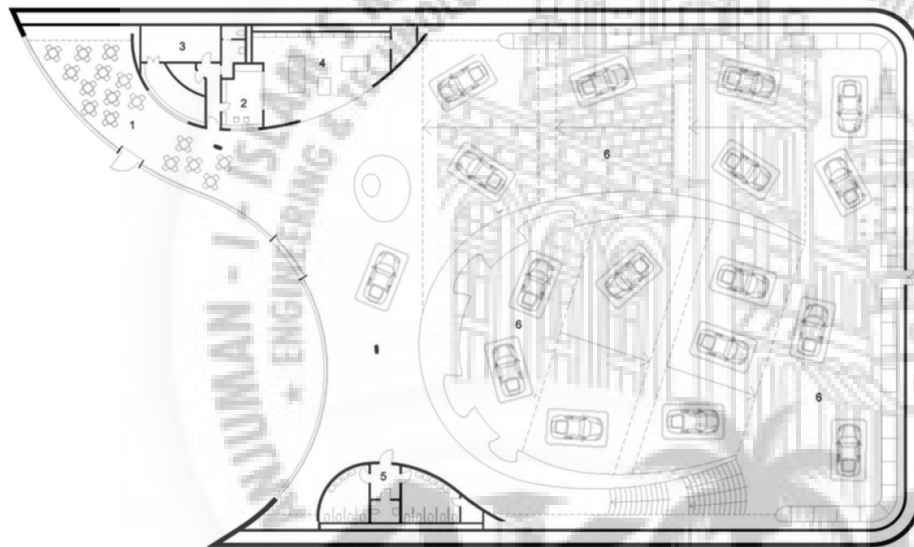
(image 59)



(image 60)

A Pop art concept image by the architect Site Plan showing the museum gallery and expressing the basic form of the building and workshop. how it relates to the workshop.

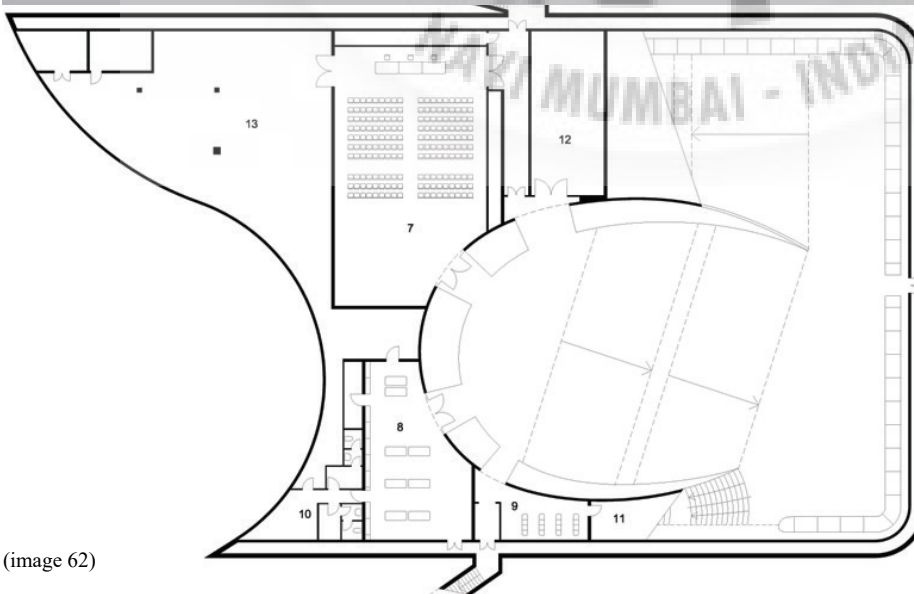
GROUND FLOOR OF MUSEUM



(image 61)

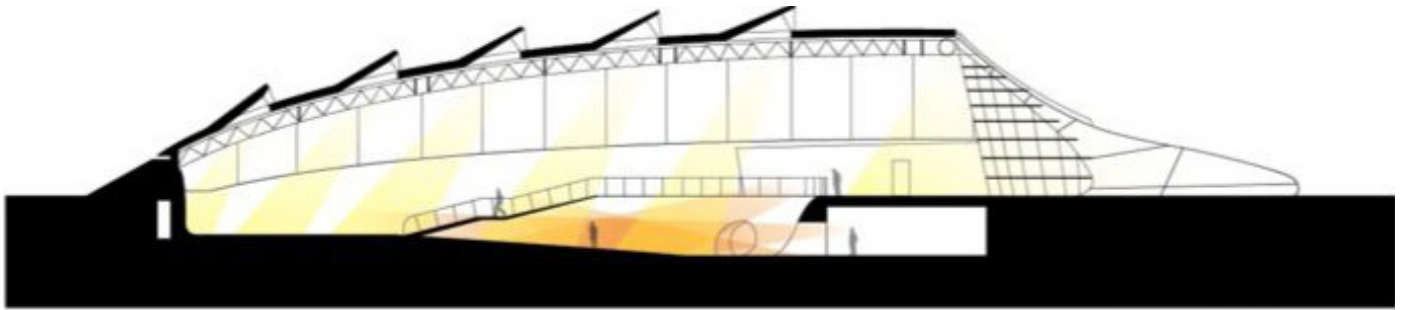
- 1 - CAFETERIA
- 2 - TICKET DESK
- 3 - KITCHEN -
- 4 - BOOKSHOP
- 5 - WASHROOM
- 6 - EXHIBITION AREA

BASEMENT FLOOR OF MUSEUM



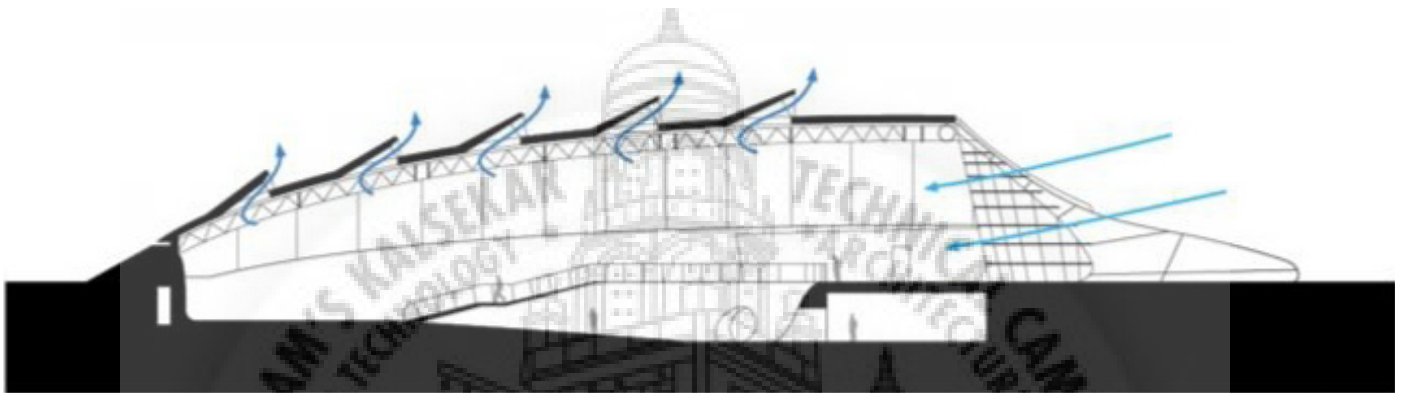
(image 62)

- 7 - CONFERENCE ROOM
- 8 - DIDACTIC ROOM
- 9 - AV ROOM
- 10 - STAFF ROOM
- 11 - TECHNICAL ROOM
- 12 - STORAGE



(image 63)

