

Project Information Memorandum (PIM)
on
Development of Multi-Level Car Parking System
at Panchvakhtar Temple, Jammu

Submitted to:
National Highways & Infrastructure Development Corporation Ltd (NHIDCL)

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A Joint Venture of The Government of National
Capital Territory of Delhi & The IDFC Foundation.
An ISO Certified Company



8th Floor, Block-1 Delhi Technology Park,
Shastri Park, Delhi- 110053, India
Tel+91-11-43090100|Email:info@dimts.in
Website: www.dimts.in

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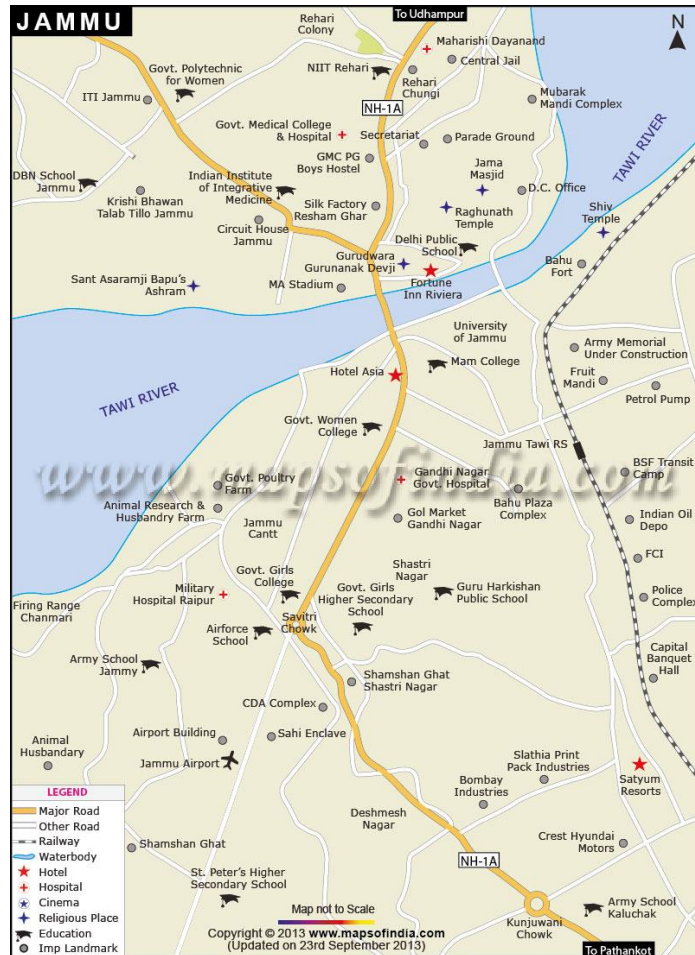
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1. Introduction

1.1. About Jammu

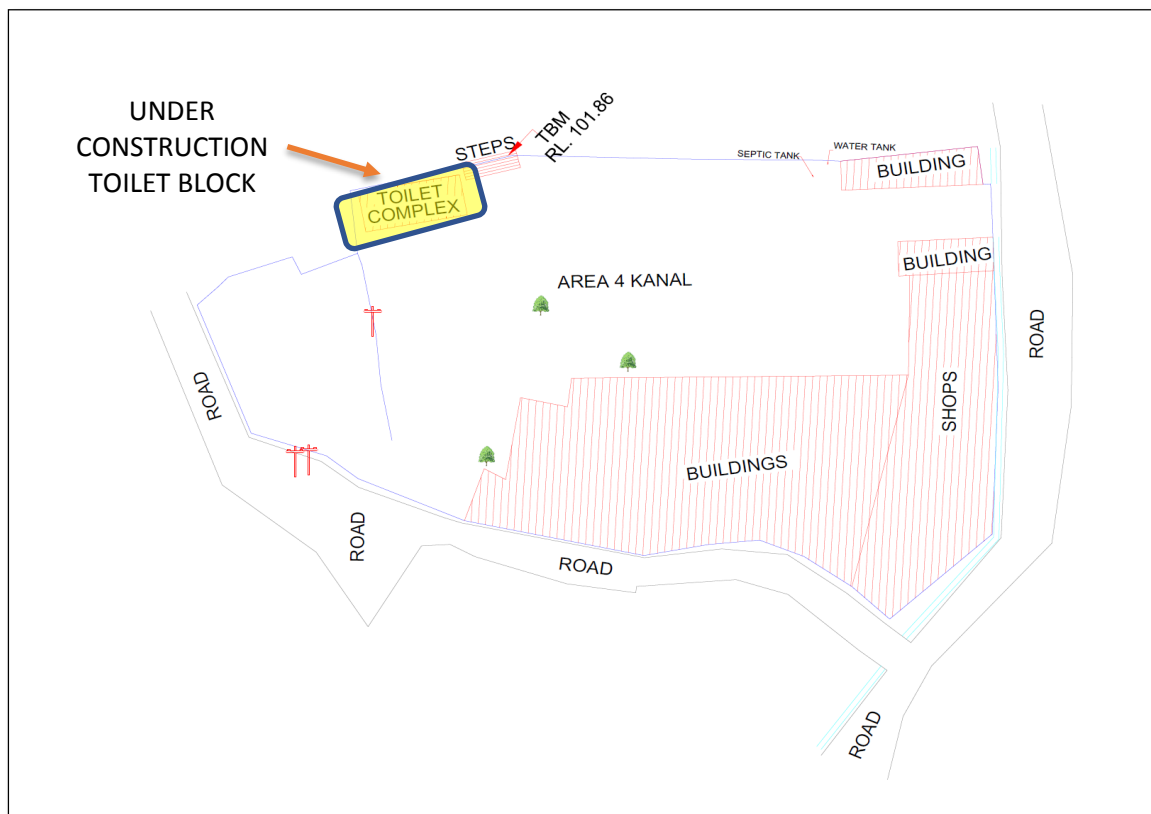
Jammu is the winter capital and the largest city in Jammu district of the Indian union territory of Jammu and Kashmir. It lies on the banks of the river Tawi, the city of Jammu, with an area of 26.64 km² (10.29 sq mi), it is surrounded by the Himalayas in the north and the northern-plains in the south. Jammu is the second most populous city of the union territory.

Jammu is known as the city of Temples for its ancient temples and Hindu shrines, it is the most visited place in the union territory. Jammu city shares its borders with the neighboring Samba district. As of 2011 census, the population of Jammu city is 502,197. Males constitute 52.7% of the population; females constitute 47.3% of the population. The sex ratio of the city is 898 females per 1,000 males against the national average of 940. Jammu had an average literacy rate of 89.66%, much higher than the national average of 74.4%



1.2. Introduction to the Area and Building

Panchvakhtar Temple also known by the name of Rupai Wala Mandir, is one of the oldest Shiva Temple in the region of Jammu. The Lingam of the temple is self-manifested. This temple of rare antiquity, heritage and spiritual importance, is situated in the heart of the city, in an area of more than twenty-five kanals, at Panchvaktar Mahadev Road, Jammu. It has since long been known as Dashnam Akhara and very deeply connected with Amar Nath Yatra. Panchvaktar (five faces) Mahadev Mandir (temple) occupies a unique place, in Jammu, the city of temples. It is one of the oldest Shivalya in the city.



Over the years, the demand to have space for parking of more and more vehicles – both cars as well as two wheelers has made the open areas outside the Panchvakhtar Temple congested and a safety and security hazard.

1.3. NHIDCL's Mandate

NHIDCL has decided to undertake several initiatives to undertake parking related projects in order to ease the congestion in and around several iconic structures in the country.

The objective of NHIDCL is to develop modern, space saving parking solution which are economical as well provide the best solution to alleviate the problem being faced by staff members and visitors as well to improve the overall aesthetic quality of the surrounding areas by removing congestion in terms of providing an optimized solution.

NHIDCL would like to evaluate contemporary technologies for parking solutions as well would also like to incorporate future readiness in the projects – such as related use of solar energy, charging of electric vehicles etc.

1.4. DIMTS Mandate

NHIDCL has appointed DIMTS a joint venture company of Government of NCT Delhi and IDFC foundation for preparation of Detailed Project Report for development of Automated Multi Level Car Parking System at Panchvakhtar Temple, Jammu.

