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5 Star Hotel

Sanand, Gujarat, India

Dec, 2025

5 Star Hotel

Sanand, Gujarat, India

BACHELOR OF ARCHITECTURE

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DEPARTMENT OF ARCHITECTURE AND PLANNING

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ARC 511 – Thesis Project

5 Star Hotel

Sanand, Gujarat, India

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DEPARTMENT OF ARCHITECTURE AND PLANNING

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CANDIDATE DECLARATION

The Thesis Project in the subject ARC 511, entitled "**5 Star Hotel, Gandhinagar, Gujarat, India"**, 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

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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

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Thesis Guide

CERTIFICATION OF EXAMINATION

The Bachelor of Architecture Thesis Viva-Voce examination of Ms Sukriti Bhardwaj Scholar No.211110036, was held on 1/12/2025 to 2/12/25.

Dr. Nakul Dhagat
Head of Department

Dr. Vicky Lalramsangi
Thesis Coordinator

ABSTRACT

This thesis report presents a comprehensive site study and literature review for the design of a **5-star business hotel** in Sanand, Gujarat, envisioned as a high-performance hospitality destination tailored to the needs of corporate travelers, industrial professionals, and premium business delegates. The study examines the architectural, environmental, and functional parameters of business-oriented hospitality design, with a focus on spatial efficiency, operational clarity, sustainability, and technological integration.

The research explores the technical functioning of hotels, including zoning strategies, service logistics, back-of-house requirements, and streamlined circulation systems that support productivity, privacy, and comfort. Emphasis is placed on understanding the relationship between interior programming and exterior site conditions, ensuring that the built environment responds effectively to Sanand's climate, industrial character, and expanding economic landscape.

The design proposal focuses on creating a **highly functional yet visually refined environment,** where spatial planning prioritizes intuitive navigation, fast access, dedicated business amenities, and smooth transitions between work, rest, and recreation. Key spaces such as meeting rooms, conference halls, coworking lounges, executive floors, and breakout zones are integrated strategically to support corporate engagements and formal events.

Given the climatic conditions of Gujarat, sustainability becomes a guiding principle. Incorporating passive solar design, shaded outdoor areas, landscape buffers, energy-efficient systems, and locally responsive materials. Technology plays a fundamental role, with smart systems facilitating seamless check-ins, personalized room controls, high-speed connectivity, and operational efficiency, all while maintaining a human-centered and culturally grounded design approach.

The proposed 5-star business hotel aspires to become **an architectural landmark within the Sanand industrial corridor**, strategically located near major manufacturing hubs, multinational facilities, and connectivity routes. It is designed to cater to executives, entrepreneurs, conference participants, and global business visitors who require premium accommodation with efficient work-supportive facilities.

By offering exceptional services, state-of-the-art business infrastructure, multiple dining environments, wellness facilities, and contemporary interiors, the hotel aims to strengthen Sanand's position as an emerging economic and corporate destination. The project contributes to the region's tourism and business ecosystem, offering a refined hospitality experience that balances efficiency, elegance, and contextual relevance.

ACKNOWLEDGMENT

The completion of this thesis report has been one of the most meaningful and enriching parts of my academic journey. I gratefully acknowledge all those who have supported, guided, and inspired me; directly or indirectly, throughout the course of this work.

First and foremost, I express my sincere gratitude to our Thesis ***Coordinator Prof. Vicky Lalramsangi****, and my Guide* ***Dr. Anupama Sharma****, whose constant guidance, encouragement, and insightful feedback have been invaluable. Their expertise, patience, and thoughtful suggestions helped me navigate challenges and significantly strengthened the quality of my work. I'm deeply thankful for their continuous support and unwavering presence whenever required.*

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I am also thankful to my ***batchmates and seniors****, whose cooperation, discussions, and timely assistance were instrumental during various stages of the thesis.*

Finally, I express my deepest gratitude to my ***family, relatives, and friends*** *for their constant encouragement, understanding, and emotional support. Their belief in me has been our greatest strength. Above all, I thank the* ***Almighty*** *for His blessings, without which none of this would have been possible.*

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CHAPTER I

INTRODUCTION

1.1 INTRODUCTION

In the contemporary era, the hospitality industry holds a significant position in shaping unique experiences and redefining the essence of luxury. Within this framework, the architectural design of a 5-star hotel becomes a fundamental aspect in crafting a distinctive and memorable environment, one that seamlessly merges sophistication, practicality, and outstanding service. This thesis explores the diverse dimensions of designing a 5-star hotel, focusing on the dynamic interplay between architecture, interior aesthetics, and the overall guest experience.

Historically, hotels provided basic accommodation, typically just a bed, a cupboard, a table, and a washstand. However, modern hotel rooms now feature advanced amenities such as ensuite bathrooms, climate control, televisions, telephones, in-room safes, mini-bars, and facilities for making tea and coffee. In luxury hotels, additional features such as bathrobes, slippers, pillow menus, twin vanities, and Jacuzzi tubs enhance the guest experience. Larger establishments often include a wide range of facilities such as swimming pools, fitness centres, business hubs, childcare services, and spaces for conferences and social events.

Designing a 5-star hotel today requires more than just creating comfortable spaces. It demands a deep understanding of the evolving needs and expectations of modern travellers. Such hotels aim to provide more than accommodation; they strive to offer an immersive experience that reflects a careful balance of design elegance, functional efficiency, and environmental responsibility. This thesis investigates the key architectural principles that contribute to the success of luxury hospitality environments, emphasizing the creation of spaces that evoke relaxation, comfort, and a sense of grandeur.

In addition, the research examines how the integration of smart technologies, eco-conscious practices, and cultural narratives can enrich the architectural expression of a 5-star hotel. By adopting forward-thinking design approaches, including biophilic principles that promote harmony between built environments and nature, this study aims to highlight how hotels can contribute to guest well-being while remaining connected to their local context. Through this lens, the thesis seeks to illustrate how architecture can elevate not just physical spaces, but also the emotional and experiential quality of luxury hospitality.

1.2. AIM

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

1.3. OBJECTIVES

- To design a hotel responding to the site conditions.
- To follow the immediate urban context and design accordingly.
- To reflect the economic dynamism and industrial identity of Sanand.
- To design the hotel as a high-functioning node within Sanand’s growing industrial ecosystem

- To use the site views to the fullest and follow every bye-law that the site commands.
- To create efficient service networks keeping in mind the highest standards of hospitality industry.

1.4. SITE LOCATION

Name of the Project: Proposed 5 Star Hotel

Location: GIDC Sanand-II (Plot SM-39/5),
Sanand-II Industrial Estate,
District - Ahmedabad
State - Gujarat

Site Coordinates: 23°00'21.5"N, 72°14'59.6"E



Image 1 Site Location



Image 2 Site Location on Google Maps

1.5 PROJECT DETAILS

Site Area = 20,168.54 Sq. M (4.98 Acres. Approx.)

FAR = ND

Building Height = As per Requirements

Front Setback = As per Norms

Rear And Side Setback = As per Norms

Ground Coverage = 40%

1.6 SITE PLAN WITH DIMENSION

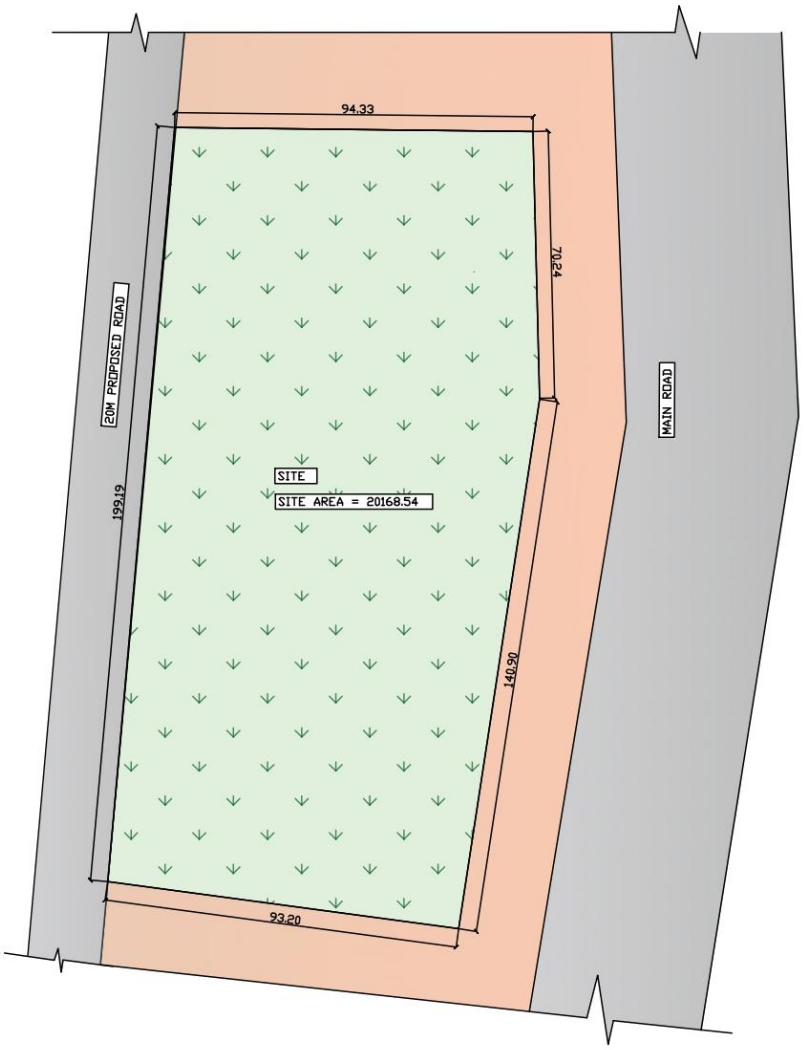

Image 3 Site Dimensions

1.7 PROPOSING AGENCY

Name of the Proponent: M/s. Bloom Inn Private Limited

1.8. SITE LOCATION ON MASTER PLAN

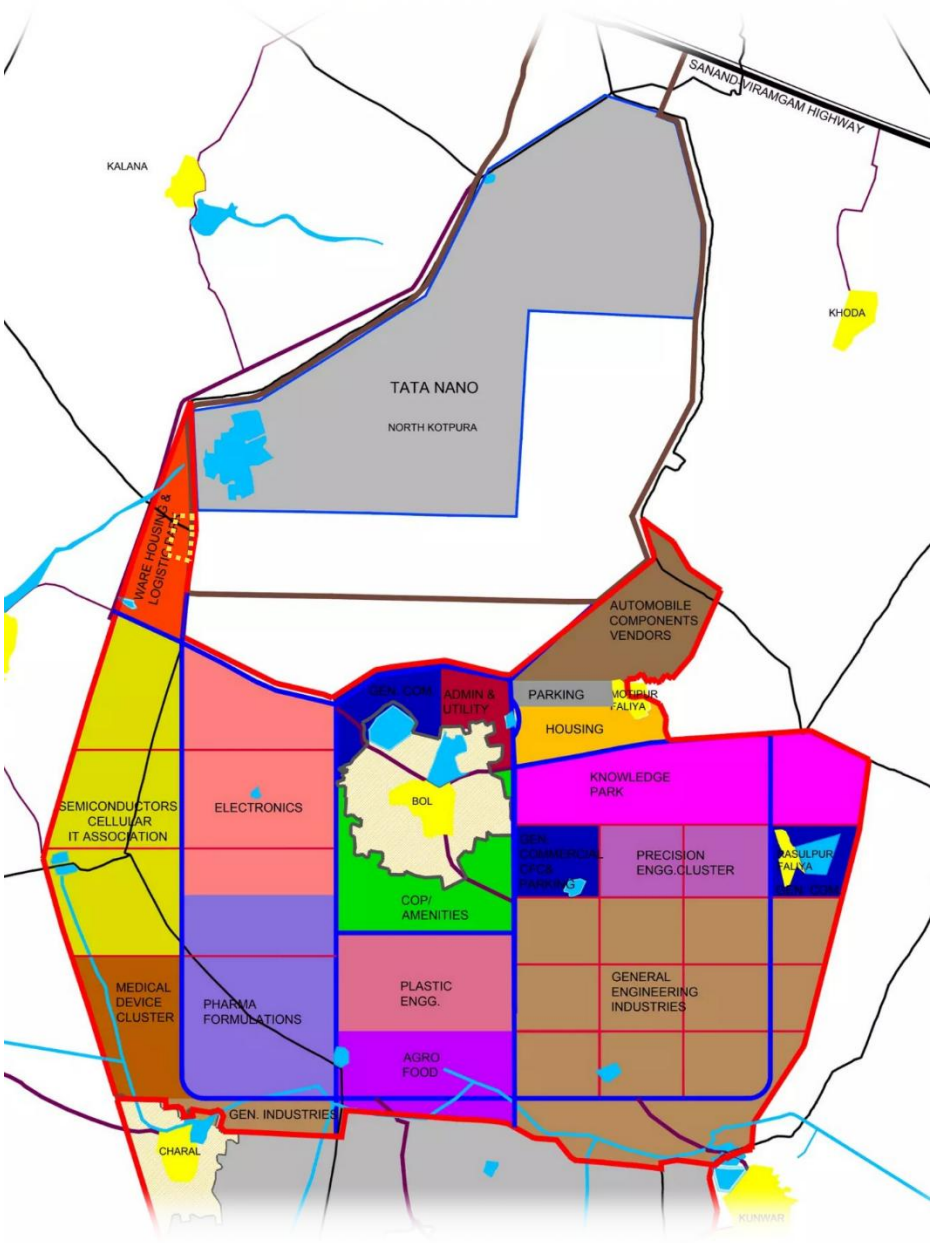

Image 4 Sanand Industrial Estate Master Plan

1.9 DETAILED LIST OF SPACES

Table 1: Area Statement of the Proposed Development

SPACES REQUIRED		Area Per Person (in m^2)	No. of Users	No. of Units	Total Area (in m^2)	Remarks
PUBLIC FACILITIES					**3,410.1**	area excluding outdoor facilities
1. Entrance					**139.1**	Ground Floor
1.1 Port-cochere/Main Entrance		18	4	1	72.0	can accommodate 3-4 cars
1.2 Luggage Loading/Unloading		1.6	20	1	32.0	provide ramp
1.3 Valet Parking Service		0.65	4	1	2.6	provide supervisor podium
1.4 Vestibule		0.65	50	1	32.5	*optional, may be replaced by air-curtains
2. Reception Area					**372.0**	Ground Floor/2nd Floor
2.1 Grand Lobby		0.65	400	1	260.0	Ground Floor + 2nd Floor w/ Elaborate Ceiling
2.2 Front Desk/Information		2	4	1	8.0	directly accessible to incoming guests
2.3 Concierge		2	2	1	4.0	adjacent to front desk
2.4 Cashier		1.5	2	1	3.0	adjacent to front desk
2.5 Porter Service Area		1.5	4	1	6.0	close to front desk and luggage storage
2.6 Luggage Storage		1.5	10	1	15.0	racks for vertical storage may conserve floor area
2.7 Safety Deposit Boxes		1.5	10	1	15.0	enclosed room with direct access to front desk
2.8 Grand Staircase		52	1	1	52.0	2.5 m width, T-shaped
2.9 Guest Elevators		0.45	10	2	9.0	close to lounge/dining/function areas (must be central)
3. Lounging Area					**250.0**	Ground Floor
3.1 Lounge		1.5	30	1	45.0	10-20% of lobby
Atrium		150	1	1	150.0	open space for lighting & ventilation
3.2 Live Entertainment		4	2	1	8.0	for pianist, cielist or violinist
3.3 Smoking Room		0.65	20	1	13.0	minimal seats, mostly standing
3.4 Guest Elevators		0.45	10	2	9.0	must be central
3.5 Restrooms:	Male	2.5	5	1	12.5	2 water closets, 2 urinals, 1 lavatories
	Female	2.5	5	1	12.5	3 water closets, 2 lavatories
4. Dining					**514.3**	Ground Floor
4.1 Main Dining Hall		1.8	100	1	180.0	close to main kitchen, lounge and pool areas
Buffet Serving Area		0.65	15	1	9.8	close to main kitchen
4.2 Specialty Restaurant		2	40	1	80.0	formal dining, close to specialty kitchen
4.3 Roof Deck Café		1.8	25	1	45.0	Roof Deck
4.4 Bar & Café		1.8	20	1	36.0	close wine & beverage storage
Bar Counter		2.5	3	1	7.5	
4.5 Service Entrance		1.8	5	1	9.0	can accommodate bus/trays
4.6 Circulation		0.65	100	1	65.0	hallways connecting dining areas
4.7 Auxiliary Stairs		11	1	2	22.0	stair width = 1.4m
4.8 Restrooms:	Male	2.5	12	1	30.0	4 water closets, 6 urinals, 3 lavatories
	Female	2.5	12	1	30.0	6 water closets, 4 lavatories
5. Function Halls					**1,558.5**	Ground Floor and Mezzanine
5.1 Banquet Hall		2	200	1	400.0	seated guests
Pre-function		0.65	75	1	48.8	about 30-35% of guest capacity
5.2 Theater/Seminar Hall		1.8	100	1	180.0	seated guests
Pre-function		0.65	35	1	22.8	about 30-35% of guest capacity
5.3 Function Rooms		1.8	50	4	360.0	seated guests, may be combined for larger events
Pre-function		0.65	15	1	9.8	about 30-35% of guest capacity
5.4 Meeting Rooms		1.8	20	4	144.0	seated guests, may be combined for larger events
5.5 Private Dining		1.8	12	2	43.2	seated guests, may be combined for larger events
5.6 Storage						
Chairs & Tables		20	1	1	20.0	private, but accessible to function rooms
Audio-visual Equipment/Decors		10	1	1	10.0	private, but accessible to function rooms
5.7 Circulation (Hallways plus service corridor)		0.65	400	1	260.0	hallways connecting pre-function areas
5.8 Restrooms:	Male	2.5	12	1	30.0	4 water closets, 6 urinals, 3 lavatories
	Female	2.5	12	1	30.0	6 water closets, 4 lavatories

6. Business Center					**37.5**	Ground Floor
6.1 Staff Station/Reception		2.5	2	1	5.0	desk area, computers needed
6.2 Waiting Area		2	5	1	10.0	for 3-5 persons
6.3 Telefax/Mail Station/Internet Center		2.5	6	1	15.0	5 computers, 1 telefax+printing station
6.4 Currency Exchange/Cellphone Load		2.5	1	1	2.5	small booth
6.5 ATM Machines		2.5	1	2	5.0	small booth
7. Shops					**280.0**	Ground Floor
7.1 Travel Agency		40	1	1	40.0	
7.2 Beauty Salon & Nail Spa		60	1	1	60.0	may need plumbing
7.3 Barber Shop		40	1	1	40.0	
7.4 Souvenir/Gift Shop		60	1	1	60.0	needs storage room
7.5 Wine Shop		40	1	1	40.0	needs storage room
7.6 Hallway		40	1	1	40.0	
8. Recreation and Sports Facilities					**1,704.8**	Various Floors
8.1 Lounge/Veranda		1.2	20	1	24.0	Second Floor
Atrium		120	1	1	120.0	open space for lighting & ventilation, 2nd Floor
8.2 Guest Elevators		0.45	10	2	9.0	must be central
8.3 Billiards Room		22	3	1	66.0	Second Floor
Attendant's Counter		1.8	2	3	10.8	
8.4 Video-Gaming Arcade		3	10	1	30.0	high-tech video games, 2nd Floor
8.5 Poker Club/Mini-Casino		1.8	20	1	36.0	3 tables for poker, 2 for casino
Cashier/Attendant's Counter		2.5	4	1	10.0	
8.6 Fitness Center		4	5	1	20.0	basic gym equipment, Mezzanine
Aerobics Studio		2.5	10	1	25.0	for other dance/fitness exercises, Mezzanine
8.7 Lap Pool (Indoor)		176	1	1	176.0	4 lanes, Ground Floor
8.8 Swimming Pool		300	1	1	300.0	Ground Floor, Outdoor
Pool Perimeter		246	1	1	246.0	3 meters around the pool, for benches/umbrellas
Shower w/ Lockers:	Male	2.5	8	1	20.0	8 showers, includes lockers + changing area
	Female	2.5	8	1	20.0	8 showers, includes lockers + changing area
Restrooms:	Male	2	12	1	24.0	4 water closets, 6 urinals, 3 lavatories
	Female	2	12	1	24.0	8 water closets, 4 lavatories
8.9 Roof Deck Pool		200	1	1	200.0	Ground Floor, Outdoor
Shower w/ Lockers:	Male	2.5	4	1	10.0	4 showers, includes lockers + changing area
	Female	2.5	4	1	10.0	4 showers, includes lockers + changing area
Restrooms:	Male	2	6	1	12.0	2 water closets, 3 urinals, 2 lavatories
	Female	2	6	1	12.0	4 water closets, 2 lavatories
8.10 Meditation and Zen Garden		300	1	1	300.0	Roof Deck
8.11 Viewing Deck		100	1	1	100.0	Roof Deck, attached to zen garden
8.12 Putting Lawn (Mini-Golf Course)		450	1	1	450.0	Ground Level, outdoor
8.13 Lawn Tennis		450	1	1	450.0	Ground Level, outdoor

ROOM ACCOMMODATIONS					**10,571.0**	inclusive of circulation
9. Guest Rooms				**250**	**10,413.0**	3rd-6th Floors; total should be 250
9.1 Standard Rooms (single/double)		27	1	80	2,160.0	two single beds or one double-bed
9.2 De Luxe Rooms (single/double)		31	1	81	2,511.0	similar to standard rooms
9.3 Family De Luxe Rooms		40	1	80	3,200.0	two double beds or two single plus one double-beds
9.4 Bridal Suite		40	1	1	2,080.0	matrimonial bed, guest area, large toilet & bath
9.5 Executive Suite		48	1	5	240.0	king size bed, office/study area, pantry/kitchenette
9.6 Residence Suite		68	1	2	136.0	two rooms, living/dining, pantry/kitchenette
9.7 Presidential Suite		86	1	1	86.0	executive suite plus additional room, occupies two floors
10. Circulation					**158.0**	Various Floors
10.1 Service Elevators		0.45	10	4	18.0	number of elevator = 1 elevator x 4 floors
10.2 Guest Elevators		0.45	10	8	36.0	number of elevators = 2 elevators x 4 floors
10.3 Auxilliary Stairs		11	1	4	44.0	4 floors, stair width = 1.4 m
10.4 Corridors & Hallways		0	1	4	0.0	1.5m-1.8m, depending on length of corridor
10.5 Fire Exits		7.5	1	8	60.0	2 stairs x 4 floors, stair width = 1 m

OFFICES & PERSONNEL AREA					**631.2**	
11. Front Office					**40.0**	G/F, partially private, partially open
11.1 Front Office Manager		5	1	1	5.0	private
11.2 Customer Service Director		5	1	1	5.0	private
Housekeeping Manager		5	1	1	5.0	private
11.3 Front Office Supervisor		5	1	1	5.0	private, with window to front desk
Front Desk Agents		2.5	3	1	7.5	opens to reception
11.4 Telephone Operator		2.5	1	1	2.5	private
11.5 Reservations Supervisor		2.5	1	1	2.5	private, with window to front desk
Reservation Agents		2.5	3	1	7.5	private
12. Hotel Administration Office					**276.4**	
12.1 Waiting Area/Reception		2.5	4	1	10.0	
12.2 General Manager's Office		20	1	1	20.0	private office w/ own restroom
Assistant Manager		9.3	1	1	9.3	
Executive Secretary		7	1	1	7.0	
12.3 Human Resources Director		15	1	1	15.0	private office
Personnel Manager		9.3	1	1	9.3	
HR Clerks		5	3	1	15.0	
12.4 Sales & Marketing Manager		15	1	1	15.0	private office
Sales/Catering Director		7	1	1	7.0	
Catering Manager		7	1	1	7.0	
Sales & Marketing Assistants		5	3	1	15.0	
12.5 Finance Director		15	1	1	15.0	private office
Accounting Head		9.3	1	1	9.3	
Accounting Clerks		5	3	1	15.0	
Bookkeeper		5	2	1	10.0	
Auditor		7	1	1	7.0	
Purchasing Manager		7	1	1	7.0	
12.7 Conference Room		2.4	10	1	24.0	central to offices
12.8 Pantry/Kitchenette		0.65	20	1	13.0	
12.9 Restrooms:	Male	2	6	1	12.0	2 water closets, 2 urinals, 2 lavatories
	Female	2	6	1	12.0	3 water closets, 2 lavatories
13. Food & Beverage Office					**77.3**	
13.1 Food & Beverage Director		15	1	1	15.0	private office
13.2 Dietician		9.3	1	1	9.3	
13.3 Banquet Manager		7	3	1	21.0	
Banquet Captain		5	2	1	10.0	
13.4 Executive Chef		7	1	1	7.0	
Sous Chef/Kitchen Supevisor		5	1	1	5.0	
13.5 Restaurant Supervisor		5	1	1	5.0	
13.6 Bar Supervisor		5	1	1	5.0	
14. Staff Common Area					**237.5**	
14.1 Employees' Entrance		0.65	60	1	39.0	includes security check, bundy clock, etc.
14.2 Staff Lounge		1.2	15	1	18.0	
14.3 Staff Dining Area/Cafeteria		1.8	20	1	36.0	
14.4 Kitchen/Pantry		2.5	4	1	10.0	
14.5 Changing Room:	Male	2	10	1	20.0	
	Female	2	10	1	20.0	
14.6 Lockers		0.45	10	1	4.5	for entry-level staff & maintenance personnel
14.7 Hallways & Corridors (Circulation)		50	1	1	50.0	1.2m-1.5m wide, depending on traffic load
14.8 Restrooms:	Male	2	10	1	20.0	3 water closets, 3 urinals, 2 lavatories
	Female	2	10	1	20.0	4 water closets, 2 lavatories
15. Senior Management Flat					**76.5**	2/F
15.1 General Manager's Room		20	1	1	20.0	w/ private toilet & bath
15.2 Senior Managers' Rooms		20	1	2	40.0	includes 1 shared toilet & bath
15.3 Pantry/Kitchenette		7.5	1	1	7.5	
15.4 Lounge		9	1	1	9.0	

SERVICE FACILITIES				**733.7**	
16. Food & Beverage				**406.8**	
16.1 Main Kitchen	100	1	1	100.0	about 30% of total dining area
16.2 Auxilliary Kitchen	90	1	1	90.0	about 10% of total function area
16.3 Specialty Kitchen	25	1	1	25.0	about 30% of specialty restaurant area
16.4 Quality Check/Service Station	2.5	3	1	7.5	area to check plating, etc.
Waiter Pick-up & Dish Return	0.75	10	1	7.5	counter area
16.5 Waiters' Assembly Area	0.65	15	1	9.8	for inspection/instructions
16.6 Dishwashing Station	2	1	5	10.0	
Kitchenware & Utensils Storage	10	1	1	10.0	
16.7 Pantry	30	1	1	30.0	
Supply Releasing Desk	2.5	2	1	5.0	
16.8 Wine & Beverage Storage	20	1	1	20.0	
16.9 Supplies Delivery	18	1	1	18.0	2 x 9 m
Docking Station	18	1	3	54.0	3 delivery van
Receiving Office	12	1	1	12.0	
16.10 Waste Disposal	2	1	4	8.0	one in each kitchen plus 1 in dishwashing station
17. Housekeeping				**102.0**	2/F
17.1 Housekeeping Office	5	1	1	5.0	common space
Housekeeping Manager	7	1	1	7.0	desk area
Housekeeping Supervisor	5	1	1	5.0	desk area
17.2 Lines & Toiletries Storage	30	1	1	30.0	
Releasing/Receiving Desk	2.5	2	1	5.0	counter
17.3 Linen Chute	1	1	6	6.0	one in each upper floor, plus collector at the ground floor
Soiled Linen Storage	20	1	1	20.0	
17.4 Cleaning Supplies/Equipment Locker	3	1	8	24.0	one in each floor
18. Laundry and Dry Cleaning Service				**32.1**	G/F
18.1 Laundry Service Supervisor	2.5	2	1	5.0	desk
18.2 Receiving/Releasing Area	2.5	2	1	5.0	counter
Clothing Storage	1.8	2	1	3.6	racks/cabinets
18.3 Laundry & Drying Room	2.5	3	1	7.5	
18.4 Dry Cleaning	2.5	2	1	5.0	
18.5 Ironing Station	2	3	1	6.0	
19. Hotel Security & Surveillance				**35.5**	2/F
19.1 Security Services Office	2.5	3	1	7.5	
Head Security Officer	5	1	1	5.0	desk area
19.2 Monitoring Room (CCTV)	5	2	1	10.0	
19.3 Security Personnel Assembly/Lounge	0.65	20	1	13.0	for inspection/instructions
20. Medical Services				**13.5**	
20.1 Help Desk	2.5	3	1	7.5	for 1 nurse, 1 paramedic & 1 clerk
20.2 First Aid Clinic	6	1	1	6.0	1 bed plus circulation space
21. Circulation & Maintenance				**143.8**	
21.1 Service Elevators	0.45	10	6	27.0	
21.2 Service Stairs	6.8	1	6	40.8	6 floors, stair width = 1.1 m
21.3 Hallways & Corridors	70	1	1	70.0	1.5 to 2.0m wide, depending on traffic load
21.4 Pipe Chase	1	1	6	6.0	6 floors, 1.25m x 0.8m

ENGINEERING & MAINTENANCE					521.4	
22. Engineering & Maintenance Office					**39.6**	G/F, possibly detached building
22.1 Building Administrator	7	1	1	7.0		
22.2 Electrical Engineer	7	1	1	7.0		
22.3 Mechanical Engineer	7	1	1	7.0		
22.4 Draftsmen/Clerks	3	3	1	9.0	includes filing, storage area	
22.5 Conference Area	2.4	4	1	9.6		
23. Cable TV & Internet Connectivity					**18.0**	G/F, possibly detached building
23.1 Server Room	2	2	1	4.0	enclosed, climate-controlled	
23.2 Supply Room/Storage	2	2	1	4.0		
23.3 Supervisor	5	1	1	5.0		
Technicians/Repair Station	2.5	2	1	5.0		
24. Electrical Facilities					**136.8**	G/F, possibly detached building
24.1 Main Electrical Room	70	1	1	70.0		
Emergency Power Generator	6.75	1	2	13.5	2 Gen Sets x 250kVA genset (4.5m x 1.5m each)	
Alternative Energy Storage	5.4	1	2	10.8	Systems inclusive of solar inverter, batteries, etc	
24.2 Electrical Rooms	10	1	2	20.0	1 for residential areas, 1 for all others	
24.3 Supply Room/Equipment Storage	10	1	1	10.0		
24.4 Electrical Facilities Supervisor	5	1	1	5.0	desk space	
Electricians/Repair Station	2.5	3	1	7.5	desk space/repair station	
25. Mechanical Facilities					**209.0**	G/F, possibly detached building
25.1 Mechanical Room	40	1	1	40.0		
Pool Water Filtration	10	1	3	30.0	one for each pool	
Pump House/Plumbing	5	1	2	10.0	two pumps serving 4 water tanks	
Water Heaters	5	1	1	5.0		
Solar Water Heaters	6	1	10	60.0	to be installed in the rooftop	
Air Handling Unit	6	1	3	18.0		
Central Airconditioning	6	1	3	18.0		
25.2 Water Tank	9	1	2	18.0	to be installed in the rooftop	
25.3 Workshop/Repair Station	2.5	4	1	10.0		
26. Carpentry					**80.0**	G/F, possibly detached building
26.1 Workshop/Repair Station	10	4	1	40.0		
26.2 Delivery Area	20	1	1	20.0		
26.3 Storage	20	1	1	20.0		
27. Waste Disposal					**38.0**	G/F, possibly detached building
27.1 Garbage Chutes	1	1	6	6.0	1 in each floor, collector at the ground floor	
27.2 Materials Recovery Facility	3	1	4	12.0	outdoor	
27.3 Garbage Truck Parking & Loading Station	20	1	1	20.0	outdoor	

DRIVEWAYS, PARKING & LANDSCAPING					12,727.0	
28. Hotel Motorpool					**149.0**	covered parking
28.1 Airport Transfer Vans	18	1	4	72.0		
28.2 Limousine Service	21	1	1	21.0		
28.3 Ambulance	18	1	1	18.0		
28.4 Vehicle Maintenance Garage	28	1	1	28.0		
Crew Locker/Shower/Restrooms	2	1	5	10.0	1 shower, 2 WC, 2 urinals, 1 lavatory, locker area	
29. Driveways & Parking Areas					**9,328.0**	area excluding Driver's Lounge
29.1 Driveways	1820	1	3	5,460.0	gated, based on 10% of rooms	
29.2 Hotel Guest's Secured Parking	15	1	50	750.0	gated	
Ticketing Entrance	18	1	1	18.0	includes driveway	
29.3 Public Parking	15	1	150	2,250.0		
29.4 Staff & Management Parking						
Management	15	1	15	225.0	gated	
Staff	15	1	25	375.0	gated	
29.5 Bus Bay & Parking	35	1	4	140.0		
29.6 Public Utility Vehicle Curb (Jeepney/Taxi)	15	1	5	75.0		
29.7 Motorcycle Parking	3.5	1	10	35.0		
29.8 Drivers' Lounge	0.65	10	1	6.5	attached to building	
Restroom	2.5	1	1	2.5	1 wc, 1 lavatory	
30. Landscaping					**3,250.0**	
30.1 Front Lawn/Fountain	500	1	1	500.0		
30.2 Terraces	600	1	1	600.0		
30.3 Atrium Garden	150	1	1	150.0	G/F	
30.4 Pool Lawn	500	1	1	500.0	about 2.5-3.0m surrounding pool	
30.5 Outdoor Gardens, Miscellaneous Landscaping	1500	1	1	1,500.0	distributed across property	

TOTAL FLOOR AREA					**15,867.4**	Including Atrium, Enclosed Garden, etc.
TOTAL BUILDING FOOTPRINT					**3,864.6**	
TOTAL OUTDOOR AREA					**14,164.0**	

1.10 DESIGN BRIEF

- **Project Title:** Development of a 5-star hotel in Sanand, Ahmedabad, Gujarat**.**

- **Proposing Authority:** Industrial zone under GIDC (Gujarat Industrial Development Corporation)

- **Surrounding Features:** The proposed project site is in the industrial-commercial zone of Sanand, Ahmedabad, a rapidly developing hub within Gujarat's manufacturing corridor. The site is surrounded by major industrial establishments and benefits from excellent regional connectivity. It is located approximately 35 km from Sardar Vallabhbhai Patel International Airport and around 25 km from Ahmedabad Junction Railway Station, ensuring convenient access for national and international business travellers. The site is also well connected via S.G. Highway and the Ahmedabad–Dholera Expressway, making it highly accessible for corporate visitors and industrial delegates frequenting the region.

- **Target Audience:** Corporate Travellers, Visiting Consultants, Technical Experts, Business Delegations

- **Key Industries Nearby:** Tata Motors, Ford India, Nestlé, Hitachi, Colgate, Palmolive, and other major MNCs.

  Sanand has emerged as a crucial industrial corridor in Gujarat, experiencing rapid growth in infrastructure, employment, and industrial investments. However, there is a **distinct lack of premium hospitality infrastructure** within this industrial zone, creating a prime opportunity for the development of a dedicated business hotel.

- **Broad Scope of Work:**

  The scope of work includes but is not limited to:

  Development of the 5 Star Hotel at Sanand shall have:

  a) Rooms
  b) Conference Hall / Convention Hall
  c) Restaurant and bar
  d) Fitness Centre
  e) Banquet Hall
  f) 24/7 Café
  g) Salon & Spa
  h) Swimming Pool
  i) Admin Block, Entrance Foyer and lobby
  j) Commercial Space/Retail
  k) Ballroom
  l) Basement for parking and services
  m) Administration
     - Front Office
     - Executive Office
     - IT Office
     - Sales & Catering Offices
     - Room Service
     - Kitchen Service
     - Receiving/Material Management
     - Garbage
     - Main Stores
     - Personnel/ HR Offices
     - Laundry
     - Housekeeping Office and Stores
     - Repair and Maintenance
     - Mechanical Areas
     - Engineering offices

- **What Makes This Business Hotel Different from Others**

  This Business Class Hotel in Sanand, Ahmedabad, is strategically designed to cater specifically to the unique demands of corporate travellers and industrial professionals, unlike standard leisure or tourist-oriented hotels. While most hotels focus on general hospitality, this property is tailor-made for productivity, convenience, and professional engagement, offering a seamless blend of work and comfort.

