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5 Star Hotel

Bhopal, Madhya Pradesh, India

Dec, 2025

5 Star Hotel

Bhopal, Madhya Pradesh, India

BACHELOR OF ARCHITECTURE

BY

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DEPARTMENT OF ARCHITECTURE AND PLANNING

MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY, BHOPAL

DEC 2025

ARC 511 – Thesis Project

5 Star Hotel

Bhopal, Madhya Pradesh

Submitted by:

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B. ARCH

9th Semester, 5th Year

UNDER THE GUIDANCE OF

Dr. Nakul Dhagat



DEPARTMENT OF ARCHITECTURE AND PLANNING

MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY

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CANDIDATE DECLARATION

The Thesis Project in the subject ARC 511, entitled "**5 Star Hotel, Bhopal, Madhya Pradesh"**, is being submitted in partial fulfilment of the requirement for the award of degree of Bachelor of Architecture by the undersigned for evaluation.
The matter embodied in this project is a record of my own work. If, in future, it is found that the above statement is false, then I have no objection in withdrawal of Bachelor of Architecture Degree awarded to me by the Institute.

Date: 1st – 2nd Dec, 2025

Ashu Yadav
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RECOMMENDATION

Based on the above declaration of the student, the undersigned recommends that the work submitted by the candidate may be considered for the final end term examination of the subject ARC-511, Thesis Project.

Date: 1st – 2nd Dec, 2025

Dr. Nakul Dhagat
Thesis Guide

CERTIFICATION OF EXAMINATION

The Bachelor of Architecture Thesis Viva-Voce examination of Mr Ashu Yadav Scholar No.211110242 , was held on 1/12/2025 to 2/12/25.

Dr. Nakul Dhagat
Head of Department

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Thesis Coordinator

ABSTRACT

This thesis report presents a detailed site and literature study for a 5-star hotel in Bhopal, envisioning a luxurious and culturally rooted hospitality experience. The report explores essential aspects of hotel architecture, including spatial planning, sustainability, interior design, and contextual integration, while analyzing the technical functions of a hotel complex and its relationship with the surrounding environment. Emphasis is placed on harmonizing the scenic exterior setting of Shyamala Hills and Upper Lake with immersive interior spaces.

The design proposal seeks to seamlessly merge functionality, aesthetics, and sustainability, with fluid circulation systems that ensure intuitive guest movement and optimized experiences. Advanced technologies are integrated to enhance guest comfort, convenience, and efficiency, while maintaining a human-centric approach.

The proposed 5-star hotel aspires to be an iconic landmark for Bhopal, reflecting architectural innovation while resonating with the city's cultural and natural heritage. Designed for both leisure and business travelers, it includes premium accommodation, banquet and MICE facilities, themed dining, and recreational amenities. Beyond hospitality, the project aims to promote tourism, strengthen Bhopal's identity as a cultural and business hub, and provide a world-class luxury experience that celebrates local character while meeting international standards.

ACKNOWLEDGMENT

The completion of this thesis report marks an important milestone in my academic journey. I would like to sincerely acknowledge all those who have supported and guided me in the successful completion of this work.

First and foremost, I extend my heartfelt gratitude to my Thesis Coordinator and Guide, Dr.. Nakul Dhagat, whose constant guidance, encouragement, and invaluable insights have been instrumental throughout the process. His mentorship not only helped me navigate challenges but also enriched my understanding of architecture and design. This work would not have been possible without his patient support and constructive suggestions at every stage.

I am also deeply thankful to the faculty members of the Department of Architecture and Planning, MANIT Bhopal, for their academic guidance and encouragement during this journey.

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Finally, I express my humble gratitude to the Almighty for blessing me with the strength and perseverance to complete this thesis successfully.

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CHAPTER I

INTRODUCTION

1.1 INTRODUCTION

The luxury hotel industry has seen significant growth in recent years, driven by rising disposable incomes and increasing tourism. This project aims to design and develop a 5- star hotel that meets international standards for luxury, comfort, and service.. These hotels became symbols of wealth and status, attracting royalty, celebrities, and affluent travelers from around the world.

A hotel is a facility that provides short-term paid accommodation. Traditionally, rooms offered basic furnishings, including a bed, cupboard, small table, and washstand. Today, hotel rooms come with modern conveniences such as bathrooms, air conditioning, or climate control. Standard amenities typically include telephones, alarm clocks, televisions, safes, mini-bars with snacks and drinks, and tea or coffee-making supplies. In luxury hotels, guests may also find extras like bathrobes, slippers, a variety of pillows, twin-sink vanities, and Jacuzzi tubs. Larger hotels often feature additional services like swimming pools, fitness centres, business centres, childcare, conference facilities, and spaces for social events.

1.2 JUSTIFICATION

The development of luxury hotels in the context of architecture is justified on several grounds, including economic, social, environmental, and market-driven factors. This section outlines the key reasons for integrating luxury in hotel design and development.

Luxury hotels can showcase cutting-edge design, innovative materials, and architectural techniques, luxury hotels can become iconic landmarks, defining a city's skyline or landscape.

Luxury hotels can be designed to respect and enhance their surroundings, incorporating local materials and styles, luxury hotels can preserve and showcase cultural heritage, incorporating historic buildings or local ar

1.3 AIM

Design the hotel to attract high-end clientele willing to pay a premium for luxury

The main aim is to achieve a fully functional Hotel design without any compromise to aesthetics and services

1.4 OBJECTIVES

To create a spatial layout that ensures smooth circulation, easy navigation, and a seamless connection between public and private spaces.

To design a hotel responding to the site conditions.

To follow the immediate urban context and design accordingly.

1.5 SCOPE

The Scope of the Project (the "Scope of the Project") shall mean as specified in Schedule III and shall include during the Concession Period, Development, Operation, Maintenance and Management of the Project during the Concession Period of 60 (Sixty) years (extendable by a period of 10 years at the discretion by the Authority) by undertaking the following activities:

A. To design, finance, construct and develop the Project (inclusive of any demolition activity which may be required to be undertaken on the Project) on the Project Site as set forth in Schedule I, along with the Project Facilities outlined in Schedule II, in adherence with the Specifications and Standards as set forth in Schedule III.

B. Operate and maintain the Project Facilities, within the specified Concession Period and as per the provisions of this Agreement and timely remit the Project Consideration to the Authority.

C. Performance and fulfilment of all other obligations of the Concessionaire in accordance with the Concession Agreement and matters incidental thereto, or necessary for the performance of any or all of the obligations of the Concessionaire under this Concession Agreement.

D. Transfer the Project to the Authority in the 'as is where is and in good condition' basis including movable and immovable assets at the time of handover, upon Termination in accordance with the provisions of this Agreement; and

E. Construct a Hotel with a minimum 150 rooms and Banquet & Convention facility of 1000 pax with MICE facilities

F. The Concession Period shall start from the Compliance Date

1.6 LIMITATION

Incorporating sustainable features, such as renewable energy systems, advanced HVAC, and eco-friendly materials, adds to the upfront costs.

Achieving a balance between luxurious aesthetics and sustainable design principles can be complex and time-consuming.Luxury hotels with advanced systems and high- end finishes require specialized maintenance, which can increase operational costs.

Navigating the complex landscape of building codes and environmental regulations can be challenging and may delay the project.

1.7 METHEDOLOGY

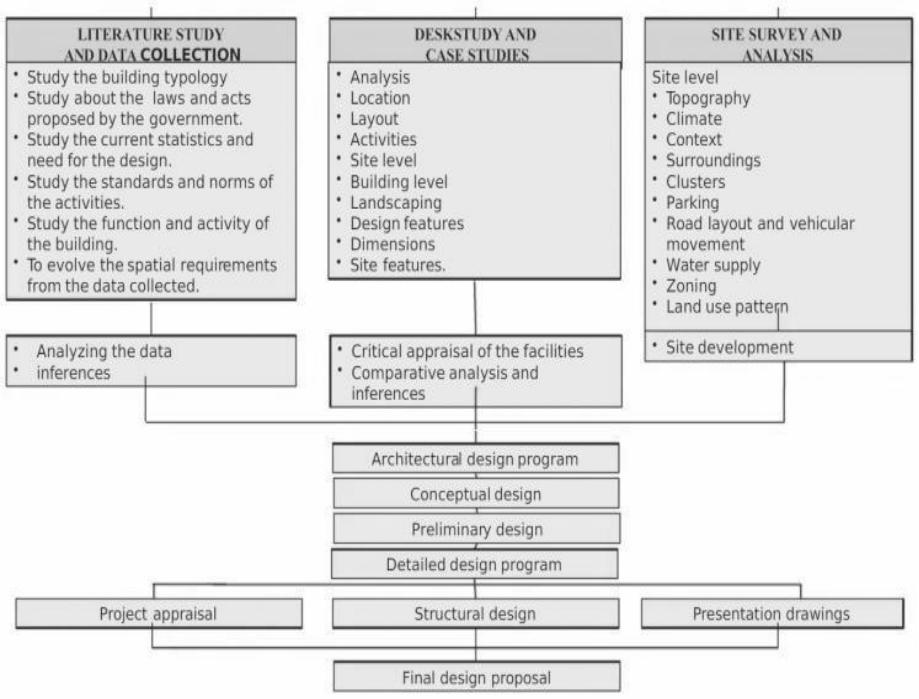


Figure 1METHEDOLOGY CHART



1.8 **PROJECT LOCATION**

Name of the Project : Proposed 5 Star Hotel

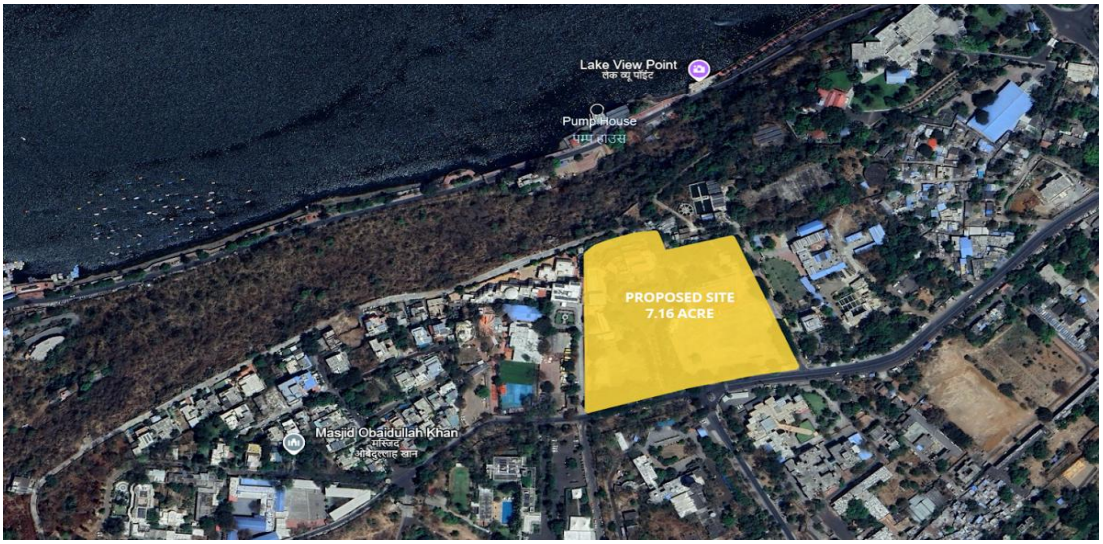
Area	Shyamala Hills, Bhopal
Site/Location	The subject property is located at Shyamala Hills, Bhopal, towards the eastern side of Upper Lake i.e., central region of Bhopal city. The subject location has many prominent government institutions and building. The prominent hospitality developments in vicinity of the subject site include Jehan Numa Palace, Ivy Suites, The Ten Suites etc. The subject micro-markets enjoys express connectivity via 24 m wide VIP Road (north) to the Bhopal Raja Bhoj Airport and other touristy places like Birla Museum, Sair Sapata, Interpretation Centre - Manav Sangrahalaya via 24 mts. wide Jehan Numa Palace Road.
Location Coordinates	**Latitude:** 23.243043872752793 **Longitude:** 77.38768911349595
Approach Road	24 mts. wide primary access road – Jehan Numa Palace Road
Site Boundaries	The subject property is surrounded by: • North: Green Zone adjacent to Bhopal Upper Lake • South: 24 mts. wide primary access road – Jehan Numah Palace Road • East: Other's property • West: Other's property
Land Area & Built-Up Area	The land area of the subject property admeasures approx. 7.16 acres while the total built-up area of the subject development admeasures approx. 87,521 sq. ft.

Location **:** Hotel Lake View Residency, Bhopal, Madhya Pradesh

The MPT Lakeview Residency's total project site area admeasures approximately 28,975 sq. m. (7.16 acres) for MPT Lakeview Residency Hotel covering Spa & Swimming Pool area, Parking – 1 & Parking – 2, Drive in Theatre (Big Event lawn), Event Lawns, Bhopal Express Restaurant, Kinara Restaurant, Rooftop Restaurant, Ripples Bar and Banquet halls at Shyamala Hills, Bhopal.

Site Coordinates **:** 23°14'32"N 77°23'18"E


INDIA
Madhya Pradesh
Bhopal
Madhya Pradesh


Lake View Point
Pump House
PROPOSED SITE
7.16 ACRE
Masjid Obaidullah Khan


Pump House
MPT Lakeview
Residency
Parking 2
Pool
& Spa
Parking 1
Drive In Theater
Bhopal Express
Restaurant
Event Lawn
Image © 2024 Airbus

1.9 SITE DIMENSHION AND DETAILS

Site Area: 7.16 Acres (28,975.5 sqmt)

Project Proposed by: Madhya Pradesh Tourism Department (MPT)

Budget: 150 Cr (Exculsive of Land Value)

Proximity:, Bhopal Jn Railway Station 5.8 Km, RKMP Railway Station 7.1 Km,

Raja Bhoj Int Airport 13 km,, Polytechnic Metro Station 400 M, ISBT 8 Km

BOUNDARIES:-

- **NORTH** : 7M- WIDE SERVICE ROAD FOLLOWED BY STEEP SLOPE TOWARDS UPPER LAKE AND LAKE FRONT
- **SOUTH** : EXISTING 24.00M WIDE ROAD (CONNECTING POLYTECHNIC CHAURAHA, TRIBAL MUSEUM AND MASJID OBAIDULLAH KHAN)
- **EAST :** SAURABH PATEL FIRE OFFICE
- **WEST :**NHDC PARISAR, BHOPAL

AMSL = 589.00 M

Project Scope

The project entails the redevelopment of the existing property into a minimum 5-star category hotel. The scope includes:

- Demolition of existing structures by the selected concessionaire.
- Design, Planning, and Construction of a new world-class hospitality facility.
- Operation, Maintenance, and Management of the redeveloped facility as per the Concession Agreement.
- Marketing, Management, and Service Delivery in line with hospitality industry standards.

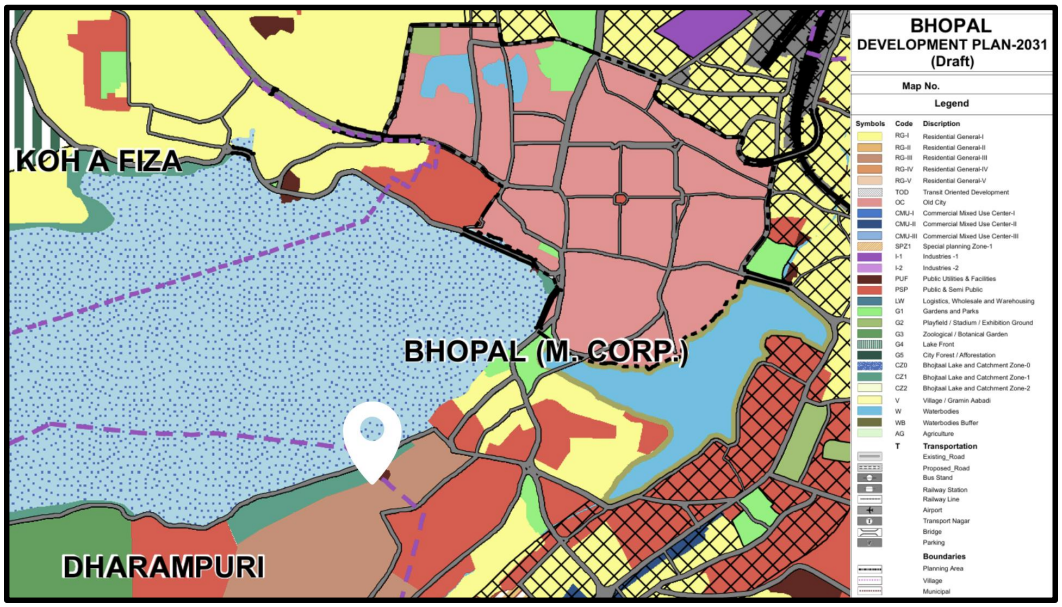
The Concessionaire will be granted the site on a lease basis, assuming full responsibility for:

- All design and construction costs.

- Necessary approvals, clearances, and compliance with relevant norms (Ministry of Tourism, GoI, and local authorities).
- Provision of ancillary services, infrastructure, faculty, equipment, and guest amenities.

All obligations are to be fulfilled at the sole cost and risk of the Concessionaire, in accordance with the terms set out in the RFP, Terms of Reference, and Draft Concession Agreement.

1.10 SITE LOCATION ON MASTER PLAN



1.11 DOCUMENT RELATED TO THE PROPOSAL OF THE PROJECT SCOPE OF WORK.

1. **Site:**
The size and shape of this site of 5 star Hotel shall As shown in the plan and demarcated at site.

2. **Division:**
To develop at least 150 rooms and Banquet & Convention facility for at least 1,000 pax under the project.

3. **Site coverage and F.A.R**
30 % of total site area (7.16 ACRES) i.e. 8692.7 sqmt

A total FAR of 2 is considered for the sub-city centre.

In addition to the FAR as mentioned in above said table, additional FAR as Premium Floor Area Ratio may be provided over and above which shall not exceed 25% of the Base FAR.

TABLE 8
(See Rule 61)
FLOOR AREA RATIO FOR DIFFERENT USE GROUP

S.No.	Use Group	FAR*	Category
(1)	(2)	(3)	(4)
1.	Resdential	1.25	
2.	Commercial	2.50 2.00 1.75 1.50 1.25	City Centre Sub-city center Community Center Local Shopping Centre Convenience Shopping Centre
3.	Public Semi-public	1.00	Administrative Areas / Education and Research/ Health/Social/Cultural/ Institutional
4.	Industrial	as per rule 48	as per rule 48

* F.A.R and Density may be adopted as provided in the Development Plans of respective towns.

4. **Height-**

A maximum of 30 meter height is considered for the building as per Bhumi Vikas Adhiniyam, Bhopal

TABLE No. 4
[See Rule 42(1)]
DEVELOPMENT NORMS FOR PLOTS / LANDS ON WHICH BUILDING(S) WITH HEIGHT ABOVE 12.5 M AND UPTO 30 M IS PROPOSED:

S. No.	Road Width in meters	Minimum plot/land (area in sq.m.)	Frontage in meters	FAR	[1][Ground Coverage per-centage	Building Height in meters	Front M.O.S. in meters	Sides/ rear in MOS in meters
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	12.0 m. and above	1000 sq. m.	18 m.	1:1.50	-	Up to 18 meters	7.5	6.0
2.	18 m. & above	1500 sq. m.	21 m.	1:1.75	-	Up to 24 meters	9.0	6.0
3.	24 m. & above	2000 sq. m.	30 m.	1:2.0	-]	Up to 30 meters	12.00 m.	7.5 m.

Note: [*Deleted*]

[1] In Rule 42, Column no. 6 and Note (1) of Table 4 of sub-rule (1) deleted by MP Rajpatra (Asadharan) No. 74 dated 06-03-2025 at page 147-148(5).

5. **Setbacks/open spaces-**

- **Front MOS-** 12 meter (as per approach road of 24m and above)

6. **Plinth-**

- ➢ The plinth of any building or out-house must ensure proper drainage and be raised at least 45 cm above the surrounding ground level.
- ➢ Interior courtyards must also be raised for adequate drainage.

7. **Parking-**

Eligibility: Podium can be constructed on a plot of at least 1000 sq.m. with a maximum of 3 floors above ground. Each floor should have a clear height not exceeding 2.4 meters.

FAR & Height Exemption: Podium floors are not included in the calculation of Floor Area Ratio (FAR) or building height. However, the uncovered rooftop of the podium will count toward open space requirements under Rule 47 and Rule 60.

Height Relaxation: The 2.4 m height limit can be relaxed for mechanized parking designs. The maximum height in such cases = (2.4 m × 3 floors) + thickness of beams and slabs.

8. **Basement:**

- Not for habitable use (exceptions apply)
- Conditions: Not within setback areas; max plinth height 0.45 m
- Usage: Storage, bank vaults, parking, equipment, limited commercial (with restrictions)
- Design Requirements:
  - Height: 2.4 m (3.6 m if commercial)
  - Ventilation: Natural or mechanical
  - Drainage protection, water-tight construction
  - Independent access, ramps allowed if not blocking setbacks
  - Max 3 basement levels for plots with minimum 21 m frontage and 30 m depth

9. Landscaping:

A plot having an area of 100 square meters or more shall be planted with trees after the completion of the construction of the building. The number of trees planted shall be one tree for every 100 square meters of individual plot. The occupancy certificate for the building will be issued only when the authority is satisfied that the provisions of this rule have been

complied with. Every effort shall be made to protect the existing trees on the plot.

10. Gate, gate post & boundary walls :

Height:

- Front: Max 1.5 m
- Side/rear: Max 2 m (3 m if service road exists)
- Corner plots: Side road wall max 1.5 m

11. **Width /slope of ramp:**
The clear width of the ramp leading to the basement floor shall be 4 mts , with an adequate slope not stepper than 1:10.

1.12 DETAILS OF PROJECT:

To develop at least **150 rooms** and Banquet & Convention facility for at least **1,000 pax** under the project.

The facilities may include:

1. Additional rooms to provide lodging facilities to the guests.

2. Theme Restaurants and Food Joints

3. Banquet & Convention Centres

4. Facilities in the Hotel for Social and Corporate events including weddings/exhibitions.

5. Facilities in the Hotel to Promote and Market fairs, local cuisine, culture, folk music, dance, costumes, products, art, handicraft and heritage tourism.

6. Food & Beverages (Cafes, Retro Lounges Heritage/Luxury Dining etc.)

7. Food Courts and/or Rooftop Restaurant

8. Any other projects as defined in Madhya Pradesh Tourism Policy 2025 as amended from time to time.

1.13 **PROJECT SCOPE**

The project entails the **redevelopment of the existing property** into a **minimum 5-star category hotel**. The scope includes:

- **Demolition** of existing structures by the selected concessionaire.
- **Design, Planning, and Construction** of a new world-class hospitality facility.
- **Operation, Maintenance, and Management** of the redeveloped facility as per the Concession Agreement.
- **Marketing, Management, and Service Delivery** in line with hospitality industry standards.

The Concessionaire will be granted the site on a **lease basis**, assuming full responsibility for:

- All design and construction costs.
- Necessary **approvals, clearances**, and **compliance** with relevant norms (Ministry of Tourism, GoI, and local authorities).
- Provision of **ancillary services, infrastructure, faculty, equipment**, and guest amenities.

All obligations are to be fulfilled **at the sole cost and risk of the Concessionaire**, in accordance with the terms set out in the **RFP**, **Terms of Reference**, and **Draft Concession Agreement**.

CHAPTER 2

LITERATURE STUDY

2.1 MINISTRY OF TOURISM GUIDELINES:

To ensure hotels meet modern standards of facilities and services, the Ministry of Tourism has developed a voluntary classification scheme for operational hotels, applicable to the following categories:

I. Star Category Hotels: - 5 Star Deluxe, 5 Star, 4 Star, 3 Star, 2 Star & 1 Star

II. Heritage Category Hotels: - Heritage Grand, Heritage Classic & Heritage Basic

FOR APPROVAL

Application Form should have the following details:

1. Proposed name of the Hotel.

2. Name of the promoters with a note on the business antecedents in not more than 60 words.

3. Complete postal address of the promoter with Telephone, Fax and Email address.

4. Status of the owner/promoter:

a) If Public/private limited company with copies of Memorandum and Articles of Association.

b) If Partnership, a copy of Partnership Deed and Certificate of Registration.

c) If proprietary concern, name and address of proprietor/certificate of Registration.

5. Location of hotel site with postal address.

6. Details of the site .

a) Area (in sq. meters).

b) Title – owned / leased with copies of sale / lease deed.

c) Copy of Land Use Permit to construct Hotel from local authorities.

d) Distance (in Kms) from (a) Railway station (b) airport (c) main shopping center.

7. Details of the project:

a) Copy of Feasibility Report

b) Star category planned

c) Number of rooms (with attached bathrooms) and size for each type of room (in sq.ft.)

d) Size of bathrooms (in sq.ft.)

e) Details of public areas with size in sq. ft. – Lobby / lounge; restaurants; bar; shopping; banquet/conference halls; business center; health club; swimming pool; parking facilities (no. of vehicles)

f) Facilities for the differently abled guests (room with attached bathroom earmarked for this purpose, designated parking, ramps for free accessibility in public areas and to at least one restaurant, designated toilet (unisex) at the lobby level etc.).

g) Eco-friendly Practices

(a) Sewage Treatment Plant

(b) rain water harvesting

(c) waste management 8

(d) pollution control method for air, water and light

(e) introduction of non-CFC equipment for refrigeration and air conditioning.

h) Energy / water conservation (use of CFL lamps, solar energy, water saving devices / taps)

i) Details of Fire Fighting Measures/ Hydrants etc.

j) Date by which project is expected to be completed and become operational

k) Any other additional facilities

l) Security related features

m) The architecture of the hotel building in hilly and ecologically fragile areas should incorporate creative architecture keeping in mind sustainability and energy efficiency and as far as possible in conformity with local art and architecture with use of local materials.

CLASSIFICATION / RECLASSIFICATION OF OPERATIONAL HOTELS:

- The application should indicate whether a few rooms or all rooms are to be let out on a Time Share

basis. Hotels which propose to let out part of or all its rooms on time-share basis will not be eligible for Classification under this scheme.

- The application fees payable for classification/reclassification are as follows. The Demand Draft may be payable to "Pay & Accounts Officer, Department of Tourism, New Delhi" Star Category Classification/Reclassification fees in Rs.

5- Star 20,000

5- Star Deluxe 25,000

Table-4: Space Classification (Source: Newferts Data).

S. No.	Public Areas	Private Areas (Staff)	Private Areas (Guests)	Semi-Private Areas
1	Lobby and Reception Area	Administrative Offices	Standard Guest Room	Banquet Hall
2	Restaurant and Dining Facilities	Accounting Office	Double Occupancy Guest Room	Formal Dining Hall
3	Retail Outlets and Shops	Technical/Mechanical Rooms	Deluxe Guest Room	Multipurpose Hall
4	Lounge and Bar	Staff Bedrooms	Suite Guest Room	Banquet Area
5	Cloakroom and Storage Area	Laundry and Storage Facilities	Steam Room and Spa Services	
6	Parking Facilities	Kitchen and Food Storage Area	Guest Lounge and Bar	
7	Recreational Outdoor Areas (e.g., Parks)	Lockers and Staff Washrooms	Recreational Facilities (Swimming Pool, Gym)	
8	Banquet Hall	Waste Disposal Area	Guest Reading Room	
9		Control Room		
10		Pantry		

CHECKLIST OF FACILITIES FOR CLASSIFICATION/RE-CLASSIFICATION OF HOTELS:

CHECKLIST FOR FACILITIES & SERVICES	1*	2*	3*	4*	5*/ 5* D	Yes / No	COMMENTS
General							
Full time operation 7 days a week in season	N	N	N	N	N		
Establishment to have all necessary trading licenses	N	N	N	N	N		Documents as detailed in General Terms and Conditions.
Establishment to have public liability insurance	D	D	D	D	D		
24 hr. lifts for buildings higher than ground plus two floors	N	N	N	N	N		Mandatory for all hotels. Local laws may require a relaxation of this condition. Easy access for the differently abled guests.
Bedrooms, Bathroom, Public areas and kitchen fully serviced daily	N	N	N	N	N		
All floor surfaces clean and in good repair	N	N	N	N	N		Floor may be of any type.
Guest Room							
Minimum 10 lettable rooms, all rooms with outside windows / ventilation.	N	N	N	N	N		
Minimum size of bedroom excluding bathroom in sq. ft	120	120	140	140	200		Single occupancy rooms may be 20 sq ft less. Rooms should not be less than the specified size.
Air-conditioning	25%	25%	50%	100%	100 %		Air-conditioning/ heating depends on climatic conditions & architecture. Room temp. should be between 20 & 28 Degrees C. For 4, 5 and 5 Star Deluxe (the percentage is of the total no. of rooms).
A clean change of bed and bath linen daily & between check– in 's	N	N	N	N	N		Definitely required between each Check – In. On alternate days for 1 & 2 Star hotels.
Suites				N	N		2% of room block with a minimum of 1.
Bathroom							
Number of rooms with attached bathrooms	All	All	All	All	All		It will be mandatory w.e.f. 01.09.2010 for all 1 and 2 Star category hotels to have attached bathrooms. All bathrooms to have sanitary bin with lid.

Figure 4Checklist of Facilities for Classification/Re-classification of Hotels:

Crockery & Glassware	N	N	N	N	N		Plastic ware accepted in pool area.
Cutlery to be at least stainless steel	N	N	N	N	N		All categories should use good quality metal cutlery. Aluminum cutlery prohibited.
Bar			N	N	N		
Kitchens							
Refrigerator with deep freeze	N	N	N	N	N		Capacity based on size of F & B service.
Segregated storage of meat , fish and vegetables	N	N	N	N	N		Meat, fish and vegetables in separate freezers.
Colour coded synthetic chopping boards	N	N	N	N	N		Wooden chopping boards prohibited.
Tiled walls non –slip floors	N	N	N	N	N		
Head covering for production staff	N	N	N	N	N		
Daily germicidal cleaning of floors	N	N	N	N	N		
Good quality cooking vessels / utensils	N	N	N	N	N		Use of aluminum vessels prohibited except for bakery.
All food grade equipment containers	N	N	N	N	N		
Ventilation system	N	N	N	N	N		
Garbage to be segregated – wet and dry	N	N	N	N	N		To encourage recycling.
Wet garbage area to be air-conditioned			N	N	N		
Receiving areas and stores to be clean and distinct from garbage area	N	N	N	N	N		
Six monthly medical checks for production staff	N	N	N	N	N		
First – aid training for all kitchen staff	N	N	N	N	N		
Pest control	N	N	N	N	N		
Staff							
Staff uniforms for front of the house	N	N	N	N	N		Uniforms to be clean and in good condition.

Figure 5Checklist of Facilities for Classification/Re-classification of Hotels:

Shelves / drawer space	N	N	N	N	N		Necessary for hotels of 1, 2 & 3 Star category to have a wardrobe.
Room and facilities for the differently abled guests							
At least one room for the differently abled guest	N	N	N	N	N		Minimum door width should be one metre to allow wheelchair access with suitable low height furniture, low peep hole, cupboard to have sliding doors with low clothe hangers etc. Room to have audible and visible (blinking light) alarm system. All hotels should be fully compliant by 01.09.2010.
Ramps with anti-slip floors at the entrance. Minimum door width should be one metre to allow wheelchair access.	N	N	N	N	N		To be provided in all public areas. Free accessibility in all public areas and at least one restaurant in 5 Star and 5 Star Deluxe. All hotels should be fully compliant by 01.09.2010.
Bathroom	N	N	N	N	N		Minimum door width should be one metre. Bathroom to be wheelchair accessible with sliding door, suitable fixtures like low wash basin, low height toilet, grab bars etc. No bath tub required. All hotels should be fully compliant by 01.09.2010.
Public restrooms	N	N	N	N	N		Unisex. To be wheelchair accessible with low height urinal (24" maximum) with grab bars. Minimum door width should be one metre. To be introduced by 01.09.2010 in 1, 2 & 3 Star hotels also.
Public Areas							
Lounge or seating area in the lobby	N	N	N	N	N		Doorman on duty. Lobby shall have furniture and fittings which shall include chairs/arm chairs, sofa, tables and fresh floral display.
Reception facility	N	N	N	N	N		Manned minimum 16 hours a day. Call service 24 hrs. Local directions to hotel including city / street maps to be available.
Availability of room, F& B and other tariff	N	N	N	N	N		
Heating and cooling to be provided in public areas				N	N		Temperatures to be between 20-28 degrees Celsius.

Figure 6Checklist of Facilities for Classification/Re-classification of Hotels:

							provided on a permanent basis, it will be mandatory for all Star hotels to provide multi-socket adapter plugs on request.
A telephone for incoming & outgoing calls in the room	D	N	N	N	N		4 star and above should have direct dialing and STD / ISD facilities. 1,2 and 3 Star category hotels may go through a telephone exchange.
PC available for guest use with internet access	D	D	N	N	N		This can be a paid service. Upto 3 Star, PC can be in the executive offices. Internet subject to local access being available.
E-mail service	D	D	N	N	N		Subject to local internet access being available.
Fax, photocopy and printing Services.	N	N	N	N	N		
In room Internet / wi-fi connection	D	D	D	N	N		Subject to local internet access being available. Wi-Fi wherever possible.
Business Centre	D	D	D	N	N		This should be a dedicated area. (This provision may be relaxed for resort destinations, tourist and pilgrimage centers).
Swimming Pool	D	D	D	D	N		This can be relaxed for hill destinations. Mandatory to have trained Life Guard, Board containing Do's and Don'ts, No Diving sign, pool depth etc. should be displayed at a strategic location in the pool area. All 4 Star, 5 Star and 5 Star Deluxe hotels shall provide a luminous LED wall clock with numerals of three inches or more on display near their swimming pools
Parking Facilities	D	D	N	N	N		Should be adequate in relation to the number of rooms & banquet / convention hall capacity. Exclusively earmarked accessible parking nearest to the entrance for differently abled guest.
Conference Facilities.	D	D	D	D	N		
ECO FRIENDLY PRACTICES							
Sewage Treatment Plant	N	N	N	N	N		A Sewage Treatment Plant will not be a mandatory condition for hotels which have obtained completion certificate for construction before 01.04.2012.

Figure 7Checklist of Facilities for Classification/Re-classification of Hotels:

English speaking front office staff	D	D	N	N	N		This may be relaxed outside the metros / sub-metros for 1 and 2 Star category hotels.
Percentage of Supervisory staff	20%	20%	40%	40%	80%		Hotels of 4 Star category and above should have formally qualified Heads of Departments. The supervisory or the skilled staff may have training or skill certification as follows: Degree / diploma from Central or state IHM's / FCI's or from NCHMCT affiliated IHM's or from other reputed Hospitality schools.
Percentage of Skilled staff	20%	20%	30%	30%	60%		The supervisory or the skilled staff may have training or skill certification as follows: i. Degree / diploma from Central or state IHM's / FCI's or from NCHMCT affiliated IHM's or from other reputed Hospitality schools. ii. Skill training certificate issued under the guidelines and scheme of the Ministry of Tourism.
Staff welfare / facilities							
Staff rest room	D	D	N	N	N		Separate for male and female employees with bunk beds, well lighted and ventilated.
Staff locker room	D	D	N	N	N		
Toilet facilities	N	N	N	N	N		Full length mirror, hand dryer with liquid soap dispenser.
Dining area	D	D	N	N	N		
Guest Services							
Provision of wheelchair for the differently abled guest	N	N	N	N	N		Wheel chair to be available on a complimentary basis in hotels of all categories
Valet (parking) services to be available	D	D	N	N	N		
Dry- cleaning /laundry	D	D	D	D	N		In house for 5 star Deluxe hotels. For 5 Star category and below, maybe outsourced.
Iron and iron board				N	N		Iron and iron board to made available on request in 1 to 4 Star category hotels on complimentary basis. For 5 and 5 Star Deluxe categories, to be available in the room.

Figure 8Checklist of Facilities for Classification/Re-classification of Hotels:

Shop / kiosk	D	D	D	N	N		5 and 5 Star Deluxe category hotels to have one utility and one souvenir shop. 4 Star to have minimum one utility shop.
Money changing facilities	D	D	D	D	D		Money changing facility to be made available.
Bookshop	D	D	D	D	N		
Safety & Security							
Metal detectors (door frame or hand held)			N	N	N		
CCTV at strategic locations	N	N	N	N	N		
X-Ray Machine					N		For 5 Star Deluxe category, it would be 'Necessary' to have an X-Ray Machine at the guest entrance for screening of baggage. Manual checks may be conducted for staff and suppliers at designated entry points.
Under belly scanners to screen vehicles				N	N		
Verification	N	N	N	N	N		All hotels should conduct a verification of their staff and suppliers by the Police / private security agencies.
Staff trained in fire fighting drill	N	N	N	N	N		All hotels to conduct periodic fire drills and maintain 'Manuals' for Disaster Management, First Aid and Fire Safety. Quarterly drill or as per law.
Security arrangements for all hotel entrances	N	N	N	N	N		
Each bedroom door fitted with lock and key, viewport / peephole & internal securing device			N	N	N		A safety chain / wishbone latch is acceptable in place of viewport / peephole.
Smoke detectors	N	N	N	N'	N		These can be battery operated.
Fire and emergency procedure notices displayed in room behind door	N	N	N	N	N		
Fire and emergency alarms should have visual & audible signals	N	N	N	N	N		
First aid kit with over the counter medicines with front desk	N	N	N	N	N		

Figure 9Checklist of Facilities for Classification/Re-classification of Hotels:

Rain Water Harvesting	N	N	N	N	N		
Waste management	N	N	N	N	N		
Pollution control methods for air, water and light	N	N	N	N	N		
Introduction of non CFC equipment for refrigeration and air conditioning and other Eco-friendly measures / initiatives.	N	N	N	N	N		

Checklist of Services and Facilities (Annexure III)

D Desirable

N Necessary

There is no relaxation in the 'Necessary' criteria of the Checklist of Services and Facilities (Annexure II), except as specified in the comments column of said checklist.

Note1.

All hotels should clearly indicate on their websites the facilities and amenities provided to guests "free of cost" like complimentary breakfast (indicating broad classification like Indian breakfast, Continental breakfast or American breakfast), iron and iron board facility, shoe cleaning facility, shoe horn and slippers, other "free" facilities like dental kit, shaving kit etc.

If any facility is provided only 'on request' but is included in the room rent, this should be mentioned on the hotel's website under the head **'Facilities and Amenities Provided on complimentary basis'** and also be mentioned to the guest when the hotel staff introduce the room to him / her on arrival. In case the 'complimentary breakfast' is not a buffet, the guest must be shown a list stating in English the name of all complimentary items.

(All hotels shall submit a compliance of Note 1 in the form of a screen shot of their website showing the "Facilities & Amentias provided on complimentary basis")

Note 2.

It will be mandatory for all the hotels classified under all category to display their classification status prominently on their websites under a separate icon on the opening page, which on the click will display the order of classification issued by the Ministry of Tourism, Government of India, and at the reception.

Note 3.

All the hotels shall be required to submit an affidavit with respect to clearances along with their applications for approval of Hotel at the Project Stage and for Classification / Re-classification of Operational Hotels, as given in **Annexure V and VI respectively**.

Note 4:

a. If any hotel is found to obtain classification on a false pretext or on the basis of misrepresentation of facts, or is found to display wrong classification status, or found to promote / market the hotel on the basis of wrongful claims pertaining to hotel classification, then the unit / hotel will stand declassified with immediate effect and it shall be debarred from applying for classification under any category for a minimum period of two years from the date of debarment by the competent authority i.e. the Chairman, HRACC.

b. If a hotel which has applied for classification under any category to the Ministry of Tourism is found to display false classification status, or found promote / market the hotel on the basis of wrongful claims pertaining to hotel classification, then the application for classification of the unit / hotel will stand summarily rejected and it shall be debarred from applying for classification under any category for a minimum period of two years from the date of debarment by the competent authority i.e. the Chairman, HRACC.

c. In case of debarment, a hotel, which is found to otherwise fulfil to the satisfaction of the inspection committee, all criteria pertaining to the classification parameters of the star / heritage category under which it was found to wrongfully promote itself, will have the one-time opportunity for revocation of the debarment by paying a penalty prescribed below. Such observation of the committee, if any, will

.3 EXTERNAL ACCESS OF CONTROL

1. **Limiting Access Points**

The number of access points needs to be reduced to a minimum of two or three and entry of persons regulated and monitored through CCTV cameras placed at such points.

2. **Perimeter Security System**

A three-tier security system should be put in place-

(a) At the perimeter, on the outside of the hotel itself, cars must be stopped, boots checked, and mirrors put under the car chassis to detect explosives.

(b) Vehicles driving up to the hotel door should be discouraged. Vehicles should not be allowed to go right up to the door. Guests must alight at some distance away and walk-up.

(c) There should be closed circuit TVs installed in all public areas of the hotel, especially at the alighting point and entrance door for scanning people coming into the hotel.

3. **Road Barriers**

Premium hotels could consider installing devices like hydraulically operated road barriers or retractable bollards that can stop vehicles coming at high speed. Short humps can be raised from ground level to slow down/stop vehicles.

4. **Shrubs and Vines**

Heavy shrubs and vines should preferably be kept away from the hotel building and trimmed close to the ground to reduce their potential to conceal criminals or bombs.

5. **Patrolling**

Increasing the number of Security Guards and stepping up patrolling can be an effective deterrent to criminals.

2.1.4 MATERIAL ACCESS CONTROL

1. **Guest Baggage Check**

(a) Baggage should be taken to a drop point, away from the lobby and passed through baggage scanners which can detect the shape and density of the objects with a high degree of clarity

(b) Handheld bags must be checked at the entry point.

2.1.5 PEOPLE ACCESS CONTROL

1. **Walk-In Guests**

Hotels should not entertain Walk-in guests' (without reference or pre-bookings)

2. **Guest Profiling**

Hotels should put in place a computer linked guest profiling system to zero in on persons of suspicious antecedents whose names figure in the Ministry of Home Affairs' Watch List. The information would include details such as full name of the guest, date of birth; nationality, sex; passport number, country issuing the passport; country of residence; visa number, date and place of issue.

3. **Employee Verification**

Internal security must be ensured through background checks and antecedent verification of employees and service providers. Temporary staff should be hired from reputed contractors who maintain up-to-date database.

4. **Visitor Management System**

A visitor management system is essential. All visitors must be given a 'Visitor Pass'.

2.1.6 INTERNAL ACCESS CONTROL

1. Within the hotel there should be restriction on access to different parts of the hotel.

2. Access of staff to various departments in the hotel can also be regulated through proximity cards with magnetic interlocks.

3. Entrances to areas such as Boiler Rooms, Mal Rooms, Computer Rooms, Switch Boards and Control Rooms should remain locked when not in use.

4. It is also necessary to establish a procedure for the accountability of their keys.

5. LIFT USAGE

(a) The practice of people entering the lobby and taking the lift to any floor must be stopped.

(b) Lifts should be programmed so that Guests staying in hotels are able to go only to the guest floor they are on by swiping their room card in the lift and it should only let them get out on the guest floor they are on.

2.1.7 OTHER SECURITY MEASURES

1. **Room Key Scanners**

The US Department of Energy, through its Oak Ridge National Labs, has developed Mass Spectrometry Scanners which can analyze up to 1000 guest room access cards per hour. These can detect even a billionth of a gram of explosives such as Nitroglycerine or TNT. Even if a tinge of explosive has been touched by the guest it would alert the staff immediately and information flashed to security agencies.

2. **Snifex**

Snifex is a small handheld device with an ariel. The ariel starts V pointing to the direction where explosive is kept from a distance of a few meters.

3. **Trash Management**

An explosive device can easily be hidden in the trash. Trash cans need to be managed by trustworthy personnel.

2.1.8 CRISIS MANAGEMENT PLAN

I. Hotels must have a plan of action ready in case of an emergency Staff should be trained by mock drills in evacuations to help people in terror situations.

II. Hotels need to build strong in-house systems to prevent or deal with a crisis; train and motivate staff to respond to an emergency and evacuate guests if there is shooting or a bomb goes off. There should be a designated nodal executive in-charge of the crisis management team.

III. During crisis, calls start pouring from all over the world for news of the welfare and safety of guests and from the media persons who file reports on TV channels and in newspapers. There should be a nodal point and a designated person for information dissemination and to respond to all enquiries during a crisis.

2.2.5 STAR HOTEL MANUAL

2.2.1. PARKING AND APPROACH TO BUILDING

There must be minimally one designated accessible parking space in every 25 parking spaces provided.

a) **Location:**

- The accessible parking bay should be located closest to the entrance, with an accessible route, that is level or gently sloping and minimally 1200mm wide, leading to the building entrance.
- The route to the entrance from the parking must not require the user to cross any vehicular monument.
- The parking and the route connecting it to the entrance should preferably be covered.
- In case of underground parking, accessible parking bays should be located closest to the elevator leading to the lobby levels.

b) **Parking Space**

- Accessible parking bay should be 4800mm wide, out of which at least 1200mm, on both the sides, is used as transfer bays. Where there are two accessible parking bays adjoining each other, then the 1200mm transfer bay, on one side, may be shared by the two parking bays in between them.
- Length of the accessible parking bay should preferably be 6000mm, including a 1200mm wide transfer zone at the rear to allow loading of the wheelchair. The transfer zones, both on the sides and the rear should have yellow or white crosshatch road markings.

c) **Signage**

- There should be the international symbol of accessibility painted on the 2400mm wide area where

the car is to be parked. The symbol should be large enough to be easily visible by person looking for the accessible parking. Recommended size being 1000mm x 1000mm but not larger than 1500mm x 1500mm. The sign painted on the floor should contrast with the floor color (preferred colors, white and blue)

- There should also be a signboard with the international symbol of accessibility at the height of 1200mm from the floor right at the end of the parking.
- The Symbol of Access should be displayed at approaches and entrances to car parks, to indicate the provision of an accessible parking lot, for people with disabilities within the vicinity.
- Directional signs should be displayed at points where there is a change of direction to direct people with disabilities to the accessible parking lot.
- Approach to the Building
- The approach to the building entrance should be clearly defined.
- The surfaces should be firm and even, with a finish which is slip resistant in all weather conditions.
- The width of paths should be appropriate to meet the needs of all users.

- A recommended clear width of 1800mm will allow two wheelchair users to pass each other on path, however where obstacles are unavoidable and 1800mm width cannot be provided, a clear width of at least 1200mm should be provided throughout the path.
- Any kerbs in the route should have appropriate drop kerbs to allow access to a wheelchair.

2.2.2. **MAIN ENTRANCE**

a) Entrance should be easy to locate and adequately signposted

b) Consider installing automatic or semi-automatic doors

c) Avoid thresholds; if unavoidable, they should be no higher than 6mm

d) There should be a landing of at least 1800mm x 1800mm immediately next to the door.

2.2.3. **LOBBY, RECEPTION AND HOUSE PHONES**

a) **Lobby**

- The lobby should be levelled and split levels should be avoided.
- It should have adequate circulation space for a guest on a wheelchair, parents with a double pram or a person with heavy luggage.
- Any center piece that may be used in the lobby should be such that can be easily detected by a person with vision impairments. This can be achieved by making it contrast in color with the flooring and detectable by a white cane and by having its lower edge less than 300mm above the ground.

b) **Reception**

- Location of the reception should be such that it is easily identifiable from the entrance. The approach to the reception should be obstacle free.
- The reception should be designed, so as to accommodate both standing and sitting guests. This can be achieved by providing a seated section that is minimally 1500mm wide x 760mm high x 700mm deep with a 750mm high knee recess. The standing section should range from 950mm to 1100mm in height.
- A minimum clear floor area of 1200mm depth and 1800 mm width is required in front of any reception desk or counter (with a provision of 500mm deep knee recess) to enable sufficient maneuvering space for wheelchair users. If there is no knee recess provided, then the minimum maneuvering space required is 1400mm deep and 2200mm wide.

2.2. TIMESAVERS STANRADS (BUILDING TYPES) HOTEL:

- It must be borne in mind that, as far as planned circulation is concerned, there must never be aminglingofthefront-of-the-houseserviceswiththoseofthebackofthehouse.

- The two functions must be kept separate and yet so interrelated that both functions smoothly and efficiently.

- The physical environment becomes an important part of the guest's creature comfort. These factors include color and decor, lighting, proper air temperature, comfortable furnishings and, above all, pleasant and relaxed atmosphere.

- This involves the economics of a new hotel, which will center upon the cost of construction and furnishing. These costs represent, together with the cost of the land, the amount of money that is

to be invested.

2.2:.1. BACK OF THE HOUSE

- Though rarely seen by a guest, the back of the house is the most crucial part of the plan. It must be laid out with two paramount objectives: control and efficiency. Foodstuffs, housekeeping supplies, and a great many other items must be received out of sight of the hotel guests. Such receiving is usually done at a loading dock, which should be covered so that deliveries can be made regardless of the weather.

- This is usually the function of a receiving department that should be located directly on or adjacent to the loading dock. Tight control must be exercised in two directions. In one direction, it is not uncommon for material to be delivered and, within a short time of its having been left on the dock unchecked, for the management to find that this material has disappeared or that some parts of the shipment have gone astray. The second part of the control is to make sure that, once these shipments have arrived, they go directly to their destination without a chance of becoming lost on the way.

- A good back-of the- house plan will be worked out in such a way that the flow of supplies is tightly controlled by the security that the architect works into his plan

- Tight, well-planned back of the house will have circulation patterns that will provide the utmost in control.

- In the larger hotels, garbage destructors or compressors may be used, in which case tight surveillance is necessary only in the garbage receiving area. Where garbage is shipped out, it is wise to have the garbage rooms so placed (and, incidentally, refrigerated) that the receiving office has this space in full view.

- A tight control at the point of entry and egress of all employees is highly desirable and can easily be accomplished if it is the same point as that at which food and other hotel supplies are brought in. Once again, the architect's careful planning will make it possible for employees to reach their various dressing and locker areas with a minimum of travel time lost. It must be borne in mind that there is class distinction in hotels and, as an example, that dishwashers and porters are not placed in the same locker rooms as head waiters and reception clerks.

Uniform issue is related to the housekeeper, the housekeeper to the laundry room, and the laundry room to the soiled linen room. The soiled linen room connects by vertical linen

chute to the service room on every typical floor, and every typical floor is connected by a service elevator that opens to the lower floor service area convenient to the scrutinizing gaze of the steward and the timekeeper. For convenience, a trash chute, going from every typical floor service area, should be located next to the linen chute

2.2.2. LAUNDARY FACILITIES:

- A laundry is a usual adjunct of most good-sized hotels.

- A hotel laundry that does its own uniforms and flatwork (sheets, pillowcases, linens, etc.) requires a good-sized space for washers, dryers, drum ironers, and various pressing machines each suitable for its own type of flatwork, uniforms and guests' laundry, and men's and women's wearing apparel.

- Larger hotels will maintain their own cleaning department for dry cleaning and pressing of woollens and similar garments. Such a cleaning and valet service is usually a part of or close to the laundry area, and it is definitely under the supervision of the laundry manager.

2.2.3. HOUSE KEEPING DEPARTMENT:

- The housekeeping department, having several functions, is the province of the chief housekeeper, who will usually have assistant floor housekeepers. Under the housekeeper's strict control and supervision will be all the maids and porters

- The porters will deliver to the service areas on the guest-room floors all linen and soap as well as facial tissue, toilet paper, matches, room service menus, and ashtrays.

- The housekeeper's area is also a storage area, for here are kept all the supplies that become a part of housekeeping.

- It might be useful for the architect to know how many rooms a maid can make up during her daily tour of duty.

- It rarely goes beyond 15. One porter is usually assigned to each maid. In addition to the regular daytime maid, there will be, in most hotels, a night maid who will make up beds for guests ready to go to sleep.

2.2.4. FOOD AND BEVERAGE SERVICES:

- The flow of the raw food from the time it is delivered to the steward until it is finally cooked and ready to be picked up by the waiters or the waitresses.

- After the comestibles have been weighed in, checked, and signed for, they are sent to either dry storage or liquor storage (a room with a big lock on it) or to one of the various cold holding rooms or boxes. Canned food and other bottled or packaged food which does not need refrigeration will be sent to dry-storage rooms. In this storage space will also be kept the various condiments that the chef will need in the preparation of his food. Vegetables will be sent to an area where they will be stored ready for preparation.

- Dairy products will go to their own cold-storage boxes. Fish, fowl, and meat will go to a separate area where boxes must be arranged with proper temperatures for their storage.

- Freezer, refrigerator, and cold storage boxes require heavy insulation. Slab sinkage in these areas should be provided for.

- The bakery shop should be a separate entity, having its own refrigerator boxes as well as all the pertinent equipment that a baker will use in his art---and an art it is, indeed.

- Here again, one should be reminded that the bakery should be close to the actual food service area so that not too many of these goodies find their way into the locker rooms or out of the hotel entirely.

- KITCHEN- The food from the prep area is brought to the various points where it is to be used. One of the first areas to which a good part of the prepared food will go is the rough cooking 26 area. Here we find the big soup kettles, the vegetable steamers, the ovens, and the hot tops where most of the bulk foods will be prepared.

- Pot washing area close to the rough or preliminary food cooking area. Rough cooking is usually backed up to the finished cooking area.

- Between the chefs' ovens, broilers, and fry- errs, which are aligned in a straight line, there will be an aisle for the chefs. On the other side of this aisle will be the serving tables from which the waiters will pick up the finished food. At the bottom of these tables will be plate. warmers which the waiter picks up and sets on the table so the chef can place the order of the specific dish that is required.

- This entire area is for self-service by the waiters, who will pick up the items they need on their way to the guest waiting for the delivery of his food.

- DINING ROOM- The dishwasher is usually placed close to the Dining room area so that the dishes can be disposed of as soon as the waiter or busboy enters the kitchen. The dishwashing area is, of necessity, not only noisy but also a rather untidy operation, SO it must be kept fairly isolated from the actual cooking and serving area.

- Then, before entering tire. dining room, Ire will usually go by a checker's desk where he presents a check indicating the items that he is taking out of the kitchen to the diner.

- One other space will usually occur in our ideal kitchen--a service bar with a bartender who will prepare tire drinks that the waiter has ordered.

- There will be a chef's office, which is set where the chef can observe all the activities in tire kitchen. His office is usually enclosed with glass to give him aural privacy but complete visual control. Here the chef will prepare and plan menus.

- Room-service area- Here there must be sufficient space for a fairly large number of room service rolling tables, which are set and ready to carry the dishes that have been ordered by the guest via telephone.

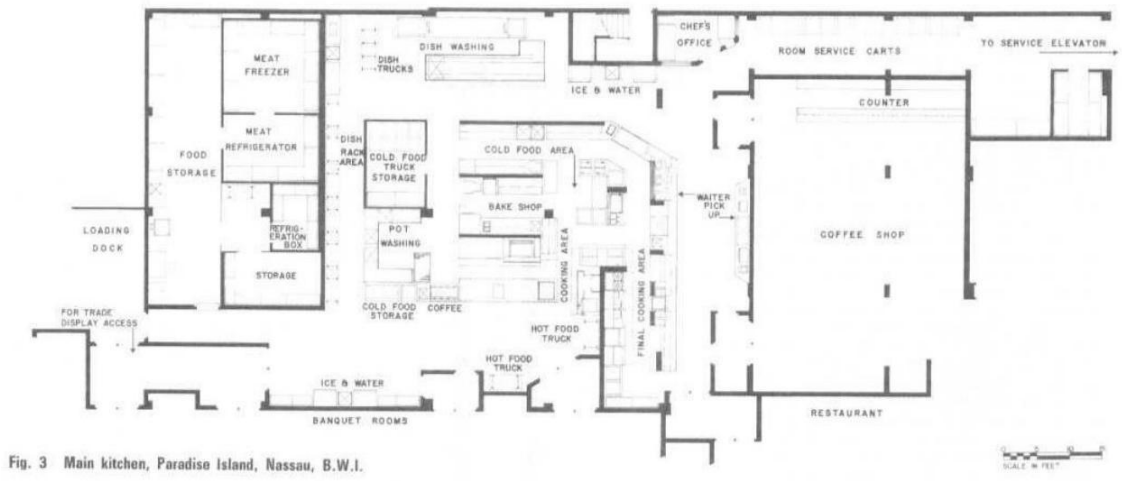


Figure 11 KITCHE PLAN

- The room service area should, of necessity, be as close to the service elevators as possible.

- COOKING AREA- The cooking area, consisting mainly of griddles, will be manned by short order chefs who are ready to prepare various hot breakfast dishes, and the garde manger section will be manned by a crew who are expert in the preparation of breakfast menus.

- BANQUET HALLS- In the banquet area there will be mobile cabinets that take trays. These are electrified cabinets arranged to keep dishes either hot or cold. Those banquet cabinets can be stocked before a banquet for certain types of manes.

- A large banquet area in a hotel will require a separate banquet kitchen with its own cooking facilities as well as its own dishwashing area. 27

- One last observation: it is an excellent idea to have toilets and washrooms for kitchen help, so that it isn't necessary for them to return to their locker rooms, which may be at some distance.

It is always advisable to keep the kitchen help within the kitchen during their stint of duty. Doors to dining rooms, and there may be several dining rooms serviced by the one kitchen, should be strategically placed and baffled so that the diners do not have a view of what goes on in the kitchen, and, what is more important, do not hear what is going on.

- The ideal plan would be to place the coffee shop backed up to the kitchen, so that certain finished dishes and prepared foods can be delivered to the coffee shop work area directly from the main kitchen under complete control and it passes from prep areas to kitchen to coffee shop.

- At the counter we will usually find a pickup area where the waiters can pick up the food prepared for them without disturbing the diners who are sitting at counters. Dirty dishes will be sent back to the dishwashing area through a pass-through, or they will be carried to the dishwashing area in the main kitchen.

- Employees' cafeteria- This space is usually planned to be close to the help's locker rooms and yet contiguous to the main kitchen.

- Beverage service area- This may be a bar room or a cocktail lounge. In any case, there will be a bar with stools (if local codes permit) and an area for cocktail tables and chairs. A cocktail lounge must be serviced just as the kitchen is serviced. To the bar must be brought not only liquor and bottled goods but also the usual crunchies.

- Ideally, the delivery should be made directly to the back bar through pass-throughs from the kitchen, so that we find once again another unit backed up to the ideal kitchen.

2.2.5. MECHANICAL SERVICES:

- Another area that should be considered in designing the back-of-the-house spaces will be the boiler or mechanical room. In this area will be found the various pieces of equipment for heating and cooling as well as all the tanks and pumps to keep all the mechanical systems in operation.

- In this area will also be found all central switch gear that controls electric current for every purpose in the hotel complex. This domain belongs to the house engineer and, naturally, there should be provision for an engineer's office, with a mechanical repair shop close by.

- These would include a carpentry shop, an upholstery shop, and definitely an area for a locksmith. Somewhere in the area, where they are easily accessible, will be storage rooms in which will be kept a multitude of spare parts to service the hotel. be occupied by personnel that very often come in contact with the guests, and the strategic location of these back-of-the-house facilities will be controlled entirely by what happens in the front of the house.

- Included in these areas you will find accounting and bookkeeping offices (which back up the front cashiers); reservations offices (which back up to the front registration desk); and offices for management, which will include a reception area, a manager's office, and an assistant manager's office.

- There is also a mail sorting room.

2.2.6. FRONT OF THE HOUSE:

- The guest or the paying customer sees only the front of the house, and this must be all that he desires.

- The front of the house comprises every area that the guest will see; lobbies, dining spaces, rest rooms, passenger elevators, corridors, hotel rooms, etc. These spaces must be handled and planned with one thought in mind: the convenience and continued approbation of the guests. 28

- The registration desk and the elevators should and must be immediately apparent. The registration area consists of a front desk, behind which is a registration clerk, behind whom is the key and mail rack, and behind that the various administration spaces.

2.2.7. GUEST REGISTRATION:

- A hotel registration desk must be located so that it is immediately visible as one enters the hotel lobby. The size of the desk will be determined by the size of the hotel.

- 2,000 rooms might have anywhere from four to six registration clerks, while a hotel of 100 to 200 rooms will have one or at roost two spaces at which guests may register.