1.5. Project Description

Providing on and off-street surface parking has been the common practice, followed over the years for parking in urban areas. Due to increase in vehicular population and limitation of space for surface parking, there is a need for development of multi-level parking spaces across cities. In recent years, there is a shift, all over the world, to provide multi-level (also referred to as Multi storied) car parks. Multilevel car parks (MLCPs) require less surface area when compared to on or off-street surface parking, because in a MLCP cars get parked at multiple levels – above, at or below ground level.

1. Optimal utilization of space.
2. Can be constructed on minimum available space.
3. Lower construction cost.
4. Low maintenance and operational cost.
5. Safety of vehicle.
6. Environment friendly.
7. Benefit to a driver.
8. Benefit to builder.
9. Benefit to architects.
10. Reduction of crimes.



In its endeavour to provide additional facilities to visitors Jammu Development Authority (JDA) proposes to develop a Multi-Level Car Park at Panchvakhtar Temple in Jammu.

2. Site Appreciation

The proposed site for development of Multilevel Car Parking is located at Panjavakhatar Temple, Jammu. The co-ordinates of the site are 32°43'49.1"N 74°51'57.9"E



The proposed site earmarked for development of Multi Level Car parking is located adjoining Panchvakhtar Temple. The Topographical of the site was carried out on 10th February, 2020.

The MLCP concept layout plan was worked out and presented to the Principal Secretary, Govt. of J&K on 12th February, 2020.

The concept layout plan was discussed with the Principal Secretary, Government of Jammu & Kashmir on 12th February, 2020. It was decided in the meeting to develop the multilevel car parking with ramp-based system. It was also discussed to use the whole plot (including existing shops & residential building plot) for multilevel car parking. The principal secretary advised to explore commercial area on ground floor and first floor and the remaining floors in the building for parking facilities.

2.1. Current Parking Scenario

The total land area owned by Temple Authority is approximately 4700 sq.mt. out of which some areas are owned by different stake holders as per detail below:

S.no.	Description	Area in sq. mt.
1	Present parking area (A)	2080
2	Area under J &K Bank (B)	459
3	Area under 3.50 m wide road (C)	653
4	Area under shops and houses (D)	1509
	TOTAL	4700

Land parcel comprising of the existing Parking area (Marked A) and land parcel comprising of houses and shops (Marked B) upto the edge of 3.50 m road (approx. 3285 sq.mt.) shall be used for development of MLCP.

1. A 3.50 metre wide road providing access to properties located at the rear of the site is also part of the temple property.
2. A part of property has been leased out to J& K bank.
3. Balance area is under encroachment comprising of residential buildings and shops which are in a dilapidated condition.
4. The area presently used to park cars can accommodate approximate 100 cars.



Actual Site Photographs

3. Concept Plan

The proposed site for MLCP is at Panchvakhtar Temple, Jammu. The available plot size for MLCP is approximately 3187 sq.mt, An area of approx. 2016 sq. mt. is currently used for parking.

Entry road width from Residency road to Panchvakhtar Road is app. 3.80 m only. It is recommended to increase the road width at entrance by taking area of some shops. Panchvakhtar road has one way traffic from Residency road to Rajinder Bazar road. Road on south side of plot shall be used for exit of vehicles from parking. This road shall be merged with the set back of MLCP building.

Building height has been retained below the height of Shikhara of temple which is 15.25m In the proposed MLCP building commercial area has been provided on the ground & first floor level.

Parking block has been planned with separate UP & DN ramp. Entry of vehicles to parking block is proposed from road on the south east side and exit from the parking is from the rear side. Parking floor height is envisaged considering the provisions for puzzle parking and to increase the number of parkings. A total no. of 94 car parking's are proposed at, basement level, second & third floor and and 30 no. of car parking at terrace level.

Puzzle parking system provides independent parking spaces for cars depending upon the no. of rows & columns it can accommodate with utmost safety provisions in the system.

Parking Management System shall be installed in order to have controlled entry and exit of vehicles, provisions for automatic ticketing and a system for total no. of car parking slots available at each level is also being proposed.

The building shall have framed structure. The façade of the building shall have façade matching with temple architecture.

Firefighting provisions shall be done as per NBCC norms.

The entire building design and planning shall be done considering the area requirements, aesthetic designs in the neighbourhood buildings and latest designs and technology requirements for car parking.

3.1. Features of proposed Multi level Car Parking site

No of Car Parkings- 94 Car Spaces at each upper floor , 94 on basement level and 30 on terrace , totaling to 312 cars

Road on south east side shall have one way traffic from Residency road upto Rajindera Bazar road

Entry to parking is from front side and exit from rear side

No of Floors- Ground +3 upper floors + 1 basement floor

Shopping area on ground & first floor level

Provison of puzzle parking at each level of parking block

Food court on the terrace with dedicated parking for food court at terrace level

3.2. Design Philosophy

Design Philosophy forms the core around which the design takes shape. It is the study of assumptions, foundations and implications of design which sets out a clear objective for the design and the vision to attain the said objective. The design philosophy followed by DIMTS regarding the design of the concept of MLCP at the Panchvakhtar temple, Jammu is set out below

3.3. Design Philosophy Tenets



4. Real Estate Market Assessments

Detailed market assessment near Panchvakhtar Temple, Jammu was carried out to understand the commercial aspects around the catchment area. A secondary research using real estate websites on the internet was also carried out to understand/ analyse the market rentals near proposed site area.

4.1. Type of Commercial activity in the area

The project site is located in the Old Jammu area which is main business area of Jammu & Kashmir. The residency road is approx. 100 meters from the project site, which has commercial establishments including shops, offices, hotels and restaurants. The Jammu bus stand is at a distance of approximate 2 kms from the proposed MLCP. The famous Raghunath Temple is at a of distance approximate 800 meters. The secondary research conducted with the help of various property websites also confirms the presence of shops and offices in the vicinity of the proposed MLCP.

4.2. Catchment Profile

The catchment for any particular site is observed as per the potential population that is likely to visit the project site. This will vary in quantum for residential, commercial development and retail development, as each usage define their own areas of influence. Generally, the catchments of retail developments are the smallest and have the minimum travel time, followed by catchments for place of work followed by residential.

The catchment area is considered within a distance of 1.5 Kms from the proposed site which is about 5-15 minutes driving time. The proposed site lies in one of the prominent commercial areas of Old Jammu. The catchment area includes Offices, Restaurants, Hotels, Primary School, Banks, Retail shops etc.



4.3. Rentals and Sale Price in the area

Basis the conversation with various property dealers currently present in the vicinity of Bahu Plaza, Jammu along with secondary research conducted on various property websites, following rental & sale trends are observed near the proposed site area.

4.3.1. Retail Rentals near the proposed site

S. n.	Area	Area in sq.ft.	Rental in Rs.	Rental per sq.ft.	Distance from site	Present use
1	Gandhi nagar	450	150000	333.33	4.30 km	5-10 yrs old (triple Story)
2	Panjtirthi	447	50000	111.86	2.0 km	0-1 yr old shop
3	Bus Stand	3000	350000	116.67	2.0 km	Good for showroom
4	Gandhi Nagar	1300	25000	19.23	4.30 km	Office
5	Canal Road	500	30000	60.00	2.60km	0-1 yr old
6	Palm Island Mall	750	37500	50.00	2.60 km	office space
7	Palm Island Mall	949	47450	50.00	2.60km	office space
8	Bahu plaza	711	50000	70.32	4.60 km	Office Space
9	Rehari Colony	193	120000	621.76	3.90 km	Insurance Company, Medical Clinic

4.3.2. Retail Sale Price near the proposed site

S. n	Area	Area in sq. ft	Sale Price in Rs.	Sale Price per sq. ft.	Distance from site	Remarks
1	Transport Nagar	275	2000000	72727	5.0 km	10 shops in a row
2	Pacca Danga	70	2000000	28571	1.30 km	
3	Raghunath Bazaar	1100	4000000	36364	0.50 km	One of the biggest property available
4	Gandhi Nagar	275	2000000	72727	4.60 km	Opp. Arya Samaj Mandir
5	Residency Road	650	2000000	30769	0.10 km	0-1 year old
6	Shastri nagar	3600	6000000	16667	5 kms	Commercial Office

5. Proposed Technological Solution

5.1. Parking Technology comparison

5.1.1. Ramp based vs Semi- Automatics vs Fully Automatic Parking

Ramp based Parking and Fully Automatic Parking come with their inherent benefits and limitations. The decision-making process for the choice of technology for the MLCP solely depends on the type of site and its requirements. The following is a brief comparison of the key parameters.