- **Key Differentiators:**

  1. Strategic Location Within an Industrial Hub

  - Located at the heart of Sanand's GIDC industrial area, the hotel eliminates the need for long travel from city hotels.
  - Direct proximity to major industrial players (Tata Motors, Ford, Hitachi, etc.) gives business guests faster access to their destinations.

  2. Business-First Design Philosophy

  - Layouts, circulation, and services are designed around a corporate lifestyle—from express check-ins to flexible meeting schedules.
  - A dedicated Business Lounge supports informal meetings, interviews, and quick networking.

  3. Smart Room Technology

  - Rooms will be equipped with high-speed Wi-Fi, ergonomic workstations, soundproofing, and digital automation—ideal for working professionals.

  - Long-stay suites with kitchenettes cater to consultants or project-based guests staying for extended durations.

  4. Purpose-Built Meeting & Conference Spaces

  - Unlike general banquet halls found in typical hotels, this property includes:

    - Modular boardrooms with video conferencing
    - Seminar rooms for training sessions
    - A business centre with private work pods and printing/scanning facilities
    - A 200+ pax conference hall designed for corporate product launches, industry meetups, or investor presentations

  5. Efficient Service Networks

  - Back-of-house (BOH) services are zoned for minimal disturbance, ensuring quiet, focused environments.

  - 24/7 concierge and business support (IT, logistics, courier, etc.) tailored to business schedules.

  6. Quick Access & Transit Connectivity

- Located just 35 km from SVP International Airport and 25 km from Ahmedabad Railway Station, the hotel is highly accessible for national and international executives.

7. Work-Life Balance Amenities

- Rooftop café for after-hours relaxation or informal networking
- Fitness centre and wellness zone to maintain well-being during tight schedules
- Sound-insulated rooms and smart lighting to improve rest quality for peak productivity

- **How It Enhances Meeting & Accommodation Experiences:**

Table 2 Features and Experiences

Features	**Meeting Experience**	**Accommodation Experience**
Location	Near factories & industrial zones for on-time meetings	Less commuting means more time for rest/work
Technology Integration	High-end AV systems, video conferencing	Smart room control, VPN-ready high-speed Wi-Fi
Space Flexibility	Modular halls & convertible spaces	Room layouts designed for both work and relaxation
24/7 Business Support	On-demand admin, tech, and logistic support	Round-the-clock room service and concierge
Professional Ambience	Formal, modern décor suited for business discussions	Calming, minimalist interiors to reduce travel stress
Extended Stay Comfort	Meeting spaces connected to lounge zones	Suites with kitchenettes for long-stay professionals

CHAPTER II

LITERATURE REVIEW

The word hotel is derived from the French hotel (coming from hotel meaning host), which referred to a French version of a townhouse or any other building seeing frequent visitors, rather than a place offering accommodation. In contemporary French usage, hotel now has the same meaning as the English term, and hotel particular is used for the old meaning.

2.1 MINISTRY OF TOURISM GUIDELINES

With the aim of providing contemporary standards of facilities and services available in the hotels, the Ministry of Tourism has formulated a voluntary scheme for classification of operational hotels which will be 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

2.1.1 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
(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.

2.1.2 CLASSIFICATION / RECLASSIFICATION OF OPERATIONAL HOTELS

1. 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.

2. 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"

3. Star Category Classification/Reclassification fees in Rs.

- 5- Star 20,000
- 5- Star Deluxe 25,000

AREA OF HOTELS

Table 3: Space classification (Nueferts 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:

Table 4: Checklist for facilities for Classification/ Reclassification of hotels (Ministry of Tourism)

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.

Minimum size of bathroom in square feet	30	30	36	36	45		25% of bathroom in 1 & 2 Star hotels to have western style WC. No higher ceiling/cap on the maximum size.
1 bath towel and 1 hand towel to be provided per guest	N	N	N	N	N		
Bath mat	D	D	N	N	N		
Guest toiletries to be provided-minimum 1 new soap per guest	N	N	N	N	N		Quality products depending on the star category.
A clothes – hook in each bath/shower room	N	N	N	N	N		
A sanitary bin	N	N	N	N	N		These must be covered.
Each western WC toilet to have a seat with lid and toilet paper	N	N	N	N	N		
Floors and walls to have non – porous surfaces	N	N	N	N	N		
Hot and cold running water available 24 hours	N	N	N	N	N		It will be mandatory w.e.f. 01.09. 2010 for all 1 and 2 Star category hotels to provide hot & cold running water.
Shower cabin	N	N	N	N	N		Where shower cabin is not available, a shower with shower curtain will suffice.
Bath tubs				D	D		In 4 Star and above hotels, some rooms should offer this option to guests.
Water saving taps / shower	N	N	N	N	N		
Energy saving lighting	N	N	N	N	N		
Hairdryers	D	D	D	N	N		Where not provided in bathroom, must be available on request.
Safe keeping / in room safe				N	N		1, 2 & 3 Star hotels to have facilities for safe keeping in the reception.
Minibar / Fridge				N	N		Contents must conform to local laws.
Drinking water	N	N	N	N	N		All category hotels to provide one sealed bottle of branded bottled water of minimum 500 ml. per person per day. Ultra violet treated water will not be acceptable.
Guest Linen							Good quality linen to be provided.

Linen room	N	N	N	N	N		Well ventilated
Paid transportation on call	D	D	N	N	N		Guest should be able to travel from hotel.
Shoe cleaning service	D	D	D	N	N		Free facility to be provided for in house guests.
Ice (from drinking water) on demand	D	D	N	N	N		Complimentary on request.
Acceptance of common credit cards	D	D	N	N	N		
Assistance with luggage on request	N	N	N	N	N		
A public telephone on premises. Unit charges made known	D	D	N	N	N		There should be at least one telephone no higher than 24" from floor level in 5 and 5 Star Deluxe (to also cater to differently abled guests).
Wake – up call service on request	N	N	N	N	N		
Messages for guests to be recorded and delivered	N	N	N	N	N		A prominently displayed message board will suffice for 1 & 2 Star categories.
Name Address and telephone numbers of doctors with front desk	N	N	N	N	N		Doctor on call in 3, 4, 5 & 5 Star Deluxe.
Stamps and mailing facilities	D	D	N	N	N		
Newspapers available	D	D	D	N	N		This may be placed in the lounge for 1, 2 & 3 Star hotels.
Access to travel desk facilities	N	N	N	N	N		This need not be on the premise for 1, 2 & 3 Star categories.
Left luggage facilities	D	D	N	N	N		This must be in a well secured room / 24 hour manned area.
Provision for emergency supplies toiletries / first aid kit	D	D	N	N	N		May be chargeable.
Health / Fitness facilities	D	D	D	D	N		Indian system of treatments should preferably be offered.
Beauty saloon and barber's shop			D	D	D		
Florist				D	D		

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.

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.

							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.

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.

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		

5 Star category							Grade A cities: One Multi cuisine Restaurant cum 24 hr. coffee shop / all day diner, one Specialty Restaurant and 24 hr. room service. Grade B cities: One Multi cuisine Restaurant cum coffee shop open from 7 a.m. to 11 p.m., one Speciality restaurant and 24 hr. room service.
5 Star deluxe category							Grade A cities: One Multi cuisine Restaurant cum 24 hr. coffee shop/ all day diner, one Speciality restaurant and 24 hr. room service. Grade B cities: One Multi cuisine Restaurant cum coffee shop open from 7 a.m. to 11 p.m., one Speciality restaurant and 24 hr. room service.
Grade- A: Delhi * Mumbai, Kolkata, Chennai, Bangalore, Pune, Hyderabad/ Secunderabad. Grade– B: Cities in the rest of the country excluding Grade 'A' cities.			Note: The Ministry of Tourism may review and revise the cities falling under the Grade 'A' & Grade 'B' from time to time. • Delhi would include the hotels falling in Gurgaon, Faridabad, Ghaziabad, NOIDA and Greater NOIDA.				

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

2.1.3 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 inter locks.

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. ITC 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 cross-hatch 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.

2.3. TIMESAVERS AND ARDS (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.

2.3.1 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.
- Locker rooms should be provided with ample toilet facilities and showers. Once the personnel have changed into their uniforms, the plan of the back of the house will make it possible for the people to get to their work stations with little time lost.

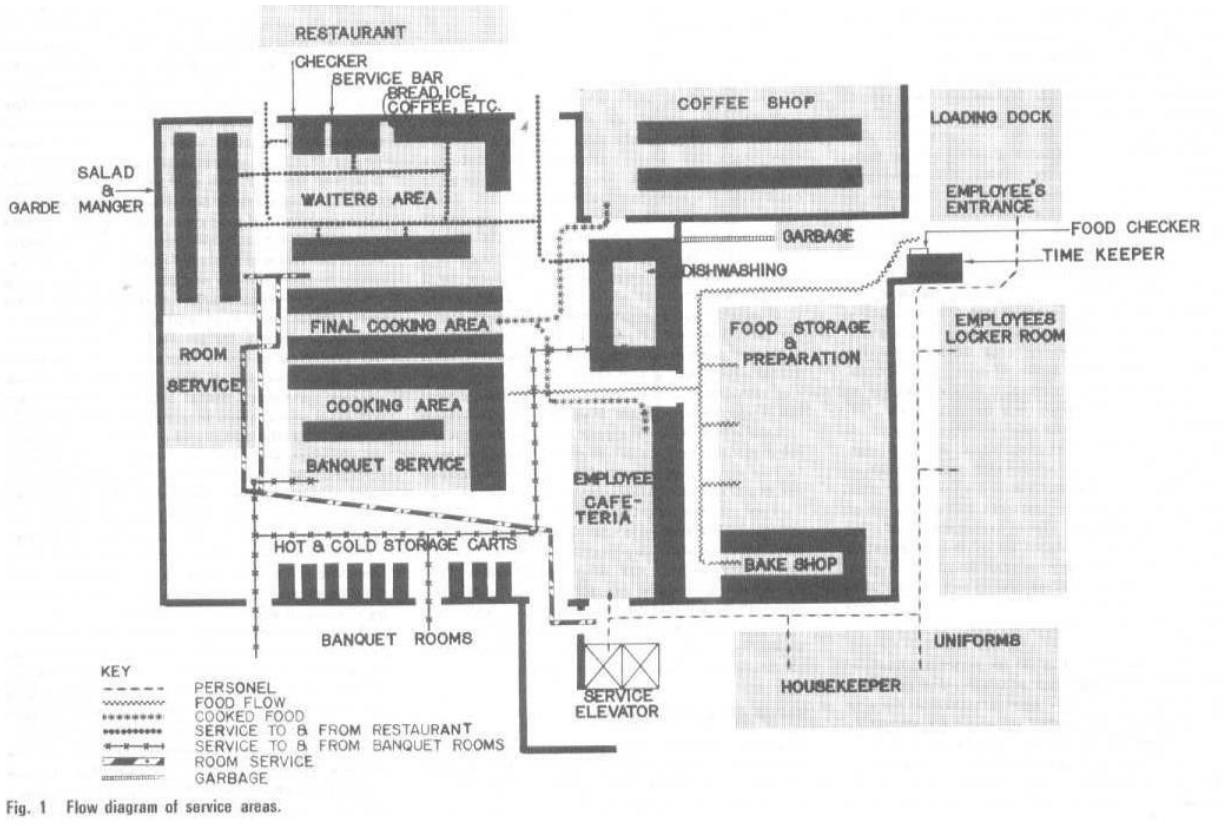

Fig. 1 Flow diagram of service areas.

Image 5 Flow Diagram of Service Area (ITC Hotel Manual)

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

2.3.2 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 woolens 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.

2.3.3 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.

2.3.4 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. A refrigerator box of the proper temperature will be needed, as well as work space, sinks, and cutting boards where vegetables will be prepared for the chefs as needed. Vegetable preparation area is needed.
- 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 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.
- The room-service area is always close to tire cooking and garde manger area.

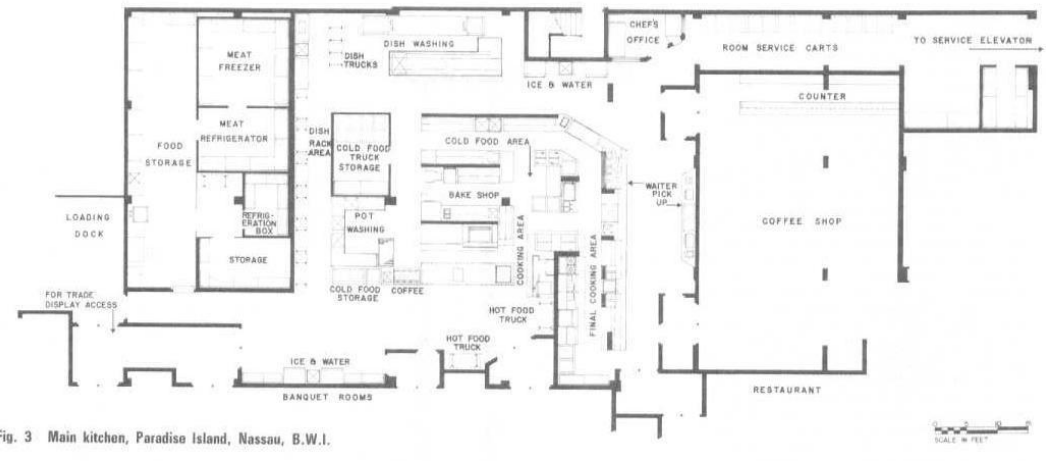

Image 6 Flow diagram of Service Areas (ITC Hotel Manual)

- 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.
- 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.

2.3.5 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.

2.3.6. 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.
- 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.

2.3.7 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

2.3.8 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

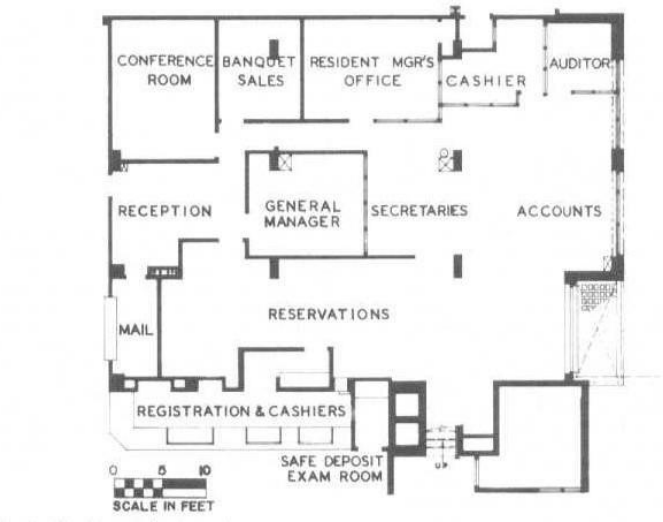

Image 7 Admin Plan, Churchhill Hotel London

2.3.9 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.
- 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.

2.3.10 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.

2.3.11 RESTAURANTFACILITIES

- 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.
- Large convention and banquet facilities usually provide a fixed or portable bar arrangement in the pre-assembly or foyer areas to take care of pauses between meetings and seminars and to fill those pauses with a facility that will provide a "pause that refresh." There is no special requirement for the design of hotel restaurants, bars, cocktail lounges, and coffee shops which are in any way different from the standard requirements for any such facility.
- Wherever a rooftop restaurant is created, the architect must bear in mind that there will be increased traffic in the elevators taking diners from both in and outside the hotel to this specialized rooftop facility. And don't forget that, because of public assembly requirements, the stairs must be sized larger. Supper clubs or nightclubs will also be found in the larger hotels with this type of dining and entertainment area along with orchestra dressing rooms.

2.3.12. 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.

2.3.13 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.

2.3.14 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 standard-width 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.

2.3.15 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.
- 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.
- Between a pair of twin beds, the ubiquitous nightstand with its small storage space below is standard.
- 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.

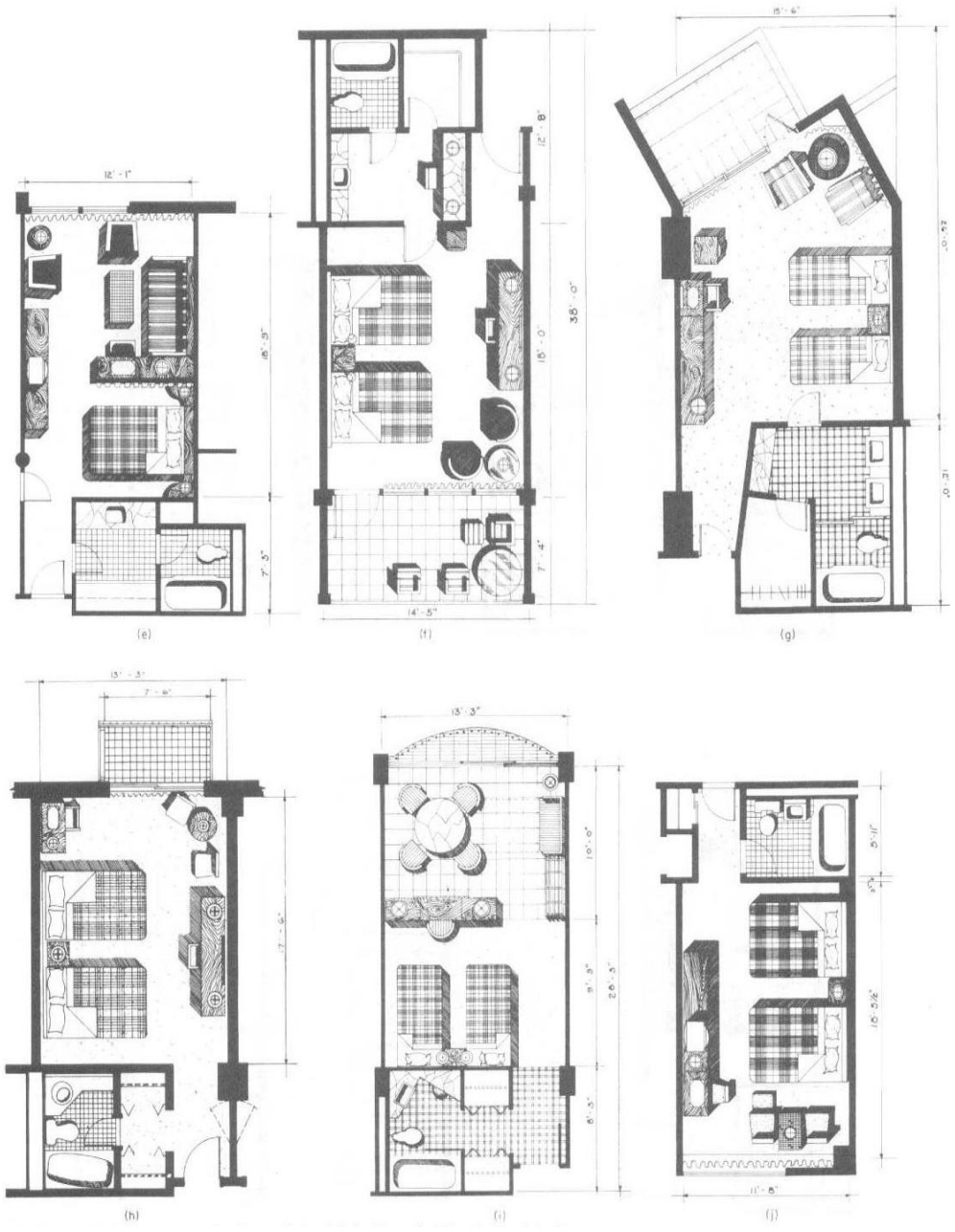

Image 8 Guest room details (ITC Hotel Manual)



Fig. 5 (cont.) (k) Chicopee Motor Inn, Chicopee, Massachusetts. (l) and (m) Thomas Circle Motor Hotel, Washington, D.C. (n) Riverview Motor Hotel, New York.

Image 9 Guest room details (ITC Hotel Manual)



Fig. 5 (cont.) (k) Chicopee Motor Inn, Chicopee, Massachusetts. (l) and (m) Thomas Circle Motor Hotel, Washington, D.C. (n) Riverview Motor Hotel, New York.

Image 10 Guest room details (ITC Hotel Manual)

2.3.16 GUEST BATH ROOMS

- The minimum bathroom will have a combination tub-shower, a lavatory, and a water closet.
- An innovation devised by the writer's firm was the introduction of two lavatories in the bathroom facilities. These two lavatories may be right in the bathroom itself, they may be pulled out into a dressing area, or one lavatory may be placed in the bathroom and another outside the bathroom.
- 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.

2.3.17 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.

2.3.18 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.

2.3.19 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.

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2.4. TIME SAVER STANDARDS (BUILDING TYPES)-RESTAURANTS

2.4.1 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.

2.4.2 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.
- A banquet seating allowance might be as little as 10sqft per seat and that for a deluxe restaurant as much as 20 sqft.

Table 5 Area Specifications (TSS)

Type of Operation	Square Feet per Seat
Commercial Cafeteria	16-18 sq. ft.
College and Industrial Cafeteria	12-15 sq. ft.
School Cafeteria (Lunchroom)	9-12 sq. ft.
College Residence (Table Service)	12-15 sq. ft.
Counter Service	18-20 sq. ft.
Hotel, Club, or Restaurant (Table Service)	15-18 sq. ft.
Table Service (Minimum Eating)	11-14 sq. ft.
Banquet (Minimum)	10-11 sq. ft.

- Table 6 square feet pwe 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 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.

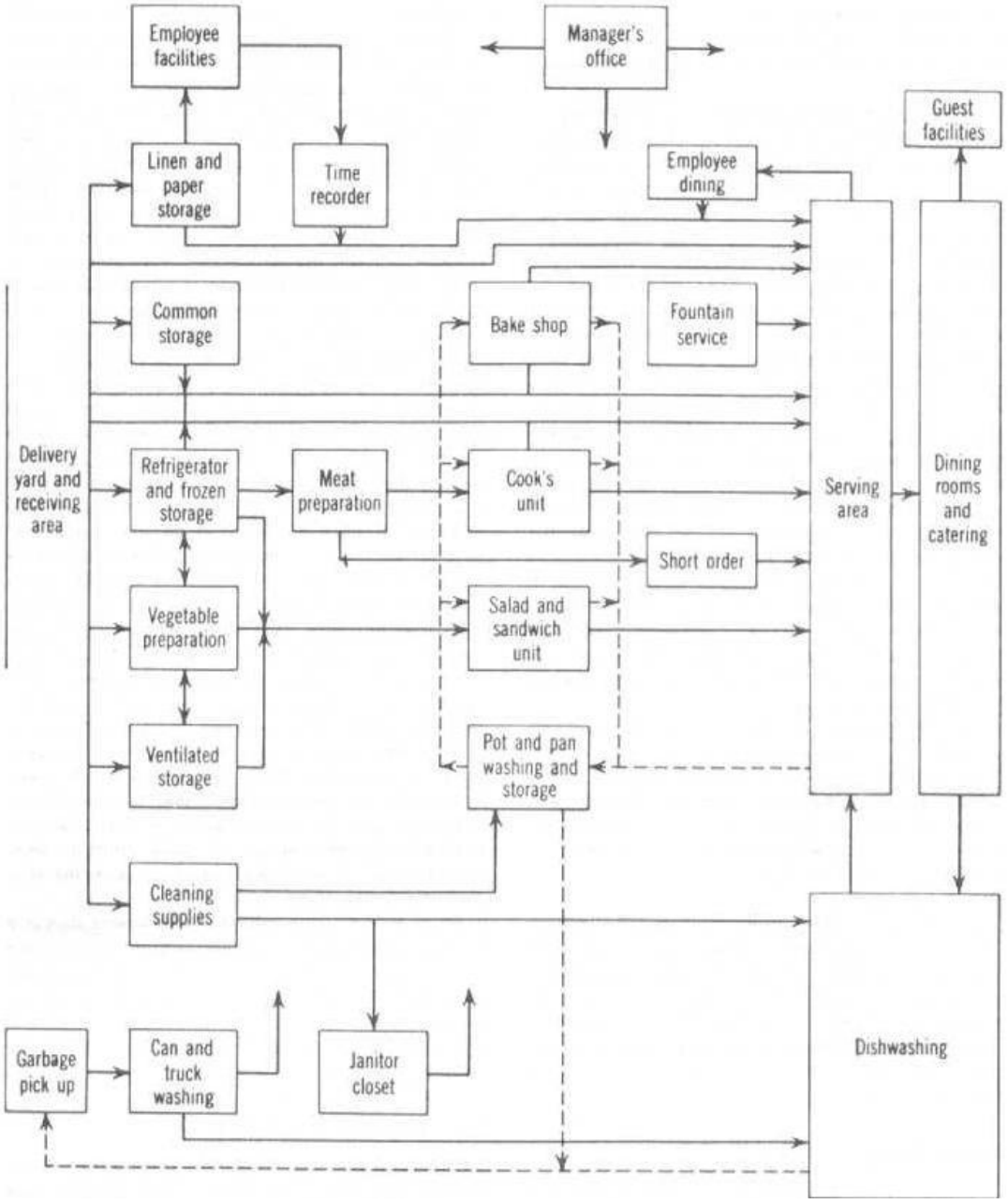


Image 11 Flow Diagram Showing Functional Relationships (TSS)

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
6. Amount of individual service given, as in a hospital ltrey service
7. Seating and service plan, whether on one floor or many

Table 6 Vatiations 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

- 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 operatioaning.

Table 7 Square Feet Of Kitchen Space Per Meal For Food Facilities Of Different Type And Size

Type of facility	Estimated maximum meals per hour				
	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

Serving areas:

- 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.

Receiving and storage areas:

- Although the average operation may find a dock 8 ft deep and 12 ft long sufficient for receiving items, this would not be sufficient for a large one. The space requirement in square feet for food storage for 30 days has been calculated by some as approximately one half the total served or, if 1,000 are served,500 sq ft may be used as atentative figure for total food storage needs.
- 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.

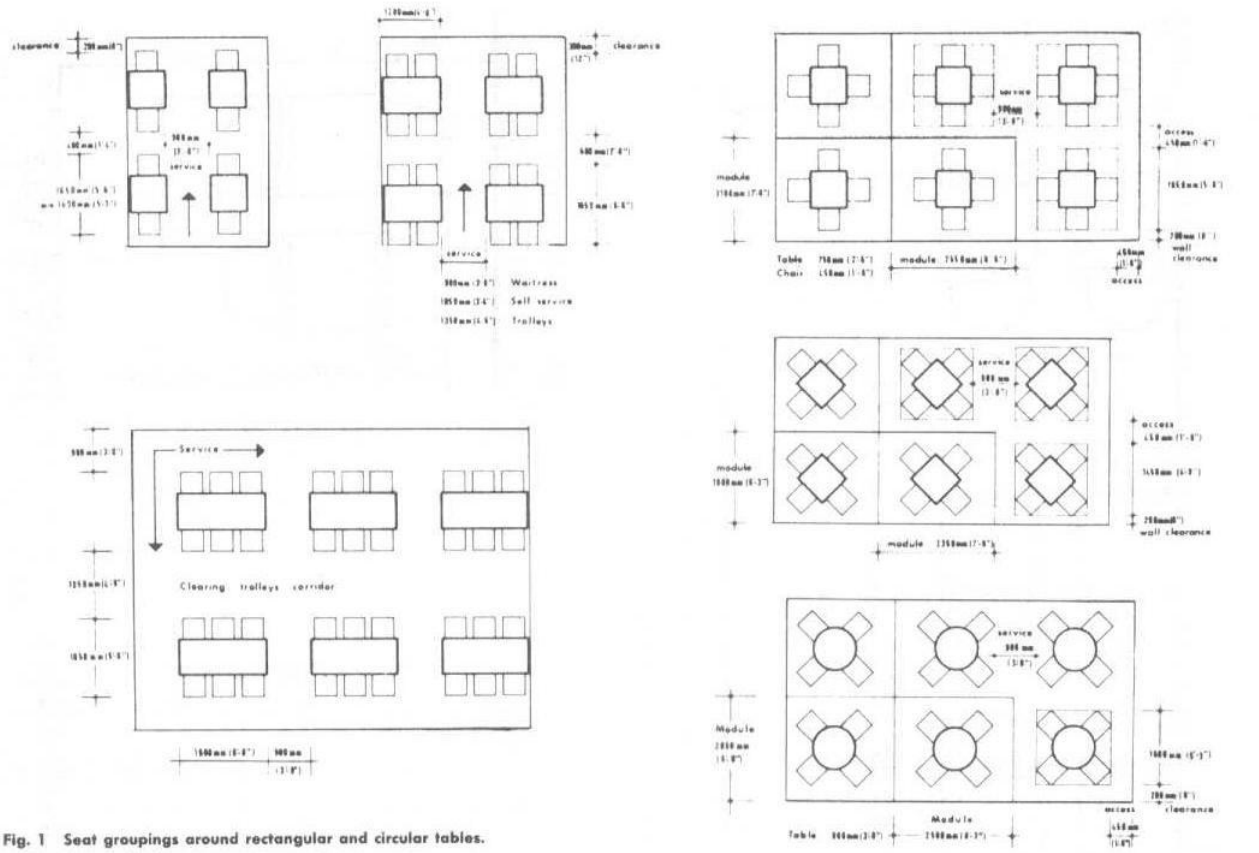


Fig. 1 Seat groupings around rectangular and circular tables.

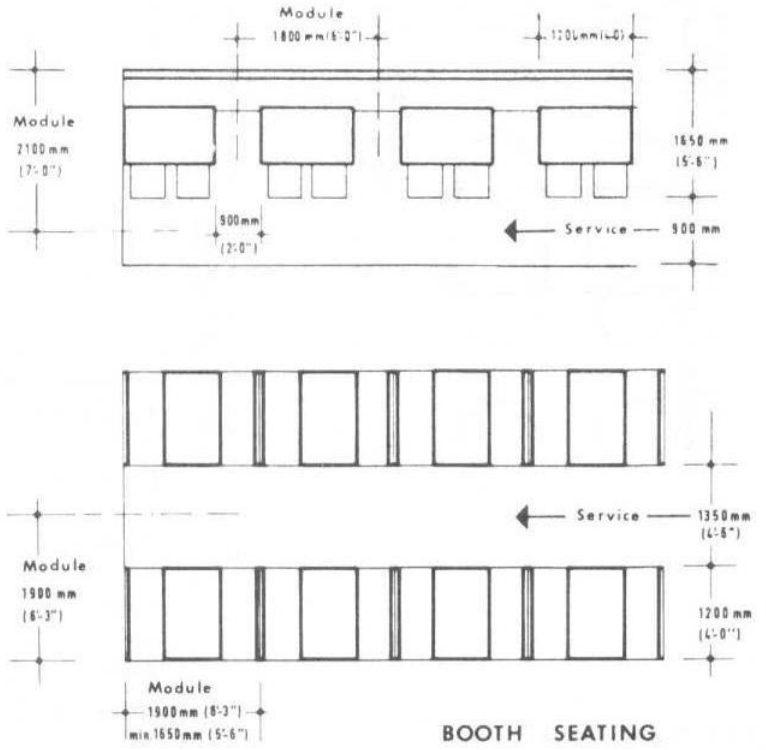
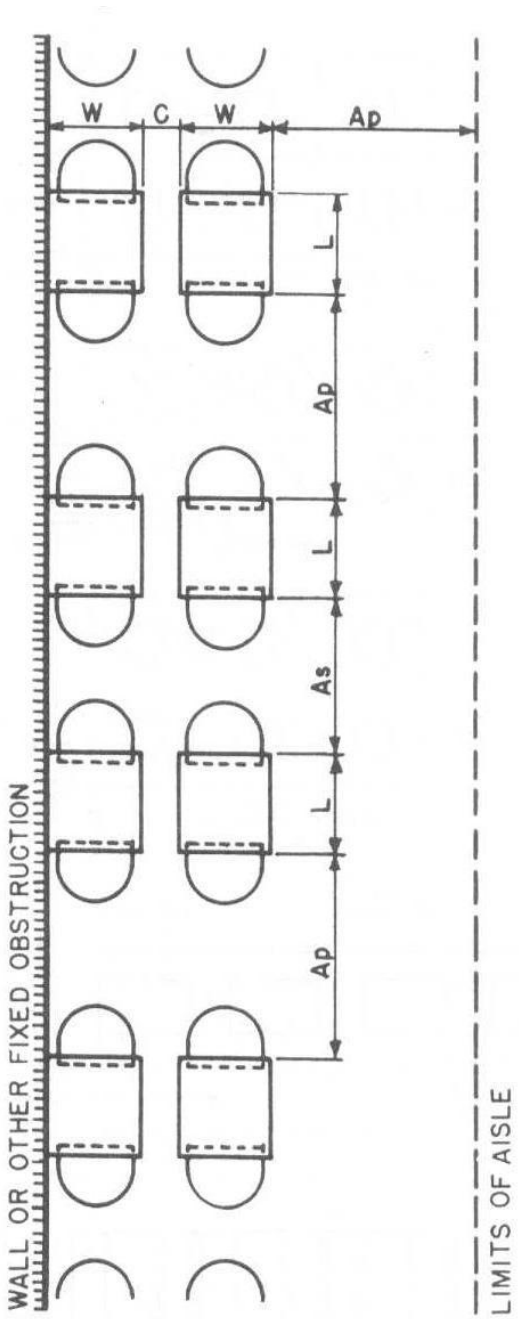
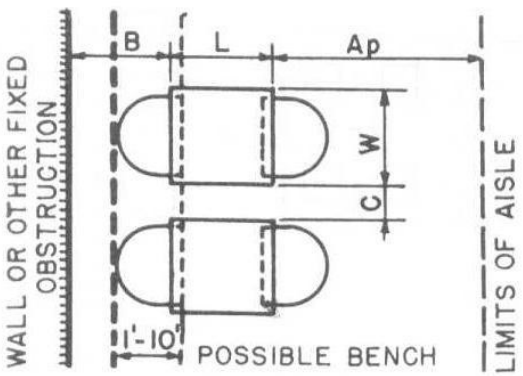


Fig. 2 Banquette seating arrangements and limiting dimensions including space for access and service.

Fred Lawson, *Restaurant Planning and Design*, The Architectural Press, Ltd., London, 1973.