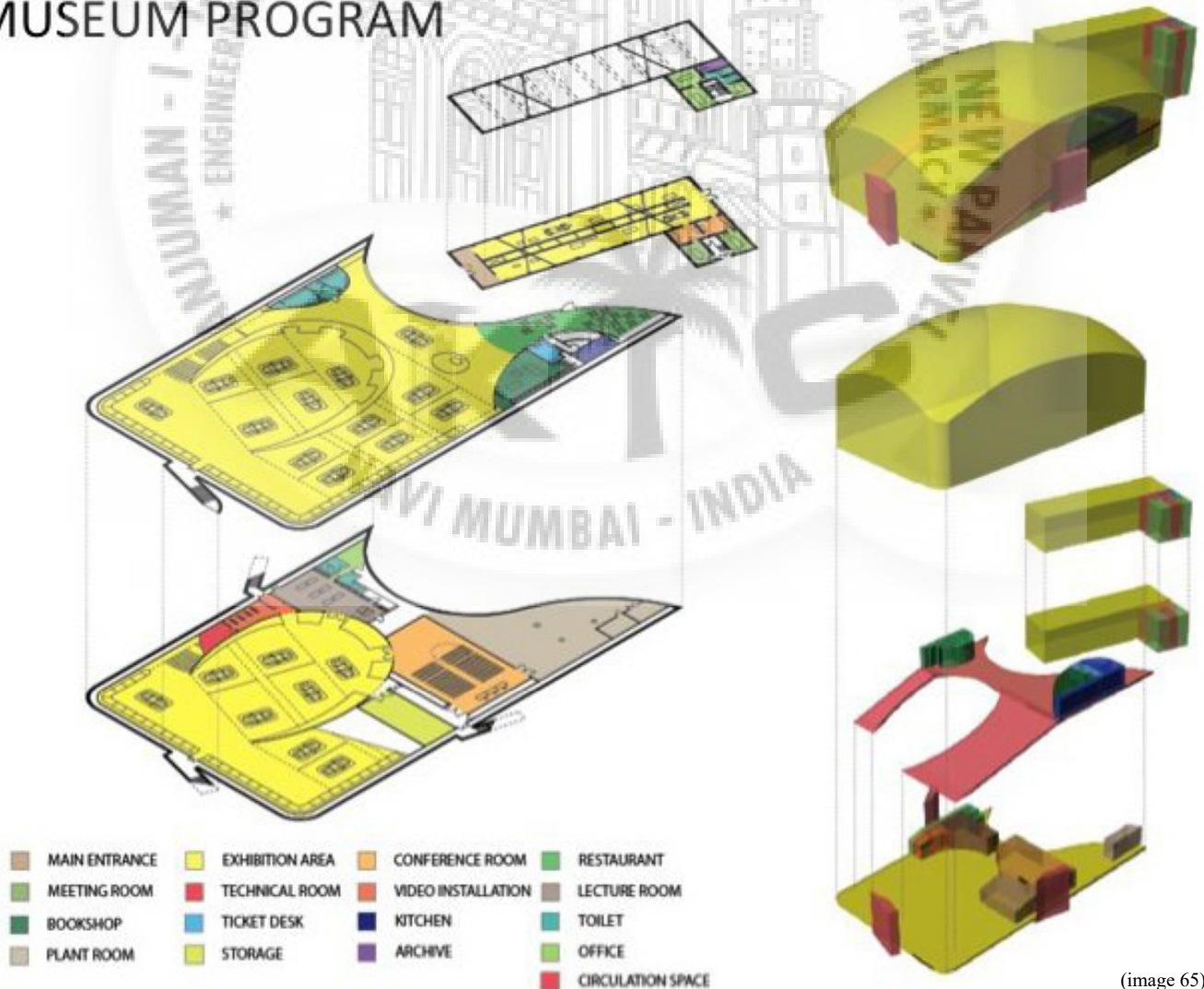
LIGHTING AND VISUAL



(image 64)

AIR FLOW

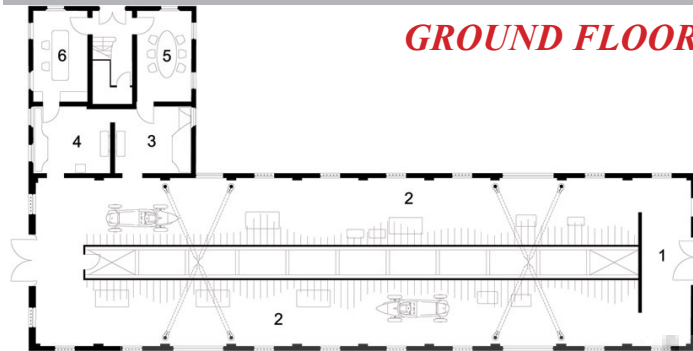
MUSEUM PROGRAM



(image 65)

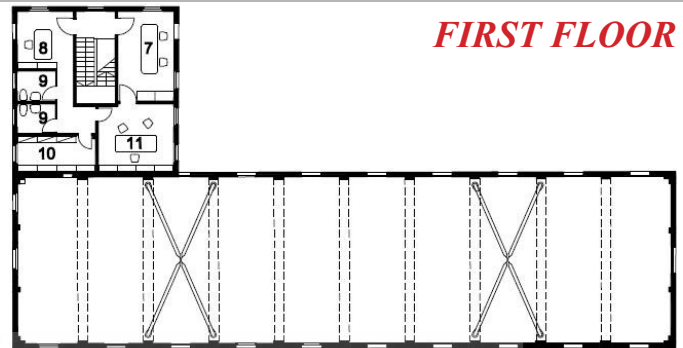
FERRARI HOUSE / WORKSHOP

GROUND FLOOR



(image 66)