Table 5.1 Ramp Vs Automatic Parking

Parameter	Ramp based Parking	Semi-Automatic Parking	Fully Automatic Parking
Area Required/ECS	35 sqm	20-25sqm	18 to 22 sqm
82Floor Height	About 3.2m	More than 4m depending on number of cars in each stack	About 2m (Car height + 100mm) for pallet and pallet-less methods
Ramps	Required	Required in case of MLCP	Not Required
Lighting at parking floors	Required	Required	Not Required
Passenger lifts/escalators	Required	Required	Not Required
Passenger stair cases	Required	Required	Not Required
Markings/Signs on parking floors	Required	Required	Not Required
Marshals for Monitoring Traffic	Required on all floors	Required on all floors	Minimal requirement
Ventilation	Required	Required	Less Required
No. Of floors	Typically 3 to 4 floors	Typically 3 to 4 floors	No limit
Safety and security	Manpower Intensive	Cumbersome - required on all floors	Not required
O&M cost	Mainly manpower cost	Manpower cost + Electricity for operations + Equipment (Hydraulics)	Primarily Power cost + Equipment maintenance cost

Parameter	Ramp based Parking	Semi-Automatic Parking	Fully Automatic Parking
Capital Cost	8-10 lakhs/ ECS	10-12 lakhs/ ECS	13-15 lakhs/ECS

5.1.2. Proposed Ramp based Multi- Level car parking system with Puzzle parking system

There is an adequate availability of the Land Parcel i.e. 3157 sq.mt. It is proposed to have a Ramp Based Multi- Level Car Parking System with puzzle parking system on three floors above the ground and at the basement. Parking floor height shall be at 4.0 m to accommodate two levels of puzzle parking.

Following are the advantages of Ramp Based MLCP: -

- a) Safety in use
- b) Clear visibility
- c) Parking space marking to enable drivers to remember the location of their vehicles
- d) Good natural lighting and ventilation
- e) Integration into the context of town planning
- f) Provide safest movement with least delay
- g) Inter floor travel path completely separated from potentially conflicting parking and retrieval movements

5.2. Brief System Solution Description for Puzzle Parking

5.2.1. Brief System Solution

Puzzle parking system provides independent parking spaces for cars depending upon the no. of rows & columns it can accommodate. The platforms at top floor (TF) are moved vertically only whereas the platforms at the ground floor (GF) are moved horizontally only. At approach level (GF) one parking space is kept vacant. This vacant space is used for shifting the parking spaces sideways, thus enabling a Top floor (TF) parking space to be lowered or lifted to approach level.

All necessary safety devices shall installed for smooth functioning of the system. This consists mainly of a chain monitoring system, locking lever for platforms and electromagnetic door locks (optional). The parking bays are accessed horizontally (installation deviation $\pm 1\%$).

Noise (Db) : ≤ 85 (INSIDE) / ≤ 80 (OUTSIDE)

Environmental conditions: Temperature range – 10 to + 50 ° C.

Relative humidity: 90 % at a maximum outside temperature of + 50 ° C.

Vehicle Size: Big Sedan and SUV

Car Platform size = Car Dimensions +300

5.2.2. Operations

Operation via operating device withhold-to-run-device using master keys. All operations are PLC controlled. The operation boxes are placed at Easy-to-survey positioning (e.g. on column) and protected against un-authorized use.

5.2.3. Corrosion Protection

Corrosion protection according to DIN EN ISO12944-2, Corrosive category C3 moderate, Platform profiles : 2mm Hot-dip galvanised with > 200gm/m² All other steel Members: hot-peened (particle cleanliness SA 2,5) and Colour powder coating (Epoxy / Polyester base) RAL 7040, dry film thickness approx. 60-80 µm Fastening screws for platform profiles: Galvazined steel

5.2.4. Operational Data

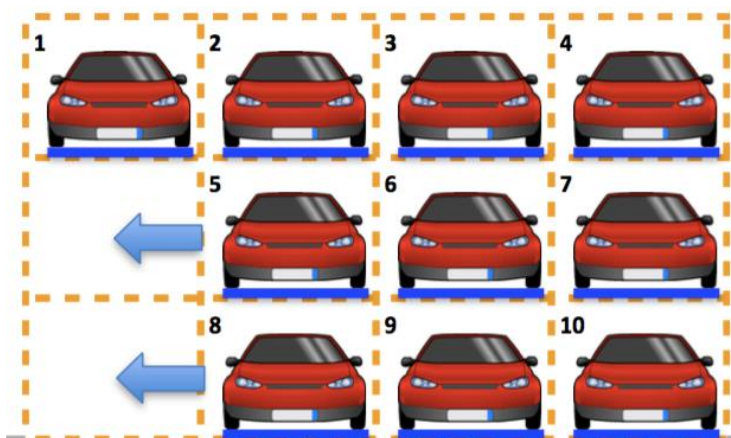
Lift Speed : 5.0-8.0 m/min depending on level of parking
Slide Speed: 7.0 to -9.0m/min
Retrieval Time: 60- 90 sec (maximum)
Lift Motor: 3 phase 2.20 KW / 3.70 KW MCN Continuous Duty
Slide Motor: 3 phase 0.20 KW MCN
Motor Chain: 16A -2
Main Drive: 20 A
Wheel Block: 48 dia x 3 Steel Tube
PLC: OMRON CP1E
Current Stabiliser: Schneider ABL2REM24
AC Contactor: Schneider LC1E
Relay: Schneider LRE
IR Sensor: German Make F3STP5003SM
Phase Sequence Protector OR: DPA51C: SWISS
Emergency Stop: PB1M SIEMENS
Key Switcher: LA39/ PB1M SIEMENS
Travel Switcher: SD-8108/8107
Power Supply: 3phase 415 V 50 Hz

5.2.5. Safe-Guard Device

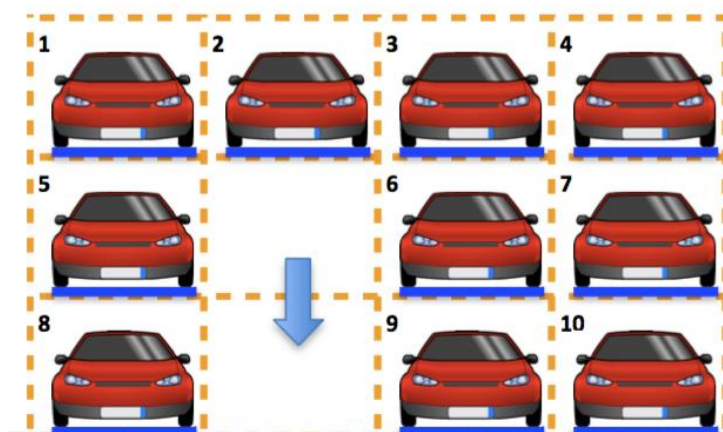
- **Up and down position limit, safety switch of ultra-limit.:** When car pallet lifts or sinks down to the position, it will touch the up limit and down limit switch to turn off power of the drive motor and stop the lifting and falling.
- **Sliding limit switch:** When the car pallet slides to the position, it touches the sliding limit switch and turn of the power of drive motor thus stopping the pallet sliding.
- **Chain relaxed protection:** When the chain relaxed to the certain extent will activate the function to stop the equipment running.
- **People and car enter detector photo-electronic detector:** If the people and car enter the garage when the system is running, the equipment will stop at once.
- **Length of the car limit detector:** If the car is over the certain size, equipment will stop running automatically.