Image 12 Seating Arrangements (TSS)





		Abs. Min.	Des. Min.	Comfort-able
Ap	Public circ'n	3–0 to 4–6	3–6 to 5–0	3–9 to 5–0
As	Service aisle	3–6 to 4–6	4–0 to 5–0	4–0 to 5–6
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

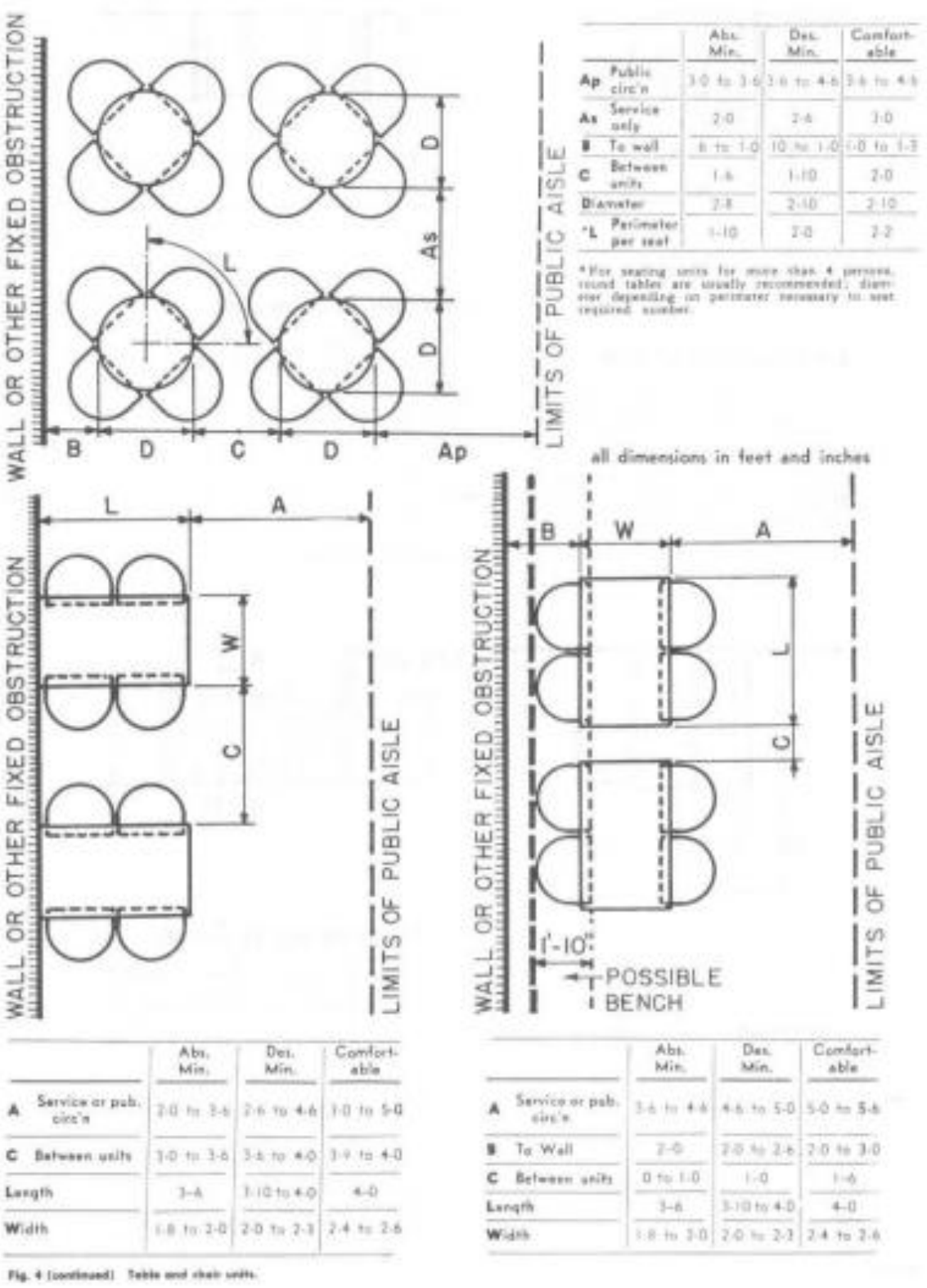
all dimensions in feet and inches

		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.

Image 13 Table & Chair Units (TSS)



		Abs. Min.	Des. Min.	Comfortable
Ap	Public circ'n	3-0 to 3-6	3-6 to 4-6	3-6 to 4-6
As	Service only	2-0	2-6	3-0
B	To wall	0 to 1-0	10 to 1-0	1-0 to 1-3
C	Between units	1-6	1-10	2-0
Diameter		2-8	2-10	2-10
*L	Perimeter per seat	1-10	2-0	2-2

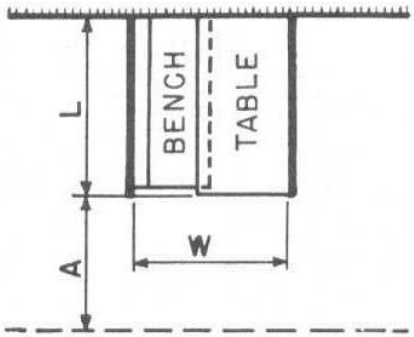
*For seating units for more than 4 persons, round tables are usually recommended; diameter depending on perimeter necessary to seat required number.

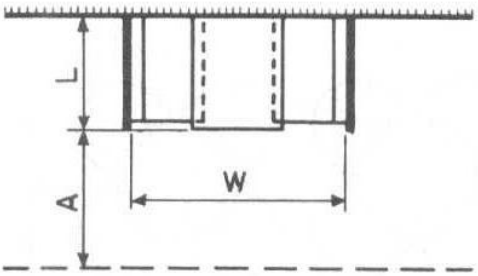
		Abs. Min.	Des. Min.	Comfortable
A	Service or pub. circ'n	2-0 to 3-6	2-6 to 4-6	3-0 to 5-0
C	Between units	3-0 to 3-6	3-6 to 4-0	3-9 to 4-0
Length		3-6	3-10 to 4-0	4-0
Width		1-8 to 2-0	2-0 to 2-3	2-4 to 2-6

		Abs. Min.	Des. Min.	Comfortable
A	Service or pub. circ'n	3-6 to 4-6	4-6 to 5-0	5-0 to 5-6
B	To Wall	2-0	2-0 to 2-6	2-0 to 3-0
C	Between units	0 to 1-0	1-0	1-6
Length		3-6	3-10 to 4-0	4-0
Width		1-8 to 3-0	2-0 to 2-3	2-4 to 2-6

Fig. 4 (continued) Table and chair units.

Image 14 Table & Units (TSS)





2 PERSONS SIDE BY SIDE

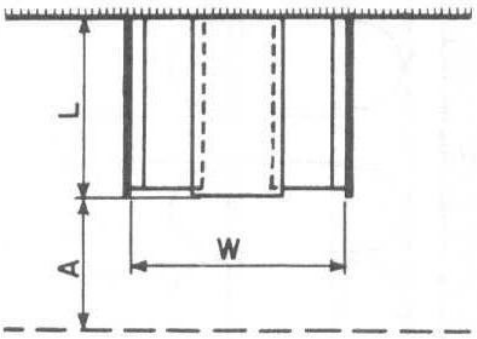
	Abs. Min.	Des. Min.	Comfortable
A Service and pub. circ'n	2–6	3–0	3–6
Length	3–6	3–9	4–0
Width	3–0	3–3	3–6

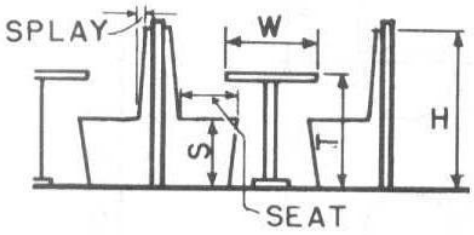
Note: This type not ordinarily recommended.

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

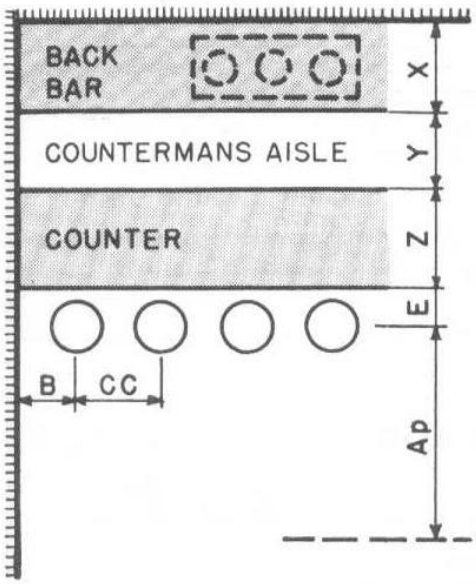
	Abs. Min.	Des. Min.	Comfortable
A Service and pub. circ'n	2–6 to 3–0	3–0 to 4–0	3–6 to 5–0
Length	3–6	3–9 to 4–0	4–0 to 4–2
Width	4–10 to 5–6	5–2 to 5–6	5–8 to 5–10

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

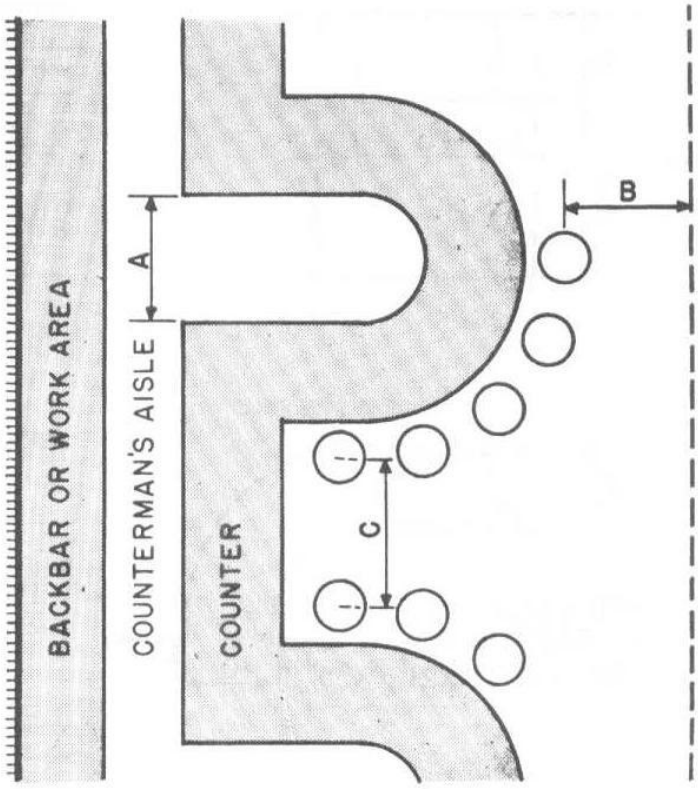
Fig. 5 Booths.

Image 15 Booths (TSS)



STANDARD (straight) TYPE

		Abs. Min.	Desirable Min.
X	No cooking equipment	1- 6	2-0
X	With cooking equipt.	2- 0	2-6
Y	1 person	2- 0	2-3
Y	2 or more persons	2- 6	2-9
Z		1-10	2-0
E		9	1-2
Ap		3- 6	4-6
B		1- 0	1-2
CC		1-10	2-0

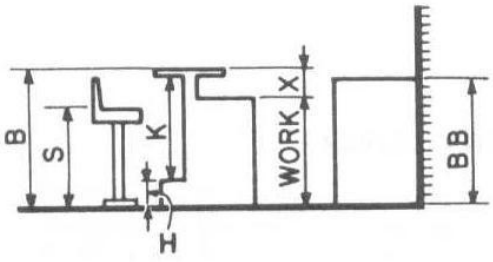


Variations in Shape

	Usual Minimum
A	2-6 to 3-6
B	2-6 to 4-6
C	2-9 to 5-6

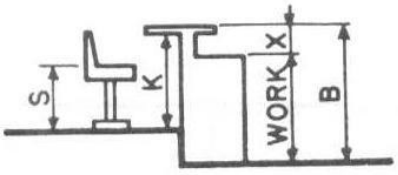
dimensions in feet and inches

HEIGHTS



LEVEL FLOOR

	Range of Dimensions		Range of Dimensions
B	2-6 to 3- 6	X	1-2 to 1- 3
BB	3-0 to 3- 6	Work	2-4 to 2- 7
H	7 to 10	S	1-6 to 2- 6
K	2-4 to 2- 8		

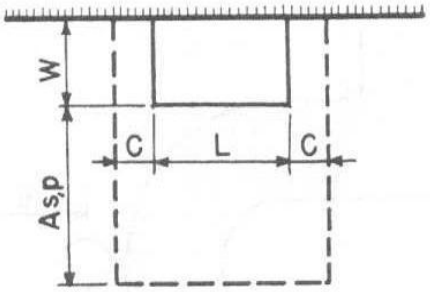


DROPPED FLOOR

	Range of Dimensions
B	3-0 to 3- 6
K	2-4 to 2-10
S	1-6 to 2- 1
X	1-2 to 1- 3
Work	2-4 to 2- 8

Fig. 6 Food bars.

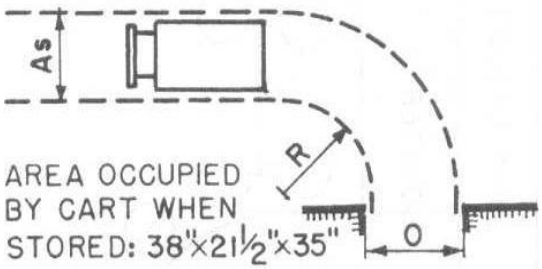
Image 16 Food Bars (TSS)



SERVING TABLE (& sideboard)

		Abs. Min.	Des. Min.	Comfortable
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 / Width	30" x 20" x 42" is average.			

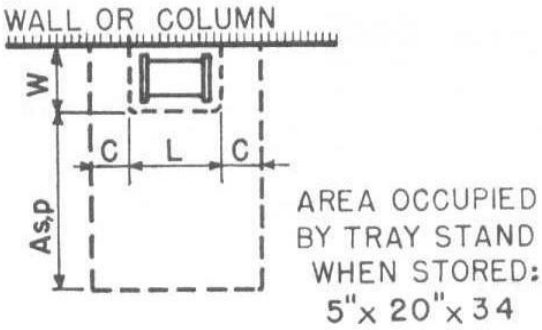
Display tables (hors d'oeuvres, etc.) usually 5' 0" x 2' 0"; (wines), 3' 0" round



SERVING CART

		Abs. Min.	Des. Min.
As	Service only	2-0	2-6
R	Turn radius	3-0	3-6
O	Door, opening width	2-0	2-6

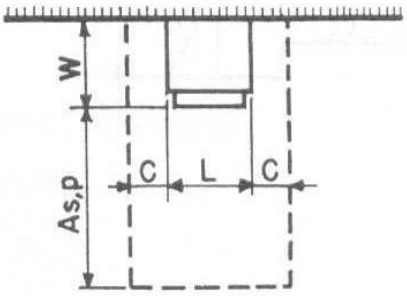
Approx. area when stored: 38" x 21½" x 35"



TRAY STAND

		Abs. Min.	Des. Min.	Comfortable
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.	Comfortable
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.

Image 17 Serving Units (TSS)

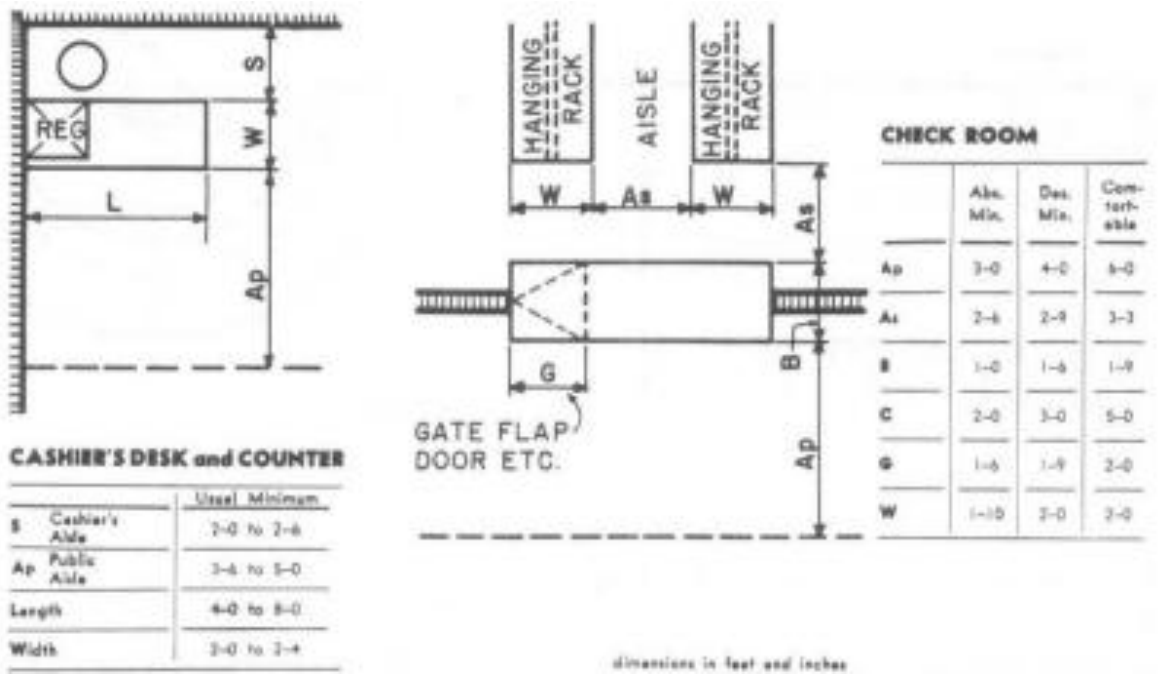


Image 18 Nondining Spaces (TSS)

2.4.3 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.

2.4.4 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.

2.4.5 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.

2.4.6 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.

2.4.7 CASHIER & COAT CHECKING

- 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 room.

2.5 TIME SAVER STANDARDS (BUILDING TYPES)-KITCHENS



Image 19 Traffic movement through aisle side

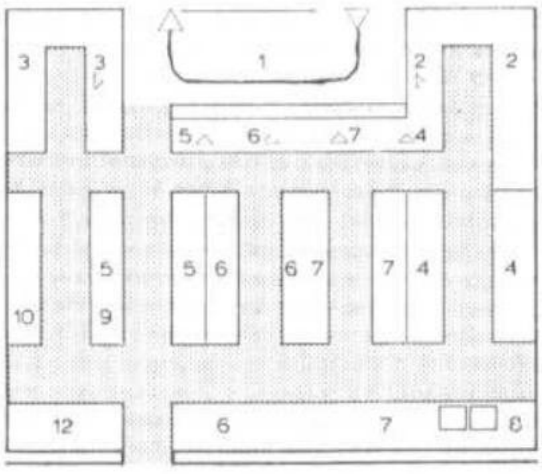


Fig. 1 Hotel or restaurant kitchen or French restaurant of high standard. Capacity for main meals: Hotel—100–200 persons / menu, 100 persons / à la carte. Restaurant—200–300 persons / mealtime from 11:30 to 1:30. Waiters' passageway: tangential. Kitchen: Linear arrangement with large installations in the rear. See Legend for explanation of numbers.

Image 20 Kitchen for 100-200 Persons

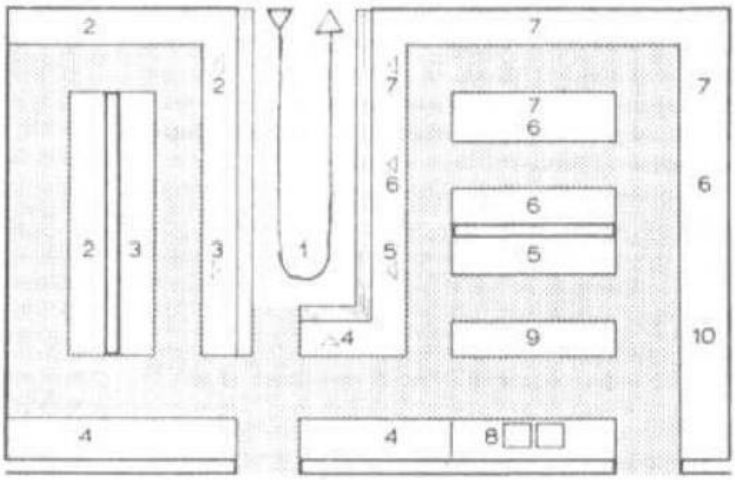


Fig. 2 Hotel or restaurant kitchen. Capacity: With this layout, a 200-seat restaurant will be able to handle three full sittings. This layout can also take care of a hotel with 100 guests and can also accommodate a restaurant open to the general public, an outdoor restaurant, and a private dining area for parties and conferences (altogether, 400 guests). Waiters' passageway: in the center. Kitchen: Linear arrangement with large installations in the rear. See Legend for explanation of numbers.

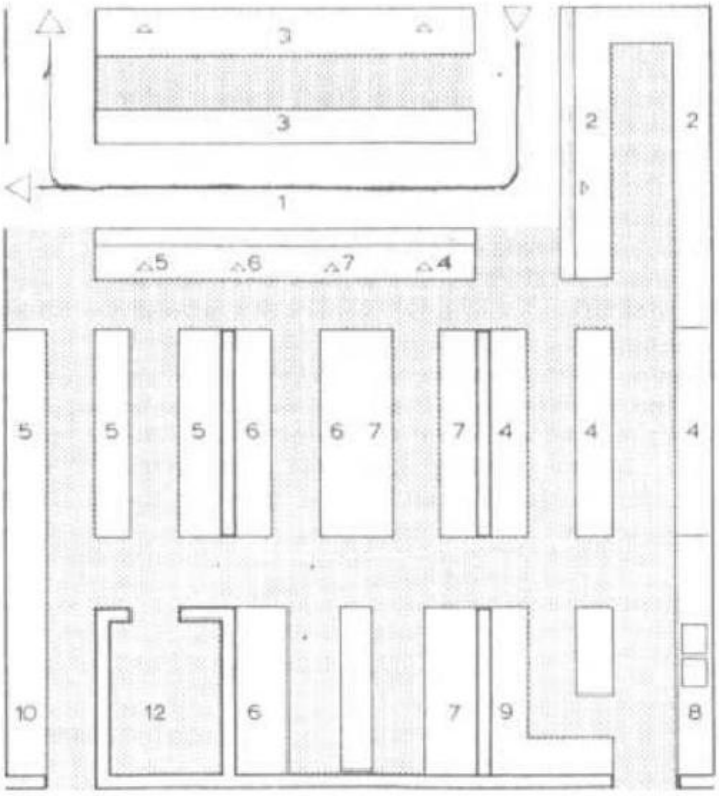


Fig. 3 Large restaurant kitchen for restaurants with many private party and conference facilities or with commissary and catering capacity for other businesses. Suitable also for large hotel with large restaurant for the general public. Capacity: 800–1,000 persons (e.g., 200 seats and fourfold reoccupancy). Waiters' passageway: tangential, with food buffet situated in front. The waiter has access to beverages and other items from the waiters' passageway in the kitchen and from the dining room side as well. The buffet looks over the dining rooms. Kitchen: Linear arrangement with fitted berths for large apparatus. See Legend for explanation of numbers.

Image 21Kitchen for 400 Persons (Up), and 800 persons (Down)

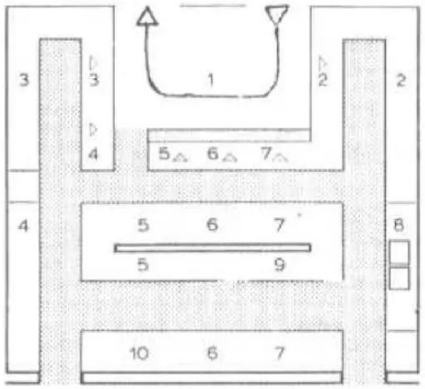


Image 22 Kitchen for Excursion Restaurants

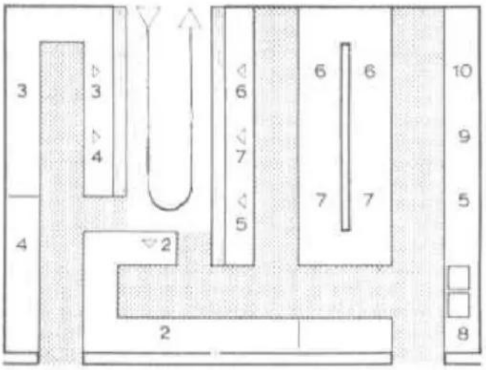


Image 23 Kitchen for 600 persons, fourfold occupancy of 150 persons

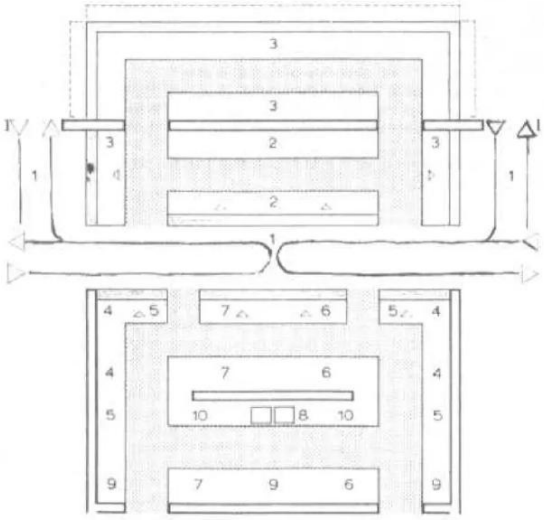
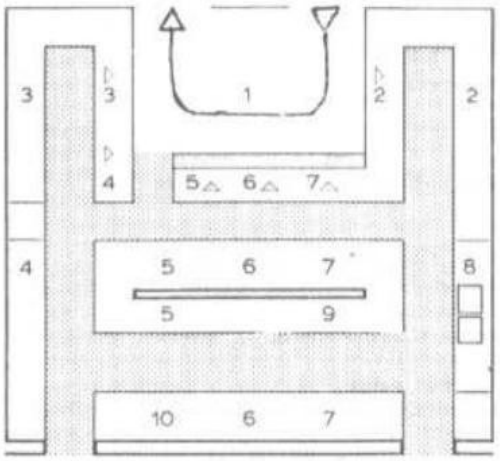


Image 24 Kitchen for 1000 Persons

Legend for Restaurant and Hotel Kitchen Layouts (Figs. 1 to 6)

(Layouts: Scale 1:300)

1. Waiters' passageway—meal and beverage counter—dish return
2. Dishwashing area (dishes, glasses, silver)
3. Beverages—preparation and serving
4. Pastry (cookies, cakes, ice cream, dessert)—preparation and serving
5. Cold kitchen (cold appetizers, salad, fish)—preparation and serving
6. Warm kitchen—saucier/rôtisseur area (sauces, roasts, grill, fish)—preparation including large apparatus area and serving
7. Warm kitchen—entremétier area (soups, vegetables, entrées)—preparation including large apparatus area and serving
8. Pot and pan washing—casserolier area
9. Vegetable preparation
10. Meat preparation
11. Vegetable cold storage
12. Meat cold storage
13. Economat (dry storage)
14. Beverage cold storage
15. Linen, dish, cleaning supplies storage
16. Staple goods storage
17. Goods acceptance and control
18. Empty goods and garbage collecting rooms



Legend:

1. Meal and beverage serving counter
2. Dishwasher
2a. Dish return
3. Beverage buffet with mixer, toaster, ice-cream container, etc.
4. Oven and small pastry station
5. Garde-manger
6. Saucier / rôtisseur
6/7. Range
7. Entremétier
7a. Cooking vat and high-performance steam cooker
6/7b. Warming cupboard and warm serving counter with warming lamps
8. Pot and pan washing
11. Storage, empty goods, office; instead of cold storage rooms—cold storage and freezer cupboards
19. Employees' toilets
G1. Bar counter—also for meals
G2. Dining room with table seating
G3. Guests' toilets / make-up room / telephone booths

2.6. TIME SAVER STANDARDS (INTERIOR DESIGN)

2.6.1 ROOM ARRANGEMENTS

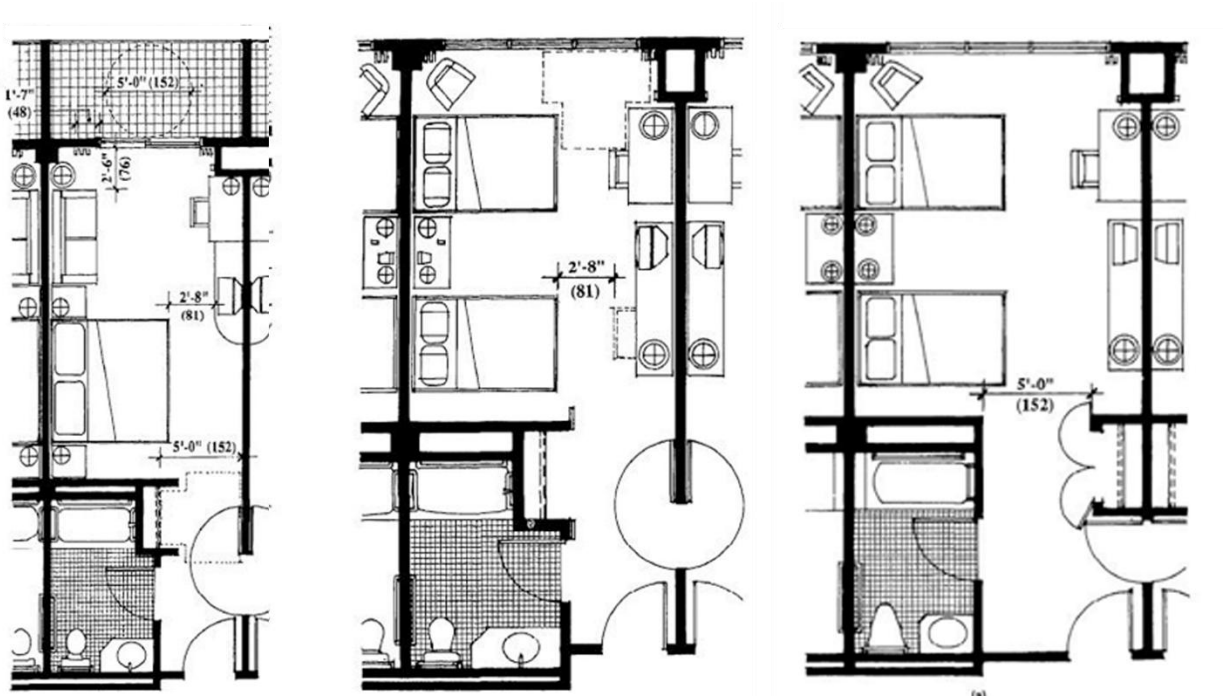


Image 25 Room arrangements with 12, 13 & 14 ft bay spacing

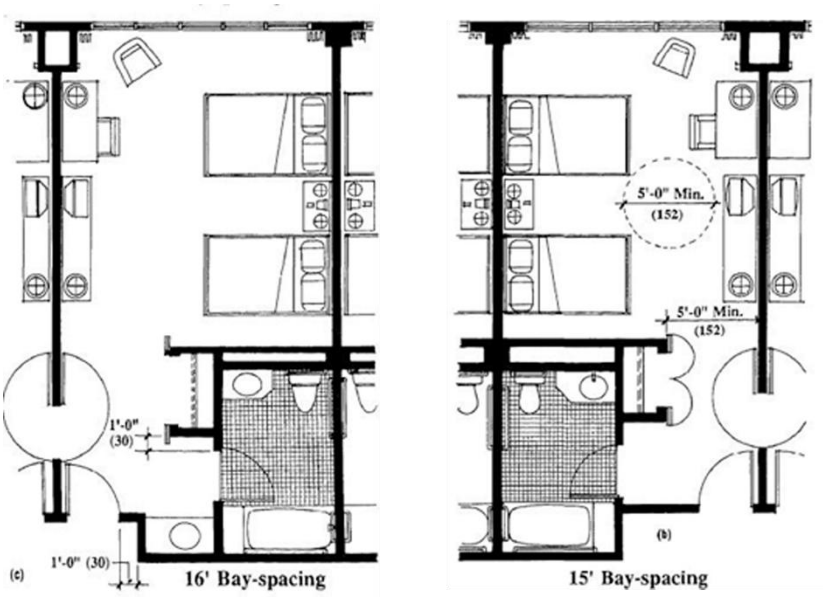
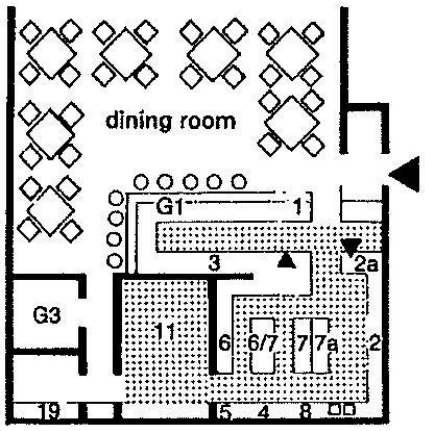


Image 26 Room Arrangements with 16 & 15 ft Bay Spacing

2.6.2 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.

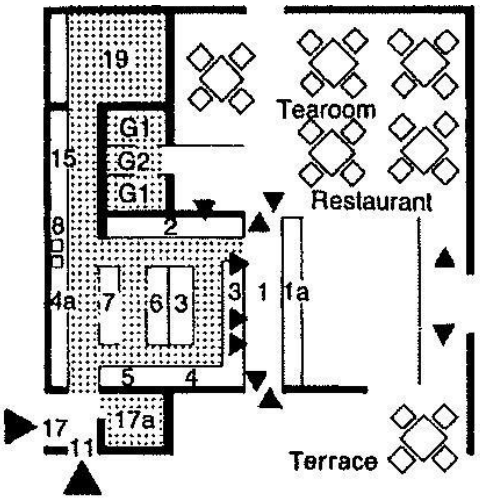


1 meals and drinks servery
2 dishwasher
2a crockery returns
3 drinks bar with mixer, toaster, food containers etc.
4 oven for small pastry items
5 food storage
6 rotisserie
6/7 cooker rings
7a water boiler and steam machine
8 pot and pan washer
11 stores/office; catering size refrigerators and freezers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

Image 28 Snack Bar Arrangements

2.6.3 CAFE, RESTAURANT & KITCHEN

- 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

Image 27 Cafe-restaurant Arrangement

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.

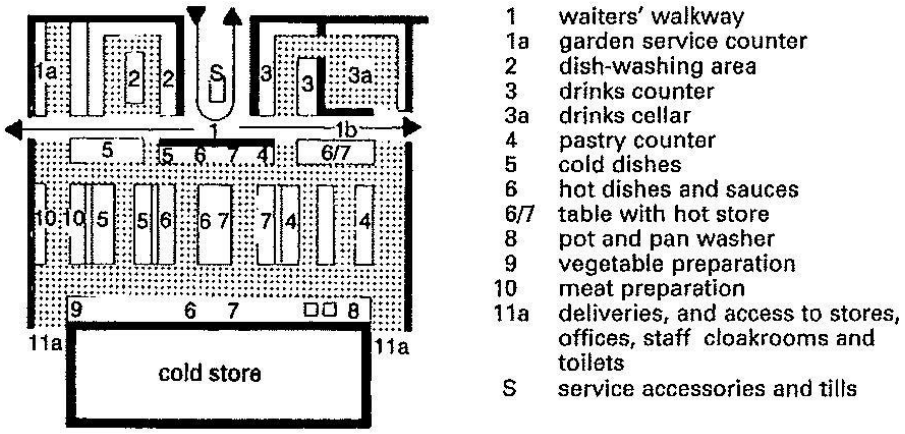


Image 29 Large Hotel Restaurant Kitchen

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.

Self-service restaurant:

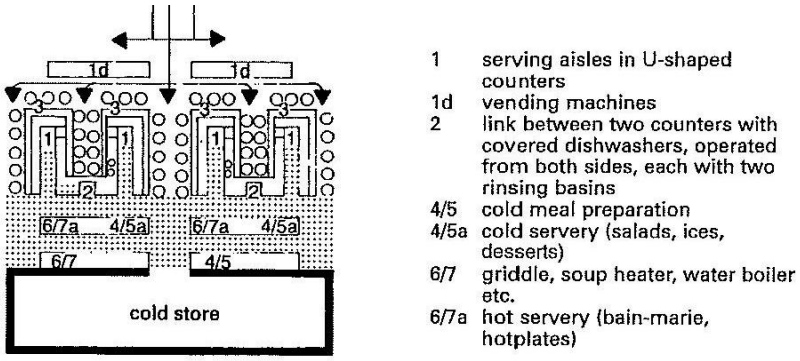


Image 30 Restaurant with buffet and vending machine

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

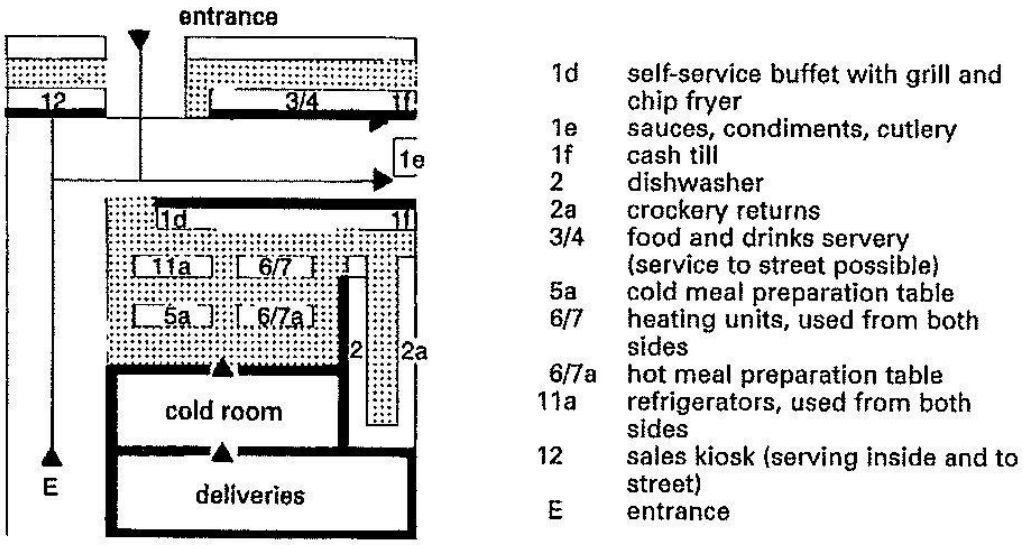


Image 31 Self Service restaurant

Function and organization of the restaurant kitchen-

- The capacity of the kitchen is primarily dependent on the number of customer seats, customer expectations (type, extent and quality of the meals offered), the proportion of products freshly prepared from raw (in contrast to ready-prepared food) and the rate of customer turnover all day or at meal times (consumer frequency).
- In fast food restaurants the rule of thumb for seat changes is about1-3times per hour, in conventional restaurants about 2. In specialty and evening-based restaurants, the guests stay on average for1.3-2 hours.