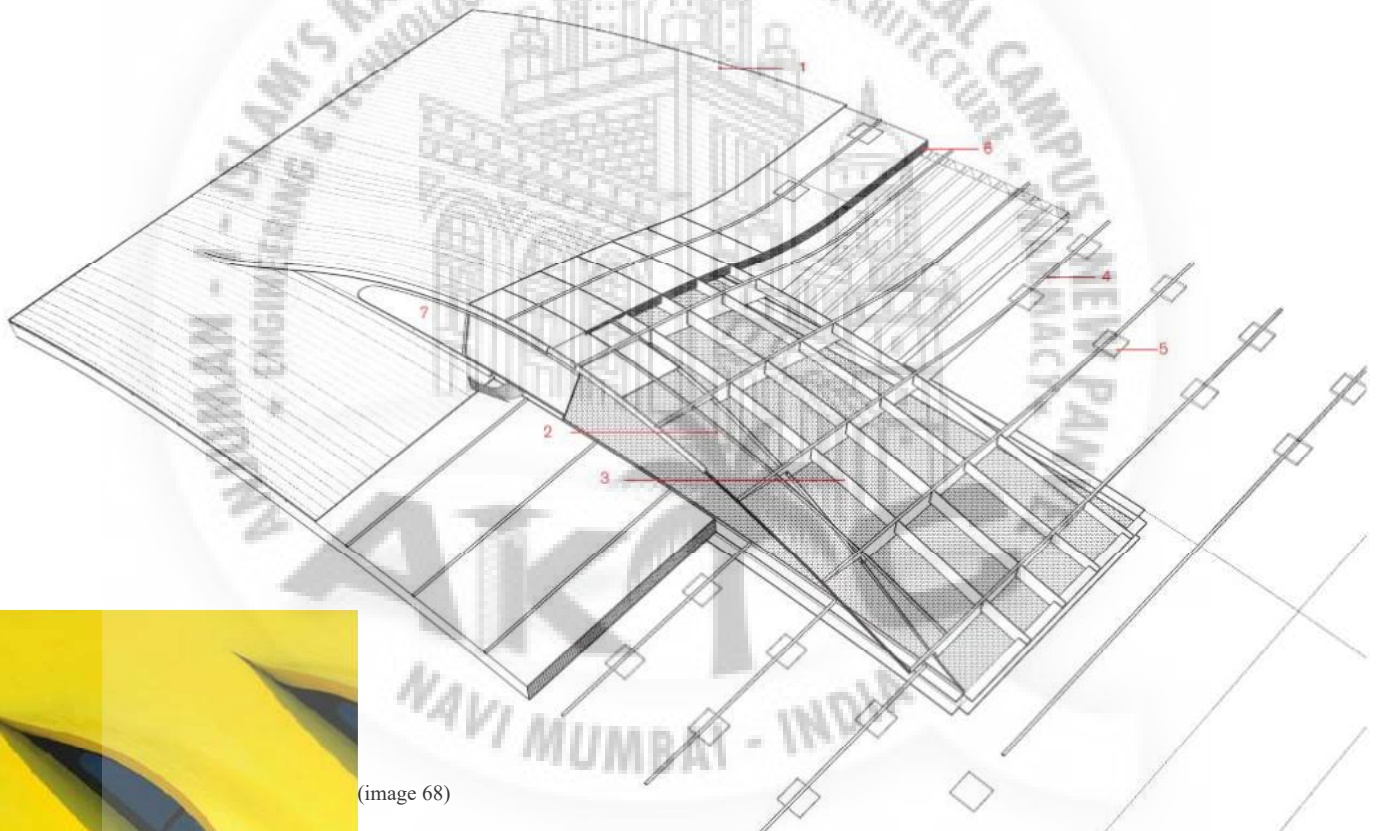
FIRST FLOOR



(image 67)

1 – Main Entrance, 2 – Exhibition Space, 3 – Exhibition Room, 4 – Exhibition Room, 5 – Meeting Room, 6,7,11 – Office, 9 – Toilet, 10 – Archive Room

WORKING DETAIL.



(image 68)

1) 2MM double curvature aluminium sheet, 2) Secondary extrusion ,
3) Transverse extrusion, 4) 30 MM diameter aluminium profile is at
1200MM centres, 5) 150 into 150 MM aluminium connecting clip,
6) 200 MM thick rigid foam insulation, 7) Glazing

The yellow sculpted aluminium roof with it's 10 incisions that is made analogous to the air intake vents on the bonnet of the car that allows for natural ventilation and day lighting.

S.NO	ATTRIBUTES	HERITAGE TRANSPORT MUSEUM	SUDHA CAR MUSEUM	AUTO WORLD VINTAGE CAR MUSEUM	INFERENCE
1	SITE AREA	2.2 ACRES	1.5 ACRES	5 ACRES	
2	ENTRY	SEPARATE PEDESTRIAN AND VEHICULAR ENTRY	PEDESTRIAN AND THE VEHICULAR ENTRY ARE THE SAME	PEDESTRIAN AND THE VEHICULAR ENTRY ARE THE SAME	PEDESTRIAN AND THE VEHICULAR ENTRY SHOULD BE DIFFERENT
3	ACCESS	ALL ENTRIES ARE FROM THE MAIN ROAD	ALL ENTRIES ARE FROM THE MAIN ROAD	ALL ENTRIES ARE FROM THE MAIN ROAD	ACCESS SHOULD BE CONVIENENT WITHOUT DISTURBING THE NATURAL TRAFFIC MOVEMENT
4	ZONING	ALL THE ACTIVITIES HAPPEN UNDER THE SAME ROOF	PLAY AREA, ADMINISTRATION, OUTDO OR EXHIBITION AREA, CAFETERIA, 3 GALLERIES	ADMINISTRATION, CAFETERIA, PLAY AREA, MUSEUM	RECEPTION, CAFETERIS, PRE-FUNCTION AREA, HALLS, EXHIBITION AREA,
5	NO. OF CARS EXHIBITED	75		105	
6	CIRCULATION	DEFINED MOVEMENT SO UNHINDERED MOVEMENT	BUILDINGS ARE NOT PROPERLY ORIENTED SO CIRCULATION IS DIFFICULT WITHOUT SIGNAGES	BUILDINGS ARE NOT PROPERLY ORIENTED SO CIRCULATION IS DIFFICULT WITHOUT SIGNAGES	CIRCULATION WITHIN THE BUILDING SHOULD BE WELL GUIDED WITH SIGNANGES AND THEY SHOULD BE EASILY ACCESSIBLE BY EVERYONE
7	OPEN SPACE	NO OPEN SPACES	NO OPEN SPACES	NO OPEN SPACES	CREATING INTERNAL ATRIUMS, COURTYARDS WHICH CAN CREATE AN INTERESTING SPACE INSIDE THE MUSEUM
8	ORIENTATION	THE BUILDING IS PLANNED IN NE-SW	BUILDING ORIENTED IN DIFFERENT DIRECTION (MAIN ENTRY IS FROM THE EAST)	BUILDING ORIENTED IN DIFFERENT DIRECTION (MAIN ENTRY IS FROM THE WEST)	SHOULD BE ORIENTED EITHER ALONG MOVEMENT AXIS, VISUAL AXIS OR FOCUS
9	SERVICE ENTRY	NO SEPARATE SERVICE ENTRY	NO SEPARATE SERVICE ENTRY	NO SEPARATE SERVICE ENTRY	SEPARATE SERVICE ENTRY
10	PLANNING	PLANNED ACCORDING TO THE HISTORY OF TRANSPORT MODES OF INDIA	BROKEN PLANNING WITH NOT WELL DEFINED SPACES	PLANNED AS A FARM HOUSE FOR THE ROYAL FAMILY AS A CASTLE	PLANNING SHOULD BE FLEXIBLE WHICH IMPLIES OPTIMUM USE OF SPACE AND MORE OF NATURAL LIGHT AND VENTILATION
11	CHARACTER	SIMILAR TO AN INDUSTRY	NO UNIQUE CHARACTER	NO UNIQUE CHARACTER	A SYMBOLIC CHARACTER CAN HELP TERTIARY USERS TO UNDERSTAND THE MOTIVE OF THE BUILT FORM
12	ACTIVITY	NO DEAD SPACES. MOST ACTIVE SPACES IN THE BUILDING ARE THE CAFETERIA AND SOUVENIR SHOP	THE MUSEUM AND WORKSHOPS ARE THE MOST ACTIVE SPACES	THE MUSEUM AND THE VINTAGE VILLAGE RESTAURENT ARE THE MOST ACTIVE PLACES	HIGH BUILT FORM
13	TRANSITIONAL SPACES	TRANSITION WITHIN THE BUILDING IS VIA RAMPS AND LIFTS	NO DEFINED LINKAGES BETWEEN THE STRUCTURES	NO DEFINED LINKAGES BETWEEN THE STRUCTURES	EVOLVE FORM W.R.T, FUNCTION EFFECTIVE TRANSITION FROM OUTSIDE TO INSIDE
14	FAÇADE ELEMENTS	STEEL CORRUGATED SHEETS ARE USED TO CREATE AN IMPRESSION OF AN INDUSTRY	R.C.C.	COLUMNS, ARCHES, CORNICE ARE SOME OF THE FEATURES OF FAÇADE.	USE OF CONTEMPORARY ELEMENTS WHICH WOULD CREATE INTERESTING GEOMETRY IN THE ELEVATION
15	MATERIALS	R.C.C. AND STEEL	R.C.C. AND STEEL TRUSSES	R.C.C.	MODERN CONTEMPORARY MATERIALS AND METHOD OF CONSTRUCTION