- **Device anti-falling:** Avoid car pallet dropping because the chain is broken or off, when the pallet is at upper level, protect the car and passengers.
- **Car blocking device:** Avoid the car sliding on the pallet.
- **Power off braking device:** When the power of motor is shut off, the electromagnetic brake will work to avoid pallet movement and lifting pallet falling.
- **Motor overload protection:** Motor over current protection, low voltage, short-circuit protection.
- **Sound and light alarm while running:** When the system is running, sound and light alarm remind user to pay attention to safety.
- **Protection measure for 3 phase voltage gap:** Power supply gap or not balance, system will be protected by interrupting the power.
- **Time out and interlock protection:** When the running time exceed the certain time, the system will stop and alarm.
- **Emergency stop:** When the system encounter emergency, knob the button, all the movement will stop, at same time the system will not run without get rid of the emergency.
- **Fault warning:** When the system is break down, alarm will sound and display the fault message

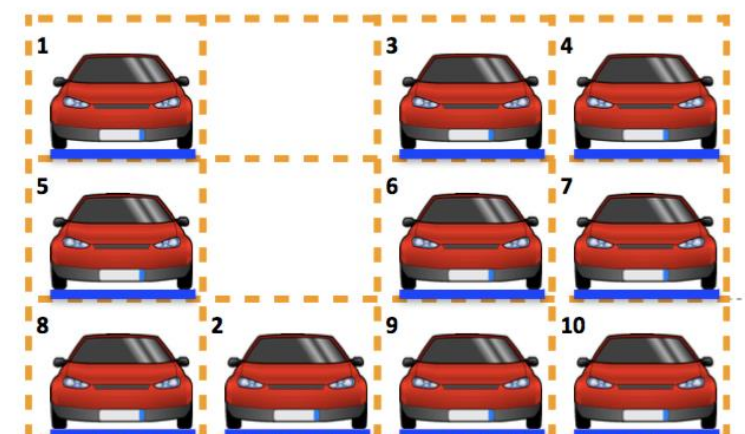
5.2.6. Pictorial Operation Sequence Example - Car No-2 Need To Be Taken Out



STEP 1: Pallet of Car No.5 & 8 moves side way to make way for Car No.2



STEP 2: Pallet of Car No.2 moves vertically downwards to access level



STEP 3: Car No.2 arrives at access level and moves out

6. Planning Norms

Zoning Regulations and Building Bye-Laws are the basic tools for implementation and enforcement of a development plan. It is done within the framework of land use proposals with the intention of achieving orderly growth and development of the town as envisaged. Zoning regulations helps in controlling density as well as land use in ensuring standards provided for the future expansion of each zone in an appropriate manner

These Regulations shall form integral part of the Master Plan of Jammu-2032 and shall be called Development Control Rules and Regulations of the Jammu LPA-2032.

Jammu Master Plans 2032 Development control & Regulations govern the development of residential, commercial and institutional infrastructure in Jammu. This chapter presents the applicable development regulations as specified in the Master plan relevant to the planning of the facilities proposed to be developed on Automated Multilevel Car Parking site.

6.1. Land Use Classifications

The Land Use Zoning Regulations contain the following classification of the broad land uses:

Residential Use: Areas earmarked as Residential in the proposed Land Use Plan.

Commercial Use: Areas earmarked as Commercial Use Zone and the Commercial Strips in the proposed Land Use Plan.

Industrial Use: Areas earmarked as Industrial Use Zone and IT Park Zone in the proposed Land Use Plan.

Institutional; Public, Semi-Public Facilities; and Public Utilities Use: Areas earmarked as Institutional Zone, Public and Semi-public Facilities Zone, and Public

Utilities Zone and Religious use zone in the proposed Land Use Plan, and the sites specifically earmarked for any such public/semi-public use.

Open Space and Recreational Use: Areas earmarked as Open Space, buffers, green spaces and other recreational activities as envisaged in the proposed Land Use Plan, and the sites specifically earmarked as Parks, Playgrounds, clubs, theatres Exhibition Grounds etc.

Plantation Use: Areas earmarked as Orchards, Nurseries, etc in the proposed Land Use Plan.

Urban Agriculture: Areas earmarked as Urban Agriculture Use in the proposed Land Use Plan.

Agriculture Zone: Areas earmarked as Agriculture Use Zone in the proposed Land Use Plan.

Transportation and Communication: All the Roads as earmarked in the proposed Land Use Plan and areas earmarked as Transport Zone, and the sites specifically earmarked for related facilities like, Roads, railways, airports, railway terminus, bus depots, truck terminals, logistic hubs and parking lots.

Forest: All Reserved Forests as notified by the Forest Department, subject to change as amended from time to time. No activity other than forest is permitted in this zone unless expressly allowed by the Forest Department. Notified forest shall be considered as forest even though shown otherwise in the proposed Land use Plan.

Water Body: Water Body Zone generally indicates all existing water bodies, i.e. Rivers, Streams, Lakes and Tanks, as indicated in the topographical sheets published by the Survey of India, or the State Irrigation Department or Revenue Department or other competent authorities. The boundary of the water bodies relate to the Full Tank Level / Flood Level as indicated in relevant maps, covering both perennial and non-perennial parts when such distinction exists.

Defence / Military Lands

Defence/Military Lands are lands under occupation of the Defence Services or otherwise earmarked for defence services. These cannot be put to other uses. The areas covered by defence lands and certain adjoining areas as may be specifically notified, may be subjected to restrictions Jammu Master Plan-2032 on constructions or on the use of lands in the interest of safety and security of the defence services or the civil population living in the contiguous areas.

6.2. Multi-Level Parking

Multi-Level Parking facility should preferably be developed in the designed parking space or in the Residential, Public/Semi-Public, Commercial, Transport node, Bus Depots etc with the following Development Controls.

Minimum number of car parking spaces: 50

Minimum Plot Area 2000 Sqm (Plain areas)

Maximum Ground Coverage 66%

Minimum approach road 15M (RoW)

Front Set back building line of road or 1/3rd of height of building or 6m whichever is more.
Rear and side setbacks building line of road or 1/3rd of height of building or 3m whichever is more.

Terrace/Roof Top Parking Shall be allowed with proper Protection etc to the satisfaction of authorities.

- a. In order to compensate the cost of Multi-Level Parking, a maximum 25% of Gross permissible Floor Area may be utilized as Commercial/ Office space.
- b. Maximum FAR proposed for commercial spaces shall be 100 (excluding parking areas)
- c. In addition to requisite parking space required for Commercial developed within the Multi-Level Parking complex (@ 3 ECS / 100M²), Three times additional space for parking components shall be provided.
- d. Three Basements shall be allowed for Parking as specified in the basement norms.
- e. Maximum Height shall be restricted to permissible height of the land- use in which the plot falls.
- f. Shops/Offices/Commercial spaces shall be allowed on ground and first floor only for rehabilitation of project affected persons in Government comprehensive schemes.
- g. In case of government comprehensive schemes, development controls including height shall be as per approved scheme

6.3. Basement

- 1) Minimum plot area required for basement for the purpose of parking, with respect to number of basement levels is as mentioned under:
 - Two level Basement- Min. Plot area of 2000 sq.mtr.
 - Three level Basement- Min. Plot are of 4000 sq.mtr.
- 2) The basement, if not meant for parking, shall be permitted up to one level irrespective of the size of plot. No residential space i.e. apartment/ flats/ residential house/ hotel rooms shall be allowed in any kind of basement. Area of basements not used for parking and building services shall be considered in computation of FAR.
- 3) No habitable use shall be permitted in the basement. Permitted uses in Basement are: parking, safe deposit vault, A.C. Plant, storage other than inflammable material, other utilities.
- 4) Front setback line to be considered for basement for parking purpose shall be minimum 6.0 mtr. from the plot line or building line of the abutting road whichever is more.
- 5) Setbacks on other sides to be considered for basement for parking purpose shall be as under.
 - In case of one storey (1 level) basement - 3.0 mt.

