DESIGN OF

AUTO MALL PROPOSED IN VARANASI

Thesis submitted to the Department of Architecture & planning BBDU Lucknow in partial fulfillment for the award of the degree of

BACHELOR OF ARCHITECTURE

BY

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UNDER THE GUIDANCE OF **Ar. SHAILESH KUMAR**

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I hereby recommend that the project under my supervision by Mr. **EKANSH JAIN** entitled "**AUTO MALL** at **VARANASI**" be accepted in partial fulfillment of the requirements for the degree of Bachelor of Architecture.

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INTRODUCTION

- THE NEED OF auto mall
- WHY VARANASI?

INTRODUCTION

AUTO MALL has always striven to serve car buyers and owners in the most comprehensive a convenient way possible. We provide a platform where car buyers and owners can research, bu sell and come together to discuss and talk about their cars. We are experienced used car dealer Nasik. We have cheap, good condition, used cars in our showroom. Our sales people are well aware of helping the customers to choose the best from the lot.

WHY VARANASI ???

India has been witnessing steady growth in its travel and tourism sector over the past few years. The total contribution of Travel & Tourism to GDP in India was INR 8,309.4 billion (7.4% of GDP) in 2015,and was forecasted to rise to INR 8,913.6 billion (7.3% of GDP) in 2016, with 6.5% CAGR (Compound Average Growth Rate) in the last seven years.

The Travel & Tourism sector holds strategic importance in the Indian economy providing substantial socio-economic benefits. Moreover, through its direct economic impacts such as accommodation services, food & beverage services, retail trade and transportation services, the sector has significant indirect and induced impacts such as travel & tourism investment, government collective travel & tourism investment and consumption of direct and indirect employees

This contribution share to GDP (7.4% in 2015) is relatively low compared to other countries in the Asia-Pacific region, such as 29.9% in Cambodia and 20.8% in Thailand. It is even below the world average of 9.8% and Asia-Pacific average of 8.5%. The total contribution to employment in 2015 showed 8.7% in India, which is also below the world average of 9.5% and slightly higher than Asia-Pacific average of 8.6%. This shows the possibility that India's Travel & Tourism sector can expand its contribution to GDP.

The population in Varanasi Urban Agglomeration (VUA) area was 1.424 million in 2011, of which 1.19 million were in Varanasi City area. The population density of Varanasi City (82.1 sqkm) was 146 per hectare in 2011, an increase from 133 per hectare in 2001. VUA's population growth from 2001 to 2011 was 18%, which is above the national average of 17.64%.

PROJECT INTRODUCTION

- THE OBJECTIVE
- SCOPE OF THESIS
- REASON FOR THE SELECTION OF THESIS

THE OBJECTIVE OF THE PROJECT

•The design a campus which can meet the requirement of modern upcoming car companies offices and let the employees to work, live and rejuvenate.
•Aesthetical environment for car companies.
•Technically sound, energy efficient spaces.
•Excellent infrastructural facilities for 24x7x365 working environment.
•To provide state of the art "extras" like business support services, business lounge, cafeteria,, services cores, ATMs, courier and travel kiosks, excellent interconnectivity and recreational facilities.

SCOPE OF THE THESIS

• The focus is concentrated on the car companies.
• The details of the focus shall be on:
• desigN.
• identifying relevant spaces.
• understanding their interrelation.
• inputs from site analysis, climatologically analysis, literature study and case study.
• architectural design of plans, sections, elevations and 3D.
• Juxtaposition of Energy efficiency in to the design methodology.
• services.
• distribution of all services; efficient services core layouts and office spaces.
• HVAC, Electrical layouts, Fire fighting, Structural systems.
• material selection.
• attention to parking.
• landscape lighting.
• energy efficiency consideration.
• development of detail pertaining to modern offices spaces.

REASON FOR SELECTION OF THE THESIS

Office stoday are much so phisticated. They are centrally airconditioned, have energy efficiency lightings, multilevel parking systems, modern fire fighting systems and many more facilities to provide ambientideal environment for workers as well ascustomers. In anutshell, amodern offices buildingis an intelligent building. Service are the main challenge to such buildings.

PROJECT BRIEF

- PRELIMINARY AREA REQUIREMENT
- SUPPORTIVE SPACES
- AIMS AND OBJECTIVE OF THE THESIS

PRELIMINARY AREA REQUIREMENT

- offices.
- Restaurant and cafeteria for 24x15 people.
- Bank.
- showrooms .
- gaming zone.
- food court.
- open gallaries
- entrance foier
- Information desk, security office

SUPPORTIVE SPACE

- Basement Parking
- AC Plant room, AHU Room
- Pump Room
- DG/Gen.set /UPS Room
- Server Room
- Toilet and Pantry
- Stores, Closet setc.

AIMS AND OBJECTIVE OF THE THESIS0

- Aesthetic showroom Environment
- Efficient structural system with modern look
- Efficient Circulation
- Efficient Parking
- Service core Design
- multi showroom under a roof.

SITE STUDY

- LOCATION
- SURROUNDINGS
- CLIMATE

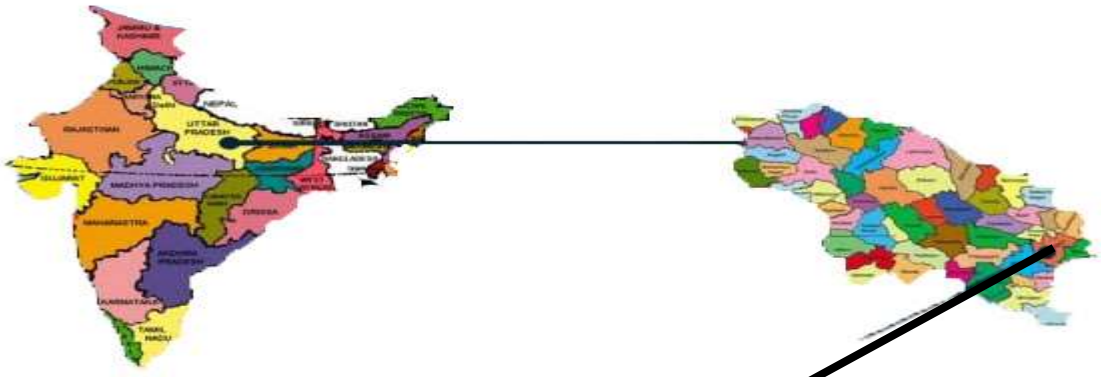
LOCATION-

• The Autopolis, to come up on the LKO-VNS Highway and 2km from the

Area : OUTER RING ROAD,WAZIDPUR,VARANASI

Population : 4,025,335 (2015)

Density : 10,000/km^2 (27,000/sq mi))



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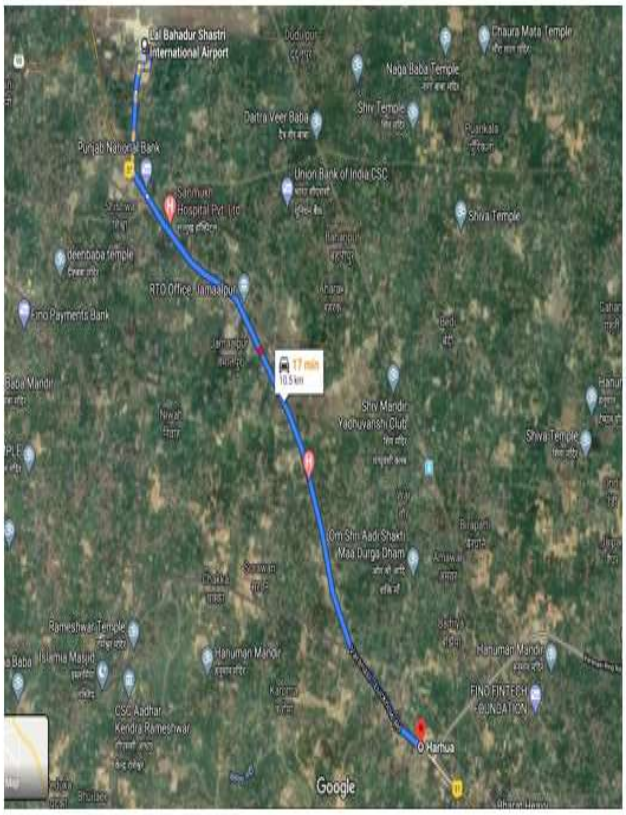
SITE AREA : 16 ACRE

SURROUNDING



LOCATION-

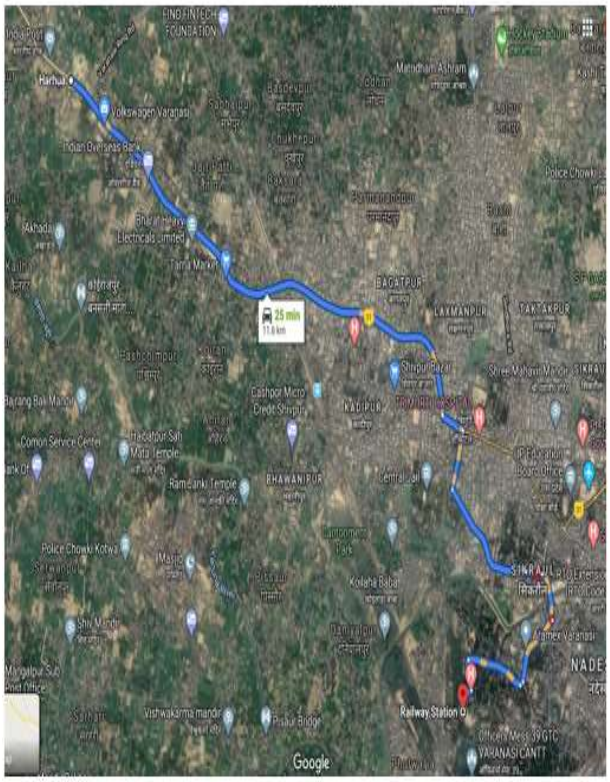
10.5 km from the Lal Bahadur Airport.

- Come up on the Lucknow - Varanasi Highway Outer Ring Road
- Approx time to travel is about 17 to 20 min.

LOCATION-

12 km from the cant Railway station .

- Come up on the route Shivpur Bazar.
- Approx time to travel is about 25 to 30 min.



SITE ANALYSIS

- CLIMATIC ANALYSIS
- BUILDING BYE-LAWS

CLIMATIC ANALYSIS

FOLLOWING FACTORS SHALL BE STUDIED:

•tropicaly wet and dry.

•Illumination directed on the building

•Solar angles with respect to various

•Design consideration

Date	Sunrise	Sunset	Length	Change	Dawn	Dusk	Length	Change
Today	06:31	17:53	11:22		06:08	18:17	12:09	
-1 day	06:32	17:53	11:21	00:01 shorter	06:08	18:16	12:08	00:01 shorter
-1 week	06:36	17:49	11:13	00:09 shorter	06:12	18:12	12:00	00:09 shorter
-2 weeks	06:40	17:44	11:04	00:18 shorter	06:16	18:08	11:52	00:17 shorter
-1 month	06:45	17:32	10:47	00:35 shorter	06:21	17:57	11:36	00:33 shorter
-2 months	06:38	17:12	10:34	00:48 shorter	06:13	17:37	11:24	00:45 shorter
-3 months	06:18	17:08	10:50	00:32 shorter	05:54	17:33	11:39	00:30 shorter
-6 months	05:33	18:31	12:58	01:36 longer	05:09	18:55	13:46	01:37 longer

CLIMATE-Varanasi has a combination of a tropical wet and dry climate

RAINFALL-

the normal rainfall is 786.8 milliliter.

AVERAGE TEMPERATURE-

The mean maximum temperature ranges between 34 °C (93 °F) and 42 °C in May. The mean minimum temperature is 9 °C (48 °F) to 18 °C (64 °F) in December and January, but it rises to 22 °C (72 °F) to 32 °C (90 °F) in May

The minimum temperature falls rapidly after October, and less than 10 °C (50 °F) has been recorded on individual days.

The period from July to September is warm and humid.

Temperatures in the evenings and mornings are generally cooler because of the city's moderate elevation.

CLIMATIC ANALYSIS

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average high °C (°F)	28.6 (83.5)	31.8 (89.2)	35.2 (95.4)	37.6 (99.7)	38.8 (101.8)	34.4 (93.9)	30.5 (86.9)	29.6 (85.3)	30.1 (86.2)	30.4 (86.7)	28.8 (83.8)	27.8 (82.0)	32.0 (89.6)
Average low °C (°F)	14.7 (58.5)	17.0 (62.6)	20.3 (68.5)	24.1 (75.4)	26.0 (78.8)	23.9 (75.0)	22.5 (72.5)	22.0 (71.6)	21.7 (71.1)	20.0 (68.0)	16.4 (61.5)	14.1 (57.4)	20.2 (68.4)
Rainfall mm (inches)	3.2 (0.126)	5.2 (0.205)	12.0 (0.472)	21.0 (0.827)	37.3 (1.469)	96.1 (3.783)	163.9 (6.453)	171.1 (6.736)	181.5 (7.146)	90.9 (3.579)	16.2 (0.638)	6.1 (0.24)	804.5 (31.673)
Avg. rainy days	.3	.4	.9	1.8	2.7	7.6	10.6	10.1	8.9	5.7	1.6	.4	51.0
Mean monthly sunshine hours	279.0	271.2	263.5	273.0	282.1	180.0	142.6	136.4	168.0	226.3	246.0	263.5	2,731.6

DIFFERENT SEASONS OF VARANASI-

Avg. annual temperature26.0 °C (78.8 °F)Avg. summer temperature35.9 °C (96.6 °F)Avg. winter temperature2 °C (36 °F)

TYPICAL LANDSCAPE AND VEGETATION-

Extremely variable landscapes with rapid Seasonal changes in vegetation.

SOLAR RADIATION-

•Sun is bright and very intense here for the maximum time of the year, though clouds are heavily visible during the monsoon.

SKY CONDITIONS-

•Varying over cast and dull in monsoon.

•Clear during summer and winter.

•.

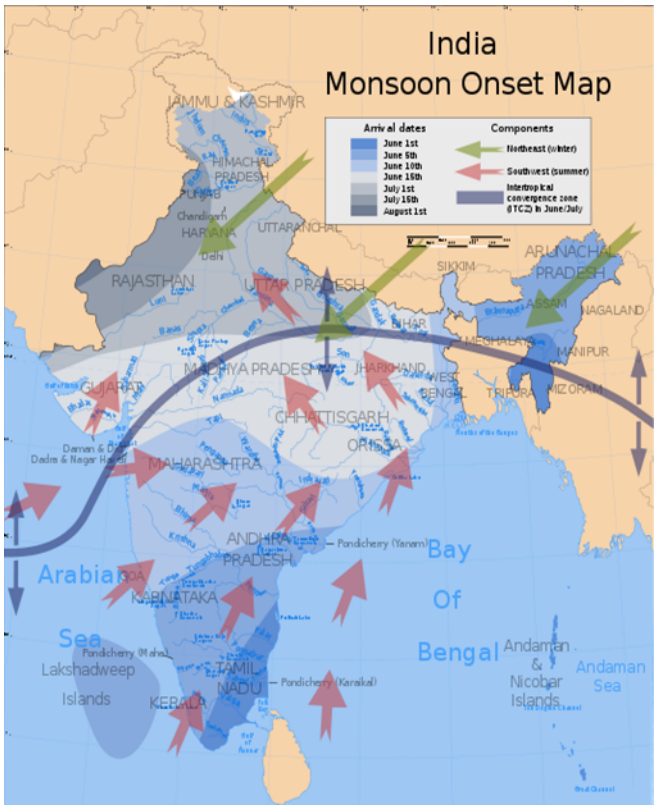
PREVALENT WINDS-

From the North West to South East in winter and reverse in summer.

•Hot and dusty during summer.

•Strong winds in monsoon from southeast.

•Dry, cold winds in winter from northeast.



RELATIVE HUMIDITY-

•In dry periods -30-55%

•In wet periods -55-95%

The relative humidity depends as much on the air temperature as on the actual amount of water vapor present in the air. During the day, as the lowest layer of air is being heated by the ground surface, its RH is rapidly decreased.

INFERENCES-

•Orientation should be along east west axis.

•since there is no under heated period through out the year gain of solar radiation is undesirable. Need to keep the building in shade through out the year.

•adequate ground coverage is to be provided to cut down glare from bare ground and to make surrounding surfaces cooler which would permit flux of heat radiation away from the human body.

•shady trees to be planted around the buildings.

•proper orientation to cut solar radiation and gain and view to be provided.

•adequate large cover from rain and sun to be given i.e. large projections desirable. Also to cut the intense sun from top thick insulating roofing is desirable.

NOIDA

BUILDING BYE -LAWS

GROUND COVERAGE- 40%

F.A.R - 2

HEIGHT- NO HEIGHT RESTRICTION

COMMERCIAL/MERCANTILE BUILDINGS:

Maximum permissible FAR :

Maximum plot coverage :

Plot area in Sq.mtrs.