S.NO	ATTRIBUTES	MERCEDES MUSEUM	ENZO FERRARI MUSEUM	FERRARI WORLD	INFERENCE
1	SITE AREA	8.6 ACRES	2.6 ACRE	21 ACRE	
2	ENTRY	PEDESTRIAN AND THE VEHICULAR ENTRY ARE THE DIFFERENT	PEDESTRIAN AND THE VEHICULAR ENTRY ARE THE DIFFERENT	PEDESTRIAN AND THE VEHICULAR ENTRY ARE THE DIFFERENT	PEDESTRIAN AND THE VEHICULAR ENTRY SHOULD BE DIFFERENT
3	ACCESS	ALL ENTRIES ARE FROM THE SERVICE ROAD	ALL ENTRIES ARE FROM THE MAIN ROAD	AN INTERNAL ROAD LEADS INSIDE THE WORLD.	ACCESS SHOULD BE CONVIENENT WITHOUT DISTURBING THE NATURAL TRAFFIC MOVEMENT
4	ZONING	ADMINISTRATION,PRE-FUNCTION AREA,HALLS, AUDITORIUM,CAFETERIA	DOCUMENTATION CENTRE, AN EDUCATIONAL CENTRE, EXHIBITION SPACE, AND SPACES TO ORGANISE CONFERENCE, AND CULTURAL EVENTS.	THE MAIN INTERNAL SPACE SITS UNDER THE 'CENTRAL SHIELD' STRUCTURE. THE CENTRAL SPACE CONSISTS OF THREE MAIN FLOOR LEVELS; UNDERCROFT (PARKING, SERVICE ETC), PLAZA (ATTRACTIONS) AND MEZZANINE (ATTRACTIONS).	RECEPTION,CAFETERIS, PRE-FUNCTION AREA,HALLS,EXHIBITION AREA,
5	NO. OF CARS EXHIBITED	150 CARS AND 1500 EXHIBITS(MYTHS)	UPTO 21 CARS CAN BE DISPLAYED AT A TIME		
6	CIRCULATION	DEFINED MOVEMENT SO UNHINDERED MOVEMENT. THE CIRCULATION IN THE BUILDING IS FROM TOP TO BOTTOM USING TWO DIFFERENT RAMPS. ONE RAMPS IS FOR THE CARS AND OTHER TO DEPICT THE HISTORY (MYTH)	THE ENTRANCE AREA IS CONNECTED TO THE EXHIBITION LEVEL BY RAMP AND STAIRCASE. A GENTLY-SLOPING RAMP LEADS DOWN INTO THE BUILDING'S BASEMENT LEVEL EXHIBITION HALL	THE HUGE ENCLOSED SPACE REQUIRES A MAP TO NAVIGATE THROUGH THE STRUCTURE.	CIRCULATION WITHIN THE BUILDING SHOULD BE WELL GUIDED WITH SIGNANGES AND THEY SHOULD BE EASILY ACCESSIBLE BY EVERYONE
7	OPEN SPACE	NO EXTERNAL OPEN SPACES. INTERNAL ATRIUM CREATES AN EXCITING ATMOSPHERE INSIDE THE STRUCTURE	NO OPEN SPACES	TO THE NORTHWEST, NORTHEAST AND SOUTHERN EXTREMITIES OF THE FERRARI EXPERIENCE THERE ARE THREE INDIVIDUAL ROOF STRUCTURES KNOWN AS TRI-FORMS. WITHIN THE NORTHERN TRI-FORMS THERE ARE TWO WORLD-CLASS ROLLER COASTERS. THE SOUTHERN TRI-FORM SITS DIRECTLY BEHIND THE F1 MAIN HAIRPIN AND IS A WORLD-CLASS MUSIC GIG AREA.	CREATING INTERNAL ATRIUMS,COURTYARDS WHICH CAN CREATE AN INTERESTING SPACE INSIDE THE MUSEUM
8	ORIENTATION	BUILDING ORIENTED IN NE-SW	MAIN ENTRY IS FROM THE WEST	MAIN ENTRY IS FROM THE WEST	SHOULD BE ORIENTED EITHER ALONG MOVEMENT AXIS,VISUAL AXIS OR FOCUS
9	SERVICE ENTRY	PROPERLY DEFINED SERVICE ENTRY	PROPERLY DEFINED SERVICE ENTRY	PROPERLY DEFINED SERVICE ENTRY	SEPARATE SERVICE ENTRY
10	PLANNING	BUILDING IS DEVELOPED FROM A SYMMETRICAL THREE-LEAF PLANT, EVOKING THE DNA HELIX THAT HOLDS THE HUMAN GENETIC CODE.	A SENSITIVE DIALOGUE IS ESTABLISHED BETWEEN THE TWO EXHIBITION BUILDINGS THAT SHOWED CONSIDERATION FOR FERRARI'S EARLY HOME AND UNDERSCORED THE IMPORTANCE OF THE MUSEUM AS A UNIFIED COMPLEX MADE UP OF SEVERAL ELEMENTS. THE HEIGHT OF THE NEW EXHIBITION BUILDING REACHES A MAXIMUM OF 12 METRES – THE SAME HEIGHT AS THE HOUSE – WITH ITS VOLUME EXPANDING BELOW GROUND LEVEL. IN ADDITION, THE NEW BUILDING GENTLY CURVES AROUND THE HOUSE IN A SYMBOLIC GESTURE OF APPRECIATION.	THE BUILDING WAS CONCEIVED AS A SIMPLE STRUCTURE BOUND TO THE LAND. A THREE-POINTED STAR HOUSING THE INNER LEVELS. WITH THREE CLAWS EXTENDING FROM THOSE POINTS TO CREATE THE ATTRACTION OUTSIDE OF THE ENCLOSED SPACE.	PLANNING SHOULD BE FLEXIBLE WHICH IMPLIES OPTIMUM USE OF SPACE AND MORE OF NATURAL LIGHT AND VENTILATION
11	CHARACTER	SIMILAR TO A STRAND OF DNA AND THREE LEAF CLOVER	THE SCULPTED YELLOW ALUMINIUM ROOF WITH ITS TEN INCISIONS – INTENTIONALLY ANALOGOUS TO THOSE AIR INTAKE VENTS ON THE BONNET OF A CAR	THE OUTER FORM OF THE BUILDING WAS DERIVED FROM THE SINUOUS DOUBLE CURVE OF THE CLASSIC FERRARI BODYWORK, FOR WHICH THE 3D DESIGNS WERE CRUCIAL IN THE EVOLUTION OF THE STRUCTURE.	A SYMBOLIC CHARACTER CAN HELP TERTIARY USERS TO UNDERSTAND THE MOTIVE OF THE BUILT FORM
12	ACTIVITY	MUSEUM, CAFETERIA ARE THE MOST ACTIVE PLACES	TEACHING SPACE, CONFERENCE ROOM , DISPLAY AREA AND CAFETERIA ARE THE MOST ACTIVE SPACES	THE CENTRAL SPACE IS THE MOST ACTIVE SPACE INSIDE.	HIGH BUILT FORM
13	TRANSITIONAL SPACES	INTERNAL TRANSITIONAL SPACES ARE WELL DESIGNED KEEPING PEOPLE OF DIFFERENT CATEGORIES IN MIND	A GENTLY SLOPING RAMP GRADUALLY LEADS THE VISITOR AROUND THE BUILDING FROM THE GROUND FLOOR TO THE BASEMENT LEVEL, WITH DISPLAY STANDS DESIGNED BY MORGANTE PUNCTUATING THE CIRCULATION PATH.	THE HUGE ENCLOSED SPACE REQUIRES A MAP TO NAVIGATE THROUGH THE STRUCTURE.	EVOLVE FORM W.R.T, FUNCTION EFFECTIVE TRANSITION FROM OUTSIDE TO INSIDE
14	FAÇADE ELEMENTS	ALUMINIUM PANELS AND GLASS PANELS ARE USED TO CREATE AN INTERESTING FAÇADE.	THE CURVED GLASS FAÇADE IS USED AND TILTS AT AN ANGLE OF 12.5 DEGREES TO ENSURE PROPER VENTILATION	TREATED GLASS HAS BEEN USED TO REDUCE THE THERMAL LOAD AND GLARE.	USE OF CONTEMPORARY ELEMENTS WHICH WOULD CREATE INTERESTING GEOMETRY IN THE ELEVATION
15	MATERIALS	R..C.C.,STEEL,ALUMINIUM AND GLASS	R.C.C.,STEEL, AND GLASS	METAL, GLASS	MODERN CONTEMPORARY MATERIALS AND METHOD OF CONSTRUCTION