- In case of two storey (2 level) basement - 4.5 mt.
 - In case of three storey (3 level) basement - 6.0 mt.
- 6) Basement shall be permitted under common plot, internal Road and internal marginal space for exclusive use of parking only.
 - 7) Basement if used for parking and utility services shall not be considered in computation of FAR.
 - 8) The basements shall be allowed within building envelope in individual residential houses.
 - 9) The basements shall be allowed maximum upto 75% of plot area for parking and services only.
 - 10) Every basement shall be in every part at least 2.4 m in height from the finished floor to the underside of the beam.
 - 11) Adequate ventilation shall be provided for the basement. The ventilation requirements shall be the same as required by the particular occupancy according to byelaws. Any deficiency may be met by providing adequate mechanical ventilation in the form of blowers, exhaust fans, air-conditioning systems, etc;
 - 12) The minimum height of the ceiling of any basement shall be 0.9m and the maximum, 1.2 m above the average surrounding ground level;
 - 13) Adequate arrangements shall be made such that surface drainage does not enter the basement;
 - 14) The walls and floors of the basement shall be watertight and be so designed that the effects of the surrounding soil and moisture, if any, are taken into account in design and adequate damp proofing treatment is given; and
 - 15) The access to the basement shall be separate from the main and alternative staircase providing access and exit from higher floors.
 - 16) Where the staircase is continuous in the case of buildings served by more than one staircase, the same shall be of enclosed type serving as a fire separation from the basement floor and higher floors.
 - 17) Basement shall be permitted within the setback lines subject to clearance from local bodies/departments concerned, Municipal Corporation and Fire Department. In case basement is to be allowed where there are no setbacks, single basement should be permitted after leaving 3 m from plot boundary.
 - 18) Ramps shall be allowed in setbacks subject to maintenance of unhindered setbacks of 6M with adjacent property.

- 19) The ramp to basement and parking floors shall not be less than 7.2m wide for two way traffic and 4 m wide for one way traffic, provided with Gradient of 1:10 for cars and 1:15 for heavy vehicles. At curved portions of the ramp or for circular ramps the slope should not be more than 1:12.
- 20) All structural design/safety aspects as per latest BIS Codes & NBC, shall be complied along with consideration of weight of Fire Engine & its manoeuvrings

6.4. Parking Norms

Basement: 32 Sqm per ECS

Stilts: 28 Sqm per ECS

Open/Surface: 23 Sqm per ECS

For calculation of parking two-wheeler shall be calculated equal to 0.25 ECS

6.5. Safety against Natural Disasters like Earthquakes

The application for seeking building permit shall be accompanied with a report of Architect/Structural Engineer certifying that the proposed structure has been designed structurally keeping in view the safety measures against earthquakes as indicated in the following Bureau of Indian Standards (B.I.S).

6.6. Water Harvesting

Water harvesting by way of storage of rainwater in all new buildings existing on plots of 1000 sq. mtr. and above, and all group housing shall be mandatory. The plans submitted to the local authority shall indicate the system of storm water drainage along with points of collection of rain water in surface reservoirs or in recharge wells.

6.7. Fire Protection and Fire Requirements

6.7.1. Fire protection requirements:

Buildings shall be planned, designed and constructed to ensure fire safety and this shall be done in accordance with Part IV Fire protection of National Building Code of India. The building schemes as such also be cleared by the District Officer of the Fire and Emergency Services Department before issuance of building permit.

6.8. Provision for Physically Challenged Persons in the Public Buildings:

6.8.1. Buildings to be designed for Ambulant Physically Challenged People (Besides Hospitals)

Higher Secondary School, Conference Hall, Dance Halls, Youth centres, Youth clubs, Sports centres, Sports pavilion, Boat club houses, Ice/roller skating rinks, Swimming pools, Police stations, Law courts, Court houses, Sports stadiums, Theatres, Concert halls, Cinemas, Auditoriums, Small offices (the maximum plinth area 1400 sq.mt.), Snack bars, Cafes and Banqueting rooms (for capacity above 50 dinners).

Note:

- a. In sport stadiums provisions shall be made for non-ambulant spectators (small wheel chair) @ 1:1000 up to 10,000 spectators and additional 1:2000 for spectators above 10,000.
- b. In Theatres, Concert halls, Cinemas and Auditorium provisions shall be made for non-ambulant spectators (small wheel chairs) @ 1/250 up to 1000 spectators and additional 1/500 for spectators above 1000.

6.8.2. Buildings to be designed for Non-Ambulant Physically Challenged People

Schools for physically challenged persons, cremation grounds, public/semi-public buildings, Botanical gardens, Religious buildings, Old people clubs, Village halls, Day centres, Junior training centres, post offices, Banks, Dispensaries, Railway stations, Shops, Super markets, and Departmental stores.

6.8.3. Building to be designed for Non-Ambulant Physically Challenged Persons (using small wheel chairs)

Public lavatories in Tourist spots, Club motels, Professional and Scientific institutions, Museum, Art galleries, Public libraries, Laboratories, Universities, College for further Education, Teachers Training Colleges, Technical College, Exhibition halls, Dentist surgeries, Administrative department of the Hospitals, Service stations, Car parking, Building airports terminals, Bus terminals, Factories employing handicapped for sedentary works, large offices (with plinth area above 400 sq.mt.), Tax offices, Passport offices, Pension offices, Labour offices, Cafes, Banqueting rooms and Snack bars (for capacity above 100 dinners).

6.9. Building Requirements

The following building requirements are to be provided for buildings mentioned above:-

1) Site Planning:

- a. Access path from plot entry and surface parking for building to building entrance shall be minimum of 1800 mm wide having regular surface without any steps.
- b. The parking of vehicles of disable people @ two equivalent car spaces (ECS) shall be provided near entrance of 30 mt. from building entrance.

2) Approach to Plinth Level:

- a. Ramp shall be provided to enter the building; minimum width of ramp shall be 1800 mm with maximum gradient of 1:12 length of ramp shall not exceed 9.0 mt. having 90

mm high hand rail on both sides extending 300 mt. on both sides of ramps. Minimum gap from the adjacent wall to the handrail shall be 50 mm.

- b. Entrance landing shall be provided adjacent to ramp with the minimum dimension of 1800 x 2000 mm.
- c. Minimum clear opening for the entrance door shall be 1000 mm. Threshold shall not be raised more than 12 mm.
- d. For stepped approach size of tread shall not be less than 275 mm and maximum rise shall be 150 mm.

3) Stairways:

Height of the riser shall not be more than 150 mm and width of the tread not less than 275 mm, nosing if provided shall not extend beyond 25 mm. Maximum number of risers on a flight shall be limited to 12.

4) Lifts:

- a. Whenever lift is required as per bye-laws, provision of at least one lift will be made for non-ambulant disabled (using small wheel chairs with the following dimensions of lift).
 - Clear internal depth: 1090 mt.
 - Clear internal width: 1750 mt.
 - Entrance door width: 910 mt.
- b. A handrail not less 600 mm long at 1000 mm above floor level shall be fixed adjacent to the control panel.

5) Toilets:

- a. One special W.C. in a set of toilet shall be provided for the use of physically challenged persons. No additional provision of W.C. is to be made for physically challenged persons.
- b. Size of the W.C. shall depend on the category of physically challenged persons for whom it has been provided.
- c. All doors in W.Cs shall open outside.
- d. The type of W.C. shall be European with seat height as 500 mm.
- e. Handrails, where provided shall have min 25 mm dia.

6) Provision of W.Cs in building without lift:

- a. Provision of special W.C. shall be made on all floors for buildings designed for ambulant physically challenged persons.
- b. For buildings designed for non-ambulant physically challenged persons special W.C. shall be provided at Ground floor. Size of W.C. shall depend on the type of wheel chair used by the disabled.

7) Provision of W.Cs in building with lift:

Provision of special W.C. shall be made on all floors. Size will depend on the category of physically challenged persons for whom it has been provided.

8) Toilet Details:

- a. For Toilets Designed for Ambulant Physically Challenged Persons:
 - The minimum size of W.C. shall be 1075 x 1650 mm with a minimum size of 1450 mm for entry door 900 mm. Long handrail on the side closer to W.C. width between the handrails shall be 90 mm and height of handrails shall be from floor level.
 - Minimum size of the clear door opening shall be 780 mm.
- b. For Toilets Designed for Non-Ambulant Physically Challenged People (using Small Wheel Chair):
 - The minimum size of W.C. shall be 1350 x 1500 mm with a minimum depth of 1500 mm for entry door. 900 mm long handrail on the side closer to W.C. shall be fixed towards one side to the opposite adjacent wall. The centreline of W.C. adjacent wall shall be 400 mm and minimum 950 mm from the other wall.
 - Minimum size of the clear door opening shall be 780 mm.