Plot area in Sq.mtrs.
Maximum permissible coverage
(a) Below 500
As per minimum building setbacks as at item – 4 below.
(b) 500 & below 2000
50%
(c) 2000 & above
1000 sq.mtrs. or 40% of the plot area whichever is higher.
:

Minimum abutting road width for allowing commercial Building is as follows:

i) Not applicable for sites ear marked as commercial Use zone in Master Plan/Zonal Development Plan.
ii) In future Commercial complexes shall be permitted on minimum road width of 12 mtrs., for
sites upto 1000 sq. mtrs. and 18 mtrs. for sites above 1000 sq.mtrs.

Width of abutting road in Mtrs.	Minimum set back in Mtrs.
Upto 12.0	**3.00**
12.0 and upto 18.0	**4.00**
Above 18.0	**6.00**

For Buildings above 300 Sq.mtrs. plot area and height upto 10 mtrs. minimum building setbacks:

Front (Mtrs.)	Rear (Mtrs.)	Sides (Mtrs.)
Up to 12.0 road.	3.00 3.00	
12.0 and up to 18.0 Mtrs. Road.	4.00 3.00	a.1/4th of plot width with 1.5 mtr. On one side. OR b) Where 1/4th of side setback is more than 6.0 Mtrs. minimum of 3.0 Mtrs. on each side.
Above 18.0 Mtrs. Road.	6.00 3.00	

Parking:

Type of Building	One Car parking space of 20 Sq.mtrs. area For every;
a.Mercantitle Lodgings, Tourist Houses, Hotels with Lodging and Restaurants.	80 Sq.mtrs. built up area or fraction thereof.

Shopping Malls: Shopping malls will be permitted in plots 2000 Sq.mtrs. and above
with common areas of 40% of permissible F.A.R.

EXITS-

•Shall be so located so that travel distance on the floor, shall not exceed 15m.

•Building having more than FOUR storey to have at least 2 EXITS.

•Shall have minimum 2 staircase and one of them shall be enclosed stairway and the other shall open directly to the exterior open space or to any open space of safety.

STAIRCASE-Staircase width population on floor-

•100-1m

•150-1.5m

•200-2m

•TREAD-0.30 m, RISER-0.15m, NO.OF RISER-12 per flight, HANDRAIL-0.90m

FIRE-FIRE RESISTANCE- half an hour fire resisting door.

- 2 hour resistance.

•FIRE ESCAPE STAIRS- straight flight not less than 0.75m, wide with treads and risers, not more than 0.19m, no. of flights shall be limited to 16 per flight.

Building above 15m in height, depending upon occupancy shall be protected by wet riser or sprinklers installation system.

•Hydrant

•Fire alarm-automatic fire alarm and detector.

•If the travel distance exceeds 18.5m additional staircase at proper place shall be provided.

LIFTS-

•No. Of lifts in one lift bank shall not exceeds by 4.

•Floor area not less than 1.5 sq.m.

•Shall have loading capacity of not less than 600 kg (8 person per lift) with automatic closing doors.

STATIC TANK- For 15m and above but till 24 m – 1,00,000 litres

For 24m and above in height-2,00,000 litres

PER CAPITA WATER REQUIREMENT FOR BUILDING-

•Commercial –business-45 litres consumption per head per day.

FLUSHING STORAGE CAPACITIES-900 litres net per WC.

SANITATION REQUIREMENTS FOR BUSINESS BUILDING-

FITMENTS	FOR MALE	FOR FEMALE
W.C.	1 for 25 person	1 for 15 person
ABLUTION TAPS	1 in each w.c.	1 in each W.C.
	1 water taps with draining arrangements shall be provided for every 50 percent or part thereof in the vicinity of W.C. and urinals.	
URINALS	nil up to 6 person 1 for 7-20 2 for 21-45 3 for 46-70 4 for 71-100 From 101-200,add at the rate of 3% For every 200, add at the rate of 2.5%	
W.B.	1 for every 25	1 for every 25
D.W.	1 for every 100	1 for every 100
BATHS	one for each floor	onefor each floor
CLEANER SINKS	1 per floor minimum preferably in to	adjacent or sanitary rooms

BASEMENTHEIGHT- MAXIMUM 4M.

CASE STUDY

SAROJNI NAGAR CAR PARKING

AUTO MALL

EKANSH JAIN B.ARCH. THESIS-2019-20

CASE STUDY

SAROJNI NAGAR CAR PARKING

INTRODUCTION

With the existing car parks, especially in areas which cater to huge crowds, failing to accommodate the growing population of cars, it has become imperative to come up with more efficient parking solutions. In this regard, multi-level automated car parking is seen as effective in tackling the issue of parking.

Keeping this in mind the New Delhi Municipal Council (NDMC) has proposed to build a multi-level car parking each at Sarojini Nagar and Baba Kharag Singh Marg. DIMTS has been appointed as the Independent Engineer for the same.

The Sarojini Nagar parking will be of eight floors with the ground and the first reserved for shopping/ commercial complex and the rest dedicated for parking. It will have a parking capacity for 824 vehicles.

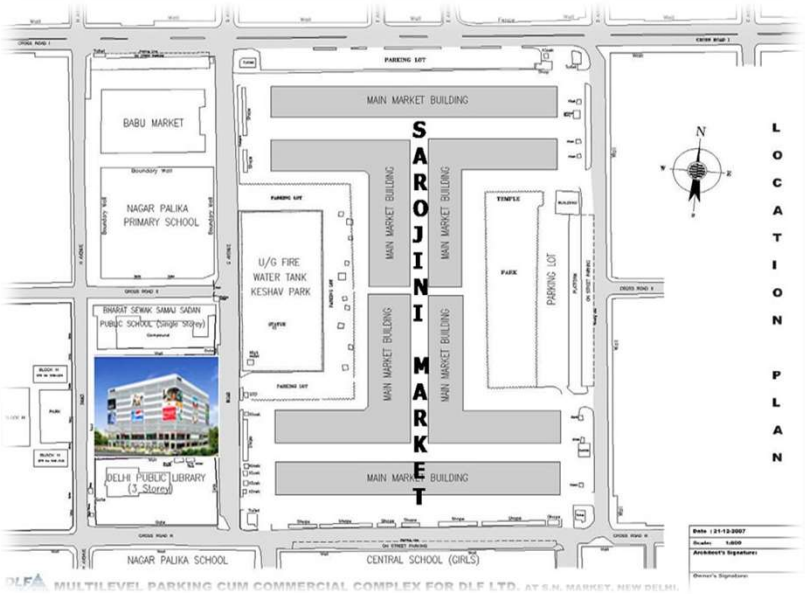
WHAT IS MULTI-LEVEL AUTOMATED CAR PARKING

A multi-level car parking is essentially a building with number of floors or layers for the cars to be parked. The different levels are accessed through interior or exterior ramps. An automated car parking has mechanized lifts which transport the car to the different levels. Therefore, these car parks need less building volume and less ground space and thus save on the cost of the building. It also does away the need for employing too many personal to monitor the place.

In an automated multi-level car parking, the cars are left at the entrance and are further transported inside the building by robot trolley. Similarly, they are retrieved by the trolley and placed at the exit for the owner to drive away.

These automated parking will have car lifts, pallets, computerized control systems etc. that will be operational round the clock.

- Factsheet
- **Location**
  Sarojini Nagar Market, New Delhi
- **Size of Development (GLA)**
  *53,423 Sq Ft
- **No. Of Retail Levels**
  Ground + 1 Levels
- **No. Of Retail Units**
  92
- **Retail Mix (% Gross Leasable Area)**
- F&B (% Gross Leasable Area)21%Speciality Retail (% Gross Leasable Area)78%
- **Key Anchors**
  Food Chowk
- **Major Tenants**
  Under feasibility
- **Parking (Automated)**
- Levels7Spaces825**Demographics Of The Catchment**
- Average Age20+ YearsSocio Economic GroupB+, BTotal Population300,000



CAR PARKING SYSTEM

CAR PARKING SYSTEM

- **Highlights**
- Better Organized with convenience of Shopping
- Extension to existing market by providing convenience to existing Parking woes
- Multi Level Car Park for 800 + Cars
- Target Audience – Fashion Conscious Youth & Women visiting from all over Delhi & NCR
- F&B – Food Chowk on the 1st Floor to address missing F&B options in the entire Sarojini Nagar Market
- High Street look & feel
- Customized Shop sizes varying 200 – 500 sq. ft., with Modern feel visibility, branding options & amenities of a mall & A grade constructio

TECHNOLOGY

•SYSTEM THAT BE FOLLOWED BY SIGNAL THAT ARE SHOWING ON BORD VISIBLE THERE ON WALL

•LIFT PAD THERE OVER CAR MOVE UP WARD DOWN WARD AND SIDE BOTH WITH MECHANICAL SYTEM PATTERN

1 Improve connectivity of the area to give people more choices for travel: No strategic planning has been done to enhance bus service and metro feeders to the area. Such planning is needed in all key commercial areas to curtail parking demand.

2 No strategic planning to use the new structure for 'pedestrianising' the market for improved shopping experience and business: Though plans are afoot to curtail surface area parking and improve usage of multilevel parking, the huge spill-over and illegal parking on the surface undermine such measures. Cars are still allowed very close to the shops

3 Poor and narrow access to the structure and automated technology discouraging parkers: The time taken to park or retrieve a vehicle increases the waiting time for parkers; sometimes, cars may have to wait for as long as 20-25 minutes.

4 At a time when cars are aggressively encroaching upon the scarce urban space that have more valuable and competing uses, a parking policy has to restrain and not bait cars.

5 around 250 vehicles were still stuck at the parking facility,

6 the eight elevators that transport vehicles to and from the eight-storey facility, seven stopped functioning.

7 According to several commuters, the remaining elevator was working but sporadically.

Concept of Operation

To achieve outstanding service quality and to create a great impression for customers

The Honda Kind

Prompt
Reliable
Trustworthy
Performing

Design Concept

To reflect Honda's advance image,
at the same time to give a high sense of quality and practicality with the cost efficiency.

Advanced & Practical
(Clean, Simple, Advance)

Layout Concept

Each area should be laid out not only with work efficiency but also with focus on customer's viewpoint.

Customer-focused Layout

Cars	One-way flow
Sales area	Display car is the center of attention
Service area	Shortest lead time

SHOWROOM HONDA

DELHI

AUTO MALL

EKANSH JAIN B.ARCH. THESIS-2019-20

SHOWROOM HONDA

Dealership Exterior

Point in Area Environn

The dealership exterior is key element in creating a positive impression. Although exclusive design should be decided locally, the general appearance should convey immediately recognizable automobile showroom features including – Stand alone building , Glass façade, Parking Space , Sufficient

Key Points in Functional Items

EXTERIOR

•Glass facade : Outer packaging of glass only , to display cars clearly and brighten the showroom.

•Showroom Floor Height : The showroom floor should be designed higher than ground level to make display cars more easily visible from outside, and for protection from floods. It should be 70 cm above ground level so that it can be visible from hoods of cars parked in front of building.

SIGNAGE

•Facia Sign: To show you are authorized dealer and make presence.

•Pylon Sign : A corporate identity, symbol of the dealership. This should be easily visible from cars on street when customer move across dealership.

EQUIPMENT

•Lighting: Enhance dealership impression at night time by lighting up with wall washers.

Approach Area

Point in Area Environr

The point is to make it easy for customers to come in and understand where to go. Securing the safety of customer coming in and going out is also important. In principle, one way approaches should be adopted. This makes the movement plan easy.

Key Points in Functional Items

EXTERIOR

•Entrance / Exit Width : The width should be at least 6 meters, the width of 2 car lane, to ensure easy visitor entrance

•One Way Flow : For visitor safety and any kind of traffic congestion.

• Parking Area : It should be located at the front , making it easy for first time visitors to recognize and use. Parking required for New car customers, employee car park , employee bike park , second hand car park , service customer car park.

•Service Buffer Space : Provide a buffer space for service customer waiting

SIGNAGE

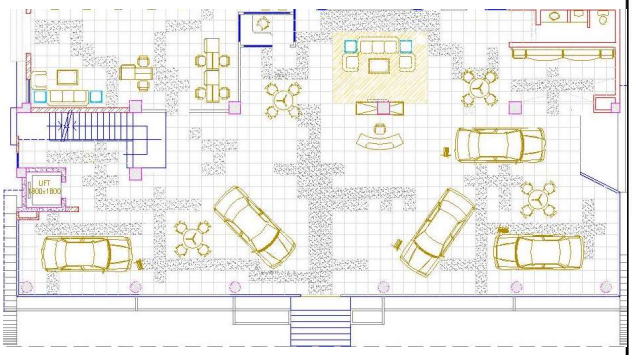
•Directional signage : Set these signs for customer to direct himself to required location.

•Road Paint Sign : Set these signs for customer to direct himself to required location.

EQUIPMENT

•Lighting: Enhance dealership impression at night time by lighting up and entrance is easily visible.

Car Display Corner



Point in Area Environn

The car display corner should accurately show the form and colour of the car on displays, and also present a simple, open- feeling environment, so customer can expand their image of ownership. The floor , wall and ceiling should be of light colour to create a showroom , where car is star. Secondly their should be provision to display at least 5-6 cars.

Key Points in Functional Items

EXTERIOR

•Ceiling Height: 5.5. Meters desirable. This provides the best balance between display effects and facility efficiency such as air conditioning and lighting.

INTERIOR

•Floor: Cream Tiles pattern to be used, to enhance light effects and follow random / non continuous pathways. Tile size 600 mm x 600 mm

•Walls : White walls do not interfere with the viewing of display vehicles, reinforce brightness of eye line. It also creates a lively atmosphere inside showroom. The walls can be used for display of POPs

•Ceiling: Use false ceiling of similar size of roof tile of white colour. This ceiling will also incorporate Light structure & Ac ducts. A symmetrical pattern on roof is also important proper looks of showrooms.

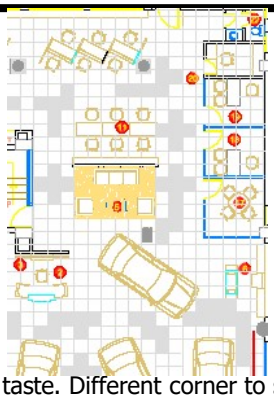
EQUIPMENT

•Lighting: : A discreet light pattern , embedded in ceiling to emphasize the fine characteristic of showroom.

•AC Ducts : White colored flat louvers , embedded in ceiling to be used.

•Pipe Music : For slow snoothing music for ears.

Customer Lounge



Point in Area Environr

In order to ensure sufficient hospitality , build a customer lounge of elite taste. Different corner to suit different tastes such as TV , table for group customers, internet kiosk or service view. It should be located such that it is assessable to both sales & service customers.

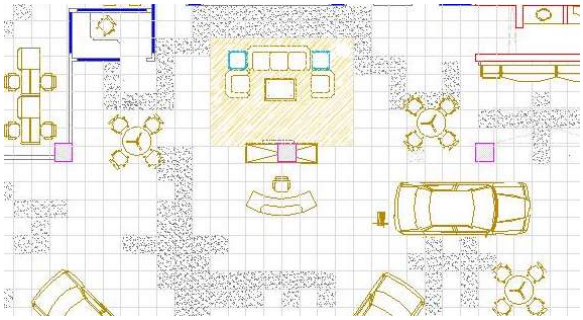
Key Points in Functional Items

EXTERIOR

•Optional Glass Frontage : Adopt a glass frontage so the service bays are visible from lounge.

•Ceiling Height : Can be reduced to 3 meters , to give a relaxing feeling underneath.

Sales Reception



Point in Area Environr

The sales reception is face of the showroom. It is important for customer to have sense of Honda brand. Use silver and other metallic color / texture effects to express advance charter, and combine with wooden touch to soften the impression.

Key Points in Functional Items

FURNITURE

•Reception Counter : A counter helps to create a friendly approach atmosphere . This counter is hosted by a female hostess. The display car should not be displayed in front of this counter as it may block the hostess view's of arriving customers.

SIGNAGE

•Indoor Symbol Sign: To instantly show that this an authorized Honda dealership , when customer arrives. This is the only H mark inside the showroom. It should not be used any where else.

Service Counters

Point in Area Environr

This important contact point can determine the satisfaction of service customers, so it needs to be a cheerful , soothing and relaxing environment. It needs to incorporate a small waiting area as well for customer to wait till the time their repair orders are opened. Subsequently they may use customer lounge / driver lounge.

Key Points in Functional Items

EXTERIOR

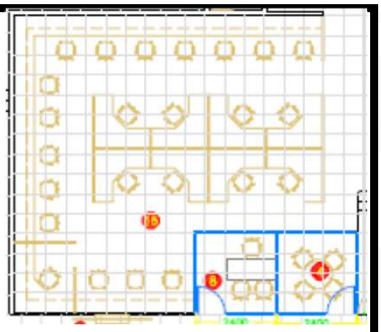
•Glass Frontage : Adopt frame less glass structure for elegant looks and functionality of clear vision across.

INTERIOR

•Floor : Similar to showroom., with similar finish of showroom.

•Ceiling Height : 3 meters

Sales Back Office



Point in Area Environr

Design the back office for easy access to the showroom and the service area, and for easy observation of customer movement. The layout and furniture should be chosen from functionality but colour scheme of showroom furniture should be used for similar customer eye experience.

Key Points in Functional Items

INTERIOR

•Partition : Set up half partitions with pin up boards. The work inside should not be viewed from customer.