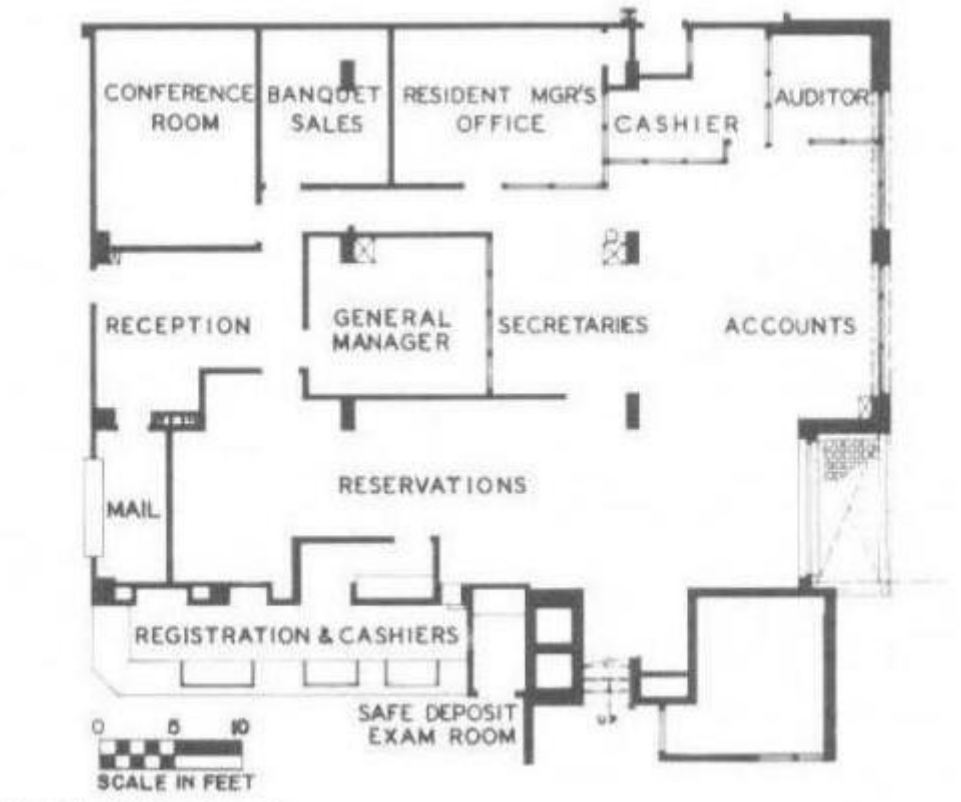
- The simplest arrangement will call for a suitable file containing advance reservation cards requesting space, so that the clerk can quickly check what room has been reserved for what particular guest.

- Advance registration counter

2.2.8. MAIL AND KEYS:

- There are two other services that the front or registration desk must perform. The first and obvious one is to serve as the place where the room keys are kept.

- If the registration clerk handles the key, then obviously the key rack is directly behind the desk, easily accessible to the registration clerk. If the hotel is large enough to require separate area and separate personnel for handling of keys, this function will usually be alongside the actual registration desk



The Churchill Hotel, London.

2.2.9. CASHIOR

- The average hotel usually has the cashier's counter located adjacent to the registration desk.

- The larger hotels may place cashiers in the so-called "front desk" area but

somewhat remote from the actual registration desk. There are times in large hotels, especially those catering to conventions, where one convention is checking out while another is checking in. This will make for traffic congestion and some confusion. Such a situation can be avoided by planning the registration and cashier facilities so that lines forming in front of the registration desk do not conflict with lines forming at the cashier's counter.

- Larger hotels will have a complete bookkeeping department. This will require more than just the actual cashiers, who remain at their stations, while the bookkeeping department handles all entries and bookkeeping for the guests. It is obvious that this bookkeeping department should be close to if not backed up to tire front desk cashiers, so that any questions of charges can be quickly checked and adjusted by the cashier, who will contact the bookkeeping department for Clarification or corrections in the guests' bills.29

- Therefore, a small, closed room is normally provided. The guest enters this room and gives the valuables to the cashier through a pass-through window. This pass-through window should have a view of the vault or the safe so that the guest can watch his valuables being deposited properly.

- In large hotels, where there are a number of restaurants and other facilities which entail cash payment, special arrangements should be made for the handling of this cash and, in some instances, safety deposit boxes or vaults are provided so that the money can be stored when it is brought to the cashier space at off hours.

2.2.10.ADMINISTRATIVE AREA:

- The administration of a hotel operation depends entirely upon its size.

- A larger, medium-sized hotel will have a manager and an assistant manager and, as a rule, there will be e reception office where one or two typist receptionists will be acting as a buffer between the public and the manager.

- Aside from the manager and the assistant manager, there may be an office for a food and beverage manager and a banquet manager. A larger hotel, with sizable convention facilities, will also have an office for the convention manager and his assistants.

2.2.11.RESTAURANT FACILITIES:

- Under normal situations there will be a cocktail lounge or beverage bar even in the smallest dining facility. The larger hotel will have a pleasant coffee shop for quick service and for simpler meals, whereas a restaurant, with its appropriate decor for more leisurely dining, will offer a more varied menu with probably higher cost per meal than in the coffee shop. The cocktail lounge will usually be found close to the dining room so that hotel guests can pause for a cocktail before lunch or dinner, or while waiting, before going to the dining room", to meet friends or other guests. Where convention facilities are offered within a hotel, it is wise to have a bar placed close to the convention facilities.

2.2.12.LOBBIES:

- Every hotel, regardless of its size, must have a public lobby. The size of the lobby is largely determined by the number of guest rooms as well as by the type of hotel that is on the architect's drawing boards.

- Furnishings, color, finishing materials, lighting, and decor must create the proper

ambience regardless of whether the hotel is large or small, in a city or a resort, moderately priced or expensive.

2.2.13.ELEVATORS:

- Except for one- and two-story motels, every hotel and motel will use elevators to take guests from the point at which they have checked in up to the floor where the guest's room is located. Elevators should be located so that they are immediately visible, either from the entrance of the hotel or from the check-in or registration area. Another consideration in the planning of elevators is that of their location on the guest-room floors. It is advisable to place them centrally so that the distance walked by a guest in any direction is reduced to a minimum.

- The number, size, and speed of the required elevators is best determined by the elevator companies themselves.

- Service elevators are separate and apart.

- Each bank of elevators should be strategically located to best service the front of the house (guests) or the back of the house.

- The bell captain's station should be located so there is a commanding view of the hotel entrance, the registration desk, the cashier, and the elevators.

- Somewhere in the lobby there should be a rather large storage spare for luggage which may be left by guests after checking out but prior to departing.

2.2.14.GUEST FLOOR CORRIDORS:

- It is wise to remember that no guest-room doors should be placed opposite the elevators. Guests coming or going late at night, coming out or getting into the elevators, may talk loudly or may be too noisy, in which case they would be disturbing guests whose doors open off this area. The foyer should be further demarked from the guest-room corridor by its decor and lighting.

- One of these appurtenances would be a small bench or some type of seat for guests who may want to wait in the foyer for the elevator or who may be waiting to meet someone else on the floor. It is also a thoughtful gesture to have a full-length mirror in this area; men as well as women guests appreciate the chance to have a look at themselves before descending to the main lobby floor.

- There should obviously be a good-sized ash receiver for cigarettes, cigars, and other trash nuisances that the guest may want to get rid of before getting into the elevator.

- Good practice indicates that a corridor should, if at all possible, not be over 100 ft in length.

- There is very little choice in the width of a corridor. Normally, 6 ft is considered an adequate width, although some hotels have made do with only 5 ft.

- Another expedient, which may be used either in a narrow corridor (under 6 ft) or a standardwidth corridor, would be the device of recessing the bedroom or guest-room doors. Setting doors back from the corridor wall 1 ft or even as much as 2 ft gives an apparent width to the corridor and, what is more important, it gives each room entrance its own sense of privacy and individuality.

- A flush panel door is the least expensive but also the least desirable type of door for a guest room. If only a flush door is used, strong color might be helpful,

- The lower portion of the wall, therefore, might well be designed as a dado made of a bruise and shock-resistant material or merely marked off with a contrasting color or wall covering.

2.2.15.GUESTROOMS:

- The length and width are determined by the amount of furniture that is to go into the room and by the degree of luxury that the hotel operator wishes to achieve.

- The most common room in the hotel field today is the twin-bedded room. Then we have the possibility of a single occupancy room, and, lastly, studio rooms or suites.31

- The next consideration is the size of the beds themselves. There are single beds which are 3 ft 6 in. wide, a full-sized bed which is 4 ft 6 in., a queen-sized bed which is 5 ft wide, end a king sized bed which is 6 ft wide. Presently, all beds are still being made in a 6-ft 6- in. length dimension.

- If at all possible, there should be a3-ft aisle and, if no furniture is placed opposite the bed (a very unlikely arrangement), then the width of the room would be a minimum of 10 ft 6 in.

- Where furniture will be placed on the wall opposite the bed, such furniture will most likely consist of a dresser or cupboard with drawers. Such a piece of furniture requires a minimum of 18 in. in width and most likely an optimum width of 24 in.

- The most common arrangement found in most hotels consists of two comfortable armchairs with a cocktail table between them. A comfortable chair will require a depth of least 30 in. and another 30 in. of leg space in front of it, which means that we need at least 5 ft from the wall before we encounter the first piece of furniture, which will probably be a bed.

- In talking of lighting, we must bear in mind that we want not only a lamp or a ceiling fixture over the sitting area but also adequate reading lights for the beds. The most often used arrangement is a twin-headed lamp sitting on the night table between the two beds.

- Another piece of fixed furniture that is desirable is a luggage stand.

- This could be a straight-backed chair or a stool placed in front of the writing-makeup table.

- SUITES: Another popular arrangement in hotels is that of the so-called "studio room." Dual sleep pieces have been developed which are comfortable sofas during the day and perfectly comfortable beds at night.

- furnished as a studio room. Thus, the hotel can provide a two-room suite (obviously, connecting doors must be provided between these two accommodations).

- Every hotel should have arrangements for suites of a permanent nature as opposed to a combination of a studio room with a typical guest room. Suites will be furnished like fine sitting rooms. They are used not only by the affluent traveler because he can afford it but also by travelers who do a good deal of entertaining, especially business travelers who entertain clients and customers on their arrival in any given city.

- These suites are also often used by two couples or by a large family, in which case the sitting room of the suite may be used for sleeping at night. In this case, dual sleep pieces will be required, but they will usually be the type that is referred to as a "davenport," or the type of sofa which opens out to become a comfortable double bed (never as comfortable as a true bed). These suites should have a good- sized dining table with a sufficient number of chairs, provision for an adequate desk (since some business may be carried on in that room), a sufficient number of comfortable lounge chairs, and an accessory table.

- It is a good practice to arrange the sitting room of a suite so that it connects with at least two bedrooms and, if at all possible, three and sometimes even four bedrooms.

- Suites will usually be found in the corner of a building, which makes it possible for the planner to join up several bedrooms.

- There are times when suites are not used, and the hotel should be able to rent each of the rooms in the suite separately.

- A foyer which connects the bedrooms and the sitting area makes this separate keying of rooms possible.

- A complete bathroom should be planned for each of the sitting rooms of a suite to make it possible to rent the rooms out singly.

- Since this room will be used for entertaining (either business or private), a bar with water connection becomes a pleasant adjunct.

- Obviously, these rooms will be placed on the lowest floors so they can be close to the public spaces for the convenience of those who are going to use them for meetings or seminars in connection with a larger convention or meeting taking place in the hotel.

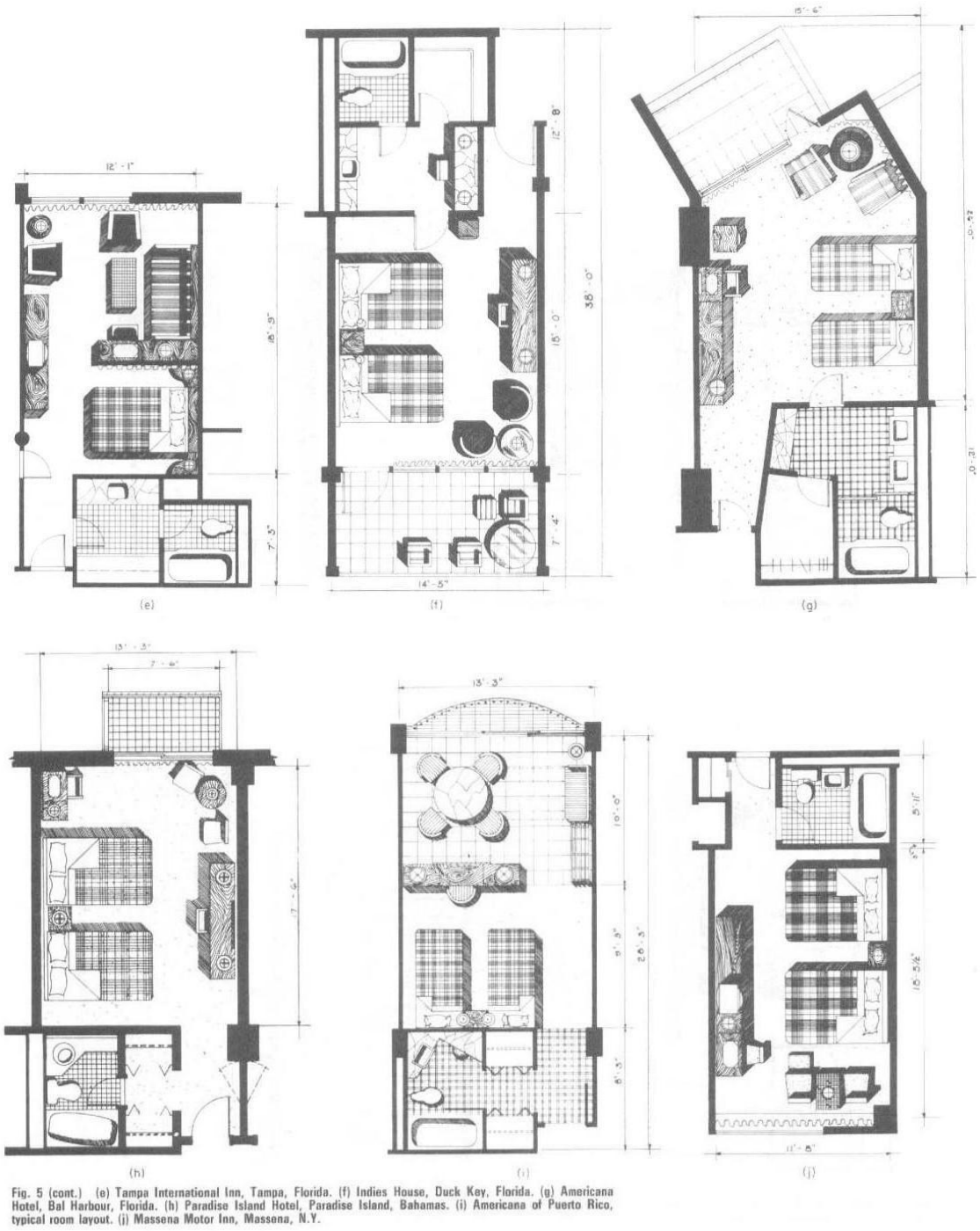


Fig. 5 (cont.) (e) Tampa International Inn, Tampa, Florida. (f) Indies House, Duck Key, Florida. (g) Americana Hotel, Bal Harbour, Florida. (h) Paradise Island Hotel, Paradise Island, Bahamas. (i) Americana of Puerto Rico, typical room layout. (j) Massena Motor Inn, Massena, N.Y.

Figure 12 GUEST ROOM DETAILS

2.2.16.GUEST BATH ROOMS:

- The minimum bathroom will have a combination tub-shower, a lavatory, and a water closet.
- Bidet is being introduced. Obviously, this additional feature is found only in the most luxurious hotels.
- A wall-hung unit makes cleaning of hotel bathrooms easier for the maid, but

again, its economics will determine whether this fairly expensive type of installation is warranted. The tub in a guest room is normally a 5-ft tub.

- The normal shower head becomes standard in all hotels, although there is a growing tendency to using the so-called "telephone shower head."

- The normal wall shower head, and by using two movable shower-head supports, one at the normal hand level and one at the higher level where a fixed shower head normally would occur, the guest has the option of allowing the hand type shower head to remain in a standard position or to remove it and use it as he pleases.

- It is preferable to have a ledge on which toiletries may be placed, where they are conveniently reached, and where, obviously, they will not be left when the guest checks out.

- If a ledge is used, the toilet tissue holder can be placed within the recess of the ledge, es can be the tumbler holders and the toothbrush holders. Obviously, an electrical convenience outlet must be placed in this area for electric shavers, electric toothbrushes, and other electrical gadgets that today's traveler takes with him. A slot receptacle for used razor blades should not be forgotten. Towel bars must be strategically placed so that the guest can reach for a towel regardless of whether he is stepping out of the tub or whether he is washing or shaving et the lavatory.

- Another nicety which might be provided is some form of clothesline. With today's wash- and wear apparel, many guests, especially women, like to do their washing at night and hang their garments in the bathroom.

- A number of hotels are installing a wall-hung mirror which is an enlarging mirror on one side and a normal mirror on the other, a very nice touch for both men and women guests.

2.2.17.GUEST CLOSETS:

- The size of a closet will be determined by the type of hotel.

- Having the open hanging arrangements obviates this possibility. The longer the guest- room stay that is anticipated, then the larger the closet.

- It should be possible to store the luggage out of sight in the closet without diminishing the available hanging space, the shoe-rack space, or shelf space for hats and other apparel and paraphernalia. Whether the closet is a flat reach-in type or a walk-in type, the door should be such that, when the closet is opened, there are no hidden recesses where clothing may be forgotten because it cannot be readily seen by the departing guest.

- A good closet will have a hang rod with sufficient space to comfortably hold men's and women's clothes, a shelf for packages, hats, etc., and a shoe ledge or rack for placing shoes.

2.2.18.GUEST FLOOR SERVICESPACES:

Every guest-room floor will have a service area.

- Primarily, it is a place where linen is stored and where the maids' carts are kept. We must bear in mind that each maid will handle anywhere from 12 to 15 rooms and that each maid will need a cart. The number of rooms on the floor will, therefore, determine the number of maids and, in turn, the number of carts.

- A closed storage area should be provided for the storage of linens. In addition to the maids', porters', and linen supplies, sufficient space should be left for the storage of room- service carts.

- They may have to remain on the floor for some time waiting for the service elevator or elevators. Obviously, the service elevators will open out to this service area, so that all this activity takes place out of the sight and hearing of the hotel guests.

2.2.19.BANQUETING FACILITIES:

- Larger hotels will have a more diversified arrangement for meetings, luncheons, dinners, and banquets. The largest hotels are usually designed with a full banqueting and convention facility.

- The normal meeting room requirements are rather simple. The rooms will vary in size to accommodate anywhere from 10 to as many as 100 people. In most instances, wherever it is feasible, the meeting rooms will be arranged in a straight line, so that the walls separating one room from the other can be made movable.

- Thus, if two meeting rooms which normally might seat 25 people are thrown open to one, we would have a meeting room to take 50 people; and if another wall is opened, we would be able to seat 75 people, and so on.

- In larger rooms, which normally qualify for conventions or large banquets, it is also possible to subdivide the space by the use of movable walls to create smaller rooms when a large room is not required. A large space which might seat 1,000 people when all folding wells have been moved back can be cut up into anywhere from four to six spaces, allowing for meeting rooms that can accommodate 150 to 250 people.

- Of course, in the really large convention halls, it will not be unusual to seat 3,000 or more people in one large convention banquet hell. Realizing that food must be brought to all these rooms, their juxtaposition to serving kitchens is highly important in arranging the plan.

- For the most part, food should be brought directly from banquet kitchens to the banquet spaces. In subdividing these spaces, the subdivision must be so planned that each space is contiguous to the kitchen and has its own doors to enable waiters to come and go between the banquet spaces and the banquet kitchen.

- Sound isolation is of the greatest importance, and this applies not only to the decibel rating of the panels themselves but also the arrangement of the joints between the sections or panels of the movable wall.

- In fairly large meeting, banquet, and convention facilities, space must be provided which is normally called "preconvention assembly space.'

- Since most of the people who are standing are those who will eventually be seated, the proportions of the preconvention foyer space will be determined by the number

of people who will be eventually seated. As a rule of thumb, a person standing in fairly close quarters will take up approximately 5 sq ft. A person seated at a table will take up anywhere from 10 to 15 sq ft. A person seated for a seminar, or a meeting will require 8 or 9 sq ft. It thus becomes apparent that the ideal preconvention, pre-banquet, or assembly space should be at least one-third of the

area of tire actual dining and meeting spaces.

- Thus becomes apparent that the ideal preconvention, pre-banquet, or assembly space should be at least one-third of the area of tire actual dining and meeting spaces,

2.3. TIME SAVER STANDARDS (BUILDING TYPES)- RESTAURANTS: SPACE REQUIREMENTS

- Adequacy of space will influence building and operating costs and efficiency. When space is too small, labor time end effort is likely to increase end the volume and quality of output decrease. When itis too large, building and maintenance costs are excessive.

- Calculate area requirements in terms of: (1) volume and type of service, (2) amount and size of equipment to be used, (3) number of workers required, (4) space for needed supplies, and (5) suitable traffic area. The dining area location and space allowance.

DINING ROOMS:

- Space for dining areas is usually based on the number of square feet per person seated times. Space requirements:

- The patron's size and the type and quality of service should be considered.

TABLE 1 Square Feet per Seat Used for Various Types of Food Operations

Type of operation	*Square feet per seat*
Cafeteria, commercial	16-18
Cafeteria, college and industrial	12-15
Cafeteria, school lunchroom	9-12
College residence, table service	12-15
Counter service	18-20
Table service, hotel, club restaurant	15-18
Table service, minimum eating	11-14
Banquet, minimum	10-11

Table 1 FOOD OPERATION TABLE

- Table 1 square feet per seat used for various types of food operations

- All of the areas in a dining room used for purposes other than seating are a part of square footage allowed for seating.

- Service stations may be estimated in the proportion of one small one for every

20 seats or a large central one for every 50 to 60 places. The advisability of having a central serving station will be influenced by the distance of the dining area from the serving area.

- Small substations for silver, dishes, napery, beverages ice, butter, and condiments may measure20 to 24 in. square and 36 to 38 in. high. The size of central stations varies from that for a small enclosed room to that of a screened section measuring approximately 8 to 10 ft long by 27 to 30 in. wide by 6 to 7 ft. high. Table size will influence patron comfort and efficient utilization of spaces. Smell tables, such as24 or 30in. square, are economical for seating but are uncomfortable for large people.

- The width of booths including seats and table is commonly 5h ft. A lunch counter will have a minimum width of 16 in. and a maximum width of 24 to 30 in. The linear feet are calculated 37 on the basis of 20 to 24 in. per seat. The maximum area best served by one waitress is generally

16 U-shaped counters make maximum use of space and reduce travel. Space in depth of 8'/r to 11 ft will be required for every linear foot of counter. This will provide 3 to 4 ft of public aisle, 2j&ft for aisle space for employees. A width of 41h ft is desirable where employees must pass.

A minimum passage area is 18 in. between chairs and, including chair area, tables should be spaced 4 to 5 ft apart. Aisles on which bus carts or other mobile equipment is to be moved should be sized according to the width of such equipment.

- Diagonal arrangement of square tables utilizes space better then square arrangement and yields a more trouble-free traffic lane.

NUMBER OF PERSONS ALLOWANCE:

- The number of persons to be seated at one time is the second point of information needed for calculation of the dining room size. The total number of seats required at one time, multiplied by the space required for each seat, will give the total number of square feet needed in the dining area.

- The number of times a seat is occupied during a given period is commonly referred to as "turnover."

- The turnover per hour, times the number of seats available, gives the total number of patrons who can be served in an hour. If peak loads, or number to be served at one time, are known, the number of seats required can be estimated.

- The table sizes used in the dining room will affect occupancy. It is often desirable to provide for groups varying from two to eight, with a predominance in most dining rooms of those for two people.

- Chairs with a "tablet arm" that will fold at ray have been used for fast turnover in crowded areas.

- One cafeteria line can serve four to eight patrons per minute depending on (1) the speed of the servers, (2) the elaborateness of food selection, (3) convenience of the layout, and
(4) the type of patrons.

- Banquet seating requires planning because maximum seating potential means maximum profits. Folding tables 30 in. wide are popular. These are obtained in varying lengths, but 72 and 96 in. are commonly used. The spacing for the legs should be such as to allow for comfortable seating when the tables are joined end to end and place settings are laid on 24- in.centers.

- Separate rooms, folding doors, screens, or other attractive devices can be used to reduce size of an area during slack periods. Sections left open should be those easiest to serve. Balconies, backrooms, or other less desirable space can often be used for overflow numbers that occasionally require service.

PRODUCTION AREAS:

- A frequently used rule for allotting a space for the kitchen is that it should be one-third to one-half the area of the dining room.

- An analysis of specific needs is required. Many factors in fluence space requirements, such as:

1. Type of preparation and service
2. Amount of the total production done in the unit
3. Volume in terms of the number of meals serve
4. Variety of foods offered in the menu
5. Elaborateness of preparation and service

TABLE 2 Variation in Space Needs in Relation to Numbers Served

Meal load	Square feet per meal	Variation in square feet
100-200	5.00	500-1,000
200-400	4.00	800-1,600
400-800	3.50	1,400-2,800
800-1,300	3.00	2,400-3,900
1,300-2,000	2.50	3,250-5,000
2,000-3,000	2.00	4,000-6,000
3,000-5,000	1.85	5,500-9,250

Table 2 VARIATION IN SPACE

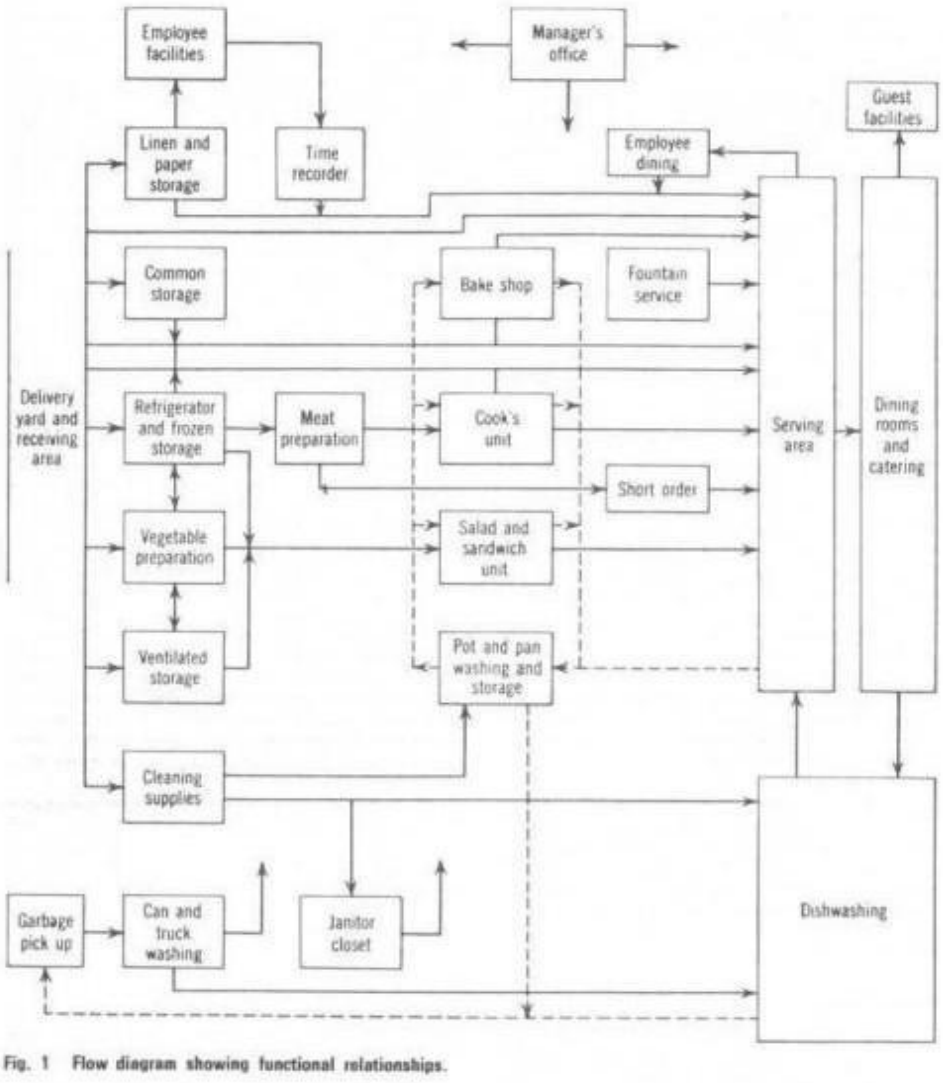


Fig. 1 Flow diagram showing functional relationships.

Figure 13 FLOW DIAGRAM

- The equipment provided will affect the space needs. Garbage and refuse, for example, may require a sizable area for storage awaiting pickup. Disposal units for food garbage, incinerator for burnable refuse, and a crusher for tin cans will greatly reduce the amount to be held. Frequency of garbage collection will minimize the space needs.

- The shape of the kitchen, location of ventilation and elevator shafts, support columns and partitions should be considered in relation to an efficient layout for work. The location of entrances and exits for a good flow of traffic, window placement, suitable space, and relationship of sections need consideration. Eliminate partitions whenever possible; this will reduce space needs and also permit easier supervision of production areas.

- The square footage given is to be multiplied by the maximum number of meals estimated per hour of service.

- The width of the table may be 24 to 30 in. unless dishes or food containers are to rest at the back of the table. Tables 36 in. wide are preferable when the back of the area is used for such storage. Where two workers work opposite each other, a table 42in. wide may be used. A work area of 4 to 6 in ft will be within convenient reach of the average person. Tables 8 to 10 ft. long are used if two people are working side by side. A height of 34 in., commonly used as a working height, be evaluated in terms of specific work done and equipment used.

- The minimum width for a lane between equipment where one person works alone is 36 and 42 in. where more than one is employed and where workers must pass each other in the progress of work. Where mobile equipment is used, 48 to 54 in. are recommended. At least 60 in. are needed for main traffic lanes where workers regularly pass each other with mobile equipment.

- Work centers at right angles to traffic lanes are efficient.

- A satisfactory layout may claim less than 30 percent of total space for equipment while work areas, traffic lanes, and space around equipment for easy operating.

TABLE 3 Square Feet of Kitchen Space per Meal for Food Facilities of Different Type and Size

	Estimated maximum meals per hour				
Type of facility	200 or less	200–400	400–800	800–1,300	1,300–7,500
Cafeterias	7.5–5.0	5.0–4.0	4.0–3.5	3.5–3.0	3.0–1.6
Hospitals	18.0–4.5	12.0–4.5	11.0–4.5	10.0–4.0	8.0–4.0
Hotels	18.0–4.0	7.5–3.0	6.0–3.0	4.0–3.0	4.0–3.0
Industrial lunchrooms	7.5–5.0	4.0–3.2	3.5–2.0	3.0–2.0	2.5–1.7
Lunch counters	7.5–2.0	2.0–1.5			
Railroad dining car	1.6				
Restaurants (service)	7.0–4.0	5.0–3.6	5.0–3.6	5.0–3.0	5.0–3.0
School lunchrooms	4.0–3.3	3.3–2.2	3.0–2.0	2.5–1.6	2.0–1.6

Table 2 square feet of kitchen space per meal for food facilities of different type and size

- In cafeterias the counter length should be regulated by the variety and volume.

- An estimate that may be used for allotting width is 14 ft. This allows for 4 ft as patron lane space,1ft treyelide,2ft counter width, 4'/r ft for workers, and 2'/r ft for back bar.

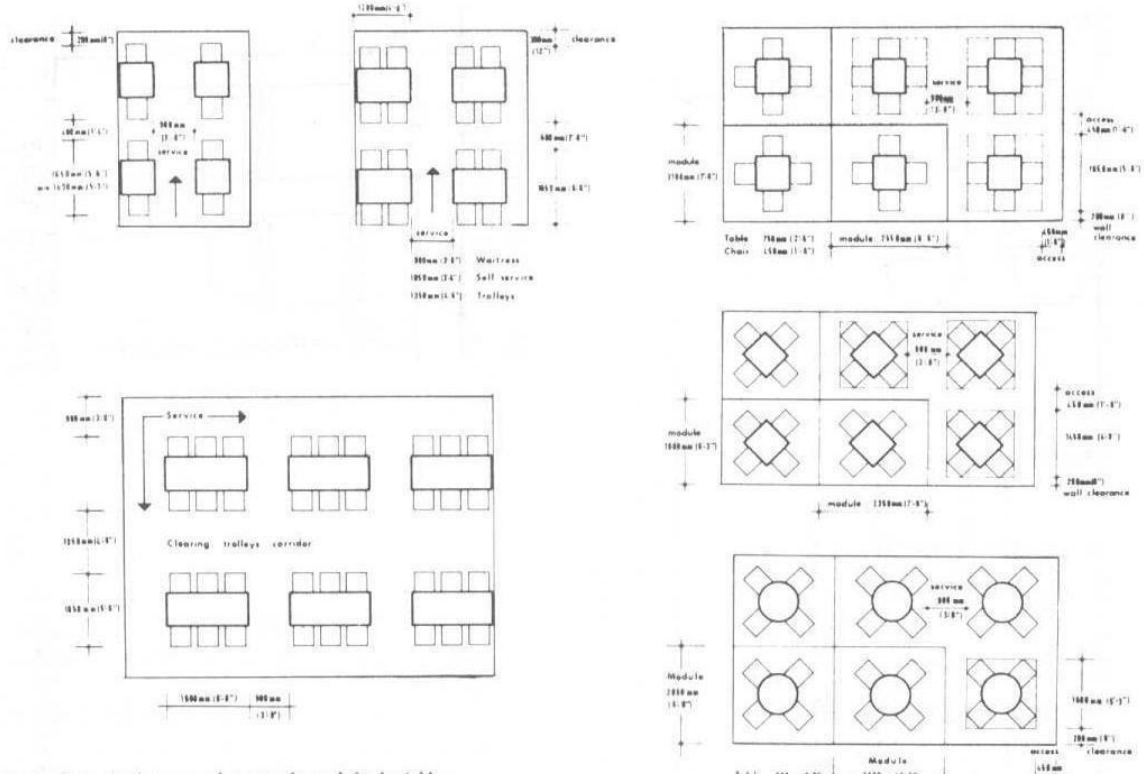
- Some commercial cafeteria counters may be 70 to 80 ft long, but counters over 50 ft long are frequently considered inefficient. Twenty feet is usually thought of as a minimum but, under special conditions and where a limited menuis served,6 to8 ft may be sufficient.

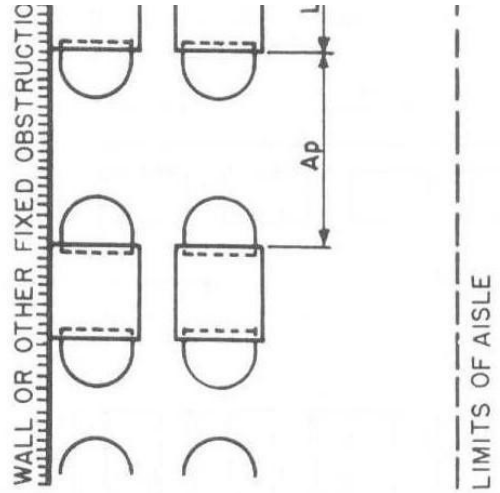
- Some planners use, as a rough guide, one counter or line for every 250 to 300 patrons served, but arrival rate, speed of service, and turnover are more reliable factors to consider in establishing the number of lines required.

- COMMON STORAGE- The volume of canned food needed to serve 100 persona three meals daily for one month is estimated at approximately 45 cases of 6/10's or equivalent. The maximum stack height will be 8 or 9 cases or approximately72 in.

- Store room aisles may be as narrow as 36 in., but 42 or 48 approximal. are preferred. Wider aisles maybe required if trucks are used.

- Allow 1'/ to 2 in. as free space for ease of positioning. Add thickness of shelving to inter space when stating measurements between centers.





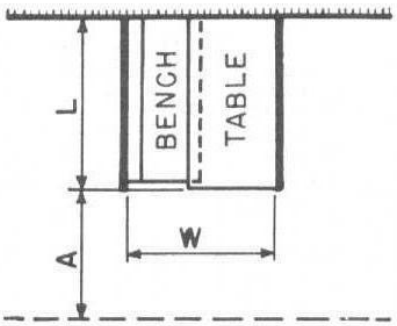
B	To wall	1–8 to 2–0	2–0 to 2–6	2–0 to 3–0
C	Between units	0 to 8	6 to 1–0	1–0
	Length	1–8 to 2–0	2–3 to 2–4	2–4 to 2–6
	Width	1–8 to 2–0	2–2 to 2–3	2–4 to 2–6

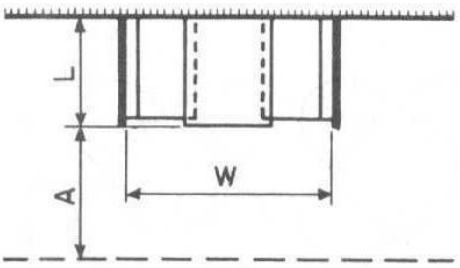
all dimensions in feet and inches

		Abs. Min.	Des. Min.	Comfort-able
Ap	Public circ'n	*1–10 to 4–6	2–3 to 5–0	3–0 to 5–0
As	Service aisle	3–0 to 3–6	3–6 to 4–0	3–9 to 4–0
C	Between units	0 to 3	4 to 6	6
	Length	1–8 to 2–0	2–3 to 2–4	2–4 to 2–6
	Width	1–8 to 2–0	2–2 to 2–3	2–4 to 2–6

*Lower range only if chairs, etc., do not project into aisle

Fig. 4 Table and chair units.





2 PERSONS SIDE BY SIDE

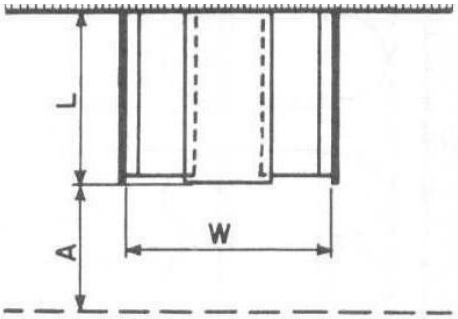
	Abs. Min.	Des. Min.	Comfortable
A Service and pub. circ'n	2–6	3–0	3–6
Length	3–6	3–9	4–0
Width	3–0	3–3	3–6

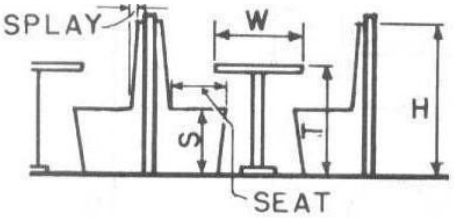
Note: This type not ordinarily recommended.

2 PERSONS FACE TO FACE

	Abs. Min.	Des. Min.	Comfortable
A Service and pub. circ'n	2–6 to 3–0	3–0 to 4–0	3–6 to 5–0
Length	2–0	2–2 to 2–6	2–6
Width	4–10 to 5–6	5–2 to 5–6	5–8 to 5–10

dimensions in feet and inches





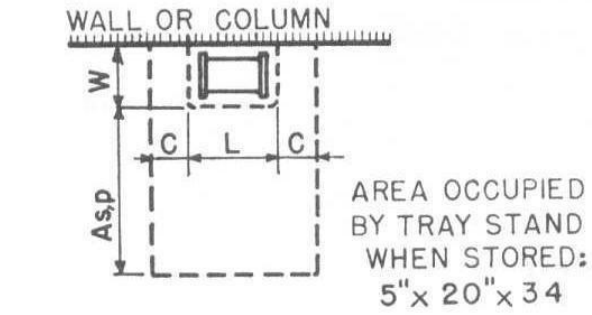
4 PERSONS

	Abs. Min.	Des. Min.	Comfortable
A Service and pub. circ'n	2–6 to 3–0	3–0 to 4–0	3–6 to 5–0
Length	3–6	3–9 to 4–0	4–0 to 4–2
Width	4–10 to 5–6	5–2 to 5–6	5–8 to 5–10

BOOTH FURNITURE HEIGHTS

	Abs. Min.	Des. Min.	Comfortable
H	3–0 to 3–6	3–6	4–0
S	1–5 to 1–6	1–5 to 1–6	1–6
T	2–5	2–5 to 2–6	2–6
W	1–8 to 2–0	2–0 to 2–2	2–4 to 2–6
Seat	1–4 to 1–5	1–5 to 1–6	1–6 to 1–8
Splay	0 to 0–3	0–2 to 0–3	0–3½ to 0–4

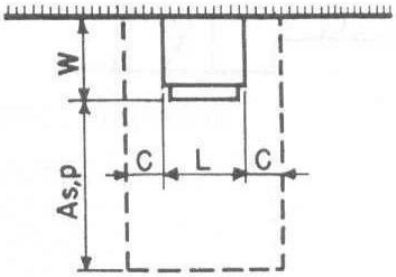
Fig. 5 Booths.



TRAY STAND

		Abs. Min.	Des. Min.	Comfort-able
As	Service only	2-6	3-0	3-6
Ap	Public circ'n	2-0	2-6	3-0
C	Clearance to adjacent units	2-0	2-3	2-6
Length (tray) / Width (tray)		Depends on type of restaurant.		

Approx. area of stand, stored: 5" x 20" x 34"



WATER COOLER

		Abs. Min.	Des. Min.	Comfort-able
As	Service only	2-6	3-0	3-6
Ap	Public circ'n	2-0	2-6	3-0
C	Clearance to adjacent units	Can arrange on top or front		
Length / Width		Depends on capacity and if glass storage included.		

Fig. 7 Serving units.

Refrigerated and low temperature storage:

- Allocation in preliminary planning may be as follows: 20 to 35 percent for meat (portion ready meats require '/ to '/, less space than carcass or wholesale cuts); 30 to 35 percent for fruits and vegetables; 20 to 25 percent for dairy products, including those in serving areas; 10 to 25 percent for frozen foods; and 5 to 10 percent for carry-over foods, salads, sandwich material, and bakery products. A requirement of 15 to 20 cu ft of refrigeration per 100 complete meals has also been used by some planners.

- Approximately 0.25 to 0.50 cu ft of refrigerated walk-in space was provided per meal served, and frozen walk-in space.

- A walk-in becomes feasible for an operation serving 300 to 400 meals per day, and refrigerated pass-throughs can be added when from 400 to500 meals are served per day

- Aisles of 30 in. are usually too narrow; 42 in. are desirable. If mobile equipment is moved in and out, aisles may have to be wider. Walk-ins that are 8 to 9 ft wide and about 10 ft long are minimum size. This allows for two storage are as30 in wide with a 3 to4 ft aisle.

- Doors should be a minimum of 42 in. wide to admit large crates and containers or be sized to suit mobile equipment.

Sanitation areas:

- Dishwashing areas: The dimensions may be only 30 to 36 in. for a single tank machine, 60 to 72in.for sinks, or7 toover30 ft for a conveyor-type machine.

- Pot and pan section: When allowing space for the pot and pan section, 40 sqft is

generally regarded as a minimum for the smallest unit. The free work aisle between the sinks and other equipment should be 4ftwide.The space allowance above the minimum will vary widely depending upon the type equipment used and the volume of pots and pans handled.

Employee facilities:

- Facilities for employees may include locker and lounge area, toilets, showers, time- recording equipment, hand basins near work areas, and dining rooms. An employee entrance should be so located that the employees may go directly to the dressing rooms without passing through the dining room or production area.

- Locker and lounge area: Whether individual lockers or common cupboard, sufficient space should be allowed for personal clothing to hang without crowding or wrinkling.

- The depth from front to back should be a minimum of 20in.

- Suitable size for an employee lounge depends largely on scheduling of workers and the policies of individual establishments.

- A cotor day bed, 36in. by 6ft, should be provided in the women's room.

- Toilets and showers: They should be separated from food areas by a hallway or double entrance. Supply one wash bowl for every 8 to 10 workers, one toilet stool for every 12 to 15 women, and one urinal and one toilet stool for every15men.Toilet compartments measure approximately3by 41/ ,to 5 ft.

- Time recording management: Provide space for a recorder near and within view of the office. Wall hung card racks of sufficient capacity are recommended for the number of workers, both full and part time, who are likely to be employed during an accounting period. Estimated space for a clock recorder is approximately 18in.wideby12y.in.deepand18in.high, and a rack of 50 cards approximately1 1/2, by 2 1/2 by 34 ½ in.

Guest facilities:

- The size of the area should be based on probable need for waiting, type of service, and number of persons likely to congregate at one time. If there is a lounge or hallway adjacent to the dining room, this may provide some waiting space.

Cashier:

- Preferred location for the cashier's desk or counter, is on the right-hand side of the door when leaving, in order to avoid cross-traffic and resulting congestion.

Coat-checking:

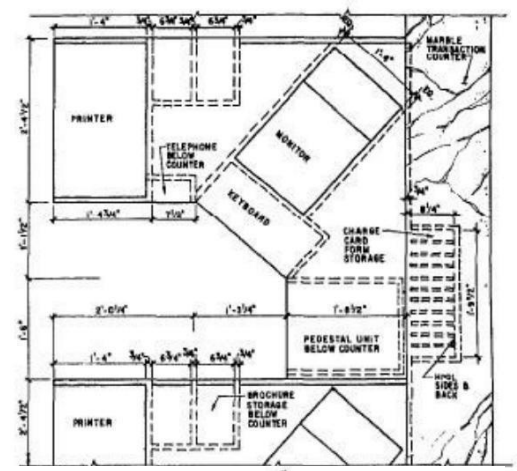
- Use of coat trees in dining areas is formed "necessary but never desirable. "These occupy approximately 20 by 20 in., are 72 in. high, and can accommodate 8 garments per costumer. Overshoe racks are considered undesirable; umbrella racks, desirable in check rooms

AREA OF HOTELS

3.3.b Literature Research Papers and Journals:

s.no	Public Areas	Private Areas (Staff)	Private Areas (Guests)	Semi - Private
1	Lobby + Reception	Administration Office	Single Bedroom	Banquet
2	Restaurants	Account Office	Double Bedroom	Dining Hall
3	Shops + Retail Store	Technical / Mechanical Room	Deluxe Bedroom	Multipurpose Hall
4	Lounge + bar	Bedrooms	Suite Bedroom	
5	Cloak Room	Laundry + Storage	Steam Room + Spa	
6	Parking	Kitchen + Storage	Lounge + Bar	
7	Recreational Areas (Outdoor)	Lockers + Washroom	Recreational Areas (Swimming Pool, Parks)	
8	Banquet	Waste Disposal	Reading	
9		Control Room		
10		Pantry		

2.4. TIME SAVER STANDARDS (INTERIOR DESIGN):



SECTION AT REGISTRATION DESK
GRAND FLORIDIAN HOTEL

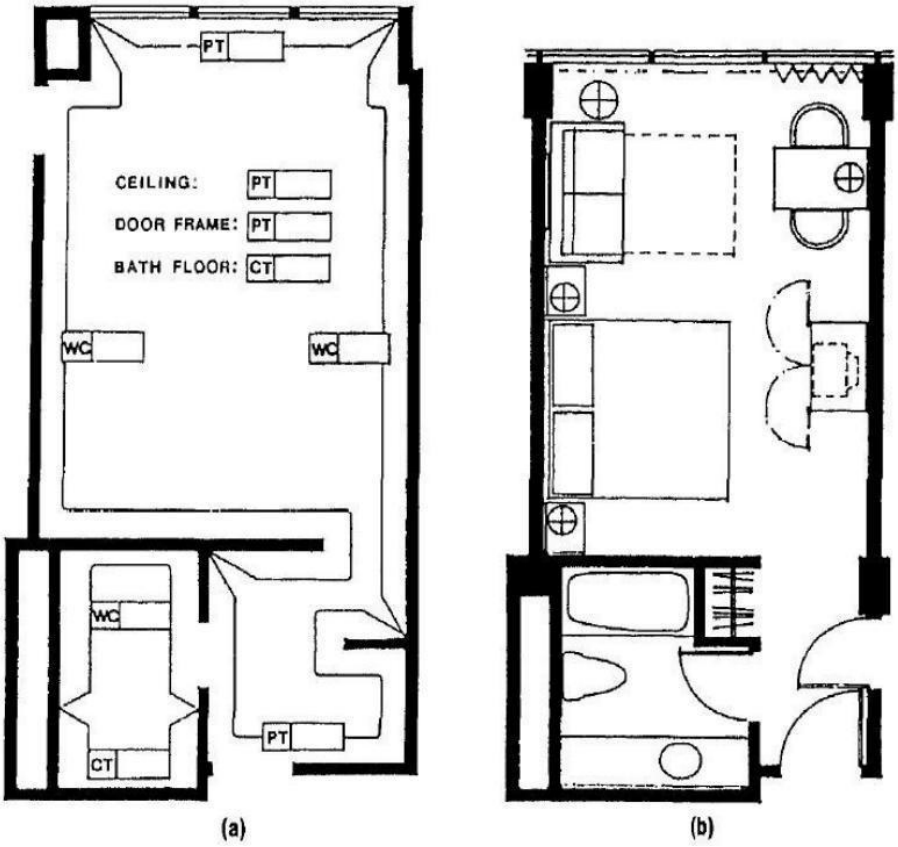
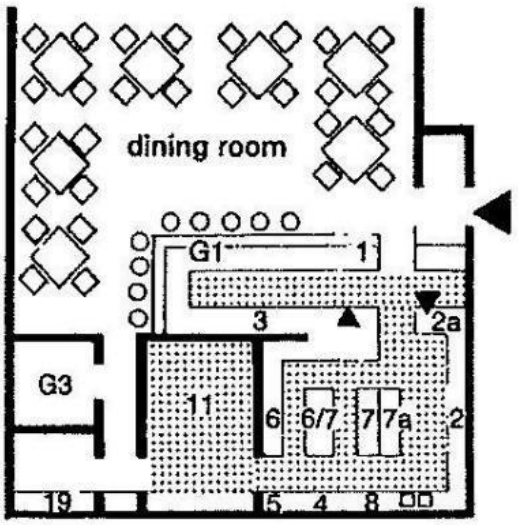


Figure 14 BED ROOM

SNACK BAR

- Corner pub, cafe, restaurant: capacity 55-60 seats (2-4 place turnover at lunch time, 2 in evenings). Between lunch and evening meals: serving coffee, cakes and snacks. Kitchen: supplied predominantly with pre-prepared items. Storeroom need not be particularly large if deliveries are daily.

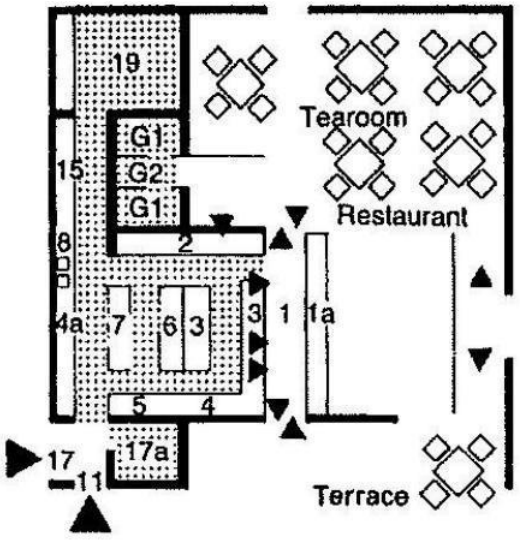


1 meals and drinks servery
2 dishwasher
2a crockery returns
3 drinks bar with mixer, toaster, food containers etc.
4 oven for small pastry items
5 food storage
6 rotisserie
6/7 cooker rings
7a water boiler and steam machine
8 pot and pan washer
11 stores/office; catering size refrigerators and freezers instead of cold store
19 staff toilets
G1 bar counter
G3 customer toilets

1 Snack bar

CAFE-RESTAURANT

- With tea room. Urban business in heavy traffic location.



1 waiters' walkway
1a service counter and cash tills
2 dishwasher
3 drinks bar with mixer, toaster, ice cream freezer etc.
4 pastry preparation
4a pastry oven
5 sandwich preparation
6 reheating equipment (e.g. soup)
7 cooker rings
8 pot and pan washer
11 empties
15 linen store
17 deliveries and (a) store
19 staff toilets and cloakroom
G1 toilets
G2 telephone cubicle

2 Café-restaurant

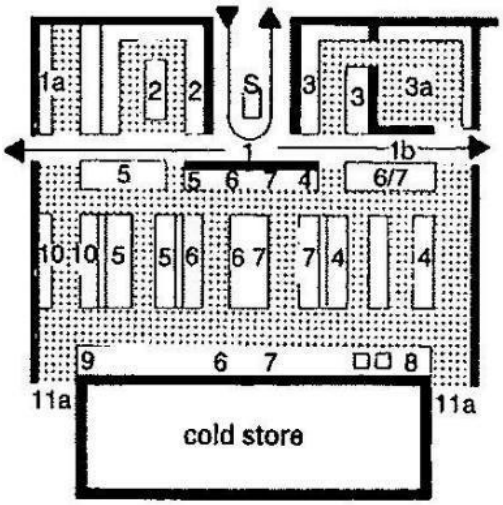
CAFE

- Alcohol-free drinks, except bottled premium beer, liqueurs etc., patisserie and light food- cold and hot. Tearoom:

- Alcohol-free drinks, patisserie, sandwiches. Capacity approx.150 seats, continuous operation 6.30-24.00. Kitchen: predominantly pre-prepared items, little storage.

LARGE HOTEL RESTAURANT KITCHEN-

- Also, for large catering establishments with side rooms, external deliveries or production for outside companies. Capacity 800-1000 people. Waiters' walkway: in the center with special service in the garden or also bowling alley and direct access to the side rooms. Kitchen: cell system fronted by the backs of the large appliances.

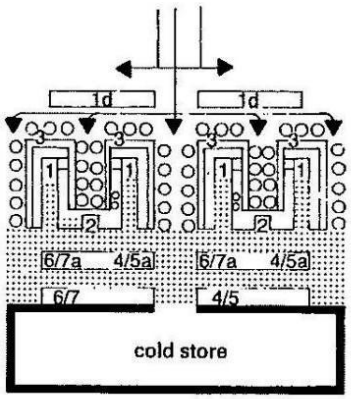


1 waiters' walkway
1a garden service counter
2 dish-washing area
3 drinks counter
3a drinks cellar
4 pastry counter
5 cold dishes
6 hot dishes and sauces
6/7 table with hot store
8 pot and pan washer
9 vegetable preparation
10 meat preparation
11a deliveries, and access to stores, offices, staff cloakrooms and toilets
S service accessories and tills

3 Large hotel restaurant kitchen

RESTAURANT WITH BUFFET AND VENDING MACHINES

- For fast midday meals in canteens, department stores and motorway services. Capacity 500 people/h. Kitchen: only warming of preprepared food stuffs, except for salad sand soups.

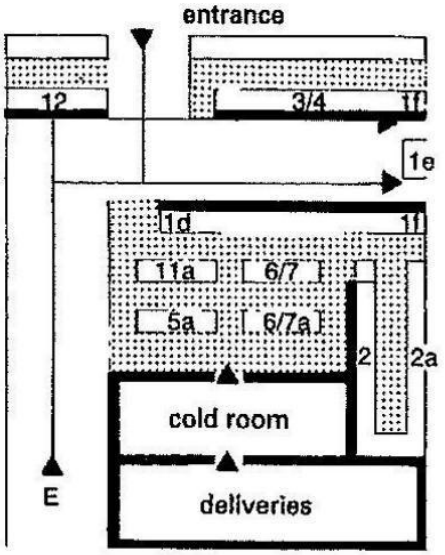


1 serving aisles in U-shaped counters
1d vending machines
2 link between two counters with covered dishwashers, operated from both sides, each with two rinsing basins
4/5 cold meal preparation
4/5a cold servery (salads, ices, desserts)
6/7 griddle, soup heater, water boiler etc.
6/7a hot servery (bain-marie, hotplates)

4 Restaurant with buffet and vending machines

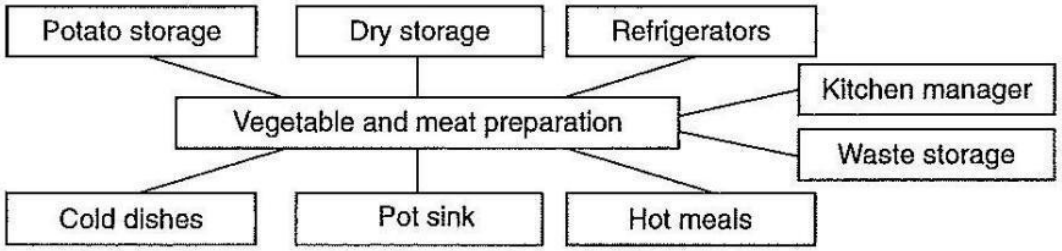
SELF-SERVICE RESTAURANT

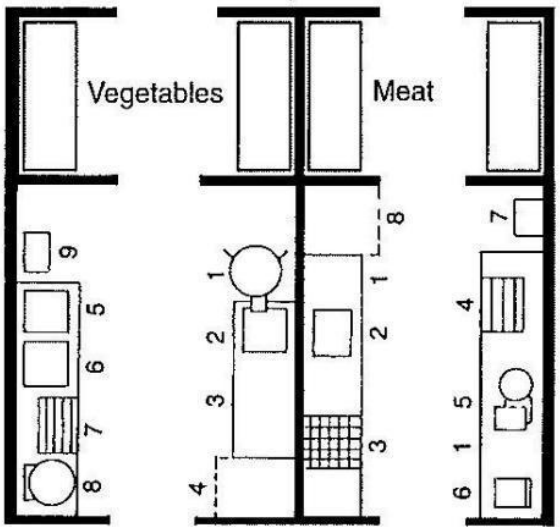
- Suitable for department stores or attached to offices. Kitchen: no in house production. Outside delivery and preparation using deep frozen process.



1d	self-service buffet with grill and chip fryer
1e	sauces, condiments, cutlery
1f	cash till
2	dishwasher
2a	crockery returns
3/4	food and drinks servery (service to street possible)
5a	cold meal preparation table
6/7	heating units, used from both sides
6/7a	hot meal preparation table
11a	refrigerators, used from both sides
12	sales kiosk (serving inside and to street)
E	entrance

5 Self-service restaurant

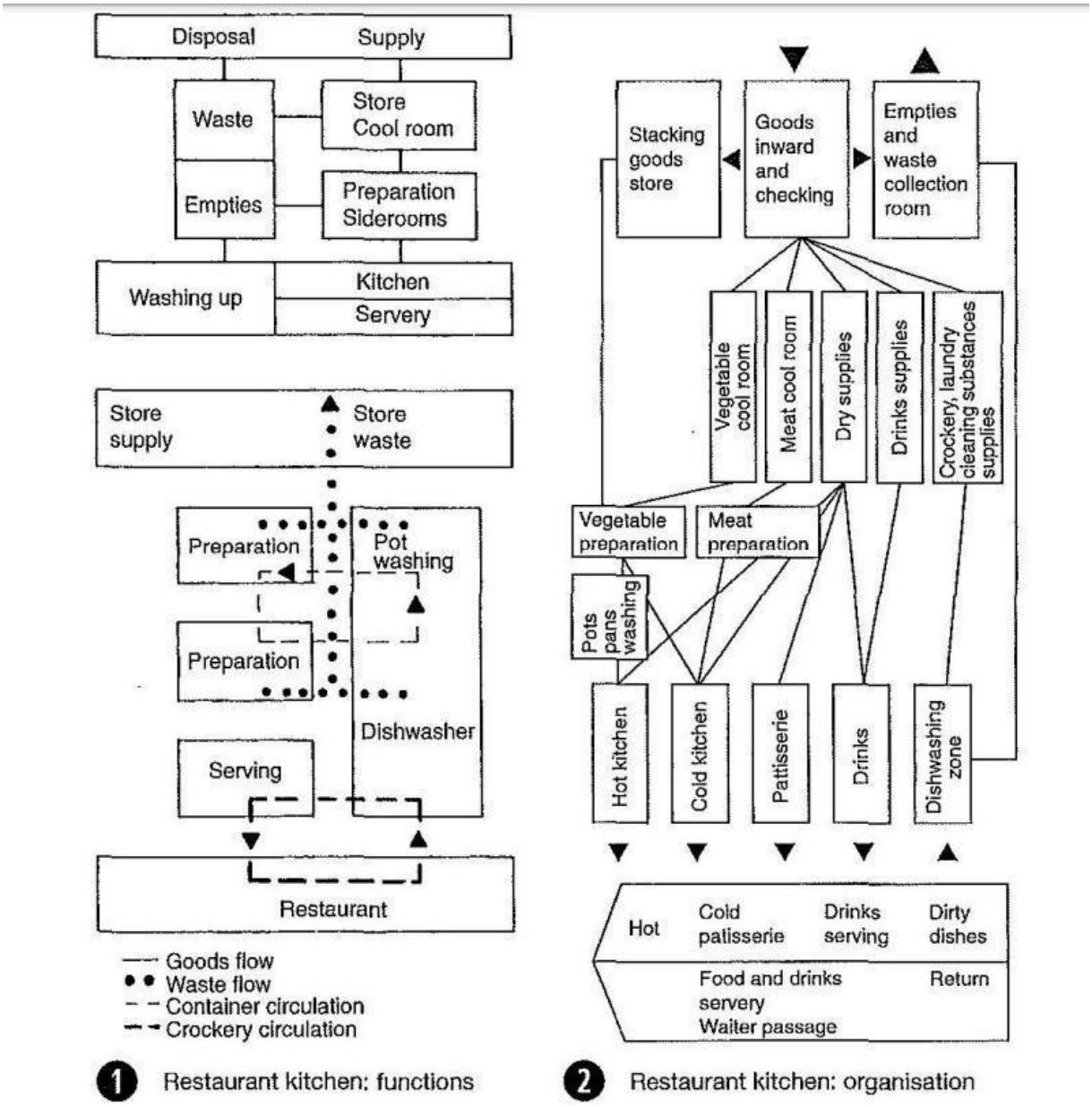




1 Peeling machine
2 Drip tray
3 Cleaning surface
4 Holding surface
5 Universal machine
6 Cutting board
7 Sink + Worktable
8 Hand wash basin
9 Worktable
10 Slicers
11 Freezer
12 Bench scale
13 Stir/beat machine

6 Separate preparation of vegetables and meat

products freshly prepared from raw (in contrast to ready-prepared food) and the rate of customer turnover allday or at meal times (consumer frequency). In fast food restaurants the rule of thumb for seat changes is about1-3times per hour, inconventional restaurants about 2. In specialty and evening-based restaurants, the guests stay onaverage for1.3-2 hours.