9) For Toilets Designed for Non-Ambulant Physically Challenged Persons (using Large Wheel Chair):

- The minimum size of W.C. shall be 1500 x 1750 mm with a minimum depth of 1750 mm for entry door. 90 mm long handrail on the side wall closer to W.C. shall be provided. To provide movement space for wheel chair, W.C. seat shall be fixed towards one side of the opposite wall. The centre line of the W.C. from the adjacent wall shall be 400 mm and a minimum of 1100 mm from the other wall.
- Minimum size of the clear door opening shall be 860 mm.

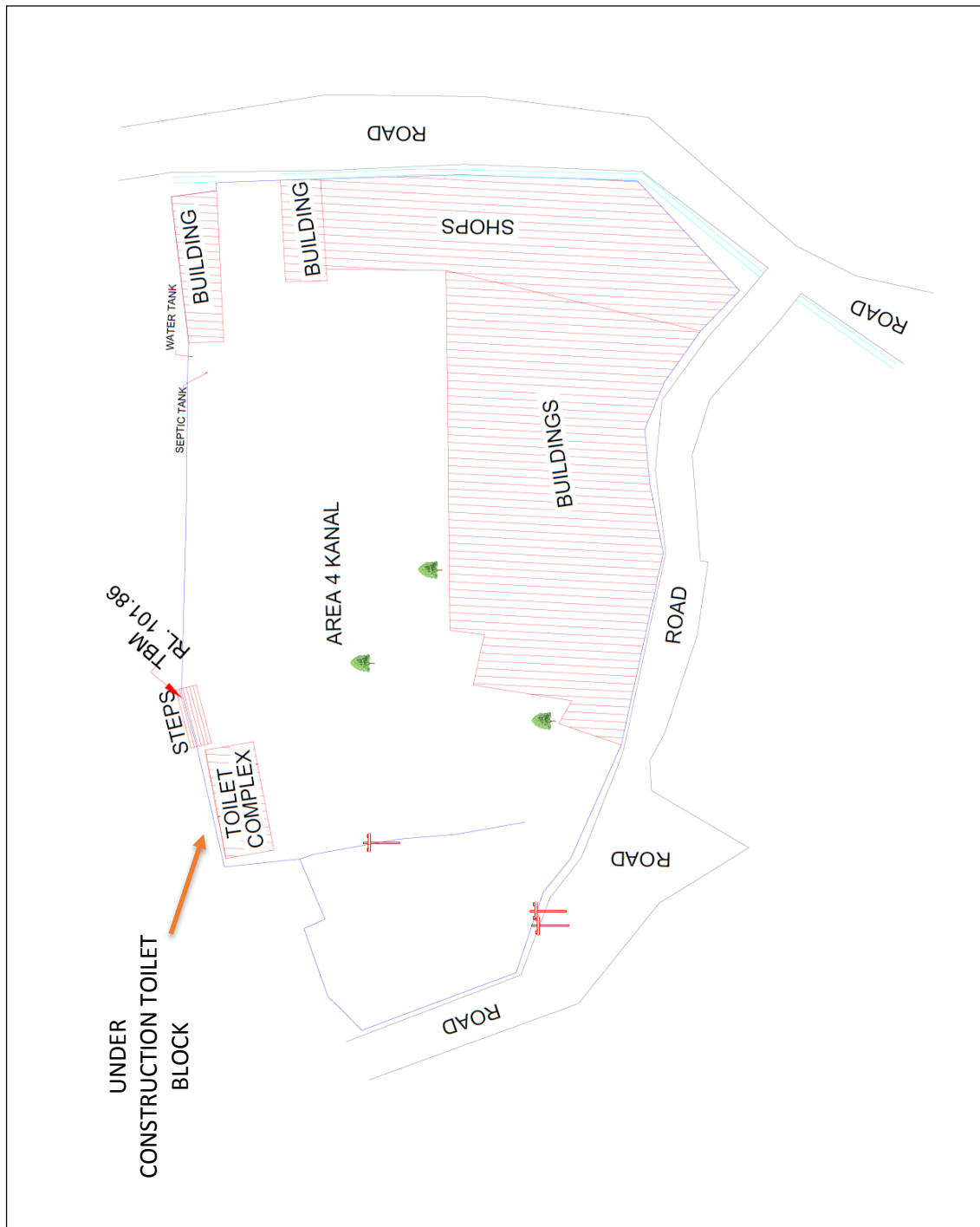
7. Area Statement

The building comprises of one Basement for parking and four upper floors. Commercial area has been proposed on ground & first floor and parking shall be developed on second & third floor. A food court on terrace is proposed which can also accommodate 30 car parkings.

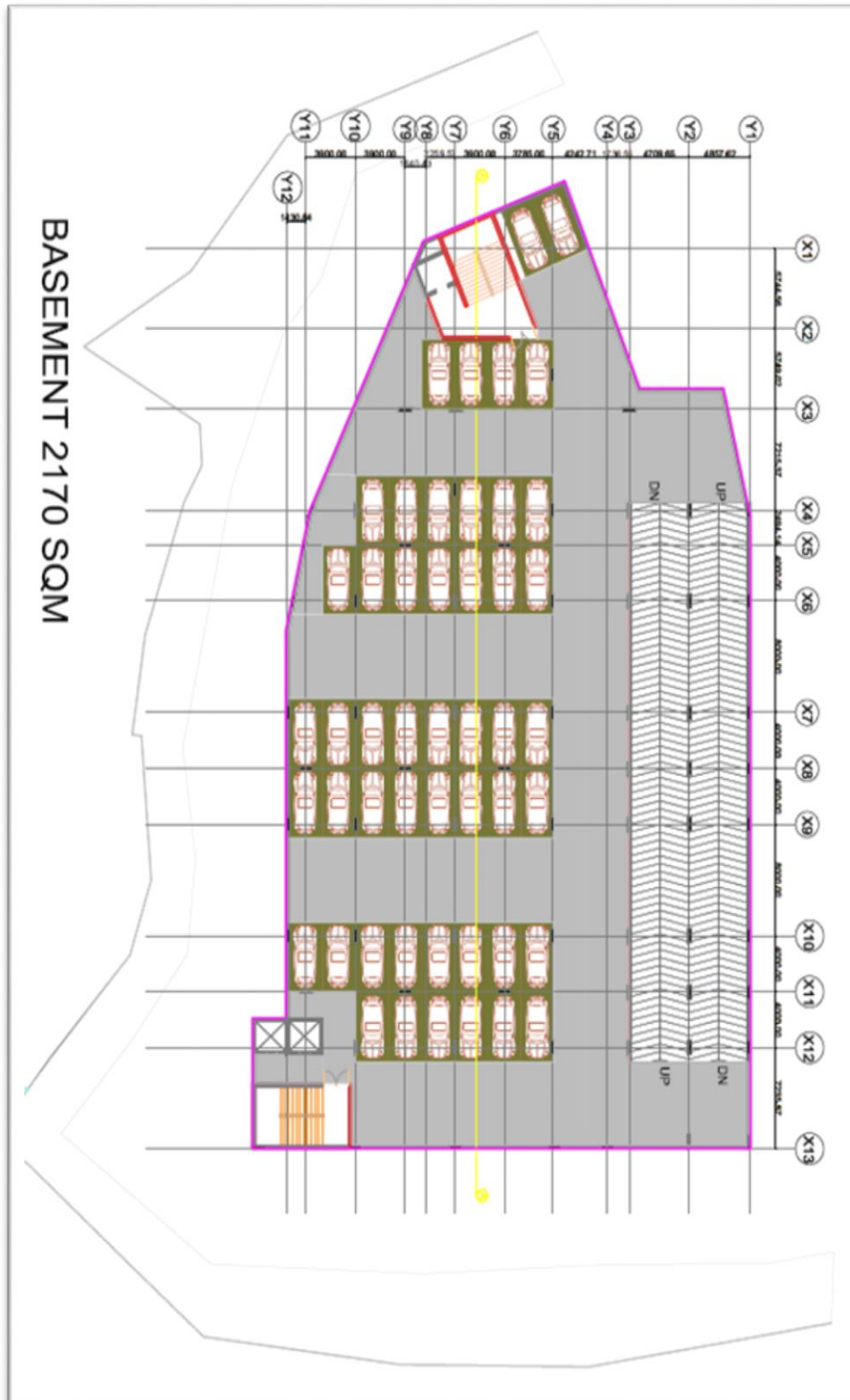
Floor	Usages	Area in (sq.m.)	No of Car Spaces
Basement -01	Car Parking	2070	94
Ground Floor	Commercial area	1560	
	Car Parking	510	0
First Floor	Commercial area	1230	
	Car Parking	840	0
Second Floor	Commercial area	0	
	Car Parking	2070	94
Third Floor	Commercial area	0	
	Car Parking	2070	94
Terrace Floor	Commercial area/ Food Court	460	
	Car Parking		30
Total		10810	312