•Walls : With sufficient storage capacity

EQUIPMENT

•Fixtures : Large tables for sales / service executives with internal phone.

•Cabinets : For storage

•Computers : - For processing

•Furniture : Suitable furniture for seating

Dealership Sections / Rooms

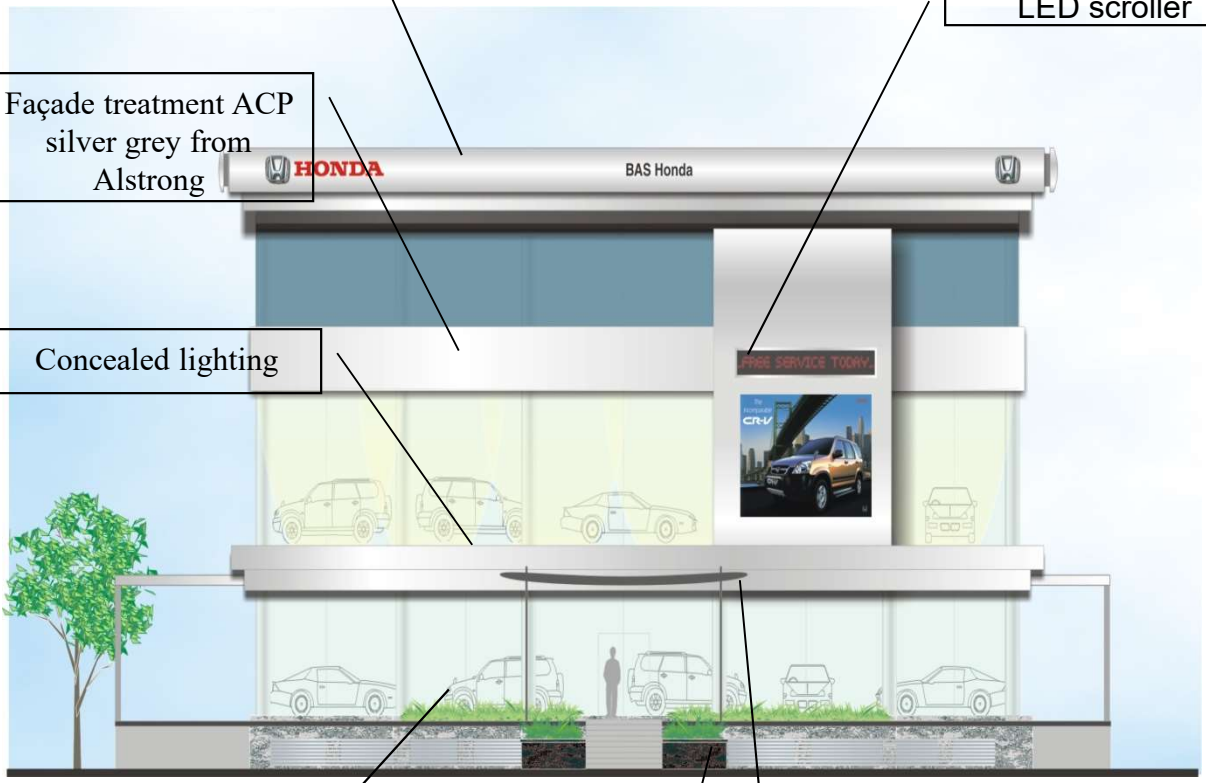
Section	Areas	Basement	Ground Floor	Mezzanine	Upper Floors	Remarks
Sales	Showroom Sales Consultants		•			4 / 5 SC for attending Showroom Walk ins
	Car Display Area		•			
	Sales reception / counter		•			
	Accessory Display		•			
	Customer Lounge		•			Common for sales / service customers
	Auto Terrace Cabin		•			Evaluator
	Discussion Rooms - Sales		•			
	Pantry		•	•		For Showroom / Service Recp / Customer Lounge
	Executive Toilets		•	•		
	Sales Back Office			•		Sales / CREs / MIS/ Auto Terrace
	Admin Back Office			•		Admin / Insurance / EDP / Accounts / Epbax
	General Manager Cabins			•		GM Sales / Service / CEO / MDs
	Sales Manager Room			•		Sales Managers - Product / Marketing / Corporate
	Discussion Rooms - General			•		Business Visitor Discussion
	Executive Lunch room			•		For Officers, preferably near pantry
	Conference Room			•		In house conferences
	Training Room			•		CRM / Sales Training / Officer Training
	Record Room			•		For all records storage
Service	Service Manager Cabin		•			
	BP Manager		•			
	Service Reception		•			To accommodate service advisors
	Waiting Area		•			
	Discussion Rooms - Service		•			In service recp.
	Family Lounge		•			Private seating area for families.
	Driver Lounge		•			To accommodate drivers , with separate toilet
	Cashier		•			May have common access to sales / service
	Workshop Bays	•	•		•	PM / GR / BP / Quick bays
	Washing bays		•		•	May be on Terrace also
	Tool Room	•	•		•	On every workshop floor
	Job controller room	•	•		•	On every workshop floor
	Staff Lunch room	•				On one of floor
	Engine room	•			•	On one of floor
	Change Room with Toilet	•	•		•	On every workshop floor
	Staff Toilets	•	•		•	On every workshop floor
	Training Room	•				Technical Training Rooms
	Warranty room	•				On one of floor
	Salvage Room				•	Near Paint Booth
	Oil Storage Area	•			•	
	Generator room	•				
	Compressor Room	•			•	
	Paint Mixing Room	•	•		•	Near Paint Booth
Spares	Spares Warehouse	•	•		•	Connected By Goods Lift

Exterior overview – Summary of elements

Specified ACP Facia design to be approved by HSCI

LED scroller

Façade treatment ACP silver grey from Alstrong



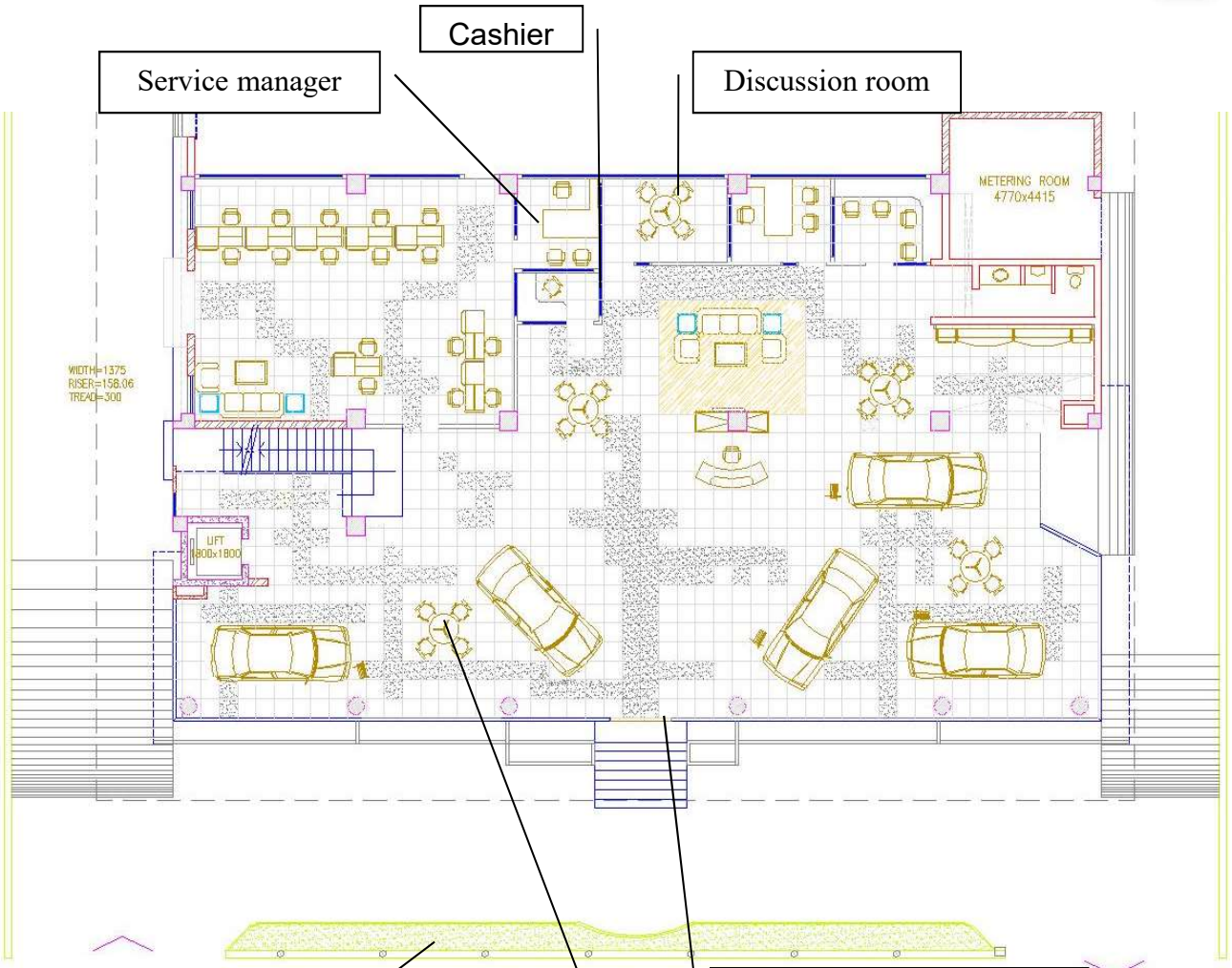
Concealed lighting

Clear, frameless glass

Entrance highlighters

Entrance canopy

Layout


Cashier
Service manager
Discussion room
METERING ROOM
4770x4415
WIDTH=1375
RISER=158.06
TREAD=300
LIFT
800x1800
Landscaping
Showroom entrance
Discussion / Negotiation table

AREA REQUIRMENT

				SQ MT	C		B		A		
					800		1000		1500		
S. No.	Floor	Item	Particulars	Std Area Req.	Qty	Area Req.	Qty	Area Req.	Qty	Area Req.	Remarks / Norms
1	GF	Showroom	New Car Display	48	6	288	7	336	8	384	
2			Delivery Bays	30	1	30	1	30	1	30	
3			Sales Reception	18	1	18	1	18	1	18	
4			Accessories Section	14	1	14	1	14	1	14	
5			Customer Lounge			25		30		35	Common Lounge for Service Owners
6			Sales Managers Room	10	1	10	1	10	2	20	
7			Auto Terrace Room	9	1	9	1	9	1	9	
8			Discussions Rooms	9	2	18	2	18	3	27	
9			Toilets	10	2	20	2	20	2	20	
10			Pantry	6	1	6	1	6	1	6	
			Total			438		491		563	
11		Service Recp	Service Advisor Desks / Recp	6	4	24	12	72	18	108	
12			Waiting Area	0.75	5	3.75	10	7.5	16	12	
13			Private Family Lounge	2	10	20	10	20	15	30	For Family
14			Driver Lounge with Toilet	1.75	12	21	20	35	30	52.5	
15			Cashier	8	1	8	2	16	2	16	
16			Service Manager	10	1	10	2	20	2	20	
17			Discussuion Rooms	9	1	9	1	9	2	18	
18			Toilets	10	1	10	2	20	2	20	
19			Pantry	6	1	6	1	6	1	6	Common Pantry can do
20			Circulation Area			25		25		40	
			Total			136.75		230.5		322.5	
18	GF	Outside Building	New Customer Car Park	15	8	120	10	150	15	225	20 % conversion ratio , 40 % Walk In ratio
19			Service Cust Car Park	15	33	495	40	600	55	825	1: 1 = Service bays : Parking
20			Auto Terrace Car Park	15	3	45	4	60	8	120	
21			Employee Car park	15	3	45	6	90	8	120	
22			Employee Bike Park	0.8	20	16	35	28	50	40	
23			Landscaping			40		50		60	
			Total			761		978		1390	
24	GF	Parts Warehouse	Parts Warehouse			250		350		450	Considering 3 Yr + Plan . On Single Floor
			Total			250		350		450	
25	GF	New Car Storage	New Car park	18	33	600	42	750	63	1125	15 days stock
			Total			600		750		1125	
26		Workshop	PM / GR / BP/ Clean Bays	28	33	924	40	1120	55	1540	
27			Aisle Space			165		200		275	5 mt wide x no of bays
28			Body Storage - Salvage			100		125		150	
29			Paint Mixing / Storage	14	1	14	1	14	1	14	
30			Tool Room	8	1	8	1	8	2	16	
31			Warranty Room	8	1	8	1	8	2	16	
32			Job controller room	8	1	8	2	16	3	24	
33			Lunch room cum training room	30	1	30	1	30	1.5	45	
34			Engine room	9	1	9	1	9	1	9	
35			Change Room	0.7	46	32.34	56	39.2	77	53.9	As per no of persons
36			Toilets	10	1	10	1	10	2	20	
			Total			1308		1579		2163	
37	GF	Others	Compressor Room			15		20		24	
38			Transformer Area			10		15		15	
39			Generator Room			20		24		35	
40			Washing Ramp	35	4	140	5	175	6	210	
41			Security Room	6	1	6	1	6	2	12	
			Total			191		240		296	
42	GF	Open Area	Open Area			1290		1617		2208	35 % - Open Area - Pathways (except Park + Landscaping)
			Total			1290		1617		2208	
	GF	Plot Area	In Sq Meter			4975		6235		8518	
		Total Area	In Acres			1.229		1.541		2.105	
		Bild Up Area	In Sq Meter			2965.7		3713.4		5030.5	
		Norm	Showroom Frontage	METER		30		35		45	
43	Mezzanine	Administration	Sales Back Office	3.5	16	54	19	68	29	102	
44			Admin back Office	3.5	5	18	6	23	10	34	
45			CRM /CRE Room	4	5	20	9	36	15	60	Sales / Service / CRM
46			GM Cabin / CEO Cabin	12	1	12	2	24	3	36	
47			Managers Cabin / Area	8	2	16	3	24	4	32	Sales / Service / CRM / Others
48			Discussion Room	8	1	8	2	16	2	16	
49			MD Room	18	1	18	1	18	1	18	
50			Conference Room			25		30		30	
51			Lunch Room			18		20		20	
52			Wating Area			16		18		18	
53			Tele Operator	4	1	4	1	4	2	8	
54			EDP Room			8		8		9	
55			Toilets	9	1	9	2	18	2	18	
56			Pantry			6		6		6	
		Total Area	Total			233		313		407	

The Space requirement has been calculated considering the space required on 5 year plan for both sales & service capacities.

From the calculation , following plot sizes have come out For Single Level Construction , incorporating all functions.: -

A 2.25 Acre

B 1.75 Acre

C 1.25 Acre.

Looking at such big land options , is difficult considering its cost and availability . Moreover , as on today the options of multi floor construction to be considered , which can reduce the space requirement.

For indicative purpose , the land requirement can be :

A 1.5 Acre

B 1.1 Acre

C 0.9 Acre.

Please note, if a land available has option of accommodating more build up area & height , then land requirement can reduce further.

The land sizes for new facility should be finally decided based on Location (as this is most important parameter) , available sizes , cost , build up area allowed & total height. In case of unavailability of land of desired size at prime retail location, split facilities to be implemented with the exact break up of functions, to be decided based on land size & planning norms in city.

New car storage can be done at separate location , which will further reduce land requirement. Also this may be required to split for local tax issues (like Octroi)

And the end , land requirement finalization is very tactical decision , and need to be taken based on all practical requirements & prevailing conditions. It need to be seen that all your areas requirement either in multi floor or split or single level facility are being covered adequately.

POINTS IN DESIGNING THE SERVICE AREA

Total Area Requirement

The Service areas including the workshop are based on the **service demand** which accrues out of the UIO or UNITS IN OPERATION. The UIO is based on on the past sales record and future projected sales.
UIO is a dynamic figure however we need to plan in advance since building up infrastructure takes time.

The **UIO** is used to calculate
- **Requirement of various types of bays**
- **Manpower to be deployed**
- **Sizes of Utility rooms**
- **Total Area Required**
- **Equipment requirement**
- **Power and water requirements for the dealership**

Concept of UIO

Tabled below is the UIO of a dealer selling 1500 units every year. Based on the survival Ratio the number of Cars decline with age

UIO		YEAR					
		0	1	2	3	4	5
		Nos.	Nos.	Nos.	Nos.	Nos.	Nos
Survival Ratio		99.80%	99.00%	98.00%	97.00%	96.00%	93.00%
Car Come Back	1	1497	1497	1497	1497	1497	1497
	2		1485	1485	1485	1485	1485
	3			1470	1470	1470	1470
	4				1455	1455	1455
	5					1440	1440
	6						1395
	TOTAL	1497	2982	4452	5907	7347	8742

Car Come Back

Service demand is the number of visits a car makes to the workshop in a year. The basic type of services are as follows –

a) Periodic Maintenance : Average 3 times based on kilometer running

b) General Repairs : 1.1 times

c) Body & Paint : 0.5 times

However these visits decline as the cars age.The above has been further validated by actual data available.