Percentage of total kitchen space requirement-

- Differentiated according to small, medium and large kitchens, floor area values for individual functions are be based on.

- Aisle widths in storage, preparation and production areas differ according to whether they are purely traffic routes or also overlap the service area. Working aisle widths should be 0.90-1.20 m, side traffic routes with (temporary) overlapping use 1.50-1.80 m and main traffic routes (transport and two-way through traffic) 2.10-3.30 m wide. For

kitchen areas in small to medium restaurants, aisle widths of 1.00-1.50 m should be sufficient.

- Bistros, snack bars, small cafes - or specialty restaurants with 40-60 seats- are classified as small operations. Small to medium units (70-1 00 places) require on the other hand carefully zoned and fully equipped kitchen facilities. Large businesses (service areas, fast food restaurants, large hotel kitchens) achieve considerably higher place numbers, often with an integrated eating bar or self service areas.

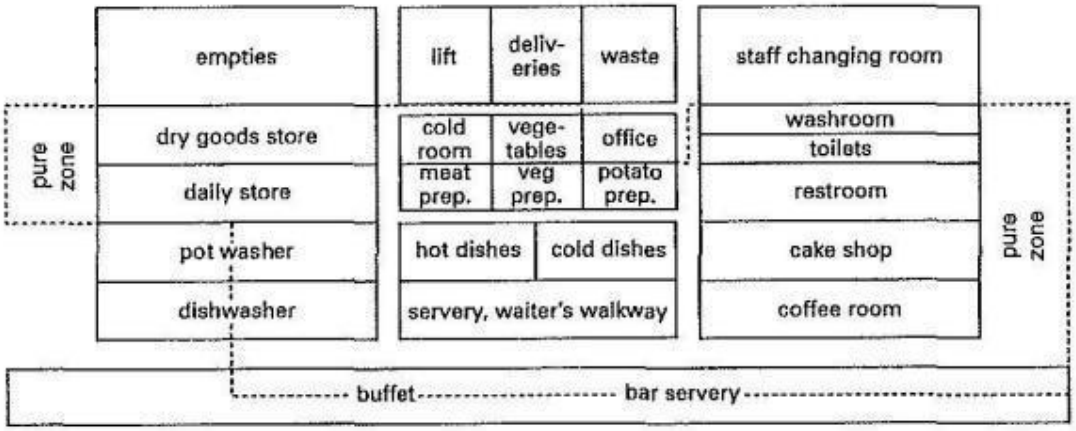
Table 3 KITCHEN AREA REQUIRED

Seats	80	120	200
goods inward	0.05–0.075	0.05–0.067	0.05–0.06
empties	0.05–0.075	0.05–0.067	0.05–0.06
waste/rubbish	0.05–0.075	0.03–0.050	0.03–0.04
delivery/disposal	0.15–0.225	0.13–0.183	0.13–0.16
cold room meat	0.05–0.075	0.05–0.067	0.04–0.05
cold room fruit and vegetables	0.05–0.075	0.05–0.067	0.04–0.05
cold room dairy products	fridge	0.03–0.05	0.03–0.05
cold room cold service	fridge	fridge	0.02–0.03
cool room drinks	fridge	fridge	0.05–0.07
freezer room	0.05–0.075	0.05–0.067	0.06–0.08
cooled goods delivery	0.15–0.225	0.183–0.25	0.24–0.32
store dry goods	0.15–0.175	0.117–0.13	0.09–0.1
store drinks	0.075–0.1	0.1–0.117	0.08–0.1
store non-food	0.075–0.1	0.067–0.083	0.07–0.08
cooled goods storage	0.3–0.375	0.283–0.33	0.24–0.28
vegetable preparation	0.075–0.1	0.067–0.083	0.04–0.05
meat preparation	0.075–0.1	0.05–0.067	0.04–0.05
fish/poultry preparation	0	0.03–0.05	0.03–0.04
hot kitchen	0.325–0.35	0.217–0.23	0.16–0.18
cold kitchen	0	0.05–0.067	0.04–0.05
patisserie	0	0	0.04–0.05
pot washing	0.05–0.075	0.05–0.067	0.03–0.04
office kitchen manager	0	0	0.03–0.04
kitchen facilities	0.525–0.625	0.47–0.567	0.41–0.5
dishwasher	0.1–0.125	0.1–0.117	0.09–0.1
service/waiter office	0.075–0.1	0.083–0.1	0.07–0.08
dishwasher/office	0.175–0.225	0.183–0.217	0.16–0.18
= Total	1.3–1.675	1.25–1.55	1.18–1.44

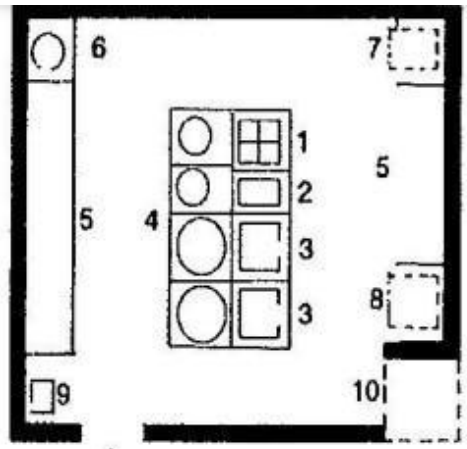
3 Kitchen areas: space required (m^2/seat)

Area	Proportion (%)
goods delivery including inspection and waste storage	10
storage in freezer, cold and dry rooms	20
daily store	
vegetable and salad preparation area	2
cold dishes, desserts	8
patisseries/cakes	8
meat preparation	2
cooking area	8
washing area	10
traffic area	17
staff rooms and office	15
Total	100

4 Basis for dimensions and space requirements

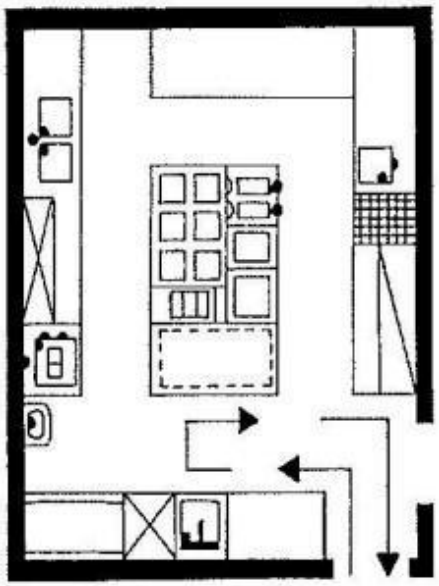


5 Kitchen areas: classification and relationships of functional areas in clean and unclean zones (if earth-covered vegetables are prepared, this must take place in a separate part of the unclean area!)



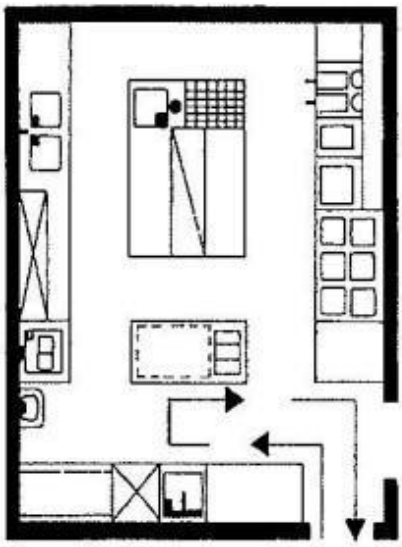
1 cooker
2 deep fat fryer
3 griddle
4 water boiler
5 work surface
6 cooker
7 double-deck oven
8 convectomat
9 hand basin
10 storage area

1 Basic organisation of the hot kitchen → **2** – **3**



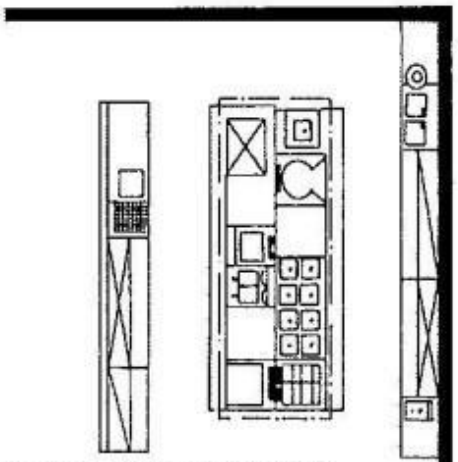
1. production in block

2 Kitchen for restaurant with 60–100 places



2. production in line

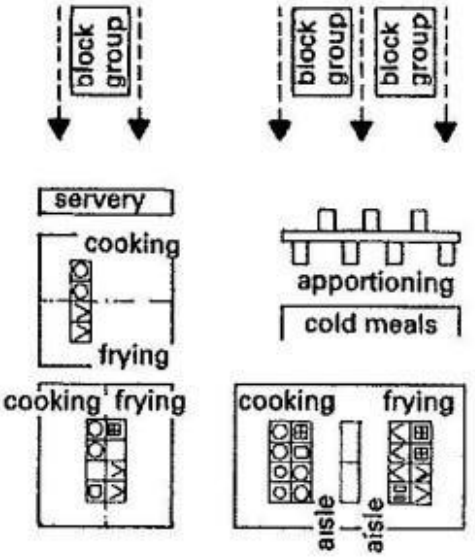
3 Kitchen for restaurant with 60–100 places



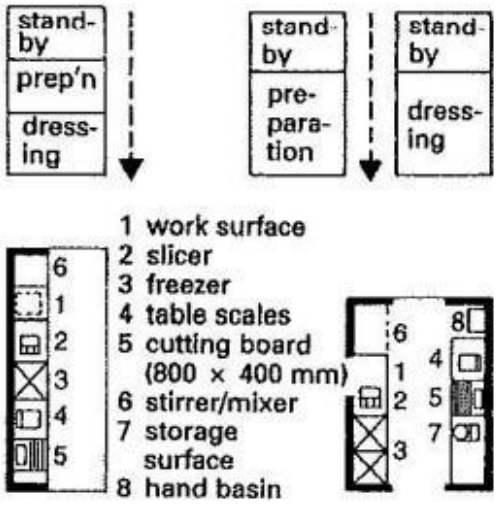
cooking: cooker, boiler (80 l), work surface, eight-ring hob, two ovens, bain-marie, hot cupboard
frying: griddle, work surface, twin deep fat fryer, frying pan, hot-air oven with table

4 Restaurant kitchen for 150–200 meals

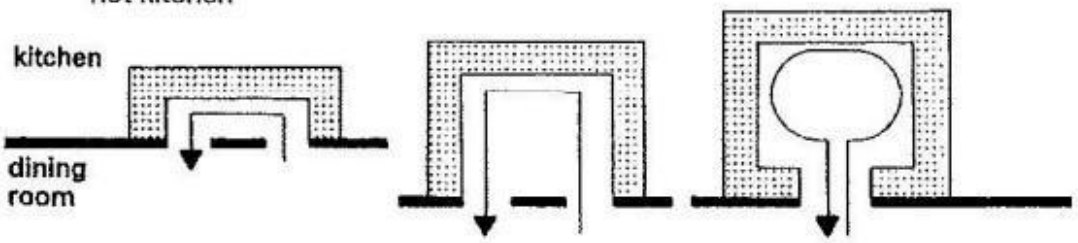
Figure 15 KITCHEN LAYOUT



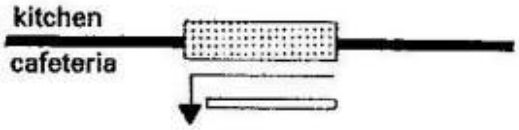
5 Functions and organisation of hot kitchen



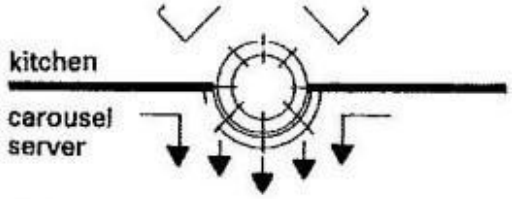
6 Organisation of cold kitchen



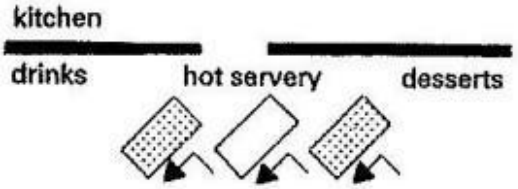
7 Servery, waiter walkway



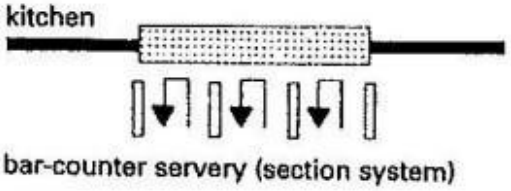
8 Self-service restaurant



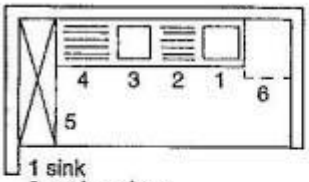
9 Self-service restaurant



10 Free-flow restaurant

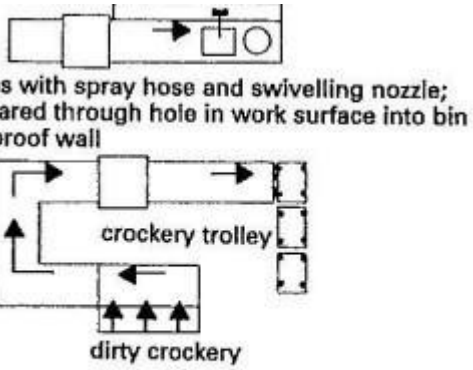


11 Self-service restaurant



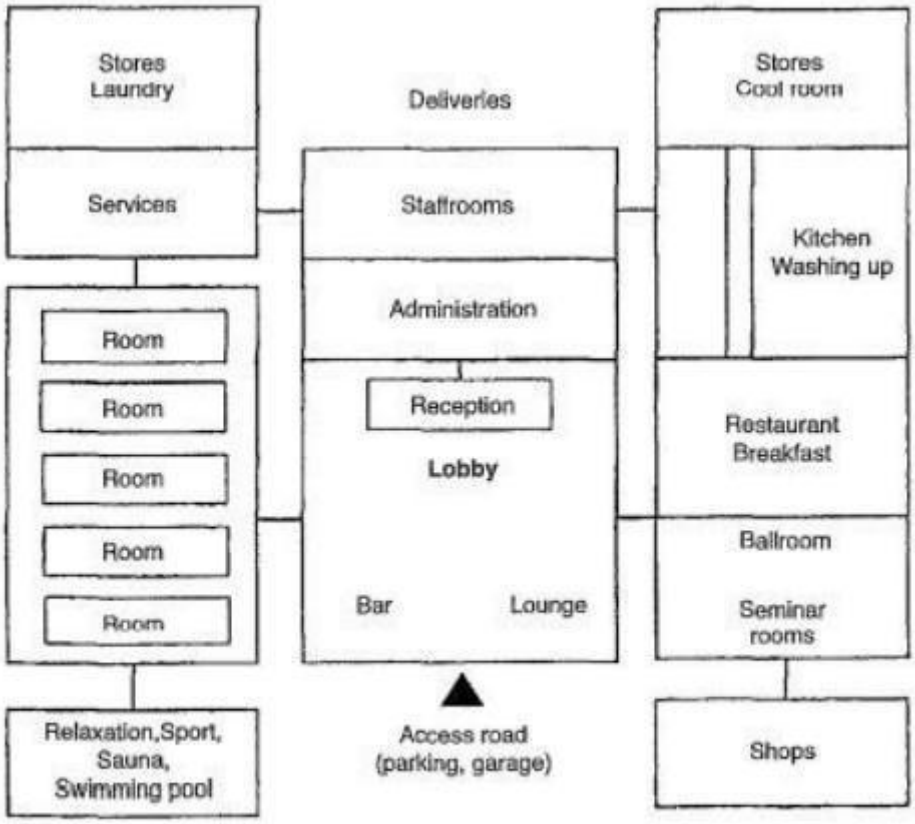
1 sink
2 work surface
3 automatic rinsing
4 automatic rinsing system (Serene)
5 shelf
6 holding area

14 Basic solution: pot washing area



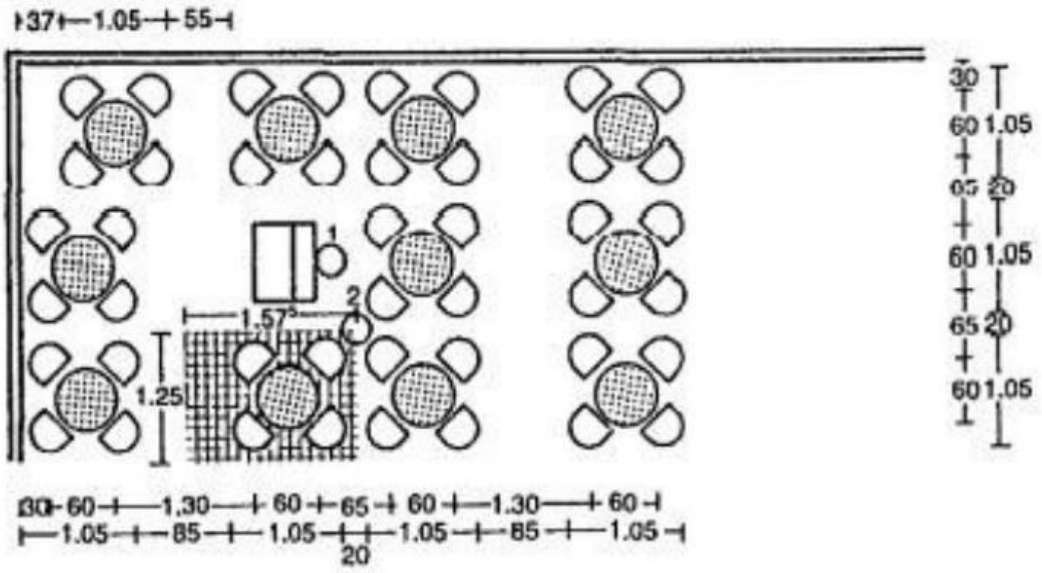
15 Functions and components of the dishwashing area

A scheme of the basic room and route relationships with in a hotel is shown below

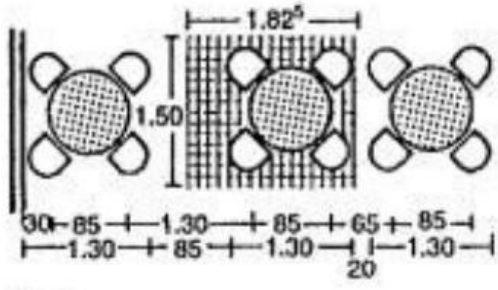


2 Room and access scheme of a hotel

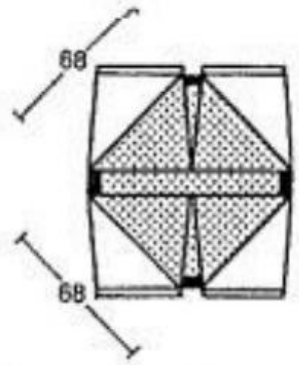
5 Stars (Luxury): as before, but single room 18m2 , double room 26m2, (minimum size, see above), 2% of the hotel rooms as suites (at least two), each with an armchair/sofa per bed, additional washbasin in double rooms and suites, additional colour television in suites, reception lobby.



5 Closest table spacing



6 Tables in a café



7 Zuntz table

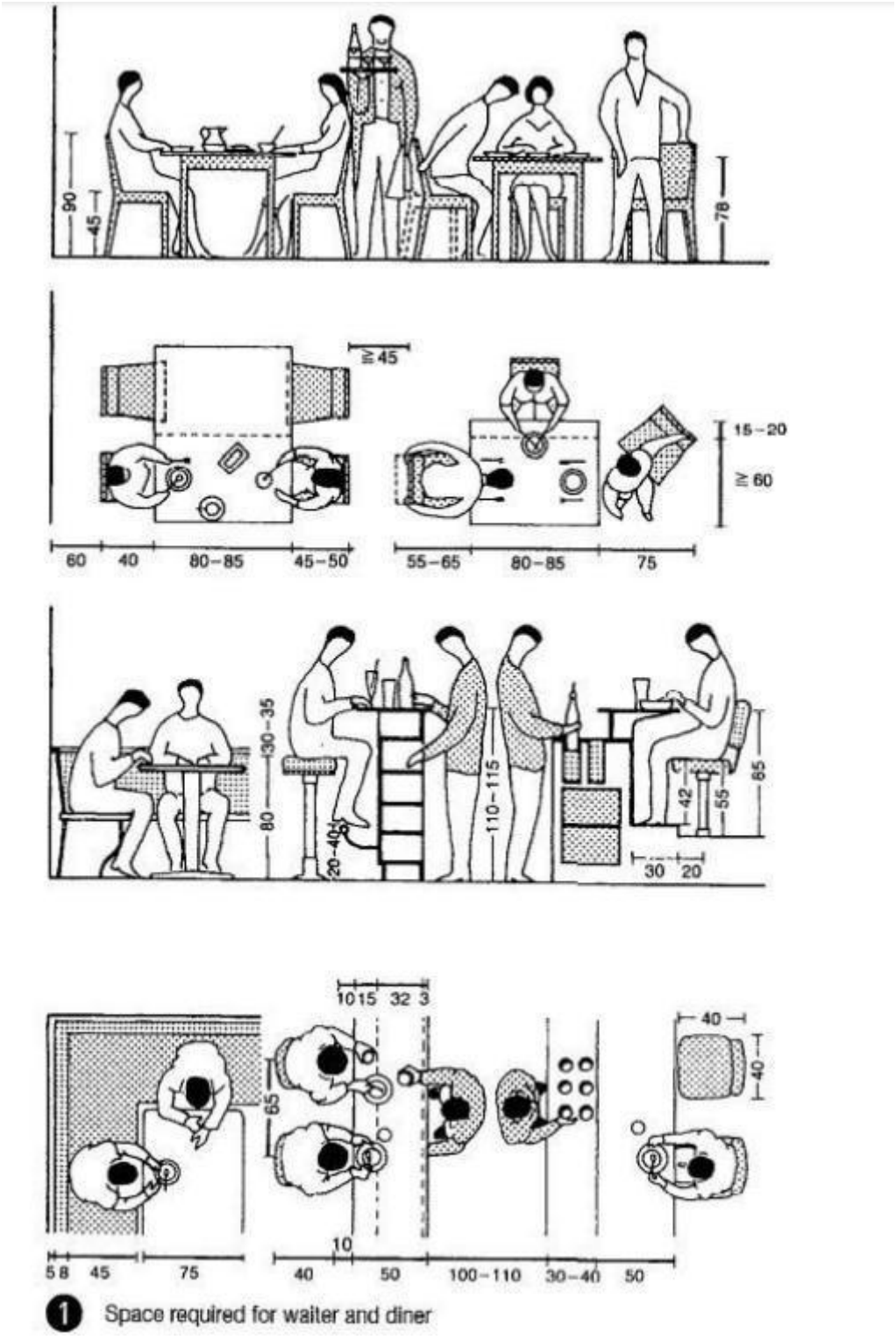
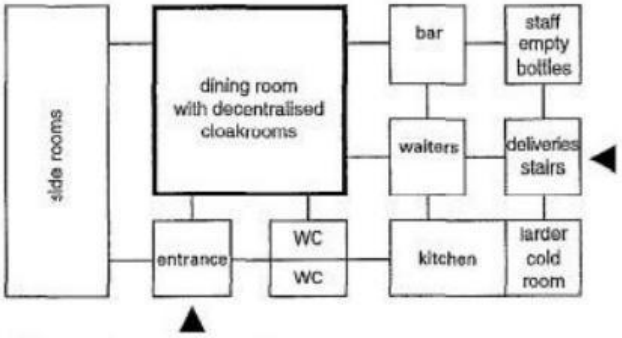


Figure 16 DINER SPACE

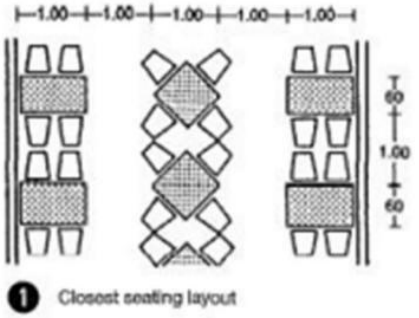


8 Functional scheme of a small restaurant

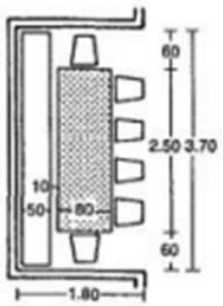
Type	Seat occupancy per meal	Kitchen floor area (m^2/cover)	Dining room floor area (m^2/seat)
exclusive restaurant	1	0.7	1.8–2.0
restaurant with rapid turnover, e.g. department store	2.5	0.5–0.6	1.4–1.6
standard restaurant	1.5	0.4–0.5	1.6–1.8
inn, guest house	1	0.3–0.4	1.6–1.8
for storerooms, personnel rooms etc., add approx. 80%			
cover = seat × seat turnover.			

11 Space requirements

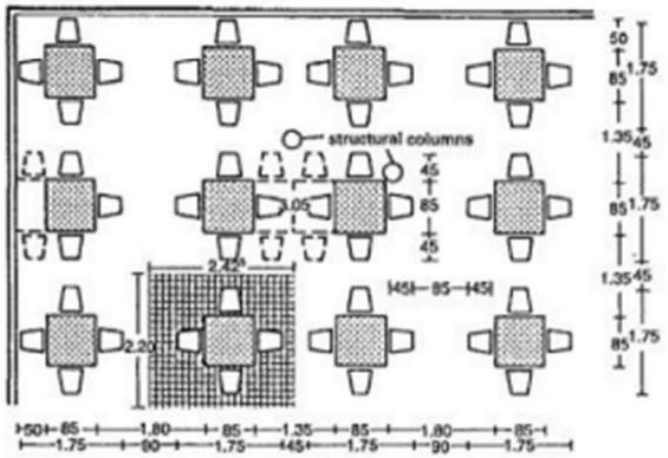
Columns in a dining room are best located in the centre of a group of tables or at the corners of the tables. The ceiling heights of dining areas with a floor area less than equal to 50m2=2.50m, > 50 m2 = 2.75 m and >100m2 greater than equal to 3.00 m; above or below galleries greater than equal to 2.50 m.



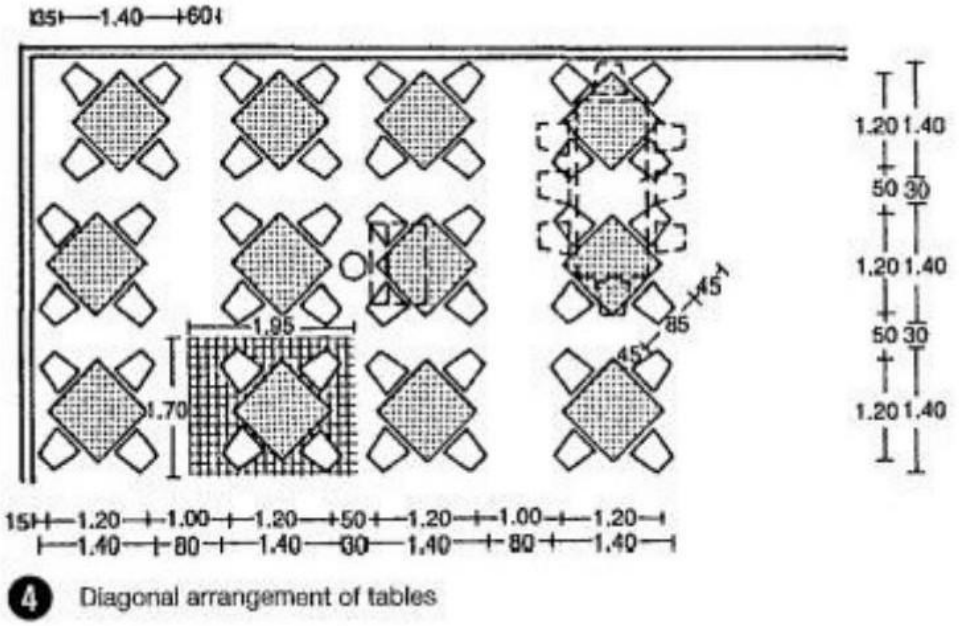
1 Closest seating layout



2 In an alcove



3 Parallel arrangement of tables



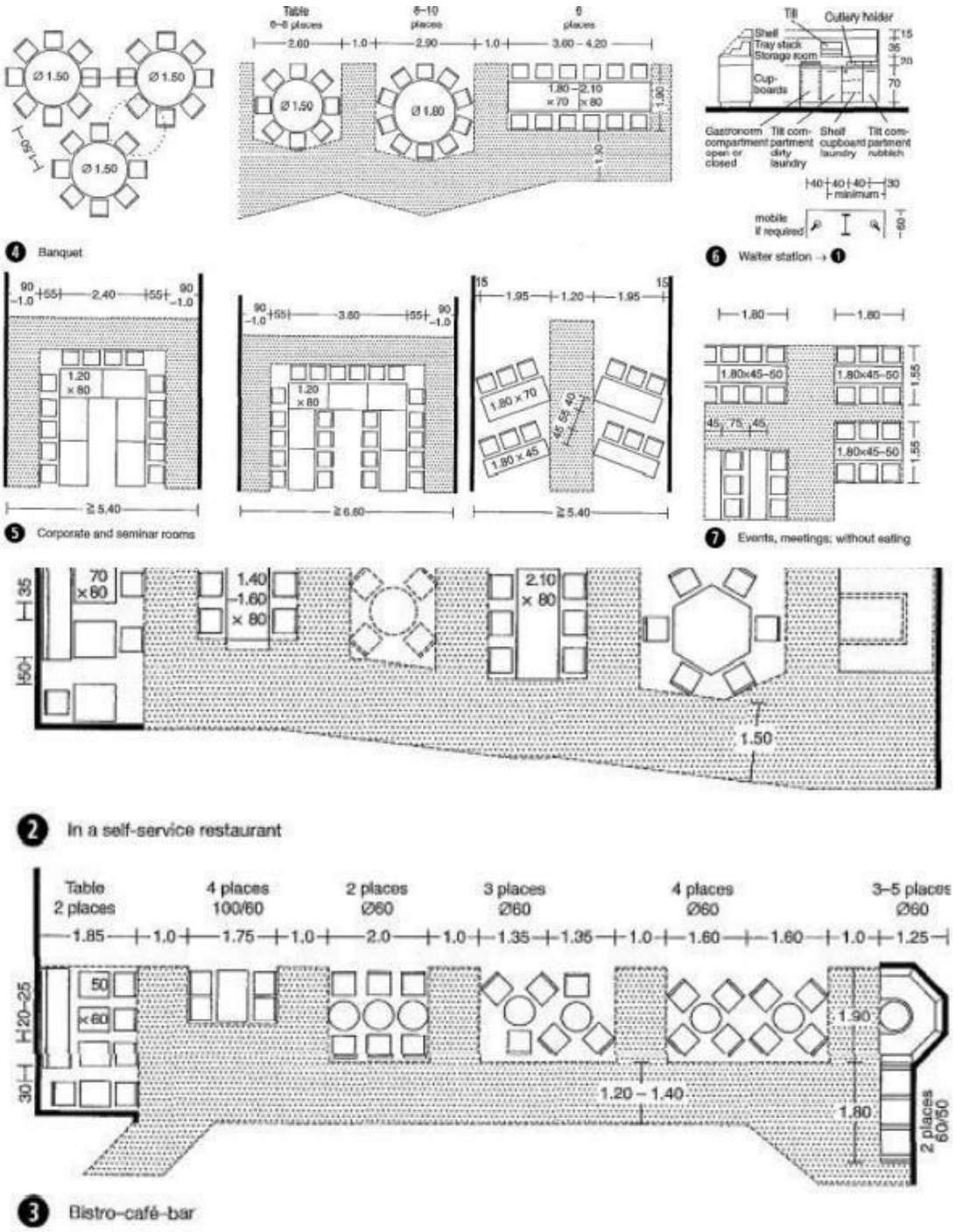
4 Diagonal arrangement of tables

Figure 17 TABLE ARRANGMENT

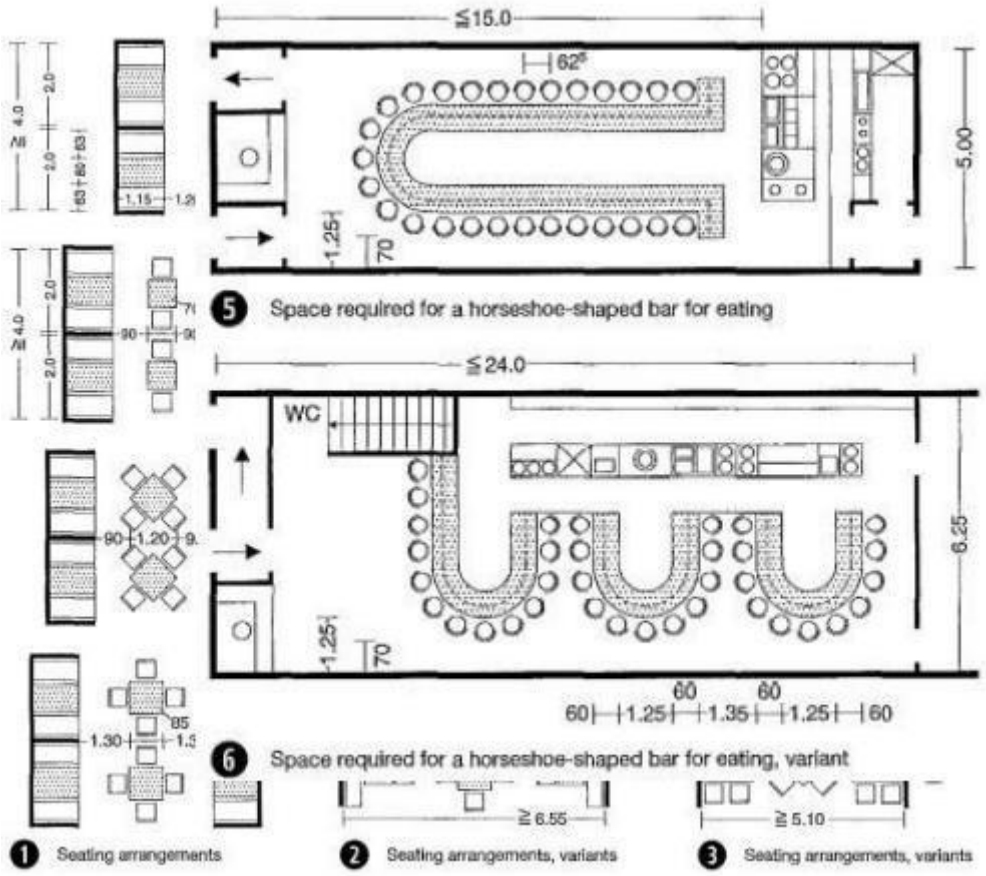
Emergency exits1.0m wideper150 people using them. Minimum clear width of aisles in restaurants0.80 m, doors 0.90 m.

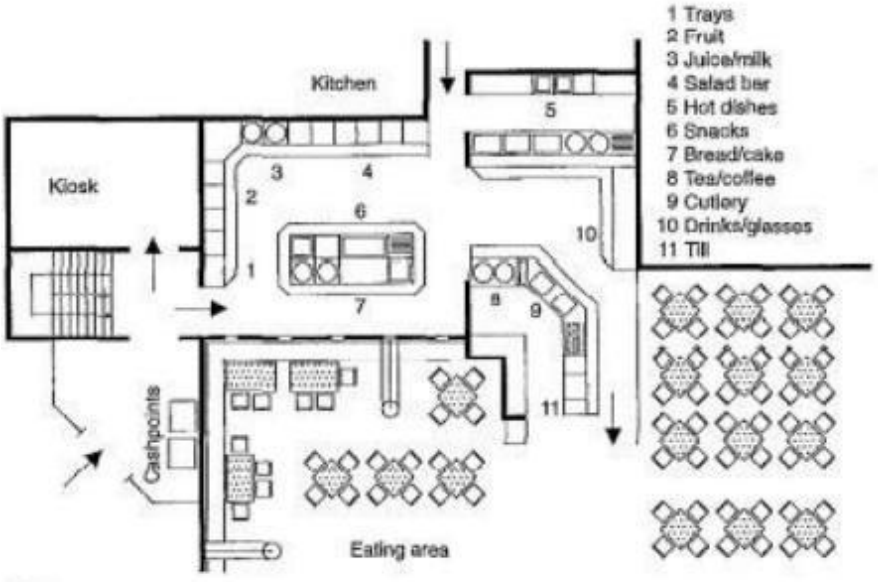
Toilets in public houses, bars or restaurants: Stairs to toilets, wash, staff and storage rooms, usable width less than equal to 1.1 0 m. Clear walkthrough height less than equal to 2.10 m measured vertically. Window area less than equal to 1/10 of the floor area of a restaurant.

Diagonal arrangement of the tables generally takes up less space than an aligned pattern, with a space saving of up to 35%.



Tables and chairs are kept as small as possible and tightly grouped.





7 Example of a fast food restaurant, self-service

2.5.URBAN AND REGIONAL DEVELOPMENT PLANS FORMULATION AND IMPLEMENTATION GUIDELINES

(URDPFI),(Annexure C):

MEANS OF ACCESS

For plot development of uses other than residential, the following minimum width corresponding to the length of the means of access shall be followed:

Sr. No.	Width of Means of Access (m)	Length of Means of Access (m)	Other Controls
1.	12.0	200	➢ The width of the means of access shall not be less than the internal access ways in layouts and subdivision.
2.	15.0	400	
3.	18.0	600	
4.	24.0	above 600	

Source: NBC, 2005.

For high rise buildings and buildings other than residential, the following additional provisions shall be ensured:

I. The width of the abutting main street shall not be less than 12 m and one end of this street shall join another street not less than 12 m in width.
II. The approach to the building and open spaces on all sides up to 6 m width and the layout shall be done in consultation with Chief Fire Officer of the city.
III. The main entrance to the plot shall be of minimum 6 m width to allow easy access to fire engine.

PARKING

Commercial Centres		
Convenience Shopping Centre/Local Shopping Centre / Local Level Commercial areas	2 ECS / 100 sqm of floor area	--
Service Market	2 ECS / 100 sqm of floor area	--
Community Centre / Non- hierarchical Commercial Centre	3 ECS / 100 sqm of floor area	--
District Centre/ Sub-Central Business District/Sub-City Level Commercial areas	3 ECS / 100 sqm of floor area	--
Commercial Plot: Retail & Commerce Metropolitan City Centre	3 ECS / 100 sqm of floor area	--
Hotel	3 ECS / 100 sqm of floor area	For Population between 2- 10 lakh – 1 car parking space for every 4 guest room. For Population

MINIMUM SETBACKS

- Setbacks based on Plot Sizes
- The following table may be referred for deciding the minimum setbacks for different size plots in various use zones. The size of plots should be decided after taking into account the provisions of National Housing Policy and Urban Land (Ceiling and regulation) Act. The setbacks, if necessary, may be changed depending upon the local situations and specified in the Development Plans and Building byelaws.

Sr. No.	Plot Size (in sqm)	Front (m)	Rear (m)		Side (m)	Side (m)
			Plains	Hill Towns	Plains	Hill Towns
1.	Upto 60	0	0	2	0	1.5
2.	Above 60 and upto 150	3	0	2	0	1.5
3.	Above 150 & upto 300	3	3	3	0	1.5
4.	Above 300 & upto 500	3	3	3	3	3
5.	Above 500 & upto 1000	6	3	3	3	3
6.	Above 1000 & upto 2000	9	3	3	3	3
7.	Above 2000 & upto 4000	9	6	6	6	6
8.	Above 4000 & upto 10000	9	6	6	6	6
9.	Above 10000	15	9	9	9	9

Source: UDPFI Guidelines 1996.

SOLID WASTE MANAGEMENT:

Municipal Solid Waste (MSW) is the trash or garbage that is discarded day to day ina human settlement. According to MSW Rules 2000 MSW includes commercial and residential wastes generated in a municipal or notified areas in either solid or semisolid form excluding industrial hazardous wastes but including treated bio-medical wastes. Waste generation encompasses activities in which materials are identified as no longer being of value (being in the present form) and are 95itherr thrown away or gathered together for disposal. The following table indicates the waste generation per capita per day for estimation and forecast of waste generation for future for planning purposes:

S.No.	Land use type	Estimated waste generation
1	Residential refuse	0.3 to 0.6 kg/cap/day
2	Commercial refuse	0.1 to 0.2 kg/cap/day
3	Street sweepings	0.05 to 0.2 kg/cap/day
4	Institutional refuse	0.05 to 0.2 kg/cap/day

Source: Manual on Solid Waste Management, CPHEEO – 2000

2.6 INDIAN STANDARD CODE FOR HOTELS AND RESTAURANTS:

1 .BUILDING

In addition to the recommendations in the code the building in which food service establishment is located shall also conform to the local building byelaws in force. The building should be of a permanent nature and maintained in a proper state of repair and cleanliness.

FLOORS

The floors of all rooms in which food or drink is stored, prepared or served and of all washing placed shall be of such construction as to be impervious, easily cleansed, smooth and in good repair. All floors shall be kept clean and free from litter. Dustless method of floor cleaning shall be used, ail except emergency floor cleaning shall be done during the period when least amount of food and drink is exposed.

3 WALLS

The walls shall have a smooth, non-absorbent surface, free from cracks and crevices to facilitate their efficient cleaning.

The walls of all rooms in which food or drink is prepared or utensils are washed shall have a smooth washable surface up to a minimum height of 2-O m from the floor.

4CEILING

Ceiling shall be clean, leak-proof and have a smooth non-absorbent surface free from cracks and crevices to facilitate their efficient cleaning.

5 DOOR AND WINDOWS

In the absence of air-conditioning all openings to the outer air including doors, windows, sky lights shall be effectively screened with tight fitting screens free from holes with wire gauge conforming to IS: 1568-

1960*. The doors when not in use shall be kept in closed position. Self closing screened doors to the outer air shall open outwards. Other methods approved by the authority shall be employed to ensure the absence of flies

6 VENTILATION

In case of ran-air-conditioned buildings the minimum standards of mechanical ventilation shall be maintained as given

TABLE 2 VENTILATION REQUIREMENTS FOR NON-AIRCONDITIONED BUILDINGS

Sl No.	Area	Air Changes per Hour
(1)	(2)	(3)
i)	Living rooms	3
ii)	Dining and lounge	2-3
iii)	Big kitchen	12
iv)	Small kitchen	6
v)	Toilets	6

Fig-70: Area Statement (Source: INDIAN STANDARD CODE FOR HOTELS AND RESTAURANTS)

WATERSUPPLY

There shall be adequate supply of safe and potable water. Running water shall be easily accessible to all rooms in which food is prepared or utensils are washed. Requirements for water supply for hotels and restaurants shall be as given

TABLE 3 WATER SUPPLY REQUIREMENTS FOR HOTELS AND RESTAURANTS

Sl No.	Description	Non-Airconditioned (Litres per Day)	Air Conditioned (Litres per Day)
(1)	(2)	(3)	(4)
i)	Hotels (per bed)	180	275
ii)	Restaurants (per seat)	70	97

Note — In hotels where laundry is provided arrangement for an extra quantity of 120 litres per bed should be made.

Fig-71: Area Statement (Source: INDIAN STANDARD CODE FOR HOTELS AND RESTAURANTS)

Storage of Water:

For the storage of water, proper receptacles made of galvanized iron or other suitable material shall be used. Such receptacles shall he kept covered with tight fitting lids and shall have screw caps at the bottom for draining out residual water. The receptacles shall be placed on a stand or a platform rasily accessible for the purpose of maintenance and cleaning, The receptacles shall be examined and cleaned regularly.

7 DRAINAGE:

TABLE 4 REQUIREMENTS OF DRAINAGE AND SANITATION FITMENTS IN HOTELS

(*Clause* 14.1.1)

Sl No.	Fitments	For Residential Public and Staff	For Public Rooms		For Non-Residential Staff	
			For Males	For Females	For Males	For Females
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Water-closets	1 per 8 persons omitting occupants of the room with attached water-closets; minimum of 2 if both sexes are lodged	1 per 100 persons up to 400 persons; and for over 400, add at the rate of 1 per 250 persons or part thereof	2 per 100 persons up to 200 persons; and for over 200, add at the rate of 1 per 100 persons or part thereof	1 for 1-15 persons 2 for 16-35 persons 3 for 36-65 persons 4 for 66-100 persons	1 for 1-12 persons 2 for 13-25 persons 3 for 26-40 persons 4 for 41-57 persons 5 for 58-77 persons 6 for 78-100 persons
ii)	Ablution taps	1 in each water-closet	1 in each water-closet	1 in each water-closet	1 in each water-closet	1 in each water-closet
		1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water-closets and urinals				
iii)	Urinals	—	1 per 50 persons or part thereof	—	Nil up to 6 persons 1 for 7-20 persons 2 for 21-45 persons 3 for 46-70 persons 4 for 71-100 persons	—
iv)	Wash basins	1 per 10 persons omitting the wash basins installed in the room suite	1 per water-closet and urinal provided	1 per water-closet provided	1 for 1-15 persons 2 for 16-35 persons 3 for 36-65 persons 4 for 66-100 persons	1 for 1-12 persons 2 for 13-25 persons 3 for 26-40 persons 4 for 41-57 persons 5 for 58-77 persons 6 for 78-100 persons
v)	Baths	1 per 10 persons omitting occupants of the room with bath *en suite*	—	—	—	—
vi)	Slop sinks	1 per 30 bedrooms, minimum 1 per floor	—	—	—	—
vii)	Kitchen sinks and dish washers	← 1 in each kitchen →				

NOTE 1 — Some of the water closets may be of European style if desired.

NOTE 2 — It may be assumed that two-thirds of the number are males and one-third females.

Fig-72: Area Statement (Source: INDIAN STANDARD CODE FOR

6. KITCHEN

Kitchen shalt be sufficiently spacious and should be of a size in proportion to the average number of diners catered for at one meal, The floor spice in the kitchen shall be calculated at the rate of0.5 me Min per diner. In case of snack bars, soda fountains, etc, the service-cum dispensing area shall be treated as part of the kitchen.

The minimum size of the kitchen should not be less than 10 rnp and none of the sides less than

2.3 meter. Exhaust fans should have provisions of grease filters for collecting grea

.STORAGE AND HANDLING EQUIPMENT(Annexure D):

All perishable food shall be stored at the temperatures as given below:

TABLE 6 STORAGE TEMPERATURES FOR FOODSTUFF

Sl No.	Names of Articles	Storage Temperature °C
(1)	(2)	(3)
i)	Meat, meat products, poultry	0·00 to 1·50
ii)	Fresh fish and sea food	−2·00 ,, −0·50
iii)	Dairy products and eggs	0·50 ,, 2·50
iv)	Fresh fruit and vegetables	2·00 ,, 4·50
v)	Ice-creams	−14·50 ,, −12·00

Note 1 — Potatoes need no refrigeration, but should be stored away from light.

Note 2 — Fish and sea foods shall be stored in separate compartments so as not to affect other materials.

Fig-73: Area Statement (Source: INDIAN STANDARD CODE FOR HOTELS AND RESTAURANTS)

9 ACOUSTICS

Food service establishments (hotels, restaurants, etc) shall adopt suitable noise control measures to provide adequate sound insulation against various noise sources which would cause disturbance to human comfort and efficiency.

10 .FIRE SAFETY REQUIREMENTS

All buildings and particularly buildings having more than one storey shall be provided with liberally demiglace safe-fire-resistant exists or escapes.

The exits shall be so placed that they are always immediately accessible and each is capable of

taking all the persons on that floor as alternative escape routes may be rendered unsuitable and/or unsafe due to fire.

Escape route shall be well-ventilated as persons using the escapes are likely to be overcome by smoke and/or fumes which may enter from floor.Basements- It is essential that the fire resistance of the basement conforms to the highest order and allcolumns for separating the upper structure shall have grading not less than the standards laid down for Grade 3.

CHAPTER 3

SITE STUDY

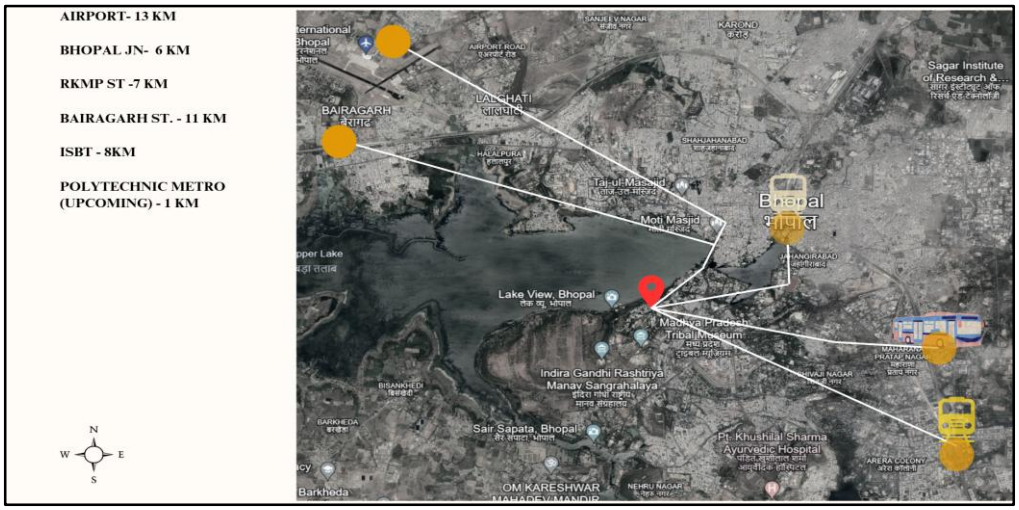


3.1CITY AREA:

Approximately 463 square kilometers (179 square miles)

• **Bhopal**, the capital of Madhya Pradesh, has a population of around 2.5 million, making it one of the medium-sized metropolitan cities in India.

• Known as the "**City of Lakes**", Bhopal features a unique blend of natural beauty and urban planning, with large and small lakes adding to its scenic charm.



ROADWAYS

• NH 46: A major highway passing through Bhopal, connecting it to Gwalior in the north and Betul in the south, facilitating connectivity within Madhya Pradesh.
• NH 146: Connects Bhopal to Sagar, enhancing regional connectivity.
• NH 52 (nearby): Though not directly passing through the city center, it links Bhopal to important cities like Indore and Kota via nearby junctions.

AIRWAYS

• Raja Bhoj International Airport: Located around 15 km northwest of Bhopal city center.
• Well-connected to domestic destinations such as Delhi, Mumbai, Bengaluru, Hyderabad, and Pune.
• Offers limited international flights, primarily to destinations in the Middle East via connecting flights.

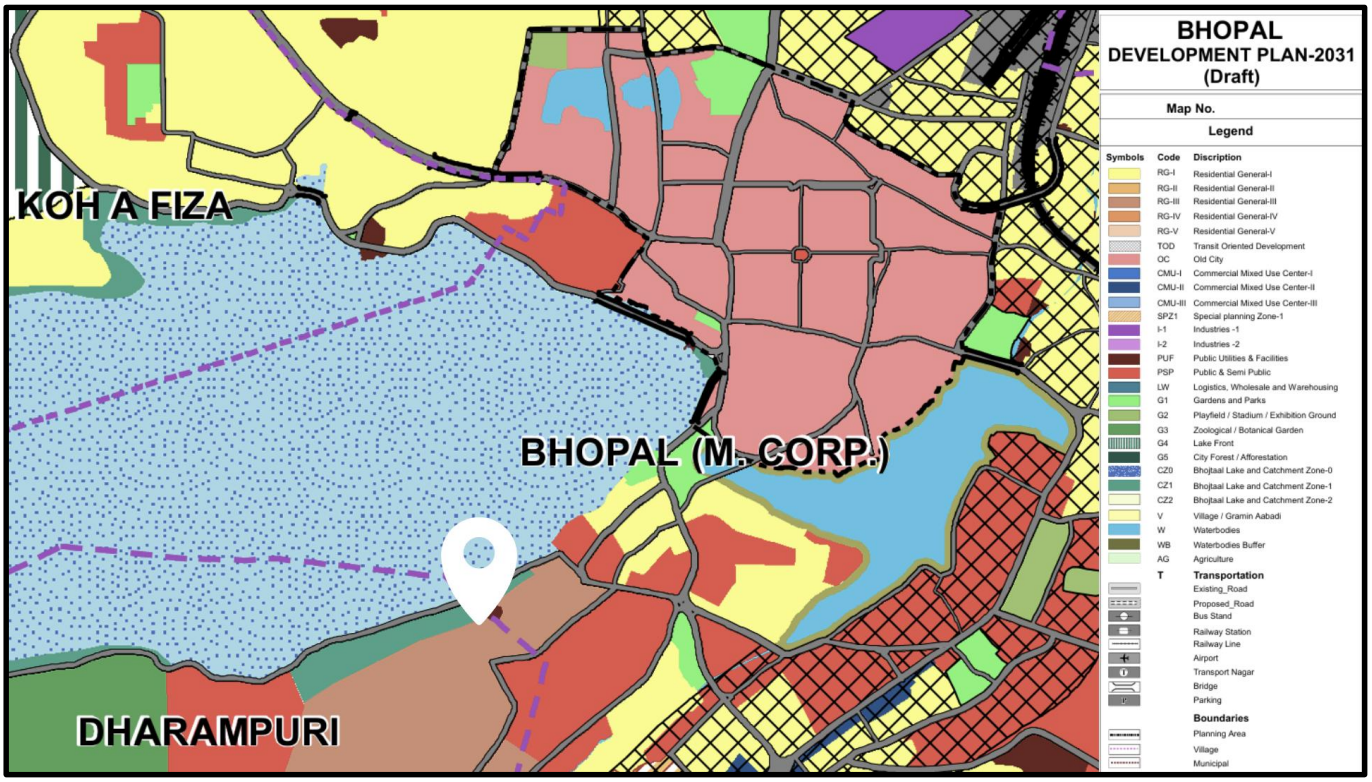
RAILWAYS

• Bhopal Junction: A major railway station and one of the busiest in Madhya Pradesh, falling under the West Central Railway zone.
• Other key stations: Habibganj (India's first private and modernized railway station), Bairagarh, and Misrod.
• Direct rail connectivity to major cities such as Delhi, Mumbai, Kolkata, Chennai, Bengaluru, Hyderabad, Ahmedabad, and Jaipur.

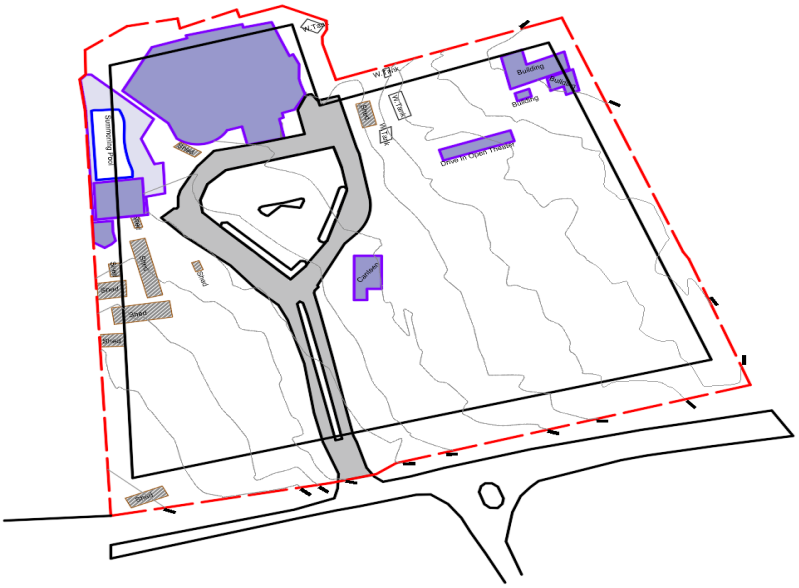
3.2SITE INFORMATION:

Area	Shyamala Hills, Bhopal
Site/Location	The subject property is located at Shyamala Hills, Bhopal, towards the eastern side of Upper Lake i.e., central region of Bhopal city. The subject location has many prominent government institutions and building. The prominent hospitality developments in vicinity of the subject site include Jehan Numa Palace, Ivy Suites, The Ten Suites etc. The subject micro-markets enjoys express connectivity via 24 m wide VIP Road (north) to the Bhopal Raja Bhoj Airport and other touristy places like Birla Museum, Sair Sapata, Interpretation Centre - Manav Sangrahalaya via 24 mts. wide Jehan Numa Palace Road.
Location Coordinates	**Latitude:** 23.243043872752793 **Longitude:** 77.387689113495 95
Approach Road	24 mts. wide primary access road – Jehan Numa Palace Road
Site Boundaries	The subject property is surrounded by: • North: Green Zone adjacent to Bhopal Upper Lake • South: 24 mts. wide primary access road – Jehan Numah Palace Road • East: Other's property • West: Other's property
Land Area & Built-Up Area	The land area of the subject property admeasures approx. 7.16 acres while the total built-up area of the subject development admeasures approx. 87,521 sq. ft.

3.3SITE LOCATION ON MASTER PLAN:



3.4 SITE CONTOURS-



Site Contour Analysis

The site is located adjacent to a **24-meter wide road** and is enclosed by a red boundary. The **contour lines are drawn at 1-meter intervals**, indicating a moderately hilly terrain. The topography reveals a **central elevated mound** rising to approximately **563 meters**, surrounded by gradual slopes descending to around **540 meters** along the site's lower southern and southeastern edges.

The **highest point lies near the center**, making it a natural focal point for structures such as viewpoints or landmark buildings. The **western and northern edges** show steeper gradients, while the **southern portion near the road** offers relatively gentle slopes, making it ideal for primary access, parking, and entrance-level infrastructure.