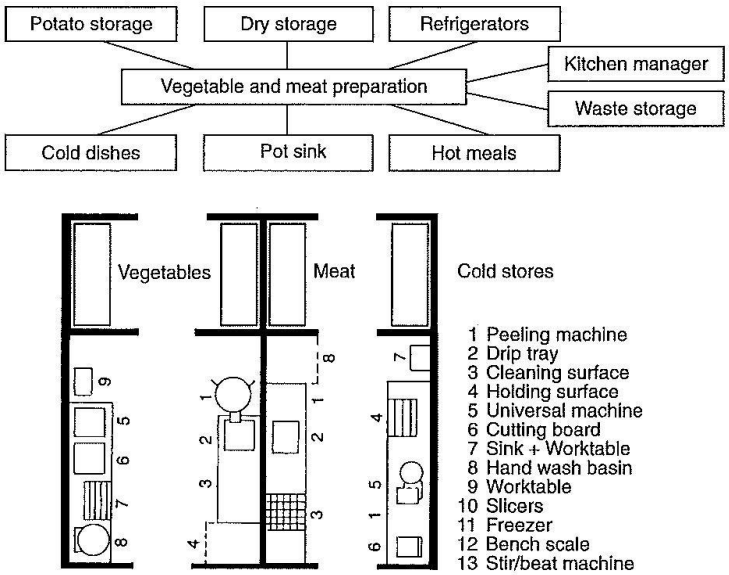


Image 32 Separate preparation for Meat & vegetables

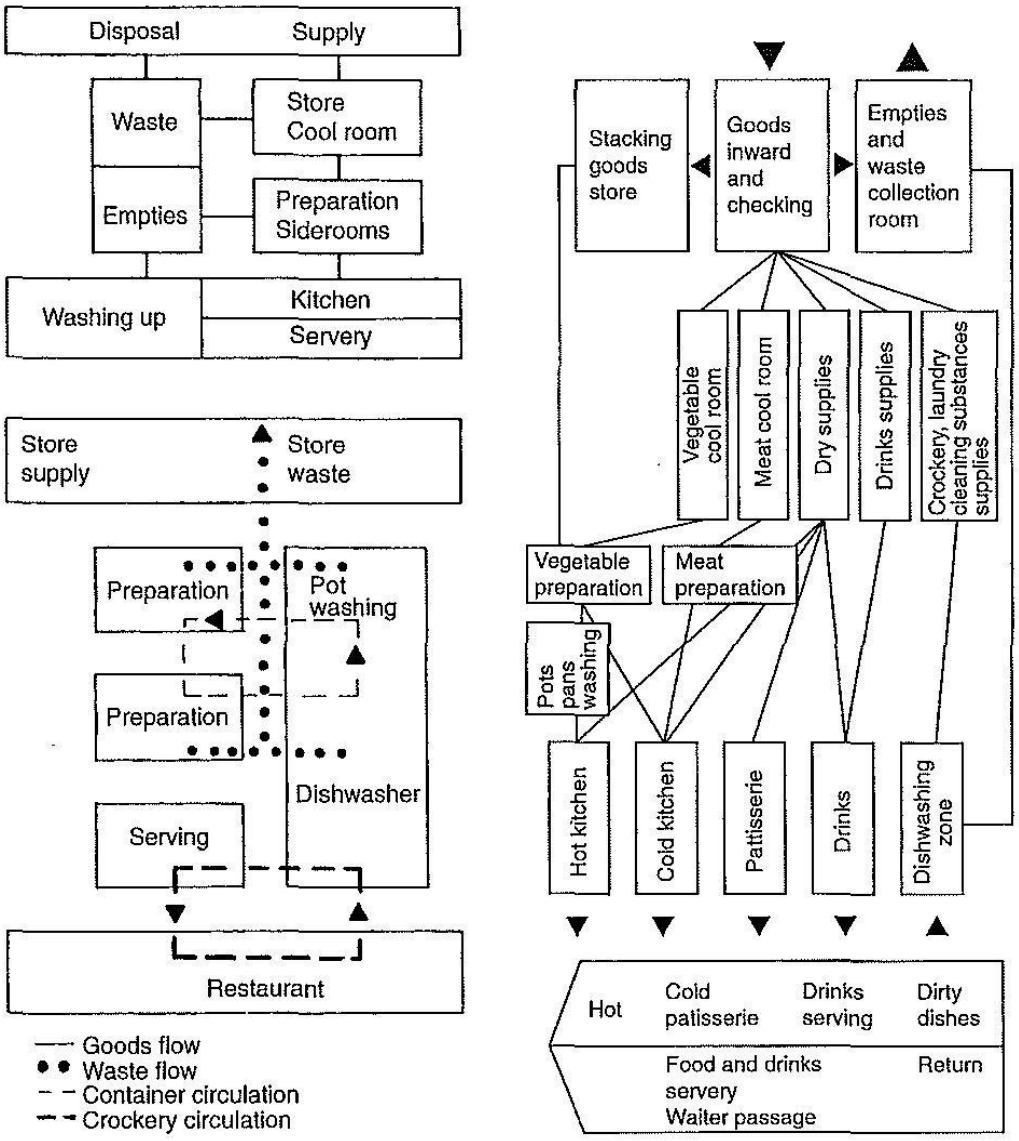


Image 33 Restaurant Kitchen; Functions & Restaurant kitchen; Organisation

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.

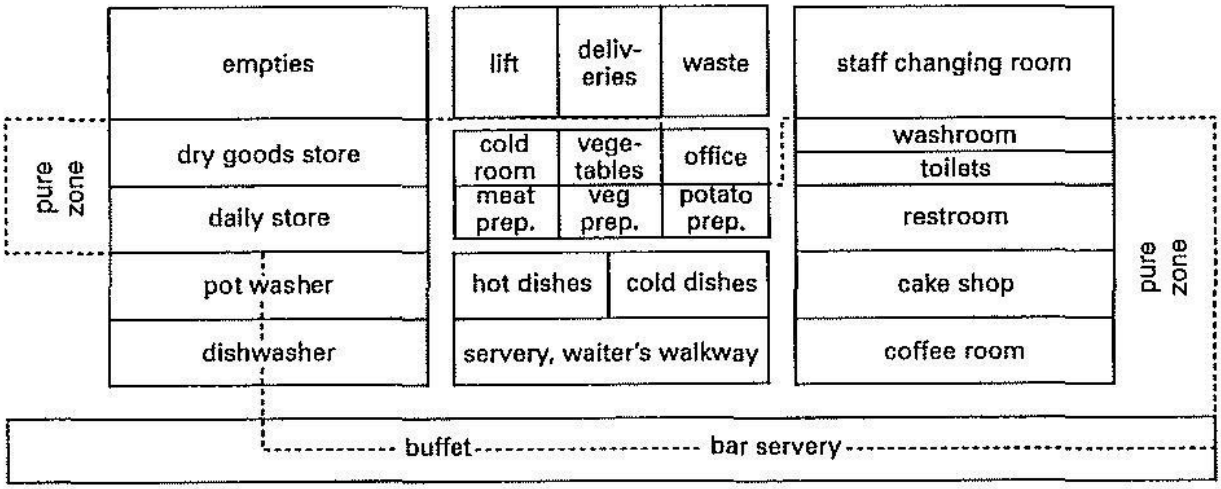
- Bistros, snack bars, small cafes - or specialty restaurants with 40-60 seats- are classified as small operations. Small to medium units (70-1 00 places) require on the other hand carefully zoned and fully equipped kitchen facilities. Large businesses (service areas, fast food restaurants, large hotel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

Table 8 Kitchen Areas: space required (sqm/seat)

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

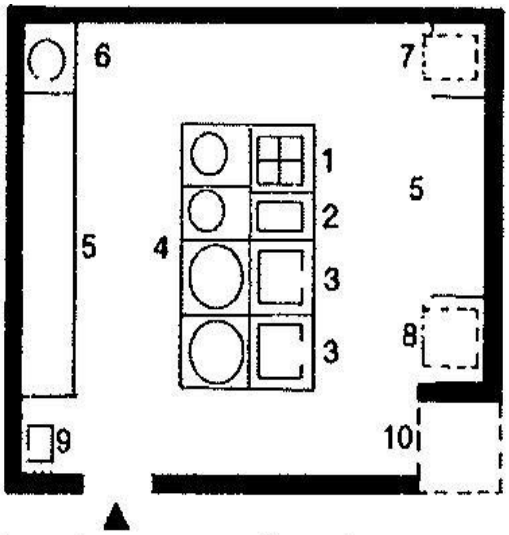
Table 9 Basis for dimensions and space requirements

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



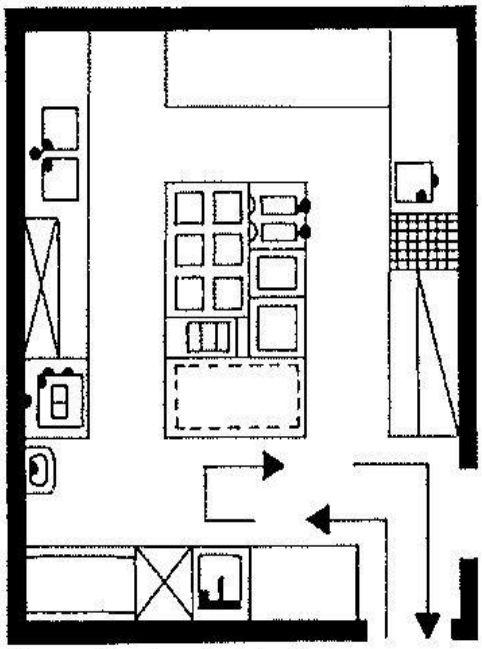
5 Kitchen areas: classification and relationships of functional areas in clean and unclean zones (if earth-covered vegetables are prepared, this must take place in a separate part of the unclean area!)

Image 34 Funtionality of Kitchen Areas



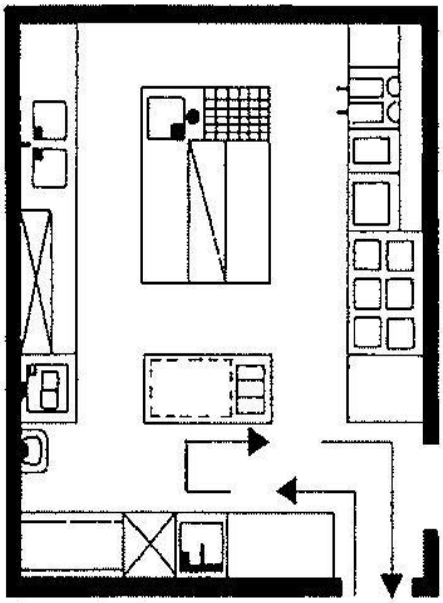
1 cooker
2 deep fat fryer
3 griddle
4 water boiler
5 work surface
6 cooker
7 double-deck oven
8 convectomat
9 hand basin
10 storage area

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



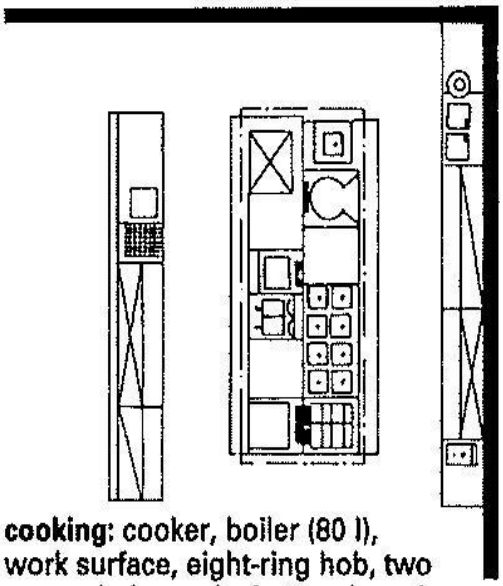
1. production in block

2 Kitchen for restaurant with 60–100 places



2. production in line

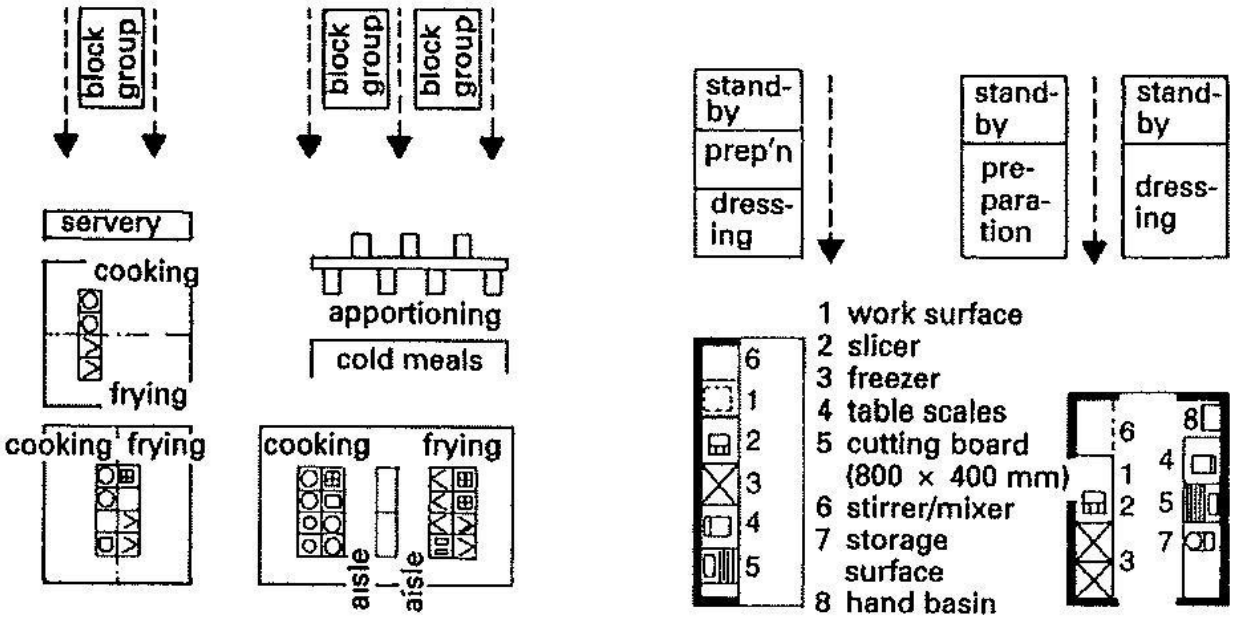
3 Kitchen for restaurant with 60–100 places



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

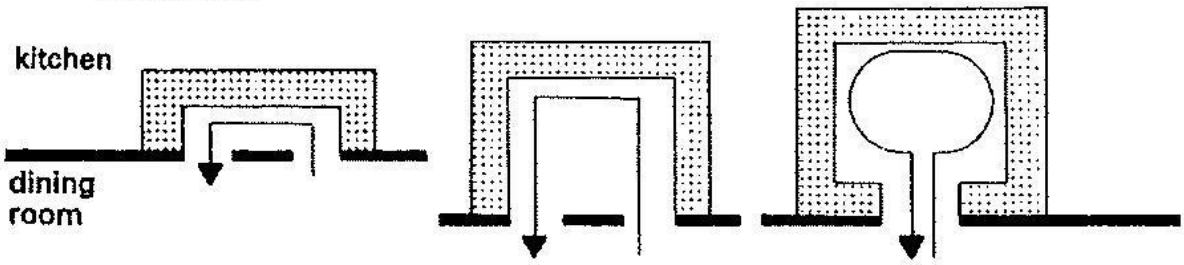
4 Restaurant kitchen for 150–200 meals

Image 35 Organization of Kitchen Spaces

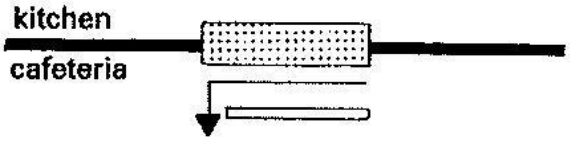


5 Functions and organisation of hot kitchen

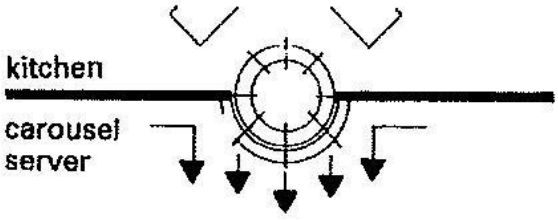
6 Organisation of cold kitchen



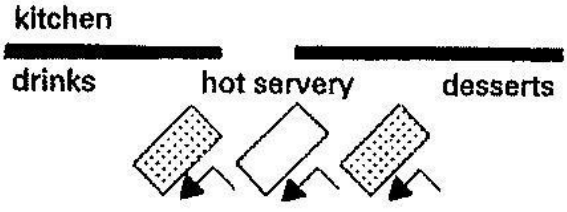
7 Servery, waiter walkway



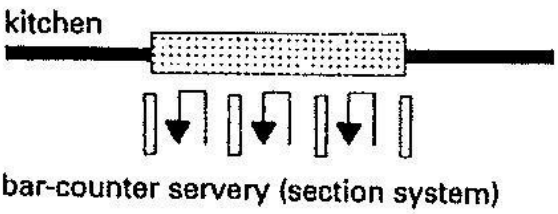
8 Self-service restaurant



9 Self-service restaurant



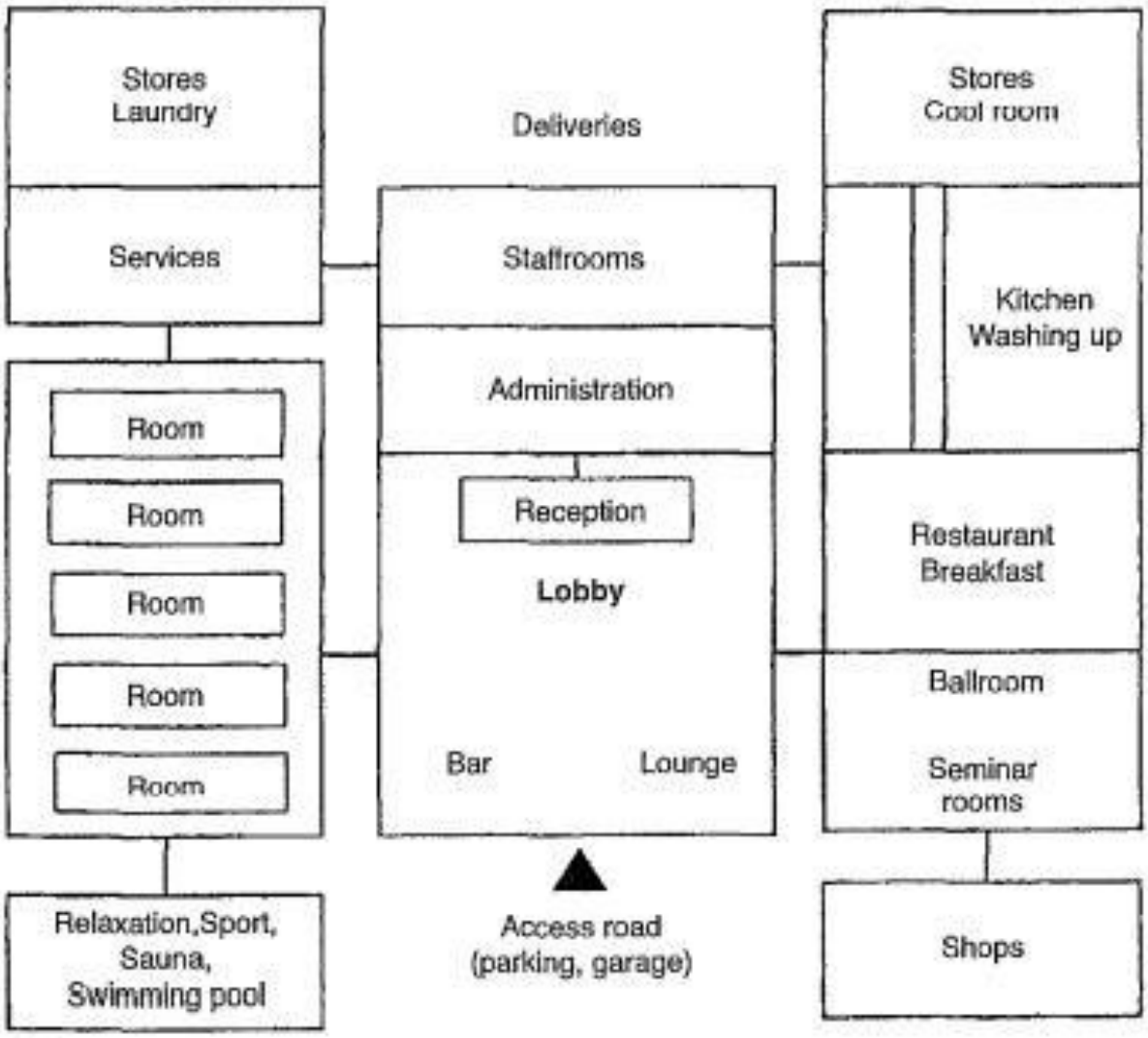
10 Free-flow restaurant



11 Self-service restaurant

Image 36 Functionality of Kitchen spaces through flow diagrams

2.6.4 BASIC SCHEMES OF HOTEL



2 Room and access scheme of a hotel

Image 37 Route relationship between spaces

The percentages of hotels' surface areas required for the various functions are shown below

Table 10 Percentage of hotel area required

1.	guest rooms, bathrooms, corridors, room service	50–60%
2.	public areas, lobby, reception etc.	4–7%
3.	catering	4–8%
4.	events, ballroom, seminar rooms	4–12%
5.	wellness/ fitness area	5–10%
6.	other areas, cosmetics, hairdresser	1–2%
7.	management, administration	1–2%
8.	service area, kitchen, staff rooms, stores	9–14%
9.	building services	5–10%

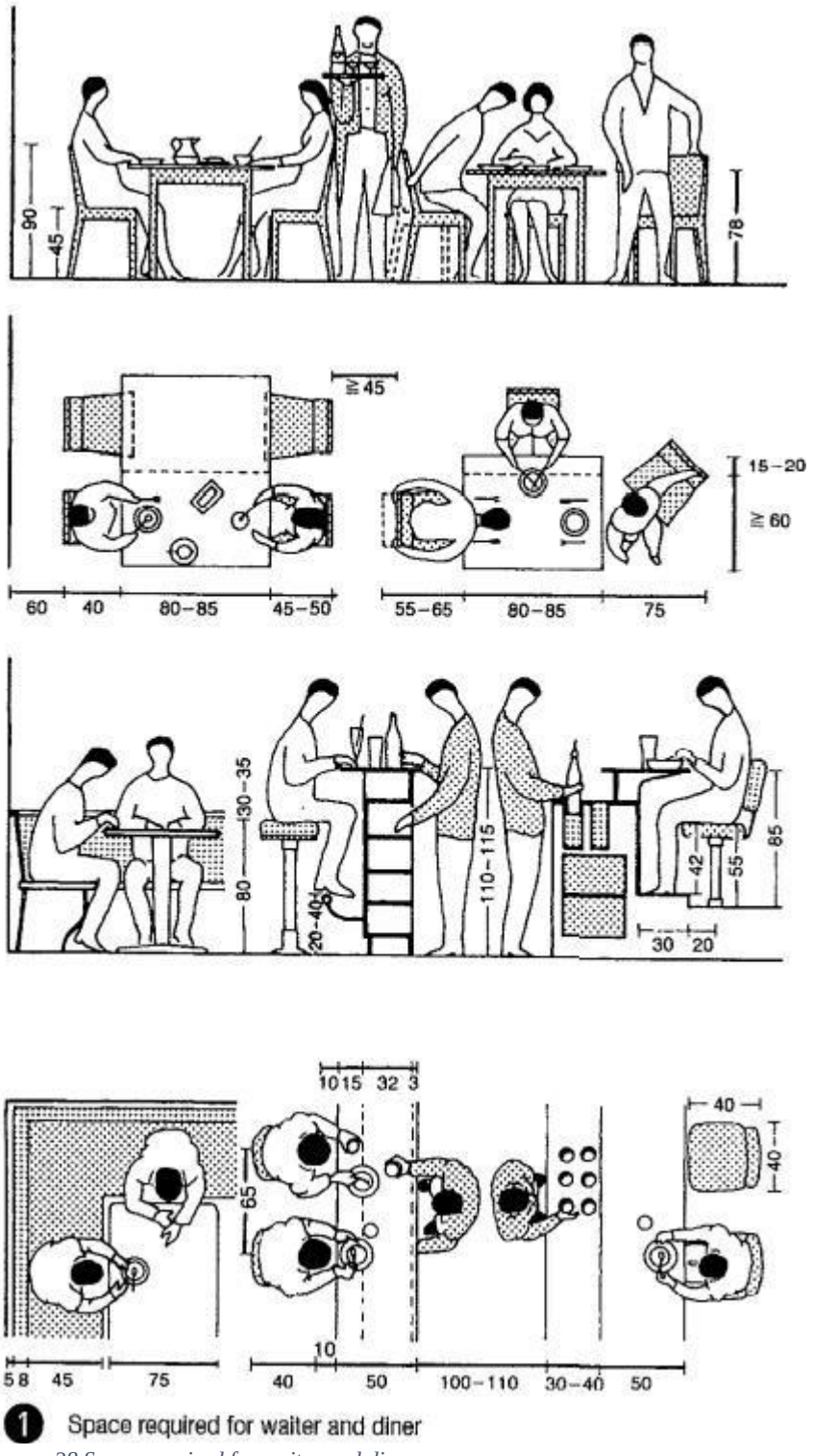
Parking and garage areas and special areas (e.g. wellness and bathing area) are also to be taken into account (and can vary widely according to the range of services)

	Hotel type	m^2/room
1.	luxury	90–110
2.	first class	60–70
3.	comfort	50–60
4.	standard (holiday hotel, motel)	40–60
5.	tourist (low-budget)	15–20

4 Guideline values for (above) shares of hotel surface area taken by each function and (below) gross areas per room in various categories of 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.

To be able to eat in comfort, one person requires a table area around 60 cm wide and 30-40 cm deep This provides sufficient distance between adjacent diners. Although an additional 20 cm space in the centre for dishes and large bowls is sometimes desirable, an overall width of 80-85 cm is suitable for a dining table. If the food is served on plates, then 70 cm is sufficient, and for fast food 60 cm table depth.
Distance between table and wall greater than equal to 75 cm because the chair alone requires a space of 50 cm. If the space between table and wall is also used for access, the distance should be greater than 100cm. Round tables need a little more space, a difference of up to50cm.



1 Space required for waiter and diner

Image 38 Space required for waiter and diner

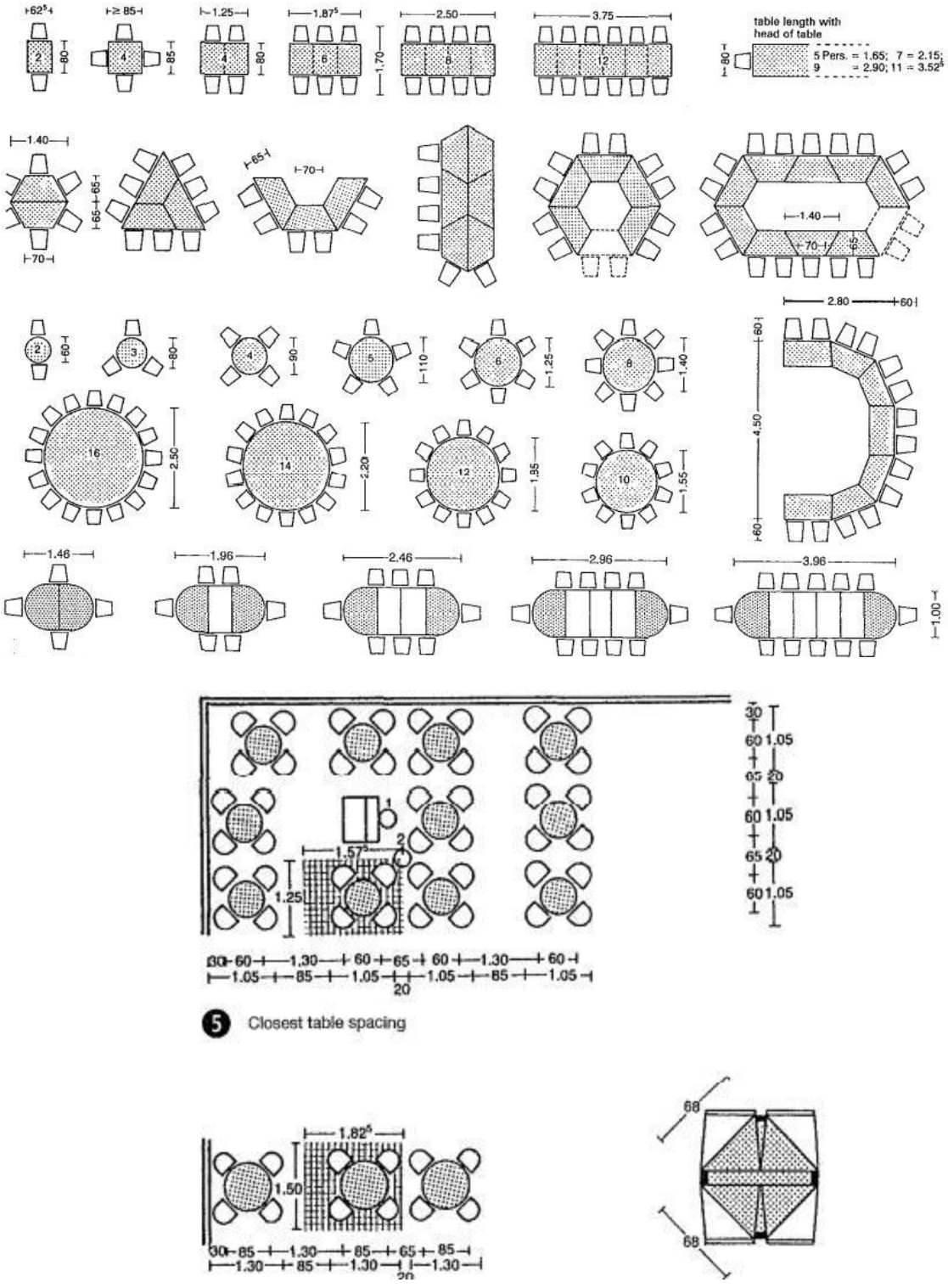
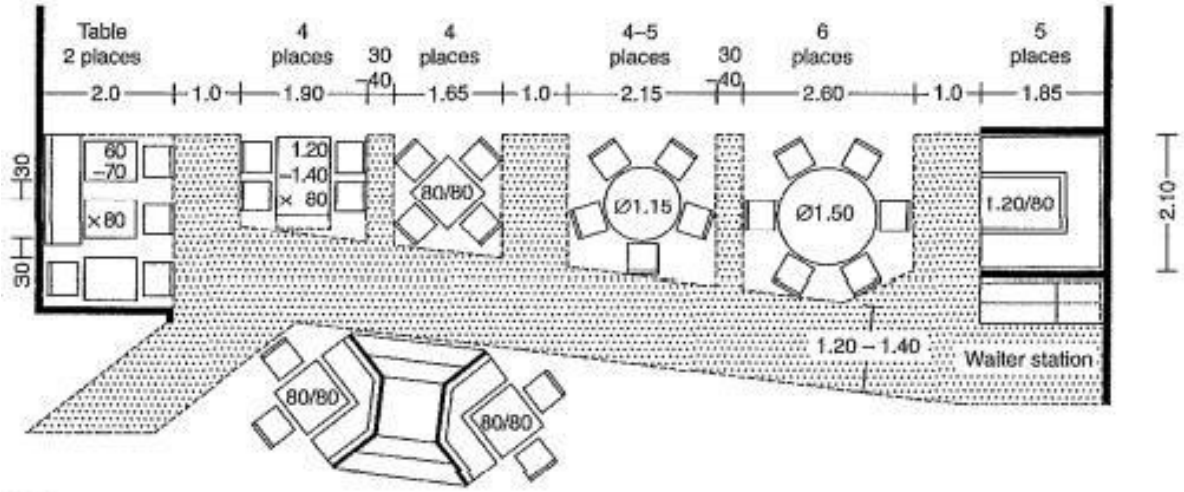
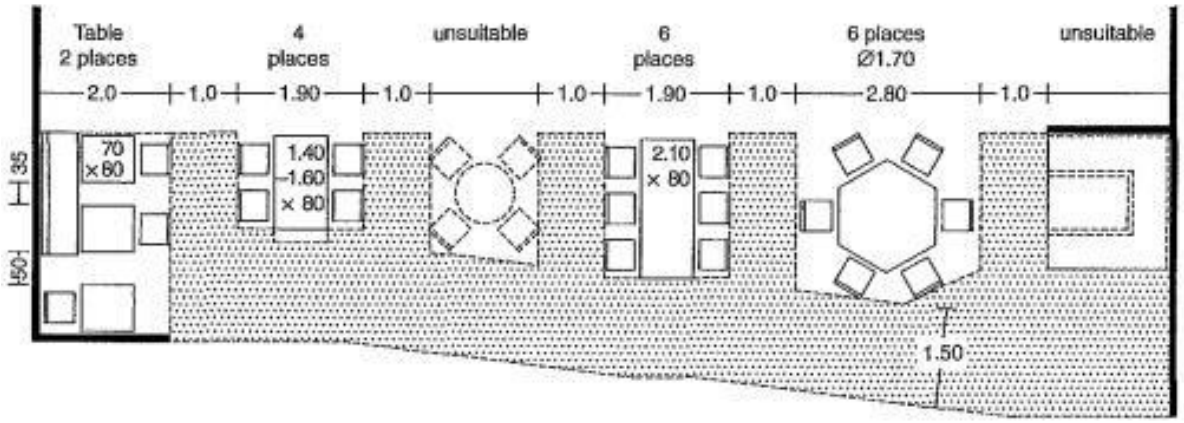


Image 39 Arrangements of dining tables



1 Table sizes in a restaurant: with predominantly plate service the table depth can be reduced to 70 cm



2 In a self-service restaurant

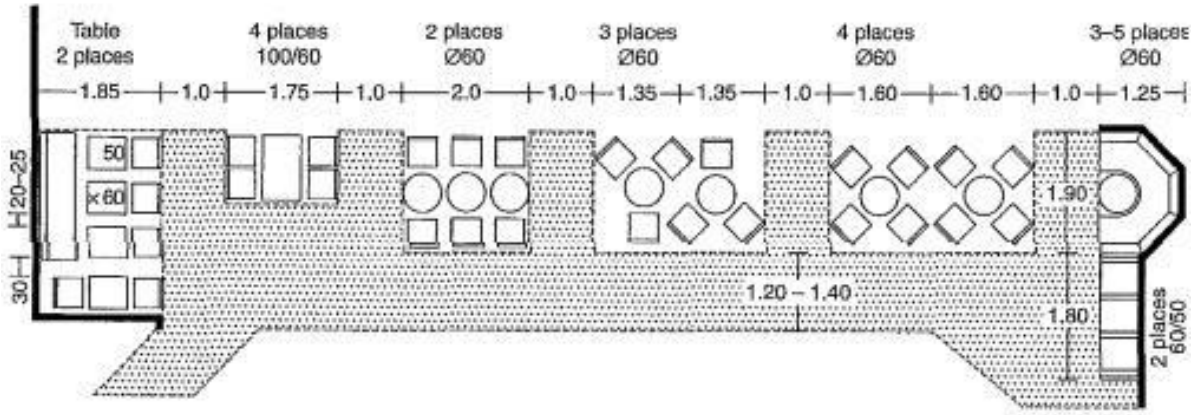


Image 40 Dining Table arrangements in different eating spaces

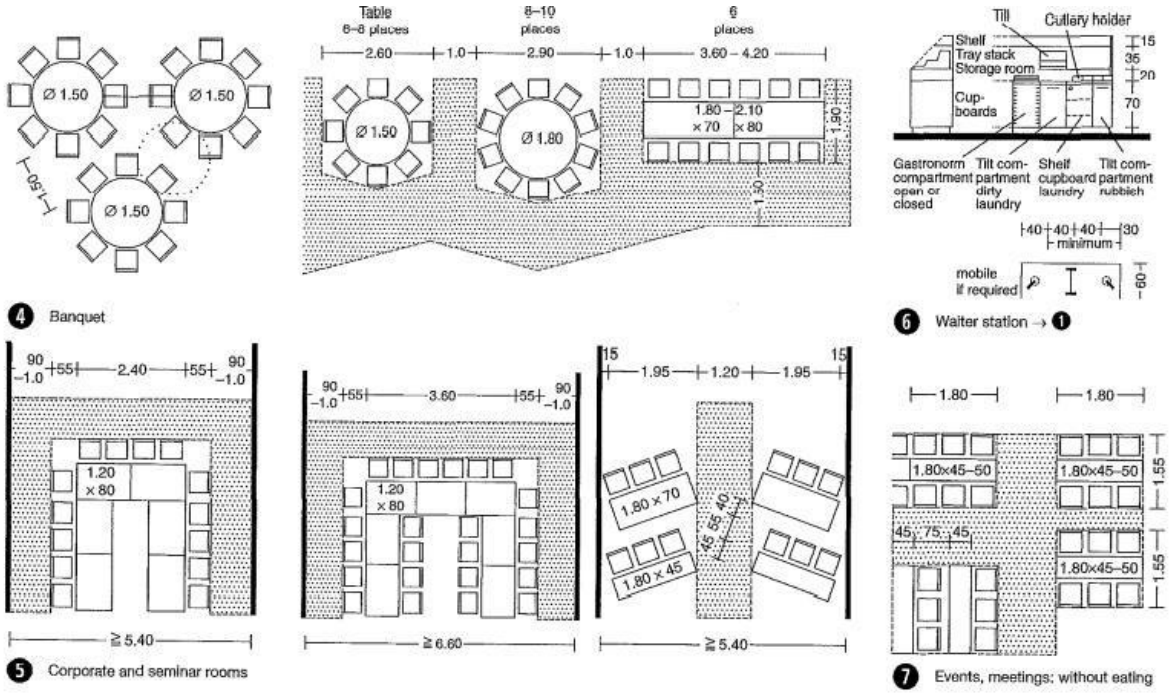


Image 41 Seating Arrangements

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

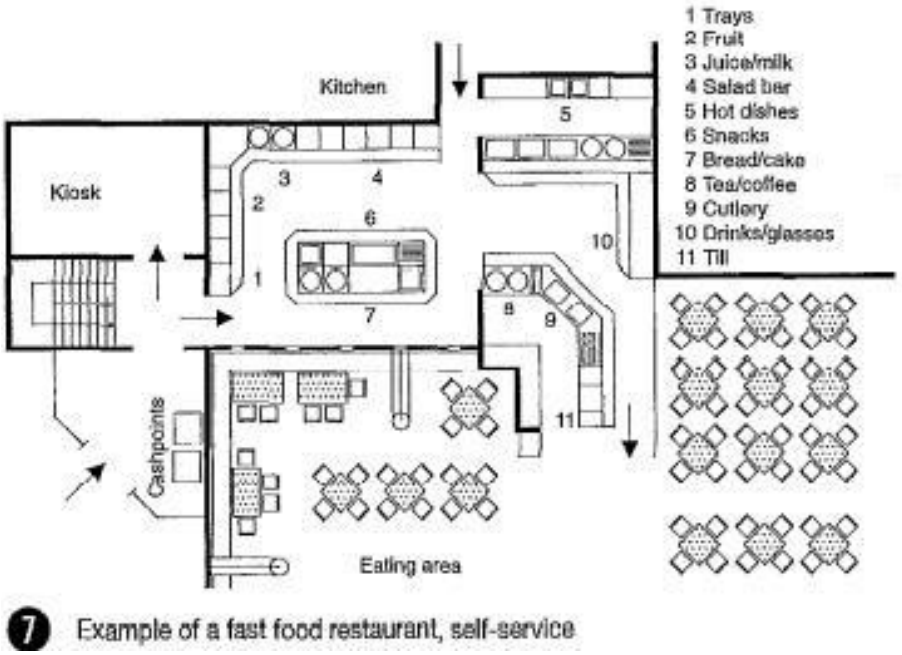


Image 42 Dining table arrangements in different eating spaces with an example of self-service restaurant

2.7. URBAN AND REGIONAL DEVELOPMENT PLANS FORMULATION AND IMPLEMENTATION GUIDELINES (URDPFI)

2.7.1 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:

Table 11 Means of Access (NBC, 2005)

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.