		YEAR					
CAR COME BACK		0	1	2	3	4	5
NO. OF VISITS		Nos.	Nos.	Nos.	Nos.	Nos.	Nos
4.30	1	6437	6437	6437	6437	6437	6437
4.30	2		6386	6386	6386	6386	6386
4.30	3			6321	6321	6321	6321
4.30	4				6257	6257	6257
4.30	5					6192	6192
2.50	6						3488
	TOTAL	6437	12823	19144	25400	31592	35080

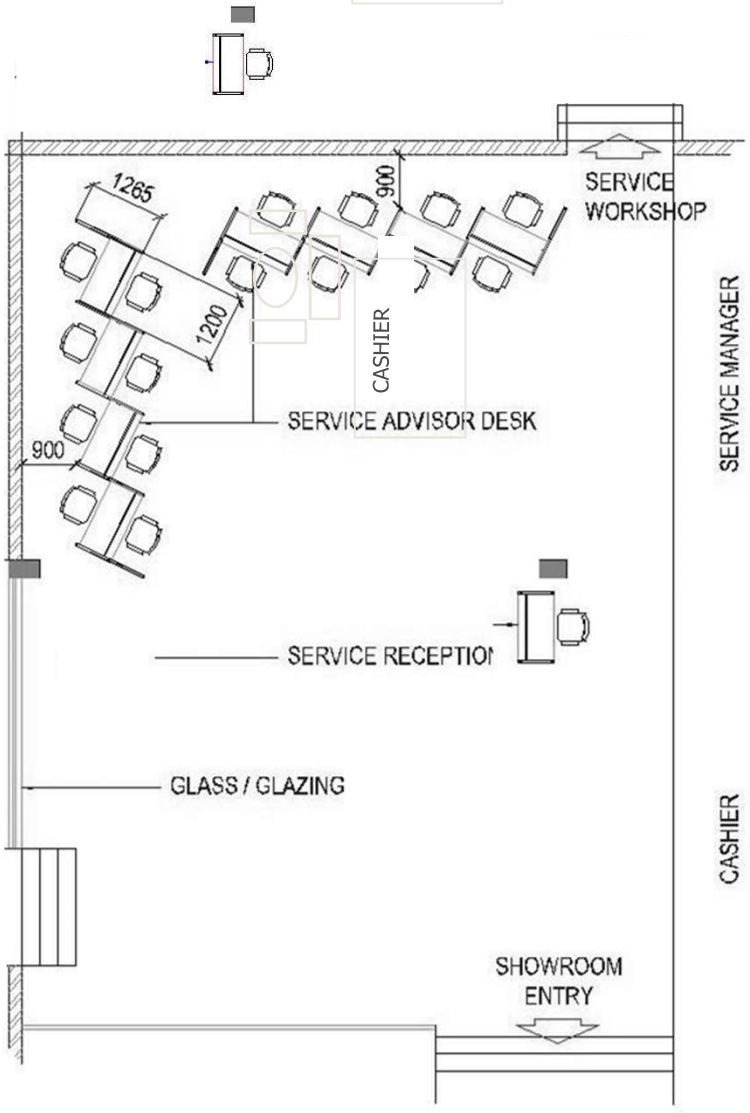
The Service reception is the first interface area when the customer visits for service or any other type of repair.

This important contact point can determine the satisfaction of customers, therefore it needs to be a cheerful and relaxing environment.

While locating the Service reception it is important that it has visual access to the workshop and other customer amenities are located nearby.

The Service POPs must be placed at prominent locations so as to gain the customer's confidence.The service reception should have automatic door opening facility.

CATEGORY	3 YEARS	5 YEARS
A	122	205
B	73	128
C	61	105



LITERATURE STUDY

- AUTOPIA CAR MALL ISTANBUL

AUTOMOBILE

The word **automobile** comes, via the French *automobile* from the Ancient Greek word αὐτός (*autós*, "self") and the Latin *mobilis* ("movable"); meaning a vehicle that moves itself. The alternative name *car* is believed to originate from the Latin word **carrus or carrum** ("wheeled vehicle"), or the Middle English word *carre* ("cart") (from Old North French), in turn these are said to have originated from the Gaulish word *karros* (a GallicChariot).

CAR is a wheeled motor vehicle used for transporting passengers, which also carries its own engine or motor. Most definitions of the term specify that automobiles are designed to run primarily on roads, to have seating for one to eight people, to typically have four wheels, and to be constructed principally for the transport of people rather than goods

Fuel and propulsion technologies

Most automobiles in use today are propelled by a internal combustion engine, fueled by deflagration of gasoline (also known as petrol) or diesel. Both fuels are known to cause air pollution and are also blamed for contributing to climate change and global warming.[28] Rapidly increasing oil prices, concerns aboutoil dependence, tightening environmental laws and restrictions on greenhouse gas emissions are propelling work on alternative power systems for automobiles. Efforts to improve or replace existing technologies include the development of hybrid vehicles, vehicles and hydrogen vehicles. Vehicles using alternative fuels such as ethanol flexible-fuel vehicles and natural gas vehicles are also gaining popularity in some countries.

VEHICLE TYPES - TYPES OF CAR

CARS: 4-DOOR SEDANS –
2-DOOR COUPES
STATION WAGONS
CONVERTIBLES
SPORTS CARS

4-Door Sedans - Sedans are a good choice for most automobile shoppers. The enclosed trunk offers security, while the rear doors allow easy entry for rear-seat passengers. Most luxury vehicles are four-door sedans because they're more comfortable than most other body styles. The smallest available in the US are sub-compact sedans like the Hyundai Accent and Chevrolet Metro. Slightly larger are compact models like the Honda Civic and Ford Focus. Mid-size sedans include the Honda Accord, Toyota Camry, Ford Taurus, and Chevrolet Lumina.

2-Door Coupes - Coupes are usually driven by single adults or childless couples. Many of them have a hatchback instead of a trunk, to allow large items to be carried for short distances. The rear seats are difficult to access, as the front doors must be used.

Station Wagons - An active family will want to look at minivans, sport utility vehicles, or station wagons. In the rest of the world, station wagons remain the first choice for active families. In North America, first minivans and now SUVs have grabbed most of the station wagon's customer base. I have to admit that many minivans now drive and handle much like the wagons they've replaced, but I don't understand the increasing popularity of large SUV's. They're twice as big as they need to be, but seat fewer people than a minivan; they get horrible gas mileage, and their truck-like ride and handling are rough. You'll pay substantially more to insure an SUV than a comparable automobile as a direct result of their poor handling.

Convertibles - Most convertibles are sports cars, meaning two seats, high-performance engines and superior handling. However, GM, Ford, Mitsubishi, and Chrysler offer a few "normal" convertibles,

Sports Cars - Sports cars were originally European two-seat roadsters designed for both daily travel and week-end racing hobbyists. A few 1950's manufacturers (notably Jaguar and Alfa-Romeo) put permanent tops on their roadsters, resulting in the sports coupe. The term sports-sedan is a more recent term to describe a four-door vehicle that handles like a sports coupe or roadster. Recently we've seen luxury cars advertised as luxury sports sedans. Porsche, selling traditional sports cars in this country since the 1950's, until recently had as its only competition the Chevrolet Corvette. 1990 marked the return of the affordable sportscar.

LIGHT TRUCKS: MINI VANS - SUVS - PICKUP TRUCKS - VANS

Mini-Vans - If you're constantly carting kids or cargo, a minivan may be your best choice. Most newer models offer an additional 4th door on the driver's side and offer comfortable seating for seven. Be aware of the different engines available. I highly recommend you elect to get the largest (3.5 & 3.8 liter) engine available in whatever minivan you decide upon.

Sport Utility Vehicles - I mentioned in the Station Wagon category how I regard SUVs. Although they're designed for off-road usage, 90% of them never leave the road, fortunately for our wildernesses. If a wagon isn't for you, the car-like SUV's ride and handle significantly better than the rest. They include the BMW X-5, the Lexus RX 300, and the Mercedes-Benz ML320, ML430, and AMG-tuned ML55.

SUVS COME IN THREE SIZES:

SMALL: Toyota RAV4, Kia Sportage, Honda CRV, Daewoo Korando, Chevrolet Tracker, and Suzuki Grand Vitara.

MEDIUM: Dodge Durango, BMW X5, Mercedes-Benz M-Class, Lexus RX300, Nissan Pathfinder, Nissan Xterra, Infiniti QX4, Ford Explorer, Ford Escape, Mercury Mountaineer, Jeep Cherokee, Jeep Grand Cherokee, Chevrolet Blazer, GMC Envoy, Oldsmobile Bravada, Honda Passport, Isuzu Rodeo, Isuzu Trooper, Isuzu Amigo, Toyota 4Runner, Land Rover Discovery, Land Rover Defender, Mitsubishi Montero, Mitsubishi Montero Sport, and Mazda Tribute.

LARGE: Toyota Land Cruiser, Lexus LX470, Toyota Sequoia, Lincoln Navigator, Ford Expedition, Ford Excursion, Land Rover Range Rover, Chevrolet Suburban, Chevrolet Tahoe, GMC Yukon, GMC Yukon XL, GMC Denali, and Cadillac Escalade

PICKUP TRUCKS - More new pickup trucks are sold in this country than any other type of vehicle. The smaller models now offer quad or crew-cab four-door versions, with seating for 5 adults. Full-size models offer extended cabs with smaller third and fourth doors giving access to the rear seats. Standard rear-wheel drive versions don't handle well on snow or ice without a substantial amount of weight in the rear of the truck. When equipped with towing packages with 8- or 10-cylinder engines, these rear-wheel drive vehicles can tow large boats and trailers. Full-size 2-wheel and 4-wheel drive pickups get about 15 miles per gallon.

VANS - If you transport large amounts of cargo or need room for more than seven adults, a full-size van is your only option. They're available with and without windows and in payload capacities of over one ton. Extended vans can seat up to 15 adult passengers. Towing packages with 8- or 10-cylinder engines will allow these rear-wheel-drive vehicles to tow large boats and trailers.

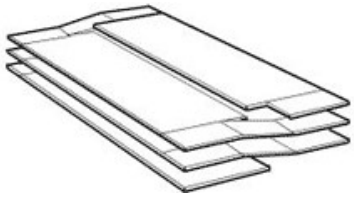
Car Park Layout

A number of different car park layout options are available which feature efficient use of space and allow pre-fabricated structural steel fabrication, for ease of construction.
As a specialist UK steel construction company we are able to offer expert advice to optimize multi storey car parking layout and design to

Spiral Car Park

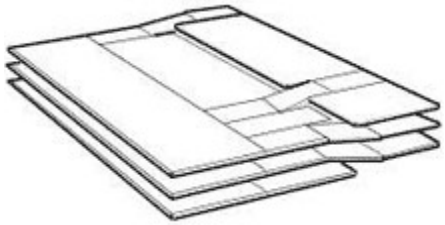
This is probably the most efficient car park layout. The spiral car park (parking lot) needs to be about 16m wide and needs to be a minimum of 57m long to work well. Users spiral up and down on the same ramps.

Split Level Car Park



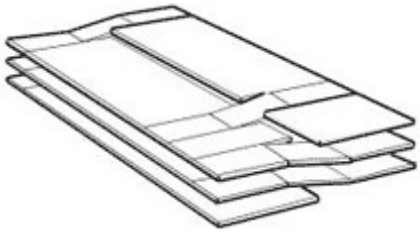
The split level car park (parking lot) is a highly efficient shape, especially suited to a site with a slope of 1.5m over the 32m width. The longer the better for efficiency, it will normally be 32m wide.

Wide Split Level Car Park



The bigger and wider a car park, the more efficient in terms of car parking bays per square metre. In this case further decks of 16m × 72m have been added to a split level car park system.

Split Level Car Park with Quick Return Ramp



In this variant of the split level car park there is another ramp added at the exit end to speed up exit. Drivers enter and go up by the long way, but go out the short way. On very large car parks (parking lots) more ramps can be added.

External Ramp

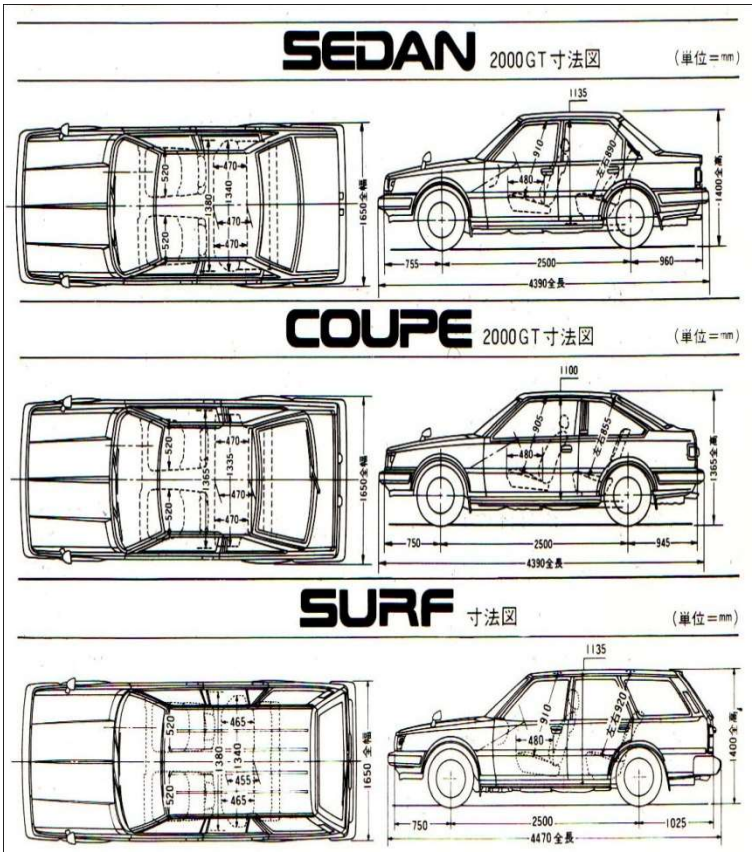
External ramps can spiral round at one or both ends; or along one side or both sides; or can wrap around 2 or more sides. External ramps can provide the easiest access and exit solutions, but are not the most efficient in cost per car or car per square metre.

LITERATURE STUDY

THE DATA ANALYZED TO FORM A FULL STATE MENT THE FOLLOWING INFORMATION CONTAIN THE BSTUDIES WHICH WOULD BE PRESENTED ACCORDING THE REQUIRMENT OF THE PROJECT.

CIRCULATION SPACES

THE MOST IMPORTANT PARAMETER TO DECIDE SUCCESS AND FAILURE OF ANY DESIGN SCHEME ARE CIRCULATION SPACES .THIS PROJECT BEING THAT OF AUTO MALL THE IMPORTANT OF THIS PARAMETER FURTHER ENCHACED AS HERE VEHICULAR MOVEMENT WOULD NOT JUST BE RESTRICTED TILL OUTSIDE THE BUILDING



EXTERNAL CIRCULATION

THE VEHICLES THAT WOULD CIRCULATION SPACES WOULD BE

- •CARS
- •SCOOTER AND BICYCLES
- •HEAVY VEHICLES FOR SERVICES .
- •FIRE FIGHT VEHICLE.