8. Drawings

Site Plan for MLCP at Panchvakhtar Temple, Jammu



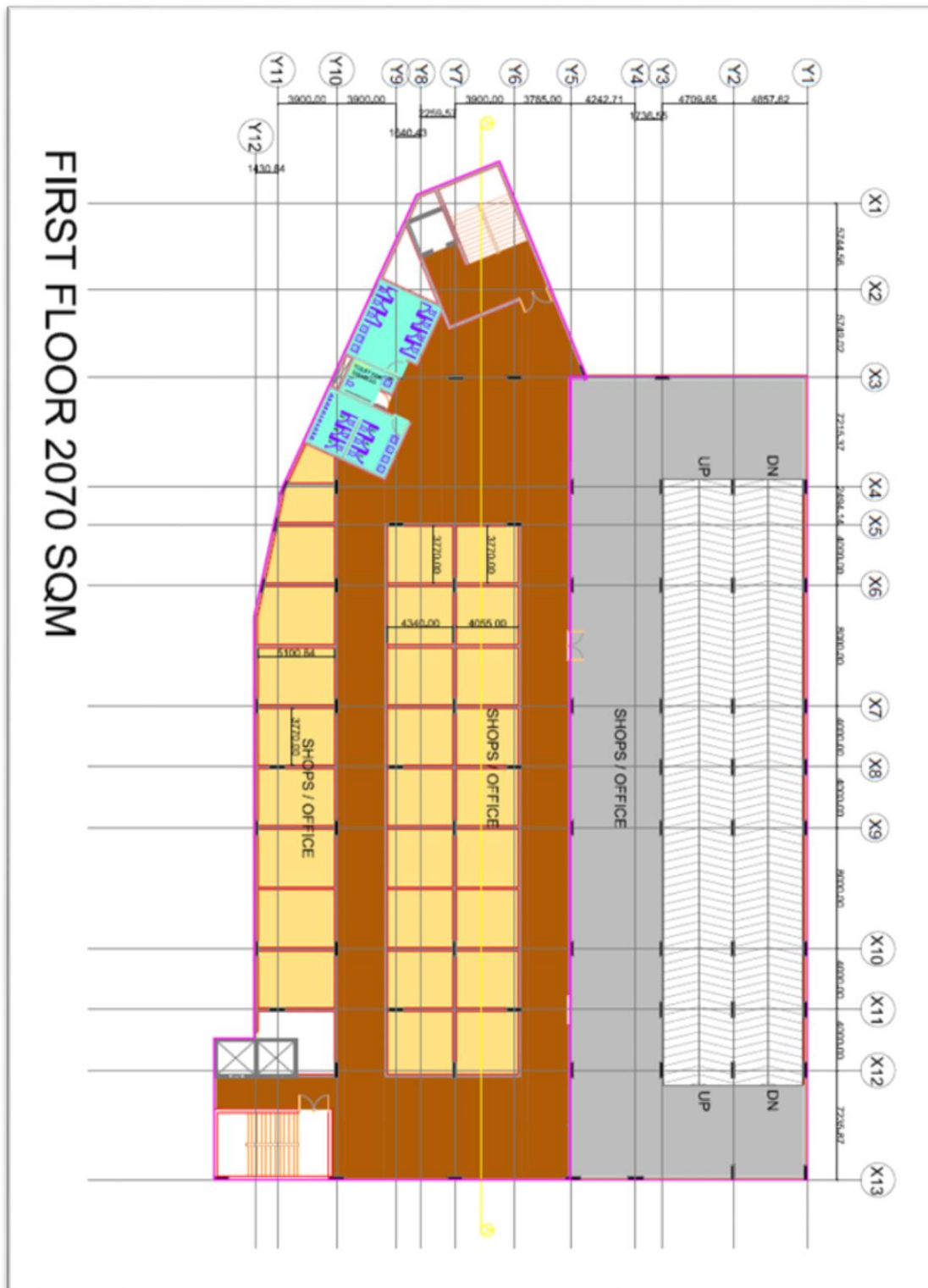
Basement Floor Plan, 2170 sq. meter



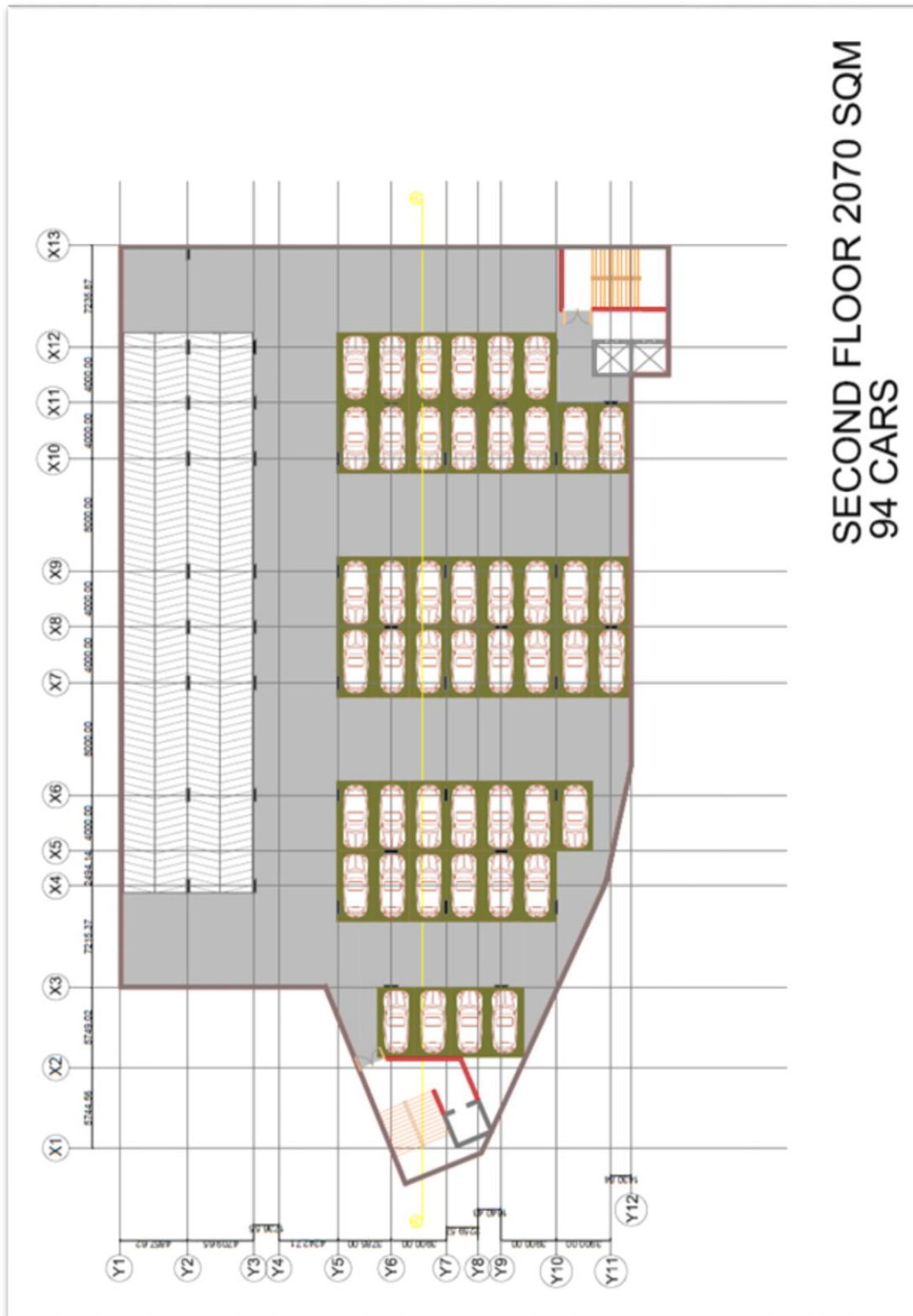
Ground Floor Plan, 1570 sq. meter



First Floor Plan, 2070 sq. meter