2.7.2 PARKING

Table 12 ECS requirement

2	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

2.7.3 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.

Table 13 Minimum setbacks

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.

2.7.4 SETBACKS WITH RESPECT TO ABUTTING ROAD WIDTH

Front Setback

Table 14 Front setback w.r.t. abutting road width

Sr. No.	Front Setback (m)	Width of street fronting the plot (m)	Remarks
1.	1.5	Upto 7.5	For buildings upto a maximum height of 7 m
2.	3.0	7.5 to 18	
3.	4.5	18 to 30	
4.	6.0	Above 30	

***Note**: For streets less than 7.5 m in width, the distance of the building (building line) shall be at least 5m from the centre line of the street.*

Rear and Side setback for building heights above 10m

Table 15 Side & Rare setback w.r.t. abutting road width

Sr. No.	Height of Buildings (m)	Side and rear setbacks (m)	Other Controls
1.	10	3	➢ For buildings above 24 m in height, the minimum front setback shall be 6 m. ➢ Where rooms do not derive light and ventilation from the exterior open space, the width of such space shall be reduced by 1 m subject to a minimum of 3 m and maximum of 8m. ➢ Alternative setbacks for tower like structures ○ Upto height of 24 m with one setback: Minimum 6m ○ Between 24 m and 37.5 m with one setback: Minimum 9 m ○ Above 37.5 m with two setbacks: Minimum 12 m
2.	15	5	
3.	18	6	
4.	21	7	
5.	24	8	
6.	27	9	
7.	30	10	
8.	35	11	
9.	40	12	
10.	45	13	
11.	50	14	
12.	55 and above	16	

The open areas provided in the buildings can be used for the following permissible activities:

- Garden, rockery, water well and well structures, plant nursery, water pool, swimming pool (if un covered), platform around a tree, landscaping, tank, fountain, bench, *chabutra* with open to pandunen closed on sides by walls and the like.
- Drainage culvert, conduit, catch pit, gully pit, chamber, gutter and the like.
- Compound wall, gate, un-storied porch and portico, canopy, slide, swing, uncovered staircase, ramps are as covered by *chajja* and the like.

2.7.5 GORUND COVERAGE & FAR

Table 16 Ground Coverage & FAR

Sr. No.	Hierarchy of Commercial Centre	Maximum Ground Coverage (%)		Maximum FAR		Maximum Height (m)		Other Controls
		Plains	Hills	Plains	Hills	Plains	Hills	
1.	Cluster Centre Convenience Shopping	40	40	60	60	15	6	
2.	Neighbourhood Centre	30	35	100	100	15	9	
3.	Community Centre	25	30	100	100	26	15	
4.	District Centre	25	25	125	125	37	15	Some of the buildings in Plains could be permitted upto 50 m height with the approval of the Government for achieving an urban form.
5.	Sub city centre	--	--	--	--	--	--	Controls to be as per requirement
6.	City Centre	25 (MPD, pg 59)	--	150 (MPD, pg 59)	--	--	--	Other controls to be as per requirement
7.	Hotel	40 (MPD, pg 59)	--	225	--	--	--	Other controls to be as per requirement
8.	Service Apartment	30	--	150	--	--	--	Other controls to be as per requirement
9.	Any other commercial centre	25%	--	100	--	--	--	Other controls to be as per requirement

Source: UDPFI Guidelines 1996, MPD.

2.7.6 WATER SUPPLY

The CPHEEO Manual recommends fire-fighting water demand as a function of population, i.e. water demand for fire-fighting purpose = 100√P, where P stands for forecasted population may be adopted for communities larger than 50,000. It is desirable that one-third of fire-fighting requirements from part of the service storage. The balance requirement may be distributed in several static tanks at strategic points. These static tanks may be filled from nearby ponds, streams or canals by water tankers wherever feasible. The pressure required for fire-fighting would have to be boosted by fire engines.

Table 17 Water supply requirement in LCD

S. No.	Institutions	Litres per head per day
1	Hospital (including laundry) a. no of beds exceeding 100 b. no. of beds not exceeding 100	 a. 450 (per bed) b. 340 (per bed)
2	Hotels	180 (per bed)
3	Hostels	135
4	Nurses homes and medical quarters	135
5	Boarding schools/colleges	135
6	Restaurants	70 (per seat)
7	Airport and seaports	70
8	Junction stations and intermediate station where mail or express stoppage (both railway and bus stations) is provided	70
9	Terminal stations	45
10	Intermediate stations (excluding mail and express stops)	45 (could be reduced to 25 where bathing facilities are not provided)
11	Day Schools/colleges	45
12	Offices	45
13	Factories	45(could be reduced to 30 where no bathing rooms are required to be provided)
14	Cinema, concert halls and theatres	15

Source: CPHEEO Manual, 1999.

2.7.7 FIRE FIGHTING

The CPHEEO Manual recommends fire-fighting water demand as a function of population, ie. water demand for fire-fighting purpose = 100√P, where P stands for forecasted population may be adopted for communities larger than 50,000. It is desirable that one-third of fire-fighting requirements from part of the service storage. The balance requirement may be distributed in several static tanks at strategic points. These static tanks may be filled from nearby ponds, streams or canals by water tankers wherever feasible. The pressure required for fire-fighting would have to be boosted by fire engines

2.7.8 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 either 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:

Table 18 Waste generation

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

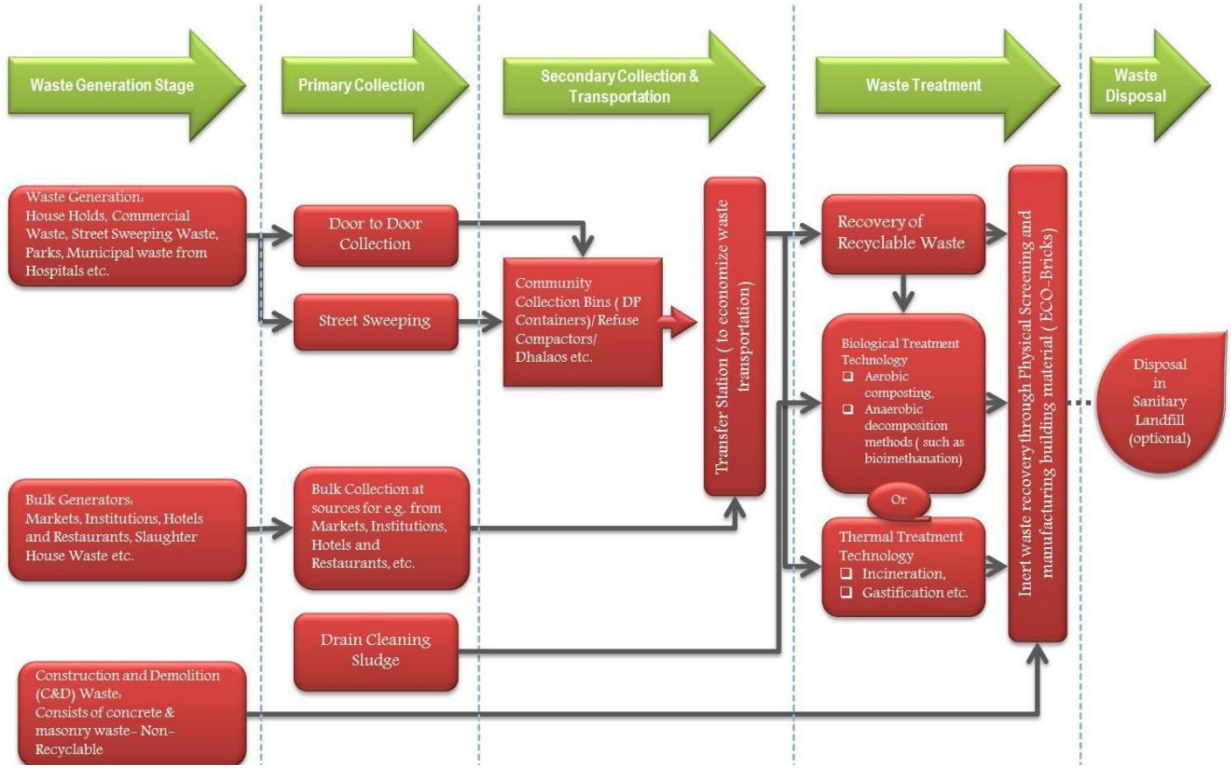


Image 43 Flow diagram of waste disposal

2.8 INDIAN STANDARD CODE FOR HOTELS AND RESTAURANTS

2.8.1 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.

2.8.2 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.

2.8.3 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.

2.8.4 CEILING

Ceiling shall be clean, leak-proof and have a smooth non-absorbent surface free from cracks and crevices to facilitate their efficient cleaning. These should be such that they do not harbour vermin.

2.8.5 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

2.8.6 LIGHTING

Table 19 Recommended values of illumination – IS Codes

TABLE 1 RECOMMENDED VALUES OF ILLUMINATION

The lighting of some of these locations will be determined primarily by aesthetic considerations and the recommended illumination values as given in IS : 3646 (Part II)-1966* may be taken as a guide only.

Sl No.	Areas	Illumination, Lux
(1)	(2)	(3)
i)	Entrance halls	150
ii)	Reception and accounts	300
iii)	Dining rooms (tables)	100
iv)	Lounges	150
v)	Bedrooms:	
	a) General	100
	b) Dressing tables, bed heads, etc	200
vi)	Writing rooms (tables)	300
vii)	Corridors	70
viii)	Stairs	100
ix)	Laundries	200
x)	Kitchens	†200
xi)	Goods and passenger lifts	70
xii)	Clockrooms and toilets	†200
xiii)	Dining rooms:	
	a) Tables	100
	b) Cash desks	300
xiv)	Self service-counters	300

*Code of practice for interior illumination: Part II Schedule for values of illumination and glare index.

†Supplementary local lighting should be provided over kitchen equipment and mirrors.

2.8.7 VENTILATION

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

Table 20 Ventilation Requirements - IS Codes

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

2.8.8 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 21 Water requirement in hotel

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.

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.

2.8.9 DRAINAGE

Adequate arrangements shall be made for satisfactory drainage of all sewage and waste water. Harmful waste water, such as water containing kitchen waste, &all be saticfactorily disposed of. The drainage shall be so designed as to cause no stagnation at the maximum discharge rate fur which the different units are designed. The requirements for firments for drainage and sanitation shall conform to the requirements given

Table 22 Drainage & Sanitation fitments in hotels- IS Codes

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.

Table 23 Drainage & Sanitation fitments in Restaurants- IS Codes

Sl No.	FITMENTS	FOR MALE PUBLIC	FOR FEMALE PUBLIC	FOR MALE STAFF	FOR FEMALE STAFF
(1)	(2)	(3)	(4)	(5)	(6)
i)	Water-closets	1 for 50 seats up to 200 seats; and for over 200 seats, add at the rate of 1 per 100 seats or part thereof	1 for 50 seats up to 200 seats; and for over 200 seats, add at the rate of 1 per 100 seats 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 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 seats	—	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 for every water-closet provided →			
v)	Kitchen sinks and dish washers	← 1 in each kitchen →			
vi)	Slop or service sinks	← 1 in the restaurant →			

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.

Septic tanks conforming to IS: 2470 (Part I)- 1963* or IS: 2470 (Part II)-l964 shall be provided if required by the authority. The gradient of the drains should be such that no water stagnates anywhere within the premises. Where no sewerage is provided for the final outfall, soak pits or access pools to the satisfaction of the Authority should be provided

2.8.10 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 2.4 meter. Exhaust fans should have provisions of grease filters for collecting grease

2.8.11 STORAGE AND HANDLING EQUIPMENT

All containers and utensils shall be stored at a height of not less than. 430 mm above the floor in a clean, dry place protected from flies, splash, dust, overhead leakage, and other contamination

STORAGE OF FOOD STUFF

All perishable food shall be stored at the temperatures as given in

Table 24 Storage temperatures for food

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.

2.8.12 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

2.8.13 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 all columns for separating the upper structure shall have grading not less than the standards laid down for Grade 3.

Table 25 Classification of structural components – IS Codes

Grade No.	Time in Hours, Minimum Resistance Against Standard Fire	Fire Load and Class of Fire Which Structural Element may Withstand	
		Fire Load in kcal/cm²	Class of Fire
(1)	(2)	(3)	(4)
1	6	1 100 000 and over	Very high
2	4	550 000 to 1 100 000	High
3	2	275 000 to 550 000	Medium
4	1	less than 275 000	Low
5	½	—	Very low

2.9 MODEL BUILDING BYELAWS

2.9.1 DEVELOPMENT CODES

Parking standards:

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 between 10-50 lakh – 1 car parking space every 3-guest room.
For Population more than 50 lakh – 1 car parking space for every 2-guest room.

Permissible ECS for different land uses Commercial - 3.0
Specific premises - Commercial- Hotels:

Maximum ground coverage	40%
Maximum floor area ratio	3.00
In hills	1.75
Maximum height	As per requirement

Other Controls:

i. *5% of the FAR can be used the commercial space related to hotel function.*
ii. *Basement(s) up to the building envelope to the maximum extent of plot area shall be allowed and if used for parking and services should not be counted in FAR.*

2.9.2 GREEN BUILDINGS AND SUSTAINABILITY PROVISIONS

- Modern buildings consume about 25 to 30 % of total energy, and up to 30 % of fresh potable water, and generate approximately 40 % of total waste. Sustainable buildings have demonstrated reduction in energy and water consumption to less than half of the present consumption in conventional buildings, and complete elimination of the construction and operational waste through recycling.
- *Thus, all buildings on various plot sizes above 100 sq.m. shall comply with the green norms and conform to the requirements mandatory for sanction as mentioned in this chapter*.
- These provisions are not specific to any rating system and are not intended to provide a single metric indication of overall building performance. These provisions allow the practitioners to easily exercise their engineering judgment holistically and objectively applying the underlying principles of sustainability to a development or building facility, considering its functionality and required comfort level.

Table 26 Provisions for Various Plot Sizes

Table 10.1 Provisions and applicability for various plot sizes (Residential and Non-Residential)

Plot Category	Applicable plot area (sq.m)	Provisions for Residential	Provisions for Non- Residential
I	Up to 100	Nil	Nil
II	100 to 500	1(a), 2(a), 2(b), 4(a)	1(a), 2(b), 4(a)
	500 to 1,000	1(a), 1(c), 2(b), 3(c), 4(a)	1(a), 1(c), 2(a), 2(b), 3(c), 4(a)
	1,000 to 3,000	1(a), 1(c), 1(d), 2(a), 2(b), 3(b), 3(c), 4(a)	1(a), 1(c), 1(d), 2(a), 2(b), 3(b), 3(c), 4(a)
III	Above 3,000	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3(a), 3(b), 3(c), 4(a), 4(b)	1(a), 1(b), 1(c), 1(d), 2(a), 2(b), 3(a), 3(b), 3(c), 4(a), 4(b)

Provisions for City and Site level Greening:

In alignment with *National Sustainable Habitat Mission*, the Authority shall encourage augmentation of green cover in the city/plot, by following:
The Urban Greening Guidelines, 2014 and other provisions as given below –

i. Provision of minimum 1 tree / every 80sqmt of plot area for plot sizes > 100sqmt and planted within the setback of the plot.
ii. Compensatory Plantation for felled/transplanted tress in the ratio 1:3 within the premises under consideration.
iii. Choice of species for plantation in site and abutting the road to be adopted as per Section 8 of the *Urban Green Guidelines, 2014*.
iv. The unpaved area shall be more than or equal to 20% of the recreational open spaces.

Water Re-use and Recycling :

All building having a minimum discharge of 10,000 *l.* and above per day shall incorporate waste water recycling system. The recycled water should be used for horticultural purposes.

Roof Top Solar Energy Installations:

Rooftop photovoltaic power station, or rooftop PV system, is a photovoltaic system that has its electricity-generating solar panels mounted on the rooftop of residential or commercial buildings. The various components of such a system include photovoltaic modules, mounting systems, cables, solar inverters and other electrical accessories. Rooftop PV systems are faster than other types of renewable power plants. They're clean, quiet, and visually unobtrusive. Table below stipulates the Norms for Roof Top Solar PV Installation

Table 27 Norms for Roof Top Solar Installation

Table 10.2 Norms for Roof Top Solar PV Installation and generation

S.No.	Category of buildings/area	Area standards	Generation requirement *
	Residential		
1	**Plotted Housing**	For HIG Plots and above	Minimum 5% of connected load or 20W/sqft for *"available roof space* "**, whichever is less.
2	**Group Housing**	All proposals, as per Group Housing Norms	Minimum 5% of connected load or 20W/sqft for *"available roof space* ", whichever is less.
	All other buildings (Government or Private, defined as per clause 1.16 b to g) (mandatory for buildings having shadow free rooftop area > 50 sqmt)		
3 4 5 6 7 8	**Educational** **Institutional** **Commercial** **Industrial** **Mercantile** **Recreational**	Plot size of **500 sqmt and above**	Minimum 5% of connected load or 20W/sqft for *"available roof space* ", whichever is less.

* Area provisions on roof top shall be @12 sqmt per 1KWp, as suggested by Ministry of New and Renewable Energy.
** *"available rood area"* = 70% of the total roof size, considering 30% area reserved for residents' amenities.

Installation of Solar Assisted Water Heating System in Buildings:

No new building in the following categories in which there is a system of installation for supplying hot water shall be built unless the system of the installation is also having an auxiliary solar assisted water heating system: -

a) Hospitals and Nursing Home.
b) Hotels, Lodges, Guest Houses, Group Housing with a plot area of 4000 sq m.
c) Hostels of Schools, Colleges and Training Centers with more than 100 Students.
d) Barracks of armed forces, paramilitary forces and police.
e) Individual residential buildings having more than 150 sq m. plinth area.
f) Functional Buildings of Railway Stations and Air Ports like waiting rooms, retiring rooms, rest rooms, inspection bungalows and catering units.
g) Community Centers, Banquet Halls, Barat Ghars, Mangal Karyalayas and buildings for similar use.

Sustainability of Building Materials:

Use of Factory made pre-fab/pre-cast and recycled components with *green benefits*:

a) Panels, hollow slabs, hollow blocks–etc. - conservation of materials, less water requirement.
b) Fly Ash bricks, Portland Pozzolana cement, fly ash concrete, phosphogypsum based walling & roofing panels, particle wood – recycled use of industrial/ agricultural by-products. (Ref. Table 14)
c) Fly ash/ AAC (Autoclaved aerated light weight concrete) panels/ CLC (Cellular light weight concrete) panels- ensures thermal comfort (significant reduction in air conditioning requirement)
d) Use of bamboo & rapidly growing plantation timbers- environmental benefits. Local materials are generally suitable for prevailing geo-climatic conditions & have advantage of low transportation cost & time. Sustainable use of building materials shall be encouraged which may combine certain mandatory provisions and incentives.

Various Guidelines for Green Rating systems:

The respective State Governments may prepare their separate *Green Rating* systems for buildings by selectively combining/adopting/amending the provisions between the following guidelines:

1. IGBC guidelines by the Confederation of Indian Industries.
2. GRIHA guidelines by the Ministry of New and Renewable Energy. GoI.
3. ECBC guidelines prepared by the Bureau of Energy Efficiency, Ministry of Power. GoI
4. Model Energy Efficiency guidelines. (NSMH Sub report by Bureau of Energy Efficiency)

2.10 REGULATIONS FOR HOTELS AND MIXED USE DEVELOPMENT (2016) BY GOVERNMENT OF GUJARAT:

2.10.1 PLANNING PROVISIONS

- The Mixed use building having minimum area of 3500 sqmtr. abutting on road width 30 mts or more: (Except in the case of heritage hotel)
- For the purpose of these regulations, irrespective of the Floor Space Index (FSI) prescribed in any zone, it shall be regulated as under:

Total FSI permitted on any plot shall be the sum of the Global FSI and Premium FSI where…

  - Global FSI (GFSI) shall be…..
    - 0.6 in any area or
    - permissible FSI in a particular zone;
  - Premium Floor Space Index (PFSI) shall be permitted at rate of 40% of the jantry.

- The built up area of following shall be excluded from the computation of the FSI:
  - Basement and other floors used for the parking;
  - Refuge area as required as per NBC;
  - Entrance Porch / Guest Drop Off Canopy area;
  - Atrium;
  - Fire escape stairways;
  - Service floor;
  - Ramps leading to parking spaces;
  - Swimming pool on any floor
  - Control room for security and Fire Control
  - Sewerage Treatment Plant / Effluent Treatment Plant
  - Equipment / Air Handling Rooms (AHU) for air conditioning and ventilation requirements.

- Guest Drop Off Canopy, Porch and Lift for the access to parking, at the ground level shall be permitted.
- For safety and emergency exit, provide escape routes and refuge areas, on locations as required in the design.

  The refuge and the escape area shall be regulated as under:
  - to hold occupants during a fire or terror attack or any other emergency until rescued;
  - Refuge Area shall be regulated as under:
    - one or more refuge spaces, not necessarily be contiguous but connected with escape routes;
    - minimum area of 15 sq.mts and a minimum width of 3.0 mts
    - at least one refuge space be provided for every 6 floors or part thereof;
    - the refuge and the escape area shall be designed for safety of the occupants;
    - design of refuge area should comply with the provisions of NBC

2.10.2 MARGINS AND BUILT-UP AREA:

- Notwithstanding anything contained in GDCR, margins shall be regulated as under:

    a) Minimum clear margin of 9.0 mts in all sides shall be provided.
    b) Nothing except cabin and structures related to security may be permitted in the margins;

2.10.3 HEIGHT OF BUILDING

Height higher than that permitted under the GDCR shall be known as additional height. The Additional height (AH) shall be regulated as under:

a) Up to 70 mts height shall be permitted on road width 30 mtr or more
b) More than 70 mtr height shall be permitted on road width 40 mtr or more

Provided that, in case of heritage hotel road width shall not be considered.

2.10.4 PARKING

a) Parking shall be permitted on any floor/ basements at any levels;
b) Parking shall be allowed in one or more levels of basement;
c) Space for services which may include electric cabin, substation, A.C. plant room, Generator room, boiler room, hotel laundry, housekeeping, stores, lockers and rest room for the reserve staff. However such services shall only be permitted on one level of basement. Such uses shall strictly be ancillary to the principal use.
d) Mechanical parking shall be allowed at any level.
e) Minimum parking equivalent to 50% of the consumed FSI shall be provided;
f) The parking can be provided in one or more lots. However it shall have to be provided within the same building unit;

- Access for private cars, cyclists, pedestrians, service vehicles, emergency vehicles, physically challenged people, and public utility vehicles shall be designed for safety and convenience;

- Access Points onto public roads should be located and designed in such a way as to minimise traffic hazards, queuing on public roads.

- On each floor minimum of one service corridor of minimum 2.5 mts width, having access from each floor and is connected to the lift shall be provided;

- Lifts – planning and design

The planning and design of lifts shall be in accordance with National Building Code of India.

CHAPTER III

SITE INVENTORY

3.1 CONNECTIVITY TO SANAND

3.1.1 INTRODUCTION

The proposed site for the 5-star hotel is strategically located within the industrial zone of Sanand, Gujarat, offering both accessibility and potential for high footfall from business and industrial visitors. The location is well-connected by various modes of transport, albeit with a preference for private or industrial commuting methods due to the distance from major public transit hubs.



Image 44 Group Photograph on Site

3.1.2 ROADWAYS

The National Highway 48 (NH 48) is the major highway that passes through Ahmedabad, Gujarat. This highway connects Delhi to Mumbai, passing through key cities including Ahmedabad, Vadodara, Surat, and others.The Highways which connect Sanand to Ahmedabad and the nearby Major Cities are:

- **SH 17**: Links Sanand to Ahmedabad and Viramgam.
- **SH 135**: Connects Sanand to Modasa, Dehgam, and other regions northeast of Ahmedabad.
- **NH 48–Via Sarkhej**: Though not passing directly through Sanand, it's accessible via Sarkhej-Sanand Road (~10–15 km from Sanand). Connects to Ahmedabad, Vadodara, Surat, Mumbai, and northward to Udaipur and Delhi.

Regional Road Transport: The nearest bus stop is **Sanand ST Stand**, located approximately **17 km** from the site. For intercity and long-distance travel, the **Ahmedabad Central Bus Station** at **Gita Mandir**, approximately **40 km** away, offers comprehensive connectivity.

3.1.3 RAILWAYS

The **Chharodi Railway Station**, located **5 km** from the site, serves as the closest railway link and caters primarily to local trains. For broader national rail access, **Ahmedabad Junction**, a major railhead, is located **43 km** away.

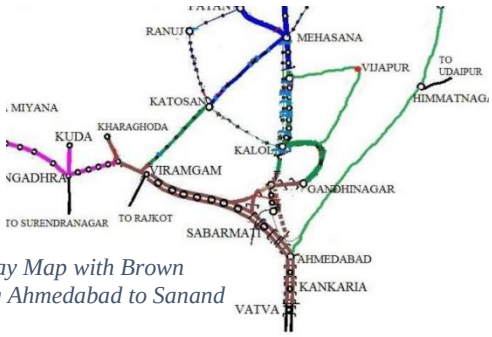


Image 45 Railway Map with Brown Line Connecting Ahmedabad to Sanand

3.1.4 AIRWAYS

The nearest airport is the **Sardar Vallabhbhai Patel International Airport**, situated about **50 km** from the site. While not immediately adjacent, the airport provides direct flights to major cities across India and select international destinations. Additionally, **helipads located within nearby industrial areas** offer a high-speed commute alternative, particularly for corporate or VIP guests.

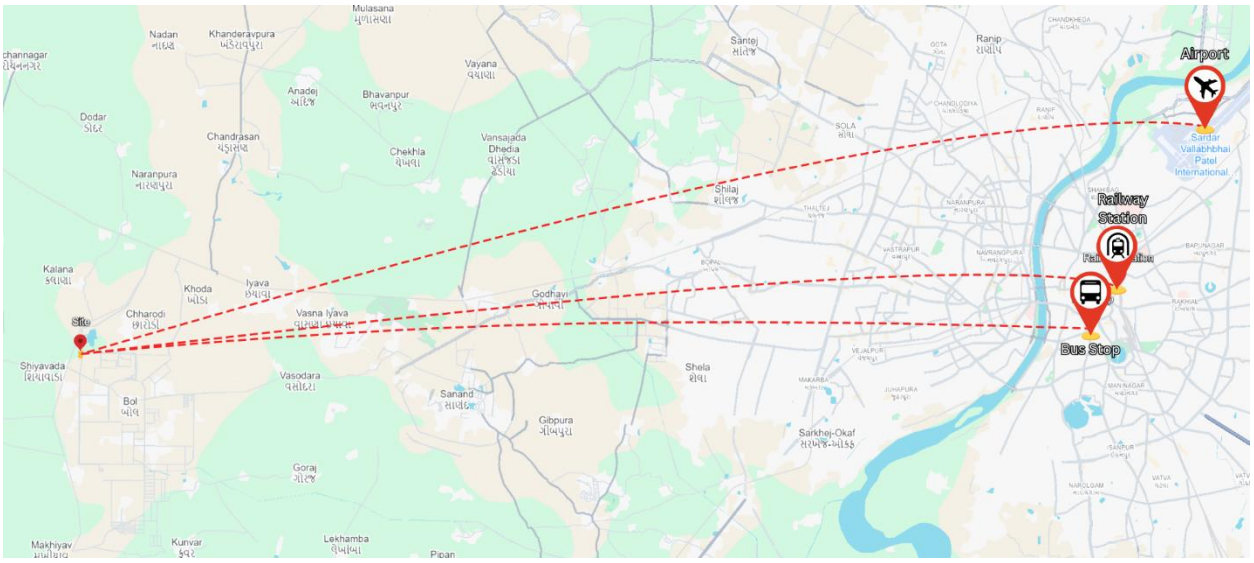


Image 46 Connectivity to Site via Various Modes

3.2 PROXIMITY

The site is enveloped by a thriving **industrial ecosystem**, contributing to a consistent demand for premium hospitality services from domestic and international business travellers, consultants,

and corporate delegates. The presence of large-scale manufacturing units and tech parks nearby underscores the need for high-end accommodations and business conferencing facilities.

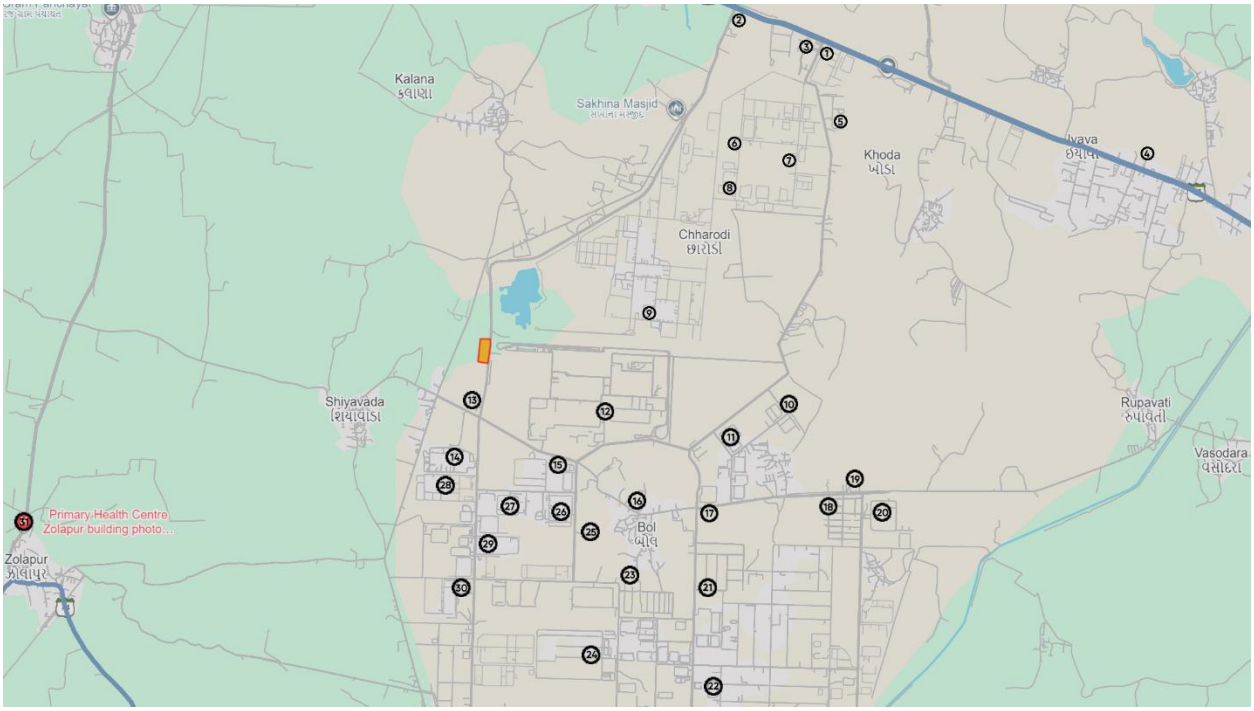


Image 47 Site Proximity Map

1. Sanand GIDC Gate no. 1
2. Sanand GIDC Gate no. 2
3. Gujarat Gas CNG Pump
4. Nayara Petrol Pump
5. Suspa Pneumatics India Private Limited
6. Yazaki India Private Limited
7. Gabriel India Limited Sanad
8. Adient India Pvt
9. Tata Motors
10. Micron Technology
11. JBM Auto Limited
12. Tata Sanand Vehicle Assembly Plant
13. GIDC Office Sanand
14. Nestle India Limited
15. Hitachi Hi-Rel Power Electronics
16. Sub Centre Bol (Hospital)
17. BOL Industrial Estate GISC 2
18. Omspace Rocket & Exploration
19. Nayara Petrol Pump
20. Hindustan Coca Cola Beverages
21. Jaivel Aerospace Ahemdabad
22. Magneti Marelli Motherson Auto System
23. BOL Post Office
24. Maxxis Rubber India Private Limited
25. Doctor House BOL
26. Indutotherm (India) Private Limited
27. Nivea India Private Limited
28. Arabelle Solutions
29. India Japan Lighing Pvt Ltd
30. Emcure Pharmaceuticals Limited Sanand
31. Primary Health Centre Zolapur

3.2.1 SOCIAL INFRASTRUCTURE

- **Educational Institutions Nearby:**
  - Northkotpura Primary School
  - Charal Primary School
  - College of Safety and Fire Technology – an institute that brings in students, faculty, and visiting professionals regularly.
  -
- **Healthcare Facilities Nearby:**
  - Sub Centre Bol
  - Doctor House Bol
  - Occupational Health Centre – serving primarily industrial workers and residents.