INDIAN CAR DIMENSIONS AND WEIGHT

Audi	A4	Sedan	4586	1772	1472	1430
Audi	A6	Sedan	4916	1855	1459	1615
Audi	New A8	Sedan	5137	1949	1460	1835
Audi	Q5	SUV	4629	1880	1653	2150
Audi	Q7 3.6 Fsi	SUV	5089	2177	1737	2235
Audi	Q7 (2008)	SUV	5086	2170	1737	2512
Audi	R8	Sedan	4429	1899	1249	1564
Audi	TT Coupe	Sedan	4178	1842	1352	1400
BMW	3 series	Sedan	4520	1817	1421	1390
BMW	5 series	Sedan	4841	1902	1483	1520
BMW	5 series Gran Turismo	Sedan	4998	1901	1559	1940
BMW	6 series	Sedan	4820	2036	1373	1640
BMW	7 series	Sedan	5212	1902	1483	2010
BMW	M3	Sedan	4615	1804	1418	1465
BMW	M5	Sedan	4855	1846	1469	1580
BMW	M6	Sedan	4871	1855	1372	2005
BMW	X3	SUV	4569	1853	1674	1825
BMW	X5	SUV	4667	1674	1872	2180
BMW	X6	SUV	4877	2195	1690	2150
BMW	X6 M	SUV	4877	2195	1690	2265
BMW	Z4	Sedan	4239	1951	1291	1480

Chevrolet	Aveo	Sedan	4310	1710	1505	1095
Chevrolet	Aveo - U-VA	Sedan	3880	1670	1495	1075
Chevrolet	Beat	Sedan	3640	1595	1520	965
Chevrolet	Captiva	SUV	4660	1870	1755	1820
Chevrolet	Cruze	Sedan	4597	1788	1477	1520
Chevrolet	Forester	Sedan	4450	1735	1590	1375
Chevrolet	Optra (AT)	Sedan	4500	1725	1445	1300
Chevrolet	Optra (LS)	Sedan	4500	1725	1445	1240
Chevrolet	Optra (LT)	Sedan	4500	1725	1445	1265
Chevrolet	Optra Magnum	Sedan	4540	1725	1445	1230
Chevrolet	Spark	Sedan	3495	1495	1518	855
Chevrolet	Spark LPG	Sedan	3495	1495	1518	840
Chevrolet	SRV	Sedan	4295	1725	1445	
Chevrolet	Tavera (10 Seater)	SUV	4435	1680	1765	1585
Chevrolet	Tavera (7,8 Seater)	SUV	4435	1680	1765	1640
Chevrolet	Tavera (8 Seater)	SUV	4435	1680	1765	1660
Chevrolet	Tavera (Diesel))	SUV	4435	1680	1765	1140
Chevrolet	Tavera Neo 2	SUV	4435	1680	1765	1585
Volkswagen	Jetta	Sedan	4554	1781	1459	1343
Volkswagen	Bettle	Sedan	4129	1721	1498	1345
Volkswagen	Phaeton	Sedan	5055	1903	1450	2252
Volkswagen	Touareg	SUV	4754	1928	1726	2312
Volkswagen	Passat	Sedan	4765	1820	1472	1454
Volkswagen	Polo	Sedan	3897	1650	1465	1075
Volkswagen	Tiguan	SUV	4427	1809	1683	1590

Honda	Accord (auto)	Sedan	4830	1820	1465	1450
Honda	Accord (manual)	Sedan	4830	1820	1465	1420
Honda	Accord V6	Sedan	4950	1845	1475	1620
Honda	Civic	Sedan	4545	1750	1450	1210
Honda	Civic Hybrid	Sedan	4545	1750	1450	1290
Honda	CR-V	Sedan	4555	1780	1710	1480
Honda	Jazz	Sedan	3900	1695	1535	1047
Honda	New City (Exi)	Sedan	4310	1690	1495	1040
Honda	New City (GXI (M/T))	Sedan	4310	1690	1495	1045
Honda	New City (GXI CVT)	Sedan	4310	1690	1495	1070
Honda	New Civic	Sedan	4545	1750	1450	1210
Honda	New CR-V	Sedan	4575	1820	1680	1475

Honda	Accord (auto)	Sedan	4830	1820	1465	1450
Honda	Accord (manual)	Sedan	4830	1820	1465	1420
Honda	Accord V6	Sedan	4950	1845	1475	1620
Honda	Civic	Sedan	4545	1750	1450	1210
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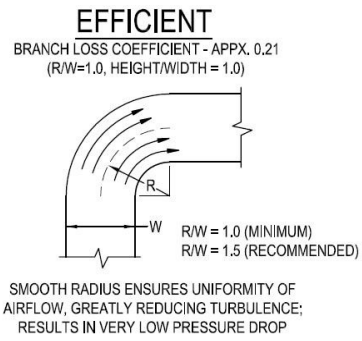
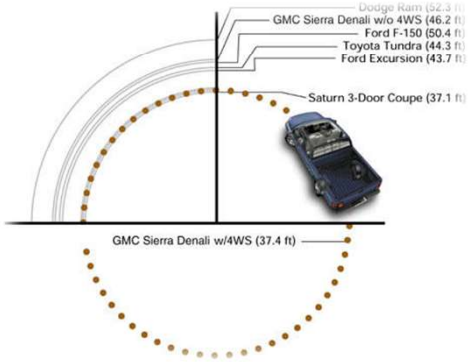
Honda	New CR-V	Sedan	4575	1820	1680	1475

Driveway Turn Radius

Turn radius refers to the extent that the edge of a commercial driveway is "rounded" to permit easier entry and exit by turning vehicles. Driveway entrances with longer turn radii help slower, turning traffic move off the arterial more quickly. They also help traffic leaving a driveway turn and enter the stream of traffic more efficiently. Guidelines for turn radii are generally applied to nonresidential developments and subdivisions.





Why is turning radius important

Driveway turn radius is important because it impacts *speed differential*, the difference between the speed of vehicles that are continuing along the main roadway versus those that are turning into or out of the driveway. Keeping the speed differential low is very important for safety reasons. Turning vehicles must slow appreciably to enter a driveway. Longer turn radii allow vehicles to turn into and out of driveways at a higher speed (see figure below). They also prevent turning vehicles from encroaching upon oncoming traffic or traffic in adjacent lanes.

A longer turn radius creates a more rounded corner. This allows the vehicle to enter and exit the driveway more quickly and without encroaching upon traffic in adjacent lanes.

When is turn radius most important?

Longer radii are most desirable in situations where vehicles are exiting from a higher speed roadway or when a high volume of driveway traffic is expected. In practice, sufficiently long turn radii can be achieved by designing the driveway to accommodate the largest vehicle expected to use the driveway. For example, designing a driveway to accommodate the unrestricted entry of the occasional delivery truck or bus ensures a higher entry speed for automobiles.

PARKING SYSTEM

A large variety of parking systems suitable for installation indoors, in basements, open floors or open spaces outside commercial buildings, residential buildings, shopping malls, and other public places can be supplied. Such multi-level automated car parking systems have been installed all around the world, especially in Europe, Korea, Japan and some other parts of South-East Asia.

There is an overwhelming need for these systems because of increasing traffic and non-availability of adequate parking spaces, especially in urban cities. The most unique feature of such systems is that they increase the parking space available on the ground by more than 30%, depending upon the kind of system installed and the contours of the space available.

Multi-level parking systems require careful planning and assessment of the space available, traffic flows, and the capacity utilization within that space.

These systems can be integrated within concrete (RCC) structures. The individual components are installed inside this structure for its operation.

Some of the advantages/benefits of these systems are:

Uses the most modern and latest technology, ensuring long life of such systems. A life span and functioning of all the mechanical parts can be guaranteed for over 20 years, if maintained properly by the user.

Reduced ground space requirement as compared to conventional parking systems.

Low parking and retrieval times – 90 seconds to 150 seconds per car depending on the configuration.

Reduced noise levels in such systems, when compared to conventional parking lots as car engines are not running while being parked in and out.

Minimal maintenance required.

Safe operation; safety devices conforming to the EU standards used.

Environment friendly, as car engines are not running while being parked in and out.

Reduced chances of fire hazard and no risk to human lives.

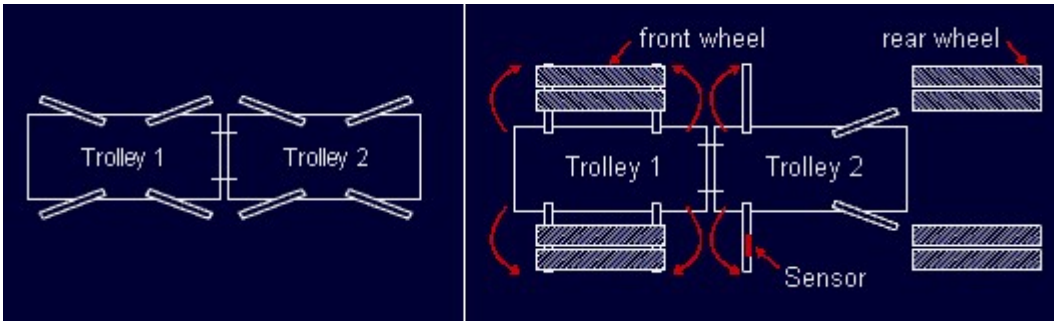
No danger of assaults, car break-ins and damages to personal belongings as there is no human presence inside the parking tower.

The whole structure can be customized as per customer's requirements and limitations. Each level inside the parking system can be varied as per the dimensions of various cars, as SUV's would need a much larger clear height than a normal sedan. These systems can be built for maximizing space and volume utilization.

Elevator (for Vertical movement of cars)
Shuttle (for Horizontal movement of cars)
Integral Lift Trolley, ILT (For transferring cars between the Shuttle and the concrete floor, or any other resting platform in the car parking bays)
Turntable (For turning the car up to 360 degrees to help the user in driving out through the exit door in forward direction

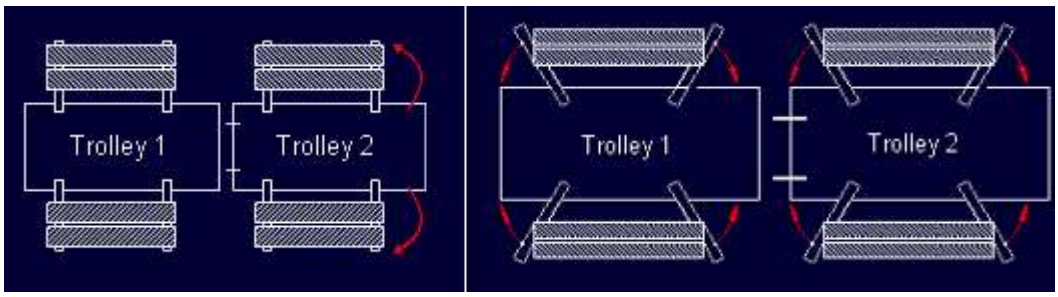
TECHNOLOGY

The Integral Lift System is a state-of-the-art technological innovation developed by M/s Interpark of Italy which combines the advantages of the different car handling systems presently available in the market. It allows depositing and retrieving a car directly on the concrete slab of the car slot similar to the push-pull systems, but simultaneously allowing the user to leave the hand brake and the gear engaged, as in the comb-type and pallet systems. All is needed is a recess in the concrete slab where the 2 transfer trolleys can slide.
The system is composed of 2 independent trolleys, each one being equipped with its traveling, hoisting and turning mechanisms. When no car is on board, the 2 trolleys are mechanically linked together while traveling and the wheel supports are closed.
In this configuration the trolleys slide underneath the car which must be picked up. When the position corresponding to the center of the front wheel axle is reached the trolleys stop, trolley N° 1 opens its wheel supports on both sides of the front tires and lifts them up. Simultaneously 2 wheel supports of trolley N° 2, equipped with a pressure sensor, are opened.



The lifting of the front wheels disengages the hooks which mechanically link the 2 trolleys and trolley N° 2 travels backwards until the sensor positioned on the already opened wheel supports touches the rear tire, provoking the stop of the trolley underneath the rear axle. The two remaining wheel supports are opened and the rear axle is lifted up. At this stage the car is completely lifted up from the parking floor slab and the trolleys travel back on the mechanism assuring the vertical or horizontal movement.

Once the 2 trolleys with the car on board have reached their final destination, both the car axles are lowered simultaneously, the 4 couples of wheel supports are closed, the 2 trolleys are mechanically linked again and they are ready for the next operation.
The time for a pick-up or depositing operation is less than 35 sec.

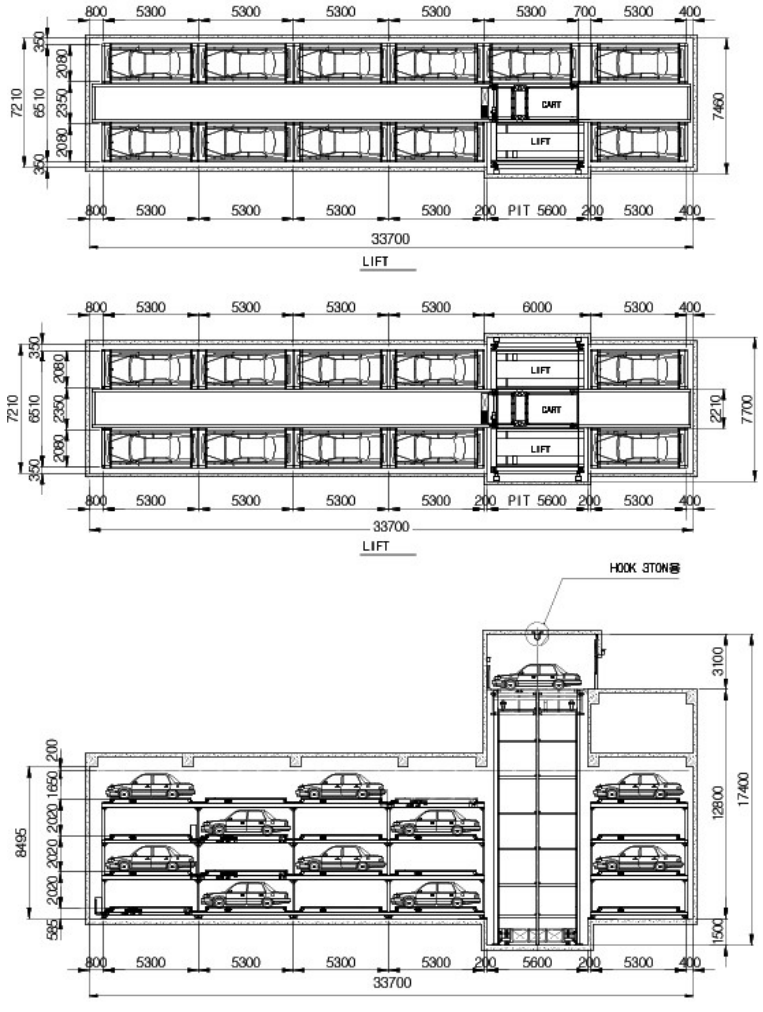


TOWER PARKING

Has the capability of holding cue memory when multiple patrons come to retrieve there vehicles during rush hours.

The elevator type often called the Parking Tower, is designed to automatically move the vehicles on a pallet vertically on the elevator, it then transfers it horizontally left or right for storage. Very fast retrieval time is accomplished in less than two minutes. This system is suitable for medium or large scale buildings. It can also be used as a stand alone tower for a parking garage business. Since it is controlled by an integrated computer system, the overall operation can be viewed with on

Number of vehicles to be accommodating	16 ~ 60 vehicles	
Acceptable automobiles	5,100L ¡¿1,850W ¡¿ 1,600H, 1,850kg	
Elevating	MOTOR	22 ~ 30 kw
	SPEED	60 ~ 120 m/min
Horizontal-moving	MOTOR	1.5 kw
	SPEED	28 m/min
Rotation	MOTOR	2.2 kw
	SPEED	3.5 rpm



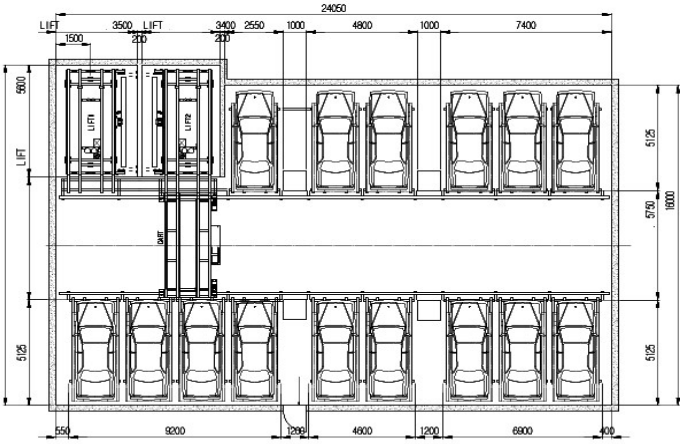
CAR LIFT

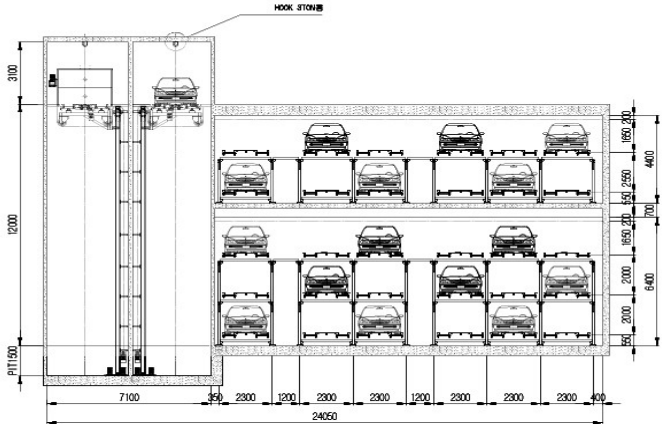
Car lift is mechanical hydraulics system .that required as per of need in desire system concerned

MULTI PARKING

The Multi-Parking system has been designed to automatically move the vehicles by lift which then transfers it to a waiting cart on one of the multi- levels. The carts then travel horizontally and place the vehicle in its appropriate slot. This system is suitable for middle and large-scale buildings as well as independent public parking garage. The multi-parker can accommodate as little as 20 vehicles to several thousand units. It is therefore suitable for large scale projects. It can move more than 2 vehicles at the same time for maximum efficiency.