SPACE PROGRAM

Display Of
Automotive
Revolution

Demonstration

Seminars,
Workshops &
Conferences

Convention

Epicentre

Administration: It is the spine of the museum which is very important for the efficient functioning of the museum. Following are the spaces required for efficient.

1. Administration:

Reception = 100 sq.m.

Waiting area = 49 sq.m.

Back office = 18 sq.m.

Manager's cabin = 20 sq.m.

Chairman's cabin = 20 sq.m.

Conference room = 64 sq.m.

Toilets = 50 sq.m.

Storage = 15 sq.m.

2. Entrance and visitors lobby:

Information desk = 50 sq.m.

Ticket counter = 50 sq.m.

Lobby = 200 sq.m.

Toilets = 50 sq.m.

3. Museum:

Interpretation area (history of Automobiles)

Museum gallery (display area or exhibition area)

Interpretation area : This area would depict the history and the advancements

in the field of automobiles

Interpretation area = 750 sq.m.

Virtual simulation rooms = 180 sq.m.

Storage = 50 sq.m.

Toilets = 50 sq.m.

Museum gallery (display area or exhibition area): This would comprise the

major part of the structure.

Exhibition area = 5000 sq.m.

Pre function room = 100 sq.m.

Storage = 100 sq.m.

Toilets = 80 sq.m.

Library: for books, novels, research papers and brochures of different companies and authors.

Reception and issue counter = 25 sq.m.

Book stock area = 100 sq.m.

Reading area = 50 sq.m.

E-corner = 25 sq.m.

Storage = 20 sq.m.

Toilets = 40 sq.m.

Food court:

Food kiosks = 150 sq.m.

Seating area = 100 sq.m.

Theme restaurant:

i. Dining area = 200 sq.m.

ii. Kitchen = 80 sq.m.

iii. Storage = 50 sq.m.

iv. Toilets = 40 sq.m.

Auditorium

Entrance = 20 sq.m.

Seating area = 150 sq.m.

Stage = 24 sq.m.

Green rooms = 60 sq.m.

Projector room = 25 sq.m.

Baby cry room = 15 sq.m.

Store room = 20 sq.m.

Toilets = 50 sq.m.

Souvenir shop

Shop = 50 sq.m.

Storage = 20 sq.m.

Service centre

Service area = 750 sq.m.

Storage = 150 sq.m.

Toilets = 30 sq.m.

Circulation space: 35% of the total built-up area

Total built up area = 9309 sq.m.

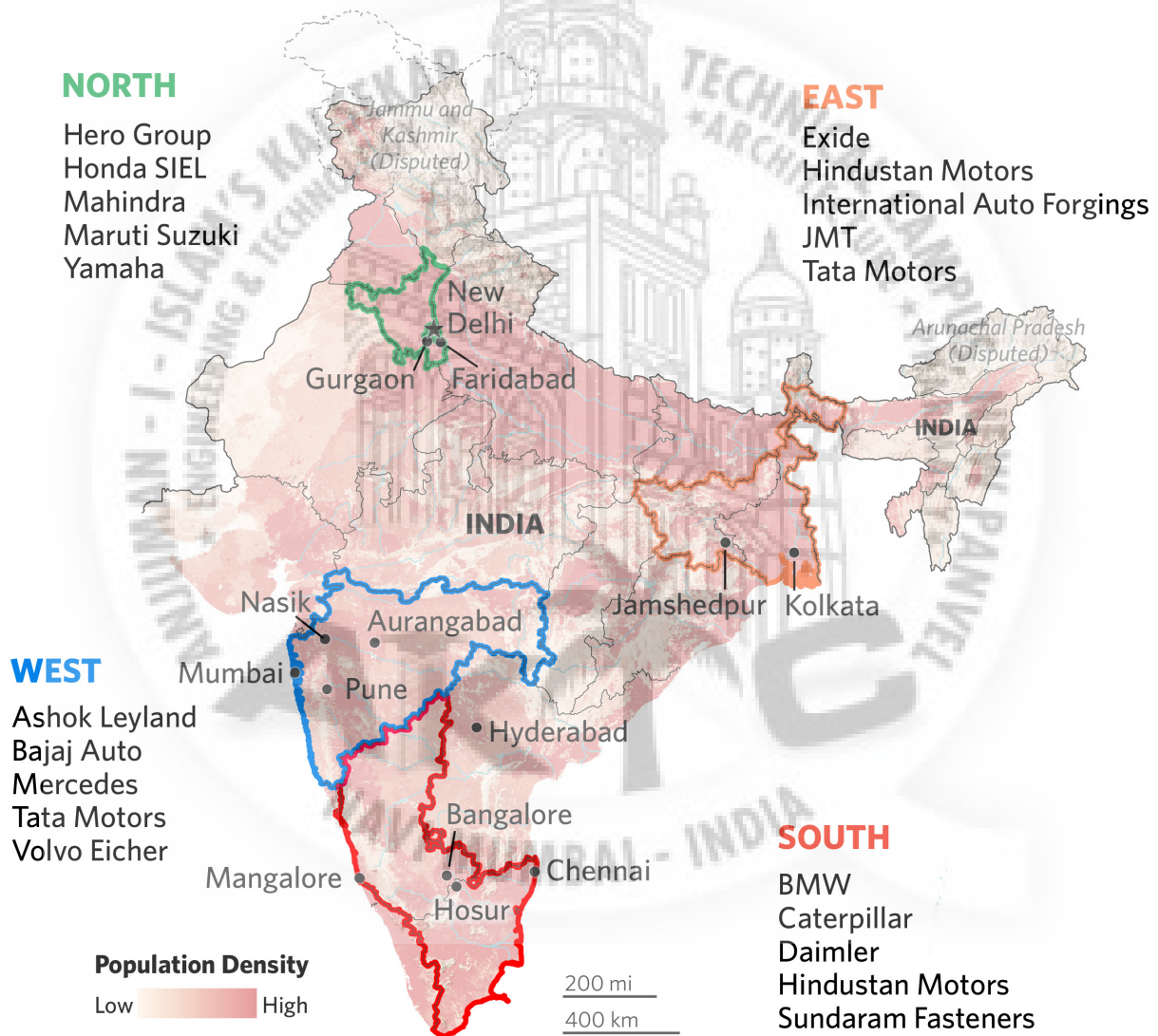
Circulation = 35% of 9309=3258

Net built-up area = 12,567

IDENTIFYING LOCATIONS OF MAJOR AUTOMOBILE MANUFACTURING HUB

India's Vehicle Manufacturing Hubs

Indian vehicle manufacturing centers around four clusters located across the country, each home to numerous companies both foreign and domestic:

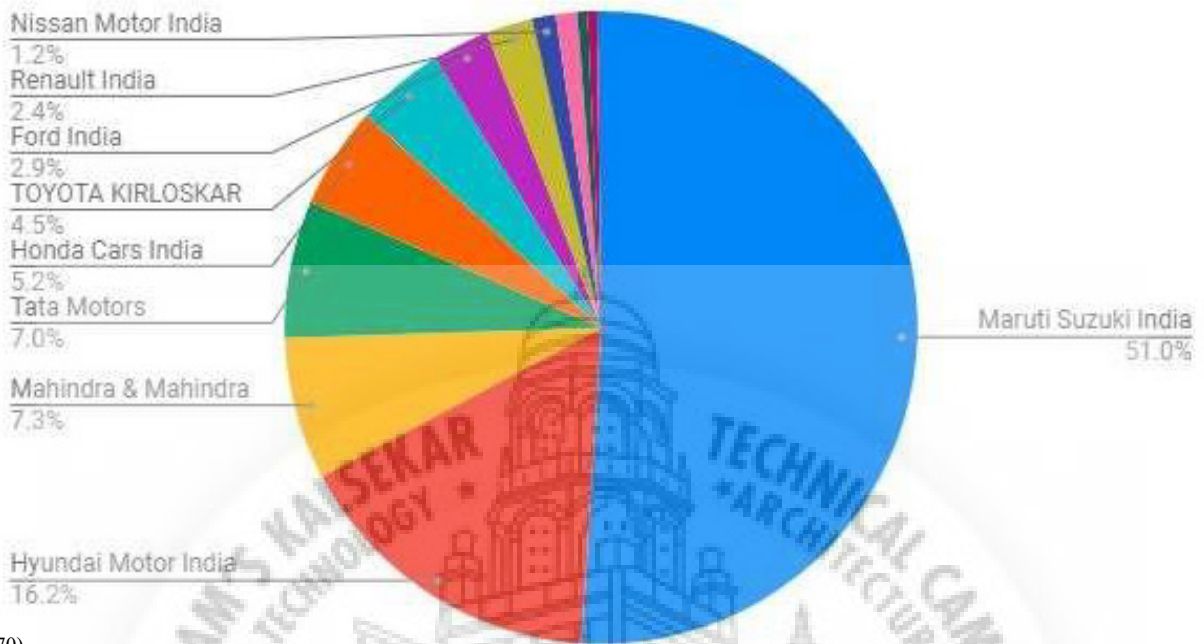


Source: India Brand Equity Foundation, WorldPop

Copyright Stratfor 2018

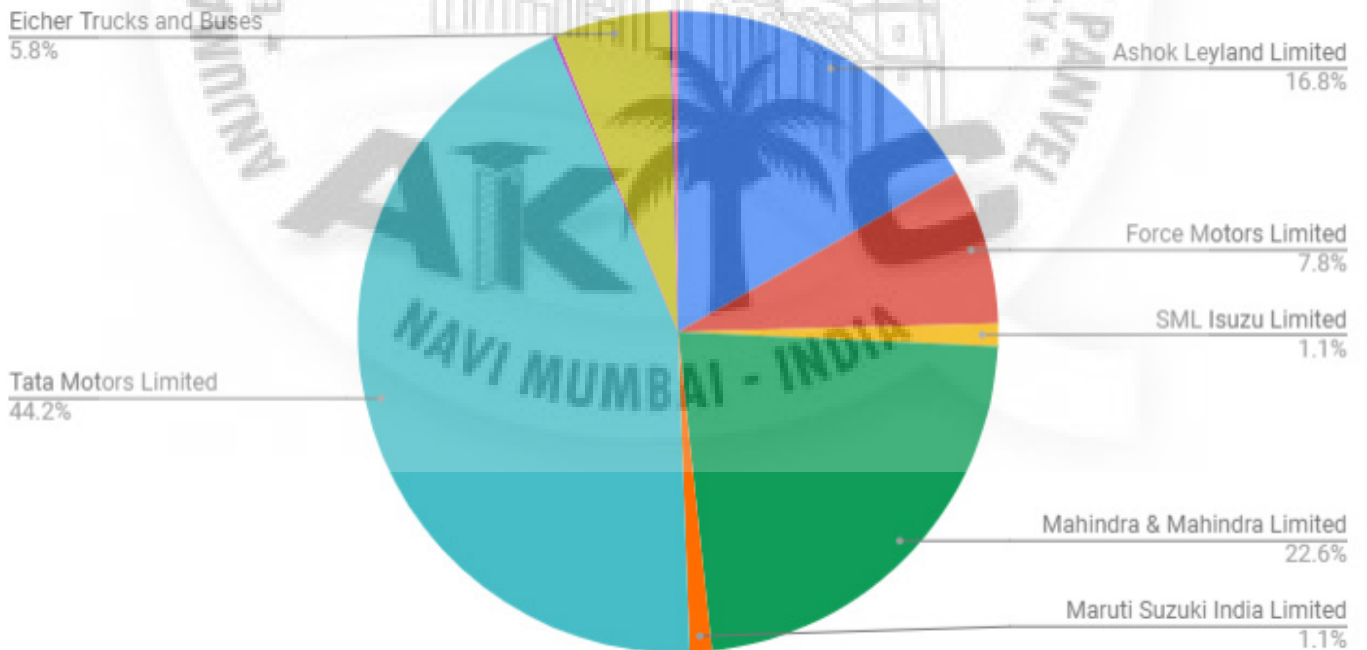
(image 69)

Passenger vehicles market share 2018



(image 70)

Commercial Vehicle Market Share 2018



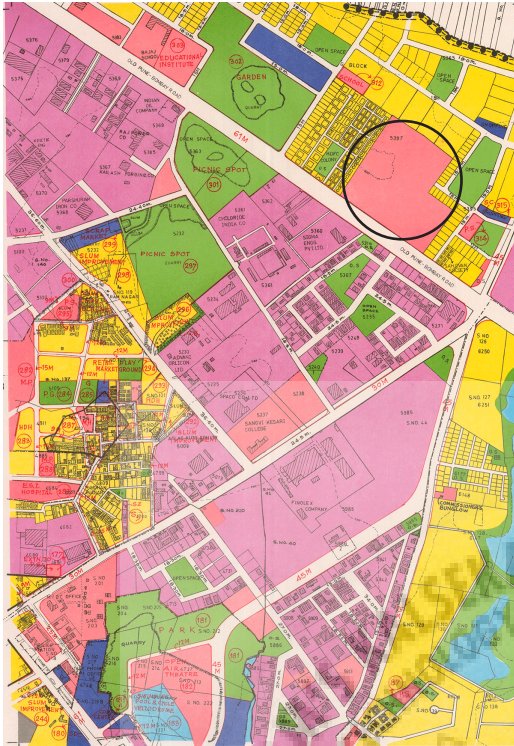
Top 4 carmakers Maruti, Hyundai, M&M, and Tata accounted for over 82 percent of the Indian PV market.



(image 72)

“India has the capabilities to be the nerve centre for automobile design and engineering, and Pune is in the thick of things.”

-Prashant Nayak, VP, Corporate Planning, TACO.