3.3 SITE ACCESSIBILITY & TRAFFIC

3.3.1 ACCESSIBLITY & TRAFFIC

The site is accessible through the 20 meters wide road. Another 20 meter wide road has been proposed on the back side of the site.



Image 48 Site Accessibility





3.3.2 SAFETY AND STRUCTURES ON SITE

The surroundings of the site are safe & sound.

There are no on site structures on site. The site is covered with mild vegetation and agricultural crops. The site has garbage dumped on some of it

Image 49 Access Roads



Image 50 Site Photographs

3.4 DEMOGRAPHICS

With a 2025 estimated population of about **8.16 million** in the city and **9.31 million** in its metro region, Ahmedabad stands as Gujarat's most populous urban center. According to the 2011 Census, the city had **5.58 million** residents. The **sex ratio** in the municipal limits was **898 females per 1,000 males** (child sex ratio: 848 girls per 1,000 boys), while the broader district recorded a sex ratio of **904 per 1,000** (child ratio: 857). Literacy rates are strong: the city averaged **88.29%** literacy (male 92.30%, female 83.85%), with district-wide literacy at **85.31%** (male 90.74%, female 79.35%)

Table 28 Demographic Data

Religions in Ahmedabad

Religion	Percent
Hindu	81.56%
Muslim	13.51%
Not Stated	0.12%
Jain	3.62%

Sikh		0.24%
Christian		0.85%
Buddhist		0.08%
Other		0.04%

Religiously, Ahmedabad is predominantly **Hindu (≈ 81.6%)**, followed by **Muslims (≈ 13.5%)**, **Jains (≈ 3.6%)**, **Christians (≈ 0.85%)**, **Sikhs (≈ 0.24%)**, **Buddhists (≈ 0.08%)**, with small shares of "other religions" (≈ 0.04%) and "not stated" (≈ 0.12%).

3.5 TOPOGRAPHY

The geographical coordinates of **SANAND** are:

- **Latitude**: ~ 23.0° N
- **Longitude**: ~ 72.38° E (Sanand taluka area)
- **Elevation at town center**: ~ 38 m (≈ 124 ft.) above sea level.

Sanand town is part of the vast **Gujarat Plains** region, with flat terrain forming part of the Sabarmati river basin.



Image 51 Topographical Contours of Sanand

From elevation models (~10-30 m resolution elevation data):

- **Within ~2 miles (~3 km)**
  - **Min elevation**: ~10 m (~33 ft.)
  - **Max elevation**: ~65 m (~213 ft.)
  - Average ~**31 m (≈ 102 ft.)**
- **Within ~10 miles (~16 km)**
  - Elevation range in surrounding taluka: **10 m – 65 m** (~33 ft. – 213 ft.), so variation up to ~**185 ft**.
- **Within ~50 miles (~80 km)**
  - Larger Ahmedabad-Gujarat plains remain largely flat; typical elevation ~30–40 m, max occasional rises near gentle uplands, so **variation under ~200 ft**.

3.6 SEISMIC ACTIVITY

Zone III: This zone corresponds to a **Moderate Damage Risk Zone**, liable to **MSK VII** levels. The **IS code assigns a zone factor (Z)** of **0.16** for Zone III. Major cities in this zone include Chennai, Mumbai, Kolkata, Bhubaneswar, Ahmedabad, Vadodara, Pune, Lucknow, and Sanand (in the Ahmedabad region).

CITY	STATE	ZONE
SANAND	GUJRAT	III

3.7 SOIL TYPE

The soils around Sanand belong to the **deep, alluvial loam-clay** category characteristic of Central Gujarat plains (Quaternary deposits). They are **very deep**, **well to moderately drained**, and slightly saline and sodic in parts of the taluka. The terrain is nearly **level** (< 2 % slope), unlike the interfluvial hill slopes seen in Agra soils.
The local climate has a **mean annual temperature of ~27 °C (80.6 °F)** and **mean annual rainfall of ~757 mm (~30 inches)**, supporting moderate moisture retention soils under arable and industrial usage.

3.8 CLIMATE ANALYSIS

3.8.1 CLIMATE OF SANAND

Sanand, Gujarat, located near Ahmedabad, experiences a semi-arid climate with hot summers (35°C–45°C), mild winters (12°C–25°C), and an average annual temperature of around 27.5°C. The region receives approximately 750 mm of rainfall annually, mostly during the southwest monsoon (June–September), with July and August being the wettest months. Relative humidity averages 55%–65%, peaking at 90% during monsoon and dropping to 20%–35% in dry seasons. Wind speeds average 2.5–3.2 m/s, predominantly from the southwest and west, aiding natural ventilation. Sanand enjoys abundant sunshine year-round, making it suitable for solar energy utilization, while the climate conditions demand thoughtful architectural strategies for heat reduction, ventilation, and rainwater management.

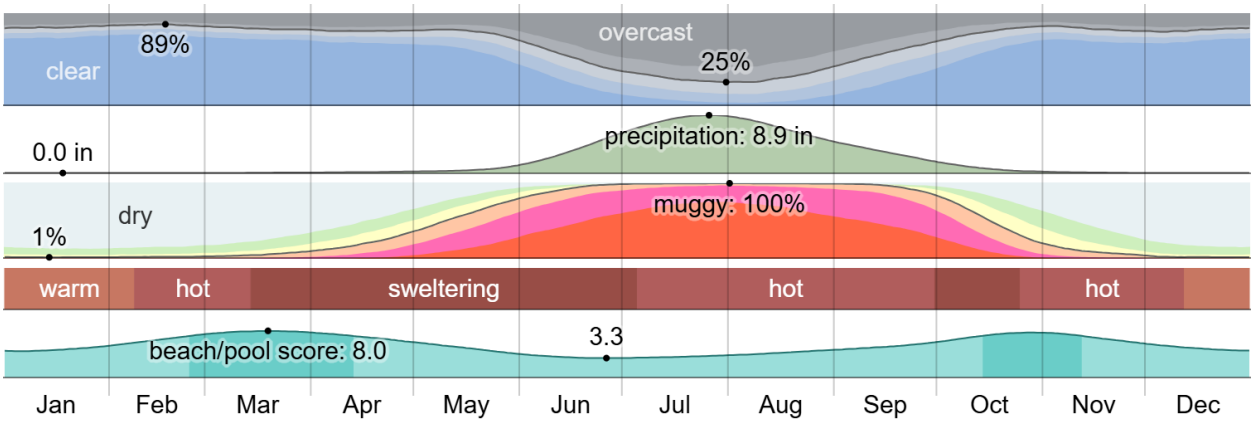


Image 52 Climatic Experience in Sanand Around the year

3.8.2 AVERAGE TEMPERATURE IN SANAND

The hot season in Sanand lasts for about 2.2 months, from April 9 to June 15**, with** average daily highs remaining above 38 °C (100 °F)**. The** hottest month is May**, featuring typical temperatures of** 41 °C (105.8 °F) **during the day and** 28 °C (82 °F) **at night.**
The cool season spans around 2.1 months, from December 7 to February 12**, characterized by** average daily highs below 30 °C (86 °F)**.** January is the coldest month**, with daily temperatures ranging from approximately** 13 °C (55 °F) **to** 28 °C (82 °F)**.**

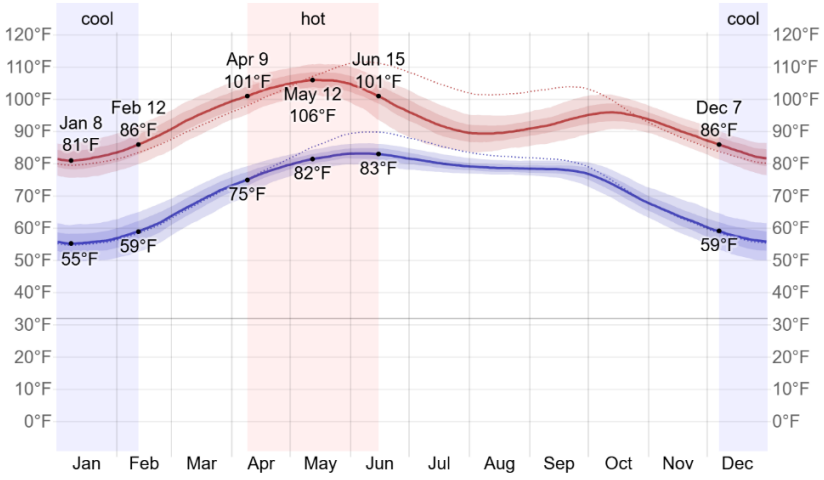


Image 53 Sanand Annual Temperatures

3.8.3 PRECIPITATION

A wet day in Sanand is defined as one with at least **0.04 in (1 mm)** of precipitation. The **wetter season** extends for approximately **2.8 months**, from **June 20 to September 13**, during which a given day has a **greater than 23% chance** of rainfall. **July is the wettest month**, averaging about **12.5 rainy days**, while the **driest month is December**, with only **~0.2 wet days**. Notably, **rain alone** is the only form of precipitation, with its probability peaking at **46% around July 29.**

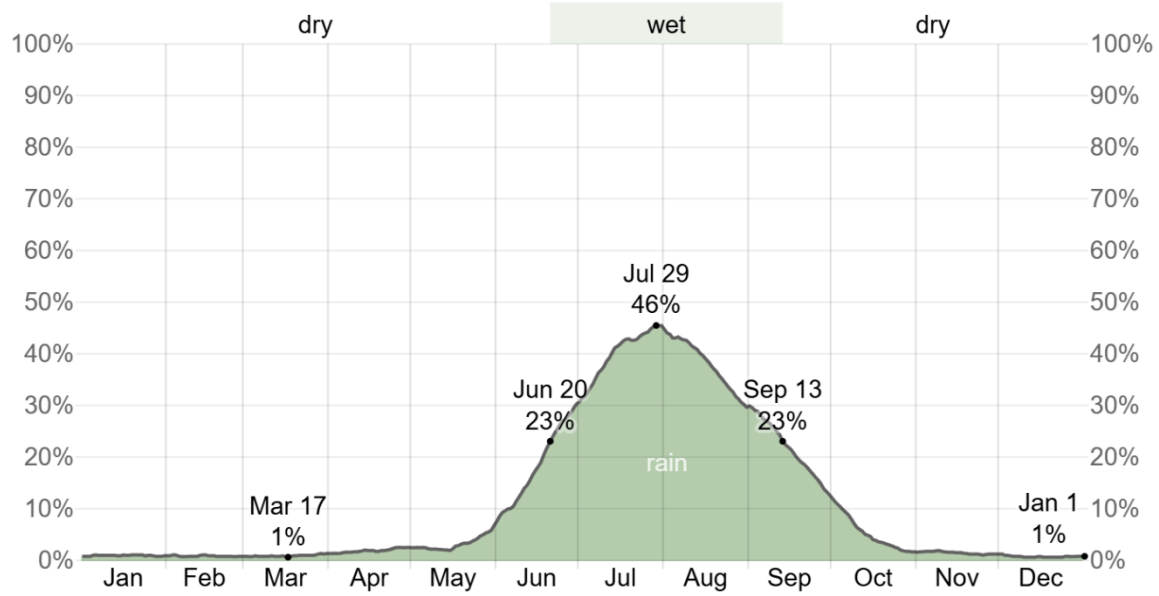


Image 54 Average Precipitation in Sanand

3.8.4 RAINFALL

To illustrate intra-month variation, Sanand's **rainy period** lasts approximately **5.1 months**, spanning **May 18 to October 20**, during which any **rolling 31-day total rainfall** stays **at or above 0.5 inches**. Rainfall peaks in **July**, registering up to **8.4 inches** in a sliding monthly average. From **October 20 to May 18**, forming the **rainless period** of about **6.9 months**, 31-day rainfall falls below 0.5 inches, with **January** recording the **least rainfall** (~0.0 inches).

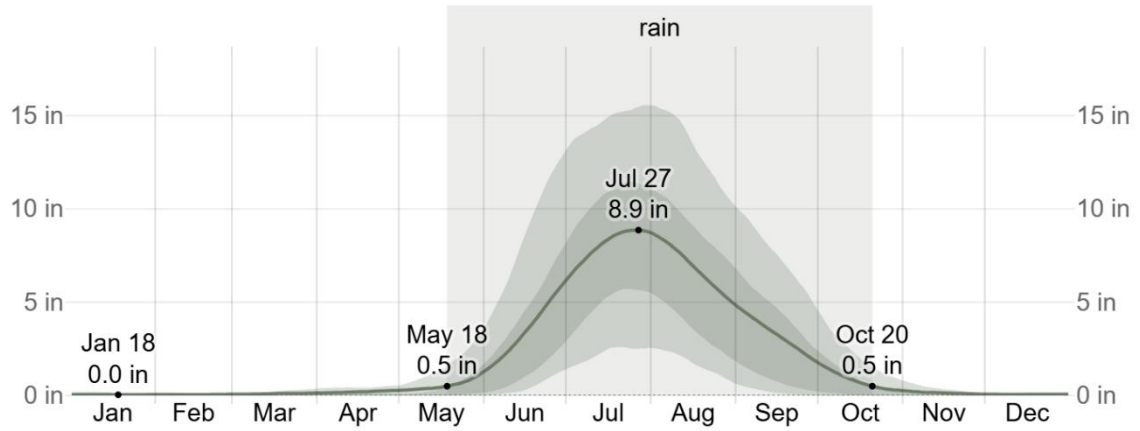


Image 55 Average Rainfall Sanand

3.8.5 HUMIDITY

The muggier period in Sanand extends over approximately 6.1 months, from April 23 to October 27. During this time, the dew point rises enough to make conditions feel muggy, oppressive, or even miserable on at least 26% of the days. This means that for nearly half the year, outdoor conditions may feel uncomfortably humid, especially during the daytime. **The peak of this discomfort occurs in August**, which records the highest average number of muggy days—**around 30.9 days**, essentially the entire month. Such levels of humidity can significantly impact thermal comfort, especially when combined with high temperatures. In contrast, **the least humid part of the year is January**, with an average of only **0.3 days** experiencing similar muggy conditions, offering a brief respite of dry, more comfortable air. This stark seasonal variation makes it crucial to consider humidity control in architectural and planning decisions, especially for ventilation, cooling, and material selection.

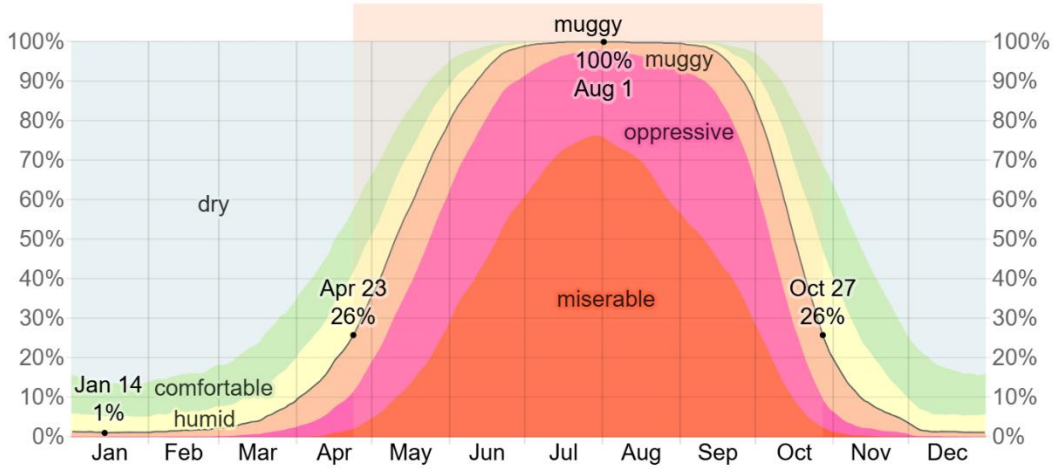


Image 56 Humidity Chart

3.8.6 WIND

The **windiest span in Sanand lasts about four months**, stretching from **April 22 to August 22**, when the **hourly average wind speed consistently exceeds ~13.6 km/h (~8.5 mph)**. **June** is the **peak wind month**, with an average speed close to **18.9 km/h (~11.8 mph)**, while **October** offers the calmest air—mean speeds dipping to **8.4 km/h (~5.2 mph)**.

Wind direction shifts dramatically with the seasons: from **March 9 through October 10**, winds predominantly blow from the **west**, reaching a seasonal high of **86% on May 14**. Then, between **October 10 and December 4**, **easterly winds** take over—peaking at **53% on November 8**. From **December 4 to March 9**, **northerly winds** dominate, with **52% frequency recorded on January 1**.

These patterns suggest a pronounced seasonal wind regime—useful for everything from natural ventilation design to planning outdoor structures and shading in architectural projects.

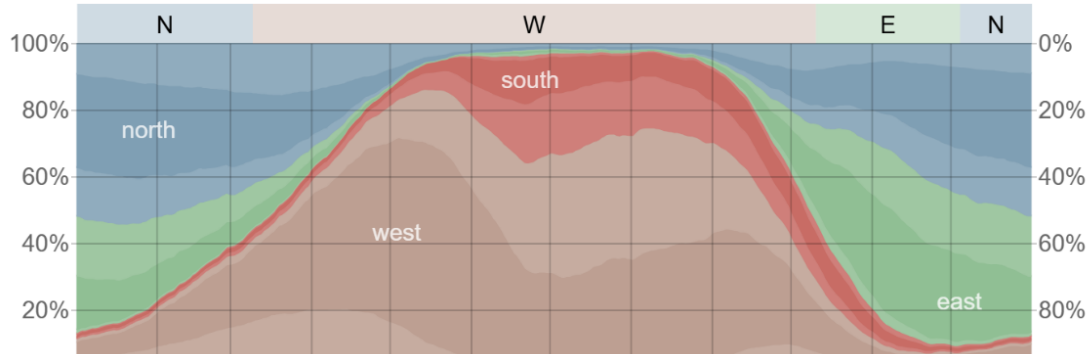


Image 57 Wind Chart

3.8.7 SUNPATH

The sun path diagram for Sanand (Latitude 23.0019°N, Longitude 72.2491°E) reveals critical solar movement data essential for climate-responsive architectural design. The site experiences a sunrise at 06:44 and sunset at 18:53, resulting in approximately 12.08 hours of daylight. At the time of analysis, the solar azimuth and altitude are 119.09° and 49.46°, respectively—indicating the sun's southeast position in the morning with a moderately high altitude in the sky. The solar envelope indicates that maximum solar gain occurs from the southeast to southwest arc, especially during summer months when the sun travels a higher and longer path.

This data supports strategic orientation of built forms and fenestrations. North-facing façades remain shaded most of the day, making them ideal for minimal heat gain, while south and southwest exposures require adequate shading devices such as vertical fins or overhangs to mitigate harsh afternoon sun. Open green zones and public areas are best located on the eastern and northern edges, benefiting from softer

morning sunlight and avoiding peak afternoon heat. Overall, this sun path analysis informs passive design strategies to optimize thermal comfort and energy efficiency in the Sanand climate context.

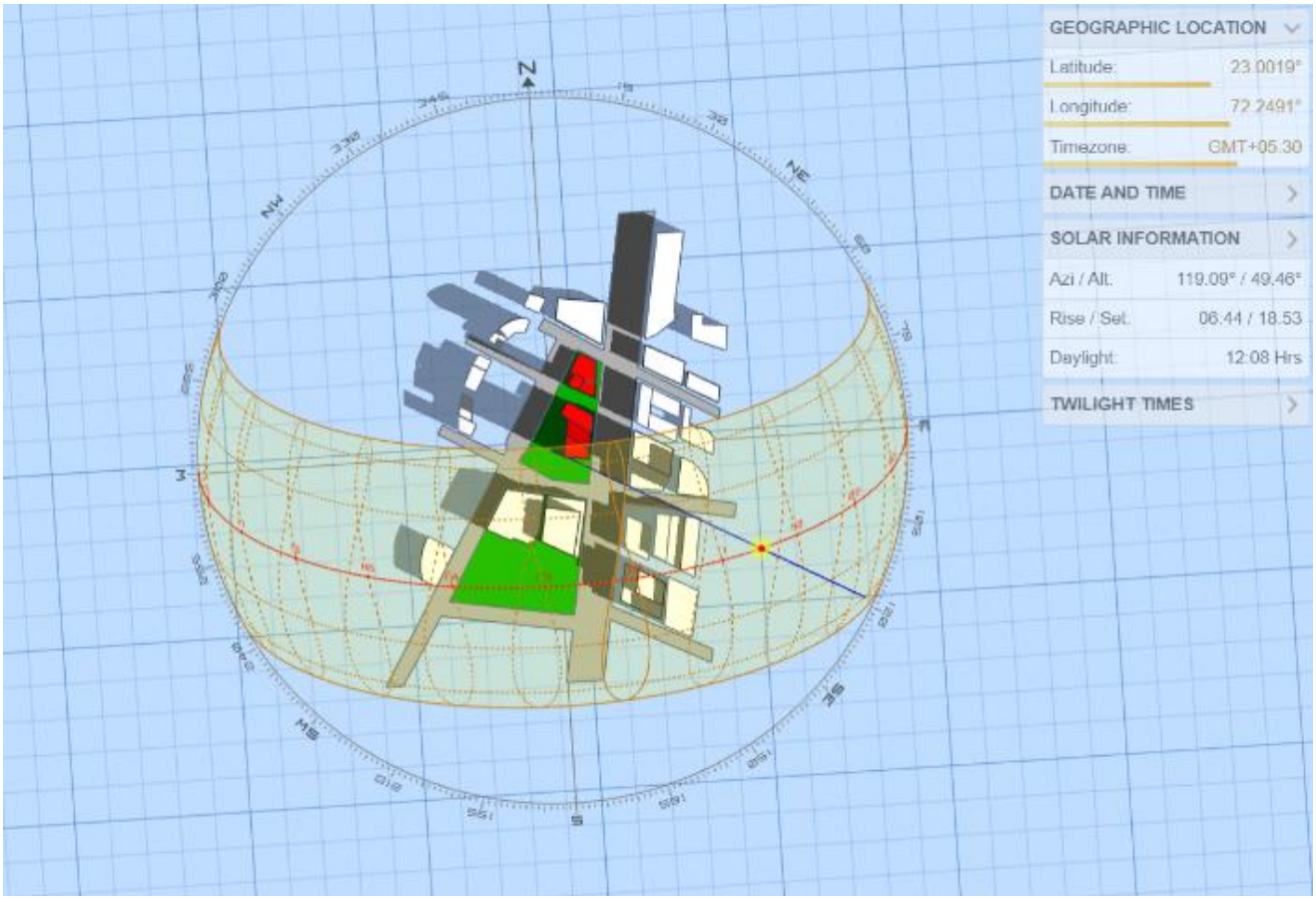


Image 58 Sunpath

3.8.8 SUN HOURS SIMULATION

A detailed **sun hours** analysis was carried out for four representative months of the year—covering both summer and winter extremes—to understand the site's **solar exposure** and inform passive design strategies. The simulation, conducted using **Adobe Forma**, revealed the daily duration and intensity of sunlight received across various parts of the building mass. This helped identify zones with prolonged exposure, which are ideal for placing solar panels or sunlit public areas, as well as areas needing shading elements to prevent overheating. The data serves as a crucial tool in optimizing natural daylight while minimizing glare and solar gain, enhancing both energy efficiency and **occupant comfort** in the proposed hotel.

February:

To understand the solar exposure across different facades of the proposed hotel design, a sun hours analysis was conducted for the month of February using Adobe Forma. The simulation, performed on a massing model located on the exact project site, revealed significant variations in sunlight exposure due to orientation and surrounding topography. The southern and western facades received maximum solar gain, with sun exposure reaching up to **11 hours per day**, indicating ideal zones for passive solar strategies and solar energy integration. In contrast, the northern façade exhibited minimal sunlight, with areas showing as low as **0 hours of direct sun**, suggesting potential zones for service areas or thermal insulation focus. Intermediate zones showed moderate exposure, such as **5.2 to 5.9 hours**, indicating a balance of shading and daylighting potential. This analysis plays a critical role in optimizing façade design, spatial planning, and energy efficiency strategies for the hotel in alignment with climate-responsive architecture.

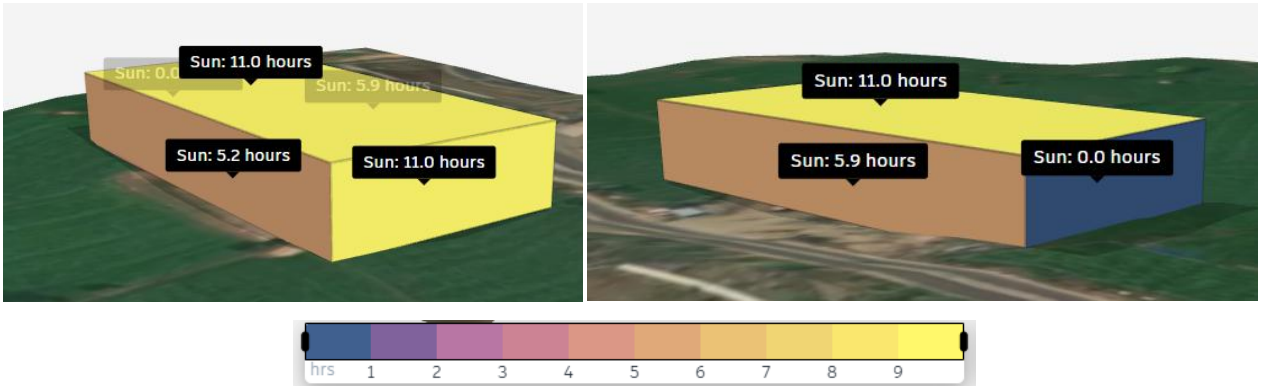


Image 59 Sun hours Analysis in February

May:

A peak summer month, show that the building receives abundant sunlight with certain roof areas achieving up to **13 hours** of sun exposure, while other facades receive between **6 to 7 hours** depending on orientation and shadow impact. This variation provides vital insights for optimizing **rooftop amenities**, **solar panel** placements, shading devices, and thermal **comfort zones**. The analysis further aids in refining the building's massing and facade articulation to reduce heat gain in summer while ensuring adequate daylight throughout the year. This data-driven approach strengthens the sustainable intent of the design by aligning architectural decisions with the site's climatic potential.

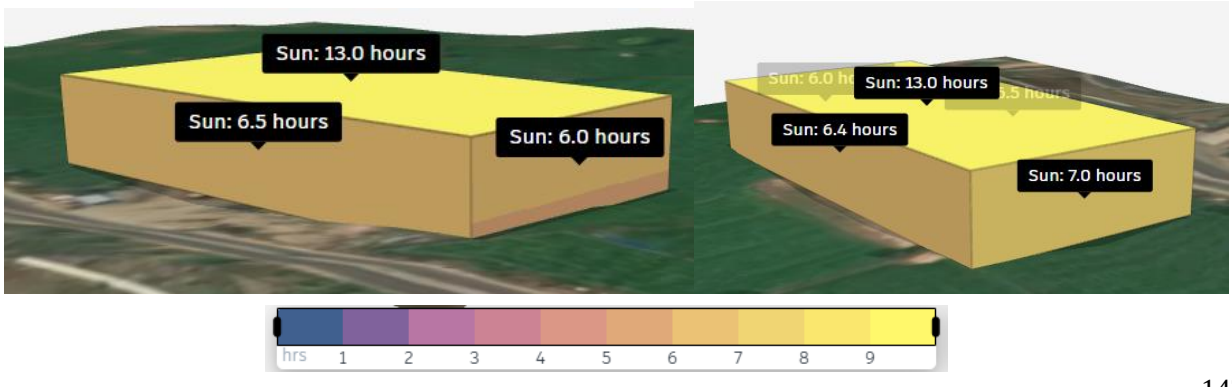


Image 60 Sun hours Analysis in May

August:

The analysis revealed that the rooftop receives maximum solar exposure, with peak values reaching up to **13.1 hours** per day, making it a suitable zone for solar panel installations or recreational spaces that benefit from direct sunlight. Vertical surfaces showed moderate sun exposure, with some façades receiving as low as **5.7 hours** and others up to **7.3 hours** of sunlight daily. This variation in exposure will play a critical role in informing the building's façade design, passive cooling strategies, and placement of fenestrations to balance natural lighting and thermal gain. The results reinforce the importance of climate-responsive design in maximizing user comfort while optimizing energy performance.

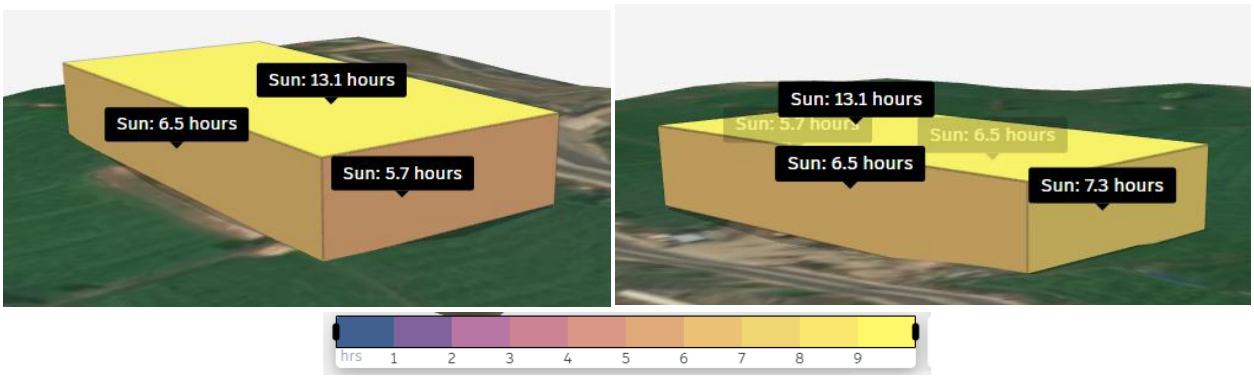


Image 61 Sun hours Analysis in August

December:

The **south and southeast-facing** facades receive the highest sunlight, with values peaking around **10.6** hours per day, while certain **north-facing zones remain in full shade with zero sun exposure**. This distribution highlights the need for strategic space planning—placing public or solar-dependent functions such as lobbies, lounges, or **energy-harvesting** systems in high-exposure zones, while reserving shaded areas for back-of-house or utility services. The insights from this simulation will guide passive design interventions like facade articulation, fenestration placement, and shading devices to optimize thermal comfort and energy efficiency during **winter months**.

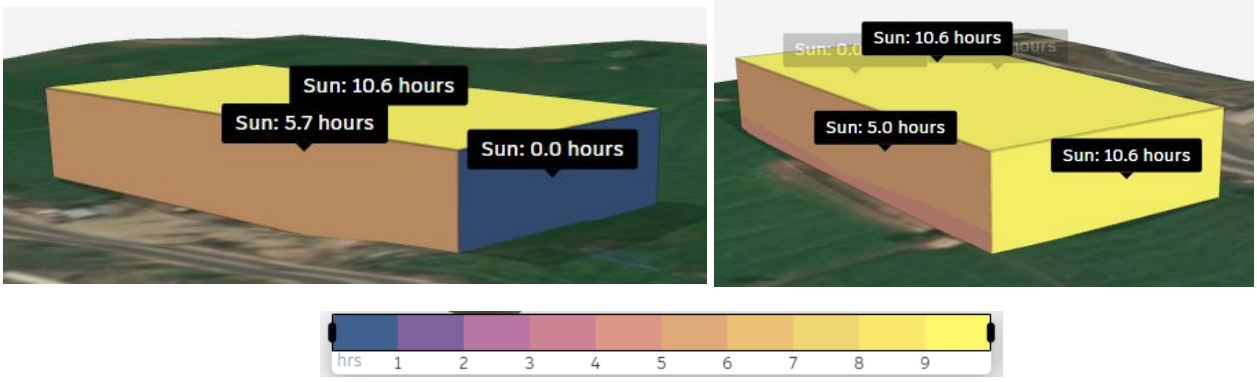


Image 62 Sun hours Analysis in December

3.8.9 DAY LIGHT POTENTIAL

The daylight potential analysis for the proposed building site in GIDC Sanand, Gujarat, reveals significant variations in light exposure across the structure. The analysis indicates that the top surface of the building achieves a **maximum score of 100%,** reflecting optimal daylight penetration, while the middle and lower sections **score 40% and 40%** respectively, suggesting moderate to **limited natural light** availability. This data underscores the need for **strategic design** considerations, such as incorporating additional glazing or light wells, to enhance **interior illumination**, particularly in **the lower levels**, ensuring a balance between **natural lighting** and **energy efficiency** in the final construction plan.

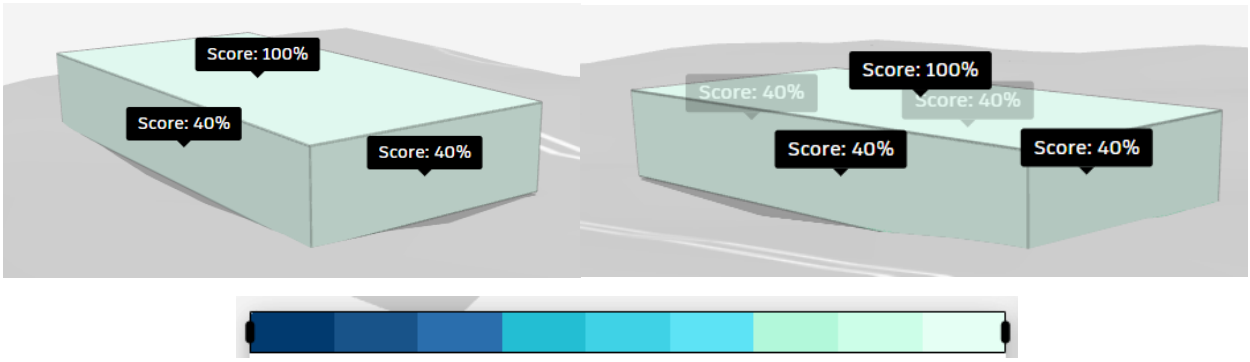


Image 63 Day Light Potential

3.8.10 CLIMATE RESPONSIVE DESIGN CONSIDERATIONS

- **Orientation & Layout:**
  - Orient buildings along the east-west axis to minimize direct solar exposure on longer facades.
  - Design courtyard-style layouts to create shaded, cooler microclimates and promote air movement.
- **Thermal Mass & Insulation:**
  - Use high thermal mass materials (brick, stone, rammed earth) to delay heat gain and release it at night.
  - Provide insulated roofs and cavity walls to reduce internal heat transfer.
- **Shading & Openings:**
  - Minimize west-facing openings to avoid harsh afternoon sun.
  - Use deep verandahs, chajjas, jalis, and horizontal/vertical shading devices to block direct sunlight.
  - Employ ventilated double roofs or green roofs to lower roof surface temperature.
- **Natural Ventilation:**
  - Design for cross-ventilation using narrow floor plans, operable windows, and jaali screens.
  - Align windows with prevailing southwest summer winds for passive cooling.
- **Roof Treatments:**

- Use light-colored, high-reflectivity materials for roofs to reduce solar heat gain.
- Consider cool roof coatings and radiant barriers (like foil insulation) for added thermal protection.