Number of vehicles that can be accommodated		From min. 20 vehicles through unlimited numbers (max. 70 vehicles per each lifter)
Types of parking devices and its methods		Multi floor cart parking system (PALLET TYPE)
Specifications of acceptable automobiles	Overall length	5100 mm
	Overall width	1850 mm
	Overall height	1600 mm
	Weight	1850 kg

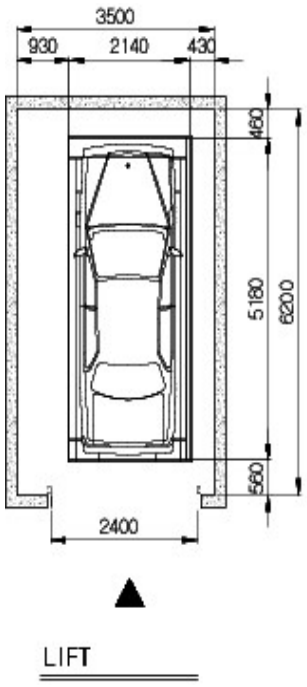


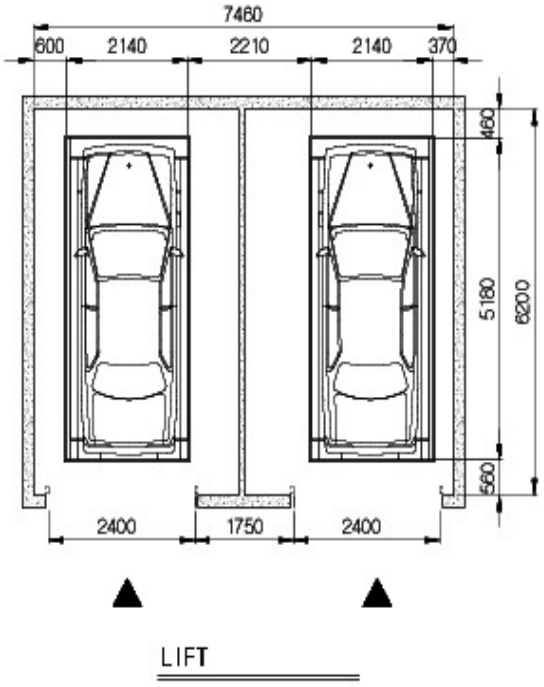


SQUARE PARKING

With our upper entrance design, it is convenient because the built-in turntable allows for easy entry and exit.

After entering the vehicle in the parking garage, the parking system is designed to move the vehicles vertically with elevators on each end. The garage consists of several levels where the vehicles are moved horizontally which rotate the pallets in conjunction with the elevators.. The multi floor circulation type is suitable for small and mid-sized buildings because of its high space efficiency.





AUTO MALL AUTOPIA

INTRODUCTION

Fortunately for residents of Istanbul, Turkey, they won't have to worry about that for too much longer, as the world's biggest auto mall – called **Autopia Europia** – is now under construction in their continent-bridging hometown. The massive **708,661 sq. ft.** edifice will feature 200 separate showrooms for more than 400 brands (Are there even that many in the whole world?), 48 service bays, 42 insurance offices and 24 bank branches, all indoors and accessible by car, making car buying a truly one-stop-shopping experience

Autopia and Numbers

With 216,000 m2, it is the world's biggest auto-mall.
5 stories - two of which are underground.
Each level is 30,000 m2.
Each floor is 6m in height.
1st-hand and 2nd-hand autos are sold together.
56 food & drink shops, cafés & restaurants.
48 private car service stations.
24 banks.
ATM's at 12 points.
42 insurance companies.
74 trading companies.
Car park with a 900 car capacity.
6 Million visitors a year are expected.
7 kms of walkable space.
One can reach every location with his car.
There is a test drive track on the roof.
200 auto-galleries , 443 brands and 2526 types of cars are waiting for its customers.
245 auctions are conducted on a daily basis.

About Autopia: Autopia which is planned to be opened in the end of the year 2011, has an area of 117.000 square meters that is sellable and rentable and with its 470 stores with a 150 million dollars investment is aiming 6 million visitors. It is being constructed in an area of three stadiums wide. The ceilings of Autopia showrooms are 7 meters high. The building built by accounting the minimum cost and maximum income and that will be covered by temperature sensitive glass and whose front sides will take a softened image alike to scroll is 375 meters length and 125 meters wide.

LOCATION

MALL IS SITUATED IN ISTANBUL
NEAR BAUHAS AND TEM
HIGHWAY

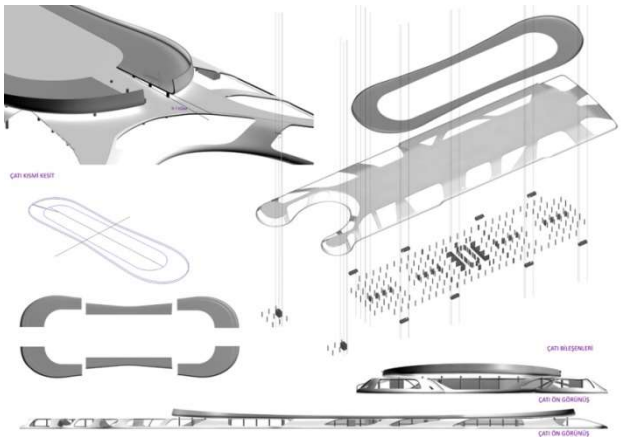
CONCEPT

MALL IS SITUATED IN ISTANBUL NEAR BAUHAS AND TEM
HIGHWAY

CONCEPT OF DESIGN CONTAIN ALL OF REQUIRMENT WITH GREAT OF MIND
AND HAVING CONCEPT CIRCUIT ON TOP OF BUILDING
THAT HAVING TEST DRIVE ON THERE WAY
AND ALL BEAUTYFULL THEAM THAT IS SENSATION TOWARD THE GOOD ARCHITECTURE AND SLF A GREAT LANDMARK.

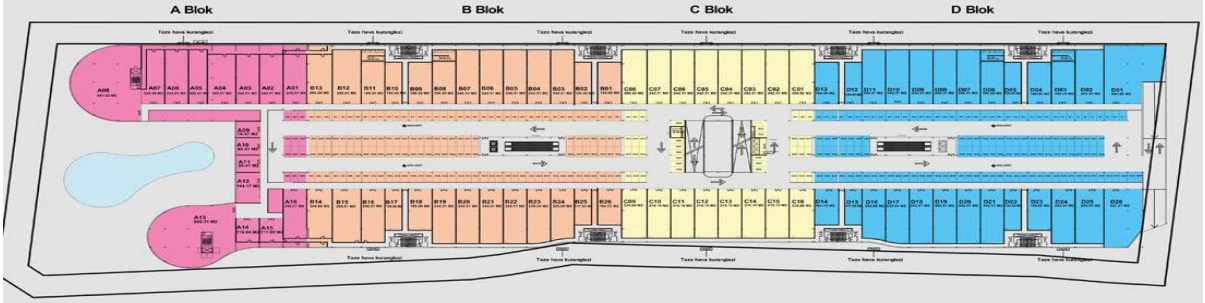
ARCHITECTURE FEATURE

PLOT SIZE 46761 M SQUARE
BUILT AREA 170651 M SQUARE



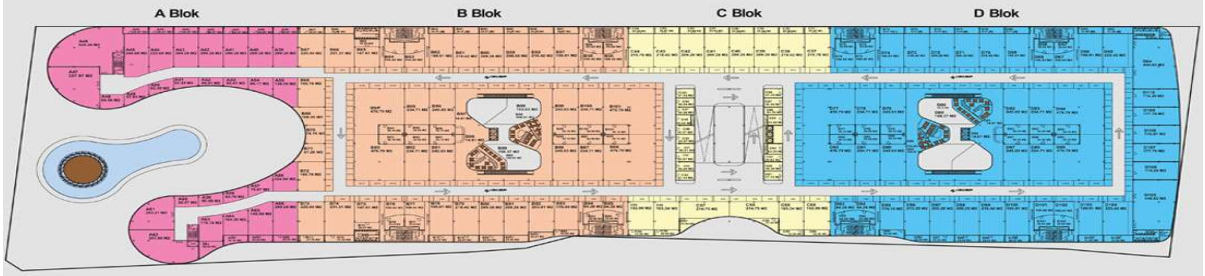
FLOOR PLAN

- A BLOCK
- BBLOCK
- C BLOCK
- D BLOCK



SERVICE FLOOR PLAN

GROUND FLOOR PLAN



FIRST AND SECOND FLOOR PLAN

ARCHITECTURE FEATURE

The sales Office of Autopia has been designed, to get an idea about sales offices to buy from Autopia. The height of 6.00 m. of the sales office, is the same as the height of the office to buy. In this high and spacious area, the mezzanine can be used as VIP and meeting room or you can arrange the 6.00 m. height for illumination and different needs.

48 STATIONS SERVICES
PROVIDE IN MALL

08,661-square-foot building will have room for 200 car galleries, displaying 2526 different kinds of vehicles

24 banks will be standing by to help customers pay for that dream machine, and 56 bars, restaurants and cafes

SERVICES

Electrical system:

•ElectricityisprovidedthroughHTlinewhichisrunningalongthesite.
•EachblockisprovidedwithseparateDGroom.TheDGroomceiling&wallshavebeencladdedwithacousticinsulationtoabsorbthenoise.CatalysticconvertorsareinstalledineachDGsettocheck&controlthepollution.EarthingforDGsets&allothersystemsaredoneinthelandscapedarea&maintainedonregularbasis.

•TheDGroomoftowerA&Bhassamespecifications.EachconsistsofaDGsetswithcapacity1250KVA,100KVA&320KVA.Italsoconsistsofdieseltankwithacapacityof30,000,whichservesthreeseparatedieseltankswithacapacityof1000.

•The DG room of tower C consists of 5 DG sets, two with capacity 250 KVA each three with a capacity of 100 KVA each.

•The DG room of tower D consists of four DG sets one with capacity 1250 KVA, two with 100 KVA & one with 500 KVA.
•Transformer rooms for all towers are centrally located serving both phases.

•LTpanelsarealsoprovidedinDGsetroom

DG ROOM OR GENERATOR ROOM –

Should be in the area where the noise coming from dg room does not effect the working of

PUMP ROOM AND WATER SUPPLY:

Pump rooms are located in the lower basements & all underground water tanks are around these two pump rooms.

•Watersupplypumpsarealsoinstalledtoliftthewateruptooverheadtanks..
•Thehydrantpumpisprovidedwithacapacityof75HP,sprinklerspumpof75HP&jockeypump of18.5HPinthepumproomwhichservestowersA&B.thepumproomoftowerC&Dconsistsofh ydrantpumpof120HP,sprinklerpumpof120HP.
•Thebuildingisprovidedwithwaterfromthetubewells.

•Thereisauseofhydrantpneumaticsystemwhichentersproperdistributionofwaterateveryleve l.
•Thebasementisdrainedwiththehelpofsubmersiblepumpsthenetworkofdrainsprovidedinbo ththebasementsensurethatthewateriscollected&fedtothepumps.
•Thepumpingoutwateriscompletelyautomatic.
The fire system consists of fire hydrants, automatic sprinkler system, fire alarm system & smoke detection system.

FIRE SYSTEMS:

Thefiresystemconsistsoffirehydrants,automaticsprinklersystem,firealarmsystem&smoked etectionsystem.
•Fireescapestaircasedistributedthroughoutthebasementtomaintainthemaximumtravellingt wowaydistanceof42M.
•Theentirecomplexiscoveredwithfirehydrantsystem.

•Hydrantsruninredcolorspipesconcealedonofficefloorbutvisibleinbasement.

•4staircasesfromtheupperfloorstothegroundfloorand6staircasesfromthebasementtothegro undfloor.
•Automaticsprinklersystemisprovidedwith15mmconventionalsprinklersconnectedwithjoc keypump&hydrantpumps.Forthispurposeanundergroundtankof3,00,000&overheadtankwi thacapacityof50,000areprovided.
•Landingvalves,hosereel,hosecabinets&firebrigadeconnectionshavebeenprovided.Ionizat ionsmokedetectorsarealsoinstalled

HVAC SYSTEM:

Ionizationsmokedetectorsarealsoinstalled.
AHU ROOM
HVAC SYSTEM:
•The AC plant room for all the tower is on the first basement having three plant, two of 120 tonnes and third of 150 tonnes for tower A and B and one plant of 150 tonnes and two plants of 225 tonnes for tower C and D. The plant supplies the chilled water to the AHU‟s on each floor.

•Thereare22AHU'sinTowerAandB.TowerCandDhas18AHU'sand32respectively.Ther efrigentusedtocoolthewaterisR-22refrigent.
•Thecoolingtowerforplantsisonterracewhileforthirdisoutsidethebuilding.
•AHUlocatedoneachfloorforTenant'sdistributionsystem.AHUroom:25TRcapacity,3m x4minsize,12000mmwidedooropening.
•Thecoolingcycleisasfollows:

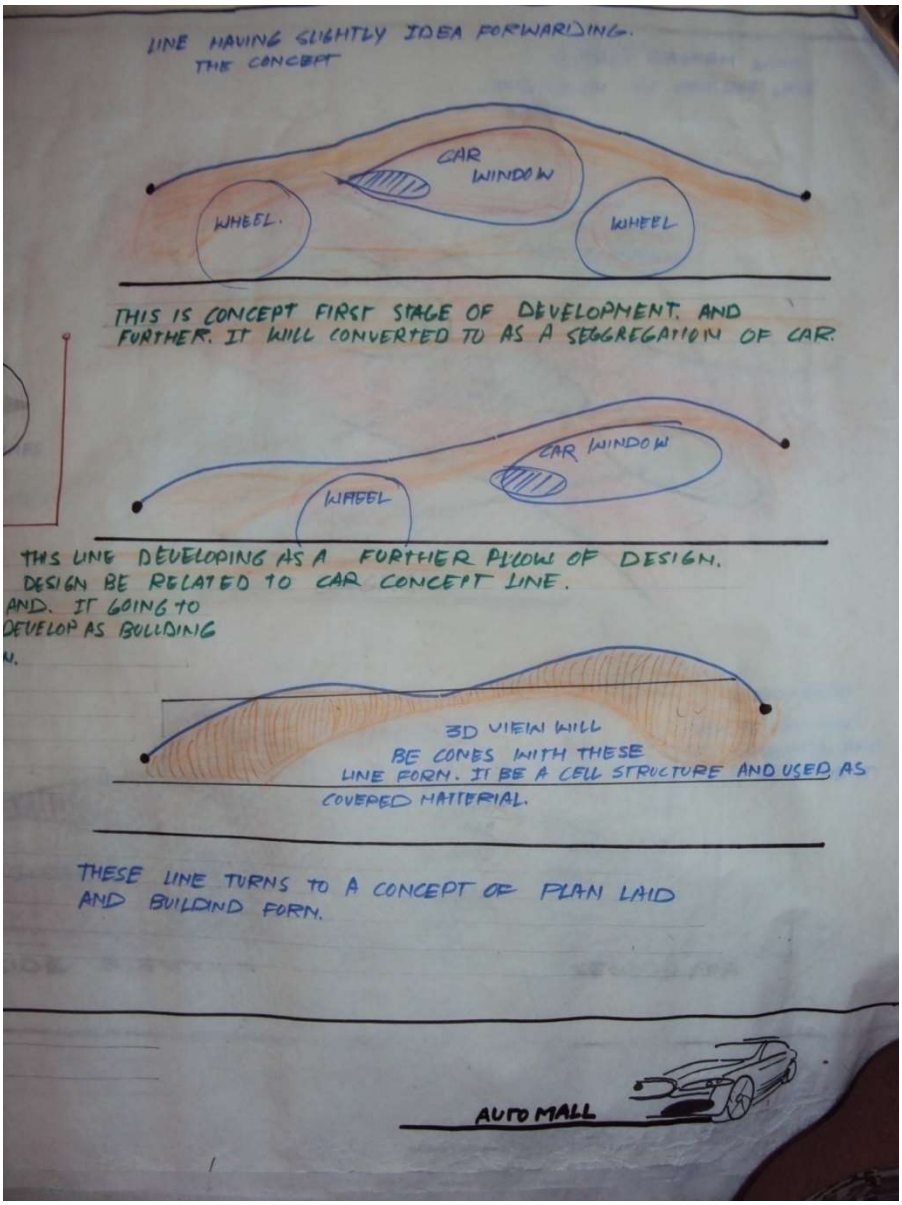
CoolingtowerACPlantChillersA.H.UOutlet
Thesearefordistributingconditionedairfromtheacplanttoeachfloor
andfilteringthereturnair.
THUMBRULE:-
1AHUof10sqmtscatersto500sqmtsofarea
totalareaofacspaceinthetowers–1300sqmts/floor
so,weneed3acroom.
provided4-5AHUroomsperfloorsinallfourdirection.

BUILDING MANAGEMENT SYSTEM:

•It includes monitoring and controlling of AHU's, D.G. sets, A.C. plants. etc.
•It also includes maintaining and calculating temperature in A.H.U. rooms, regulating the power supply according to the load .etc.
•The movement inside the tower is monitored by four C.C.T.V's, each placed at the entrance of the towers from the basement.