SOIL TYPE

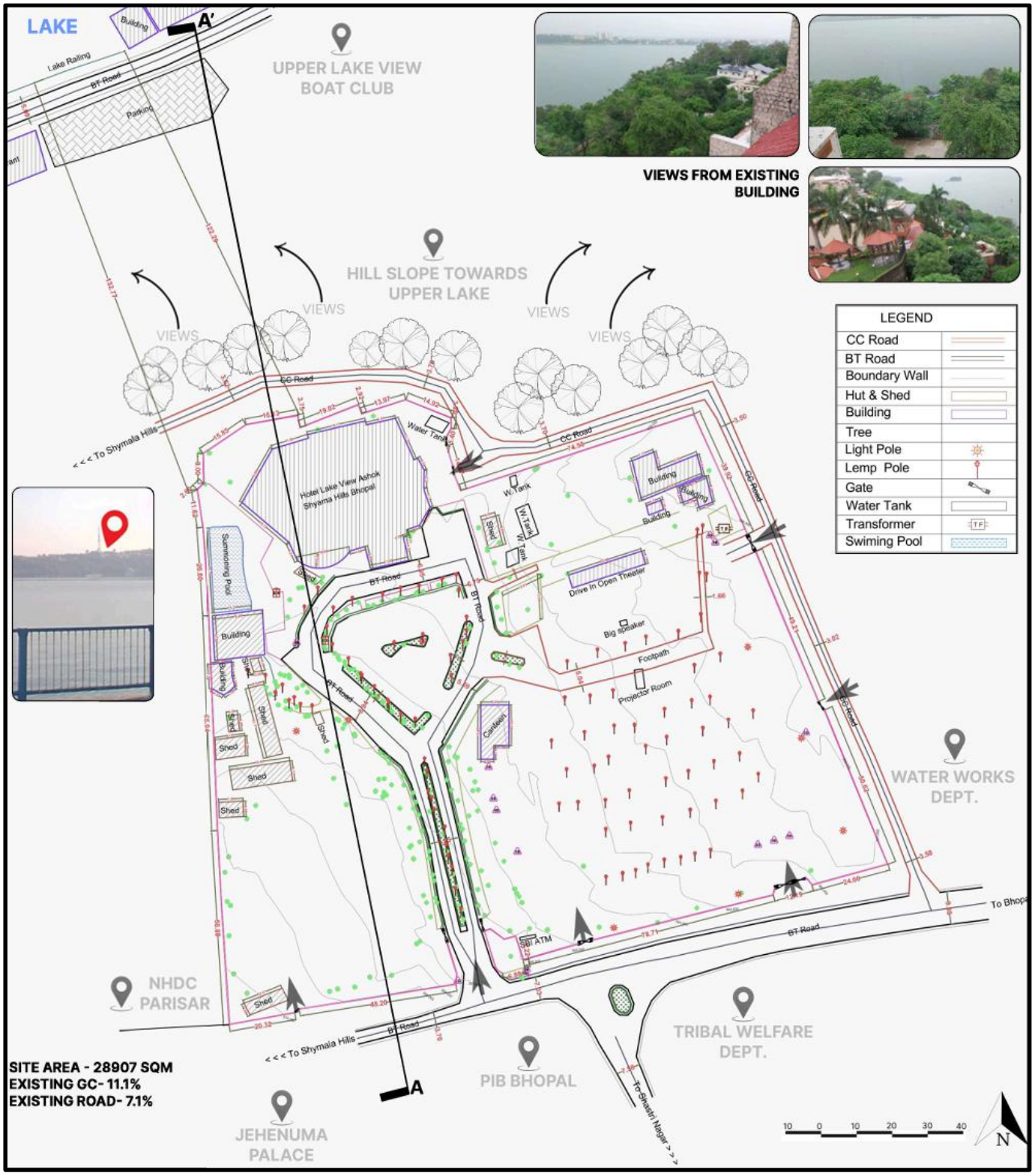
The **Bhopal region** features a mix of **black cotton soil (Vertisols)** and **alluvial soils**, especially along the lower-lying plains and near water bodies such as the Upper Lake and Betwa River basin.

Alluvial soils in Bhopal are typically found in **floodplains** and consist of a mix of **silt, clay, and fine sand**, deposited by rivers over time.

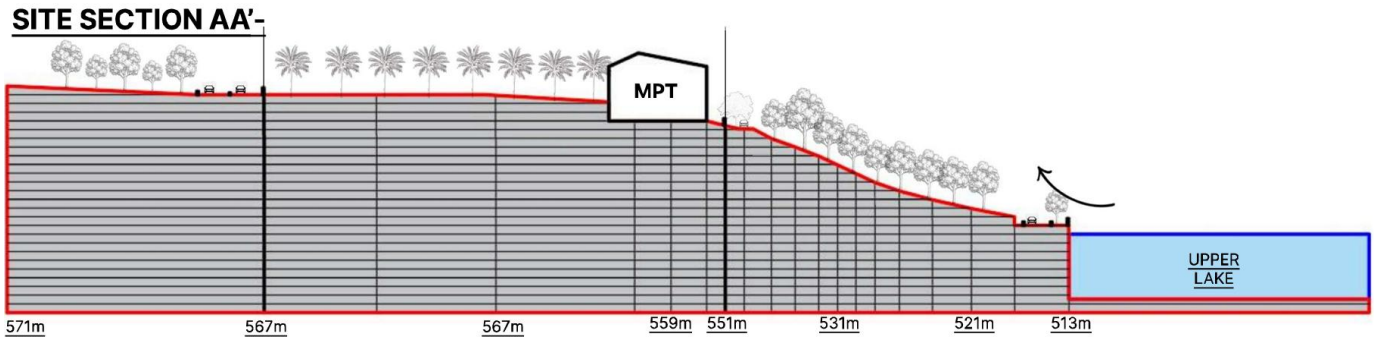
These soils are:

- **Fertile and moisture-retentive**, making them ideal for agriculture.
- **Moderately suitable for construction**, but may require **soil stabilization or reinforcement**, particularly in areas with high clay or silt content, which can expand or shift with moisture.
- Offer **good workability** and are generally **easy to excavate**.

In construction terms, **proper drainage and foundation design** are important in alluvial zones to avoid issues like **settlement or swelling**, especially during monsoon.



EXISTING SITE PLAN



3.5 NEIGHBOURHOOD CONTEXT -

Surrounding Landmarks:

- **Upper Lake (Bada Talab):** Directly adjacent, offering waterfront appeal and scope for lake-facing hospitality development.
- **Van Vihar National Park:** Located nearby, enhancing the eco-tourism and wellness retreat value.
- **Rashtriya Manav Sangrahalaya (Museum of Mankind)** and **State Museum:** Cultural attractions within 1 km radius.
- **CM House, Raj Bhavan, and other government establishments:** Indicate a secure and high-profile neighbourhood.
- **MP Tourism Boat Club and VIP Road:** Adds recreational and premium access elements to the site.
- **Jehnuma Palace:** Nearby existing heritage hotel that is a palace converted into a hotel.



Neighbourhood Context of Lake View Residency, Shyamala Hills

- **Prime Location:** Situated in Bhopal's core **administrative and elite residential area**.
- **Tourist Hub:** Close proximity to **Upper Lake (500m)** and **Van Vihar National Park (1.2km)**.
- **Government Proximity:** Just **1.5km from the MP Secretariat (Vallabh Bhawan)**.
- **High-Profile Neighbours:** Surrounded by **VIP bungalows, heritage homes, and luxury apartments**.
- **Commercial Access:** Well-connected to shopping areas – **3km from New Market, 4km from DB Mall**.
- **Education Hub:** Nearby prestigious institutions – **IIFM (1km), NLIU (2km)**, and top schools.
- **Healthcare Access:** Close to top hospitals – **Chirayu, Bansal** (within 2–3 km radius).
- **Transport Links: 5km to Habibganj Railway Station**, **12km to Raja Bhoj Airport**, **1km to BRTS route**.
- **Green & Serene:** Surrounded by **dense greenery, lakefront views, and clean air**.
- **Future Growth:** Falls within the **Bhopal Smart City development corridor**, ensuring long-term value.

Figure 2. 3 Prominent Tourist Sites in Bhopal

Taj-ul-Masjid



Sair Sapata

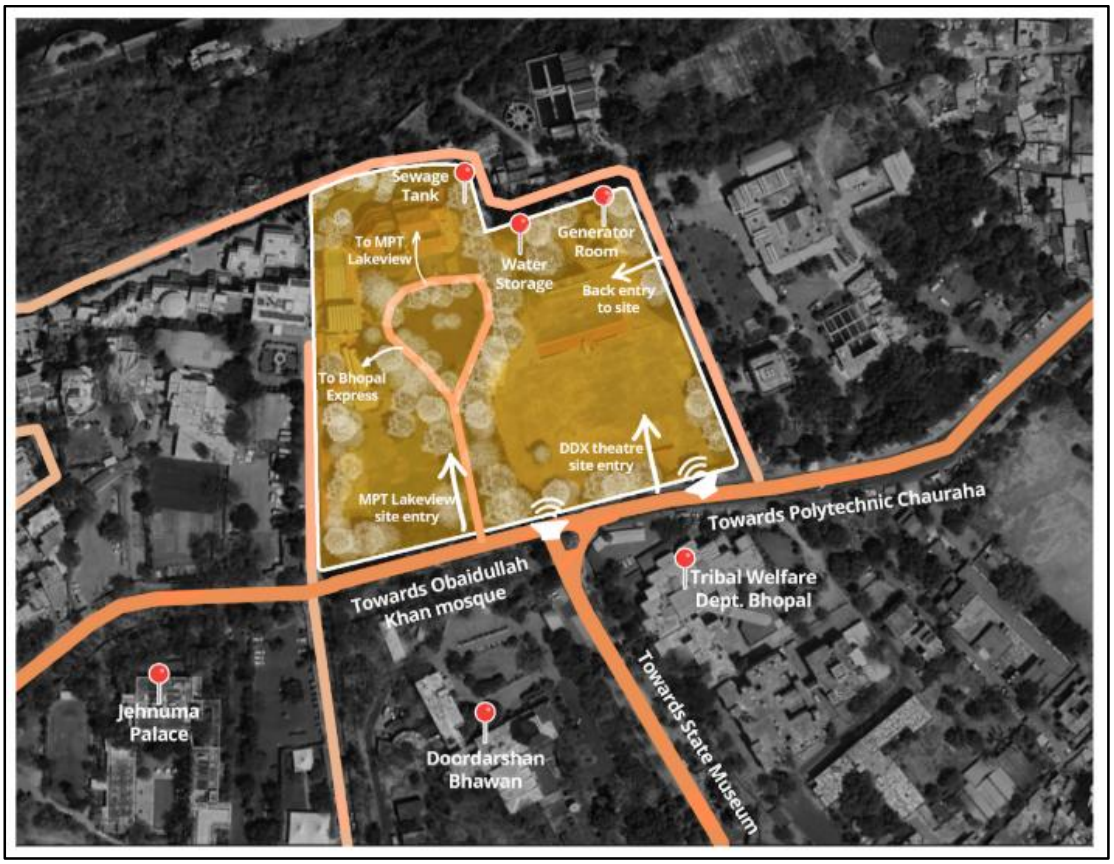


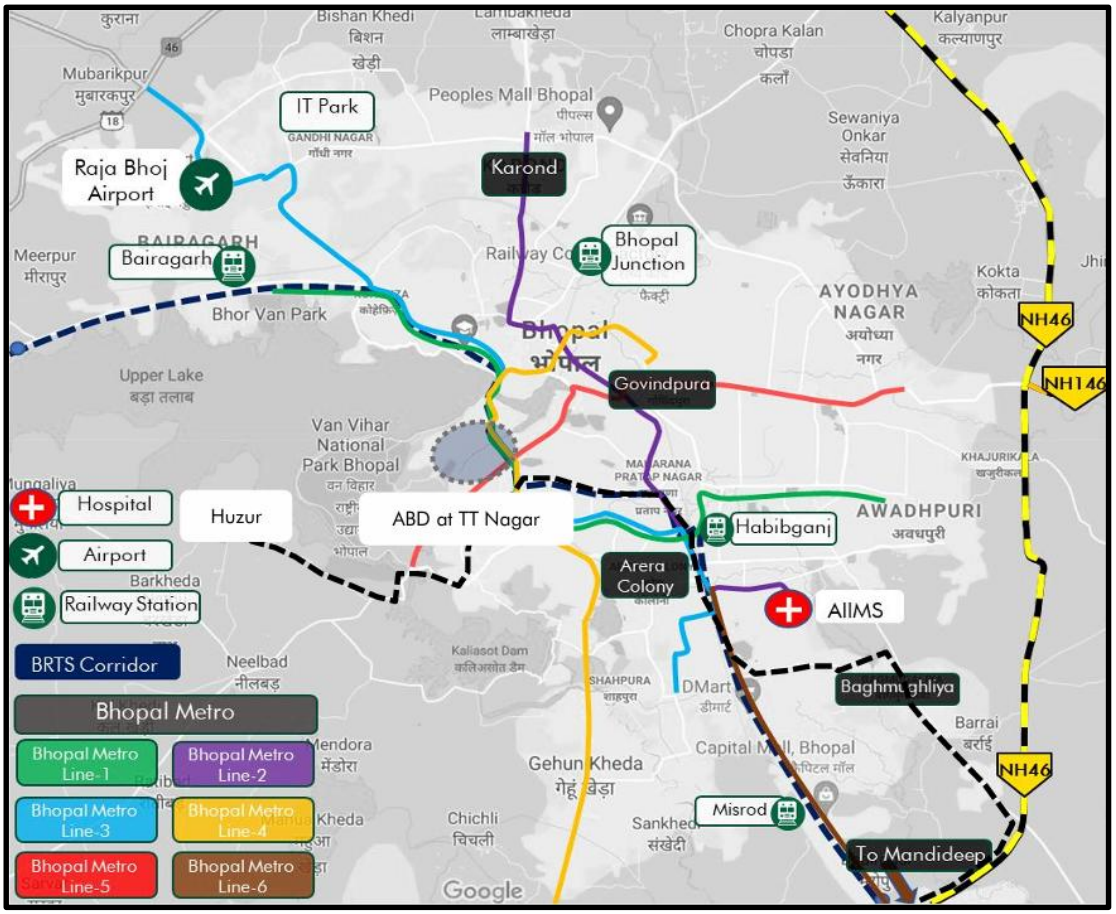
Van Vihar National Park



Shaukat Mahal







3.6 EXISTING LANDSCAPING FEATURES:

- **Streetscape Design:** Street Trees and Planters, Wayfinding Signage, Public Art InstallationsTransport and Mobility: Bus Stops and Shelters, Metro Connectivity, EV Charging StationsSmart Urban Features: Wi-Fi Zones, Smart Poles, Interactive Kiosks
- **Water Features:** Fountains and ponds add visual appeal and support rainwater harvesting. Rooftop and Vertical Gardens: Promote thermal insulation and biodiversity.
- **Open Plazas:** Landscaped courtyards and seating areas provide relaxation and informal meeting spaces.
- **Eco-Friendly Zones:** Pedestrian paths, cycling tracks, and rainwater systems encourage sustainability.
- **Recreational Areas:** Parks, play zones, and amphitheaters foster work-life balance.

Efficient Lighting: Energy-saving lights ensure safety and aesthetics at night.



EXISTING TREES ON SITE-

- **Peepal Tree (Ficus religiosa):** Sacred tree in Hinduism and Buddhism; offers deep shade and excellent air purification.
- **Bougainvillea:** Drought-tolerant flowering shrub/climber used for vibrant fencing and façade cover.
- **Rain Tree (Samanea saman):** Large canopy tree ideal for roads; improves soil fertility by fixing nitrogen.
- **Ashoka Tree (Polyalthia longifolia)**: Tall, narrow evergreen tree with fragrant flowers; great for urban borders and pathways.
- **Neem Tree (Azadirachta indica)**: Hardy, medicinal tree with antibacterial properties; provides shade and resists drought.
- **Thuja Tree (Thuja occidentalis):** Conical evergreen used in hedges; needs pruning and suits cooler climates.
- **Royal Palm Tree (Roystonea regia)**: Tall, elegant palm for boulevards; fast-growing and thrives in warm climates.
- **Ficus Tree (Ficus benjamina):** Dense decorative tree for indoors/outdoors; grows fast and needs pruning.

3.7 UTILITIES & INFRASTRUCTURE – SHYAMALA HILLS, BHOPAL-

Services

Power Supply: Provided by Madhya Pradesh Poorv Kshetra Vidyut Vitaran Company Limited (MPPKVVCL).

Underground Cabling: Electrical and communication lines are primarily underground beneath pathways to minimize visual clutter and reduce outages.

Poles & Transformers: Some overhead electrical poles exist, particularly in peripheral areas.

Substations: A 132/33 kV substation in nearby Shyamla Hills ensures stable power distribution.

Water Supply

Primary Source: Managed by Bhopal Municipal Corporation (BMC) and Public Health Engineering Department (PHED).

Sources:

Kolar Reservoir (Main supply)

Upper Lake (Bada Talab) (Secondary source)

Narmada River (Piped supply via Narmada Water Project)

Distribution: Water is supplied through underground pipelines with overhead tanks for storage.

Sewerage: Connected to BMC's sewerage network, with STPs (Sewage Treatment Plants) ensuring minimal environmental impact.

Drainage & Plumbing

Stormwater Drainage: Designed to handle monsoon runoff, with sloped pathways directing water toward natural drainage channels.

Underground Sewer Lines: Maintained by BMC to prevent waterlogging.

Telecom & Internet

Fiber Optic Network: High-speed internet (Jio, Airtel, BSNL) available via underground ducts.

Mobile Coverage: Strong 4G/5G signals due to proximity to telecom towers in Shyamla Hills.

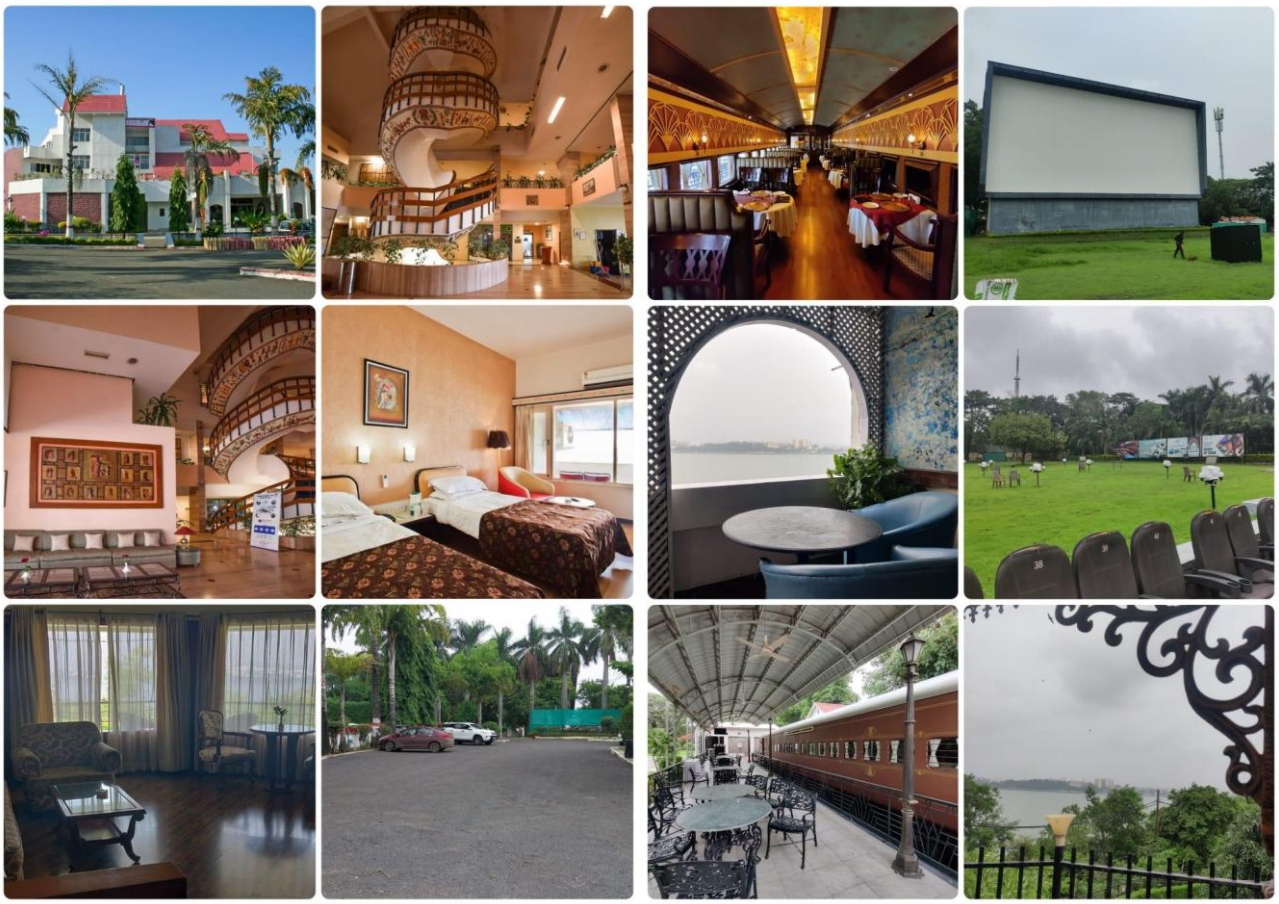
Fire & Safety Infrastructure

Fire Hydrants: Installed as per National Building Code (NBC) norms.

Emergency Services: Fire station located within 4 km (Koh-e-Fiza).

Rainwater Harvesting: Mandatory for large buildings.

Solar Power: Encouraged by BMC for commercial establishments



3.8 VISUAL AXES / VIEWPOINTS – SHYAMALA HILLS, BHOPAL

Visual Axis / Viewpoint	Direction	Description	Desirable / Undesirable	Remarks
View towards Upper Lake (Bhojtal)	West / Southwest	Panoramic lake views, lush greenery, tranquil water body	**Desirable**	Key natural feature; enhances aesthetics & value
View towards Jehan Numa Palace	Northwest	Historic palace architecture visible	**Desirable**	Adds cultural richness and heritage context
View along VIP Road	North	Wide, landscaped arterial road with smooth vehicular flow	**Desirable**	Good connectivity and urban outlook
View towards Birla Museum / Cultural Sites	Northwest / North-West	Tourist and cultural landmarks with landscaped surroundings	**Desirable**	Encourages cultural identity and placemaking
View of adjacent government buildings	East / Northeast	Institutional buildings, mostly low-rise and formal design	**Neutral to Undesirable**	Limited aesthetic appeal; may cause monotony
View of service roads / back alleys	Southeast / South-East	Minor roads, service areas, utility spaces	**Undesirable**	Typically cluttered, less maintained
View towards dense urban zones	East / Northeast	Built-up, commercial, or residential clusters	**Neutral**	Depends on building condition and urban quality
View of hills and greenery beyond site	North / North-West	Forested hills and natural vegetation	**Desirable**	Supports biophilic design and visual relief

3.9 VERNACULAR MATERIALS OF BHOPAL-

- Sandstone – Abundantly available in Malwa and Vindhya; used in walls, columns, jharokhas, and chhatris in buildings like Shaukat Mahal and Taj-ul-Masajid.

- Laterite – Found in peripheral regions; used for load-bearing walls due to good workability and thermal insulation.
- Lime Plaster – Applied in Mughal and colonial buildings for smooth surface finishes and decorative details.
- Lime Mortar – Used for binding stone and brick in palaces, mosques, and historic masonry structures.
- Timber – Used in traditional havelis for columns, beams, doors, windows, and jalis; teak and sal preferred.
- Mud and Adobe – Common in rural houses; mud walls with bamboo or wood frames offer thermal comfort.
- Terracotta and Clay – Used in roof tiles, jaalis, pots, and decorative elements in both modest and ornate structures.
- Bamboo – Used for scaffolding, temporary shelters, and as structural material in tribal forest homes.
- Marble – Selectively used in royal and religious buildings for flooring, columns, and wall panels.
- Metal (Wrought Iron & Brass) – Used for railings, gates, and decorative features in Indo-Islamic and colonial buildings.
- Chunam – Fine lime-based plaster used in Nawabi architecture for smooth, glossy, detailed wall finishes.
- Thatch and Grass – Still used for roofing in tribal and rural homes, especially in hot and dry regions.

3.10 HUMAN & CULTURAL-

Attitude Towards New Development:

Bhopal has shown a **balanced approach** towards development, welcoming infrastructure projects, smart city initiatives, and modernization, especially in areas like transport, education, and housing. However, citizens often express concerns over **heritage**

conservation, **urban greenery**, and **water bodies**, emphasizing the importance of sustainable growth that respects the city's ecological and cultural identity.

Population Density:

As of 2024, Bhopal's estimated **urban population** is around **2.5 million**, with a **moderate population density** of approximately **5,400 people per square kilometer**, allowing for relatively more open space compared to metro cities.

Family Size:

The **average household size** in Bhopal is typically **4 to 5 members**, reflecting the structure of both nuclear and joint families.

Demographics and Ethnicity:

- **Gender Ratio:** As per the 2011 Census, Bhopal had a **sex ratio of 921 females per 1,000 males**, slightly below the national average.

- **Age Distribution:** Children aged **0–6 years** comprised a notable segment of the population, indicative of a **young demographic profile**.

- **Literacy Rate:** Bhopal has a high literacy rate of **85.24%**, with **male literacy at 89.2%** and **female literacy at 81%**, significantly higher than the national average.

- **Religious Composition:**
- **Hindus:** 74%
- **Muslims:** 22.6%
- **Christians:** 1.1%
- **Jains:** 1.2%
- **Others (Sikhs, Buddhists, etc.):** Less than 1%

- **Linguistic Diversity:** Hindi is the **dominant language** spoken in Bhopal. Other languages include **Urdu**, **Marathi**, **Sindhi**, and **Punjabi**, reflecting its mixed cultural roots.

- **Ethnic Composition:** Bhopal has a **diverse ethnic population**, including native Hindustani-speaking communities, as well as Marathis, Sindhis, Bengalis, and Muslims with Persian, Afghan, and Central Asian ancestry. The city's Nawabi legacy continues to influence its cultural and social fabric

3.11 ARCHITECTURAL ELEMENTS OF BHOPAL'S HERITAGE STRUCTURES

Element	Description
Domes	Symbolic of Islamic & Mughal influence; found in mosques & palaces
Minarets	Slender towers used for calls to prayer; prominent in Taj-ul-Masajid
Arches (Cusped & Triangular)	Seen in Gohar Mahal, Shaukat Mahal; used in entryways and courtyards
Jharokhas & Balconies	Projecting enclosed windows/balconies seen in Gohar Mahal & Shaukat Mahal
Courtyards (Chowks)	Open-air internal spaces for light, ventilation, and cultural performances
Ornamental Brackets & Carvings	Decorative stone/wooden supports, floral and geometric detailing
Chhajjas	Overhangs above windows/doors to provide shade
Terraces & Stepped Roofs	Seen in Bharat Bhavan and older palaces, often used for views & airflow
Natural Materials	Lakhauri brick, sandstone, wood, lime plaster—adapted to climate and context

3.12 CLIMATE ANALYSIS

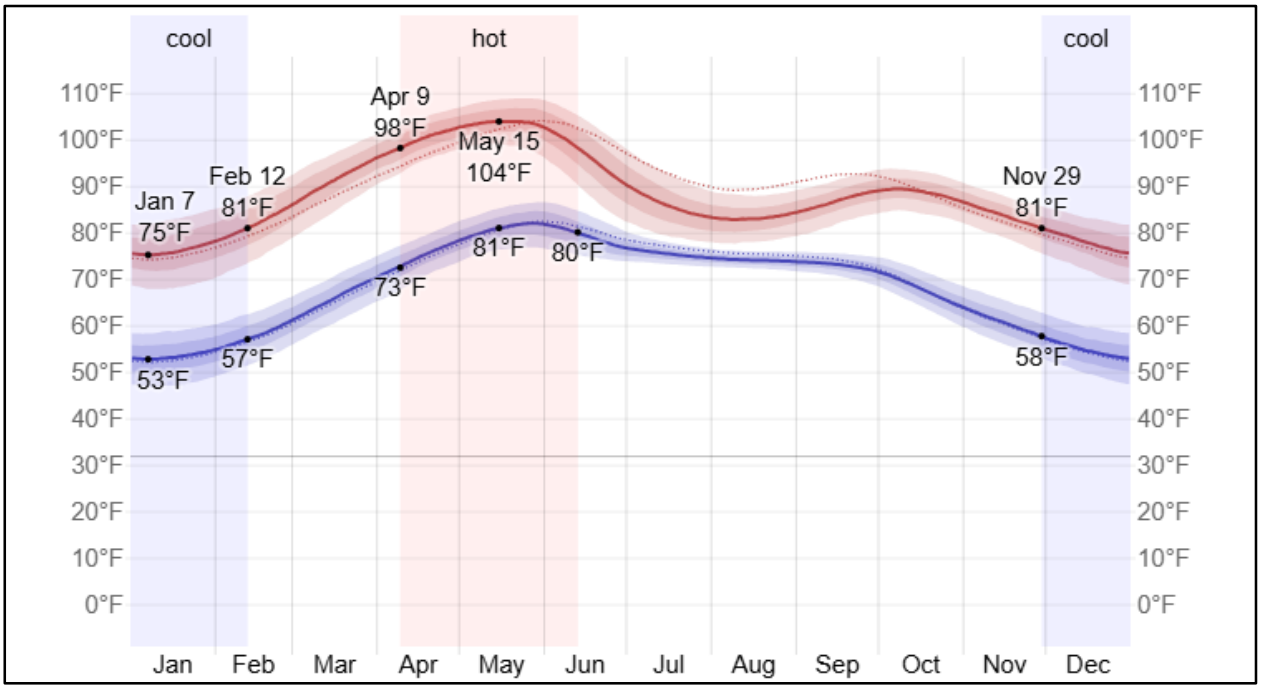
Bhopal, the capital city of Madhya Pradesh, experiences a **humid subtropical climate** characterized by **hot summers**, **moderate winters**, and a **distinct monsoon season**. Summers, lasting from **March to June**, are typically hot and dry, with **temperatures often soaring above 40°C**, especially in May, the hottest month. During this period, dry winds and low humidity are common.

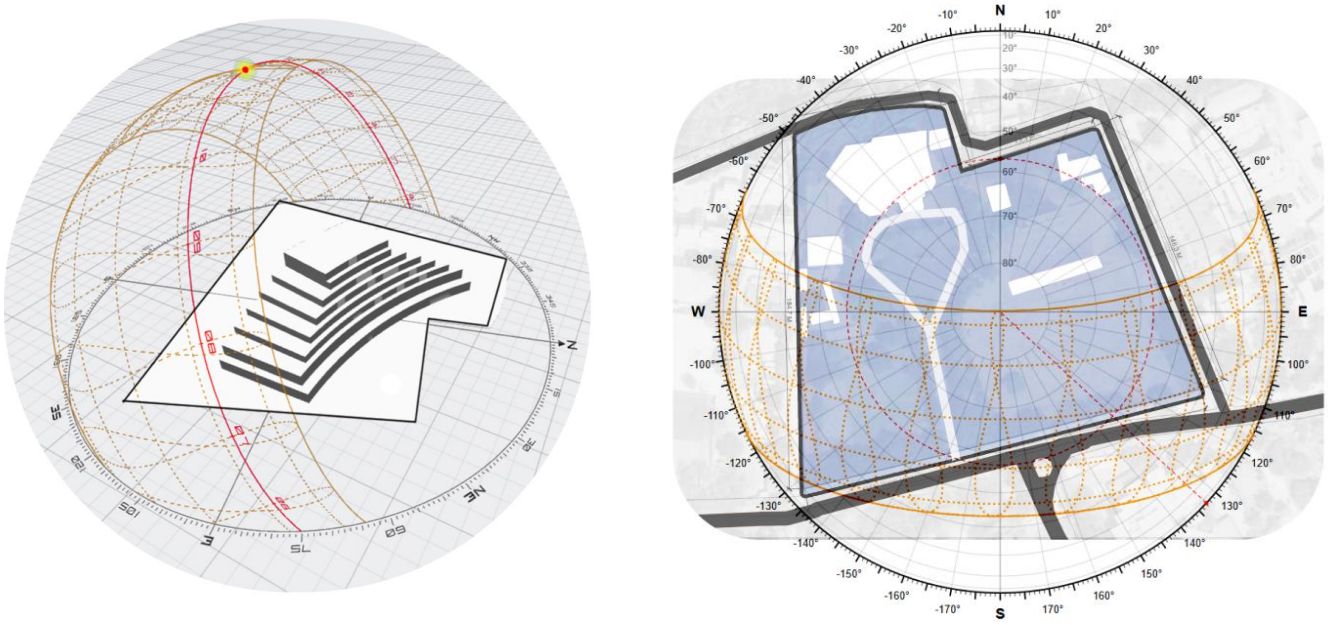
The **monsoon season**, from **late June to September**, brings significant rainfall due to the southwest monsoon. The city receives an average annual rainfall of about **1,200 mm**, most of which falls during these months. The rains provide relief from the scorching heat but also lead to temporary waterlogging in some low-lying areas.

Winters, spanning **November to February**, are generally mild and pleasant, with temperatures ranging between **7°C and 25°C**. January is the coldest month, but frost is rare. Clear skies and low humidity make this season favorable for tourism and outdoor activities.

Due to its location near lakes and greenery, Bhopal often experiences relatively **moderate climate conditions** compared to other cities in central India. However, **urbanization** and **deforestation** have slightly impacted its traditional weather patterns, leading to hotter summers and increased humidity in recent years.

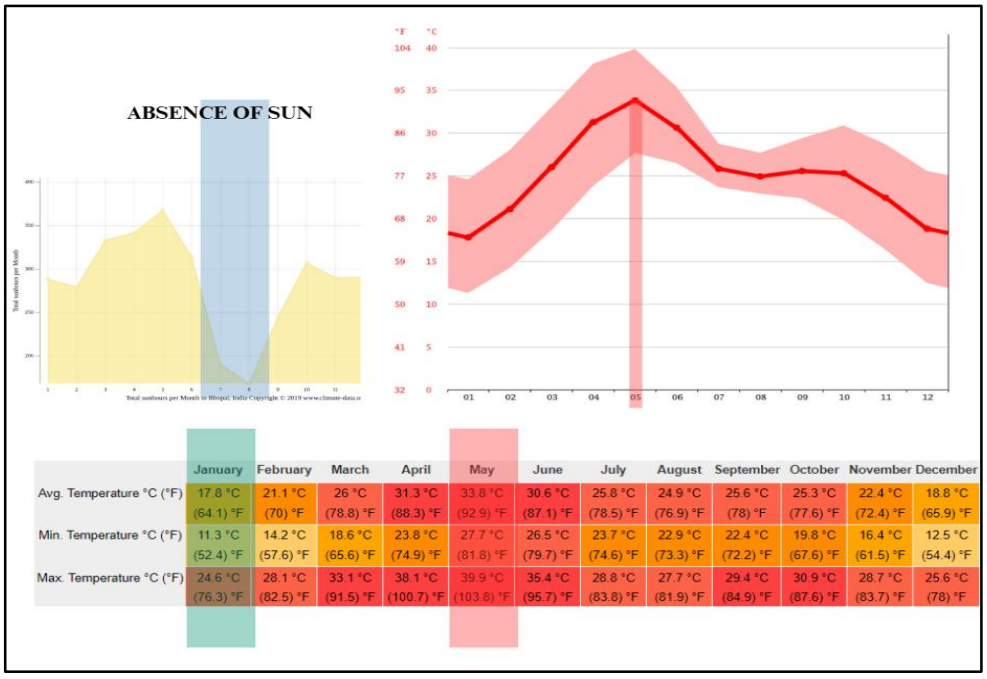
Average High and Low Temperature in Bhopal





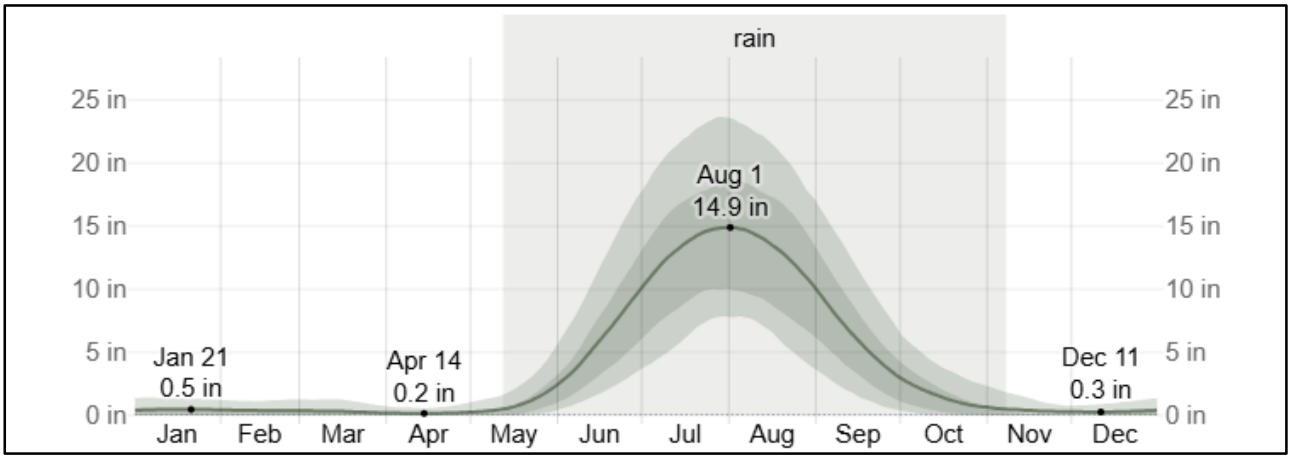
SUN PATH in Bhopal

Average High and Low Temperature in Bhopal

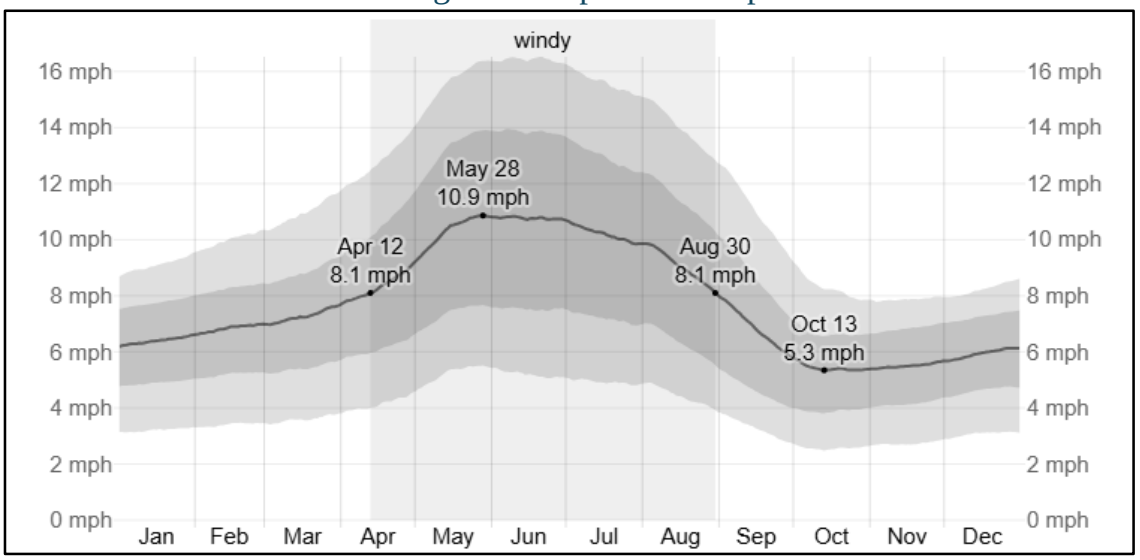


	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	17.8 °C (64.1) °F	21.1 °C (70) °F	26 °C (78.8) °F	31.3 °C (88.3) °F	33.8 °C (92.9) °F	30.6 °C (87.1) °F	25.8 °C (78.5) °F	24.9 °C (76.9) °F	25.6 °C (78) °F	25.3 °C (77.6) °F	22.4 °C (72.4) °F	18.8 °C (65.9) °F
Min. Temperature °C (°F)	11.3 °C (52.4) °F	14.2 °C (57.6) °F	18.6 °C (65.6) °F	23.8 °C (74.9) °F	27.7 °C (81.8) °F	26.5 °C (79.7) °F	23.7 °C (74.6) °F	22.9 °C (73.3) °F	22.4 °C (72.2) °F	19.8 °C (67.6) °F	16.4 °C (61.5) °F	12.5 °C (54.4) °F
Max. Temperature °C (°F)	24.6 °C (76.3) °F	28.1 °C (82.5) °F	33.1 °C (91.5) °F	38.1 °C (100.7) °F	39.9 °C (103.8) °F	35.4 °C (95.7) °F	28.8 °C (83.8) °F	27.7 °C (81.9) °F	29.4 °C (84.9) °F	30.9 °C (87.6) °F	28.7 °C (83.7) °F	25.6 °C (78) °F

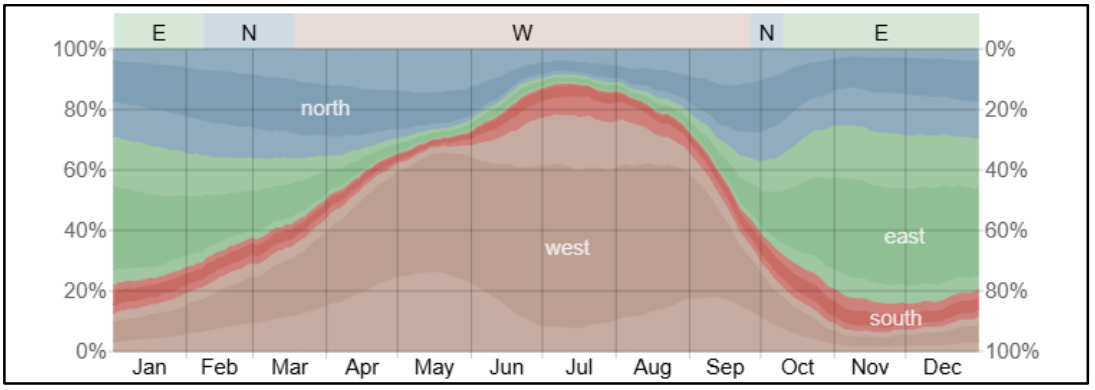
Average Monthly Rainfall in Bhopal



Average Wind Speed in Bhopal



Wind Direction in Bhopal



AVERAGE HIGH AND LOW TEMPERATURES IN BHOPAL:

The hot season lasts for 2.1 months, from April to June, with an average daily high temperature above 98°F. The hottest month of the year in Bhopal is May, with an average high of 104°F and low of 81°F.

The cool season lasts for 2.5 months, from November to February, with an average daily high temperature below 81°F. The coldest month of the year in Bhopal is January, with an average low of 54°F and high of 76°F.

AVERAGE MONTHLY RAINFALL IN BHOPAL:

The rainy period of the year lasts for 5.9 months, from May to November, with a sliding 31-day rainfall of at least 0.5 inches. The month with the most rain in Bhopal is July, with an average rainfall of 13.6 inches.

The rainless period of the year lasts for 6.1 months, from November to May. The month with the least rain in Bhopal is April, with an average rainfall of 0.2 inches.

AVERAGE WIND SPEED IN BHOPAL:

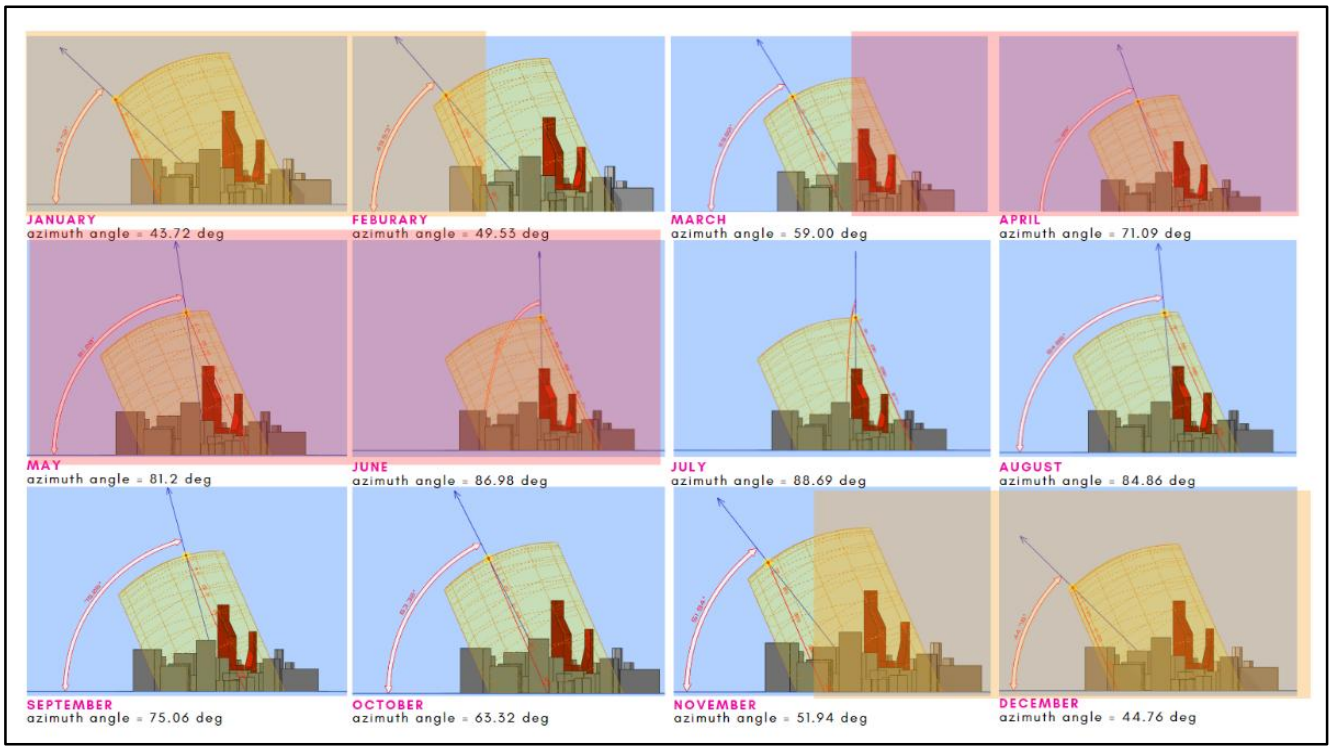
The windier part of the year lasts for 4.5 months, from April to August, with average wind speeds of more than 8.1 miles per hour. The windiest month of the year in Bhopal is June, with an average hourly wind speed of 10.8 miles per hour.

The calmer time of year lasts for 7.4 months, from August to April. The calmest month of the year in Bhopal is October, with an average hourly wind speed of 5.4 miles per hour

WIND DIRECTION IN BHOPAL:

The wind is most often from the north for 1.3 months, from February to March, and for 2.0 weeks, from September to October, with a peak percentage of 37%. The wind is most often from the west for 6.3 months, from March to September, with a peak percentage of 79%. The wind is most often from the east for 3.9 months, from October to February, with a peak percentage of 49%.

SUN PATH ANGLE-



CHAPTER 4

CASE STUDIES

4.1 CASE STUDY: TAJ HOTEL, BHOPAL



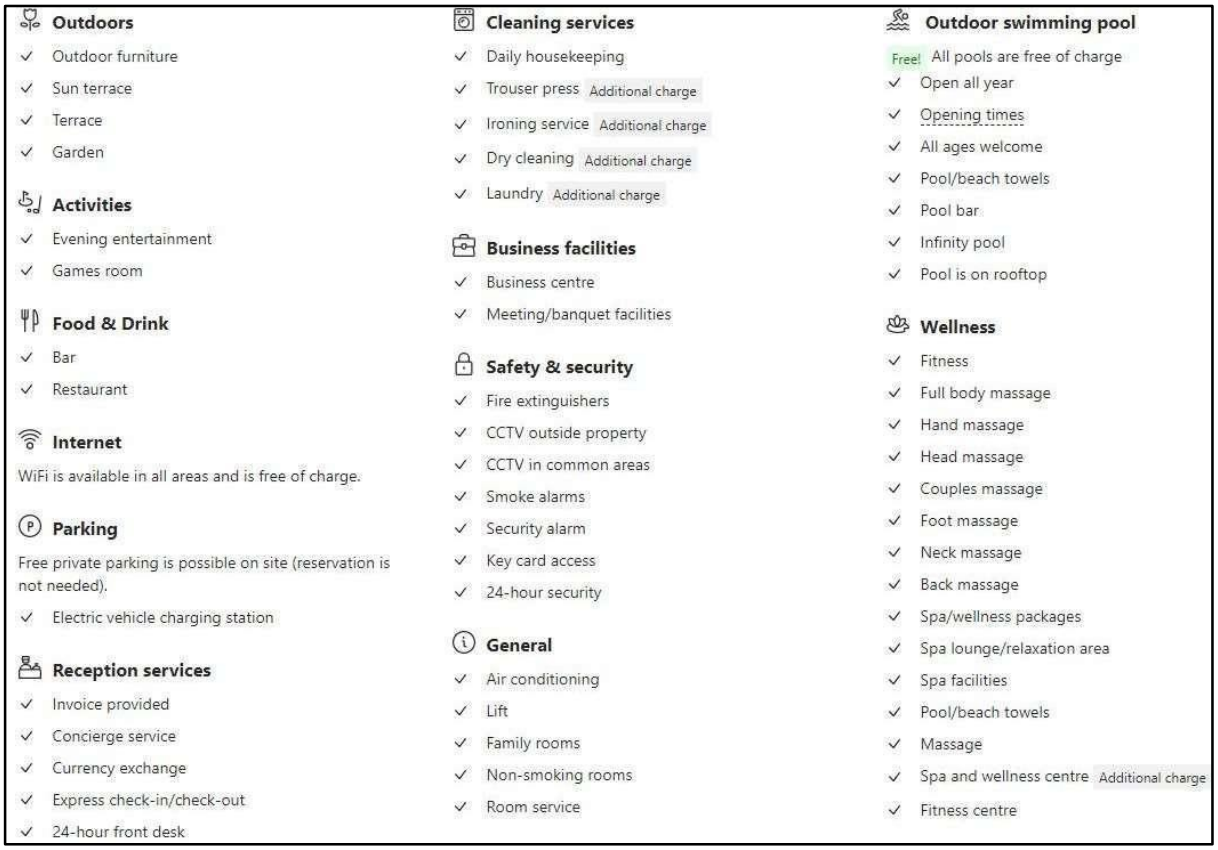
Figure 21 Taj Bhopal



Parameter	Details
Name	Taj Lakefront Bhopal
Location	VIP Road, Shyamla Hills, Bhopal, Madhya Pradesh, India
Type	5-Star Luxury Hotel
Operator	Indian Hotels Company Limited (IHCL) – Taj Hotels
Inauguration Year	2021
Total Rooms	152 rooms and suites
Key Facilities	Multi-cuisine restaurants, bar, banquet halls, swimming pool, spa, gym
Meeting/Banquet Space	Large event and conference halls; suitable for weddings and corporate events
Design Style	Blend of modern architecture with traditional Madhya Pradesh influences
Nearby Landmarks	Upper Lake (Bada Talab), Van Vihar, Bharat Bhavan, Tribal Museum
Views Offered	Panoramic views of Upper Lake and surrounding greenery
Clientele	Business travelers, tourists, VIPs, and wedding guests
Special Features	Lakefront location, rooftop dining, proximity to nature and city center
Accessibility	20–30 mins from Raja Bhoj Airport; well-connected by road

Attribute	Details
Hotel Name	Taj Lakefront Bhopal
Full Address	Link Road No. 3, Prempura (Bhadbhada Chouraha), TT Nagar, Bhopal, MP 462003, India
Map	Bhadbhada Road, Main Rd No. 3, Chouraha
Proximity to City Center	Approximately 3 km from central Bhopal
Nearest Airport	Raja Bhoj International Airport -15 km

FACILITIES



Outdoors
- ✓ Outdoor furniture
- ✓ Sun terrace
- ✓ Terrace
- ✓ Garden

Activities
- ✓ Evening entertainment
- ✓ Games room

Food & Drink
- ✓ Bar
- ✓ Restaurant

Internet

WiFi is available in all areas and is free of charge.

Parking

Free private parking is possible on site (reservation is not needed).
- ✓ Electric vehicle charging station

Reception services
- ✓ Invoice provided
- ✓ Concierge service
- ✓ Currency exchange
- ✓ Express check-in/check-out
- ✓ 24-hour front desk

Cleaning services
- ✓ Daily housekeeping
- ✓ Trouser press Additional charge
- ✓ Ironing service Additional charge
- ✓ Dry cleaning Additional charge
- ✓ Laundry Additional charge

Business facilities
- ✓ Business centre
- ✓ Meeting/banquet facilities

Safety & security
- ✓ Fire extinguishers
- ✓ CCTV outside property
- ✓ CCTV in common areas
- ✓ Smoke alarms
- ✓ Security alarm
- ✓ Key card access
- ✓ 24-hour security

General
- ✓ Air conditioning
- ✓ Lift
- ✓ Family rooms
- ✓ Non-smoking rooms
- ✓ Room service

Outdoor swimming pool

Free! All pools are free of charge
- ✓ Open all year
- ✓ Opening times
- ✓ All ages welcome
- ✓ Pool/beach towels
- ✓ Pool bar
- ✓ Infinity pool
- ✓ Pool is on rooftop

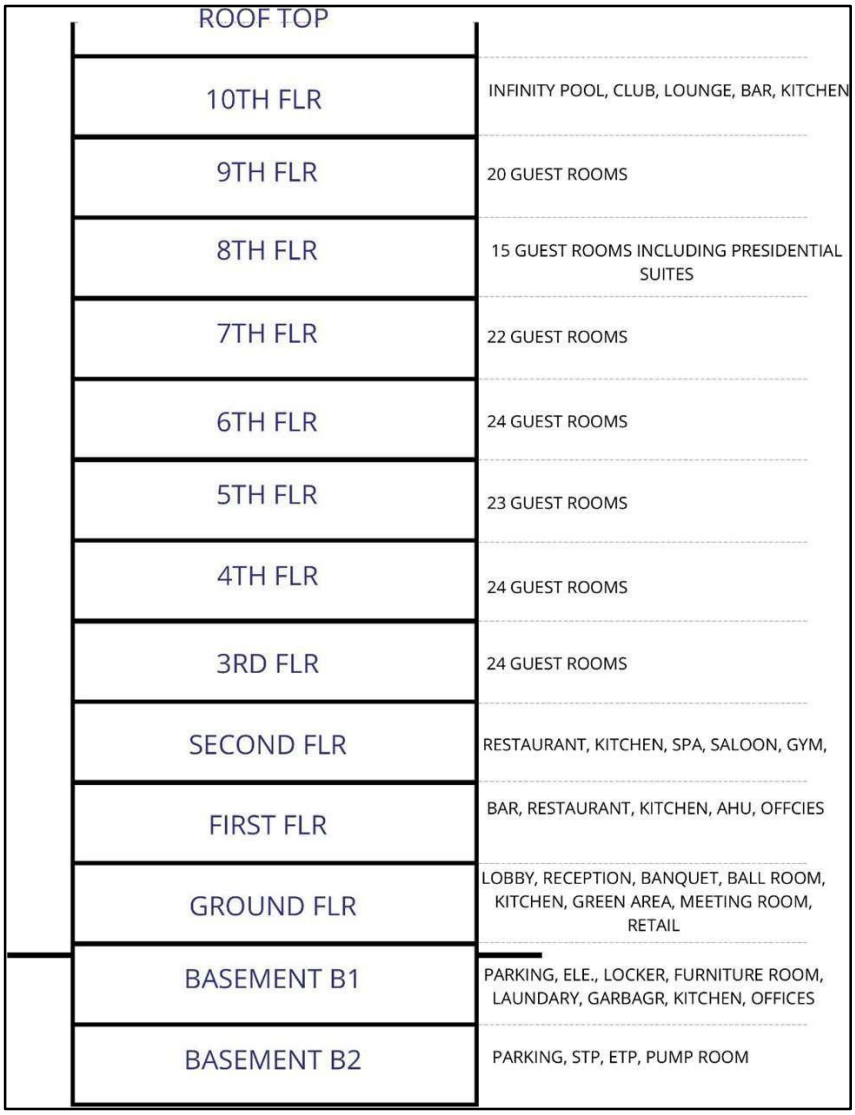
Wellness
- ✓ Fitness
- ✓ Full body massage
- ✓ Hand massage
- ✓ Head massage
- ✓ Couples massage
- ✓ Foot massage
- ✓ Neck massage
- ✓ Back massage
- ✓ Spa/wellness packages
- ✓ Spa lounge/relaxation area
- ✓ Spa facilities
- ✓ Pool/beach towels
- ✓ Massage
- ✓ Spa and wellness centre Additional charge
- ✓ Fitness centre

APPROACH ROAD

-18 m wide arterial road named Link RD number 3 is connecting the Taj hotel to the various locations of the city.

-12 m wide service lane is given on the right side of the site.