- **Landscaping & Outdoor Spaces:**
  - Integrate vegetation and water bodies (courtyard pools or fountains) to cool outdoor air.
  - Plant deciduous trees and use green buffers on the west side to reduce heat gain and dust.
- **Water Efficiency & Heat Mitigation:**
  - Employ rainwater harvesting, permeable paving, and xeriscaping (drought-tolerant planting) to manage water wisely.
  - Design shaded pedestrian paths and wind corridors to reduce urban heat island effect.

3.9 NEIGHBOURHOOD CONTEXT

3.9.1 NEIGHBOURHOOD BUILTUP



Image 64 Built-Up Mass around the Site

3.9.2 CONDITION OF EXISTING BUILDINGS

All the Industrial Plants, Office buildings in the vicinity are RCC, Steel Structures, sometimes covered with Curtain walls.










Image 65 Existing Buildings

3.9.3 VEGETATION



Image 66 Existing Vegetation

CHAPTER IV

CASE STUDIES

4.1. LIVE CASE STUDY: TAJ HOTEL, BHOPAL

4.1.1 INTRODUCTION

The Taj Lakefront, Bhopal epitomises true luxury. Overlooking the upper lake and just25 minutes from the international airport, this iconic landmark symbolises the soul of Bhopal and its vision for tomorrow. The magnificent structure by the lakefront redefines fine living with its modern interiors, ornate and luxurious finishes. The design is intuitive to the region and inspired by the bell metal craft of Tikamgarh, the lakes and Zari work ofBhopal, the paisley prints of Bagh, the Durries of Sironj, and the Terracotta art of the state's tribal areas.

Ready to be the new landmark of the city, it opens its doors to the world with 152 guest rooms, multi-cuisine and award-winning restaurants, recreation facilities, Jiva spa, modern meeting spaces, well-equipped conference rooms, and the city's largest banqueting facilities



Image 67 Taj Lakefront at Night

Details:

Table 29 Taj Lakefront Details

PROJECT	**TAJ LAKEFRONT**
LOCATION	BHOPAL
CLIMATE	Humid Subtropical
TOPOGRAPHY	PLAIN LAND
ARCHITECT	JOI DESIGN

COMPLETION YEAR	2021
NO. OF ROOMS	152
SITE AREA	4.77 ACRE
FAR	2

4.1.2 LOCATION

It is close to the Van Vihar National Park, Sanchi Stupa, National Museum of Mankind, Taj-ul-Masajid, and many such wonders of the city. Located near Bhadbhada Road Chauraha, Link Rd Number 3, Bhopal, Madhya Pradesh Overlooking the upper lake.

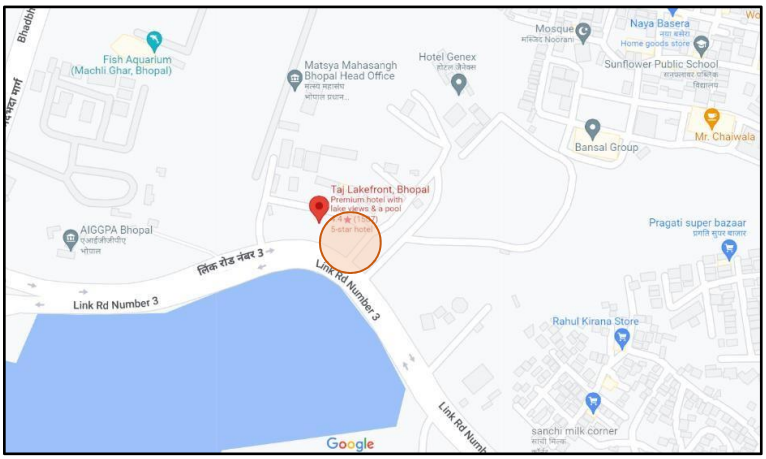


Image 68 Location on Google Maps

4.1.3 SITE BOUNDARY

Site Characteristics:

- The site has kind of trapezium shape having curved edge in front.
- As we look into the site planning of taj the front part is designed with pleasing landscape by which guests can connect with its lush greenery.
- Back part of the site is used for the services.
- The building shape is evolved by the curved front edge of the site.
- Circulation of the site is designed in that way so that no congestion will occur.



Image 69 Site Plan: Taj Lakefront

Site Boundary

Circulation within the Site

4.1.4 FACILITIES

These are the following facilities and amenities that Hotel Taj is providing to their guests.

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

4.1.5 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 in the right side of the site.

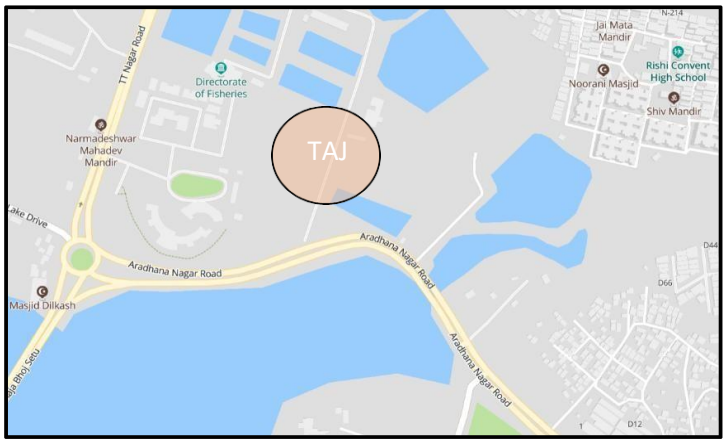


Image 70 Approach Roads

4.1.6 VERTICAL ZONING

Here is the conceptual section of the taj hotel to explain the vertical zoning.

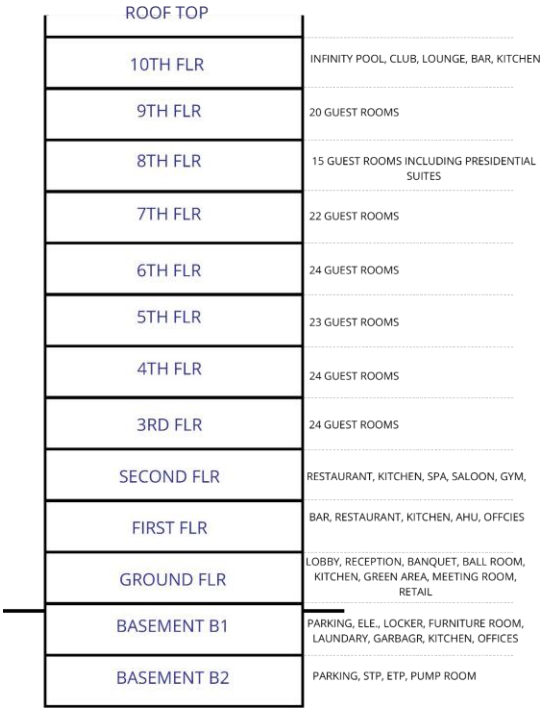


Image 71 Taj Lakefront Vertical Zoning

4.1.7 AREA STATEMENT

Table 30 Taj Lakefront Area Statement

Name	No. of Units	Area (sq.m.)	Total Area	%
Total No. of Keys	152			
No. of Floors	10			
A.	**Guest Room Mix**			
	Executive Suite	141	66	9306	80
	Twin Bedroom	5	33	165	10

	King bedroom	5	33	165	10
	Presidential Suite	1	152	152	
	Total Area (Sum)			**9788**	

B.	**Guest Floor Services**				
I	**Corridor Area**				
	Type Floor Corridor	1	180	**180**	30
II	**Housekeeping Static or Typical Floors**				
	Housekeeping Static or Typical Floors	1	185	**185**	32
III	**Lifts**				
	Guest Elevators	2	55	**110**	19
	Service Lift Lobby	2	55	**110**	19
IV	**Fire Protection**				
	Fire Escape Stairs	2	30	**60**	10
	Total Area (Sum)			**585**	
C.	**Public Areas**				
I	**Entrance Lobby**				
	Port Cochere	1	40	**40**	15
	Entrance Lobby Waiting Areas Front Desk	1	100	**100**	38
	Front Desk	1	40	**40**	14
	Luggage Store	1	15	**15**	6
	Bell Man	1	4	**4**	8

II	**Business Centre**				
	Store	1	36	**36**	13
			5	**5**	2
III	**Public Utilities**				
	Public Toilet	1	30	**30**	10
	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
	Banquet Mgr	1	8	**8**	18
	Workstation	2	5	**10**	22
	Discussion Room	1	10	**10**	22
	Storage and Copying	1	8	**8**	20
	Total Area (Sum)			**44**	

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**				
	HR Mgr	1	8	**8**	14
	Sec	1	4	**4**	7
	Traing Room	1	20	**20**	35

	Training Mgr	1	4	**4**	7
	Discussion	1	20	**20**	35
	Total Area (Sum)			**56**	

K	**Security & Time Office**				
	Staff Entry & Time Keeper/cctv	1	10	**10**	
	Security Mgr	1	8	**8**	
	Total Area (Sum)			**18**	

L	**Repair and Maintenance**				
	Head of Engg	1	8	**8**	
	Asst Engg	1	8	**8**	
	Secured Store	1	10	**10**	
	Paint Shope	1	10	**10**	
	Engg Store	1	10	**10**	
	Carpentry	1	10	**10**	
	Spare Parts	1	5	**5**	
	Total Area (Sum)			**61**	

J.	**Staff Facility**				
	Male Toilets & Lockers	1	100	**100**	
	Male Executive Toilets and Lockers	0	0	**0**	
	Female Toilets and Lockers	1	70	**70**	
	Kitchen	1	25	**25**	

	Staff Cafeteria	1	90	**90**	
	Staff Recreation Area	1	15	**15**	
	Total Area (Sum)			**300**	

I.	**Miscelienouis**				
	Divers Rest Room	1	15	**15**	
	Drivers Toilet	1	22	**22**	
	Microbiologist	1	8	**8**	
	Total Area (Sum)			**45**	

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**	

4.1.8 FLOOR PLANS

Basement 3:
WTP, Fire Pumps, and Domestic, Raw and Fire Tanks

Basement 2 Plan:

Basement 2 is comprised of 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.

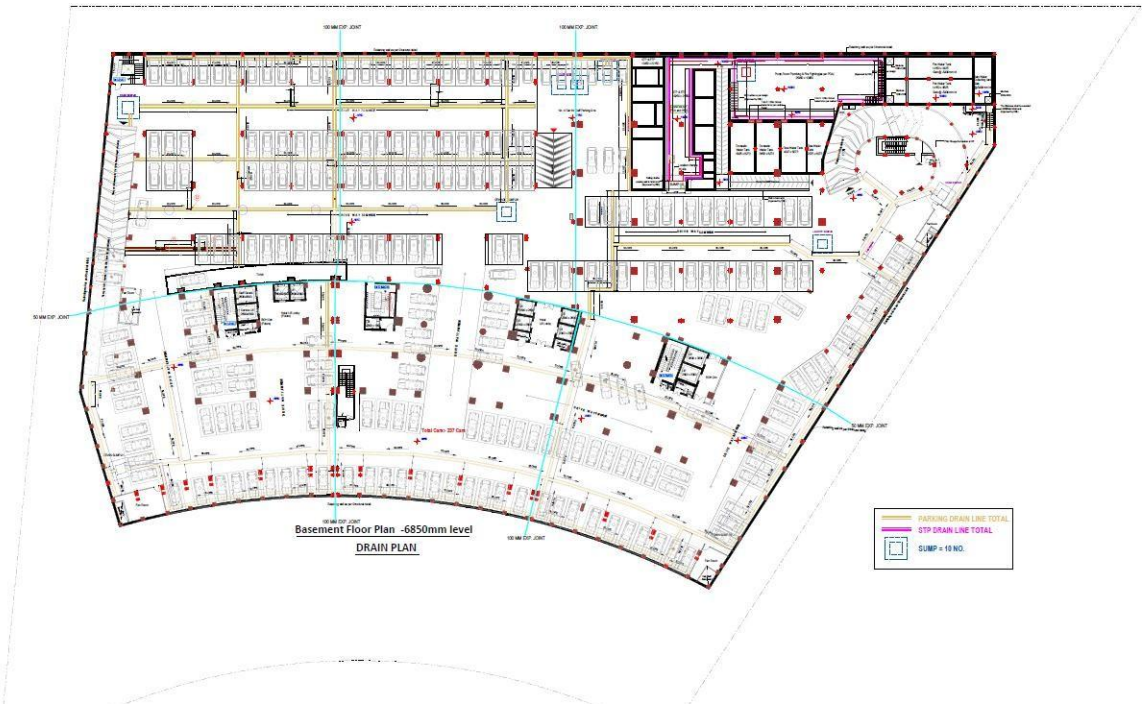


Image 72 Basement 2 Plan

Raw Water tank Capacity: 90 KL & 125 KL

Domestic Water tank Capicity:118 KL & 123 KL

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

WTP Process: Raw Water → Sand Filter → Activated Carbon → Hyper Filtration → Kitchen/ Boilers/



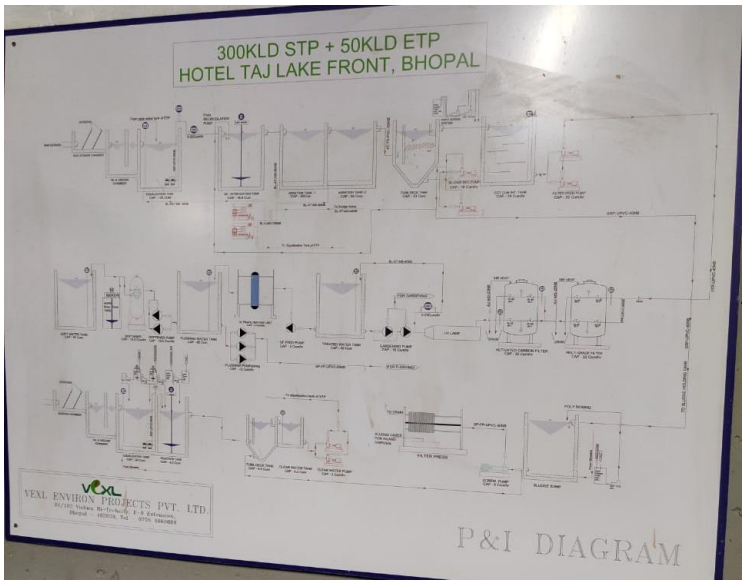


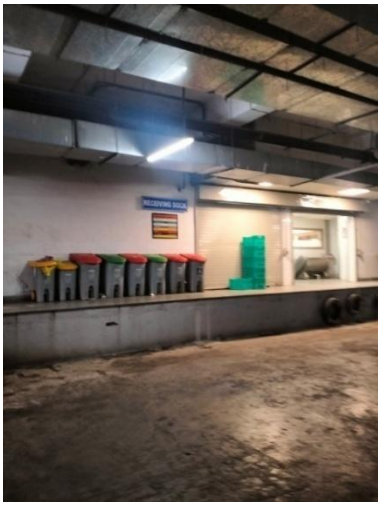
Image 73 Basement 2

Basement 1 Plan:

- Basement 1 mainly consist of different types of Offices spaces like housekeeping office , Finance Office, Sales office, Engineering office and Canteen, Storage, Laundry spaces etc.
- It also has parking spaces and services outlet.
- All the staff of taj lakefront uses basement 1 as an entrance and parking space respectively.
- Car Parking Space: 250 ECS
- Grey Fans for fresh air, Red Fans for smoke extraction through fire shaft



Image 74 Basement 1 Plan



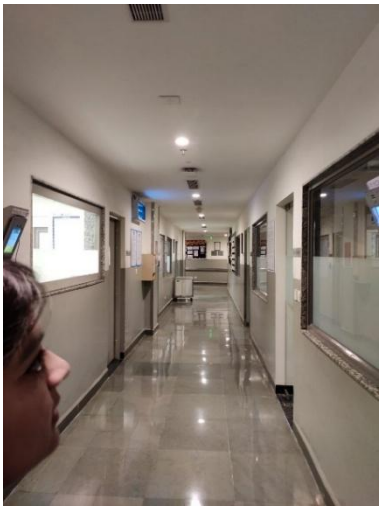






Image 75 Services in Basements





Ground Floor Plan:

- The entrance lobby of the hotel has grand luxury feel as it has triple heightedspaces with very attractive false ceiling consist of cove lighting.
- There is a separate entrance has been provided including Banquet Hall, Meetingroom, 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 asa 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.

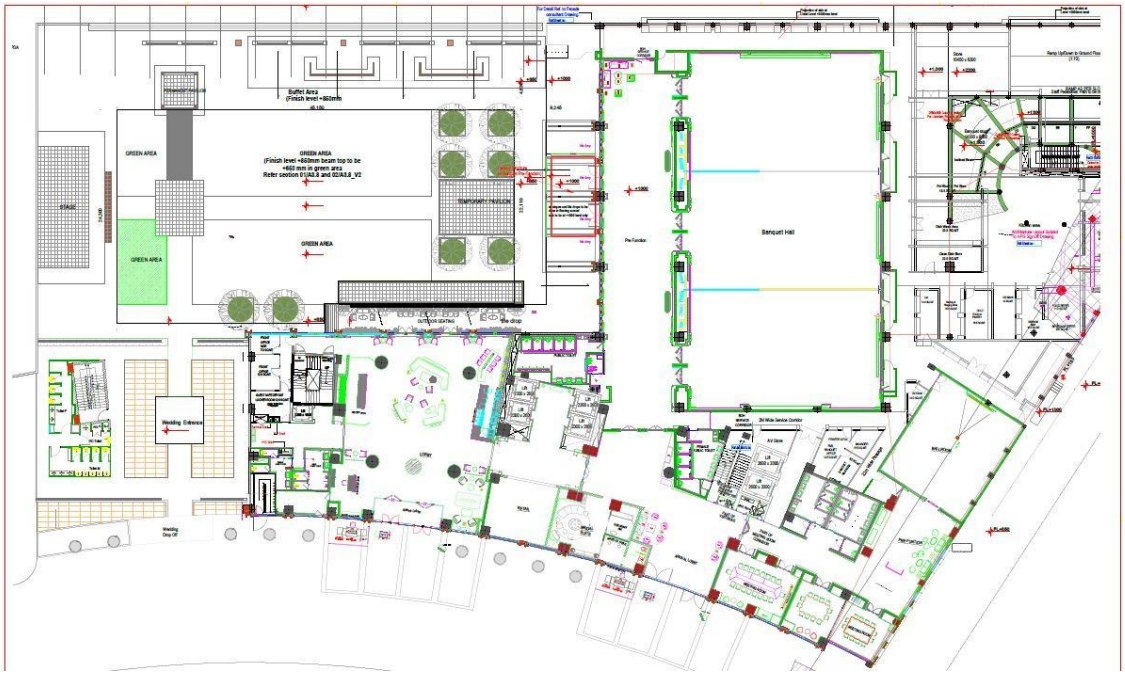


Image 76 Ground Floor Plan



Image 77 Ground Floor Pictures

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
- 3 Chillers 350 tons each

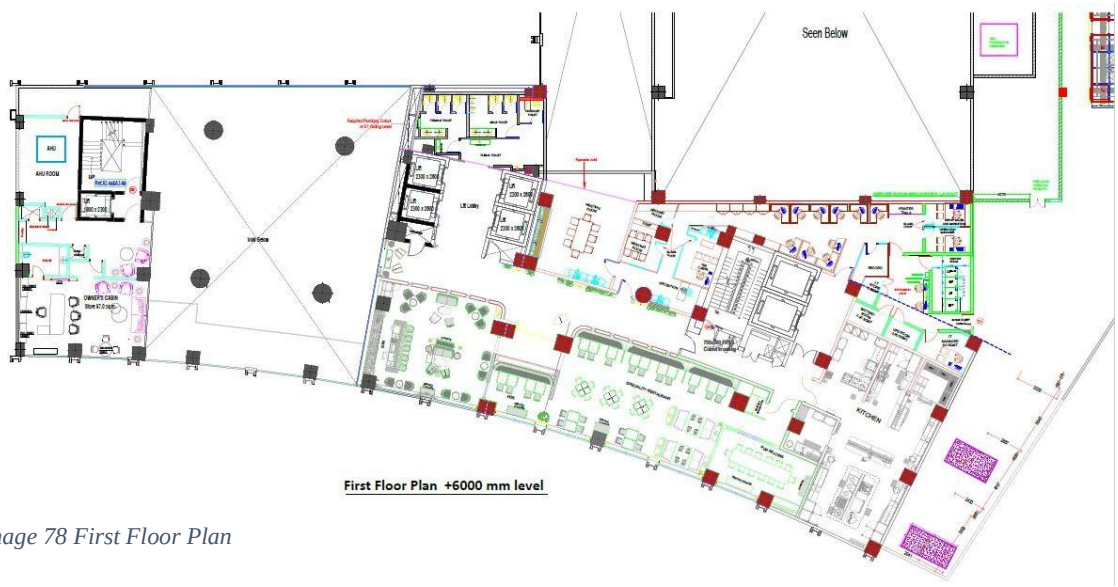


Image 78 First Floor Plan



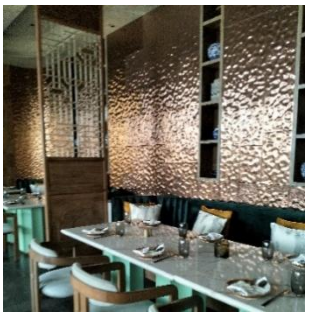


Image 79 Restaurant







Image 80 Chiller Plant

Second Floor Plan:

- Restaurant Seating's are provided in this floor. Kitchen including cooking, store, washing space has been provided. Live kitchen is also there.
- Amenities like Gym, Spa & sauna, Saloon etc. are provided with top class facilities.



Image 81 Second Floor Plan

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

- 24 guest rooms including Executive Suites and Twin Bedrooms are on this floor.
- Housekeeping Room are also there in this room for room services.
- Specialty of this typical floor is that interior of lobby and corridors are fullydifferent which gives different types of feeling at each different floor. FCU in Rooms 1.5 T, Suites 2 T

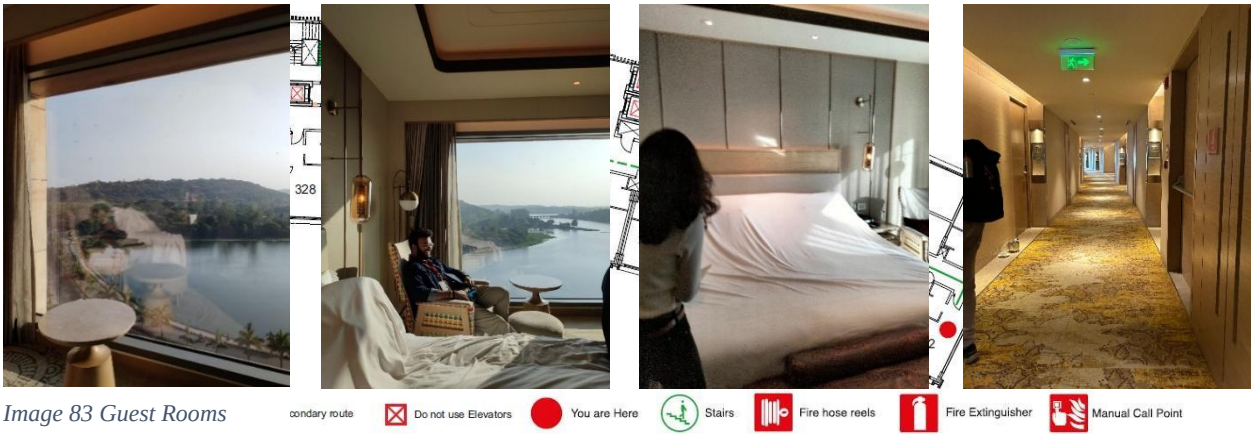


Image 83 Guest Rooms

Image 82 Typical Floor Plan

8th Floor Plan:

- 15 guest rooms including Executive Suites, King Bedrooms and 1 presidentialsuite are on this floor.

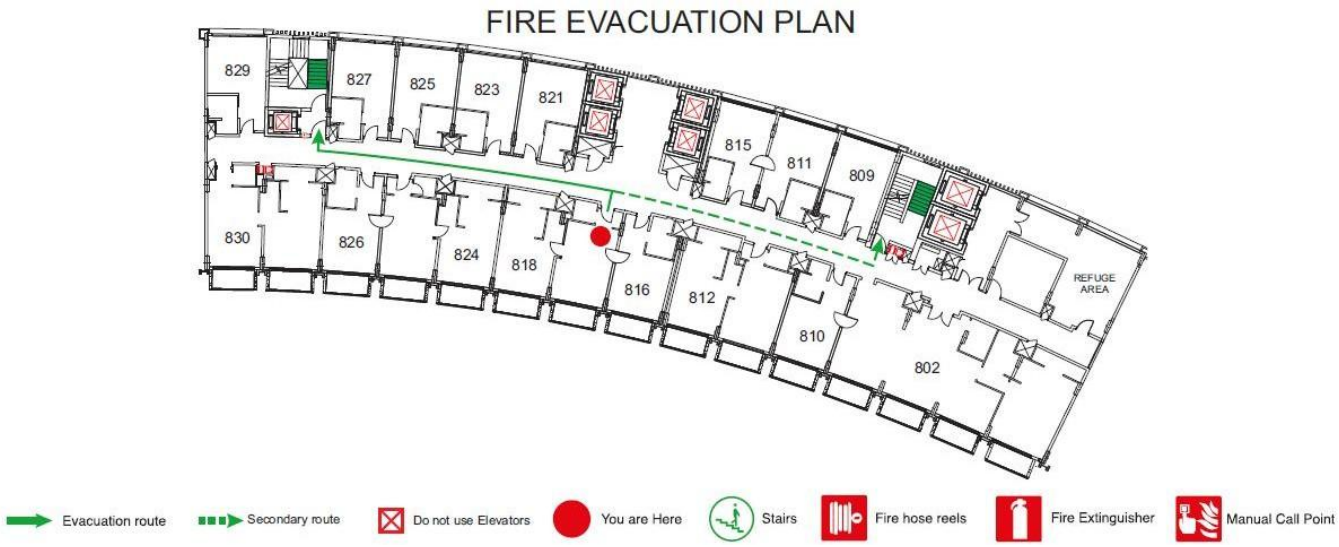


Image 84 Eighth Floor Plan

9th Floor Plan:

- 20 guest rooms including Executive Suites, Twin Bedrooms are there in this floor.

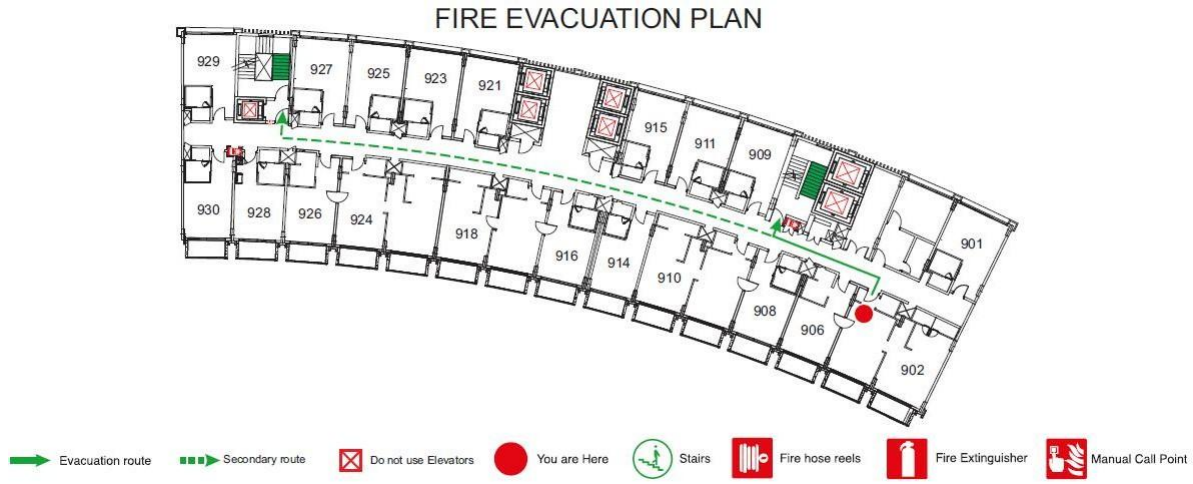


Image 85 Ninth Floor Plan

9.5th Floor: Pool filtration, plumbing shafts end here & exhaust ducts of bathrooms end here.

10th Floor Plan: Open terrace lounge, club area with the view of swimming pool is provided in the top floor of this Hotel.



Image 86 Tenth Floor Plan

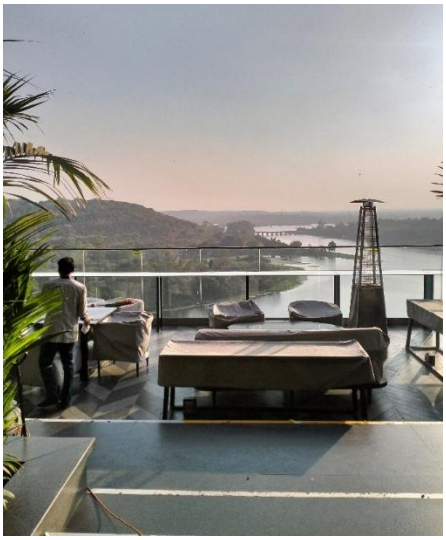
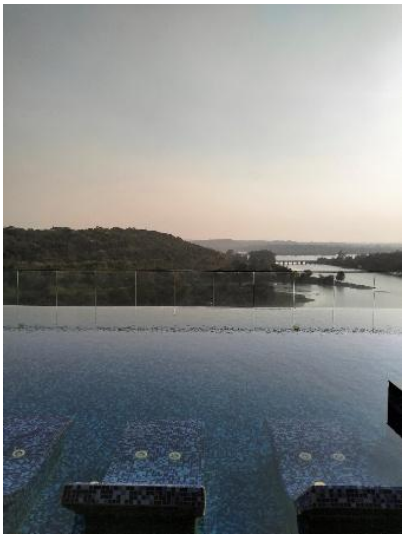




Image 87 Roof Top Restaurant, Bar and Swimming Pool

4.1.9 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.




Size: 66 sq.m

Signature Feature: Spacious two-room suites overlooking the lake

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

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



Image 88 Executive Suite Floor Plan

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

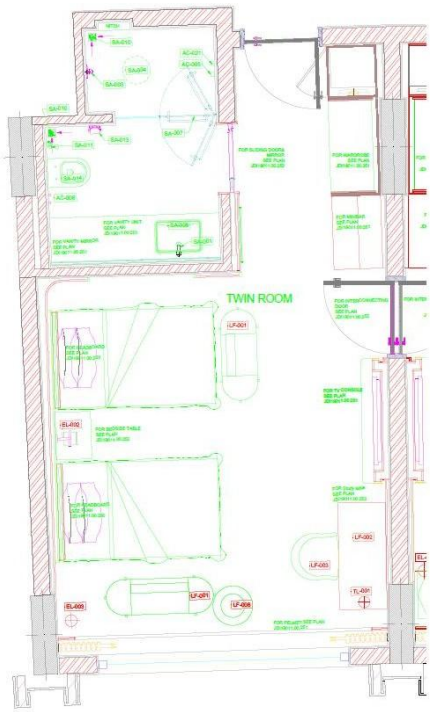


Image 89 Twin Room Plan

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

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

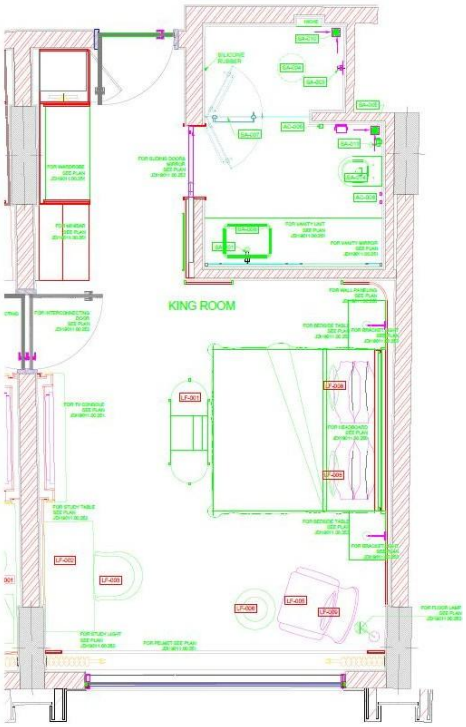


Image 90 King Roo Plan

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.