THE CONCEPT

CONCEPT OF MY DESIGN IS BASED ON AERODYNAMICS MOTION



DETAILEDAREA STATEMENT

A.SITE DETAILS:

1.Area of site – 64800 sqm
3. Permissible FAR –2

5.Permissible ground coverage –40% Achieved ground coverage –28.3%
6. Setbacks :Front side 25mt
5.SIDE 12M

FINAL AREAS OF PROJECT:

SPACE	NO	AREA	TOTAL
ENTRANCE FOIER WITH DIGITAL DISPLAY	1	1500	1500
ATM	3	25	75
ATRIUM	1	1660	1660

ADMINISTARATION

SPACE	NO	AREA	TOTAL
MANAGER	2	25	50
ASST MANG.	4	20	80
TOILET	4	3	12
SUPERVISOR	4	15	60

BLOCK B
TYPE A

FINAL AREAS OF SHOWROOM

SPACE	NO	AREA	TOTAL
STORE	1	14	14
RECORD	1	10	10
INSURANCE	2	20	40
PAYEMENT	1	24	24
PANTRY FOR WORKOR	1	15	15
REST ROOM	1	27	27
ACCESSORY ROOM	1	24	24
DISPATCH	1	18	18
DISSCISSION	1	30	30
ASST MANG	2	15	30
GEN.MNG.	1	20	20
WAITING ROOM AND RECEPTION	1	52	52
TOILET SHE	1	20	20

SPACE	NO	AREA	TOTAL
TOILET HE	1	16	16
CAR COMPLETE DISPLAY	1	62	62
WASHING PANTRY	1	8	8
PANTRY 2	1	12	12
STOCK YARD	1	340	340
CAR MANTINANCE AREA	1	228	228
MEZNINE AREA FOR WORKING AND DISSCUTION	1	432	432
TOTAL	-	-	1406
CIRRCULATION AREA AND DISPLAY	-	-	1203
TOTAL SHOWROOM AREA	-	-	2698

BLOCK B

TYPE B

FINAL AREAS OF SHOWROOM

SPACE	NO	AREA	TOTAL
STORE	1	14	14
RECORD	1	10	10
INSURANCE	2	20	40
PAYEMENT	1	24	24
PANTRY FOR WORKOR	1	15	15
REST ROOM	1	27	27
ACCESSORY ROOM	1	24	24
DISPATCH	1	18	18
DISSCISSION	1	30	30
ASST MANG	2	15	30
GEN.MNG.	1	20	20
WAITING ROOM AND RECEPTION	1	52	52
TOILET SHE	1	20	20

SPACE	NO	AREA	TOTAL
TOILET HE	1	16	16
CAR COMPLETE DISPLAY	1	62	62
WASHING PANTRY	1	8	8
PANTRY 2	1	12	12
STOCK YARD	1	340	340
CAR MANTINANCE AREA	1	284	284
MEZNINE AREA FOR WORKING AND DISSCUTION	1	432	432
TOTAL	-	-	1440
CIRRCULATION AREA AND DISPLAY	-	-	1131
TOTAL SHOWROOM AREA	-	-	2571

BLOCK B

TYPE C

FINAL AREAS OF SHOWROOM

SPACE	NO	AREA	TOTAL
RECEPTION AND WAITING	1	66	66
ASST MANG	1	14	14
GM	1	14	14
INSURANCE	2	23	46
TOILET SHE	1	16	16
TOILET	1	16	16
DISSCUSION	3	12	36
SERVICE MANTINANCE	1	`122	122
ELECTRICAL ROOM	1	12	12
STORE	1	17	17
CHECK	1	18	18
DEPARTURE	1	30	30
LIFT ROOM	1	20	20

SPACE	NO	AREA	TOTAL
ACCESSORY ROOM	1	38	38
REST ROOM	1	40	40
TOTAL	-	-	530
DISPLAY AND CIRRCULATION	-	-	1179
TOTAL SHOWROOM ARAE	-	-	1709

BLOCK A GROUND FLOOR

PRE OWNED

AREA OF EXABITION

SPACE	NO	AREA	TOTAL
WAITING	2	105	210
ASST MANG	2	17	34
FINANCE	2	25	50
GEN MANAGER	2	25	50
TOILET HE	1	35	35
TOILET SHE	1	35	35
PANTRY 15	1	25	25
ELECTRIC	1	8	8
LIFT	2	33	66
RSET ROOM	1	75	50
STORE	1	30	30
CLARK	5	5	25
PAYMENT	8	10	80
DISPLAY AND CIRCULATION AREA	-	-	5965
LIFT AREA	2	30	60
RECORD ROOM	1	45	45
TOTAL ARAEA	-	-	6737

BLOCK A FIRST FLOOR

PRE OWNED

AREA OF EXABITION

SPACE	NO	AREA	TOTAL
WAITING	2	105	210
ASST MANG	2	17	34
FINANCE	2	25	50
GEN MANAGER	2	25	50
TOILET HE	1	35	35
TOILET SHE	1	35	35
PANTRY 15	1	25	25
ELECTRIC	1	8	8
LIFT	2	33	66
RSET ROOM	1	75	50
STORE	1	30	30
CLARK	5	5	25
PAYMENT	8	10	80
DISPLAY AND CIRCULATION AREA	-	-	6545
LIFT AREA	2	30	60
RECORD ROOM	1	45	45
TOTAL AREA	-	-	6928

BLOCK A SECOND FLOOR

PRE OWNED

AREA OF EXABITION

SPACE	NO	AREA	TOTAL
WAITING	2	105	210
ASST MANG	2	17	34
FINANCE	2	25	50
GEN MANAGER	2	25	50
TOILET HE	1	35	35
TOILET SHE	1	35	35
PANTRY 15	1	25	25
ELECTRIC	1	8	8
LIFT	2	33	66
RSET ROOM	1	75	50
STORE	1	30	30
CLARK	5	5	25
PAYMENT	8	10	80
DISPLAY AND CIRCULATION AREA	-	-	7100
LIFT AREA	2	30	60
RECORD ROOM	1	45	45
TOTAL AREA	-	-	7483

BLOCK A THIRD FLOOR

OFFICES

SPACE	NO	AREA	TOTAL
OFFICES	11	-	2651

BLOCK A THIRD MEZZANINE

OFFICES

SPACE	NO	AREA	TOTAL
OFFICES	12	-	2415

BLOCK A THIRD FLOOR

FOUD COURT

SPACE	NO	AREA	TOTAL
FOOD COURT AND GAMING ZONE	-	-	1083
OFFICES	4	-	588

BLOCK A THIRD MEZZANINE

FOOD COURT AND OFFICES AND GAMING ZONE

SPACE	NO	AREA	TOTAL
OFFICES	-	-	448

AREA STATEMENT

TOTAL PLOT AREA = 137204SQMT.

PERM. GROUND COVERAGE = 40%

F.A.R= 2 = 129600SQMT.

PROPOSED

COVERED AREA ON GROUND FLOOR = 41849SQMT.

COVERD AREA ON FIRST FLOOR = 41800SQMT.

COVERD AREA ON SECOND FLOOR = 41800 SQMT.

COVERD AREA ON THIRD FLOOR = 21400SQMT

COVERD AREA ON FOURTH FLOOR =8950 SQMT.

TOTAL COVERD AREA - 155985 SQMT.

NOS. OF CAR PROVIDED IN PARKING

NOS. OF CARS IN 1ST BASEMENT = 1000 CARS.

NOS. OF CARS IN 2ND BASEMENT = 1000 CARS.

TOTAL CARS IN BASEMENTS = 1000 CARS

NOS. OF PARKING REQUIRED = 3000 CARS

Common name:GulmoharBotanical name:Delonix regia
Family: Fabaceae

•its ornamental value
•it is also a useful shade tree in tropical conditions, because it usually grows to a modest height but spreads widely, and its dense foliage provides full shade.
•In areas with a marked dry season, it sheds its leaves during the drought, but in other areas it is virtually evergreen.

Common name:Blackboard tree, Indaiandevil tree
Botanical name:Alstoniascholaris
Family: Apocynaceae

•Alstoniascholarisisasmalltreethatgrowsupto40mtallandisglabrous.Thebarkisgreyish;branchletsarecopiouslylenticellate.
•Theuppersideoftheleavesareglossy,whiletheundersideisgreyish.
•Leavesoccurinwhorlsof3-10;petiolesare1-3cm;theleatheryleavesarenarrowlyobovatetoverynarrowlyspathulate,basecuneate,apexusuallyrounded;lateralveinsoccurin25-50pairs,at80-90°tomidvein.Cymesaredenseandpubescent;peduncleis4-7cmlong.Pedicelsareusuallyaslongasorshorterthancalyx.
•SeedsofA.scholarisareoblong,withciliatedmargins,andendswithtuftsofhairs1.5-2cmThebarkisalmostodourlessandverybitter,withabundantbitterandmilkysap.

BLACK BAMBOO

Phyllostachysnigra,orBlackBamboo,isagiantgrasscharacterizedbylargewoodystemsthatisnativetoSouthernChina.Plantsspreadbyveryvigorousrhizomesanditisconsideredarunningformofbamboo.Innature,plantswillreach25feet(>7.6m)tallandthestematmaturitywillreach2inches(5cm)indiameter.Clumpscanbecomeverylargeifleftuncontrolled.Incontainers,itmakeanoutstandinglookingplant,butduetothevigorousgrowththeywilloutgrowmostcontainersinacoupleofyears.Ihaveseenthisplantbreakceramicpotswiththeirrhizomes.Inthelandscape,theymakegreathedgeplant,butbecarefulaboutcontrollingtheirroots.Itishardyinthelandscapein USDA zones 8-10.

•CYCUS REVOLUTA

Cycasrevoluta(sagocycad),isanattractiveplantnativetosouthernJapan.Thoughoftenknownbythecommonnameofkingsagopalm,orjustsagopalm,itisnotapalmatall,butacycad.
Thisverysymmetricalplantsupportsacrownofshiny,darkgreenleavesonathickshaggytrunkthatistypicallyabout20cm(7.9in)indiameter,sometimeswider.Theleavesareadeepsemiglossygreenandabout50–150cm(20–59in)longwhentheplantsareofareproductiveage.Theygrowoutintoafeather-likerosetteto1m(3.3ft)indiameter.Thecrowded,stiff,narrowleafletsare8–18cm(3.1–7.1in)longandhavestronglyrecurvedorrevoluteedges.Thebasalleafletsbecomemorelikespines.Thepetioleorstemsof theSagoCycadare6–10cm(2.4–3.9in)

WATER BODIES:

Water bodies are so very important as it not only has the aesthetic value but as has its functional value. The water bodies generate a micro-climate around its and create a cool space. placed along the wind direction to generate an ambiguous environment. it decrease the temperature by about 5 c

.AESTHETIC FACTORS-

- Auditory
- Psychological
- Sensory effects
- Visual

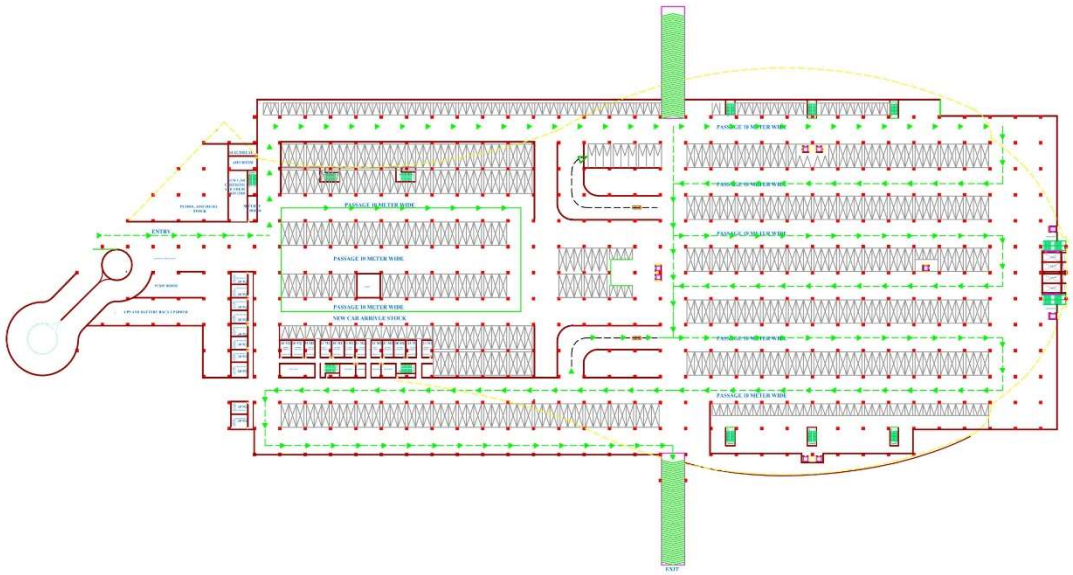
FUNCTIONAL FACTORS-

- Recreational
- Circulation control
- Utilitarian

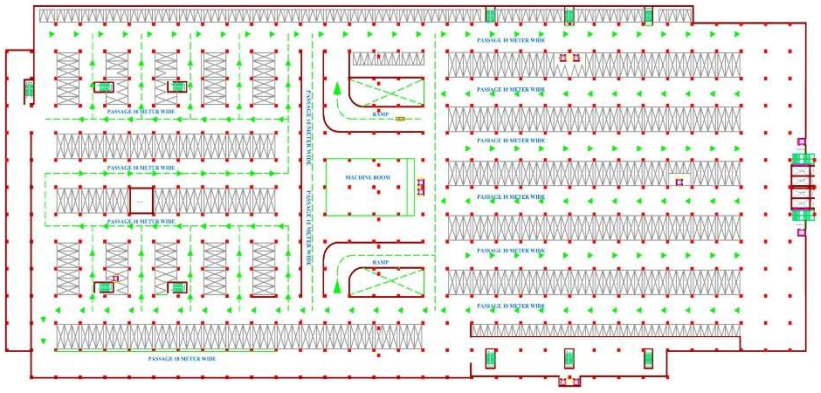
GREEN PAVERS:

THESIS PROJECT

AUTO MALL

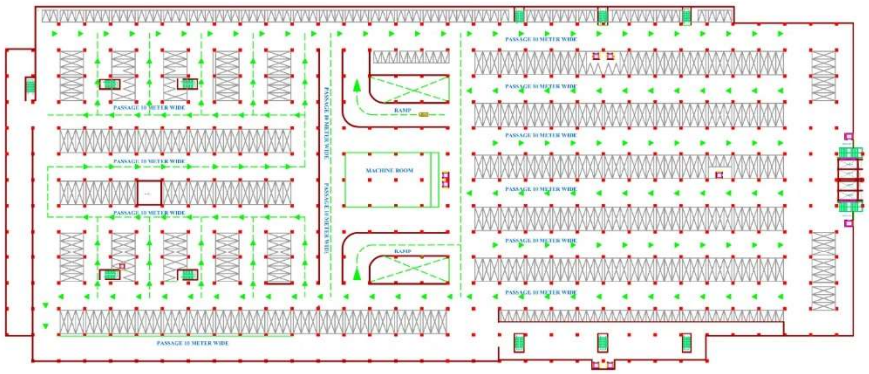


UPPER BASEMANT



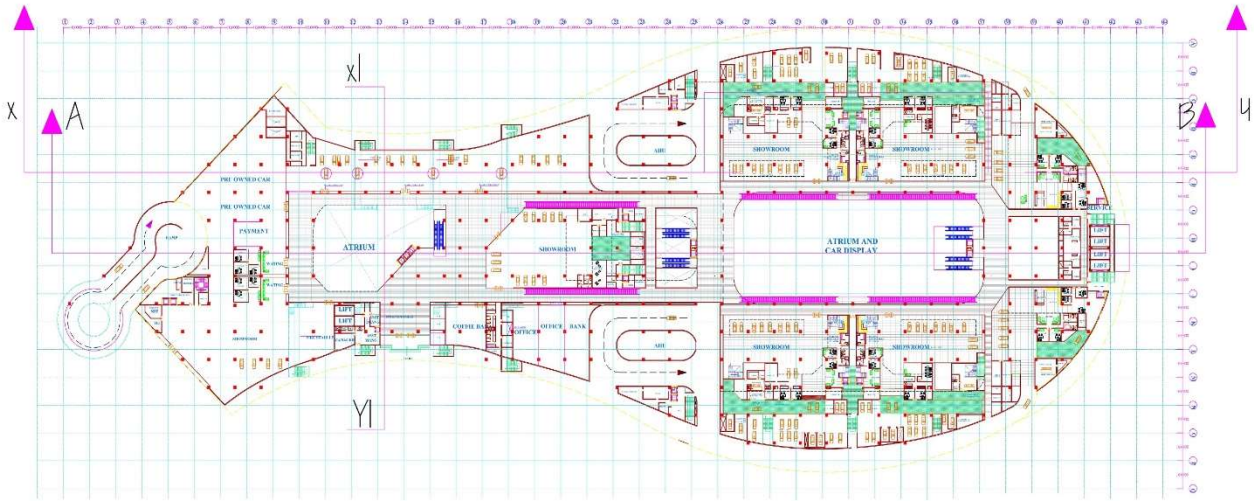
FIRST LOWER BASEMENT PLAN

UPPER BASEMANT

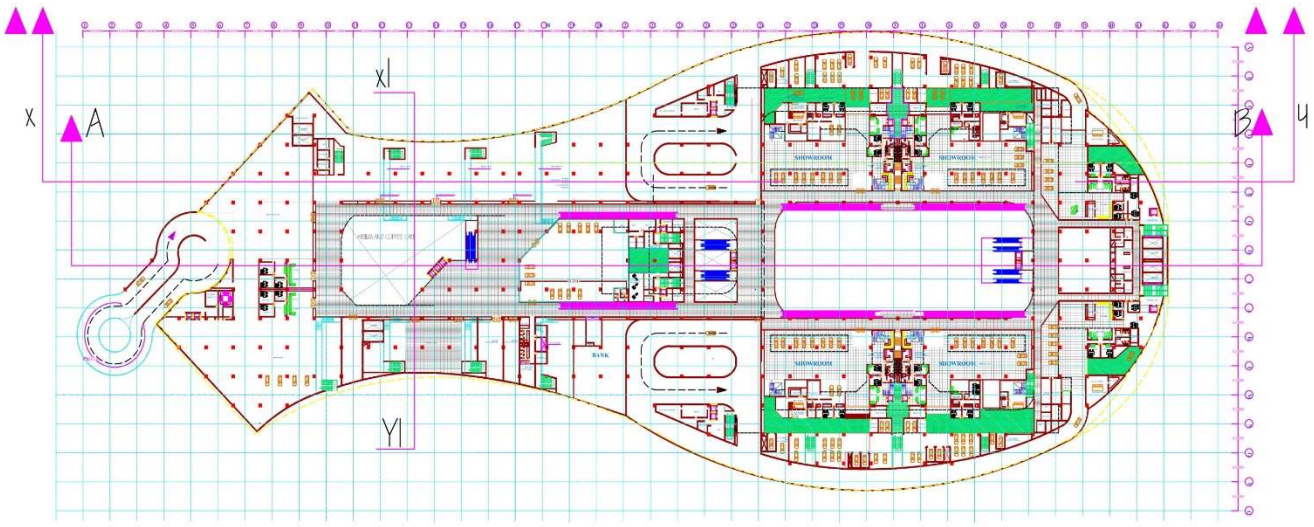


SECOND LOWER BASEMENT PLAN

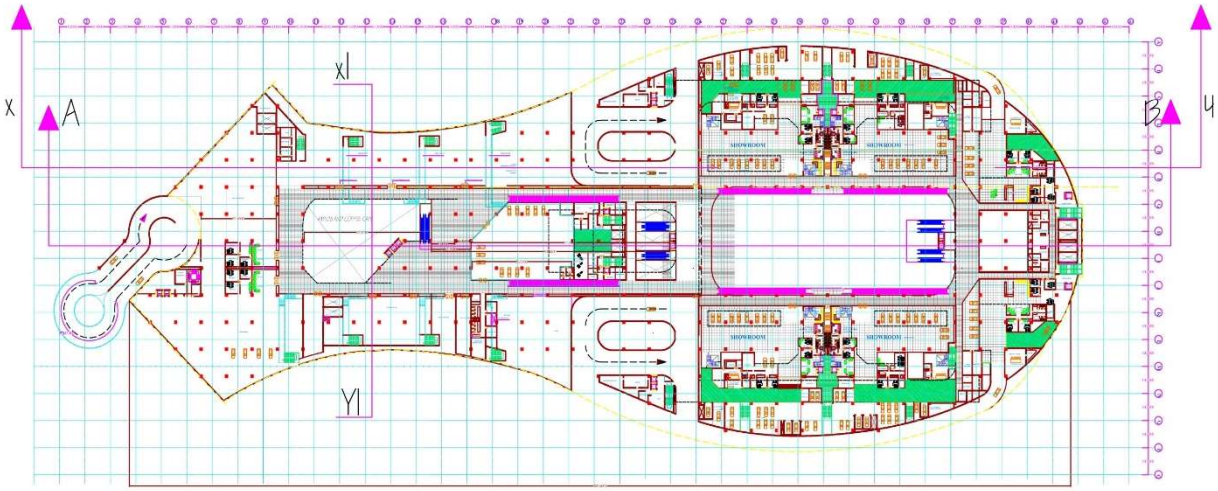
UPPER BASEMANT



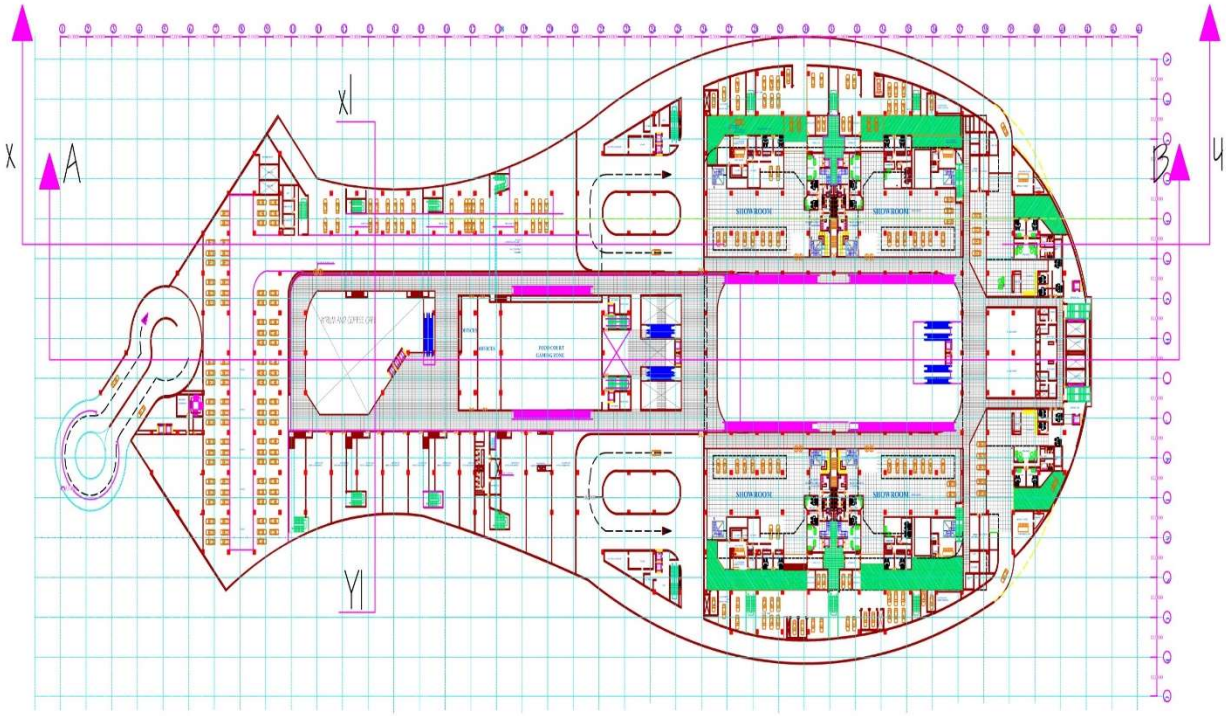
GROUND FLOOR PLAN



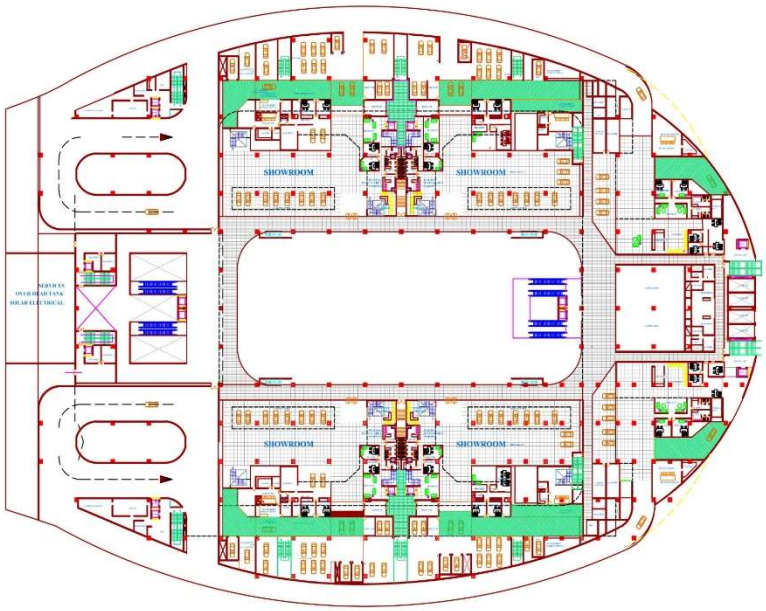
FIRST FLOOR PLAN



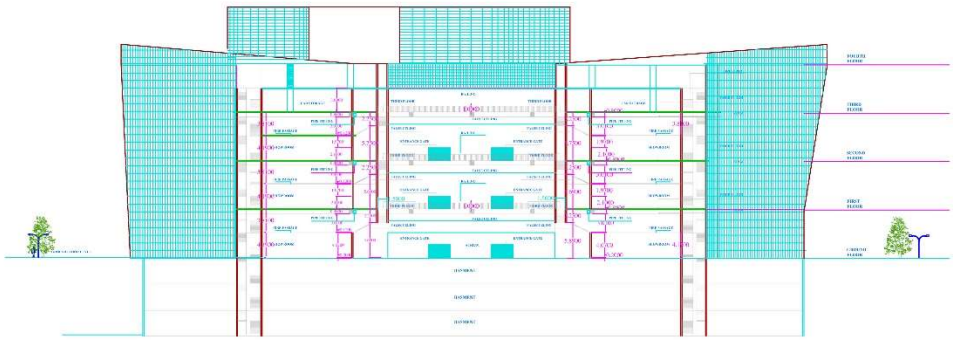
SECOND FLOOR PLAN



THIRD FLOOR PLAN



FOURTH FLOOR



SECTION xl yl

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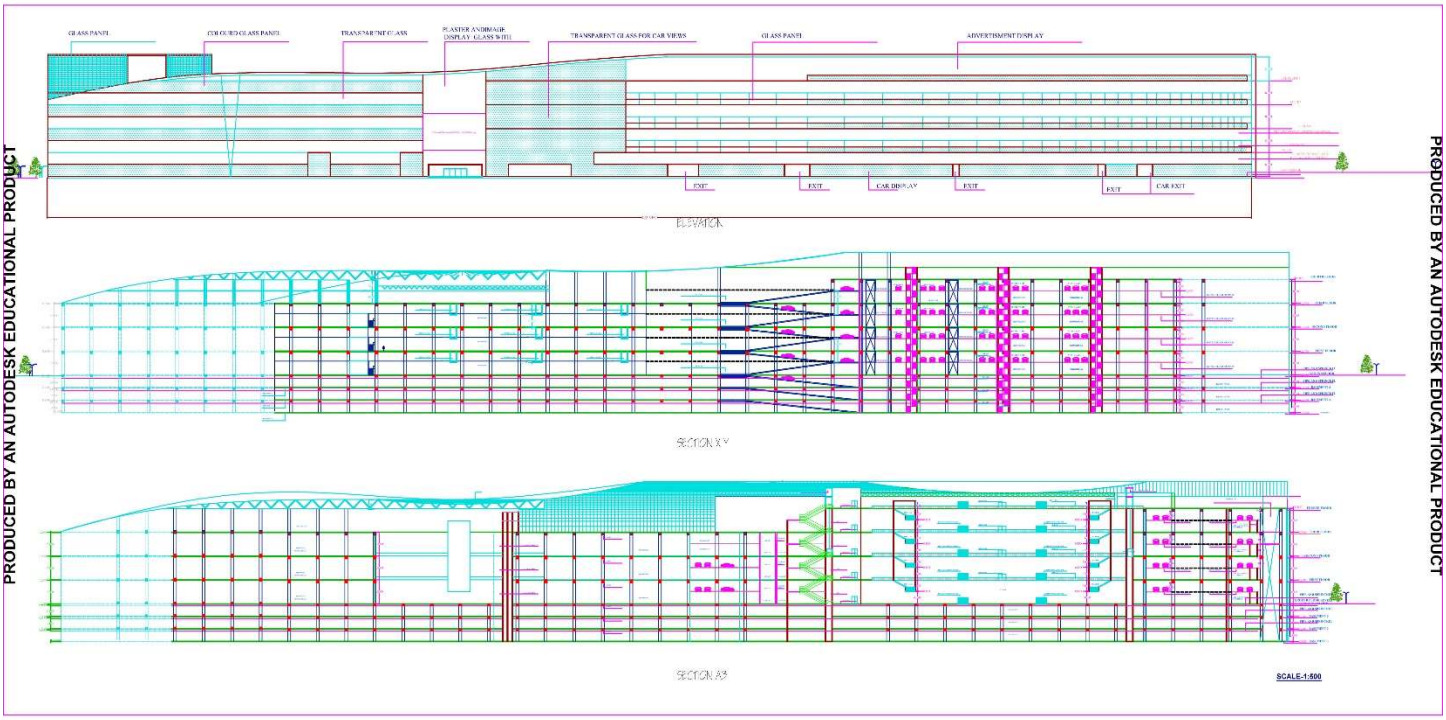

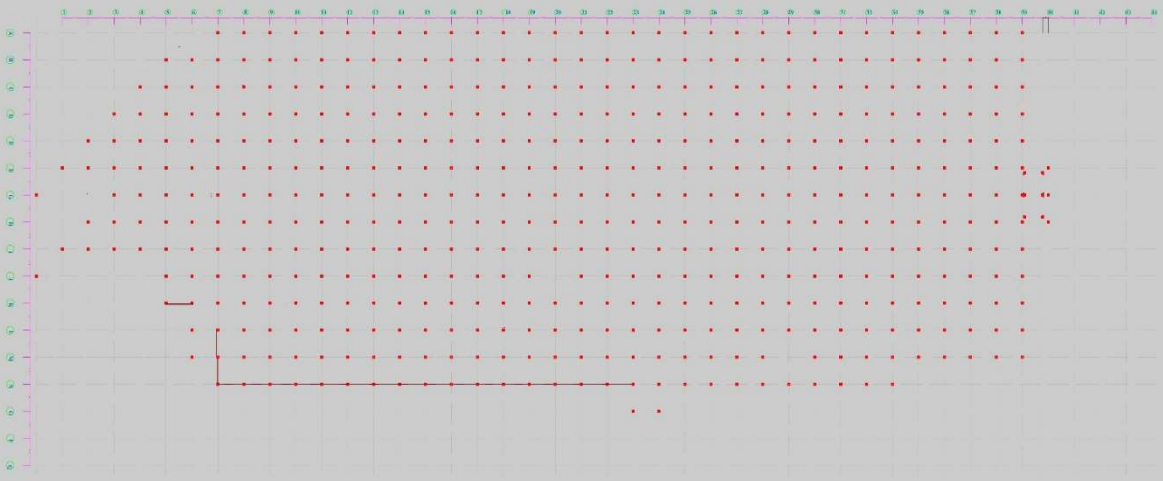

Center Line Planing

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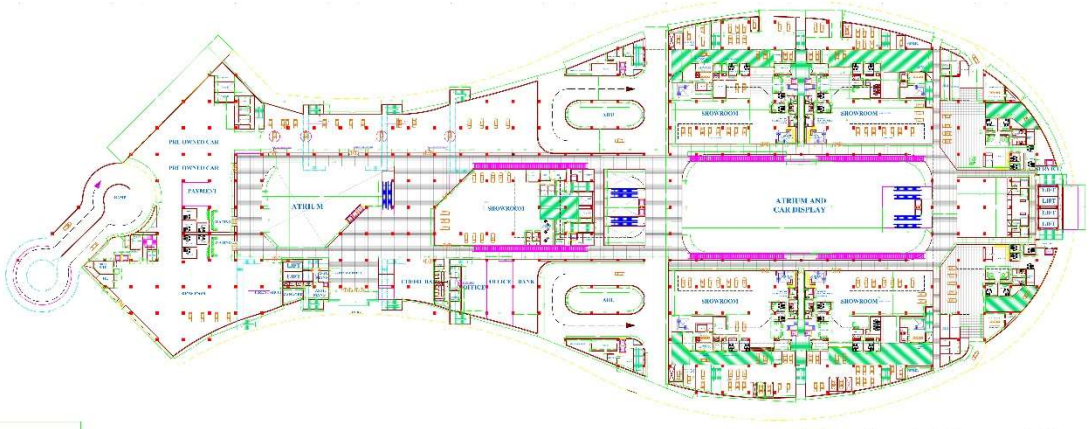
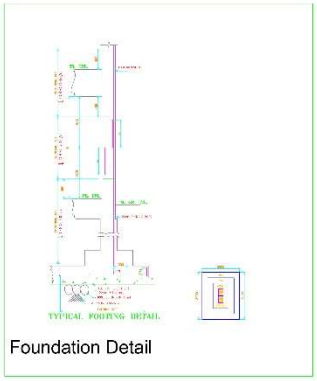
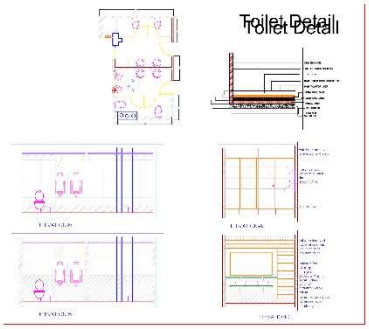
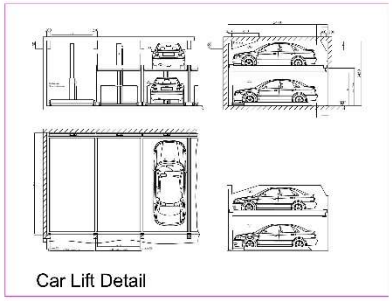


Typical Floor Plan

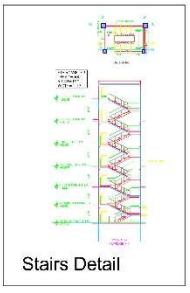


Foundation Detail





Car Lift Detail



Stairs Detail

Working Drwawing

MAIN LKO- VNS HIGHWAY

SCALE :- 1:500

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MAIN LKO- VNS HIGHWAY

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