(image 73) DEVELOPMENT PLAN, 12 ROAD PUNE

THE SITE -

The site for proposed Automobile centre is situated in MIDC, PIMPRI, PUNE. It is close to old Mumbai Pune Highway.

Site area - 32,000 sq m

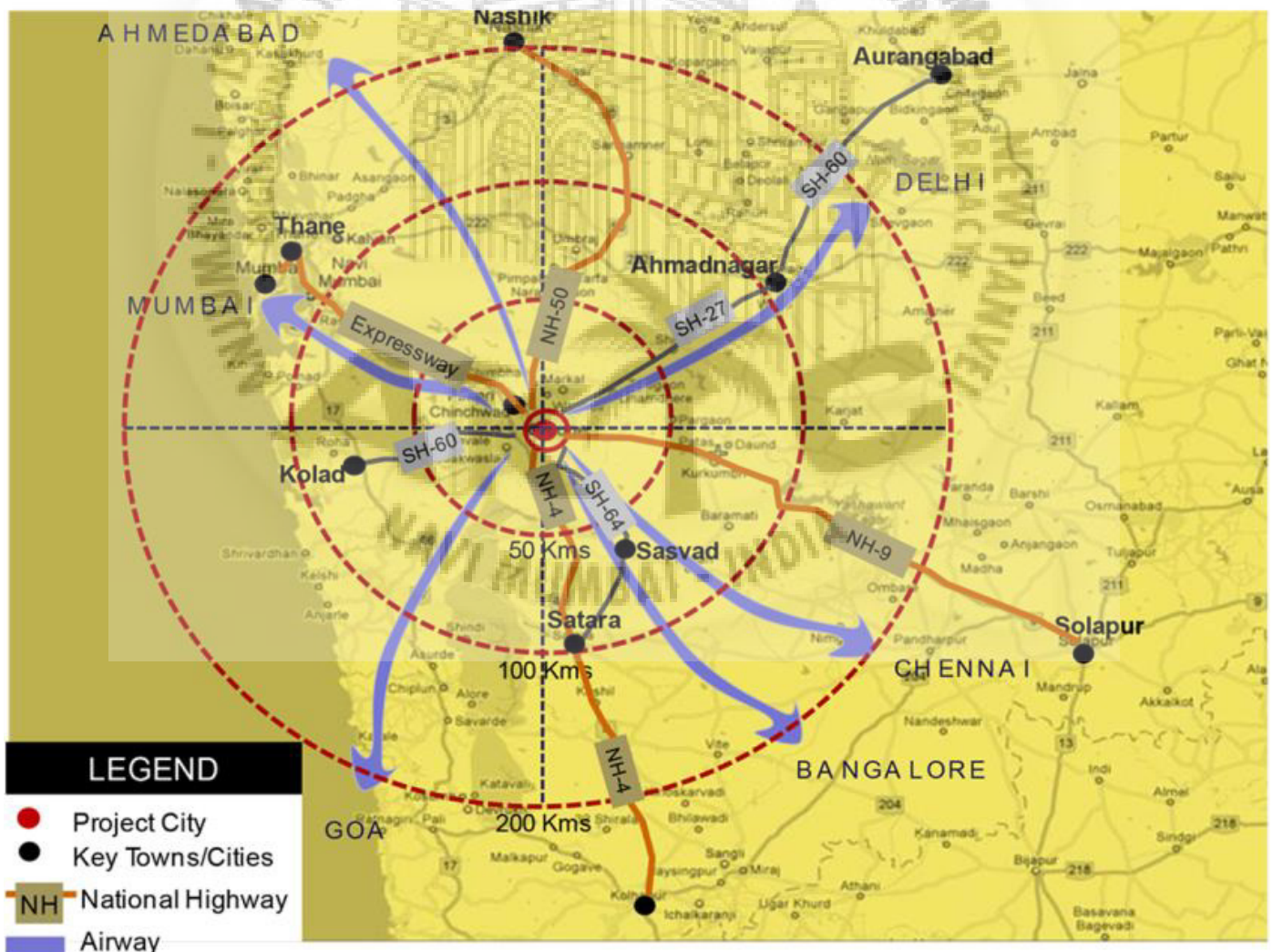
CHOICE OF SITE

Pimpri-Chinchwad is a major industrial hub and hosts one of the biggest industrial zones in Asia. The industrial estates in the city were established by the MIDC. The city is home to the Indian operations of major automobile companies like Premier Limited, Mahindra Navistar, Bajaj Auto, BEL Optronics Devices Ltd, TATA Motors (formerly TELCO), Kinetic Engineering, Force Motors (formerly Bajaj Tempo) and DaimlerChrysler. The city is also home to India's premier antibiotics research institute Hindustan Antibiotics Limited. In addition to this, several heavy industries such as Forbes-Marshall, ThyssenKrupp and Alfa Laval & Sandvik Asia have their manufacturing units in the city and also the German company KSB Pumps. "Rajiv Gandhi Infotech Park" hosts several Software and Information Technology majors like IBM India, KPIT Cummins, Tata Technologies, Infosys, Wipro, Geometric etc.



(image 74)

MIDC industrial estates land, fuels, electricity, water and select raw materials are provided at subsidised rates to priority sector productions / companies, Industrial area is spreading over Pimpri, Chinchwad and Pradhikaran.. This policy has been the reason behind the rapid development in the industrial sector in Pimpri-Chinchwad. This was once the richest Municipal Corporation - not only in India but the Richest in Asia; and the reason behind it is that, it has an industrial belt of small as well as big National & Multinational Companies.



(image 74)