VERTICAL ZONING-



AREA STATEMENT

	Total Area (Sum)			**270**	
D.	**F&B Outlets**				
	Bar (Special) - 30 Covers	1	100	**100**	25
	Multi-Cuisine Restaurant - 120 Covers	1	300	**300**	75
	Total Area (Sum)			**400**	

E.	**Banquets**				
	Banquet Hall	2	225	**450**	62
	Pre-Function Area	2	80	**160**	22
	Conference Room	1	50	**50**	6
	Banquet Toilets	1	60	**60**	10
	Total Area (Sum)			**720**	

F.	**Recreation Facilities**				
	Swimming Pool	1	100	**100**	32
	Pool Change Room	1	50	**50**	16
	Gym	1	100	**100**	32
	Massage Room	1	6	**6**	10
	Saloon	1	50	**50**	10
	Total Area (Sum)			**306**	

G.	**Retail Archade**				
	Retail Shops	1	25	**25**	
	Total Area (Sum)			**25**	
BOH					

A.	**Material Management**				
	Truck Dock	2	20	**40**	34
	Holding Area	1	38	**38**	34
	Veg Wash	1	2.5	**2.5**	2
	Purchase & Reciving Off	1	20	**20**	15
	Purchase Office Manager	1	18	**18**	15
	Total Area (Sum)			**118.5**	

B.	**Main Store**				
	General Store	1	120	**120**	75
	Linen	1	10	**10**	6

	Unassign Store	1	10	**10**	6
	Liquor	1	10	**10**	6
	Crockery	1	6	**6**	3
	Mis	1	2	**2**	2
	Fuel	1	2	**2**	2
	Total Area (Sum)			**160**	

C.	**Garbage**				
	Loading	1	20	**20**	30
	Trash Garbage(Dry)	1	8	**8**	12
	Trash Garbage Refrigerator (wet)	1	15	**15**	24
	Garbage Truck	1	12	**12**	18
	Coal Room	1	5	**5**	8
	Circulation Space	1	5	**5**	8
	Total Area (Sum)			**65**	

D.	**Front Office : Admi/Acc/IT**				
	GM	1	151	**151**	44
	Sec to GM	1	9	**9**	2
	FO Mgr Couples as duty manager)	1	5	**5**	1
	Revenue Manager	1	8	**8**	2
	Reservation Office	1	8	**8**	2
	Work Station	1	25	**25**	8
	Discussion Room (Commom Meeting)	1	4	**4**	1
	Chief Accountant- Refer Staff Reqmnt	1	15	**15**	5
	Credit Manager	1	8	**8**	2
	Cashier	1	5	**5**	1
	Controller	1	8	**8**	2
	Payroll Manager	1	5	**5**	1
	Account Record Room	1	10	**10**	2
	Meeting room	1	10	**10**	2
	Computer Room	1	17	**17**	8
	UPS	1	35	**35**	12
	Recorde	1	10	**10**	2
	Storage and Copy8ing	1	9	**9**	2
	Total Area (Sum)			**347**	

E.	**Sales**				
	Rooms Mgr	1	8	**8**	18

F.	F&B				
	Multi Cuisine Main Kitchen	1	85	**85**	**20**
	Room Services Main Kitchen	1	20	**20**	5
	Pastery	1	32	**32**	7
	Bakery	1	20	**20**	4
	Commissary prep Kitchen	1	40	**40**	9
	Common Dishwash	1	20	**20**	5
	Central Potwash	1	12	**12**	2
	Pot Store	1	8	**8**	3
	Banquet BOH & Store	1	130	**130**	30
	Cold Kitchen	1	18	**18**	4
	Café Kitchen	1	12	**12**	2
	Show Kitchen\Back Pantry Area for bar	1	8	**8**	2
	Bar Counter	1	15	**15**	3
	Chief Counter	1	5	**5**	2
	Chief Office	1	8	**8**	2
	Total Area (Sum)			**433**	

G.	House Keeping				
	Issue / Trailer / Dirties Collection	1	5	**5**	4
	House Keeper Executive	1	10	**10**	10
	House Keeping Assistant	1	8	**8**	8
	Hsk Office + House Keeper (as per Ap.)	1	16	**16**	15
	Dead Store	1	30	**30**	28
	F&B Circulatipon	1	5	**5**	5
	Guest Supply Store	1	10	**10**	10
	Bulk Lenin Store	1	5	**5**	5
	Tailor	1	10	**10**	10
	Upholestry Store	1	5	**5**	5
	Lost & Found	1	5	**5**	5
	Total Area (Sum)			**104**	

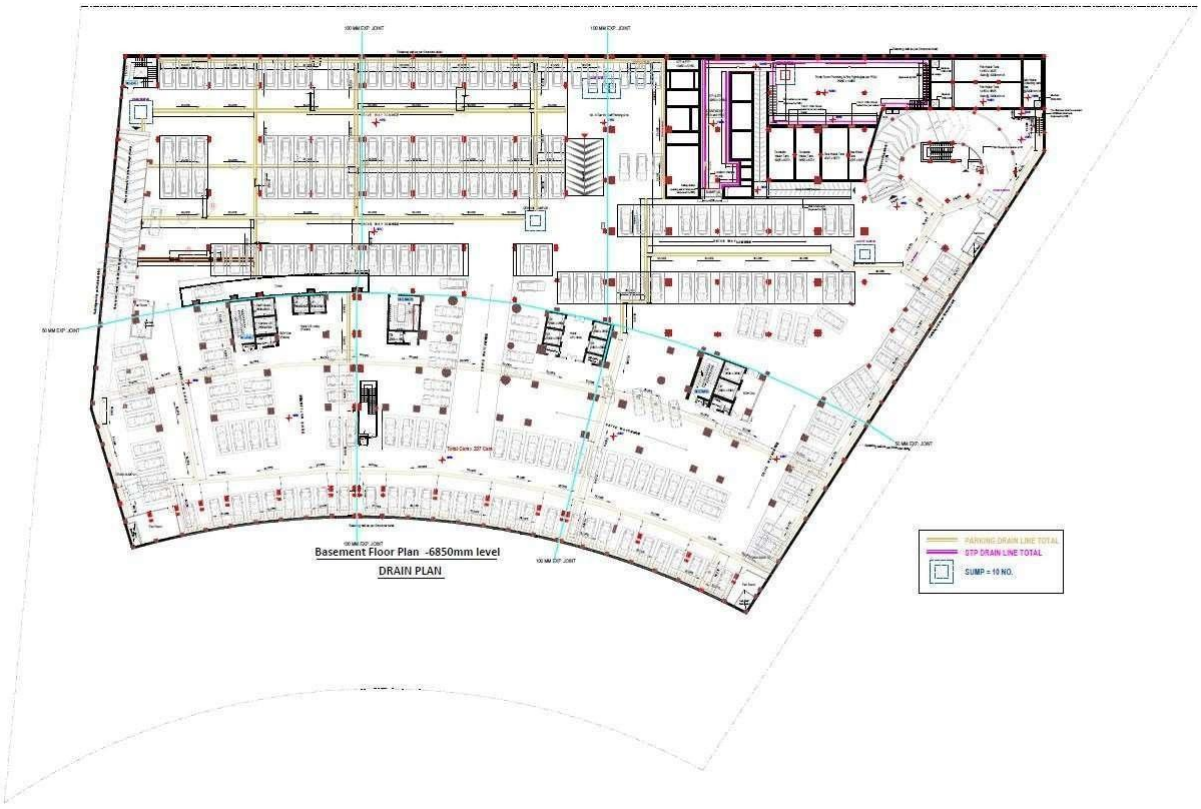
H.	Human Resources				

M.	Other BOH (exer mech)				
I	**Mechanical Areas**				
	LV Room	1	56	**56**	
	Indoor Transformers	2	22	**44**	
	LT Panel	1	74	**74**	
	DG Generator Room	1	97	**97**	
	Chiller Plant Room	1	125	**125**	
	Rainwater Tank	105 Cubic Meter			
	Municipal Tank	123 Cubic Meter			
	Raw Water Tank	123 Cubic Meter			
	Fire Tank	105 Cubic Meter			
	Treated Water Tank	123 Cubic Meter			
	Salt Storage	1	12	**12**	
	Pump Room (Fire)	1	20	**20**	
	Pump Room (Raw + Soft + WTP)	1	60	**60**	
	Boiler Room with Pump and Heat	1	58	**58**	
	STP with Pump and Equipment's	1	80	**80**	
	Work Shop	1	22	**22**	
	Engineering Office	1	8	**8**	
	Engineering Store	1	10	**10**	
	Control Room	1	15	**15**	
	Underground Oil Storage Tank	1	190	**190**	
	Swimming Pool Filtration Plant	1	12	**12**	
	Total Area (Sum)			**487**	
II	**Mechanical; Areas on Terrace**				
	Cooling Towers	1	135	**135**	
	Overhead Tank	1	12	**12**	
	Ventilation/Exhaust Fans	14	12	**168**	
	Flushing Tanks/ Cooling Tower Tanks	3	9	**27**	
	Staircase Pressurisation Fans	3	11	**33**	
	Lift Pressurisation Fans	2	2.2	**4.4**	
	Sorubber for Kitchen Exhaust	1	5	**5**	
	Total Area (Sum)		186.4	**384.4**	

N.	**Parking**				
	Basement 2			1700	
	Basement 1			1420	
	Total Wall Thiockness and Circulation			**3120**	

FLOOR PLANS

Basement 2 Plan



Basement 3:

WTP, Fire Pumps, and Domestic, raw and fire tanks

Basement 2 Plan:

Basement 2 is comprised with service amenities like STP, ETP, WTP, fire tank, domestic water tank, etc., and parking spaces

Car Parking Space = 350

Sump Pumps (DG) to collect ground water and send it back to lake to save the foundation

Water treated in STP is sent to chiller and gardening purpose.

Raw Water tank Capicity: 90 KL & 125 KL

Domestic Water tank Capicity:118 KL & 123 KL

Fire Water tank Capicity: 1. 200 KL, 2. 200 KL

Ground Floor Plan:

The entrance lobby of the hotel has grand luxury feel as it has triple heighted spaces with very attractive false ceiling consist of cove lighting.

There is a separate entrance has been provided including Banquet Hall, Meeting room, conference rooms.

A Banquet Hall can be divided as 3 halls by automatic temporary panels. Washroom for Banquet guests is accessible from Pre-Function Area which act as a buffer space for guest.

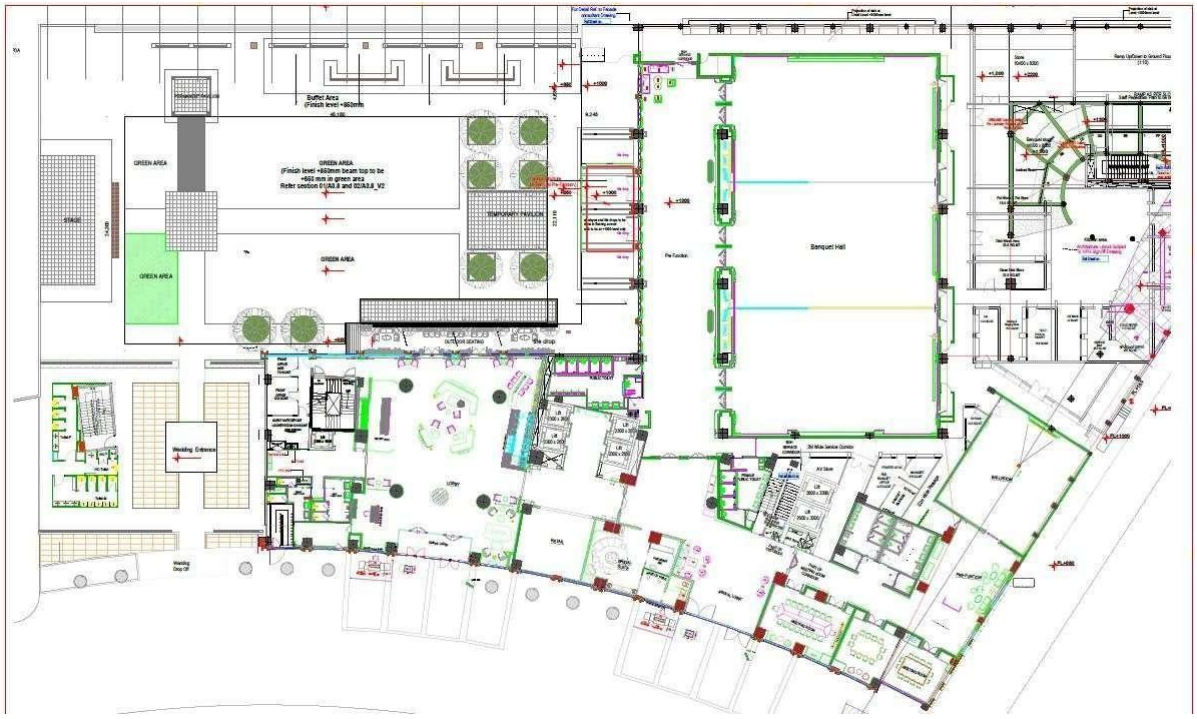
2 Banquet Halls, Sheesh Mahal: Small banquet hall and Raj Mahal: Big Banquet Hall.

33kv Incoming line for transformer

2 DG, 1250 kVA and 1010 kVA, it take 8 seconds for backup and DG room is sound proof with the layering of glass fibre, reduces the sound from 95 dB to 65 dB and upto 45 dB in guest floors.



Ground Floor Plan:



1st floor plan

First Floor Plan:

· This floor has a Chinese Restaurant with a wonderful Chinese theme based interiors Ming restaurant + Bar.

· Private Dining Restaurants are also provided in this floor.

Chiller are located on the back terrace of first floor

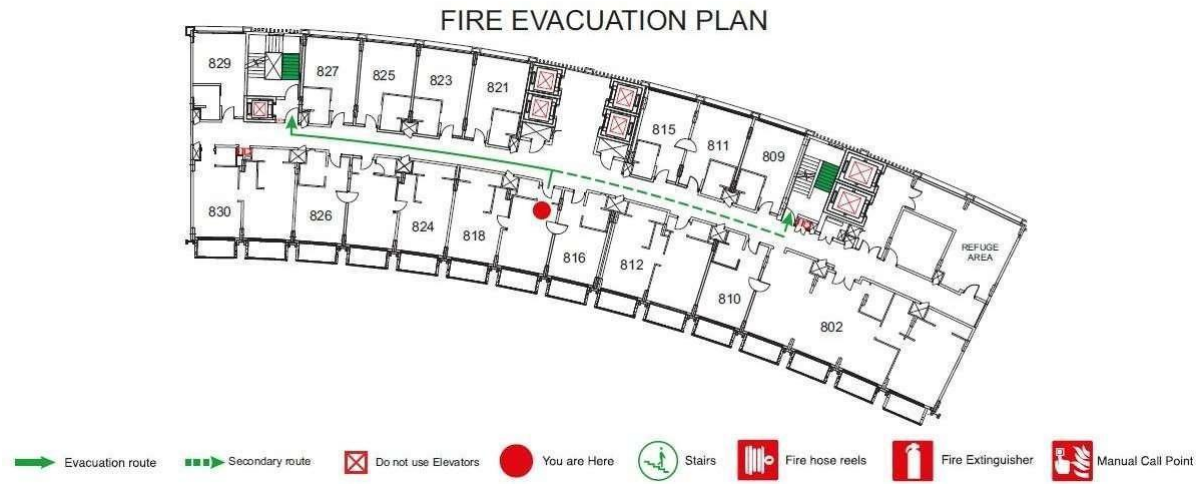


2nsFloor Plan:

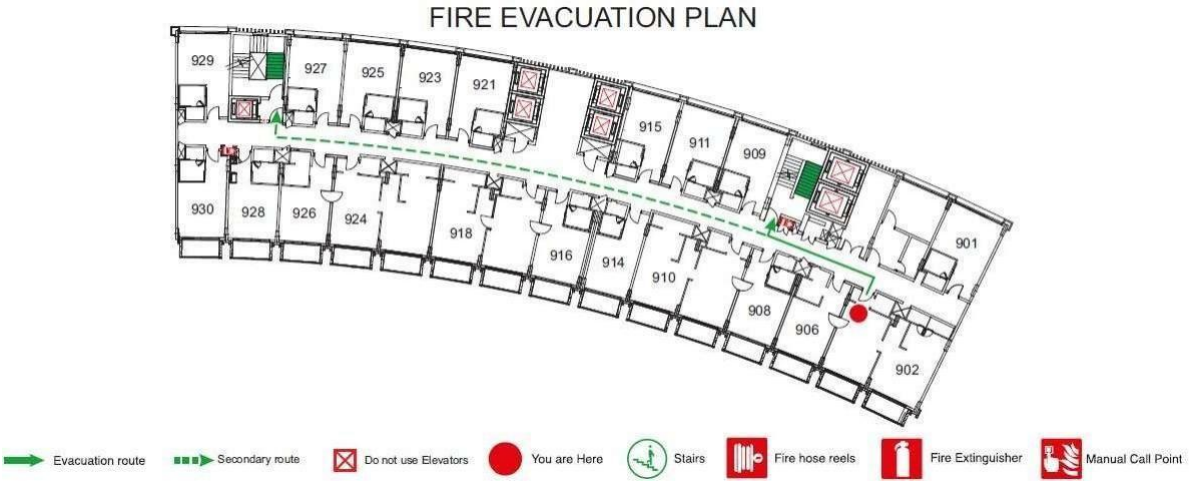
Typical Floor Plan (3rd to 7th) Floor :



8 th Floor Plan :



9 th Floor Plan :



10th Floor Plan:



GUEST ROOM TYPOLOGY

Total there are 152 rooms which are majorly classified into 4 categories:

Executive Suite

Twin

Room King

Room

Presidential Suite

Executive Suite

Tranquility and luxury unite in the Executive Suites at the Taj Lakefront, Bhopal. Extravagant and spacious, these suites, with the option of interconnecting rooms, are ideal for vacationing with family and friends. The breakfast table, the plush seating, a dressing area and state-of-the- art bathrooms are the perfect setting that your memories deserve. Indulge in the breath-taking views of the lake and Taj's signature service for a truly luxurious retreat

Executive





OTHER CONVENIENCES

- Tea-coffee maker
- Forest Essentials bath amenities
- Air conditioning
- Separate living area
- Electronic safe.
- WiFi
- Iron & ironing board
- In-room bottled water
- Minibar
- Newspaper
- Full-length mirror, hair dryer, weighingscale
- 49-inch Smart LED TV

Twin Room

Framed by the picturesque backdrop of the hills, the Deluxe Rooms are the epitome of tranquillity and relaxation. The decor seamlessly merges the aesthetic philosophy of Madhya Pradesh with a European flair. Fully-equipped with quality amenities, including digital connectivity with smart TV and Taj's signature service, the Deluxe Rooms offer an unmatched experience of comfort. Includes complimentary access to the hotel gym and wet areas

SIZE: 33 sq.m

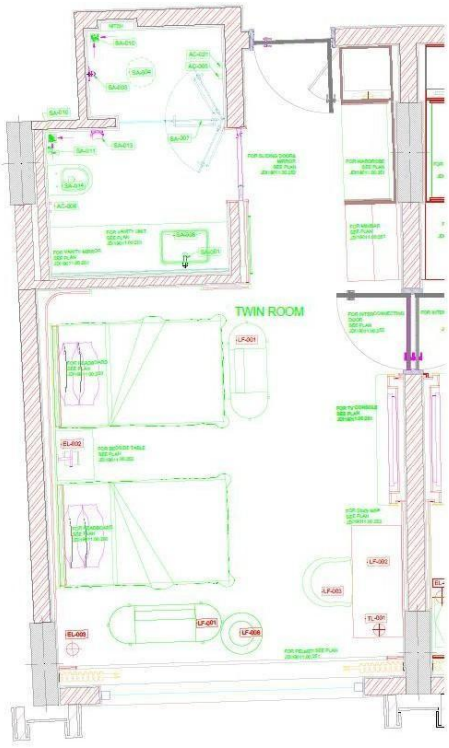
SIGNATURE FEATURE: Spectacular vistas of the hills

Occupancy Details: Up to 3 guests. Max Adults: 3, Max Children:

2







King Room

Framed by the picturesque backdrop of the hills, the Deluxe Rooms are the epitome of tranquillity and relaxation. The decor seamlessly merges the aesthetic philosophy of Madhya Pradesh with a European flair. Fully equipped with quality amenities, including digital connectivity with smart TV and Taj's signature service, the Deluxe Rooms offer an

unmatched experience of comfort. Includes complimentary access to the hotel gym and wet areas.

SIZE: 33 sq.m

SIGNATURE FEATURE: Spectacular vistas of the hills

Occupancy Details: Up to 3 guests. Max Adults: 3, Max Children:

2

OTHER CONVENIENCES

- Tea-coffee maker
- Forest Essentials bath amenities
- Choice of smoking & non-smoking accommodation
- Air conditioning
- WiFi
- Iron & ironing board
- In-room bottled water
- Minibar
- Newspaper
- Full-length mirror, hair dryer, weighing scale
- 49-inch Smart LED TV
- Shower Cubicle





Presidential Suite

Bhopal is the land of the Nawabs and Begums, and epitomizing this rich culture is the Presidential Suite of the Taj Lakefront, Bhopal. With interiors that give an ethereal glimpse into the bygone era and a private balcony in every room overlooking the glorious city, the Presidential Suite is a perfect union of the multitude of generations. A lavish experience, embodied by an elegant living room, a plush dining area and a palatial master bedroom, await your presence in the opulence of the Presidential Suite at the Taj Lakefront, Bhopal.

SIZE: 152 sq.m

SIGNATURE FEATURE: A regal experience in the heart of the country

Occupancy Details: Up to 3 guests. Max Adults: 3, Max Children: 2



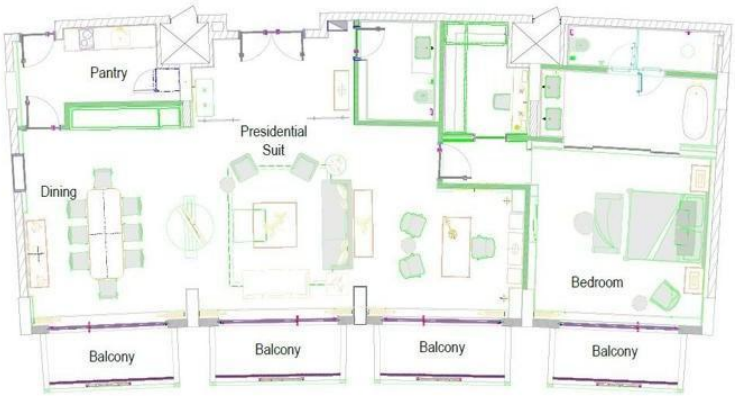






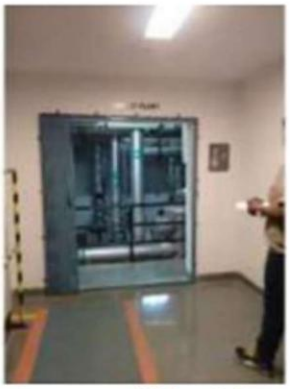
OTHERCONVENIENCES

- Forest Essentials bath amenities
- Air conditioning
- Bedroom with private balcony or verandha & bathroom
- Living room with dining area, bedroom & bathroom
- Electronic safe.





AREA –150 sqm



Access width –1.8 m



Access for machinery
Width –6

Electrical Services



L.T. panel room-60 sqm
Access width -4m



H.T. panel room-20 sqm



L.T. and H.T. panel room



L.T. and H.T. panel room
Height-3.9 m



Fire Fighting



Fire Fighting



Electrical Tray

Chiller plate

SERVICES WTP





Water Storage Tank Raw 90 sqm (area-12 sqm)



Tank for swimming Pool



Boiler room with pump and Heat exchange



Overhead tank

INFERENCES

- **Smoke extraction fans should be there in basement.**
- **Water tanks can be placed in basement with stp and wtp.**
- **Duct opening can be treated with landscaping**
- **Large banquet halls can be divided in to 2 or more parts for more no. of enevts,**
- **Services should not be compromised.**
- **Guest floors can be divided into different interior themes for having different identity**
- **Different lanes for waiting, drop off and pickup.**

4.2 CASE STUDY: RADISSON, BHOPAL

INTRODUCTION

The hotel includes spacious banquet halls and meeting rooms that can host up to 1200 guests, making it a preferred venue for conferences, weddings, and social events. Dining options at the hotel include an all-day dining restaurant, a patisserie, a rooftop bar, and a specialty Asian cuisine restaurant. For relaxation and recreation, guests can enjoy an outdoor swimming pool, a fully equipped gym, and wellness services.

Radisson Bhopal is located conveniently close to major landmarks like the Upper Lake, Tribal Museum, and key transport hubs. Its blend of modern facilities, elegant design, and personalized service makes it one of the leading luxury hotels in the city, suitable for both short stays and extended business visits.



Figure 21 RADISSION, Bhopal

Category	Details
Hotel Name	Radisson Hotel Bhopal
Star Rating	5-Star Upscale Hotel
Location	Gulmohar Colony, Bawadiya Kalan, Bhopal, Madhya Pradesh
Number of Rooms	104 Rooms and Suites
Room Types	Superior Room, Executive Room, Junior Suite, Deluxe Suite, Executive Suite
Event Spaces	Over 3,900 sq.m. of indoor and outdoor event space
Banquet Capacity	Up to 1,200 guests indoor, 1,400 guests outdoor
Dining Options	Fusion Café, Just Baked Patisserie, Urzza Lounge Bar, Wok Thai Restaurant
Recreation Facilities	Outdoor Rooftop Pool, Fitness Centre, Yoga and Wellness Area
Guest Services	24-hour Room Service, Concierge, Free Wi-Fi, Business Centre, Parking
Accessibility	Accessible rooms and services available
Check-in / Check-out	Check-in: 2:00 PM, Check-out: 12:00 PM

Airport Distance	Around 22 km from Raja Bhoj International Airport
Railway Access	Around 8 km from Rani Kamlapati Railway Station
Nearby Attractions	Upper Lake, Tribal Museum, Van Vihar, Sanchi Stupa, Bhimbetka Caves

4.3 AWASA, HYDERABD (DESK APRAISAL- 1)

1 INTRODUCTION

Avasa Hotel, situated in the bustling HITEC City of Hyderabad, is a premium five-star property that seamlessly combines modern design with exceptional hospitality. Renowned for its contemporary architecture and sophisticated interiors, the hotel caters to both business and leisure travelers, offering a luxurious stay in one of the city's most dynamic areas.

The hotel's design reflects a perfect blend of Hyderabad's rich cultural heritage and its modern identity as a thriving IT hub. Featuring 217 elegantly designed rooms and suites, Avasa provides guests with state-of-the-art amenities, ensuring a comfortable and unforgettable experience.

Avasa is also celebrated for its culinary offerings, with a variety of dining options ranging from specialty restaurants serving Indian, Pan-Asian, and international cuisines to a chic bar ideal for unwinding. Its versatile banquet halls and conference facilities make it an excellent venue for corporate meetings, weddings, and other social events, supported by top-notch service and advanced technological features.



Category	Details
Hotel Name	Awasa Hyderabad
Category	5-Star Luxury Hotel
Location	Hyderabad, Telangana, India
Address	Likely located in a prime urban area such as Banjara Hills or HITEC City (exact address not publicly available)
Ownership/Brand	Awasa Group / Independent luxury brand
Total Rooms	Approx. 120–150 luxury rooms & suites
Room Types	Deluxe Rooms, Executive Rooms, Luxury Suites
Dining Options	Multi-cuisine Restaurant, Rooftop Dining, Lounge Bar
Banquet Facilities	Ballroom, Meeting Rooms, Outdoor Event Space
Leisure Facilities	Spa, Swimming Pool, Gym, Wellness Centre
Other Amenities	Business Center, Concierge, 24x7 Room Service, Valet Parking
Clientele	Business travelers, luxury tourists, event guests
Design Aesthetic	Contemporary Indian Luxury with Modern Interiors
Nearby Attractions	Golkonda Fort, Charminar, IT Hub, High-end Shopping Malls

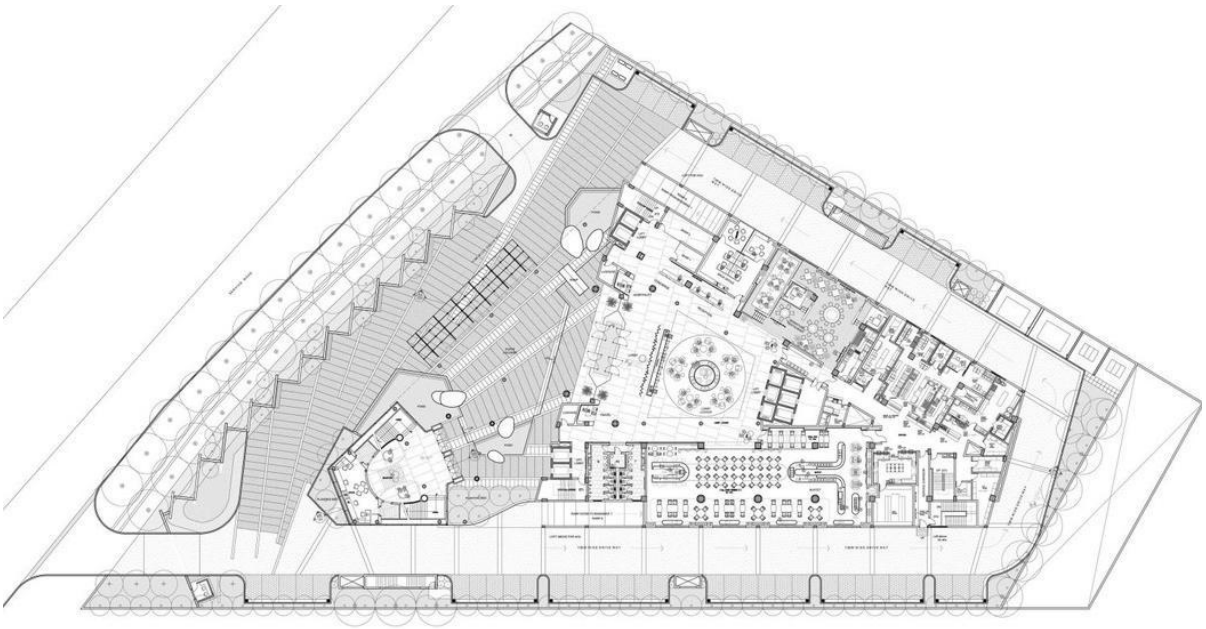
DESIGN CONCEPT

1. It was designed with STEPPED TERRACE GARDENS with respect to the site.
2. It is an intimate interlude for relaxation, business & convention.
3. With 98% of the lighting being led, Avasa is highly environment friendly.

SITE PLAN

- The site is wide towards the front road and narrows down towards the back.

- The building follows the site, forming the letter 'A',
- Due to limited open space on site, continuous green space has been conceived in the form of stepped terraces third level to the top floor.



Amenities :

- It is a 11 floor frame structure with
- stepped terrace gardens.
- It consists of:
- 17 rooms
- 3 banquet halls
- 3 F&B restaurants Sky lounge
- Business lounge
- SPA

LOUNGE :

- Two atriums have been created to characterize the areas that they represent
- The lobby atrium at the ground level connects the grand lobby and the banquet halls.
- The central atrium is conceived at the third level and has been created under the stepped terraces, creating a sense of openness and a distinct scale
- This adds to the feeling of grandeur as one stands in the atrium
-

ELEVATORS :

There are total 14 floors including 3 basements

- 3 guest lifts with 8 people capacity are present at entrance lobby
- And 2 guest lifts are present at the entrance which Leads directly to sky bar in 10th&11th floors
- And 2 guest lifts are present at the entrance which leads directly to banquet halls in third floor
- 3 service lifts of capacity 13persons [1000kg] are present At service area from lower basement to 11 floor
- TotaI there are 7 guest lifts and 3 service lifts
- Size of 3 guest lifts 2x2.Sm
- Size of 4 guest lifts 3x2.Sm
- Size of 3 service lifts 3x2.5

BANQUET HALL- 3No.s.

- CONSTELLATION It has a separate entrance and a pre-function area. It can accommodate 250 seating and it had common area for buffet this hall can be divided if required, by a sound proof partition giving two halls
- VEGA It had a capacity of seating of 100 people
- NOVA It had a capacity of seating of 100 people

RECREATION:

- gym,- 12x9m
- spa - 12x9m
- swimming pool — 200sqm depth varies from 34feet capacity — 1Iakh 50 thousand liters.

CONFERENCE BANQUET HALLS :

- There are five conference halls which can accommodate all types of conferences, meetings, seminars,
- workshops & product
- **145.8 sq.m.**
- 100 seat well equipped and well manned

ROOM FACILITIES :

- Individually controlled air conditioning,
- Sound proof rooms,
- Telephone-two per room
- International and national dialing
- Broad band internet access
- Tea /coffee makers
- sprinklers and smoke detectors
- fax machine available on request
- Electric current 220v SO cycles

RECREATION:

- • gym,- 12x9m
- •spa - 12x9m
- swimming pool — 200sqm depth varies from 34feet capacity — 1Iakh 50 thousand liters.

ROOM FACILITIES :

Individually controlled air conditioning,

•Sound proof rooms,

•Telephone-two per room

•International and national dialing

•Broad band internet access•Tea /coffee makers

•sprinklers and smoke detectors

•fax machine available on request

•Electric current 220v SO cycles

Dwelling Room Types

- AVASA SILVER
- AVASA PLATINUM
- AVASA STUDIO SUITE
- AVASA GALLERY SUITE

Avasa Silver:-

Room —35 sqm Toilet —7 sqm LCD TV

iPod docking station Wired & wireless broadband, internet Electronic safe Personal bar, Iron Board Complimentary Buffet Breakfast

Avasa Platinum Club:-

Room — 35 sqm Toilet —7 sqm

LCD TV ,iPod docking station Wired & wireless broadband internet access
Electronic safe , 1 Personal bar, Iron Board Complimentary Buffet Breakfast

One Way Airport Convenience Media Hub, Happy Hour cocktails at Bridge Business Club.

Avasa Junior Suite:-

Room —40 sqm,

Toilet —12 sqm LCD TV ,

iPod docking station Wired & wireless broadband internet Electronic safe ,

Personal bar, Iron Board

Complimentary Buffet Breakfast An hours' use of the Meeting room Two way Airport conveyance

Avasa Gallery Suite:-

Room -70sqm, Toilet —l2sqm LCD

TV, iPod docking station,

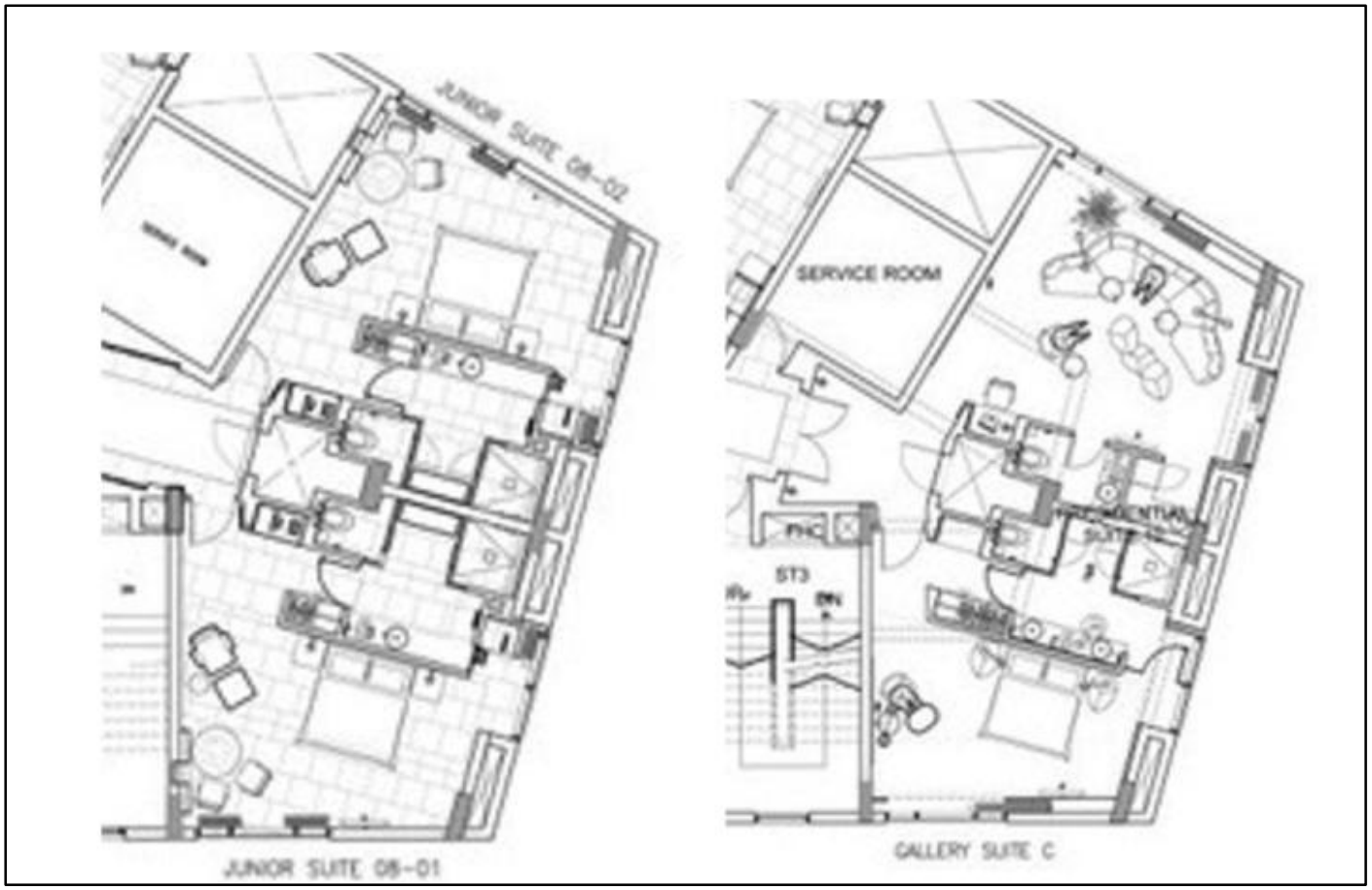
Wired & wireless broadband internet Electronic safe , Personal

bar , Iron Board

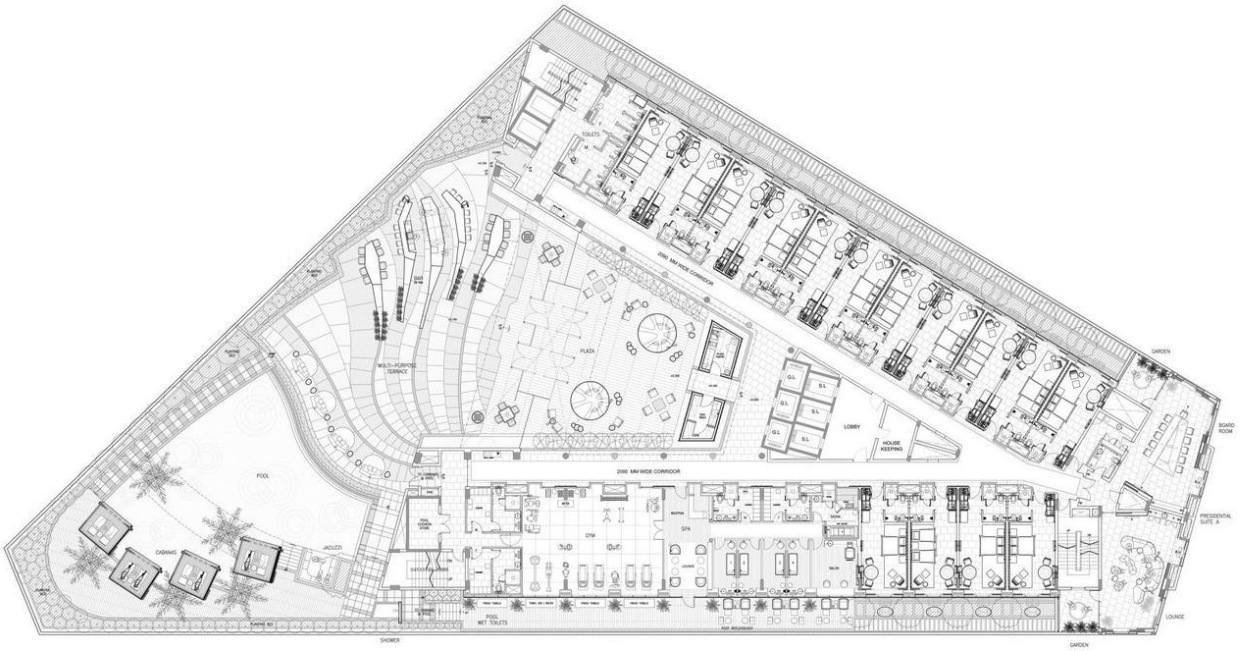
Complimentary Buffet Breakfast 2 hours use of the Meeting room Two way Airport conveyance

Complimentary Cocktails at Bridge Business Club

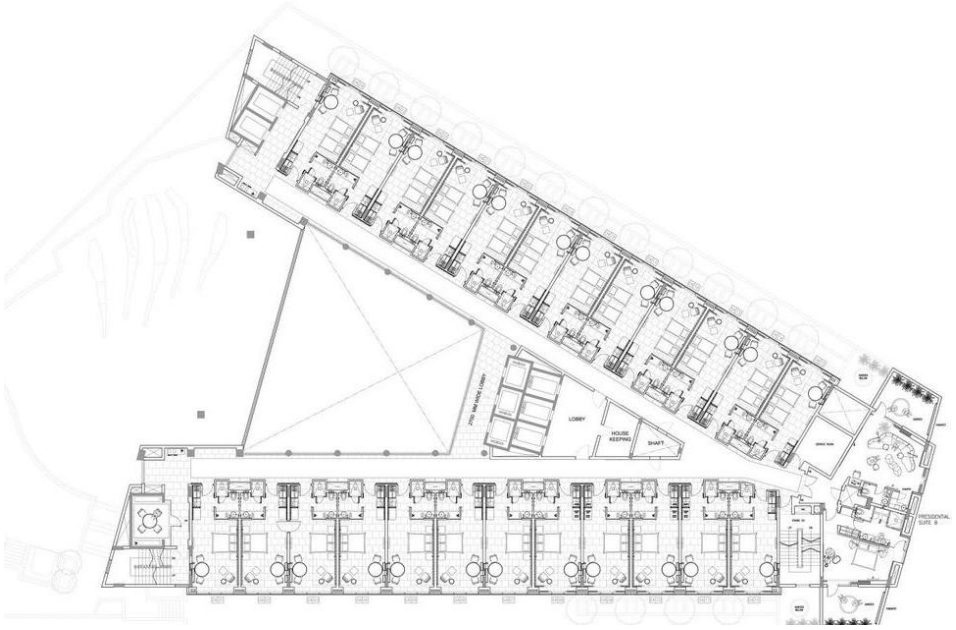
PLANS-



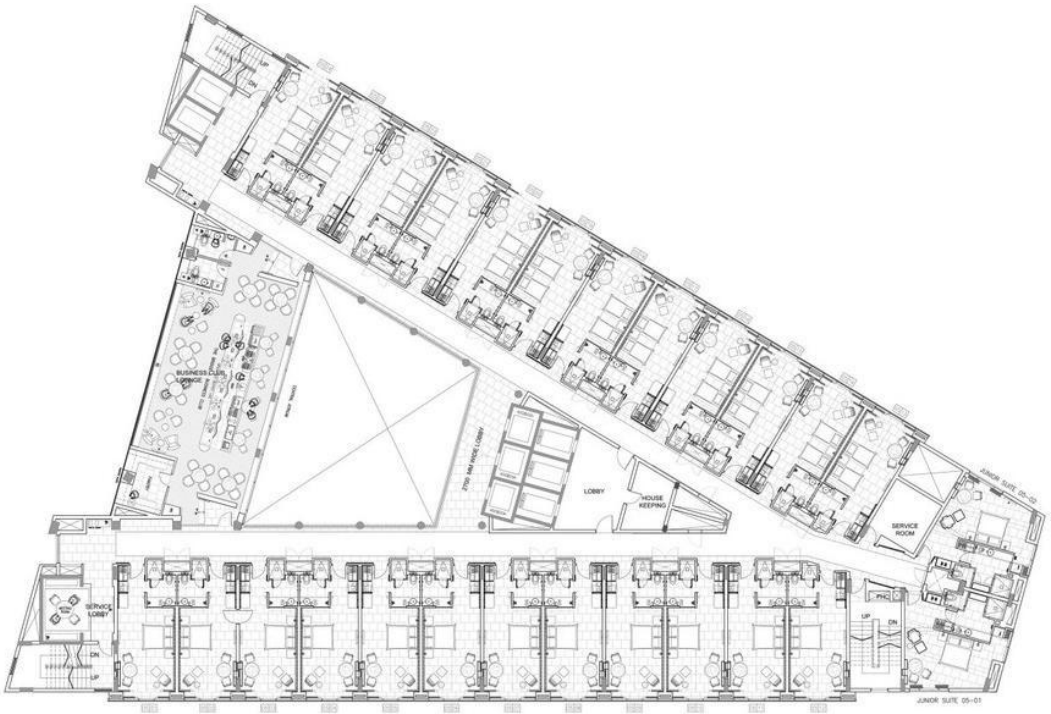
3rd Floor Plan



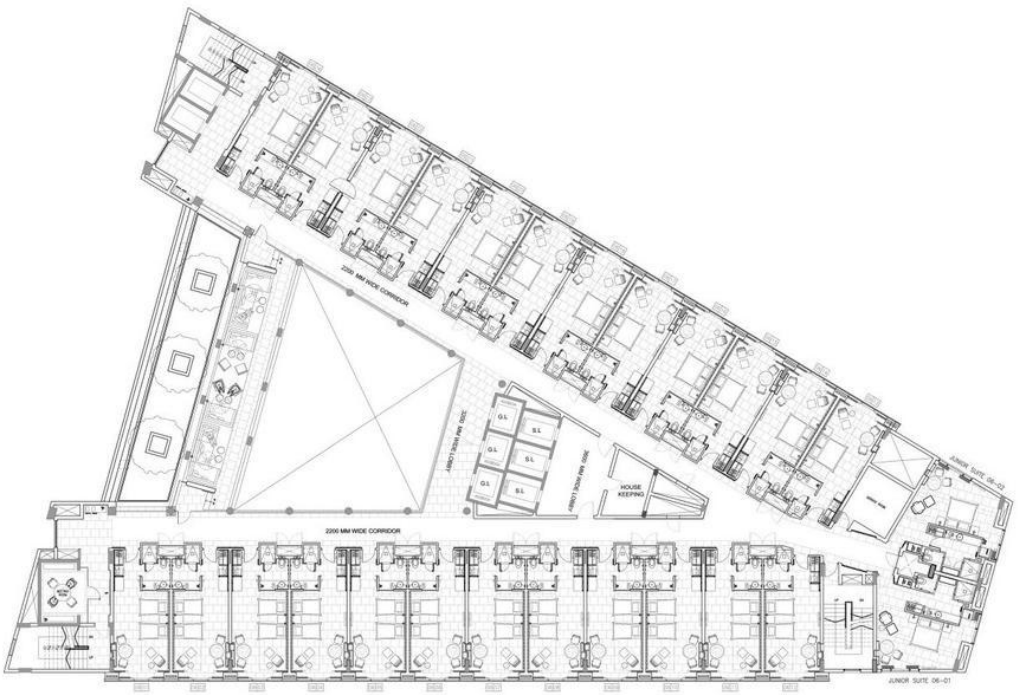
4TH Floor Plan



5TH Floor Plan



6TH Floor Plan



7TH Floor Plan



8TH Floor Plan



9TH Floor Plan



10TH Floor Plan



11TH Floor Plan



Basement Levels:

Used for services, staff areas, and mechanical equipment. Accessible only through the western service lift.

Ground Floor:

Main entrance lobby with reception, waiting lounge, central atrium, all-day dining restaurant (Pi), and specialty Pan-Asian restaurant (Ohm). Pre-function area for banquet use is also present.

First Floor:

Main banquet level with large banquet halls such as Constellation, Vega, Nova, Orion, and Omni. Grand staircase connects this floor to the main lobby.

Second Floor:
Back-of-house services, banquet support kitchens, logistics corridors, and staff facilities. Not open to guests.

Third Floor:
First guest-room level. Includes spa, wellness center, fitness center, terrace garden, and pool deck. Atrium opens into this floor offering natural light.

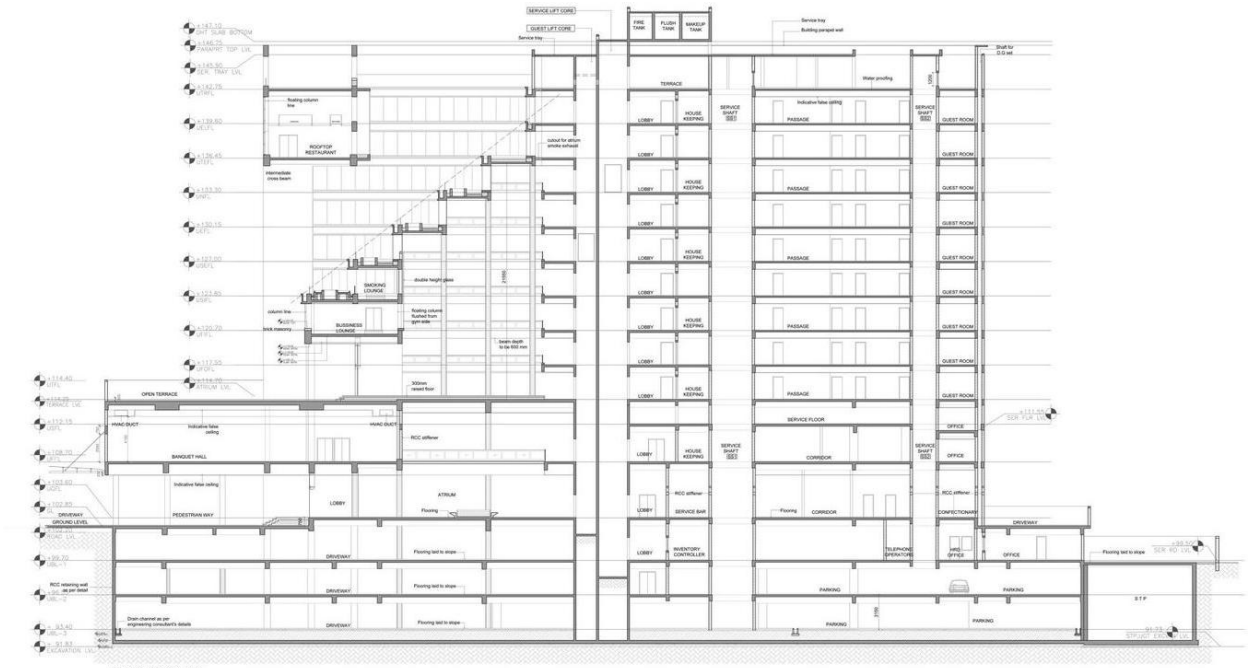
Fourth to Eighth Floors:
Standard guest-room floors. Rooms are arranged along the arms of the hotel's A-shaped layout. Each floor features landscaped terraces that provide greenery and daylight.

Fifth Floor:
Includes "The Bridge," a private business club for platinum guests, connecting the two wings of the hotel above the atrium.

Ninth Floor:
Upper guest rooms with terrace gardens continuing the green stepped design upward.

Tenth Floor:
Premium guest rooms. This floor connects to the rooftop lounge area via a bridge leading to the 11th floor.

Eleventh Floor (Rooftop):
Sky Lounge and rooftop bar with panoramic views of Hyderabad. Features open seating, tertainment zones, and is accessed by a dedicated elevator.

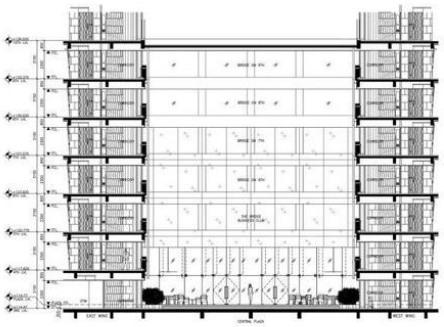


SECTION AA

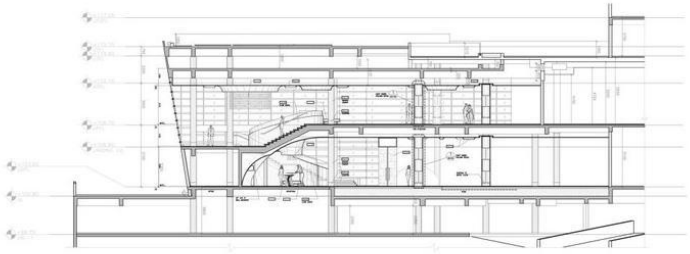
Sectio



SECTION 1-SECTION THROUGH TERRACE AND CENTRAL PLAZA



SECTION 2-SECTION THROUGH CENTRAL PLAZA FACING TERRACE



SECTION 3-SECTION THROUGH GRAND STAIR-CASE

Water Supply and Treatment System

Source: Borewell & Municipal Water

5 **Raw Water Tanks:** Two raw water tanks with a capacity of 60 kL each.

6 **RO Water Tank:** One RO water tank with a capacity of 20 kL.

7 **Treated Water Tanks:** Two treated water tanks.

8 **Fire Water Tanks:** Two fire water tanks with a capacity of 100 kL each.

Filtration and Purification Systems

9 The hotel operates its own system for water filtration, chlorination, and maintenance.

10 Continuous purification is carried out for swimming pool water.

11 The water in the swimming pool tank is completely replaced every three months.

Water Plant Location The water treatment plant is located in the lower basement.

12 **Water Purification Process:**

12.1 Sedimentation tank.

12.2 Carbon tank filter.

12.3 Sharpen tank filter.

13 **Pumping System:** A hydro-pneumatic system is used to pump water from the ground level to the upper floors.**Sewage System**

14 The sewage system handles both liquid and solid waste.

15 **Vertical Shafts:** Provided on each floor for easy access and maintenance.

16 **Sewage Flow Path:**

16.1 Guest floor.

16.2 Service floor.

16.3 Lower floor.

16.4 Underground pipes.

16.5 Master pit.

16.6 Main sewer.

17 **Wet Wells and Sumps:** These are used to allow sewage to settle temporarily before being pumped to the next stage for final disposal.

18 **Maintenance and Equipment**

19 Pumps and ejectors are installed for the maintenance of the sewage disposal system.

INFERENCES-

Architectural Inferences from Awasa Hotel, Hyderabad

1. **Iconic Form & Identity**

   ○ The "A"-shaped structure gives the building a strong and memorable architectural identity.

   ○ Form follows both branding and function, balancing visual appeal with layout needs.

2. **Effective Use of Terraces**

   ○ Stepped terraces on guestroom levels act as sky gardens, enhancing environmental quality.

   ○ It reduces the heat island effect and provides natural daylight and cross-ventilation.

3. **Atrium as a Central Spine**

   ○ A full-height atrium brings in light and visually connects multiple floors.

   ○ Acts as a social and visual core of the building, improving orientation and openness.

4. **Zoning for Functionality**

   ○ Clear vertical zoning: services in basements, public in lower floors, private rooms above.

   ○ Efficient back-of-house service corridors improve operations without affecting guest experience.

5. **Three Lift Banks for Circulation**

   ○ Separation of service, guest, and rooftop traffic through three different lift cores is a smart architectural solution for crowd control and privacy.

6. **Integration of Nature in Built Form**

   ○ Landscaped terraces and green bridges introduce biophilic design elements.

   ○ Encourages a resort-like feel in an urban hotel, which enhances guest experience.

7. **Hierarchy in Spatial Experience**

   ○ Double-height lobby, grand staircase, and framed views offer a sense of luxury and hierarchy.

   ○ Changes in scale across functions create varied spatial experiences.

8. **Sustainable Design Approach**

   ○ Use of passive design features like daylighting, green terraces, and cross ventilation.

   ○ Reduces dependence on artificial systems, promoting sustainability.

9. **Bridge Elements as Functional Features**

   ○ Bridges like "The Bridge" business club and Sky Bar not only connect spaces but serve dual functions – movement and experience.

10. **Blending of Traditional and Contemporary Elements**

20 While form and materials are modern, spatial planning includes courtyards and terraces reminiscent of Indian architecture.

TAJ GATEWAY, PUNE (DESK APRAISAL- 2)





Category	Details
Hotel Name	**Taj Gateway Hotel, Hyderabad**
Category	**5-Star Business & Leisure Hotel**
Location	**Banjara Hills, Hyderabad, Telangana**
Ownership/Brand	**Indian Hotels Company Limited (IHCL) – Taj Hotels**
Total Rooms	**Approximately 120–150 rooms and suites**
Room Types	**Superior Rooms, Executive Rooms, Executive Suites**
Dining Options	**Multi-cuisine restaurant, Lounge Bar, In-room dining**
Banquet Facilities	**Banquet halls, boardrooms, meeting rooms**
Leisure Facilities	**Spa, Fitness Centre, Swimming Pool**
Other Amenities	**Concierge, Business Centre, Travel Desk, Free Wi-Fi, Valet**
Clientele	**Business travelers, families, tourists, event guests**
Design Aesthetic	**Contemporary interiors with elegant Indian elements**
Nearby Attractions	**Hussain Sagar Lake, Birla Mandir, GVK Mall, Jubilee Hills**

PROXIMITY

1 **Pune Airport**: Approximately 8-12 km, depending on the exact location of the hotel.

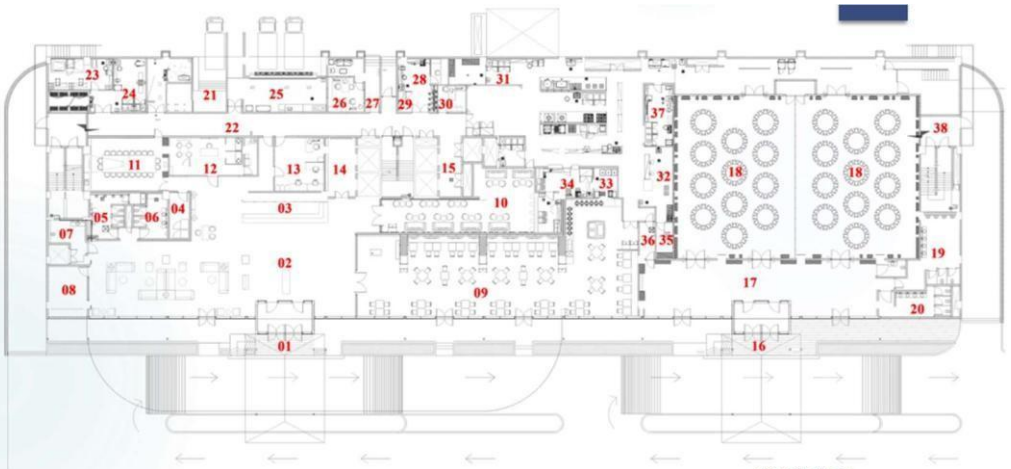
2 **Pune Railway Station**: Typically around 5-7 km.

3 **Koregaon Park**: Usually 4-6 km away.

4 **Shaniwar Wada**: Approximately 5-7 km from the central area.