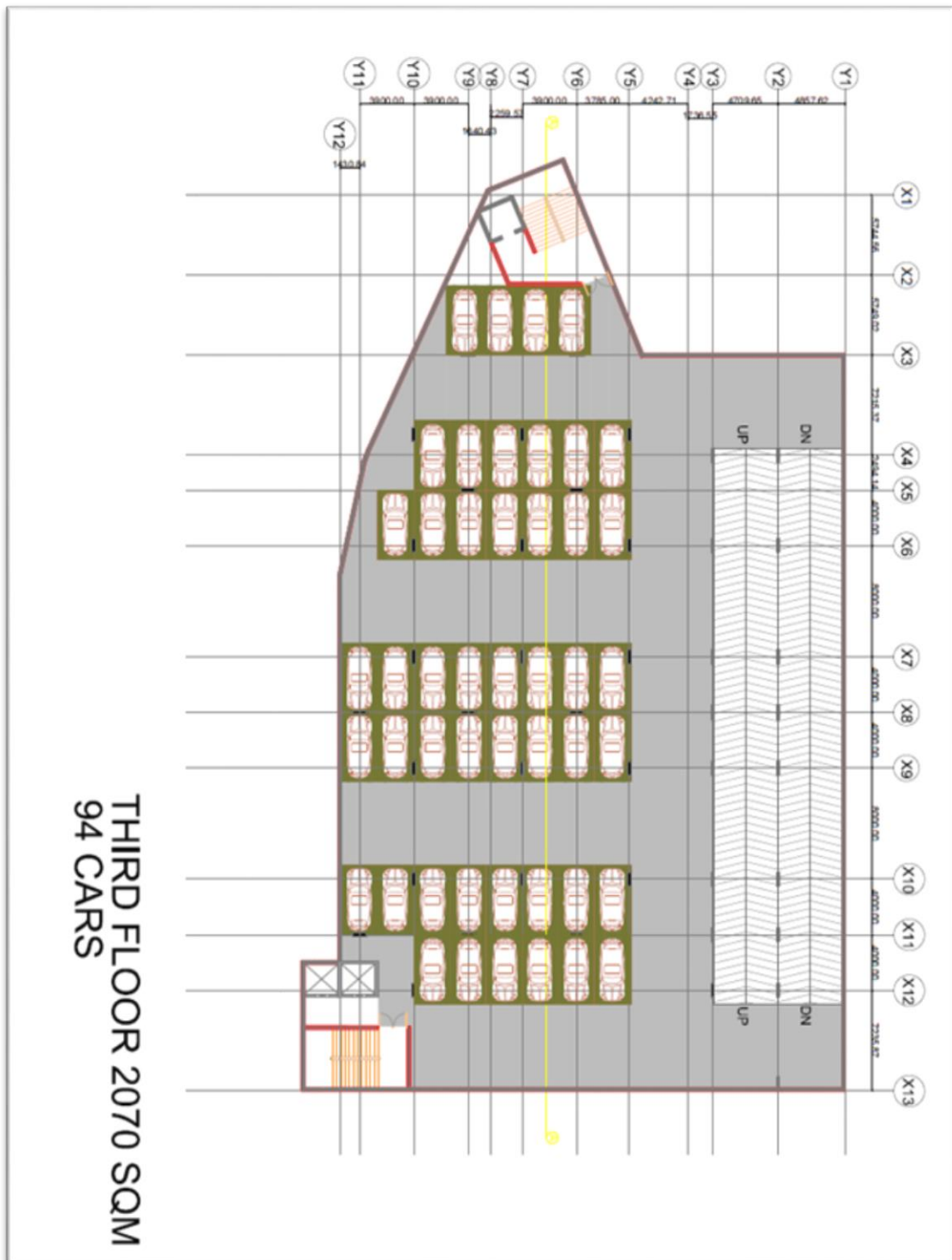


Second Floor Plan, 20170 sq. meter

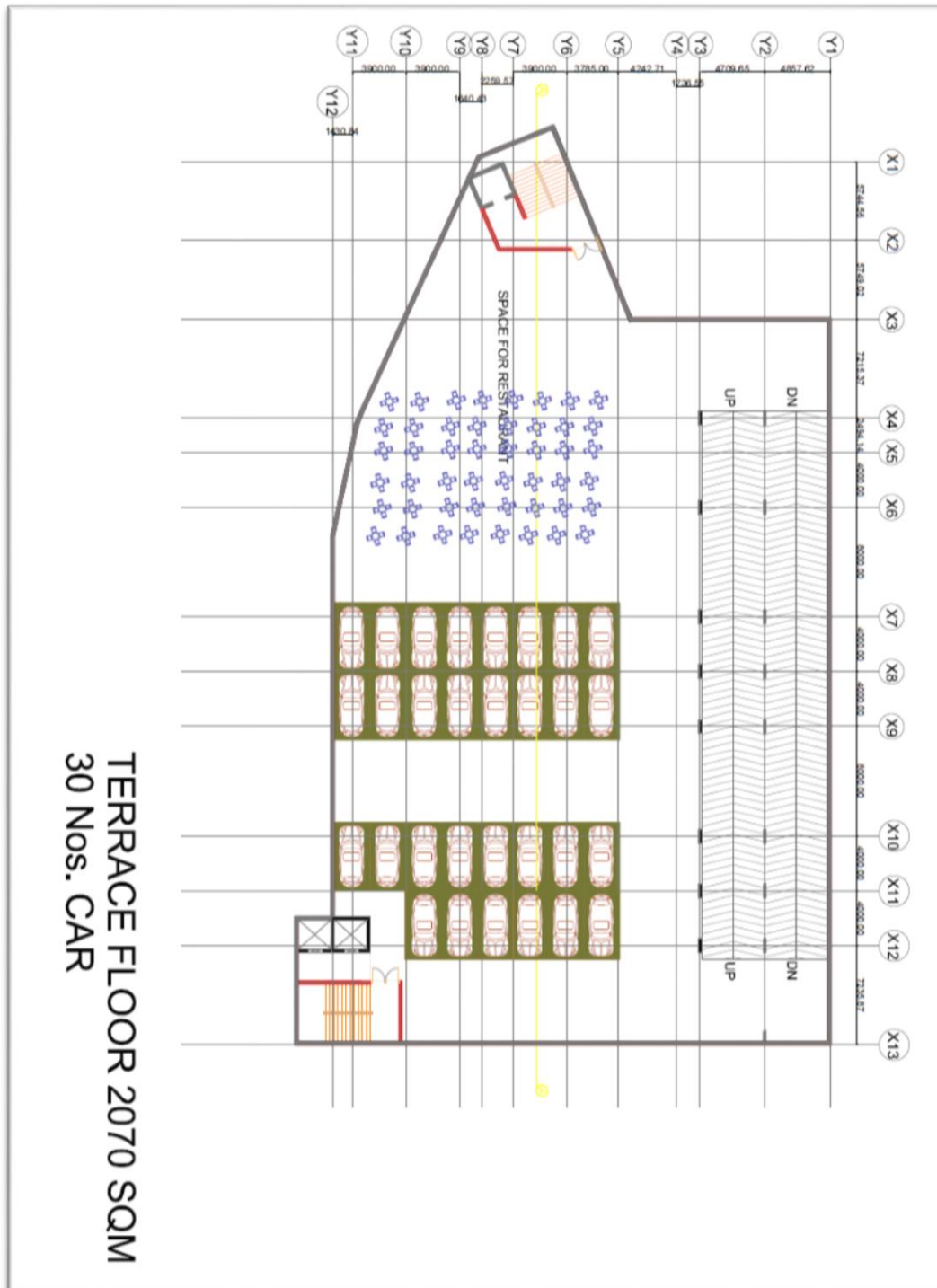


**SECOND FLOOR 2070 SQM
94 CARS**

Third Floor Plan, 2070 sq. Meter



Terrace Floor Plan, 2070 sq. meter



9. 3 D Views of MLCP Building at Panchvakhtar Temple, Jammu