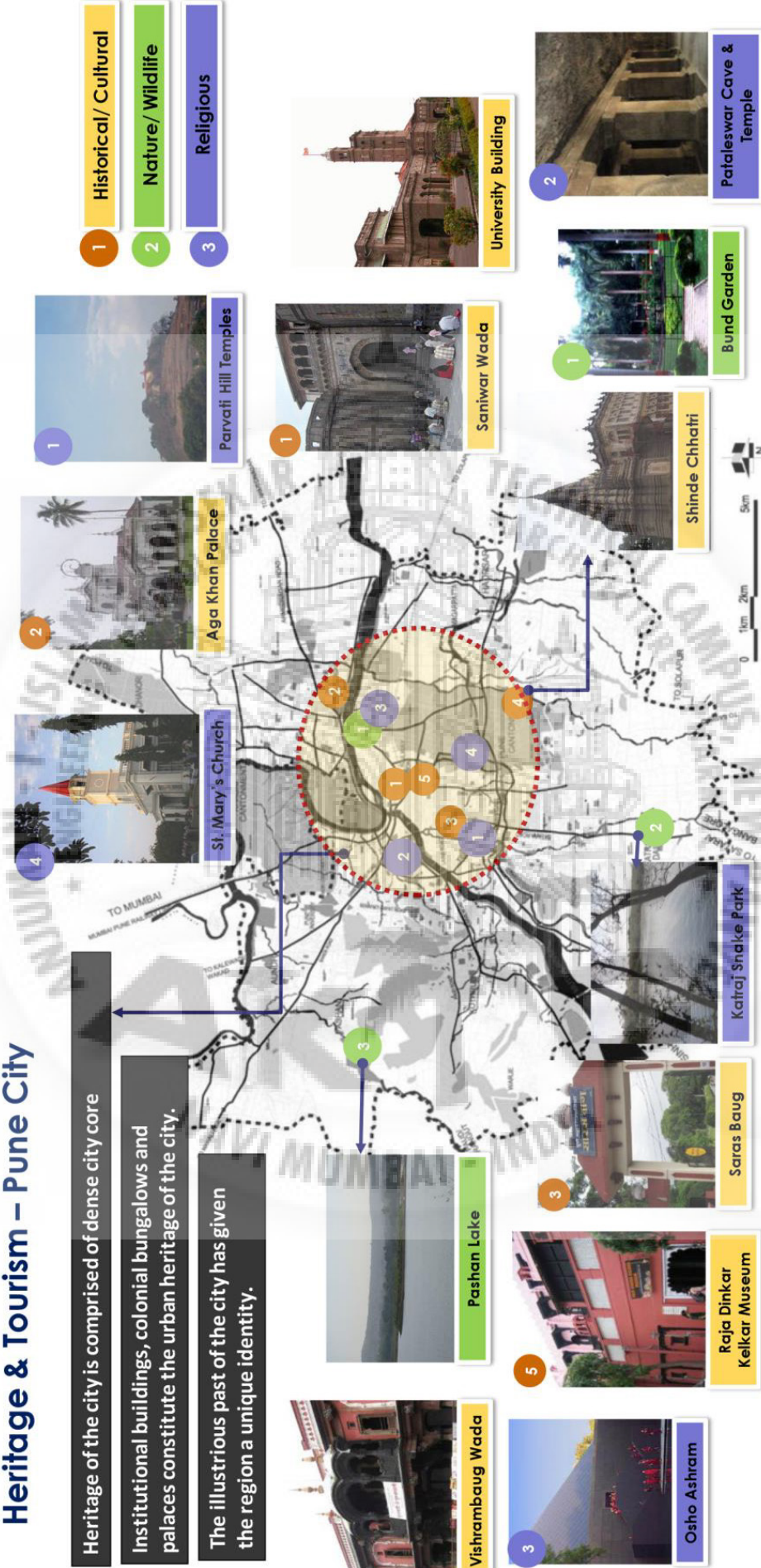
Pune Linkage and Connectivity

Heritage & Tourism – Pune City

Heritage of the city is comprised of dense city core

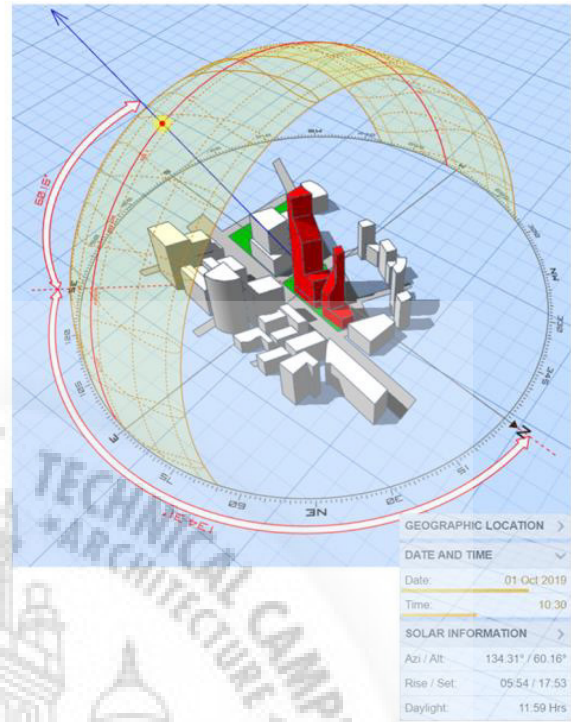
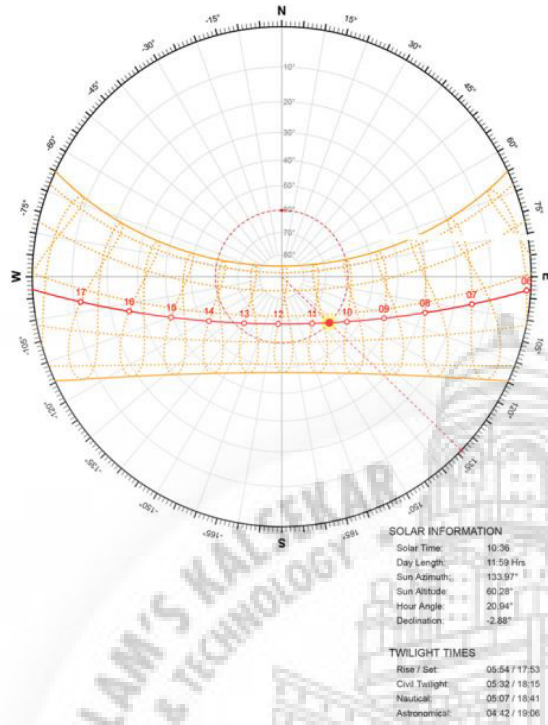
Institutional buildings, colonial bungalows and palaces constitute the urban heritage of the city.

The illustrious past of the city has given the region a unique identity.

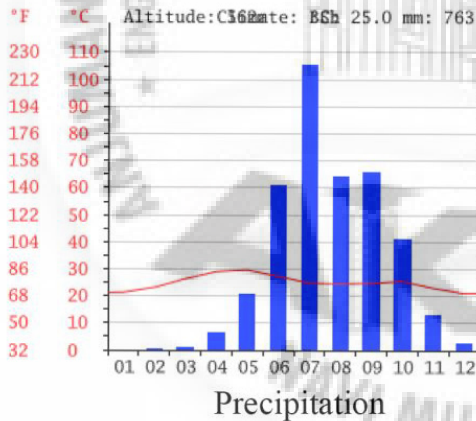


(image 75) Location of Major Heritage & Important Tourist Places

Sunpath Diagram

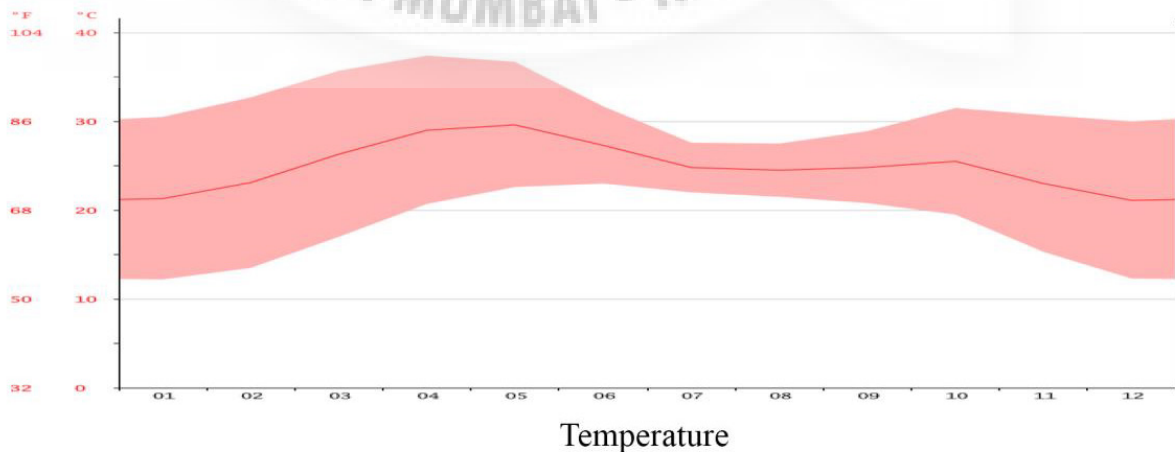


This shows the altitude and azimuth angles of the area. This data will help to design the facade and projection of the structure.



Over all the temperature is at most comfort levels only the precipitation is very high since it falls into the Hill Range of Sahyadri.

Overall the climate is hot and semi arid which is best suitable for human comfort.



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Ferrari world

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