FLOOR PLANS

Ground Floor Plan



1. Hotel Entrance
2. Waiting Lobby
3. Reception
4. Luggage Room
5. Male Toilet
6. Female Toilet
7. Disable Toilet
8. Deli All Day
9. Dining
10. Bar
11. Conference Room
12. Business Center
13. Front Office
14. Public Elevator Lobby
15. Service Elevator Lobby
16. Banquet Entrance
17. Banquet Pre-function
18. Banquet
19. Male Toilet
20. Female Toilet
21. Garbage Dock
22. BOH Corridor
23. Bakery
24. Pastry
25. Receiving Dock
26. Security Office
27. Time Punching Room
28. Service
29. Order Taker
30. Chef's Office
31. Main Kitchen
32. Dish Store
33. Dish Wash
34. Cold Pantry
35. Display Kitchen
36. Crockery Store
37. Storage and Salad
38. Banquet Store

AREA STATEMENT

Name	No. of units	Area (sq m.)	Total Area	%	
Total no.of keys	140				
No.of floors	10				
A. Guest Room Mix					
Double Bed Room	118	185.00	21830	80	
Twin Bed Room	16	175.00	2800	10	
Suite	6	400.00	2400	10	
Toal Area(Sum)			27030		78
B. Guest Floor Services					
i. Corridor Area					
Type floor corridor	1	180.00	180	30	
iii. Housekeeping Static on typical floors					
Housekeeping Static on typical floo	1	185.00	185	32	
iv. Lifts					
Guest Elevators	2.0	55.00	110	19	
Service Lift Lobby	2.0	55.00	110	19	
v. Fire Protection					
Fire Escape Stairs	2.0	30.00	60	10	
Toal Area(Sum)			585		2
C. Public Areas					
i. Entrance Lobby					
Porte Cochere	1.0	40.00	40	15	
Entrance Lobby Waiting Area	1.0	100.00	100	38	
Front Desk	1.0	40.00	40	14	
Luggage Store	1.0	15	15	6	
Bell man	1.0	4.00	4	2	
ii. Business Centre	1.0	36.00	36	13	
Store	1.0	5.00	5	2	
iii. Public Utilities					
Public Toilets	1.0	30.00	30	10	
Toal Area(Sum)			270		1

Name	No. of units	Area (sq m.)	Total Area	%	
D. F&B Outlets					
Bar (Special) - 30 covers	1.0	100.00	100	25	
Multi-cuisine restaurant-120 covers	1.0	300.00	300	75	
Toal Area(Sum)			400		1.5
E. Banquets					
Banquet Hall	2.0	225.00	450	62	
Pre-Function Area	2.0	80.00	160	22	
Conference Room	1.0	50.00	50	6	
Banquet Toilets	1	60.00	60	10	
Toal Area(Sum)			720		2
F. Recreation Facilities					
Swimming Pool	1	100	100	32	
Pool Change Room	1.0	50	50	16	
Gym	1.0	100.00	100	32	
Massage Rooms	1.0	6.00	6	10	
saloon	1.0	50.00	50	10	
Toal Area(Sum)			306.00		1
G. Retail Arcade					
Retail Shops	1.0	25.00	25		
Toal Area(Sum)		25.00			1
FOH					
A. Material Management					
Truck Dock	2.0	20.00	40	34	
Holding area/ Receiving Dock	1.0	38.00	38	34	
Veg wash	1.0	2.50	2.5	2	
Purchase & recieving off	1.0	20.00	20	15	
Purchase Office Manager	1.0	18.00	18	15	
Toal Area(Sum)			118.5		0.5
B. Main Store					
General Store	1.0	120.00	120	75	
Linen	1.0	10.00	10	6	
Unassign Store	1.0	10.00	10	6	
Liquor	1.0	10.00	10	6	
Crockery Store	1.0	6	6	3	
Mis	1.0	2.00	2	2	

Name	No. of units	Area (sq m.)	Total Area	%	
Fuel	1.0	2.00	2	2	
Toal Area(Sum)			160.00		0.5
C. Garbage					
Loading	1.0	20.00	20.00	30	
Trash Garbage (dry)	1.0	8.00	8.00	12	
Trash Garbage refrigerator (wet)	1.0	15.00	15.00	24	
Garbage Truck	1.0	12.00	12.00	18	
Coal Room	1.0	5.00	5.00	8	
Circulation space	1.0	5.00	5.00	8	
Toal Area(Sum)			65.00		1
D. Front Office : Admi/ Acc/ IT		45			
GM	1.0	151.00	151	44	
Sec to GM	1.0	9.00	9	2	
FO Mgr (couples as duty manager-	1.0	5.00	5	1	
Revenue Mgr.	1.0	8.00	8	2	
F & B Mgr	1.0	8.00	8	2	
Reservation office	1.0	25.00	25	8	
Work stations	1.0	4.00	4	1	
Discussion room (common meeting	1.0	15.00	15	5	
Chief Accountant-refer staff reqmnt	1.0	8.00	8	2	
Credit Manager	1.0	5.00	5	1	
Cashier	1.0	8.00	8	2	
Controller	1.0	5.00	5	1	
Payroll Manager	1.0	5.00	5	1	
Accounts Record Room	1.0	10.00	10	2	
Meeting Room	1.0	10.00	10	2	
Computer room & Mgr	1.0	17.00	17	8	
UPS	1.0	35.00	35	12	
Records	1.0	10.00	10	2	
Storage and Copying	1.0	9.00	9	2	
Toal Area(Sum)			347		1
E. Sales					
Rooms Mgr	1.0	8.00	8	18	
Banquet Mgr	1.0	8.00	8	18	
Workstation	2.0	5.00	10	22	
Discussion room	1.0	10.00	10	22	
Storage and Copying	1.0	8.00	8	20	
Toal Area(Sum)			44		2

AREA STATEMENT

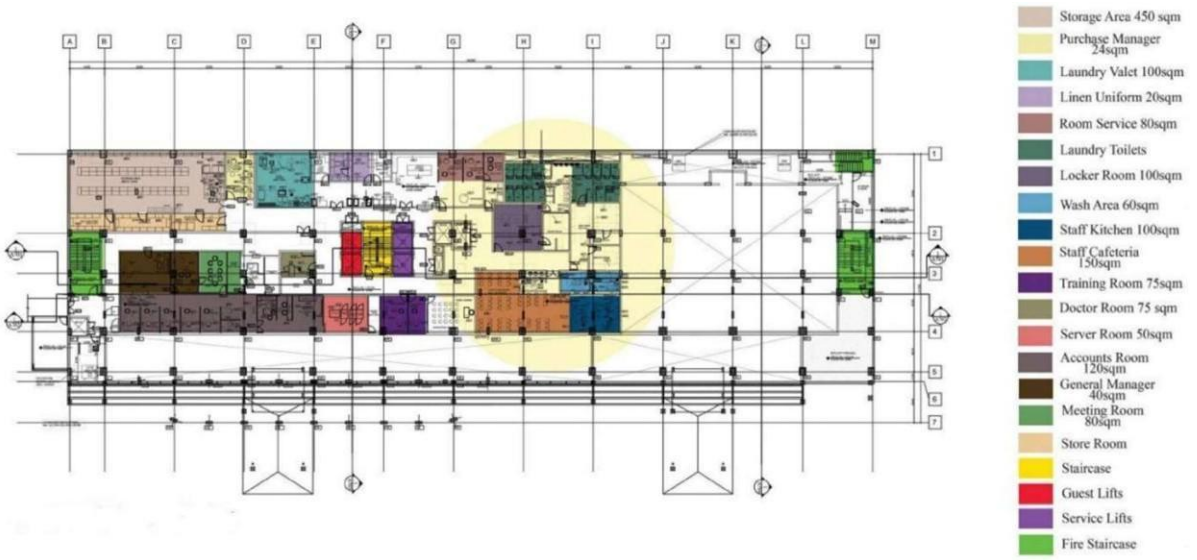
Name	No. of units	Area (sq m.)	Total Area	%	
F. F&B					
Multi Cuisine main kitchen	1.0	85.00	85	20	
Room Service Kitchen (along with CS kitchen)	1.0	20.00	20	5	
Pastery	1.0	32.00	32	7	
Bakery	1.0	20.00	20	4	
Commissary prep kitchen	1.0	40.00	40	9	
Common Dishwash	1.0	20.00	20	5	
Central Pot wash	1.0	12.00	12	2	
Pot Store	1.0	8.00	8	3	
Banquet BOH & Store	1.0	130.00	130	30	
Cold kitchen	1.0	18.00	18	4	
Cafe Kitchen	1.0	12.00	12	2	
Show Kitchen (not required)	1.0	8.00	8	2	
BackPantry area for Bar	1.0	15.00	15	3	
Bar counter	1.0	5.00	5	2	
Chef's office	1.0	8.00	8	2	
Toal Area(Sum)			433		1.2
G. House Keeping					
Issue / Tailor / Dirties collection	1.0	5	5	4	
House Keeper Executive	1.0	10	10	10	
House keeping Assistance	1.0	8	8	8	
Hs/k Office + House keeper (as per Ap)	1.0	16	16	15	
Dead store/unused textile/room, F&B in circulation / night cleaner	1.0	30	30	28	
Guest Supply Store	1.0	5	5	5	
Bulk Linen store	1.0	10	10	10	
Tailor	1.0	5	5	5	
Upholestry Store	1.0	10	10	10	
Lost & Found	1.0	5	5	5	
Toal Area(Sum)			104		1
H. Human Resources					
HR Mgr(cabin based on AP manpo	1.0	8	8	14	
Sec (workstation based on AP mang	1.0	4	4	7	
			0		
Training Room	1.0	20	20	35	
Training Mgr	1.0	4	4	7	
Discussion / interview room	1.0	20	20	35	
Toal Area(Sum)			56		1
I. Security & Time Office					
Staff entry & time keeper/cctv	1.0	10	10		
Security Mgr	1.0	8	8		
Toal Area(Sum)			18		1
J. Repairs and Maintenance					
Head of Eng	1.0	8	8		
Asst Eng	1.0	8	8		
Secured store	1.0	10	10		
Paint shop	1.0	10	10		
Eng store	1.0	10	10		
Carpentary	1.0	10	10		
Spare Parts	1.0	5	5		
Toal Area(Sum)			61		1
K. Staff Facility					
Male toilets & Lockers	1.0	100			
Male executive toilets and lockers	0.0				
Female toilets & Lockers	1.0	70			
Kitchen	1.0	25			
Staff Cafeteria (3 shifts)	1.0	90			
Staff Recreation area	1.0	15			
Toal Area(Sum)			300		1
L. Miscellenous					
Drivers rest room	1.0	15			
Drivers Toilet	1.0	22			
Microbiologist			8		
Toal Area(Sum)			45.0		1
M. Other BOH areas (exc mech)					
I. Mechanical Areas					
LV room	1.0	56.0	56		
Indoor Transformers	2.0	22.0	44		
LT Panel	1.0	74.0	74		
DG Generator Room	1.0	97.0	97		
Chiller Plant Room	1.0	125.0	125		
Rain water Tank(105cubic meter)	105 Cubic Meter				

Name	No. of units	Area (sq m.)	Total Area	%
Municipal Tank	123 Cubic Meter			
Raw Water Tank	123 Cubic Meter			
Fire Tank	105 Cubic Meter			
Treated Water Tank	123 Cubic Meter			
Salt Storage	1.0	12.0	12	
Pump Room(Fire)	1.0	20.0	20	
Pump Room(Raw + Soft+WTP)	1.0	60.0	60	
Boiler Room with Pumps and heat e	1.0	58.0	58	
STP with pumps and equipments	1.0	80.0	80	
Work Shop	1.0	22.0	22	
Engineering Office	1.0	8.0	8	
Engineering Store	1.0	10.0	10	
Control Room	1.0	15.0	15	
Underground Oil storage tanks	1.0	190.0	190	
Swimming pool filtration plant	1.0	12.0	12	
Toal Area(Sum)			487	1.5
ii. Mechanical Areas on terrace				
Cooling Towers	1.0	135.0	135	
Overhead Tanks	1.0	12.0	12	
Ventilation/Exhaust fans	14.0	12.0	168	
Flushing tank+Cooling tower tank	3.0	9.0	27	
Staircase pressurisation fans	3.0	11.0	33	
Lift Pressurisation fans	2.0	2.2	4.4	
Scrubber for kitchen exhaust	1.0	5.0	5	
Toal Area(Sum)		186.2	384.4	1
N. Parking	181			
Basement 2			1700	
Basement 1			1420	
Total Wall Thickness and circulation			3120	8
Total Area			34722.9	

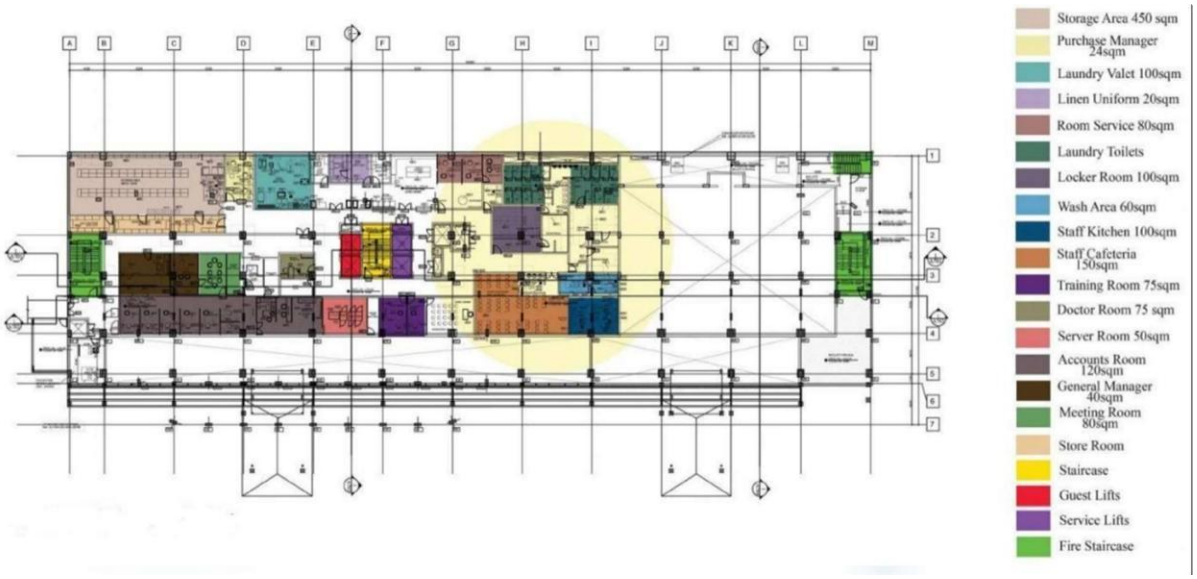
Lower Basement Plan:



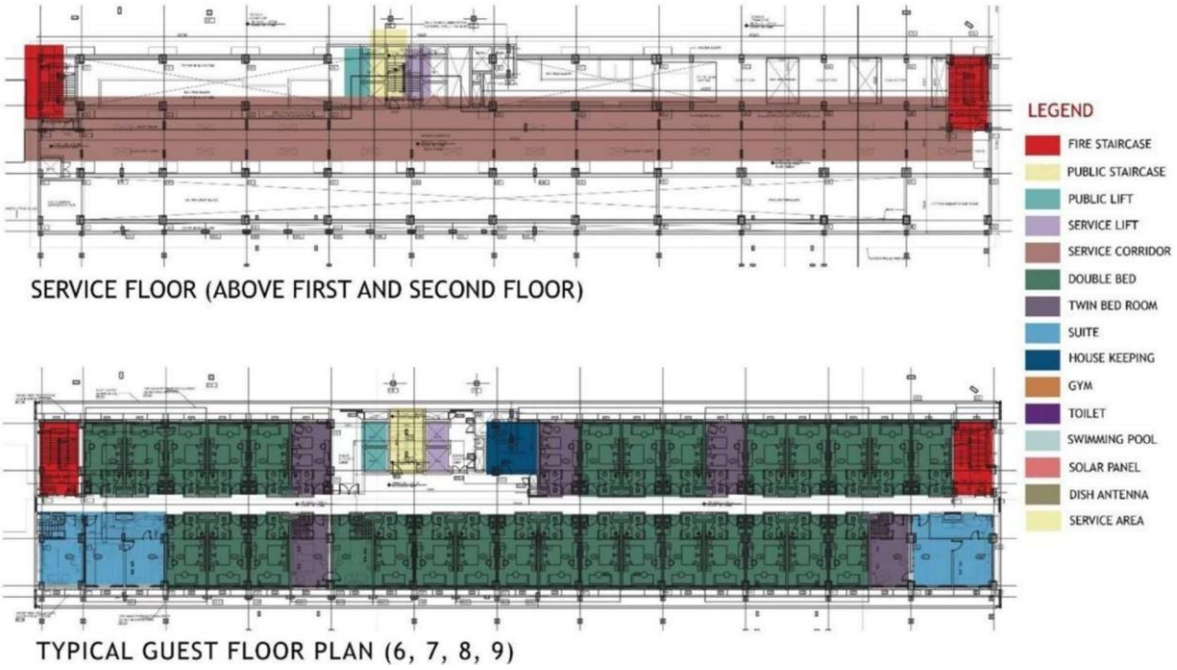
Ground Floor Plan:



First Floor Plan:

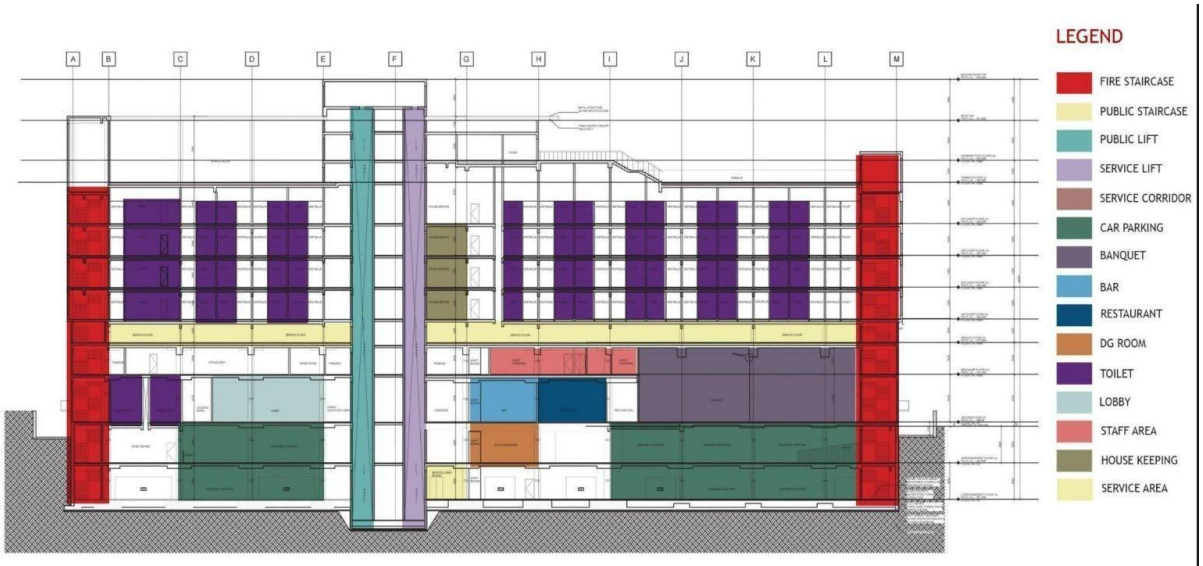


Service Floor And Typical Guest Floor Plan:

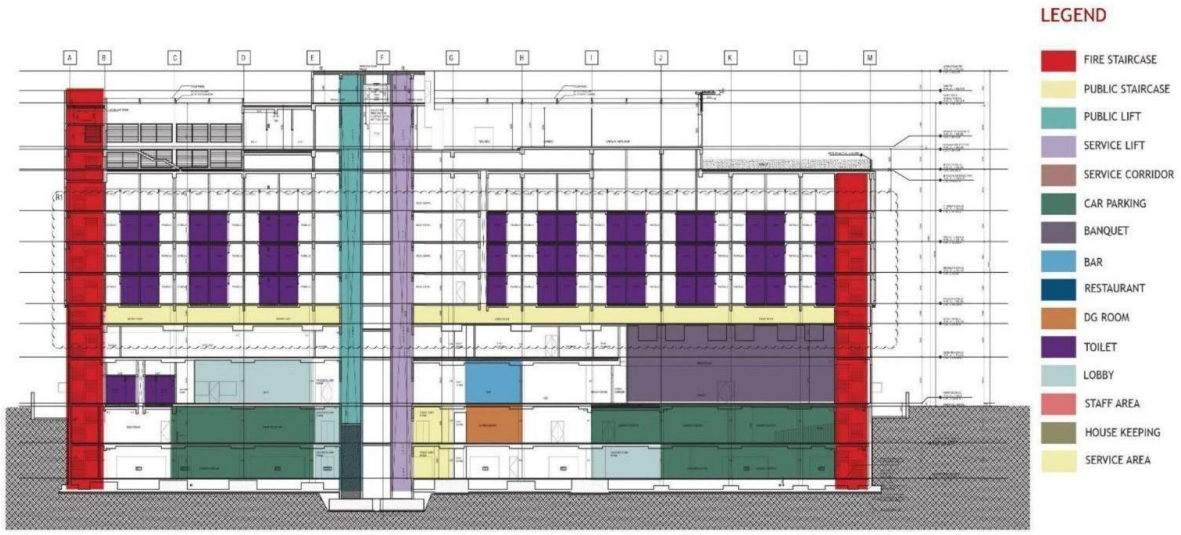


SERVICE FLOOR (ABOVE FIRST AND SECOND FLOOR)

TYPICAL GUEST FLOOR PLAN (6, 7, 8, 9)



HORIZONTAL SECTION THROUGH ROOMS & BANQUETS



HORIZONTAL SECTION THROUGH ROOMS, BANQUETS & POOL

Architectural Features of Taj Gateway Hotel, Pune

Brand Identity & Local Context

- Part of the Taj Gateway chain — the hotel follows a standard plan for functional consistency, while adapting its visual identity to Pune's urban and cultural context.
- The design blends contemporary styling with regional influences to appeal to both business and leisure guests.

Façade & Envelope

- The exterior features jaali (perforated screen) elements that provide shade and reduce heat gain while adding a distinct Indian architectural character.
- Clean lines, subtle projections, and patterned surfaces give the building a modern yet rooted identity.

Layout & Planning

- The hotel incorporates the Gateway brand’s signature planning elements like courtyards, water features, and shaded screening systems.

- The layout includes a clear separation of public, private, and service zones to ensure operational efficiency.

Building Massing & Floors

- The hotel typically consists of four floors, including reception and public areas on the ground, guest rooms on upper levels, and rooftop amenities.
- The structure is compact, making optimal use of its footprint, suitable for its IT corridor location.

Interiors & Materiality

- Interior design uses warm neutral tones, polished surfaces, and traditional accents to create a sophisticated, comfortable ambiance.
- Flooring patterns and wall finishes alternate between light and dark themes to introduce variation while maintaining brand identity.

Landscape & Outdoor Integration

- Landscaped terraces and rooftop leisure spaces are used to provide greenery and relaxation zones within the urban fabric.
- The rooftop pool, bar, and lounge offer open views and act as retreat spaces for guests.

Functional & Operational Features

- A key design innovation is the banquet hall with vehicular access, enabling product launches and dynamic event layouts.
- The hotel is designed to cater to round-the-clock services, supporting business travelers with late-night or early-morning requirement.

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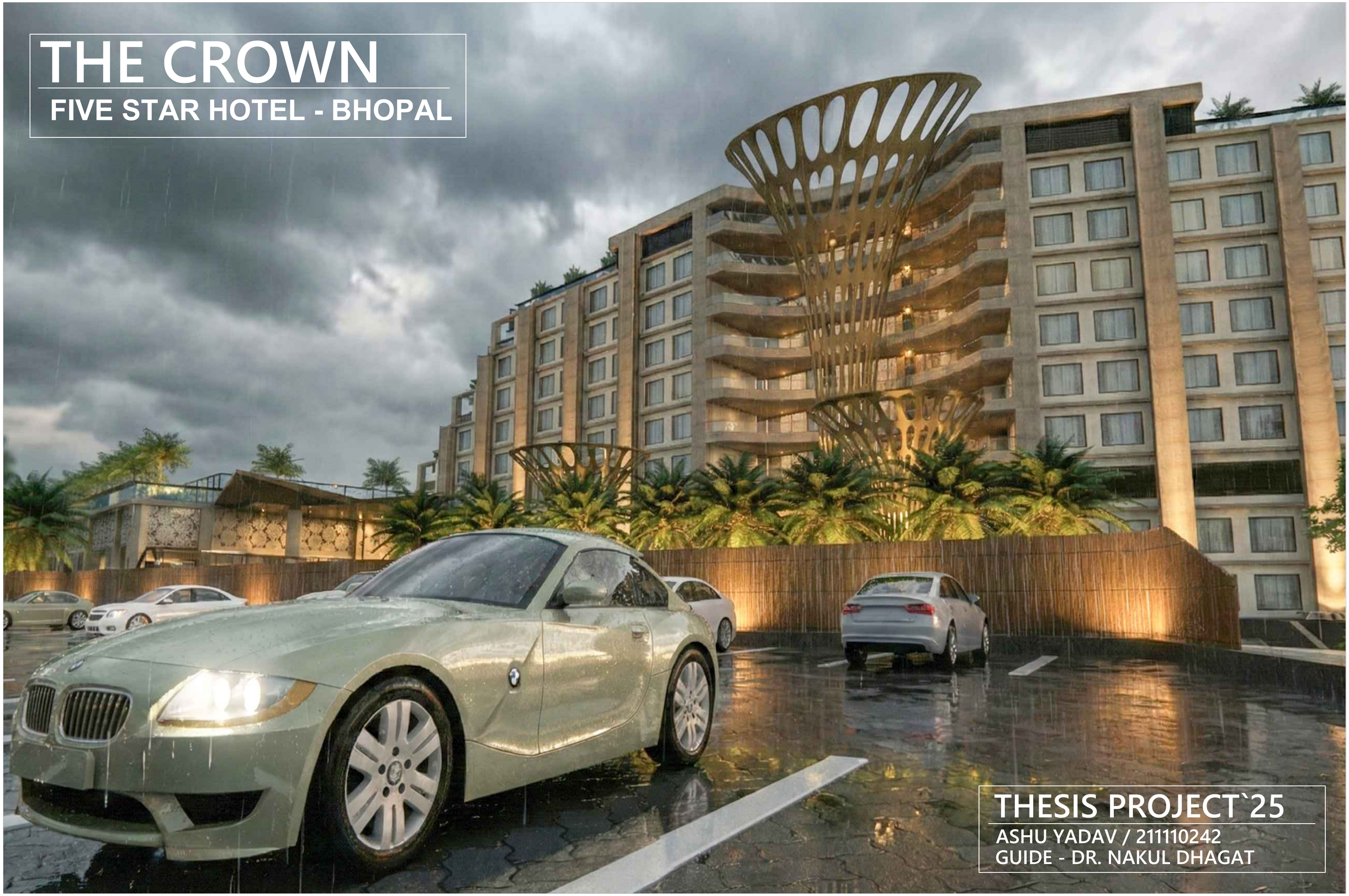
THE CROWN

FIVE STAR HOTEL - BHOPAL



THESIS PROJECT`25

ASHU YADAV / 211110242
GUIDE - DR. NAKUL DHAGAT

FIVE STAR HOTEL (MPT), BHOPAL

1. SITE ANALYSIS

PROJECT BRIEF-

To **demolish and develop** at least **150** rooms and a Banquet & Convention facility for at least **1,000 pax** under the project.
The facilities may include:
1. Additional rooms to provide lodging facilities to the guests.
2. Theme Restaurants and Food Joints
3. **Banquet & Convention Centres**
4. Facilities in the Hotel for Social and Corporate events, including weddings/exhibitions.
5. Facilities in the Hotel to Promote and Market fairs, local cuisine, culture, folk music, dance, costumes, products, art, handicraft, and heritage tourism.
6. Food & Beverages (Cafes, Retro Lounges, Heritage/Luxury Dining, etc.)
7. Food Courts and/or Rooftop Restaurant



PROJECT DETAILS-

Area	Shyamala Hills, Bhopal
Site/Location	The subject property is located at Shyamala Hills, Bhopal, towards the eastern side of Upper Lake i.e., central region of Bhopal city. The subject location has many prominent government institutions and building. The prominent hospitality developments in vicinity of the subject site include Jehan Numa Palace, Ivy Suites, The Ten Suites etc. The subject micro-markets enjoys express connectivity via 24 m wide VIP Road (north) to the Bhopal Raja Bhoj Airport and other touristy places like Birla Museum, Sair Sapata, Interpretation Centre - Manav Sangrahalaya via 24 mts. wide Jehan Numa Palace Road.
Location Coordinates	**Latitude:** 23.243043872752793 **Longitude:** 77.38768911349595
Approach Road	24 mts. wide primary access road – Jehan Numa Palace Road
Site Boundaries	The subject property is surrounded by: • North: Green Zone adjacent to Bhopal Upper Lake • South: 24 mts. wide primary access road – Jehan Numah Palace Road • East: Other's property • West: Other's property

Site Area	**=7.16 Acres = 28,975 m²**
Max. Built-up Area	**=57,950 m² (FAR = 2)**
Ground Coverage(Max.)	**=30% = 8692 m²**
Maximum Building Height	**=30 m**
Basement Allowed	**=3 Floors**

SWOT-

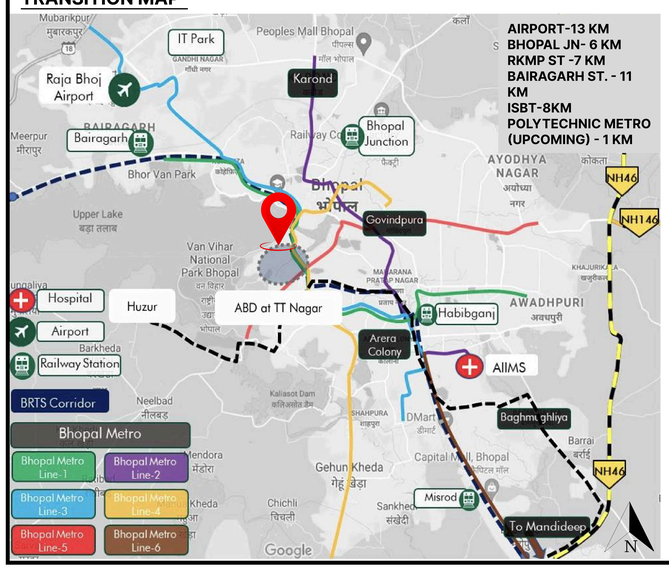
Strengths
- Strategic Location: Unique placement with breathtaking views of Bada Talab.
- Scenic Spots: Direct access to natural and cultural hotspots.
- Connectivity: Well-linked to various parts of Bhopal through Jehan Numa Palace Road.

Weaknesses
- Limited Tourist Attractions: Fewer sites compared to Jaipur, Udaipur, Agra, Puri, etc., though tourist numbers are rising due to MPTB efforts.
- Lack of City-Focused Marketing: Bhopal is seen more as an administrative city than a tourist destination.

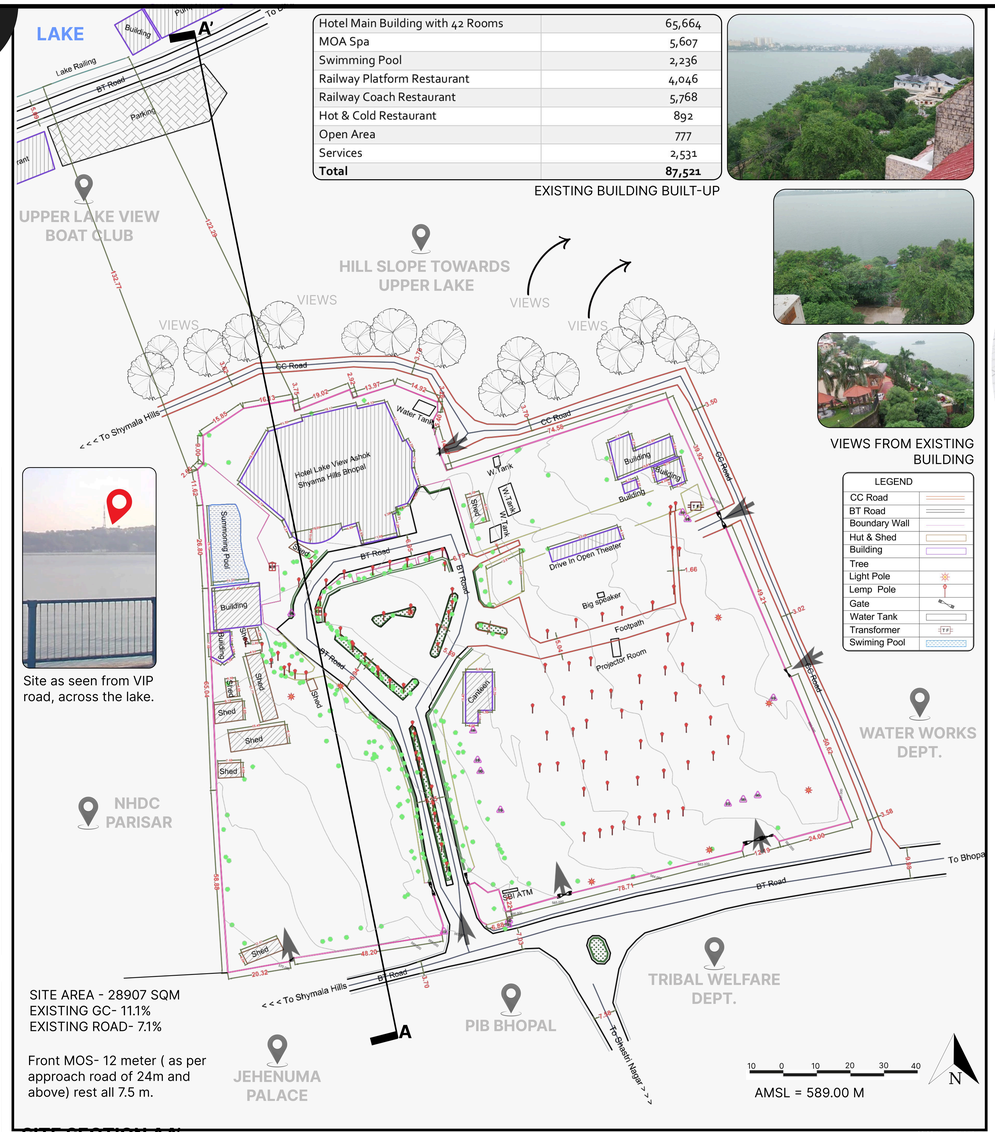
Opportunities
- City Promotion: Potential to boost domestic and international tourism, with proximity to Sanchi (UNESCO), Udayagiri Caves, Bhimbetka Caves, Bhojeshwar Temple, Ratapani Tiger Reserve.
- Upscale Room Inventory: Shortage of upscale accommodation in the city.

Threats
- Vicinity to Bada Talab: Development must align with the existing aesthetic and be mindful of environmental sensitivity.

TRANSITION MAP-



AIRPORT-13 KM
BHOPAL JN- 6 KM
RKMP ST -7 KM
BAIRAGARH ST. - 11 KM
ISBT-8KM
POLYTECHNIC METRO (UPCOMING) - 1 KM



Hotel Main Building with 42 Rooms	65,664
MOA Spa	5,607
Swimming Pool	2,236
Railway Platform Restaurant	4,046
Railway Coach Restaurant	5,768
Hot & Cold Restaurant	892
Open Area	777
Services	2,531
Total	**87,521**

EXISTING BUILDING BUILT-UP

VIEWS FROM EXISTING BUILDING

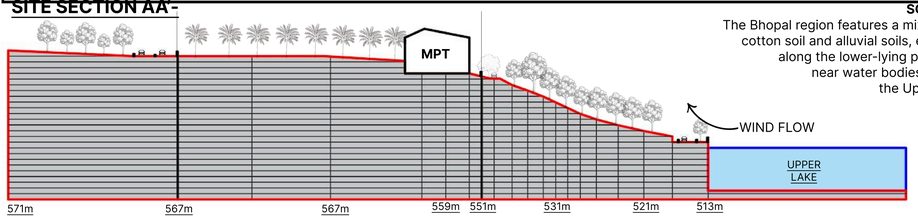
Site as seen from VIP road, across the lake.

LEGEND
CC Road
BT Road
Boundary Wall
Hut & Shed
Building
Tree
Light Pole
Lemp Pole
Gate
Water Tank
Transformer
Swiming Pool

SITE AREA - 28907 SQM
EXISTING GC- 11.1%
EXISTING ROAD- 7.1%

Front MOS- 12 meter (as per approach road of 24m and above) rest all 7.5 m.

SITE SECTION AA'-



SOIL TYPE
The Bhopal region features a mix of black cotton soil and alluvial soils, especially along the lower-lying plains and near water bodies such as the Upper Lake.

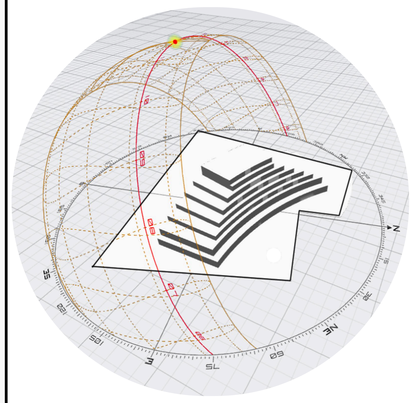
SITE AND SITE SURROUNDINGS-

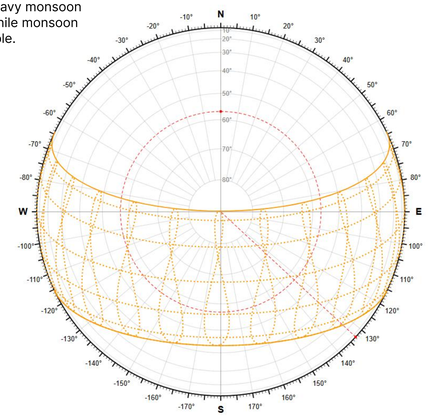


CLIMATE ANALYSIS-

Bhopal has a humid subtropical climate with very hot summers, a heavy monsoon season, and mild, pleasant winters. Summers often exceed 40°C, while monsoon brings high humidity and rainfall. Winters remain cool and comfortable.

SUNPATH DAIGRAM-

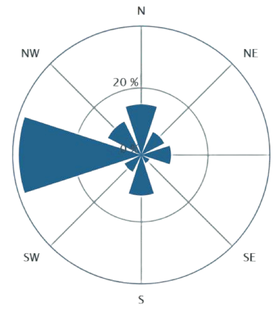




- **Temperature:** Min -12 °C, Max -46 °C, Avg -25–30 °C
- **Humidity:** Min -45%, Max -85%, Avg -65%
- **Rainfall: Annual :** 1,100 mm (960 mm in monsoon)

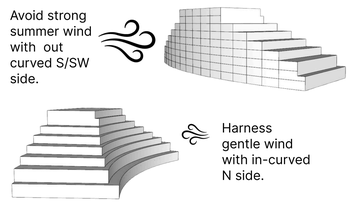
WIND DIRECTION AND INTENSITY-

N ▼ Northern	NE ▲ Northeastern	E ◄ Eeastern	SE ➤ Southeastern	S ▲ Southern	SW ◄ Southwestern	W ➤ Western	NW ▲ Northwestern
15.1%	7.7%	8.9%	2.7%	12.1%	5.6%	36.7%	11.2%



INFERENCES-

1. Building placed across NE-SW direction will have low heat gain.
2. Building should avoid the strong western wind, especially during summer.
3.



EXISTING SITE ANALYSIS AND INFERENCES-

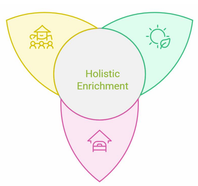
Why the Existing Main Building Should Not Be Retained

- **Structural & Safety Concerns** – The building is in a dilapidated condition, with visible signs of material deterioration, outdated construction methods, and possible structural fatigue, making it unsafe and costly to retrofit for modern standards.
- **Inefficient FAR Utilization** – The current building uses a fraction of the permissible FAR 2 severely limiting revenue potential for the 7.16-acre site.
- **High Maintenance vs. Redevelopment Cost** – Renovation to meet international brand standards would be costlier in the long term than a new build with efficient design and materials.
- **Poor MEP Infrastructure** – Electrical, plumbing, and HVAC systems are outdated, inefficient, and not designed for sustainability measures.
- **Brand Positioning Limitations** – Retaining the current building makes it harder to attract high-profile operators and luxury brands who expect iconic architecture and cutting-edge facilities.
- **Accessibility & Circulation Issues** – The existing core locations, parking arrangements, and service flows are incompatible with the volume and type of guests expected in a modern luxury hotel.

What should be preserved-

The existing MPT Lake View Residency follows a **"Scenic Comfort with Local Character"** theme. It shows:
- **Natural Integration**: Serenity, lake views, and a peaceful stay experience.
- **Casual Luxury**: Modern amenities tailored for both business and leisure travelers.
- **Cultural Quirk**: A quirky rail coach dining experience that nods to Indian railway heritage.

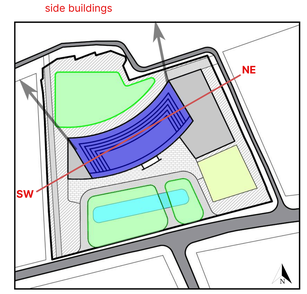
CULTURE- NATURE- LUXERY

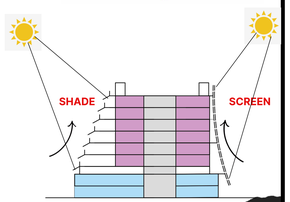


INFERENCES FOR DESIGN-

- **PLACEMENT** – The Building should be placed in center of the site to accomodate for different activities with separation.
- **ORIENTATION** – The building should be placed in NE-SW axis to reduce sun heat gain and receive the view of Bhopal's mesmerizing sunsets.
- **SHADING** – shade on both side with projections (lake side) and screen (front side) to avoid excess rain and sun.
- **VENTILATION**– Being a all HVAC building, ventilation will be more important for emergencies and public spaces.
- **TOPOGRAPHY** – Having the basement on already lower portion of site, using the flat portions for building and lawn and the area with more slope for gardens, restraunts, water features etc.

Views of lake and not of side buildings





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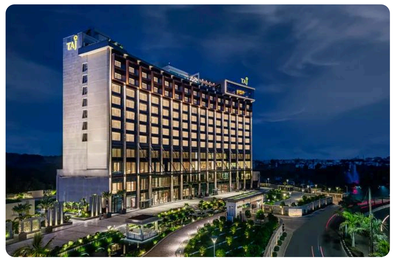
2. CASE STUDIES

AREA DISTRIBUTION COMPARISON AND OUTPUT

Spaces	Spaces Breakup	Case Study 1 | Taj Lakefront, Bhopal	Desk Appraisal | Taj Gateway, Pune	Desk Appraisal 2 | Awasa, Hydrabad	Inferences
LOBBY	Front desk	-----	40	44	50
	Lounge area	----	100	75	100
	Toilets	----	30	----	48
	Luggage store	----	15	----	15
	Bell man	----	4	----	4
	Guest lifts	----	11	----	11
	Business centre	----	36	----	36
	Retail shops	TOTAL-170	25	----	25
OFFICE	General manager	----	15	----	15
	Secretary GM	----	9	----	9
	FQ MGR	----	5	----	5
	Revenue MGR	----	8	----	8
	F & B MGR	----	8	----	8
	Reservation office	----	25	----	25
	Work-station	----	16	----	16
	Discussion rooms	----	8	----	15
	Chief accountant	----	8	----	8
	Credit manager	----	5	----	5
	Cashier	----	8	----	8
	Controller	----	5	----	5
	Payroll manager	----	5	----	5
	Accounts records	----	10	----	10
	Meeting room	----	10	16	25
	Computer room MGR	----	17	----	17
	UPS	----	35	----	35
	Records	----	10	----	10
	Storage & copying	----	9	----	9
	Sales MGR	TOTAL- 347	18	----	18
BANQUETS	Banquets MGR	22	18	----	22
	Banquet hall	560	450	----	500
	Pre-function area	160	160	----	1600
	Conference room	55	50	----	55
	Toilets	68	60	----	68
RECREATIONAL	Swimming pool	140	100	500	140
	Pool change room	33	50	----	50
	Gym	25	100	166	25
	Massage rooms	----	6	160	40
	Saloon	----	50	----	50
ROOMS	Double bed rooms	33	27	35	30
	Suites	38	45	40	87
	Twin bed rooms	33	30	35	32
KITCHEN	Main Kitchen	115	85	135	115
	Room Service Kit	35	20	----	35
	Pantry	----	32	----	32
	Bakery	----	20	----	20
	Commissary	----	40	----	40
	Dishwash	----	20	----	20
	Pot wash	----	15	----	15
	Cold kitchen	----	18	----	18
	Cafe kitchen	----	12	----	20
	Show kitchen	----	8	----	8
	Bar pantry	----	15	65	15
	Bar counter	----	5	----	5
	Chefs office	----	8	----	8
	Issue/tailor/dirties	----	5	----	8
HOUSEKEEPING	Housekeeper ex.	TOTAL -140	10	120	10
	H/Sk office	----	16	----	16
	House keeper asst.	----	8	----	8
	Guest supply store	----	5	----	----
	Bulk linen store	----	10	----	----
	Dead store	----	30	----	----

CASE STUDIES AND DESK APPRAISALS



TAJ LAKEFRONT, BHOPAL :

ROOMS	150+
SITE AREA	4.77 ACRES
BUILT UP AREA	8450 SQM
GROUND COVERAGE	43%
NO. OF STORIES	10 FLOORS
BANQUET CAPACITY	1200+



RADISSION, BHOPAL :

ROOMS-	104+
SITE AREA-	2.5
GROUND COVERAGE-	30%
NO. OF STORIES-	7 STORIES
BANQUET CAPACITY-	1200+



TAJ GATEWAY, PUNE :

ROOMS-	150
SITE AREA	
BUILT UP AREA	34,700 SQM
GROUND COVERAGE	
NO. OF STORIES	
BANQUET CAPACITY	



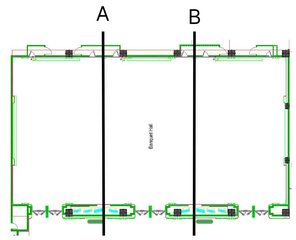
AVASA HOTEL, HYDRABAD :

ROOMS	150+
SITE AREA	11,800 SQM
BUILT UP AREA	
GROUND COVERAGE	
NO. OF STORIES	10 FLOORS
BANQUET CAPACITY	

INFERENCES-

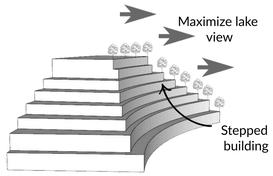
Architectural Features of Taj Gateway Hotel, Bhopal

1. **Basement & Services**
   - Smoke extraction fans ensure fire safety.
   - STP, WTP, and water tanks can be accommodated in basements.
2. **Landscape & Ducting**
   - Duct openings can be camouflaged through landscaping treatments.
3. **Banquet & Events**
   - Large halls can be subdivided for multiple events.
   - Increases flexibility and revenue.
4. **Guest Floors & Interiors**
   - Different interior themes on guest floors create distinct identities.
5. **Traffic & Circulation**
   - Separate lanes for waiting, drop-off, and pickup reduce congestion.
6. **Architectural Form & Orientation**
   - Curved design towards the lake frames natural views.
   - Orientation captures Bhopal's sunset.
7. **Service Efficiency**
   - Strong back-of-house ensures smooth operations without compromising design.



Large halls can be subdivided for multiple events. e.g.-
A very large hall of 1000 pax can be divided into 3/4 parts and can be used at same time for different events.

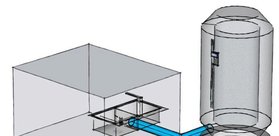




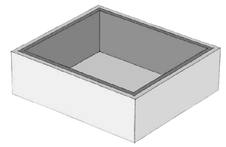
Curved design towards the lake frames natural views the orientation captures Bhopal's sunset and gives the guests a memorable stay with a senic stay.

Architectural Features of Taj Gateway Hotel, Pune

1. **Brand Identity & Context**
   - Standardized Gateway planning with local adaptations.
   - Blends modern design with Pune's cultural identity.
2. **Facade & Envelope**
   - Jaali screens reduce heat gain and add Indian character.
3. **Layout & Zoning**
   - Clear separation of public, private, and service areas.
4. **Interiors & Materialism**
   - Warm neutral tones with traditional accents.
   - Varied flooring and finishes maintain brand identity.
5. **Landscape & Outdoor Integration**
   - Rooftop pool, bar, and lounge offer greenery and views.
   - Terraces soften the urban setting.
6. **Functional Innovation**
   - Banquet hall with vehicular access for events/product launches.
   - Designed for 24/7 business traveler needs.



Instead of providing ro in every room, RO tank can be connected to the water tap so that every water can be drinkable.

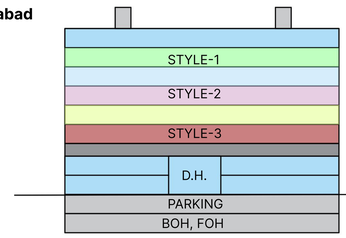


The room housing the transformer and diesel generator should be made soundproof and fire-proof

The diesel should be connected with a different piping system so that it could be cut off at the time of emergencies.

Architectural Inferences from Avasa Hotel, Hyderabad

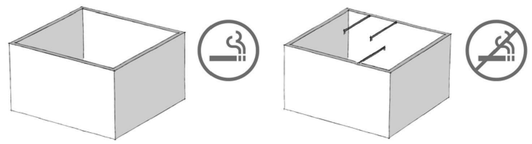
1. **Iconic Form & Identity**
   - "A"-shaped profile gives strong visual identity.
   - Balances brand image with planning.
2. **Terraces as Climatic Moderators**
   - Stepped terraces act as sky gardens.
   - Reduce heat gain, enhance light & ventilation.
3. **Atrium as Central Spine**
   - Full-height atrium brings daylight.
   - Acts as social and spatial connector.
4. **Clear Functional Zoning**
   - Services in basements, public below, rooms above.
   - Corridors streamline discreet operations.
5. **Efficient Vertical Circulation**
   - Separate lifts for guests, service, rooftop.
   - Improves privacy and flow.
6. **Biophilic Integration**
   - Green terraces/bridges soften mass.
   - Creates resort-like ambience.
7. **Hierarchy in Spaces**
   - Double-height lobby and framed views add drama.
   - Scale shifts enrich experience.
8. **Passive Sustainability**
   - Daylight, ventilation, terraces cut energy use.
   - Less reliance on artificial systems.
9. **Bridges as Dual Features**
   - Connect functions while enhancing experience.
10. **Traditional–Contemporary Blend**
    - Modern materials with courtyard-inspired spaces.



Double-height lobby and framed views add drama.

Different interior themes on guest floors create distinct identities.

Basements can be used for parking, BOH, FOH, services, storage etc.



Smoking rooms will not be provided with sprinklers; instead, advanced smoke detectors, fire-resistant finishes, and efficient extraction systems will be incorporated to ensure guest safety while maintaining comfort and complying with alternative fire safety protocols.

FIVE STAR HOTEL (MPT), BHOPAL

3. CONCEPT AND FORM EVOLUTION

Nature Culture Fusion-

Scenic Comfort with Local Character

(PRESERVING THE SOUL OF CURRENT BUILDING BY RETAINING THE THEME)

Blending the local character of Madhya Pradesh with the scenic comfort that the site provides, resulting in a building which does not copy the local character blindly but use it to make the building more functional, aesthetic and soulful.. The idea is to reflect the local character even in the most advanced technology used in the building architecture while keeping the comfort of the guest at priority and maintaining the scenes at all the points.



Lobby (present)

1. Preserving the feel with retention of the interior style
2. Preserving and relocating the Bhopal Express Restaurant to safeguard it's heritage.



Bhopal Express Restraunt (present)

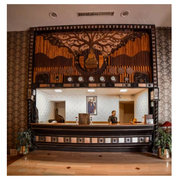
3. Such views will cater for the scenic comfort with added more natural elements and greenery.
4. Local material to be given importance, not in the old ways and to experiment with old to generate new possibilities.
5. Reflection of old ways in today's modern technology.



Rooftop restraunt (present)



Incorporating old with new



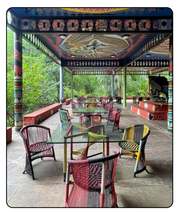
Reception (present)

6. Designing a building with local building characters spoken in a differnt language i.e. old elements in new form.

The **Nature–Culture Fusion** concept for the **MPT Lakeview Hotel celebrates Bhopal's rich heritage** while embracing its serene lakefront setting. Architectural forms draw from traditional courtyards, **jaalis, and cultural motifs**, while massing and terraces integrate greenery and maximize lake views. Cultural elements **showcase local art**, **craft, and cuisine**, while natural features create wellness and leisure zones, offering guests an immersive experience that harmonizes regional identity with the beauty of Bada Talab.

CULTURE/ LOCAL CHARACTER-

- Tribal Art Dining Hall – **Gond & Bhil**-themed décor
- Heritage Courtyard Dining – **Begum-era haveli** style
- Boat-In Dinner – Arrive by shikara/boat
- Shikar Rooftop Bar – **Nawabi hunting** lodge theme
- Craft & Cuisine Pavilion – **Local food & art** events
- Interactive Cooking Studio – Regional cuisine demos
- Nature Wellness Deck – Lake-view yoga & meditation
- Example- **JAYAKA Canteen @ Tribal Museum**,Bhopal is a canteen designed with a tribal theme.



JAYAKA Canteen
@ Tribal Museum,Bhopal

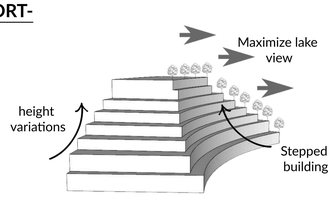


\+



NATURE/ SCENIC COMFORT-

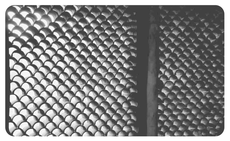
- Stepped building form toward the lake
- Terraced green roofs at each guest floor
- Mass oriented for maximum lake views
- Height variation to mimic natural terrain
- Mimicking waterfalls and lakes with cascades and other water features on site and in building.



ROUGH AREA STATEMENT-

Category	Item / Type	Count	Net area per unit (m²)	Net area total (m²)	Net area total (ft ²)
Arrival & Public Areas (FOH)	Lobby, reception, lounge (grouped)	1 cluster	—	~3,000	~32,300
	Retail/waiting	3–4 units	~50	~200	~2,150
Food & Beverage (FOH)	Restaurants, café, bar (grouped)	3–4 venues	—	~4,500	~48,400
Banquet & MICE (FOH)	Main Ballroom (1000 pax)	1	~2,500	2,500	26,900
	Pre-function areas	—	~1,000	1,000	10,800
	Meeting / Board Rooms	4–6	100–150	~600	~6,450
	Support/storage	—	—	~400	~4,300
Guest Rooms & Suites	Deluxe Rooms	110	40	4,400	47,400
	Junior Suites	30	65	1,950	21,000
	Full Suites	10	120	1,200	12,900
	Total Guest Area	150 keys	—	7,550	81,300
Recreation & Wellness (FOH)	Spa, fitness, pool (grouped)	1 cluster	—	~2,000	~21,500
Back-of-House (BOH)	Kitchens, laundry, staff, engineering (grouped)	Distributed	—	~5,500	~59,200
Circulation & Core	Corridors, lifts, staircases	—	—	~3,500	~37,700
TOTAL	—	—	—	~32,000–35,000	~344,000–376,000

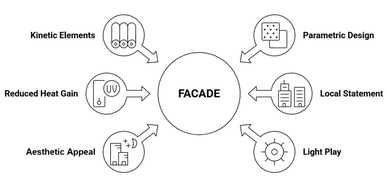
INCORPORATING LOCAL ELEMENTS-



TERRACOTT SHINGLES JALI-



MODERN SCREEN FACADES BY-METALLIA, METAGUISE, ETC. INCORPORATING LOCAL ELEMETS FOR SUCH FACADE.



INCORPORATING LOCAL ELEMENTS-

Bhil Tribe (Western MP, Jhabua)
- Conical thatched roofs on circular huts
- Roof almost touches the ground, shielding walls from rain.

Gond Tribe (Central MP):
- Rectangular houses with two-sided tiled sloping roofs
- Roofs often extended to form verandahs for shade.

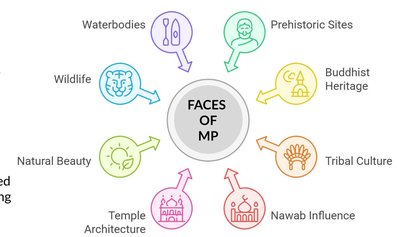


Bhil Tribe homes



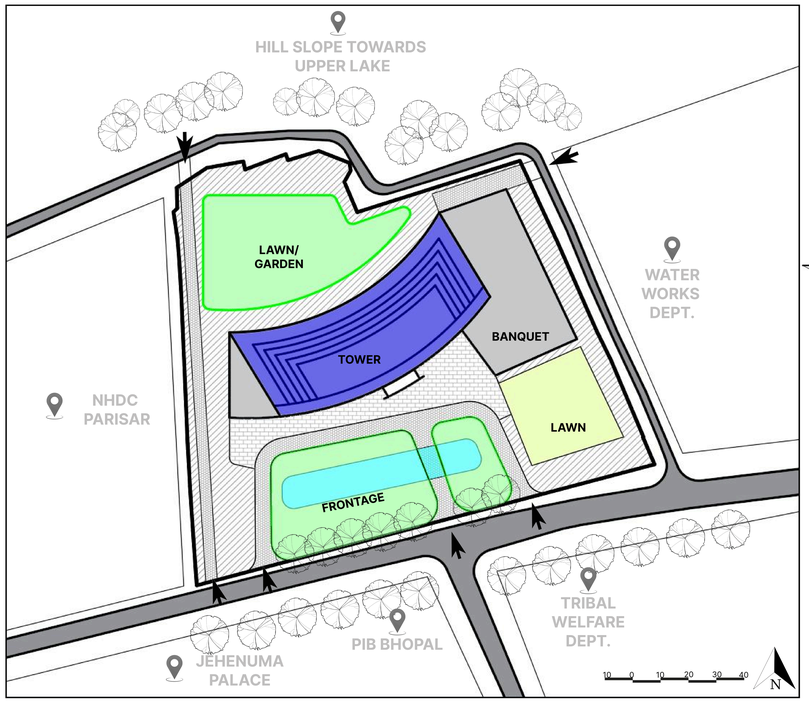
Gond Tribe homes

Use of slopped roof marks the identity of local tribes in the hotel



Out of so many faces of MP, the project would highlight on the **Nature**, the **Tribes**, the **Landforms** . complimented by the
1. **Buddhism** innfluence
2. **Nawab** Influence
3. **Prehistoric** Influence
4. **Temple** Influence on smaller elements of the project.

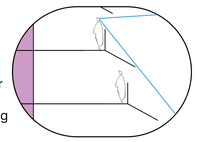
SITE ZONING-



- TOWER (4400 SQM)
- BANQUET/BASEMENT (7386 SQM)
- HARDSCAPE (1900 SQM)
- ROADS
- MAINTAINED GARDEN (6300 SQM)
- BANQUET LAWN (2000 SQM)
- WATER FEATURE

GROUND COVERAGE	= 7386 SQM = **26%**
BUILT UP SPACE	=32,000 SQM -35,000 SQM = **1.1 - 1.2** [FAR UTILIZED]

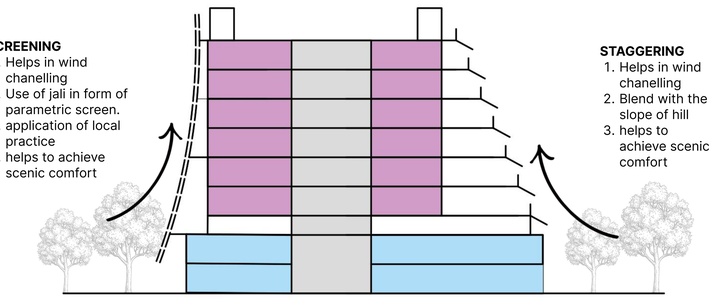
MAINTAINING PRIVACY WITH STEPPING FLOORS
1. Works as shade for each floors
2. obstruct vision of upper floor toward lower floor
3. Creates the sense of slopping roof



SITE SECTION AND INSPIRATIONS-

SCREENING
1. Helps in wind chanelling
2. Use of jali in form of parametric screen.
3. application of local practice
4. helps to achieve scenic comfort

STAGGERING
1. Helps in wind chanelling
2. Blend with the slope of hill
3. helps to achieve scenic comfort





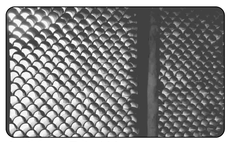
Jaali from Nawab-Era Architecture

LOCAL CHARACTER-
1. Jali being used in form of elevation screen to reduce south sun.
2. Inspiration from jalis of traibal museum
3. Stepping from Bada Bagh stepwell

SCENIC COMFORT-
1. Stepping like Bharat Bhawan to maximize lake view and protect the skyline.
2. Greenary integration for relaxed experience.



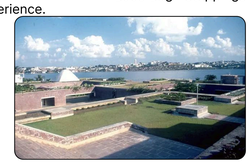
Bada Bagh Steppings



Jaali from Tribal Museum

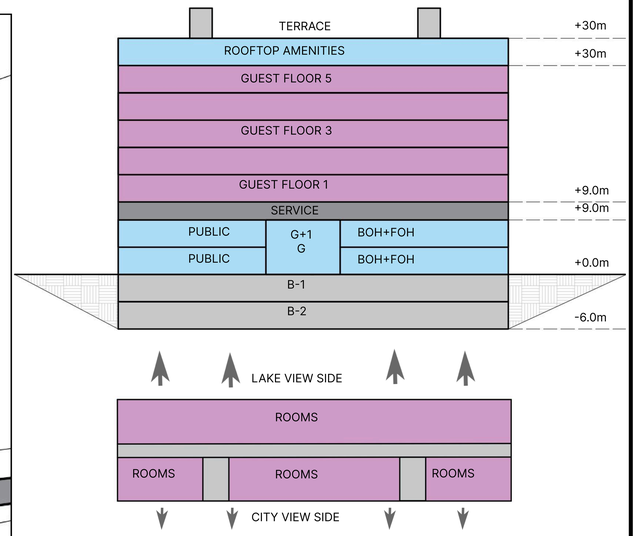


Stepping from a Tribal home.



Bharat Bhawan steppings

VERTICAL ZONING-



TOTAL ROOMS REQUIRED = **150**
TOTAL GUEST FLOORS = **5**

ROOMS ON EACH FLOOR = 150/5
= **30 ROOMS/FLOOR**

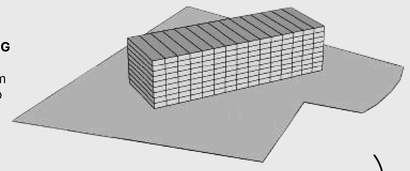
[22 DELUXE ROOM + 6 EXECUTIVE ROOM + 2 SUITES] PER FLOOR

[11 + 3 + 1] ON ONE BANK = **70meters**

FORM EVOLUTION-

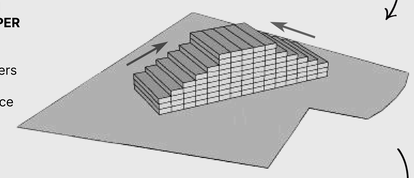
1. STRAIGHT BUILDING

SIZE- 70m x 25m x 30m
Linear Planning to keep services and flow efficient.



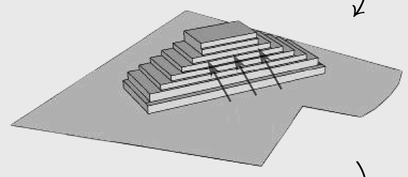
2. STEPPING FROM BOTH SIDES AS PER INFERENCES

Reducing 3 to 5 meters from both sides increase in the surface are and space for exposure to views



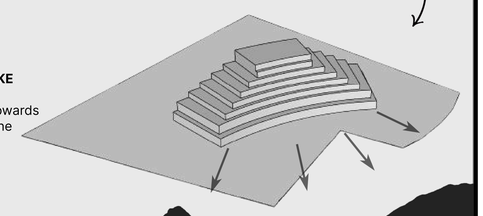
2. STEPPING FROM FRONT

Reducing 3 to 5 meters from lake side on each floor to blend with the slope of the hill.



2. ADDING A CURVATURE TOWARDS LAKE

Creates a focus towards lake and restrict the vision from side properties



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THE CROWN

FIVE STAR HOTEL - BHOPAL

SITE CALCULATIONS

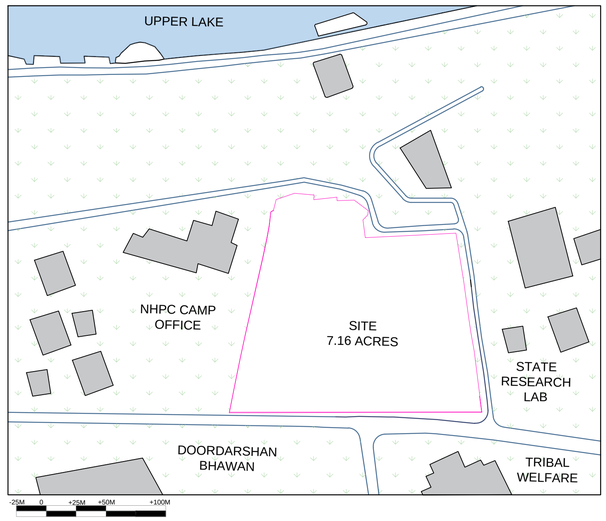
Parameter	Value
Site Area	7.16 Acres = 28,975 m²
FAR	2
Permissible Built-up Area (FAR × Site Area)	57,951 m²
Ground Coverage (30%)	8,692.65 m²
Permissible Height	30 m
No. of Basements (Allowed)	3

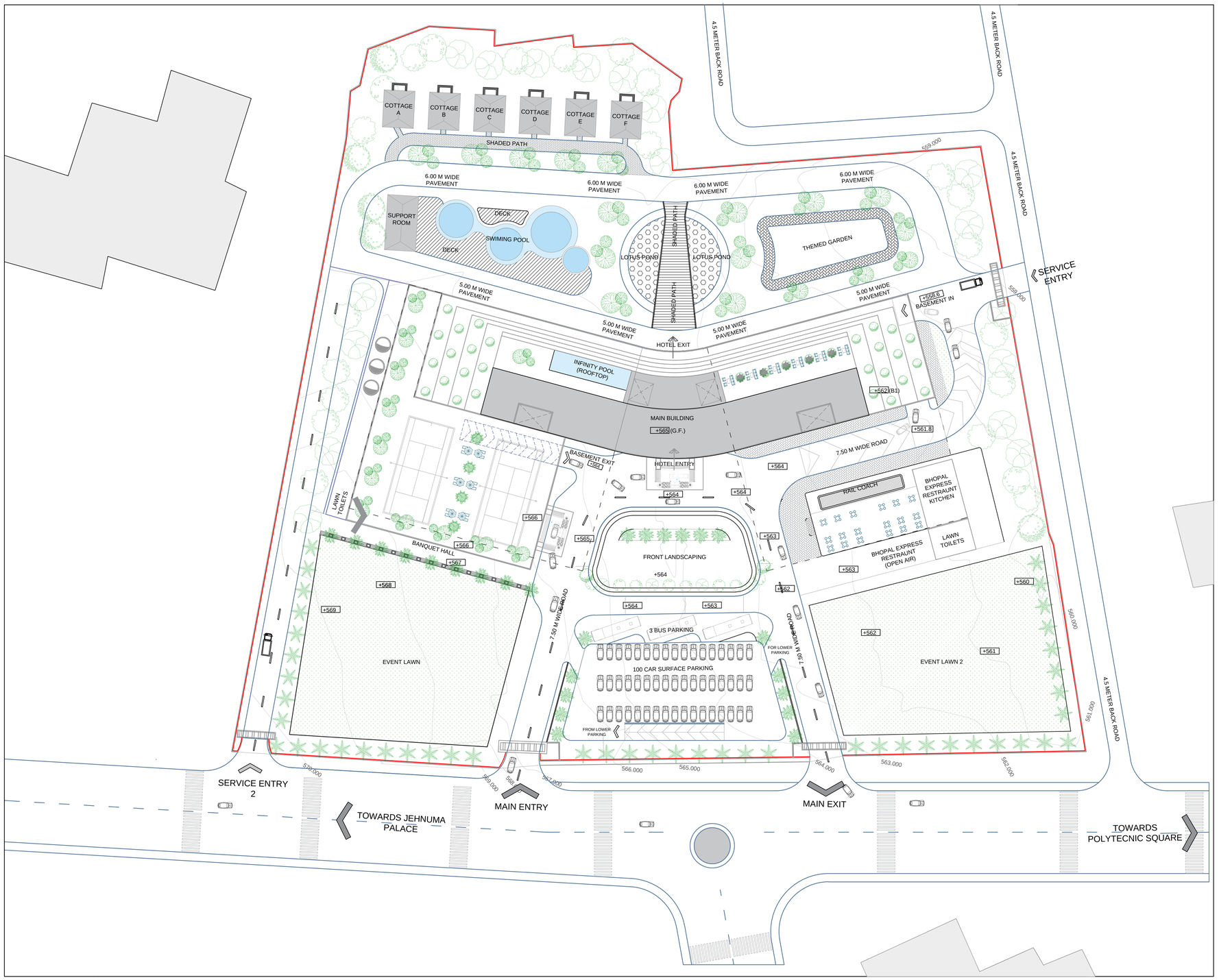
ACHIEVED DATA

Parameter	Achieved Value
Ground Coverage	7,892 m² (27%)
Built-up Area	60,000 m² (Approx.)
Road Area	7,969 m²
Paved Area	3,000 m²
Softscape Area	---
Surface Parking	100 Cars
No. of Basements	3
No. of Service Floors	1
Building Height	29.5 m

FLOOR DISTRIBUTION

Level	Function
Basement 3	Parking
Basement 2	Offices / Services
Basement 1	Parking
Ground Floor	Banquet, All Day Dining, Reception
First Floor	Amenities, Themed Restaurant
Service Floor	Duct Change
Guest Floors (5 Nos.)	Floors 3 / 4 / 5 / 6 / 7
Service Floor	Infinity Pool Tank
Rooftop	Pool & Restaurant





KEY PLAN:-

SCHEDULE

REVISIONS :-

Rev.	Date	Description	Appr'd

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GUIDED BY	**DR. NAKUL DHAGAT**
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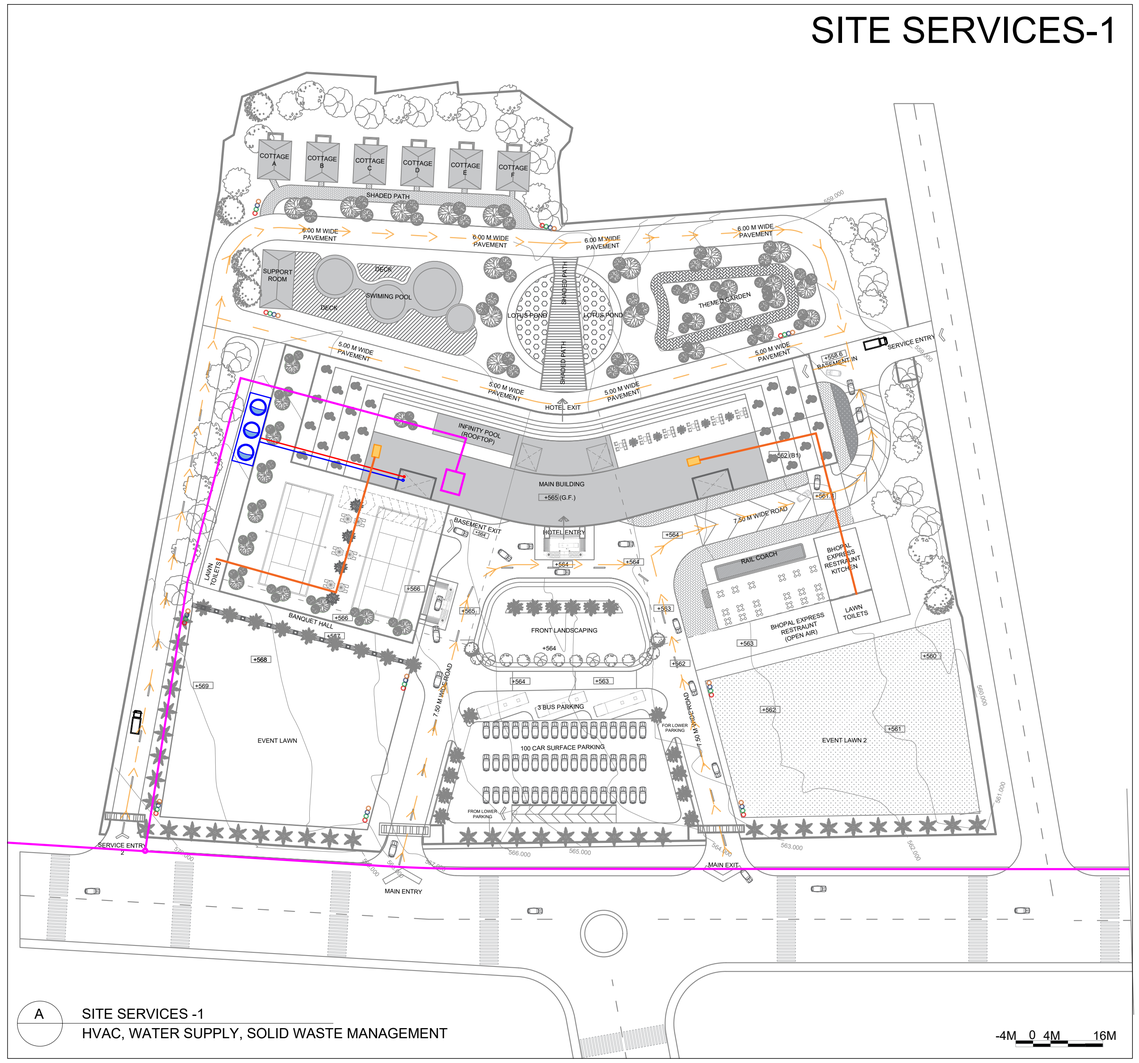
DRG.NO.	AR-
SCALE	1: 250

THESIS PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : SITE PLAN

MAULANA AZAD NATIONAL INSTITUTE OF TEHCNOLOGY, BHOPAL (MP)
INDIA - 462003

SITE SERVICES-1



A SITE SERVICES -1
HVAC, WATER SUPPLY, SOLID WASTE MANAGEMENT

-4M 0 4M 16M

WATER SUPPLY & SANITATION

User	Nos	Water Requirement (L/day)	Total Requirement (in Litres)
Beds	150	275	**55,000**
Restaurant Seats	1,500	97	**1,45,500**
Office Employees	2,000	45	**90,000**
Total Water Demand	—	—	**2,90,500 L**
			= 290.5 Cum
Size of UG Tank (h = 6 m) (Provide 2 UGTs)	—	—	**10 × 5 × 6 m each**

STP (Sewage Treatment Plant)

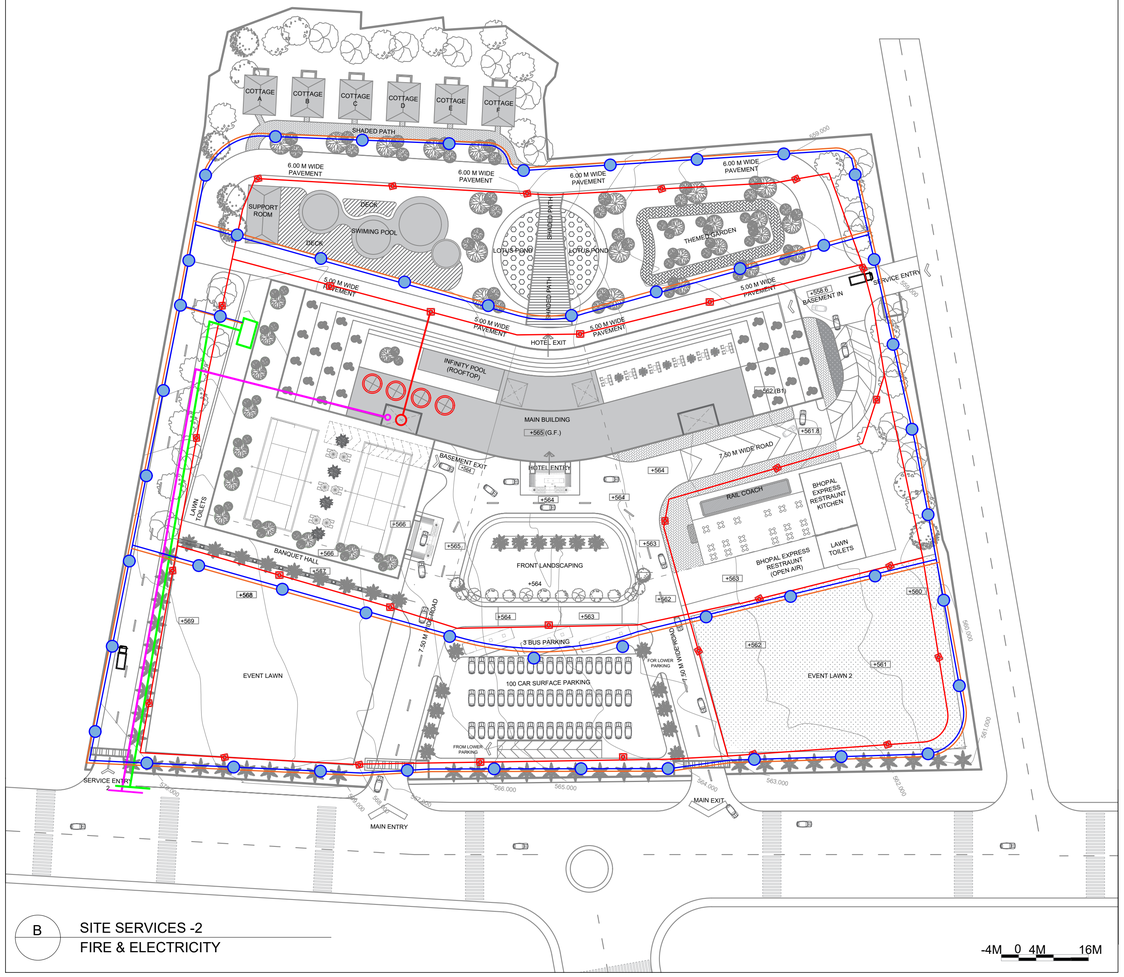
Parameter	Value	Remarks
Total Water Demand	2,90,500 L	—
90% of Total Demand	2,67,750 L	—
KLD (Kilo Litres per Day)	267.75	—
STP Dimensions (h = 6 m)	**9 × 5 × 6 m**	**270 Cu.m**

WATER SUPPLY AND SANITATION-
- MUNICIPAL WATER LINE
- COMMUNICATION LINE 300 DIA
- MANHOLE @30 METERS
- SEWAGE DUCT
- WATER MAINS
- PLUMBING SHAFT

HVAC COOLING TOWER-
- CHILLED WATER RETURN
- CHILLED WATER SUPPLY
- COOLING TOWER

SOLID WASTE MANAGEMENT-
- WASTE ROUTE
- DUSTUBINS

SITE SERVICES-2



B SITE SERVICES -2
FIRE & ELECTRICITY

-4M 0 4M 16M

FIRE SAFETY REQUIREMENTS FOR HOTELS

(From Table 23 of NBC Vol. 2, Part 4)

Parameter	Specification / Capacity
Fire Sprinkler Grid	3×3 m to 4×4 m
TANK	
Underground Tank Capacity	**200,000 L (200 Cu.m)**
Size of UG Tank (h = 6 m)	**7×5×6 m**
Overhead Tank Capacity	**20,000 L**
PUMPS	
Main Pumps	2 Electric + 1 Diesel Pump, each **850 L/min**
Jockey Pump	1 Electric Pump, **180 L/min**

ELECTRIC LOAD CALCULATION

Parameter	Description / Formula	Value / Result
Average Electricity Consumption (for a large hotel)		**0.55 kWh/m²/day**
Conversion Formula	P(W) = 1000 × E(kWh) / t(hr)	Considering 24 hr/day
Converted Value	0.55 kWh/m² = 22.92 W/m²	—
Safety Factor (for design)	Adopted value	**25 W/m²**
Built-up Area considered	—	**83,000 m²**
Total Consumption	83,000 × 25	**2,075,000 W**
Voltage Level	Step down from 11 kV to 433 V	—
Current Calculation	Ampere = Watt / Volt	2,075,000 / 433 = **4,792.15 A**
Recommended Transformer	—	**1 × 5000 kVA**

ELECTRICITY-
- 33KV LINE
- 11 KV LINE
- 22O V LINE
- EMERGENCY LINE
- ELECTRICAL CHAMBERS

FIRE SAFETY-
- FIRE WATER SUPPLY LINE 300 MM DIA
- FIRE HYDRANT (1.2M x 1.2M) @30M INTERVAL
- MUNICIPAL WATER LINE

KEY PLAN:-

SCHEDULE

REVISIONS :-

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SHEET TITLE : SITE SERVICES

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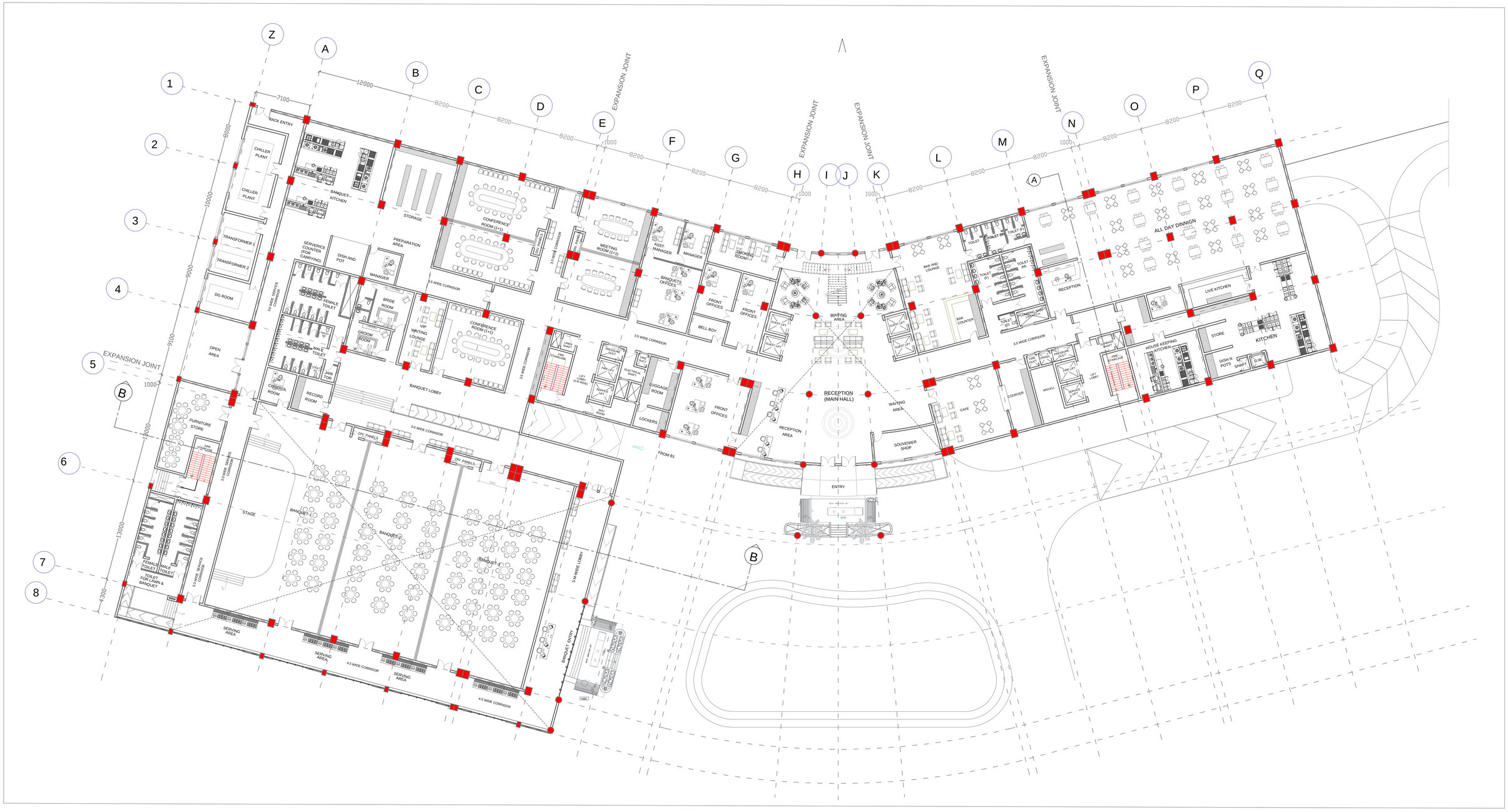

GF GROUND FLOOR

LVL. +565.m

KEY PLAN:-

-4M 0 4M 8M 16M

SCHEDULE

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PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : GROUND FLOOR

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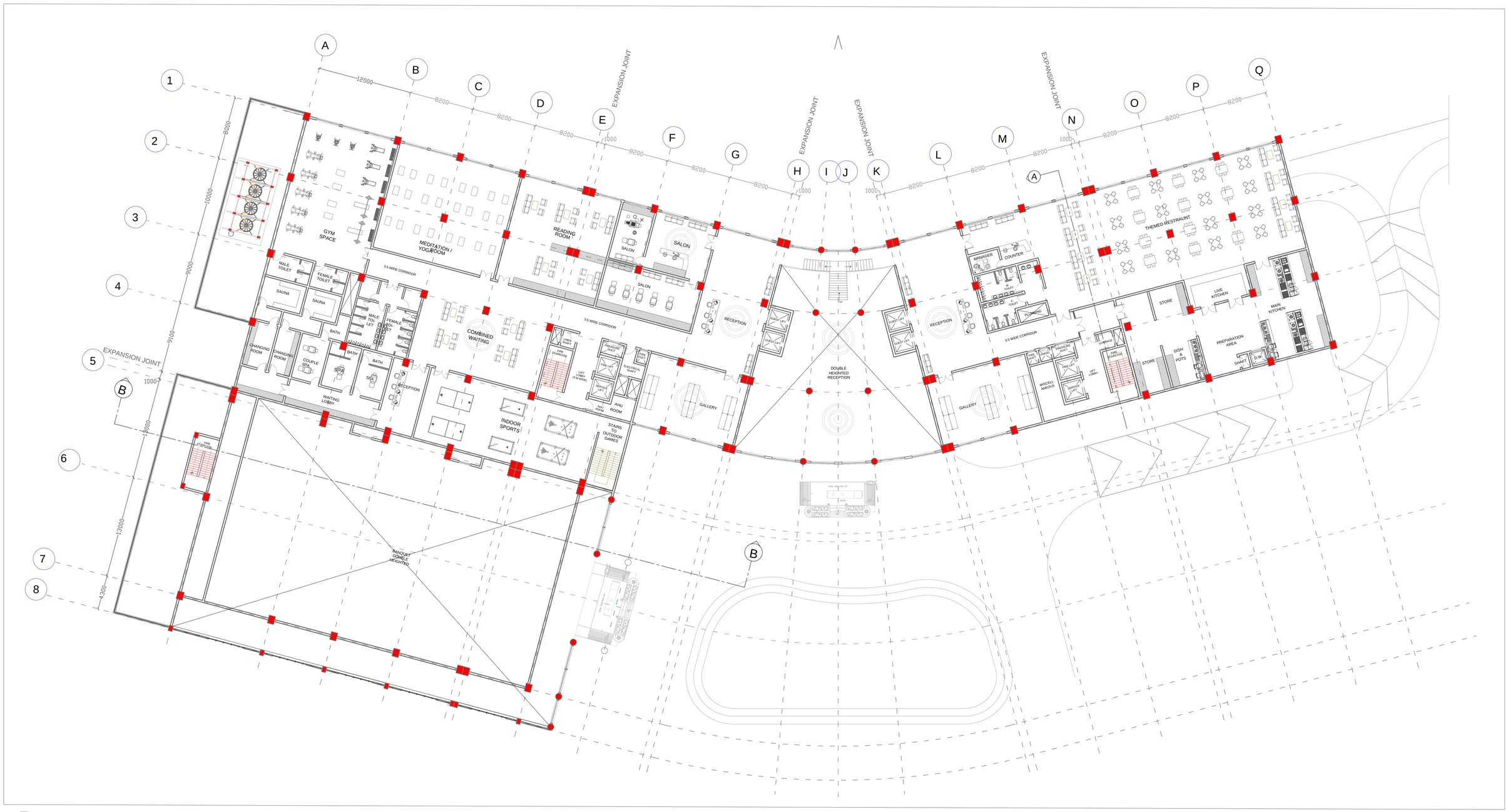

FF

FIRST FLOOR

LVL. +568.5m

KEY PLAN:-

-4M 0 4M 8M 16M

SCHEDULE

REVISIONS :-			
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SCALE	**1:250**

PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : FIRST FLOOR

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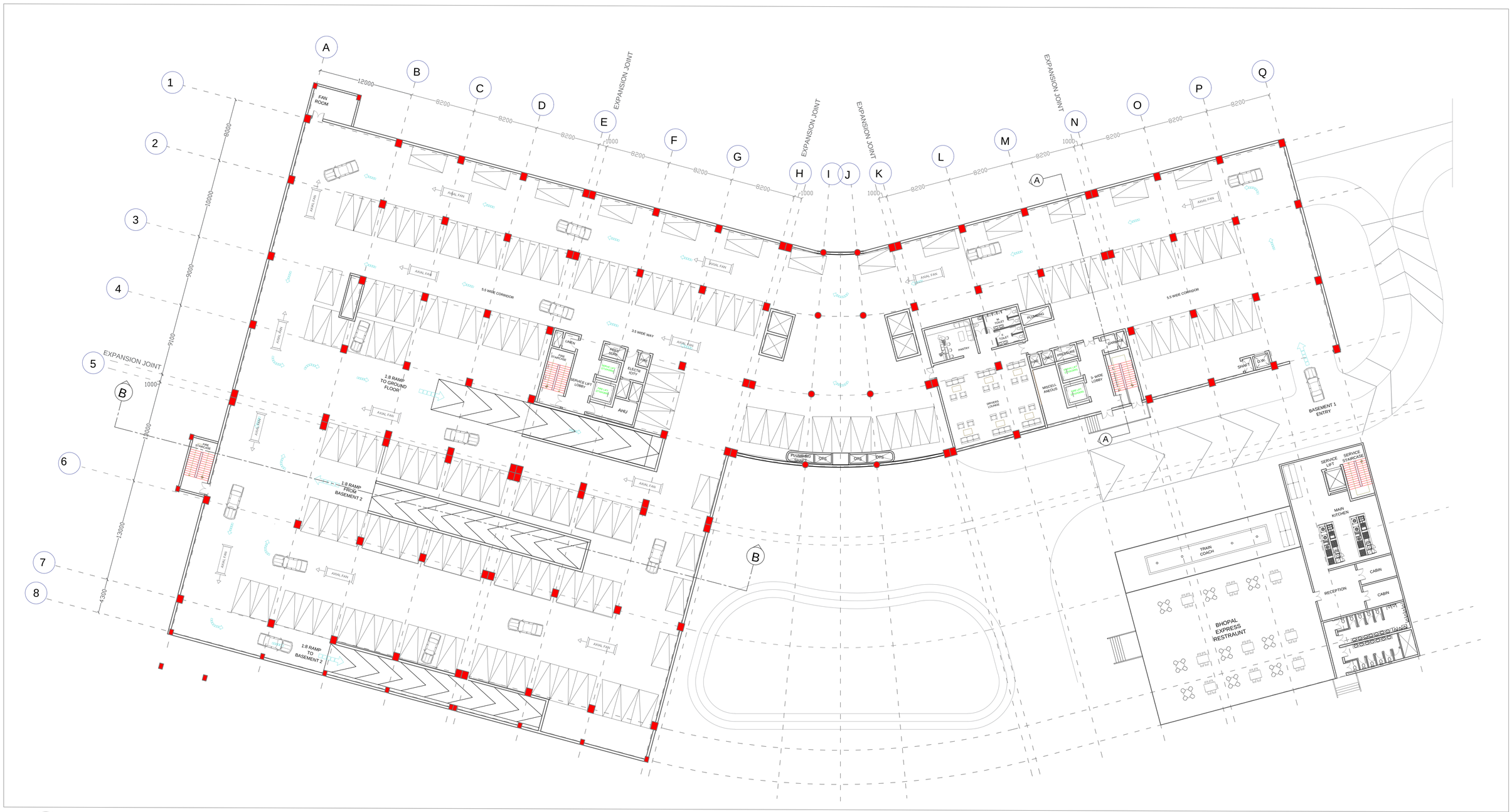

B2 BASEMENT 1

LVL. +558.0m

KEY PLAN:-

-4M 0 4M 8M 16M

SCHEDULE

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SCALE	1:250

PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : BASEMENT - 1

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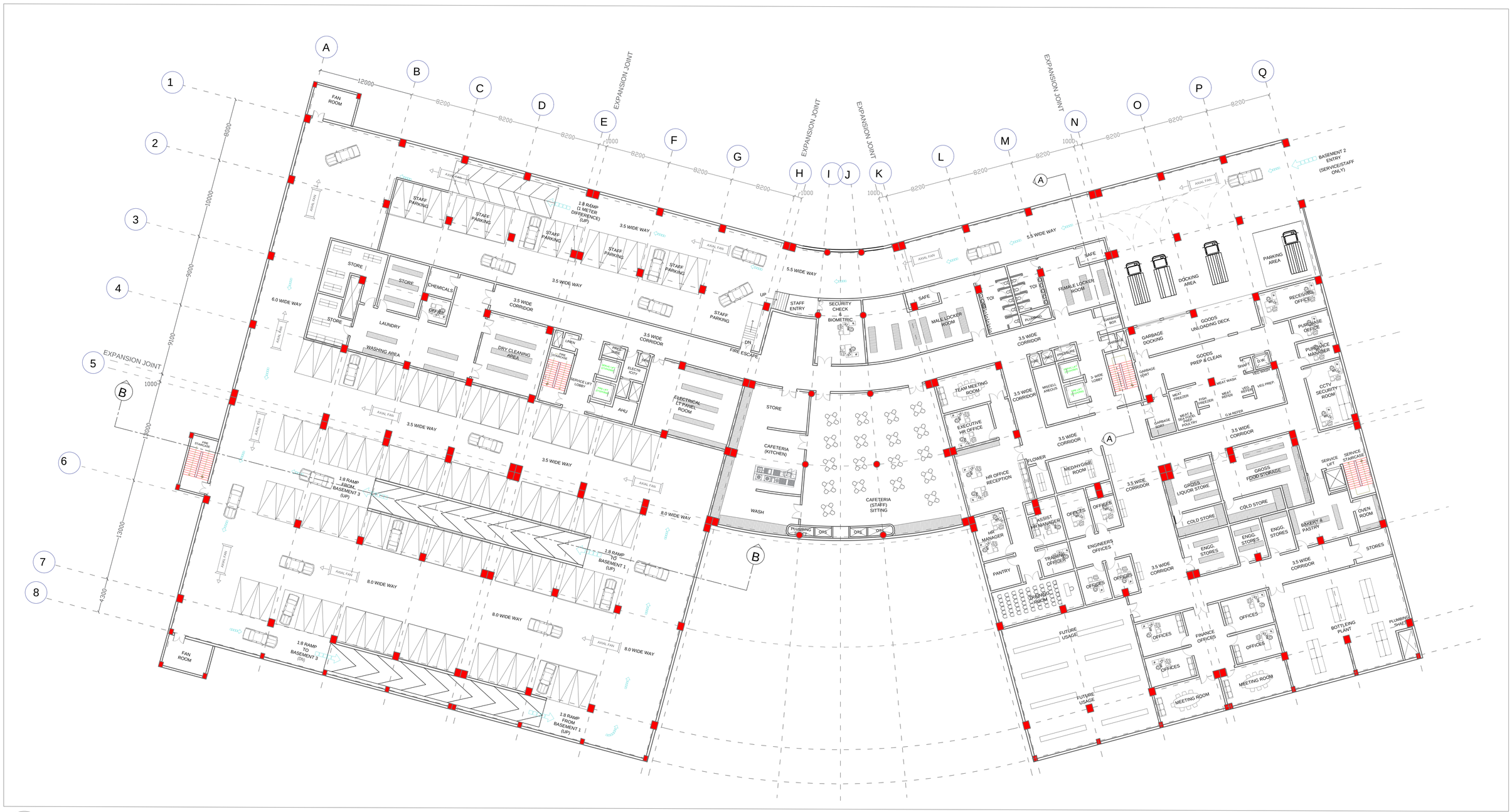

B2

BASEMENT 2

LVL. +558.0m

KEY PLAN:-

-4M 0 4M 8M 16M

SCHEDULE

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PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : BASEMENT - 2

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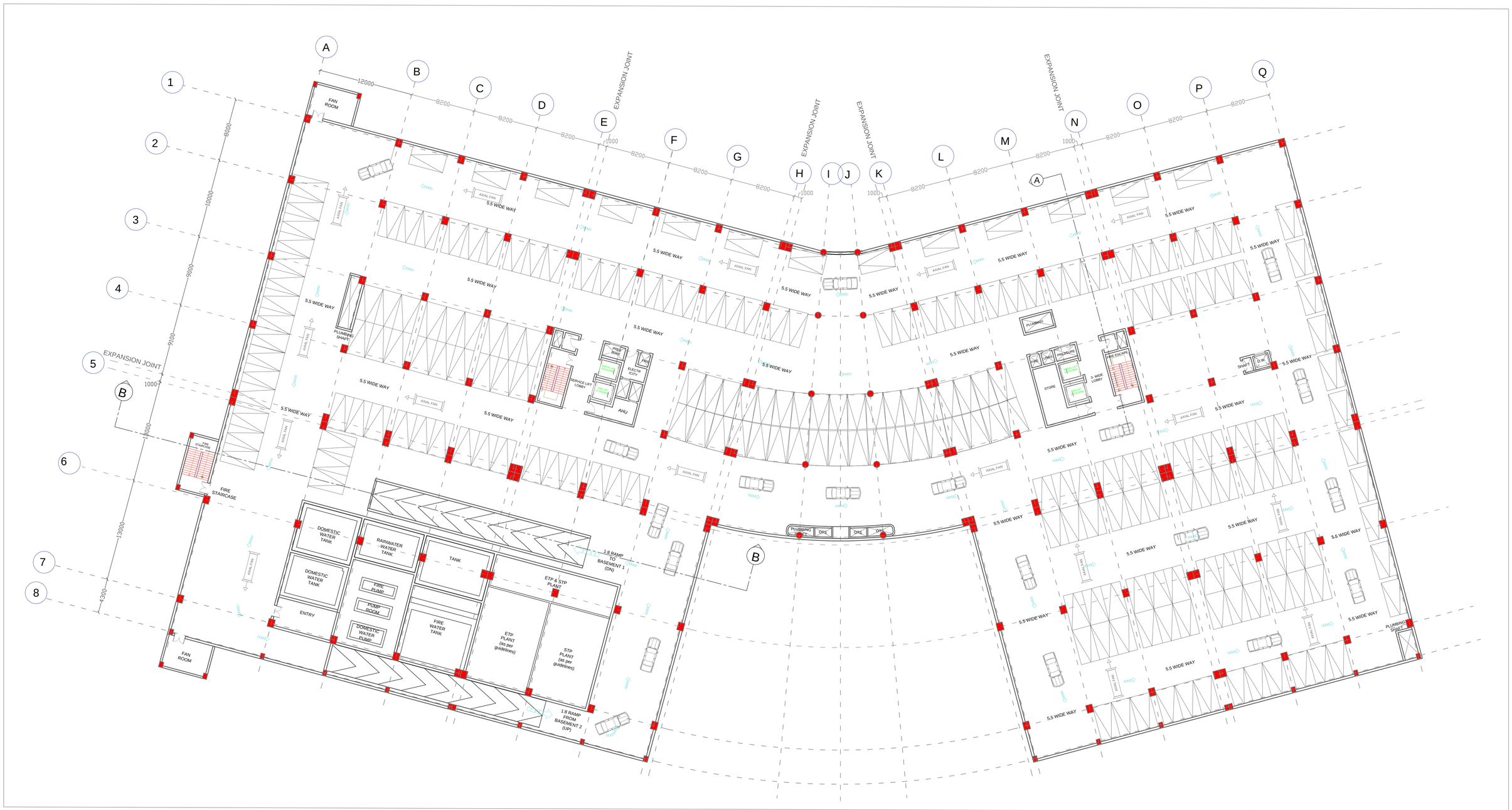

B3

BASEMENT 3

LVL. +554.5m

KEY PLAN:-

-4M 0 4M 8M 16M

SCHEDULE

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SCALE	**1:250**

PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : BASEMENT - 3

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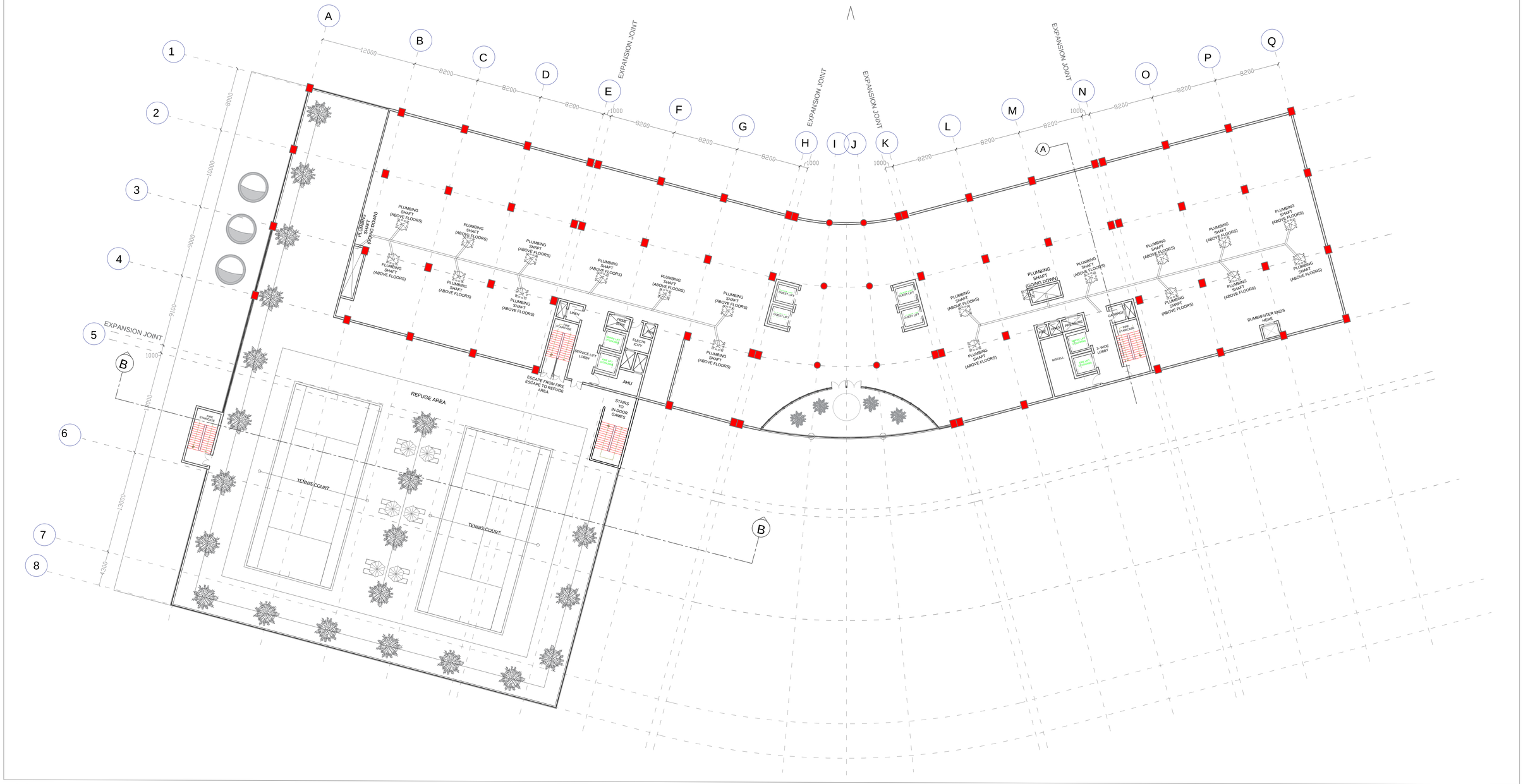

S1

SERVICE FLOOR

LVL. +572.0m

KEY PLAN:-

-4M 0 4M 8M 16M

SCHEDULE

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PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : SERVICE FLOORS

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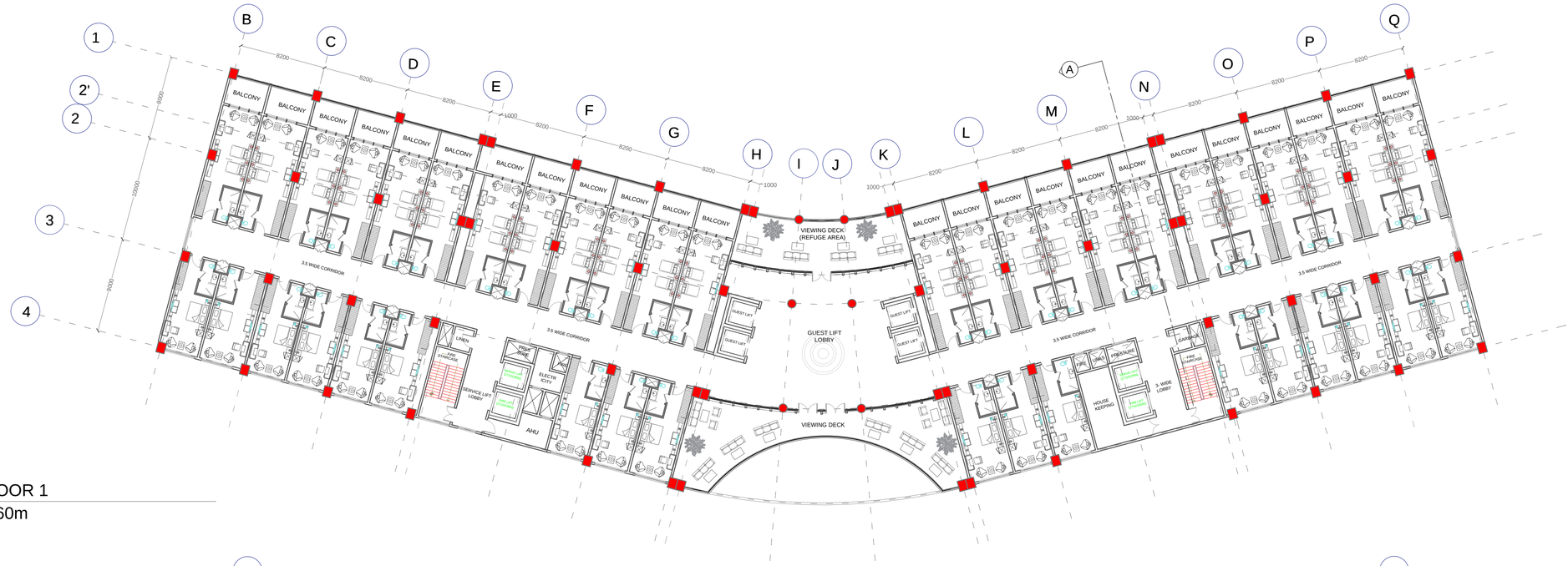
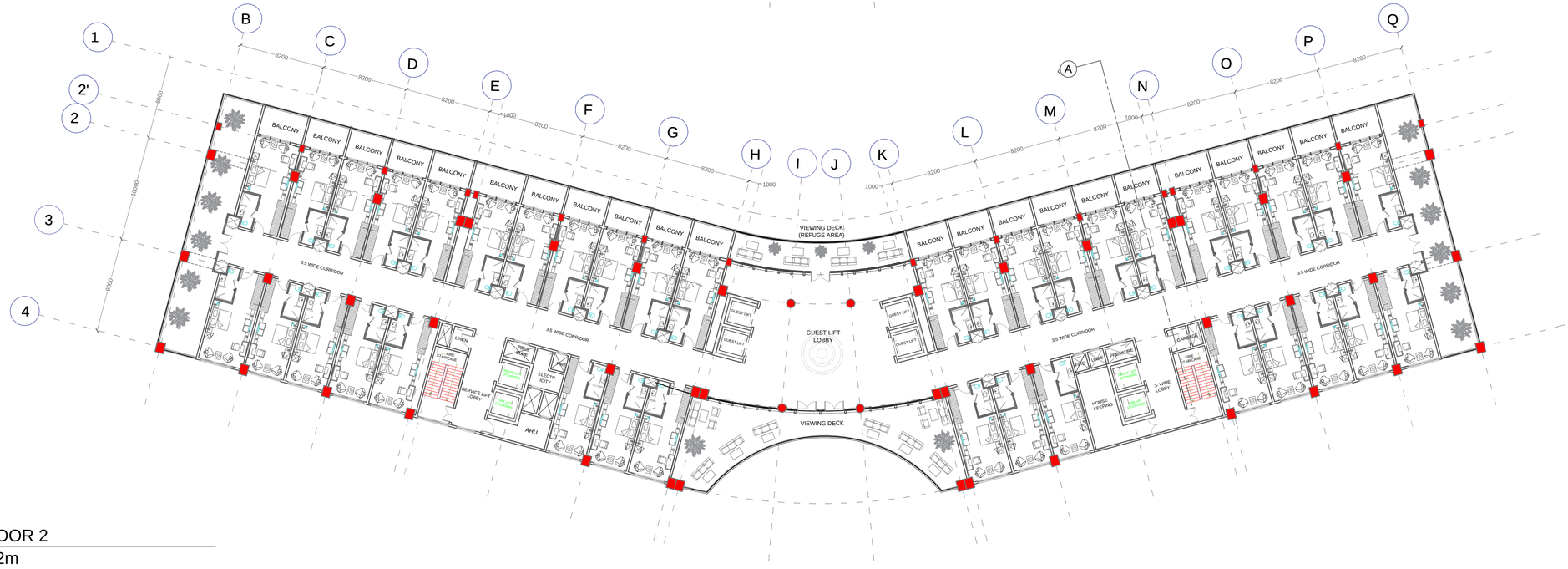


G1 GUEST FLOOR 1
LVL. +575.60m

ROOM TYPOLOGY	NO.
TWIN ROOM	24
EXECUTIVE ROOM 2	18
TOTAL	42



G2 GUEST FLOOR 2
LVL. +579.2m

ROOM TYPOLOGY	NO.
EXECUTIVE ROOM 1	22
EXECUTIVE ROOM 2	16
TOTAL	38

KEY PLAN:-

-4M 0 4M 8M 16M

SCHEDULE

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PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : GUEST FLOORS 1 & 2

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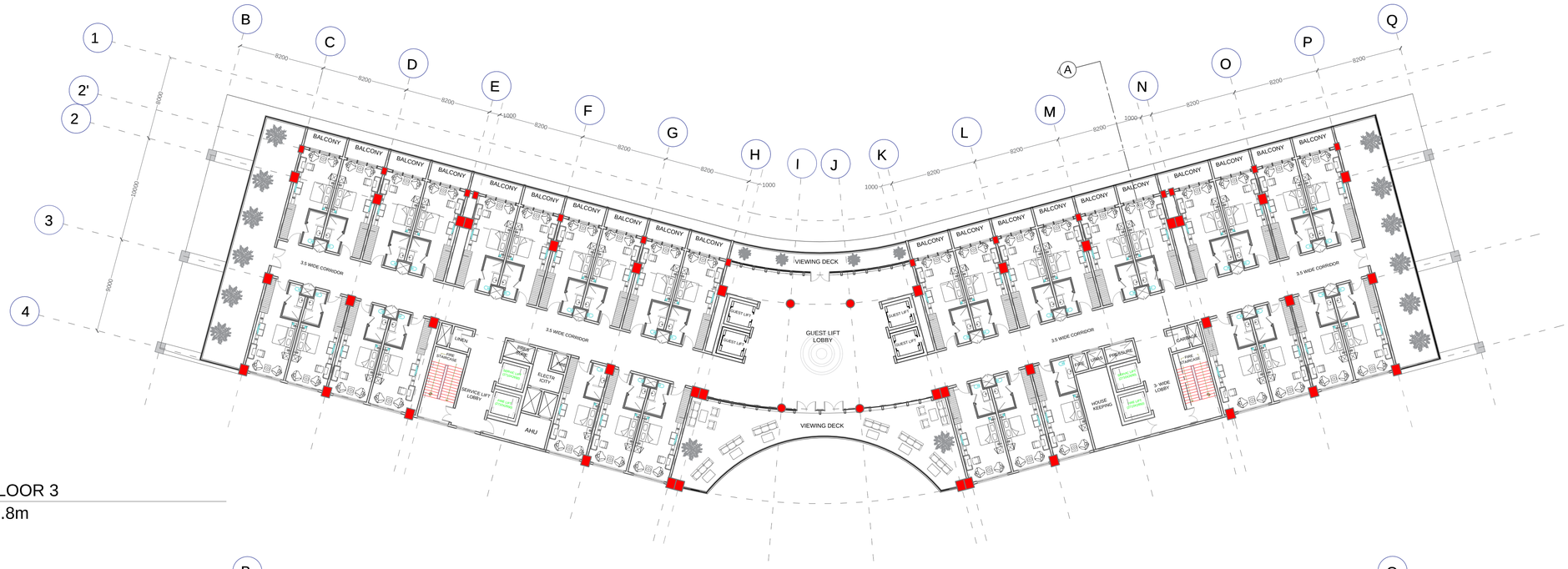
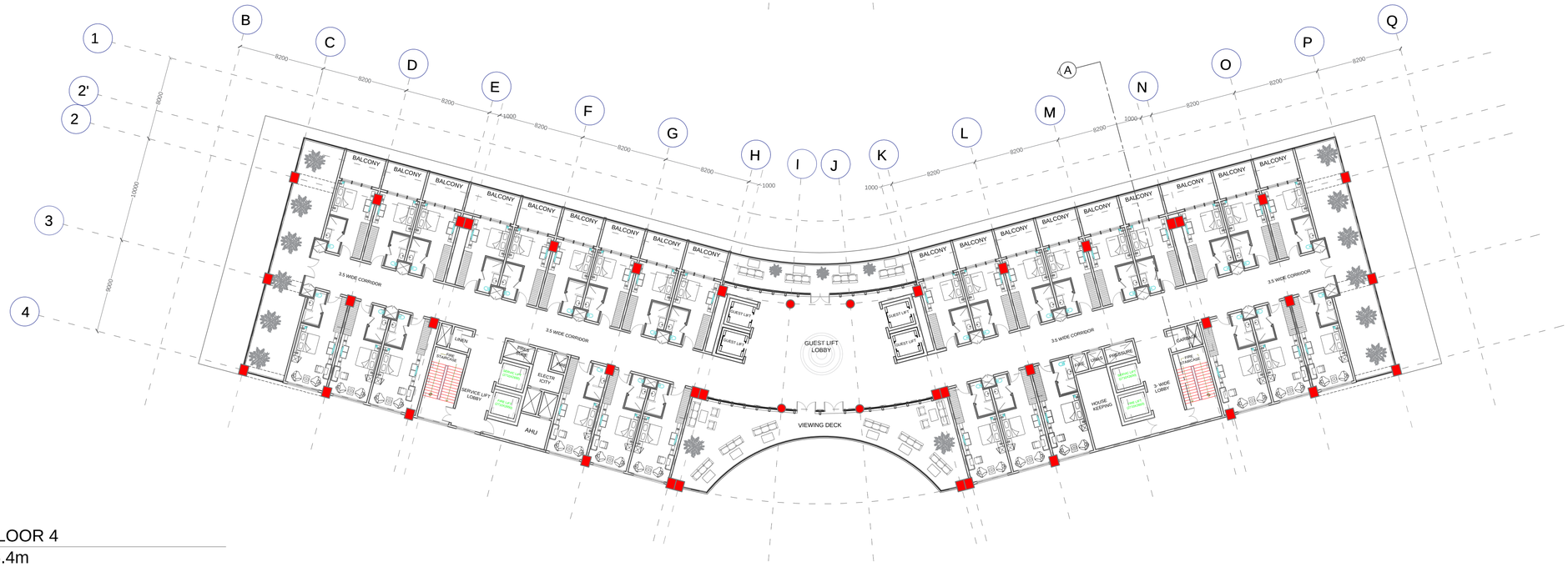


G3 GUEST FLOOR 3
LVL. +582.8m

ROOM TYPOLOGY	NO.
EXECUTIVE ROOM 1	20
EXECUTIVE ROOM 2	14
TOTAL	34



G4 GUEST FLOOR 4
LVL. +586.4m

ROOM TYPOLOGY	NO.
KING ROOM	18
EXECUTIVE ROOM 2	12
TOTAL	30

KEY PLAN:-

-4M 0 4M 8M 16M

SCHEDULE

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DRG.NO.	AR- 5
SCALE	1:250

PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE:- GUEST FLOORS 3 & 4

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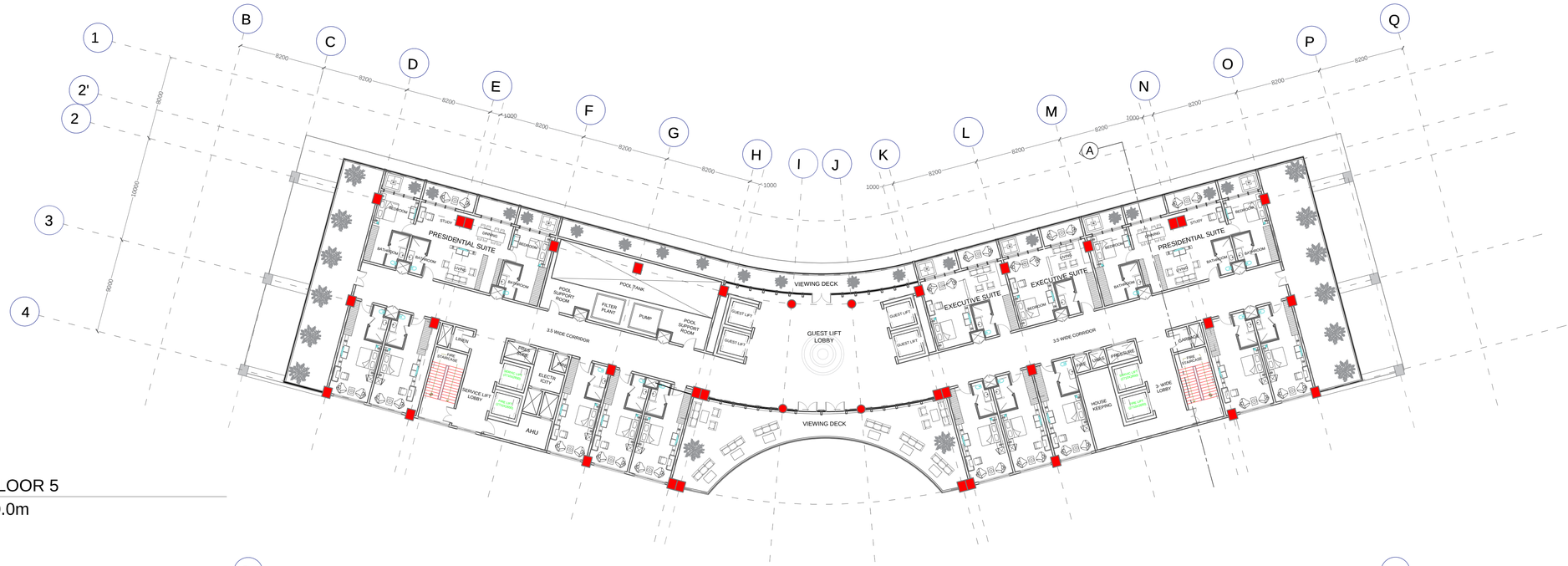
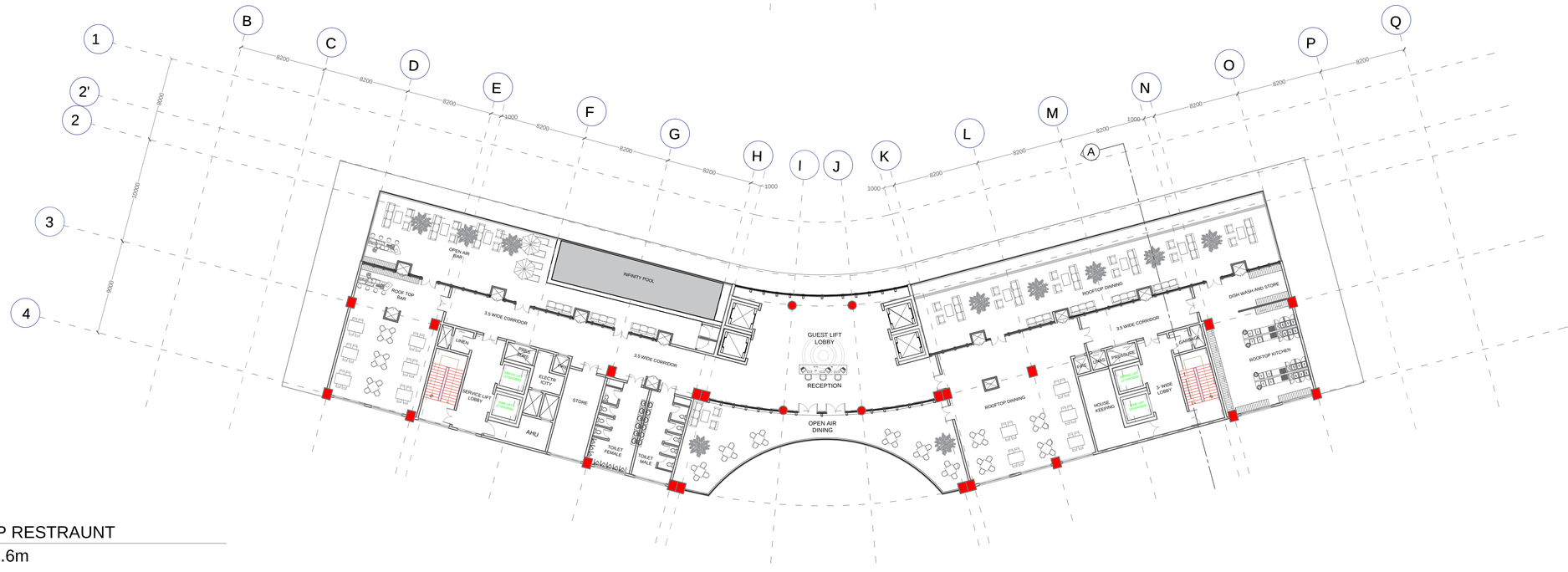


G5 GUEST FLOOR 5
LVL. +590.0m

ROOM TYPOLOGY	NO.
EXECUTIVE ROOM 2	10
JR. SUITE	2
SR. SUITE	2
TOTAL	14



RT ROOFTOP RESTRAUNT
LVL. +593.6m

KEY PLAN:-

-4M 0 4M 8M 16M

SCHEDULE

REVISIONS :-

Rev.	Date	Description	Appr'd

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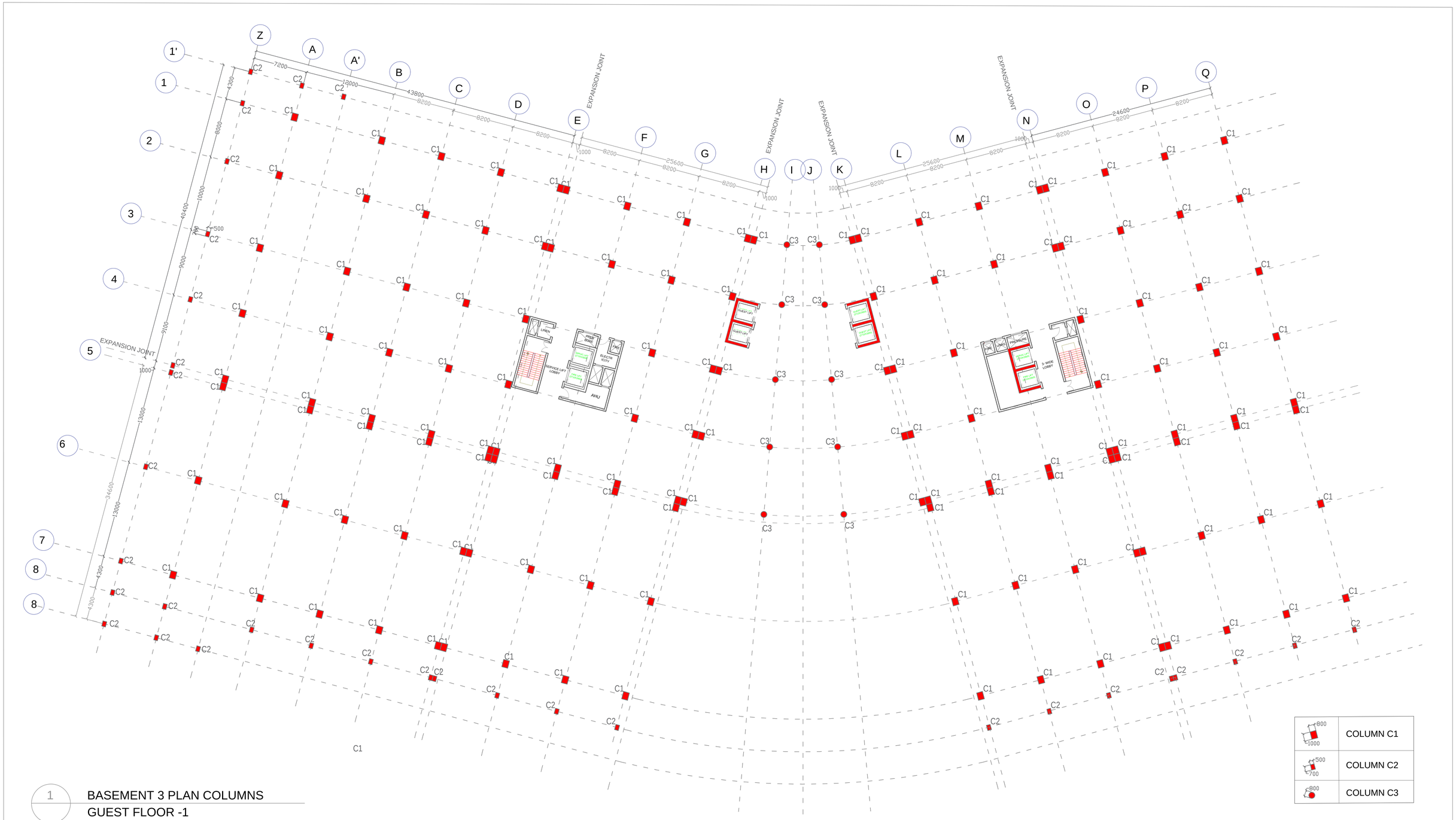
GRID : 8200 MM X 8200 MM	
DATE	30/11/2025
DRAWN BY	ASHU YADAV
GUIDED BY	DR. NAKUL DHAGAT
PROJ. CODE.	
DRG.NO.	AR- 5
SCALE	1:250

PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : GUEST FLOORS 5 AND ROOFTOP PLAN

MAULANA AZAD
NATIONAL INSTITUTE
OF TEHCNOLOGY,
BHOPAL (MP)
INDIA - 462003



1 BASEMENT 3 PLAN COLUMNS
GUEST FLOOR -1

KEY PLAN:-

-4M 0 4M 8M 16M

SCHEDULE

REVISIONS :-

Rev.	Date	Description	Appr'd

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DATE	30/11/2025
DRAWN BY	**ASHU YADAV**
GUIDED BY	**DR. NAKUL DHAGAT**
PROJ. CODE.	
DRG.NO.	**AR-** 7
SCALE	**1:250**

PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : COLUMN LAYOUT

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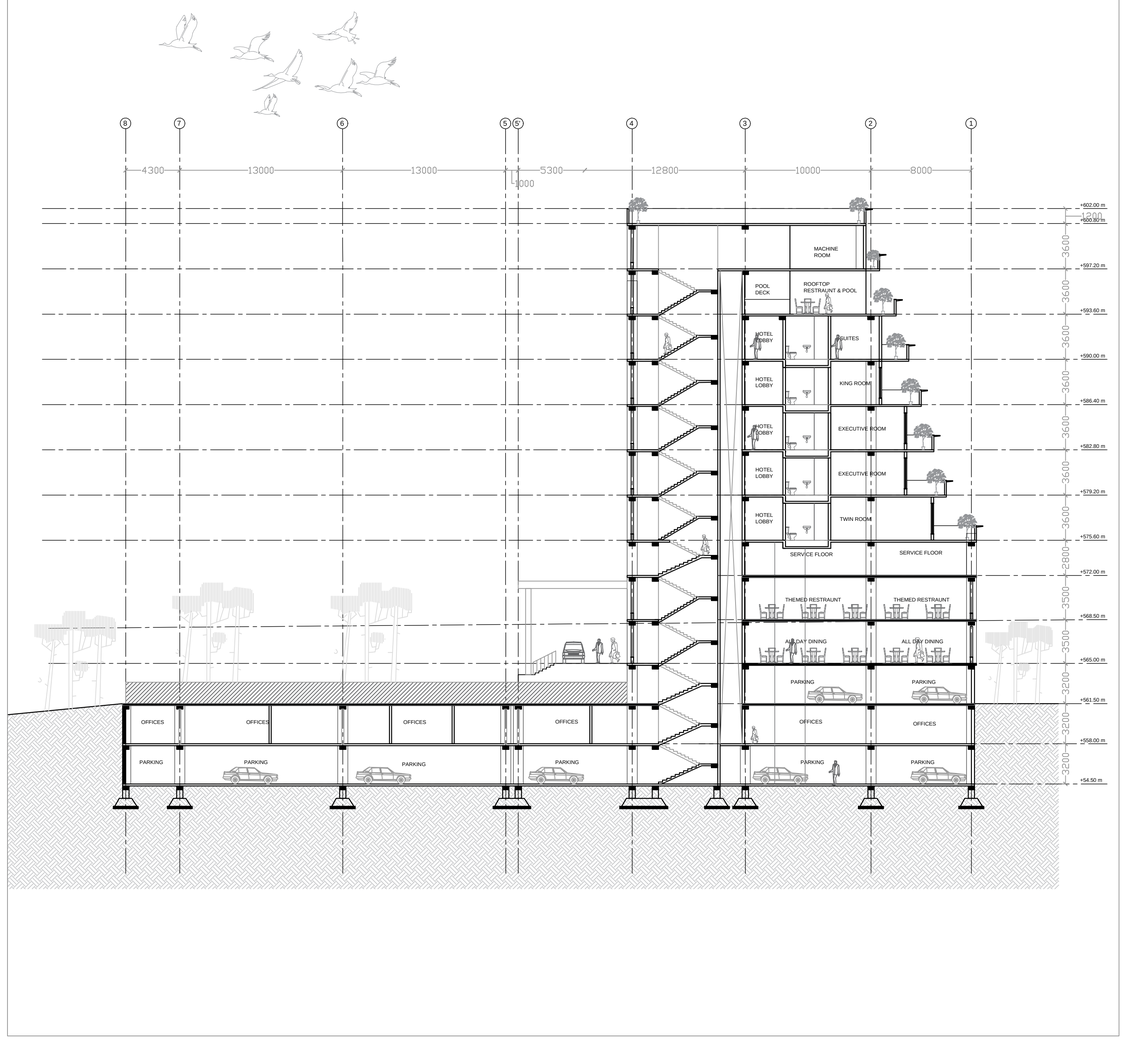
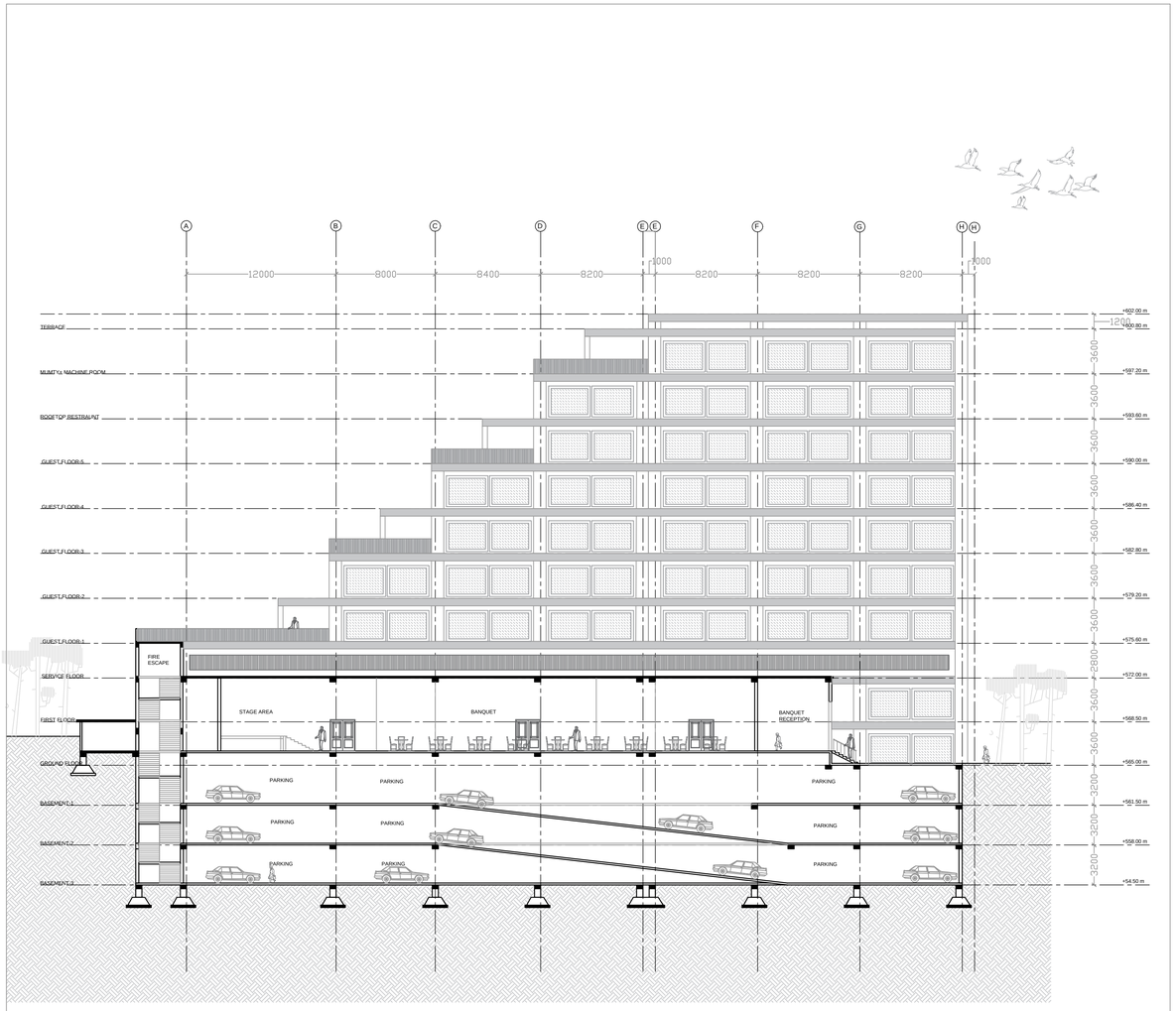
NATIONAL INSTITUTE
OF TEHCNOLOGY,
BHOPAL (MP)
INDIA - 462003



1 SECTION AA'



2 SECTION BB'

KEY PLAN:-

-4M 0 4M 8M 16M

SCHEDULE

REVISIONS :-			
Rev.	Date	Description	Appr'd

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DATE	30/11/2025
DRAWN BY	**ASHU YADAV**
GUIDED BY	**DR. NAKUL DHAGAT**
PROJ. CODE.	
DRG.NO.	**AR-** 7
SCALE	

PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : SECTIONS

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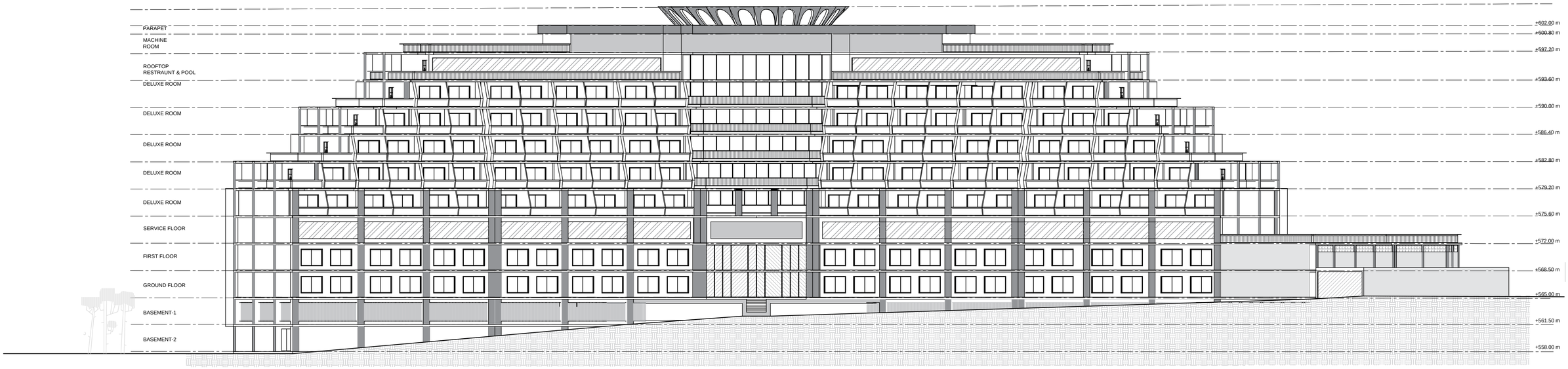
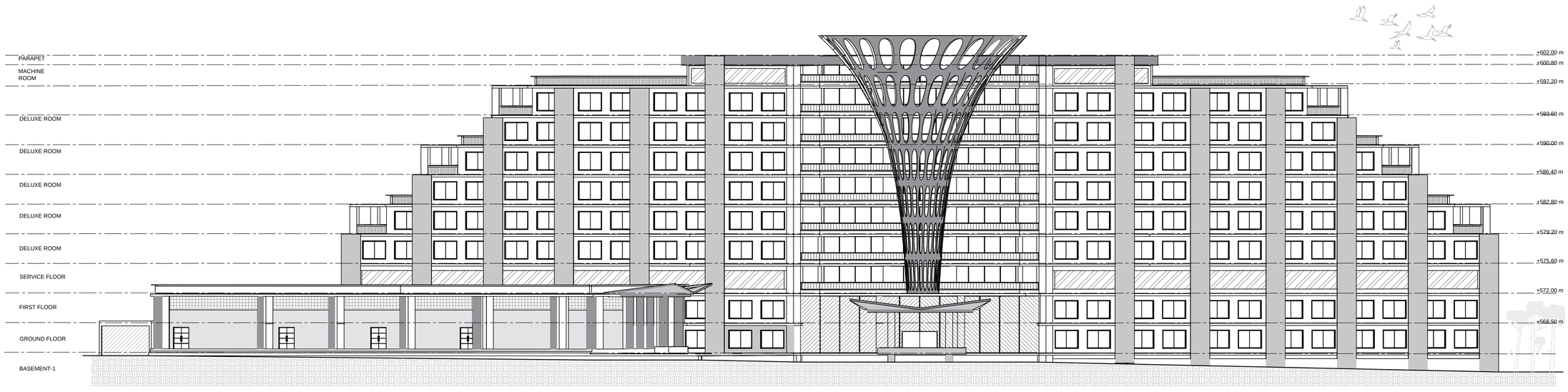
BHOPAL (MP)
INDIA - 462003



A

ELEVATION -A

LAKE FACING ELEVATION



B

ELEVATION - B

FRONT ELEVATION (CITY FACING)

KEY PLAN:-

SCALE-1:1000

-4M 0 4M 8M 16M

SCHEDULE

REVISIONS :-

Rev.	Date	Description	Appr'd

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GRID : 8200 MM X 8200 MM		**PROJECT : 5 STAR HOTEL,BHOPAL**
DATE	30/11/2025	SHEET TITLE : ELEVATIONS
DRAWN BY	**ASHU YADAV**	
GUIDED BY	**DR. NAKUL DHAGAT**	
PROJ. CODE.		
DRG.NO.	**AR-** 7	
SCALE		

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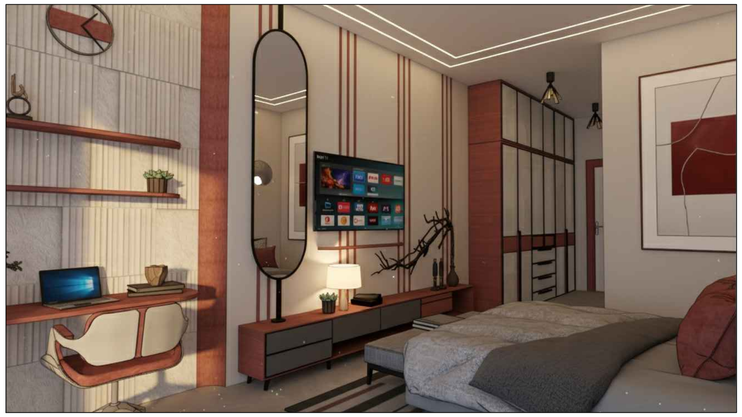
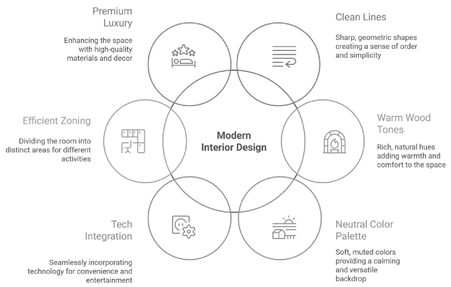
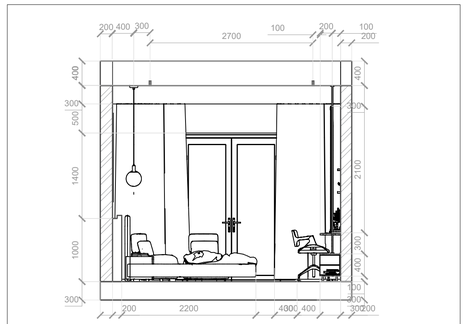
ELECTIVE 1- INTERIOR DESIGN (ROOM)











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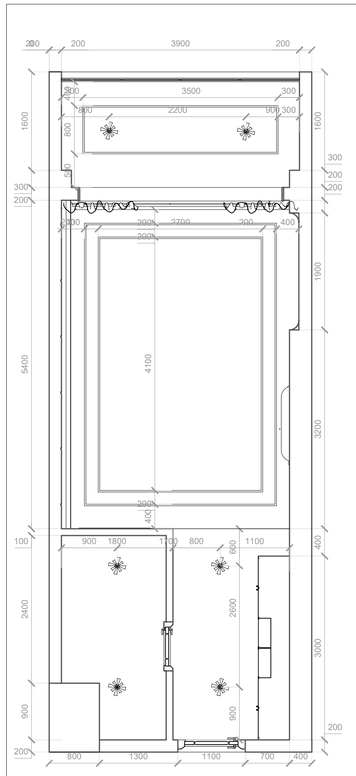
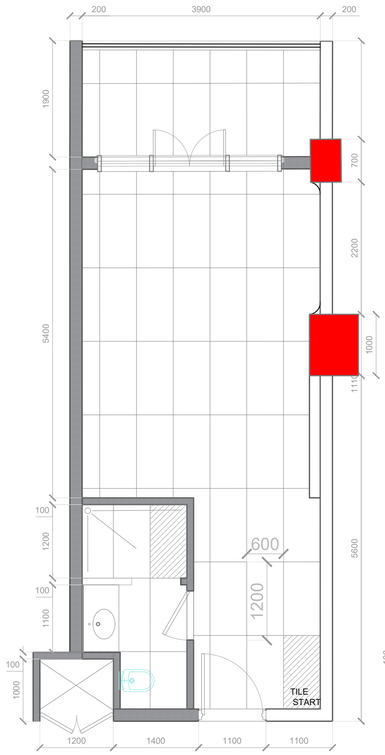
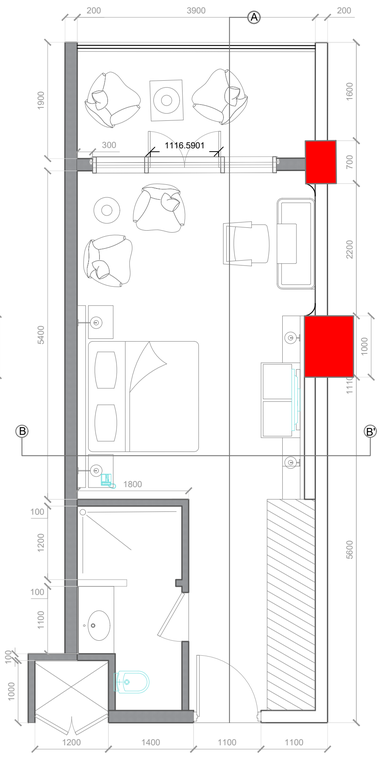


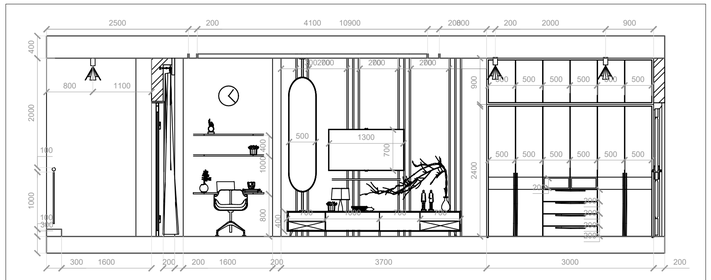
CEILING PLAN



FLOOR TILE LAYOUT



ROOM PLAN



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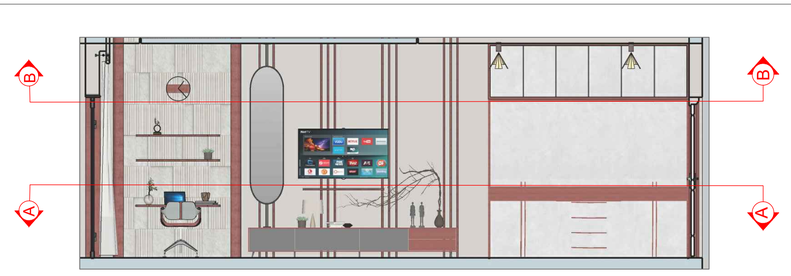
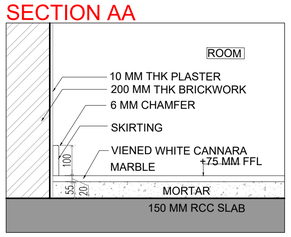


ELEVATION AA'

SECTION AA



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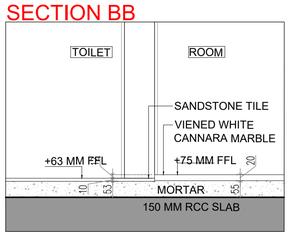

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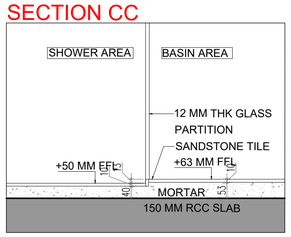

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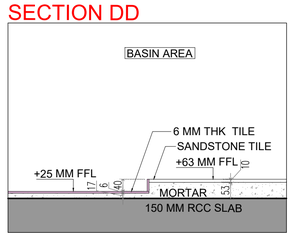
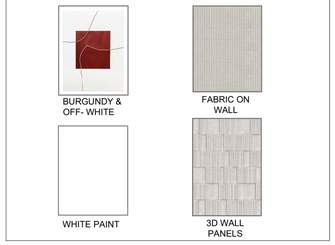


COLORS/ MATERIAL/ PALATEE



KEY PLAN:-



SCHEDULE

REVISIONS :-			
Rev.	Date	Description	Appr'd

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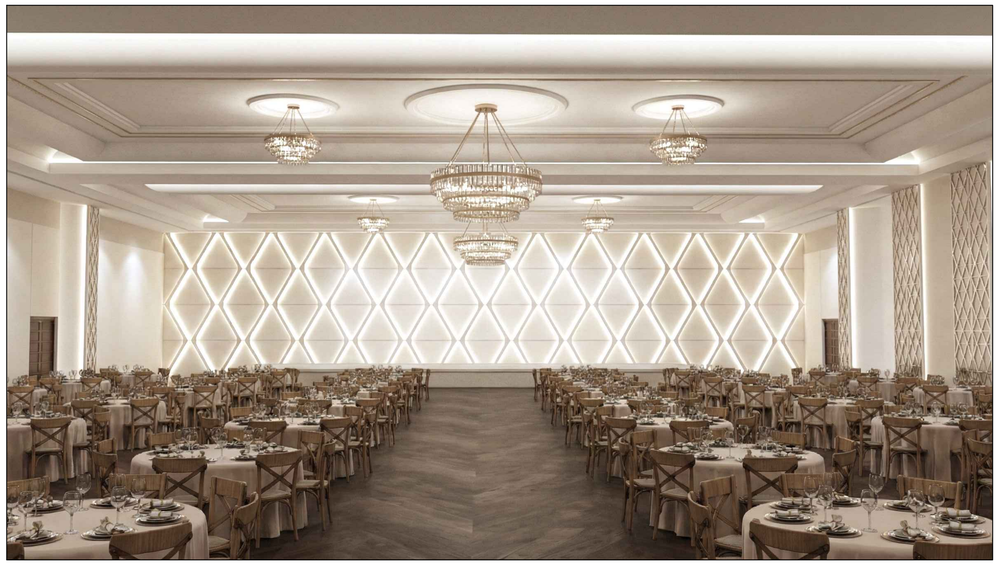
DATE	30/11/2025
DRAWN BY	**ASHU YADAV**
GUIDED BY	**DR. NAKUL DHAGAT**
PROJ. CODE.	
DRG.NO.	AR-
SCALE	1:250

THESIS PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : ELECTIVE 1 - INTERIOR DESIGN

MAULANA AZAD
NATIONAL INSTITUTE OF TEHCNOLOGY, BHOPAL (MP)
INDIA - 462003

ELECTIVE 1- INTERIOR DESIGN (BANQUET)



PARTION WALL-

Enables adaptable spatial configurations

Provides effective acoustic separation

Operates on a secure ceiling-mounted track system

Designed to complement the interior aesthetics



PARTION WALL DETAILS

SCALE - 1:50

Each panel load-bearing weight:225kgs/ 450kgs/ 675kgs

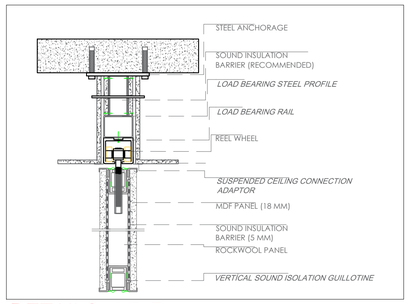
suitable height space: from 2m-16m

Thickness:65/80/100mm

System:Manual, Semi-Auto, Full-Auto

Hoist Weight kg/m2	Sound Insulation Coefficient (db)	Frame Material	Track Loading Weight (kg/m)	Retractable Range of top/bottom(mm)	Width(mm) Min/Max	Height Min/Max	Thickness Min/Max
30	32	Aluminum	225	22.5	750-1200	2000-3000	65
35	38	Aluminum	450	22.5	750-1200	3000-5000	80
45	45	Aluminum	675	22.5	750-1200	5000-10000	100

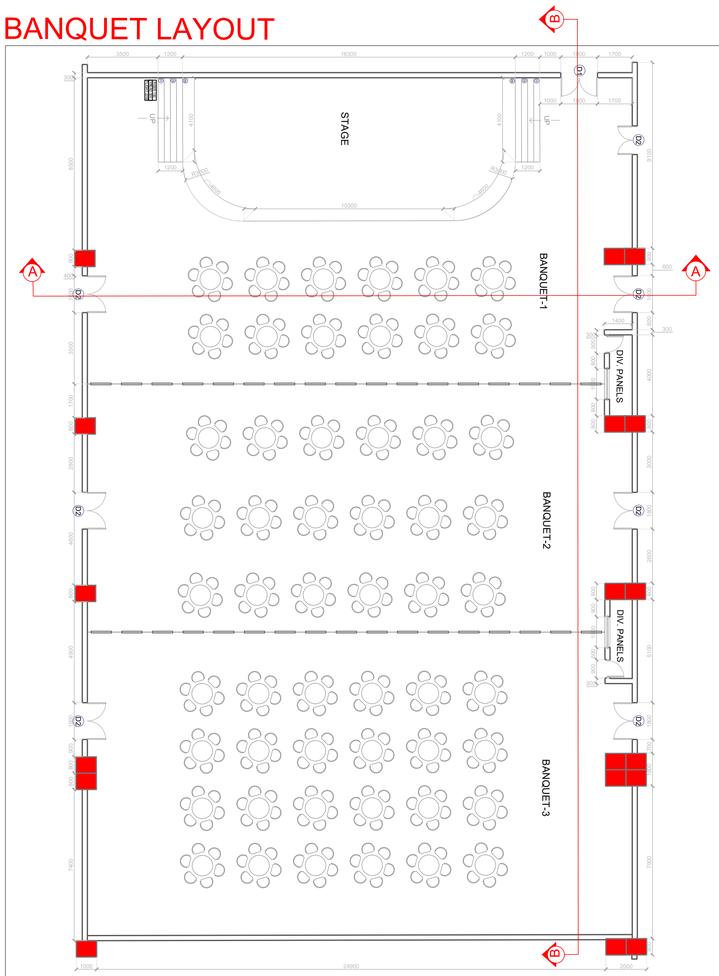
MARKET AVAILBILITY



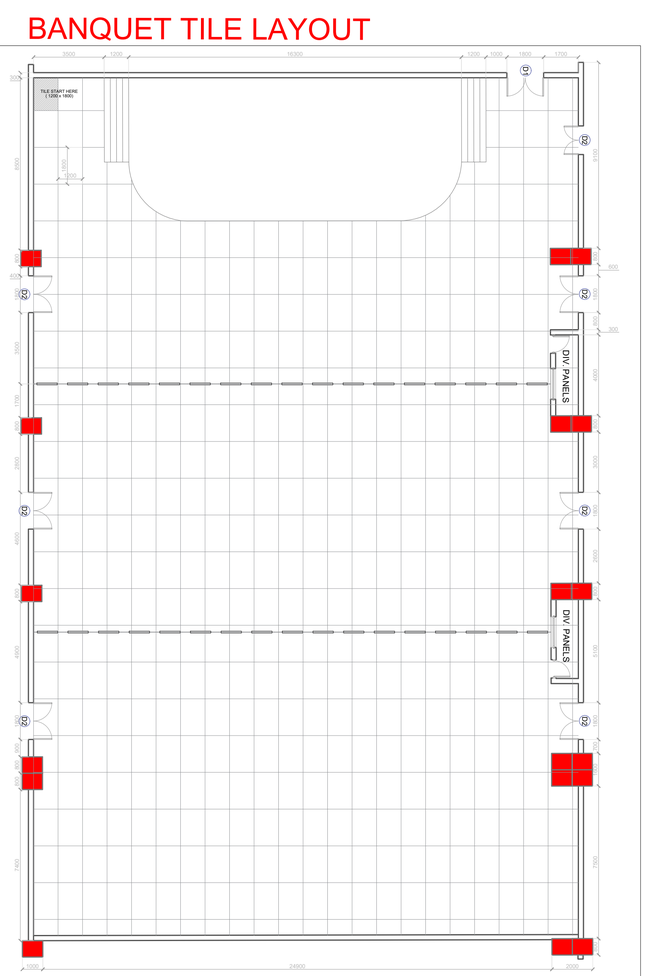
DETAILS AT D

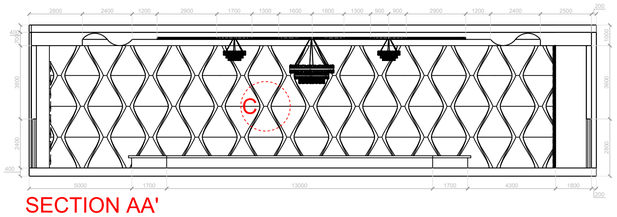
SCALE - 1:15

BANQUET LAYOUT



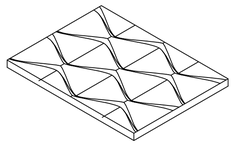
BANQUET TILE LAYOUT

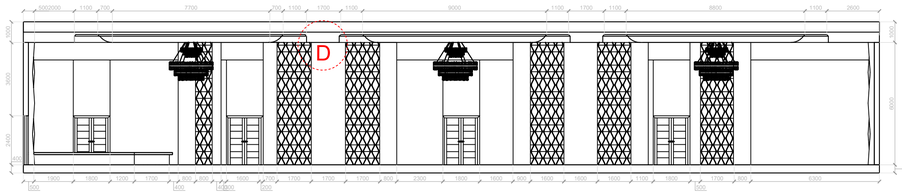




SECTION AA'

ACOUSTIC WALL PANELS





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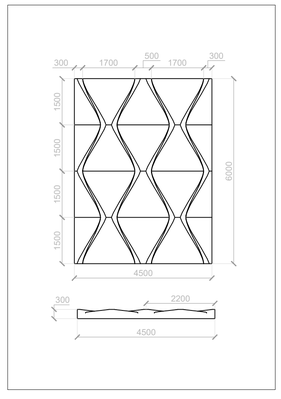
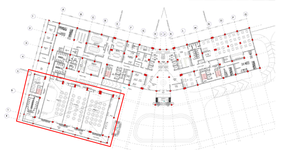


DETAILS AT C

SCALE - 1:150

KEY PLAN:-



SCHEDULE

REVISIONS :-			
Rev.	Date	Description	Appr'd

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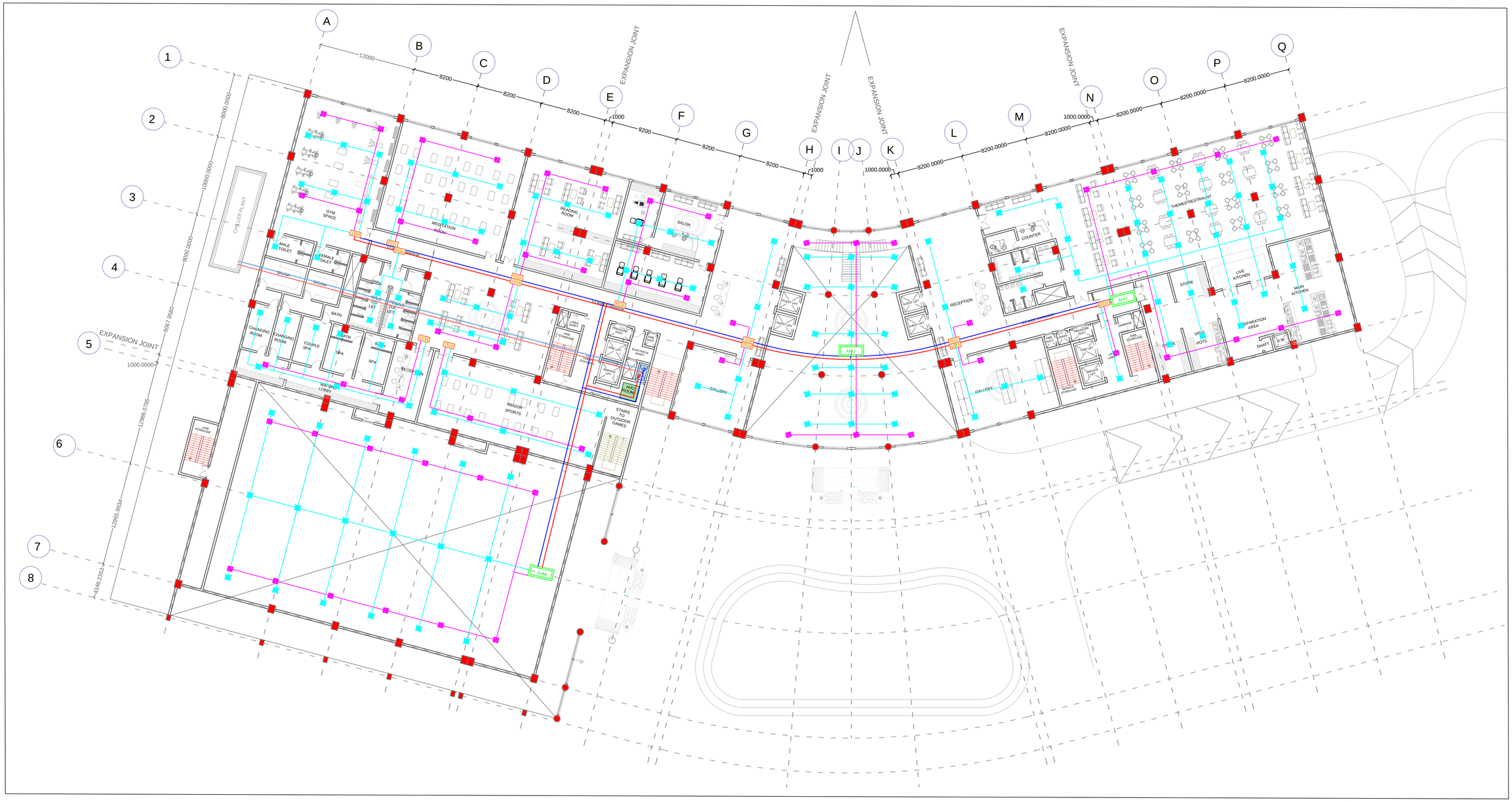
DATE	30/11/2025
DRAWN BY	ASHU YADAV
GUIDED BY	DR. NAKUL DHAGAT
PROJ. CODE.	
DRG.NO.	AR-
SCALE	1:250

THESIS PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : ELECTIVE 1 - INTERIOR DESIGN (BANQUET)

MAULANA AZAD
NATIONAL INSTITUTE OF TEHCNOLOGY,
BHOPAL (MP)
INDIA - 462003

ELECTIVE-2 (HVAC)



A
-

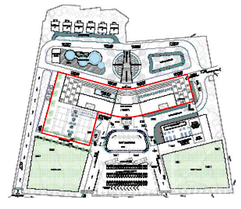
HVAC LAYOUT

FIRST FLOOR -1 (LEVEL 2)

HVAC SYSTEMS-

- AIR RETURN DUCT
- AIR SUPPLY DUCT
- WATER RETURN
- CHILLED WATER SUPPLY
- RETURN AIR DUCT
- AIR SUPPLY DUCT
- AHU — AHU UNIT CEILING
- AHU ROOM — AHU ROOM
- FCU — FAN COIL UNIT

KEY PLAN:-



SCHEDULE

REVISIONS :-

Rev.	Date	Description	Appr'd

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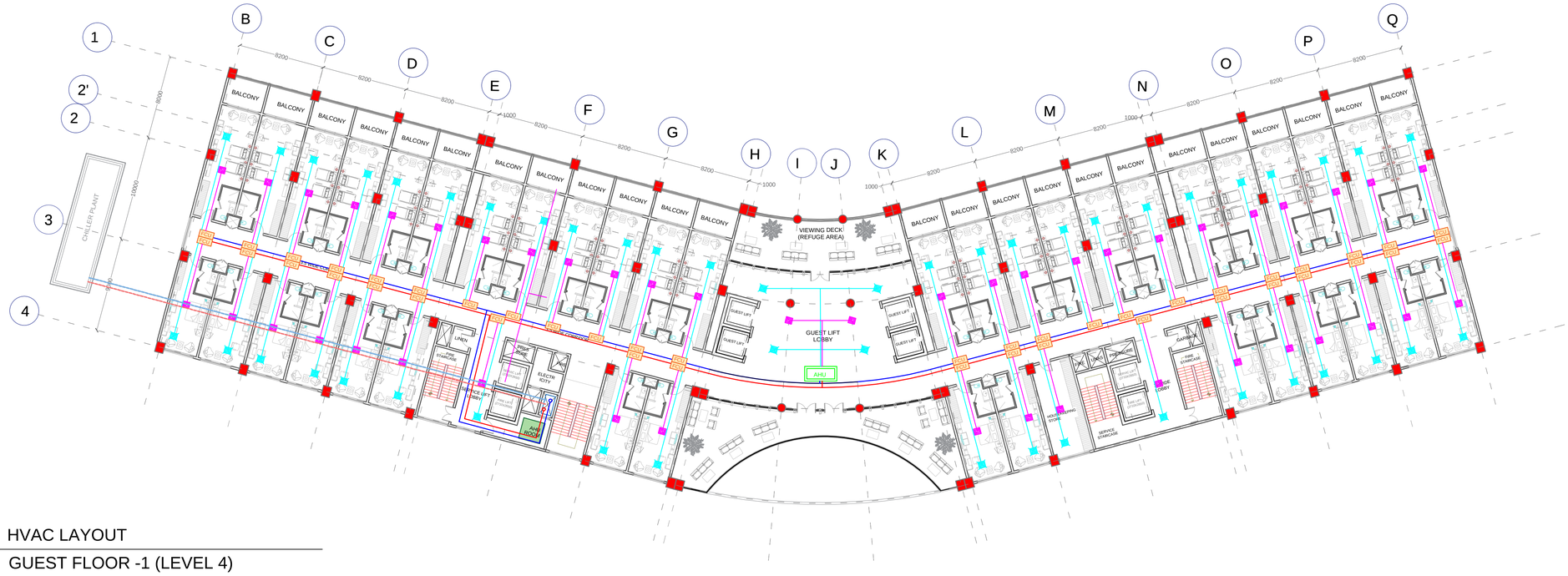
GUIDED BY	**DR. NAKUL DHAGAT**
PROJ. CODE.	
DRG.NO.	AR-
SCALE	1: 250

THESIS PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : ELECTIVE 2 - HVAC DESIGN (½)

MAULANA AZAD NATIONAL INSTITUTE OF TEHCNOLOGY, BHOPAL (MP)
INDIA - 462003

ELECTIVE-2 (HVAC)



B - HVAC LAYOUT

GUEST FLOOR -1 (LEVEL 4)

ROOM TYPOLOGY	NO.
TWIN ROOM	23
EXECUTIVE ROOM	16
LIFT LOBBY	2
MAIN LOBBY	1
STAFF	**1**

HVAC SYSTEMS-

- AIR RETURN DUCT
- AIR SUPPLY DUCT
- WATER RETURN
- CHILLED WATER SUPPLY
- RETURN AIR DUCT
- AIR SUPPLY DUCT
- AHU — AHU UNIT CEILING
- AHU ROOM — AHU ROOM
- FCU — FAN COIL UNIT

Floor No.	Space	Area (sqm)	BTU required	Area x BTU	PEOPLE	BTU for People (600 PER PERSON)	Extra BTU for ceiling height	Area BTU + People + Ceiling BTU	Tons (12000 BTU = 1 TON)
GROUND	Reception	905	375	339375	100	60000	16000	415375	34.61458333
GROUND	Banquet	1800	375	675000	1200	720000	16000	1411000	117.5833333
GROUND	Lobby	657	375	246375	200	120000	4000	370375	30.86458333
GROUND	Rest of Space	1575	375	590625	100	60000	4000	654625	54.55208333
GROUND	Lobby	733	375	274875	50	30000	4000	308875	25.73958333
GROUND	Restaurant 1	14000	375	5250000	150	90000	4000	5344000	445.3333333
1st Floor	Lobby	252	375	94500	50	30000	4000	128500	10.70833333
1st Floor	Reception	115	375	43125	50	30000	4000	77125	6.427083333
1st Floor	Lobby	363	375	136125	50	30000	4000	170125	14.17708333
1st Floor	Restaurant	14000	375	5250000	175	105000	4000	5359000	446.5833333
1st Floor	Fitness zone	4800	375	1800000	50	30000	4000	1834000	152.8333333
1st Floor	Kids Zone & Gym	3000	375	1125000	50	30000	4000	1159000	96.58333333
1st Floor	Salon & Massage	1500	375	562500	25	15000	4000	581500	48.45833333
1st Floor	Steam Rooms	3000	375	1125000	25	15000	4000	1144000	95.33333333
3th Guest Floor	Rooms	2700	592	1598400	100	60000	4000	1662400	138.5333333
4th Guest Floor	Rooms	2400	592	1420800	100	60000	4000	1484800	123.7333333
5th Guest Floor	Rooms	2100	592	1243200	75	45000	4000	1292200	107.6833333
6th Guest Floor	Rooms	1800	592	1065600	75	45000	4000	1114600	92.88333333
7th Guest Floor	Rooms	1500	592	888000	50	30000	4000	922000	76.83333333
Rooftop restraunt	Restaurant	800	375	300000	200	120000	4000	424000	35.33333333
Basement 1	Staff change	331	375	124125	200	120000	4000	248125	20.67708333
Basement 1	Parking	3377	375	1266375	50	30000	4000	1300375	108.3645833
Basement 2	Parking	3153	375	1182375	25	15000	4000	1201375	100.1145833
Basement 3	Parking	3525	375	1321875	25	15000	4000	1340875	111.7395833
								TOTAL	2495.6875

GENERAL NOTES :-

Centralized Chilled Water System: The hotel employs a central chilled water plant integrated with Air Handling Units (AHUs) and Fan Coil Units (FCUs) for efficient cooling distribution across all zones.

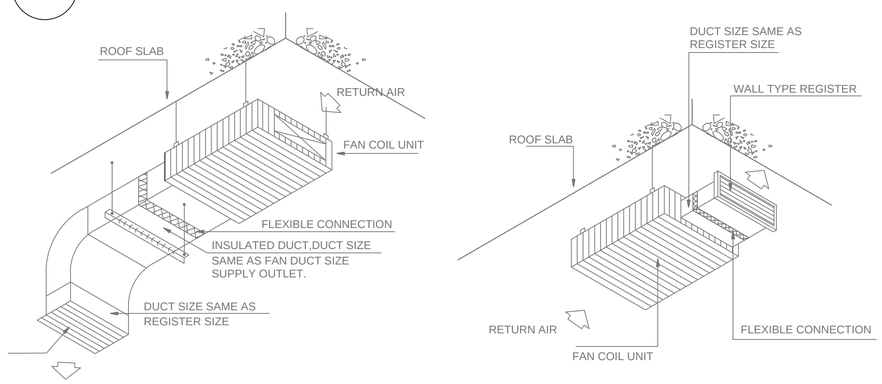
Dedicated Fan Coil Units (FCUs): Each guest room is equipped with an independent FCU, enabling personalized temperature control and enhancing user comfort without affecting adjacent spaces.

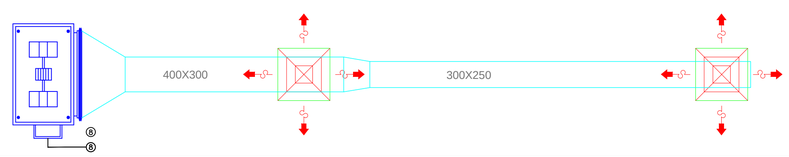
Zoned Temperature Management: The use of FCUs allows for precise zone-wise climate regulation, reducing energy wastage during partial occupancy and improving operational efficiency.

Integration with Building Management System (BMS): All FCUs and AHUs are linked to a central BMS for real-time monitoring, load optimization, and automated scheduling.

Sustainability & Efficiency: The system minimizes cooling losses, optimizes part-load performance, and supports sustainable operations by adapting cooling demand based on occupancy and usage patterns.

C - TYPICAL DUCTING TAKE-OFFS





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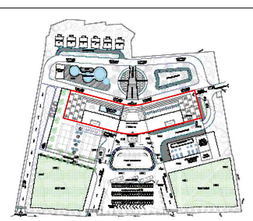

SCHEDULE

REVISIONS :-

Rev.	Date	Description	Appr'd

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DATE	30/11/2025
DRAWN BY	**ASHU YADAV**
GUIDED BY	**DR. NAKUL DHAGAT**
PROJ. CODE.	
DRG.NO.	AR-
SCALE	1: 250

THESIS PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : ELECTIVE 2 - HVAC DESIGN (½)

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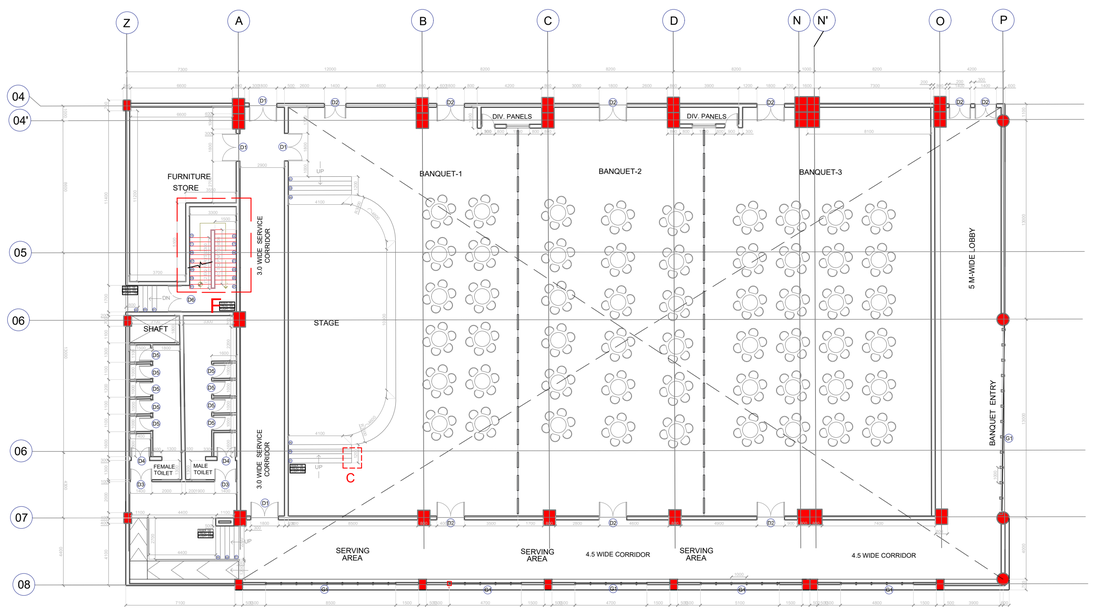
INDIA - 462003

WORKING DRAWINGS-



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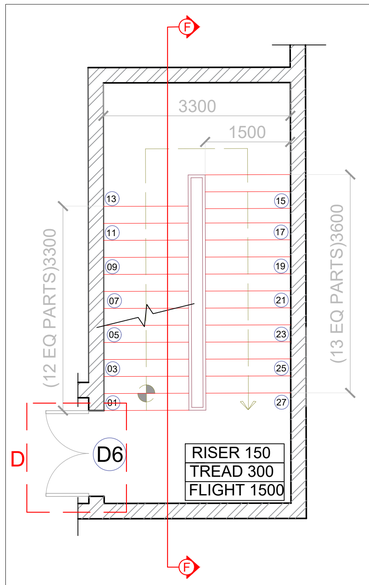

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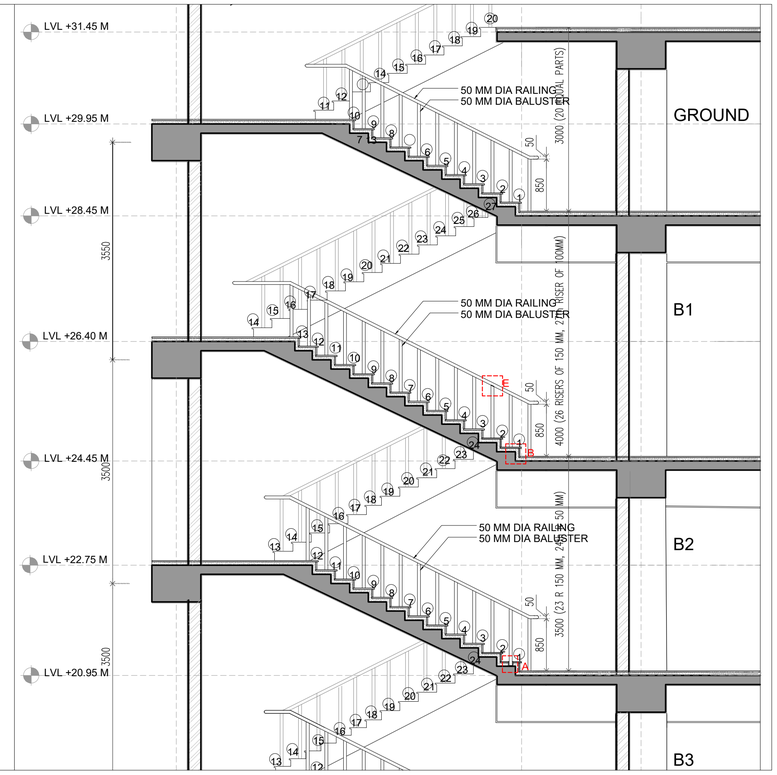
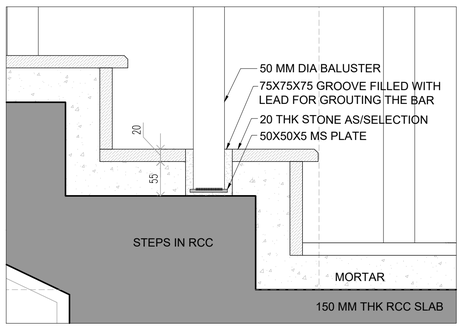
SCALE 1:50

F SECTION FF
SCALE 1:50





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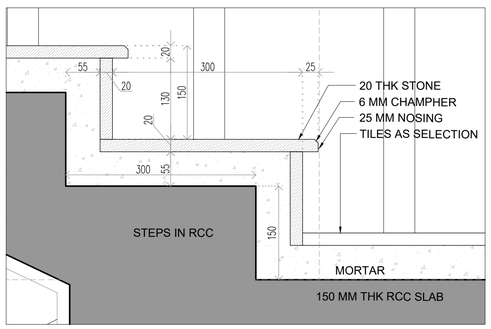

H DETAIL AT B
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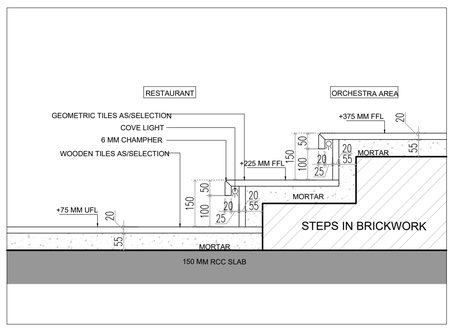

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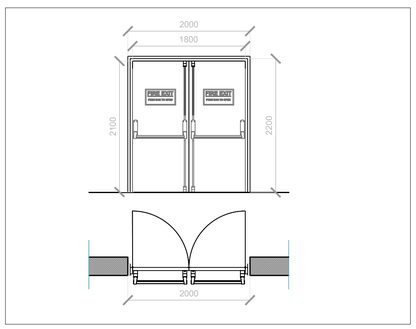

D DETAIL AT D
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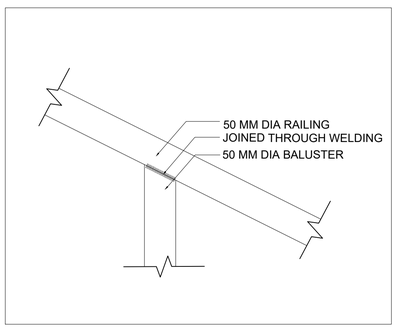

E DETAIL AT E
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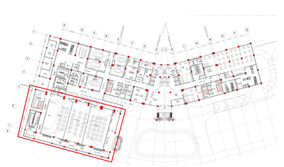
KEY PLAN:-



SCHEDULE

SL. N.	NAME	WIDTH	SILL	LINTEL	HT	NO.S	SPECIFICATION/REMARK
01	D01	1800	00	2100	2100	04	DOUBLE LEAF WOODEN FLUSH DOOR
02	D02	1400	00	2100	2100	09	DOUBLE LEAF WOODEN FLUSH DOOR
03	D03	1400	00	2100	2100	02	DOUBLE LEAF WOODEN FLUSH DOOR
04	D04	1200	00	2100	2100	02	DOUBLE LEAF WOODEN FLUSH DOOR
05	DO5	850	00	2100	2100	09	SINGLE LEAF WOODEN FLUSH DOOR
06	G01	1000	00	5000	5000	06	GLAZING FIXED ON ALUMINIUM PANELS

REVISIONS :-

Rev.	Date	Description	Appr'd

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GRID : 8200 MM X 8200 MM	
DATE	30/11/2025
DRAWN BY	ASHU YADAV
GUIDED BY	DR. NAKUL DHAGAT
PROJ. CODE.	
DRG.NO.	
SCALE	-----

THESIS PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : WORKING DRAWING SET - BANQUET

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BHOPAL (MP)
INDIA - 462003











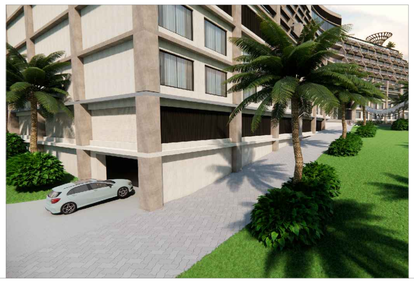





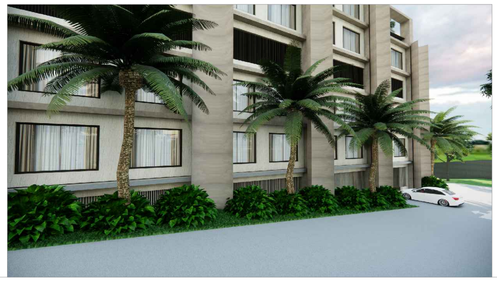



KEY PLAN:-

SCHEDULE

REVISIONS :-			
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GUIDED BY	**DR. NAKUL DHAGAT**
PROJ. CODE.	
DRG.NO.	AR-
SCALE	1: 250

THESIS PROJECT : 5 STAR HOTEL,BHOPAL

SHEET TITLE : 3D RENDERS

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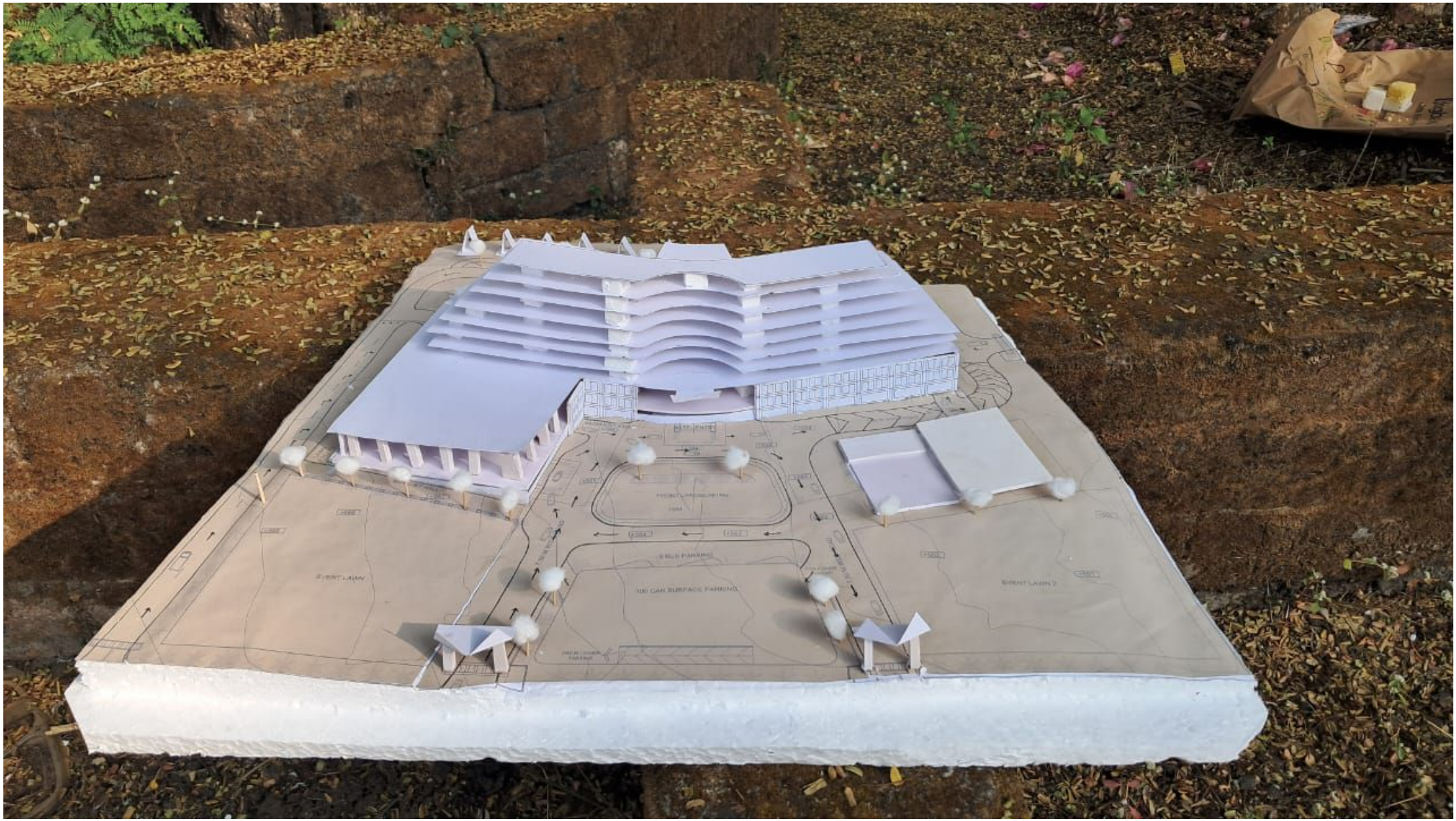
INDIA - 462003


THE CROWN
FIVE STAR HOTEL - BHOPAL
THESIS PROJECT'25
TEAM-4






SHADED PATH
LOTUS POND
SWIMMING POOL
DECK
THEMED GARDEN
6.00 M WIDE PAVEMENT


EVENT LAWN
100 CAR SURFACE PARKING
EVENT LAWN 2