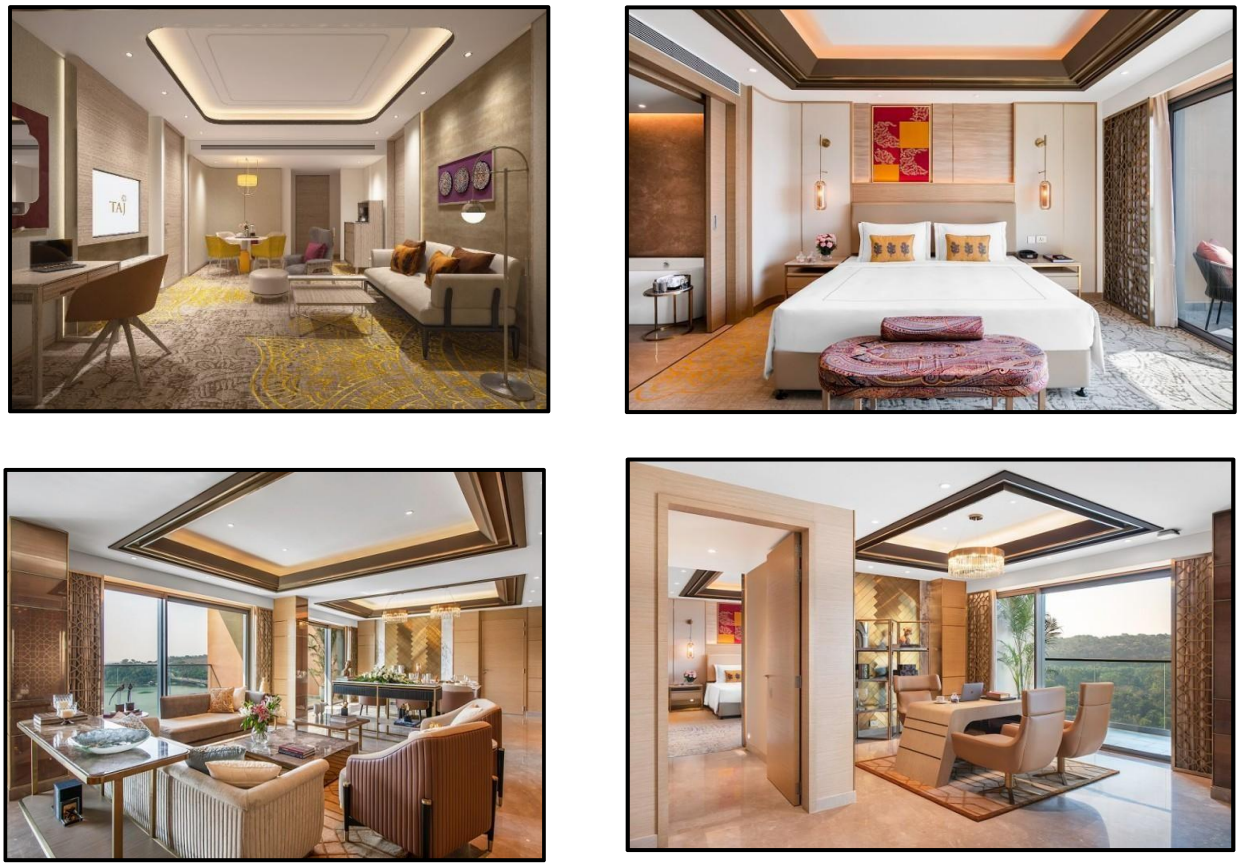


Image 91 Presedential Suite Photographs

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

OTHER CONVENIENCES

- Forest Essentials bath amenities
- Air conditioning
- Bedroom with private balcony or verandah & bathroom
- Living room with dining area, bedroom & bathroom
- Electronic safe.
- Tea coffee maker
- WiFi
- Iron & ironing board
- In-room bottled water

- Minibar
- Newspaper
- Full-length mirror, hair dryer, weighing scale
- 49-inch Smart LED TV
- Lake View
- Private Pantry

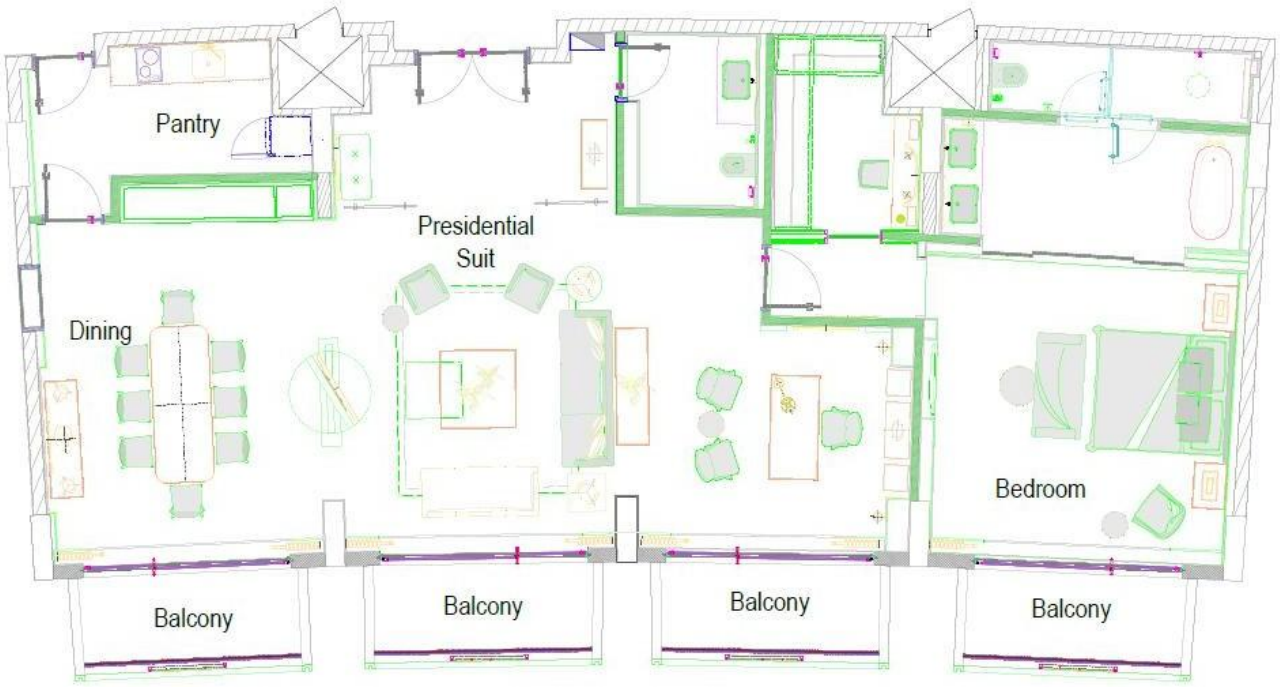


Image 92 Presidential Suite Plan

4.1.10 VIEW/INTERIOR OF SPACES



Spa & Sauna



PDR



Banquet Hall



Swimming pool



Restaurant Seating



Lounge/Bar

Image 93 Interior Views

4.1.11 SERVICES

- **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 PLANT**



AREA –150 sqm



Access width –1.8 m



Access for machinery Width –6

- **FIRE PUMP**



Control Panel for Fire Room 70 sqm Tank Volume –72 cum



Water Storage 20,00,000

- **WATER TREATMENT**





Water Storage Tank Raw 90 sqm



Tank for swimming Pool (area-12 sqm)



Boiler room with pump and Heat exchange



Overhead tank

- **STP**



- **COOLING TOWERS**



- **KITCHEN**



- **DISPOSAL AREA**



BIO-DEGREDABLE WASTE RECYCLING PLANT



OIL & ELECTRICAL WASTE



METAL, GLASS, PAPER DISPOSAL

- **LAUNDARY**



WASHING MACHINE



IRONING MACHINES



RECEIVING AND DISPATCHING AREA



STORE & CHECKING

4.1.12 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. LIVE CASE STUDY: HILTON GARDEN INN, PUNE

4.2.1 INTRODUCTION

The Hilton Garden Inn, Pune Hinjawadi is a modern upscale business hotel that epitomizes functional luxury and contemporary elegance. Strategically located in the heart of Pune's vibrant IT and corporate hub, the hotel caters to discerning business and leisure travelers seeking comfort, convenience, and global hospitality standards. Just 45 minutes from Pune International Airport, this dynamic property offers seamless connectivity to Rajiv Gandhi Infotech Park, MIDC, and the Mumbai–Pune Expressway.



Image 94 Hilton Garden Inn

Details:

PROJECT	**HILTON GARDEN INN**
LOCATION	PUNE
CLIMATE	Hot Semi-Arid C limate
TOPOGRAPHY	PLAIN LAND
ARCHITECT	EDIFICE
COMPLETION YEAR	2022

NO. OF ROOMS	144
SITE AREA	0.85 ACRE
FAR	3

4.2.2 LOCATION

Address: Survey No. 40/3, Hinjawadi-Wakad Road, Hinjawadi Phase I, Pune – 411057, Maharashtra

- **Landmark:** Located next to Shell petrol pump and close to XION Mall
- **Strategic Position:**
  - In the heart of Rajiv Gandhi Infotech Park
  - Near International Biotech Park
  - Proximity to major IT companies like Infosys, TCS, Accenture, Cognizant, etc.

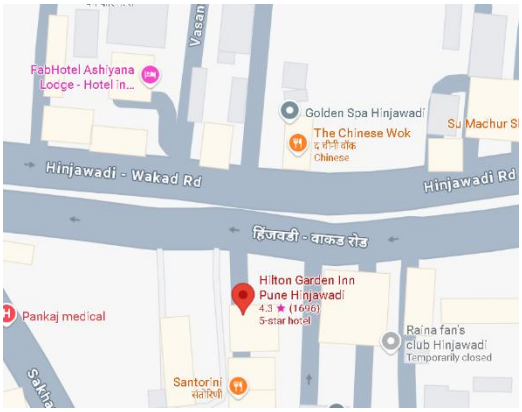


Image 95 Location on Google Maps

4.2.3 PROXIMITY

- **Road Network:**
  - Excellent connectivity via Mumbai–Pune Expressway
  - Easy access to Pimpri-Chinchwad industrial zones
- **Approach:** Direct access from Hinjawadi–Wakad Road

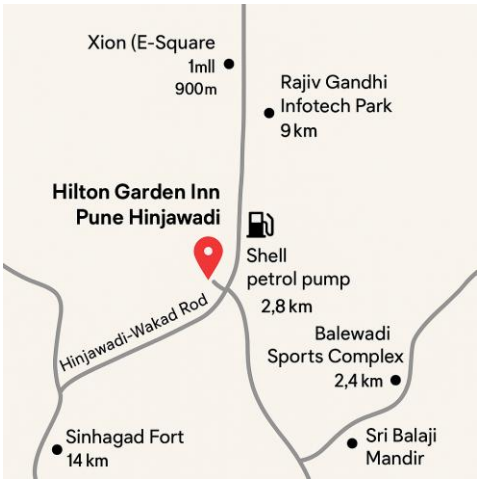


Image 96 Proximity of the Hilton Garden Inn

4.2.4 SITE BOUNDARY

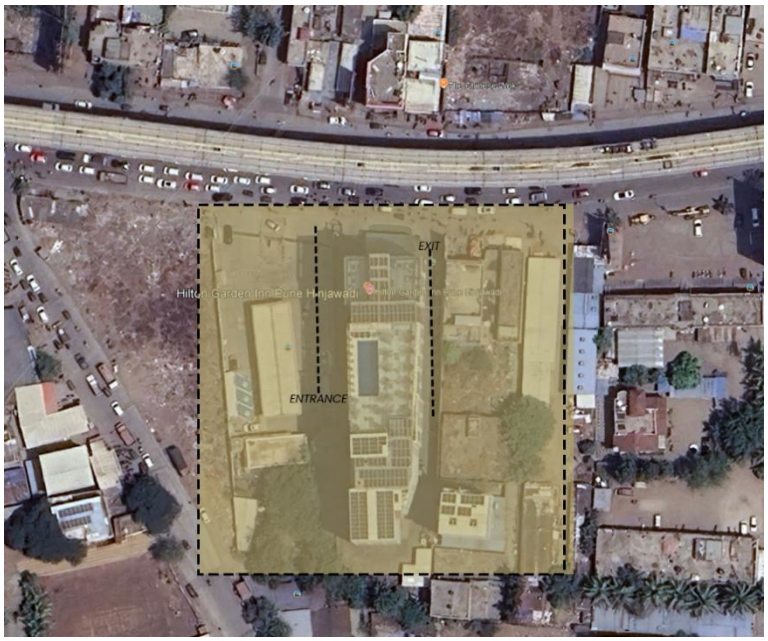


Image 97 Site Plan: Hilton Garden Inn

4.2.5 FACILITIES

These are the following facilities and amenities that Hotel Hilton Garden Inn is providing to their guests.

Connecting Rooms	Free parking	Free WiFi
Non-smoking rooms	Digital Key	EV charging
On-site restaurant	Outdoor pool	Fitness center
Room service	Meeting rooms	Pets not allowed

4.2.6 VERTICAL ZONING

Here is the conceptual section of the Hilton hotel to explain the vertical zoning.

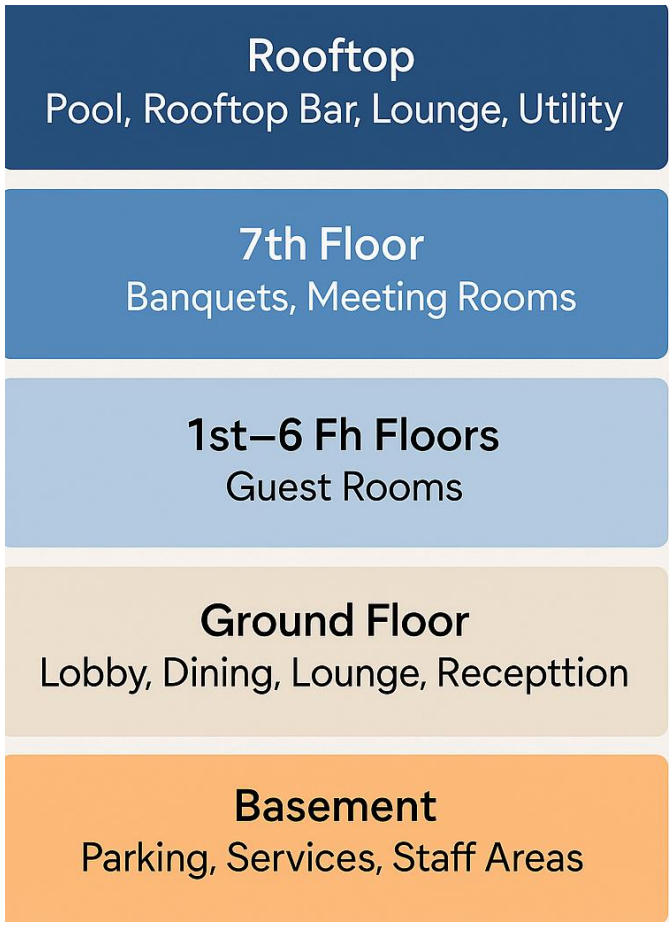


Image 98 Hilton Hotel Vertical Zoning

4.2.7 AREA STATEMENT

Category: 5-Star Business Hotel
Total Guest Rooms: 144
Total Built-Up Area (BUA): ~9,069 m² (≈ 97,600 sq. ft)
Structure: G + 6 Upper Floors + Rooftop Deck + Basement

Table 31Area Statement: Hilton Garden Inn

1	GUEST ACCOMODATION ZONE		
S.No.	Sub-Zone	Quantity/Notes	Area (m²)
1.1	King Rooms	70 units @ 28 m²	1,960
1.2	Twin Rooms	40 units @ 28 m²	1,120
1.3	Family Rooms / Suites	34 units @ avg. 32 m²	1,088
1.4	Room Corridors	Carpeted, 1.8–2m wide (all floors)	500
1.5	Service Rooms	Housekeeping, janitor closet per floor	60
	Total – Zone 1		~4,728 m²

2	FOOD & BEVERAGE ZONE		
S.No.	Outlet	Capacity / Design Details	Area (m²)
2.1	Garden Grille	All-day dining, open kitchen concept, buffet + à la carte	220
2.2	Garden Bar / Lounge	Lounge-style seating, bar counter, bar-back wall, TV units	80
2.3	Pavilion Pantry	24/7 grab & go retail, chillers, snacks	25
	Total – Zone 2		~325 m²

3	MEETING & EVENT SPACES		
S.No.	Component	Capacity / Fit-Outs	Area (m²)
3.1	Ballroom	Max 400 pax theatre style; divisible partitions	414
3.2	Meeting Room	U-shape/boardroom layouts, projector, AV panels	80
3.3	Pre-function Area	Waiting zone, buffet service counters	70
	Total – Zone 3		~564 m²

4	RECREATIONN & WELLNESS		
S.No.	Facility	Fit-Out / Equipment	Area (m²)
4.1	Fitness Center	Cardio machines, weights, changing room	80
4.2	Rooftop Pool Deck	Lounge seating, wooden deck, safety barriers	180
4.3	Outdoor Lounge	Bar stools, partial pergola, planter beds	50
	Total – Zone 4		~310 m²

5	LOBBY & PUBLIC INTERFACE		
S.No.	Sub-Zone	Details	Area (m²)
5.1	Main Lobby	Double-height, feature lighting, art wall	200
5.2	Reception + Concierge	Front desk, check-in kiosk, concierge desk	60

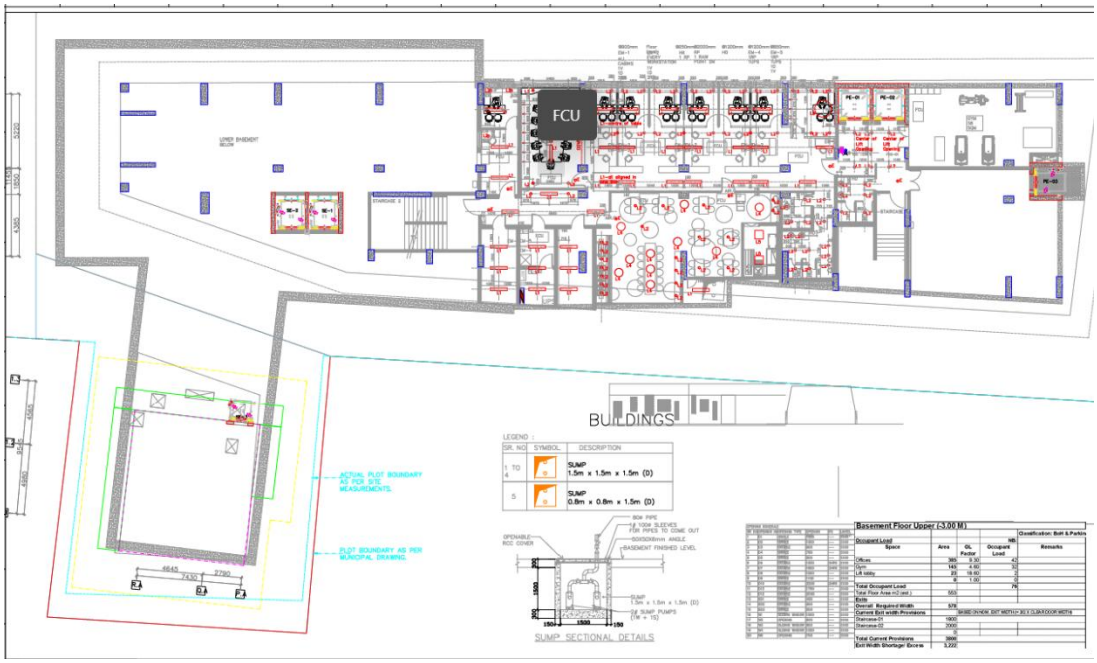
5.3	Business Center	3–4 work pods, Wi-Fi, printers, teleconferencing	60
	Total – Zone 5		~320 m²

6	**Back-of-House (BOH) & SERVICES**		
S.No.	Functional Areas	Description	Area (m²)
6.1	Main Kitchen + Pantry	Receiving, cooking line, cold storage	400
6.2	Laundry & Linen Room	Washing, drying, sorting zones	300
6.3	Staff Dining & Lockers	Seating for 40, change rooms, WC	200
6.4	Engineering Room	UPS, HVAC, panel boards	250
6.5	Admin Offices & HR	GM cabin, staff meeting room, HR, security	200
6.6	Waste & Garbage Segregation	Organic + Inorganic zones, pest-proofing	100
6.7	Stores (General + F&B)	Dry store, liquor store, chemical room	200
	Total – Zone 6		~1,800–2,200 m²

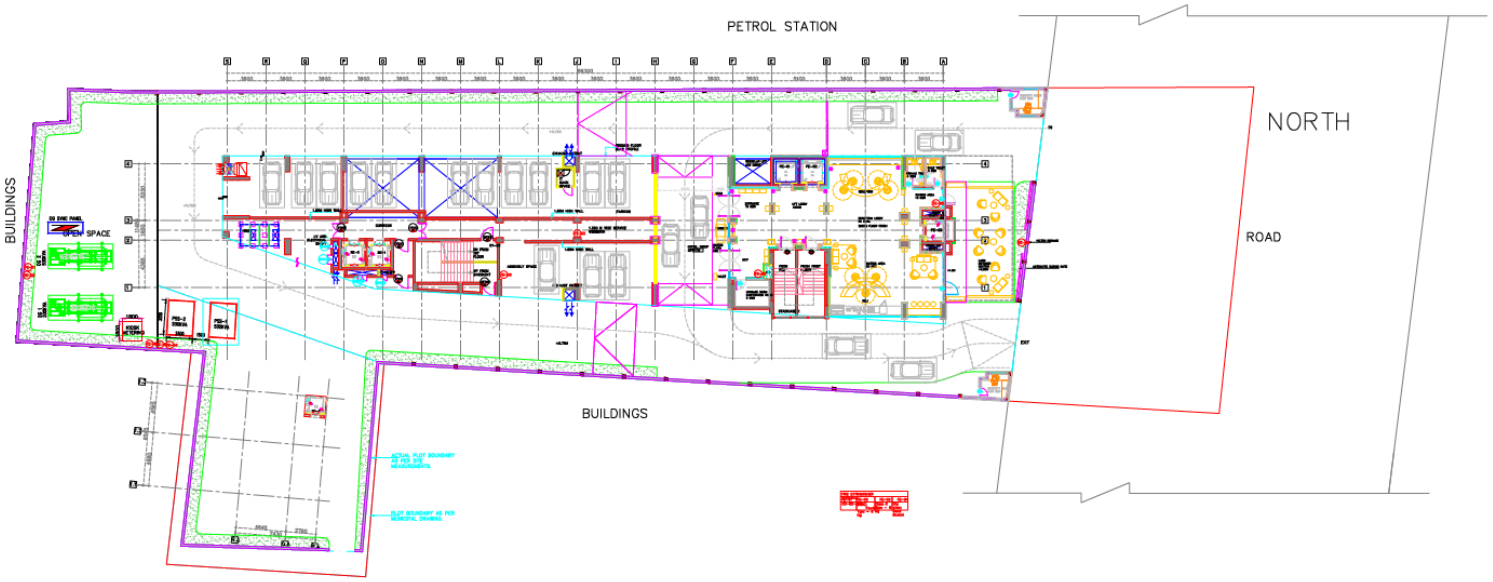
7	**CIRCULATION, LIFTS & VERTICAL CORE**		
S.No.	Component	Features	Area (m²)
7.1	Elevators (3 total)	2 guest + 1 service lift, SS finish	90
7.2	Fire Staircases	2 shafts, fire-rated doors	120
7.3	Guest Corridors	On all floors; 1.8–2m wide	550
7.4	MEP Duct Shafts	Plumbing, HVAC risers, electrical shafts	300
	Total – Zone 7		~1,050 m²

4.2.8 FLOOR PLANS

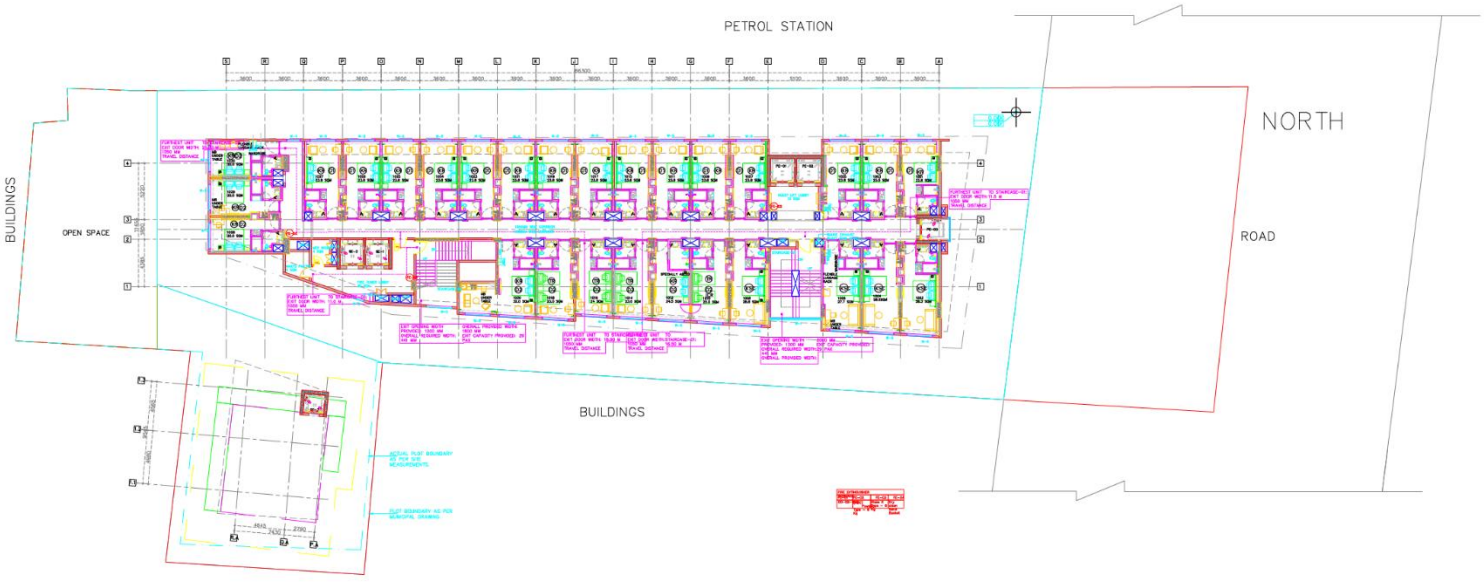
Basement Plan



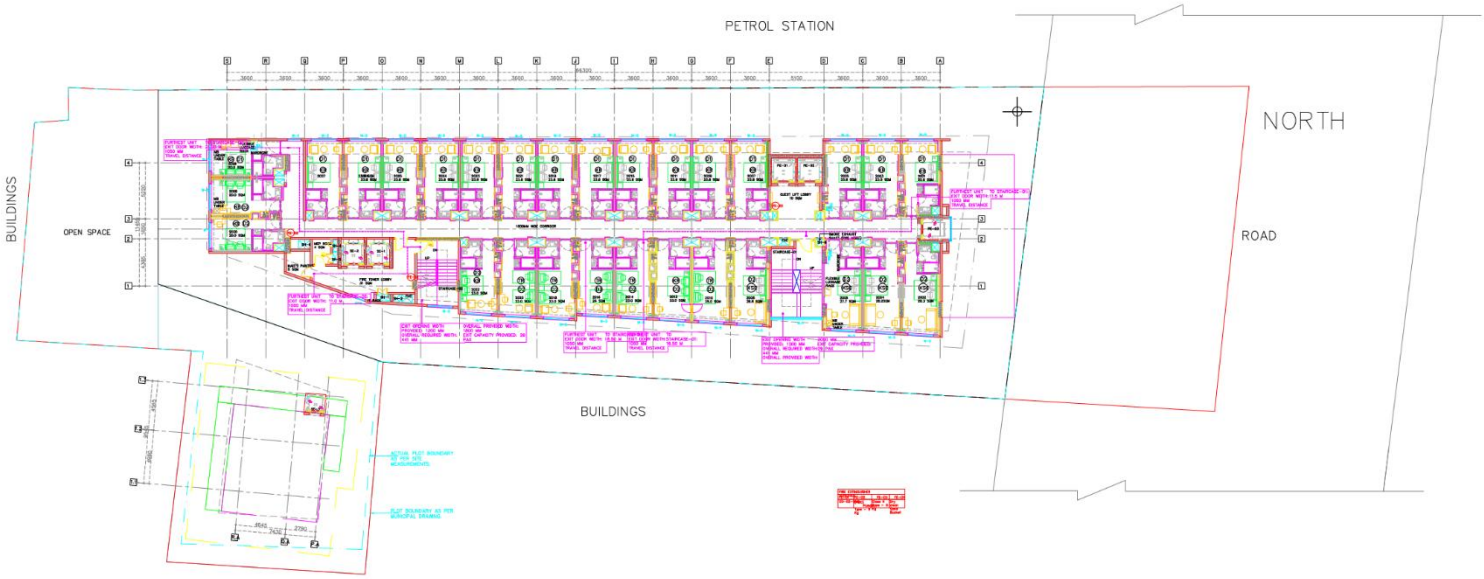
Ground Floor Plan



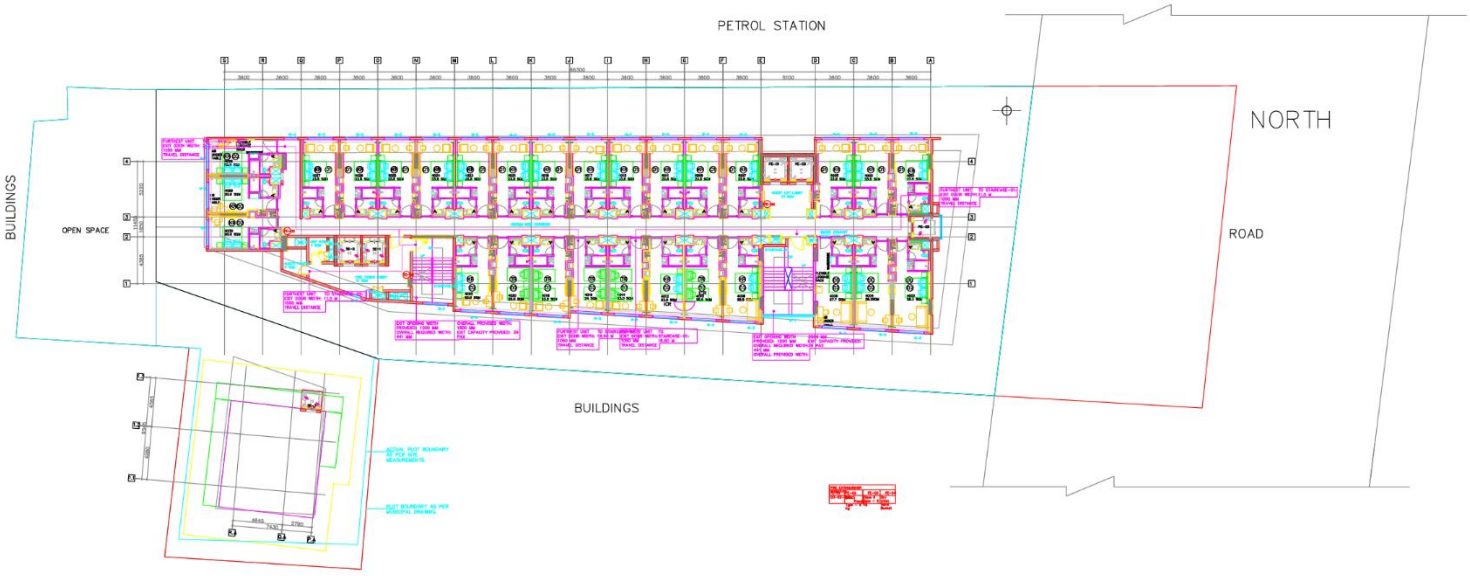
First Floor Plan



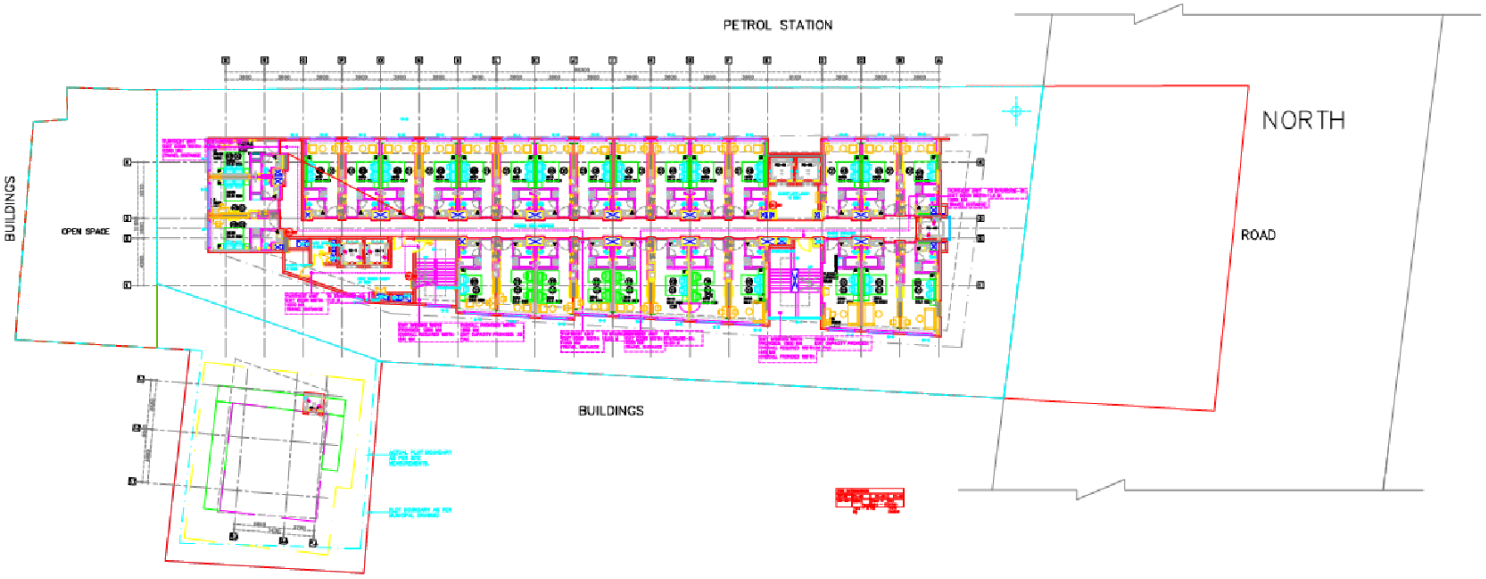
Second Floor Plan



Third Floor Plan



Fourth Floor Plan



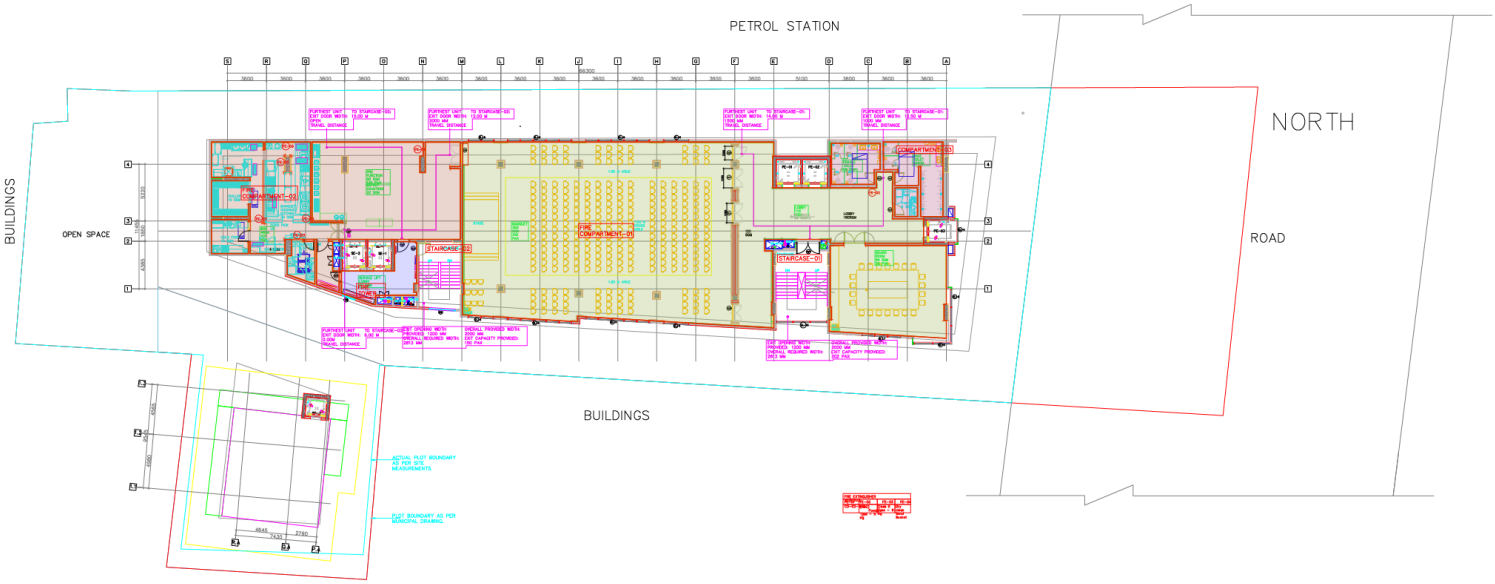
Fifth Floor Plan



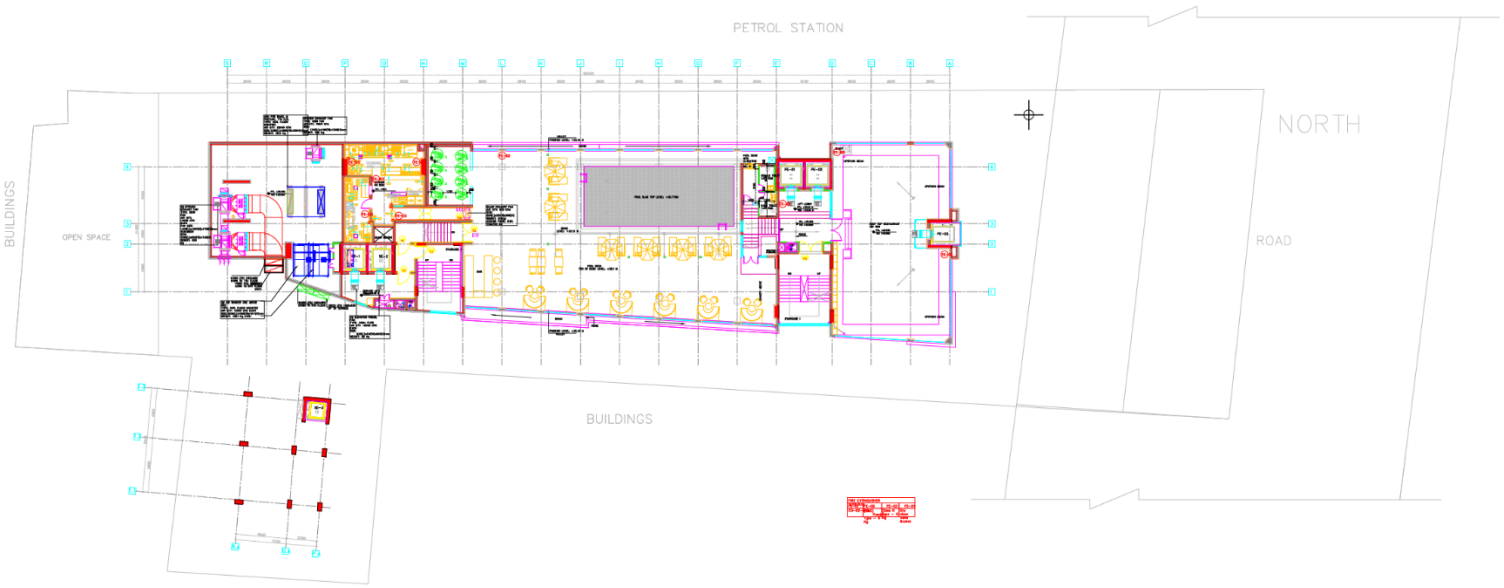
Sixth Floor Plan



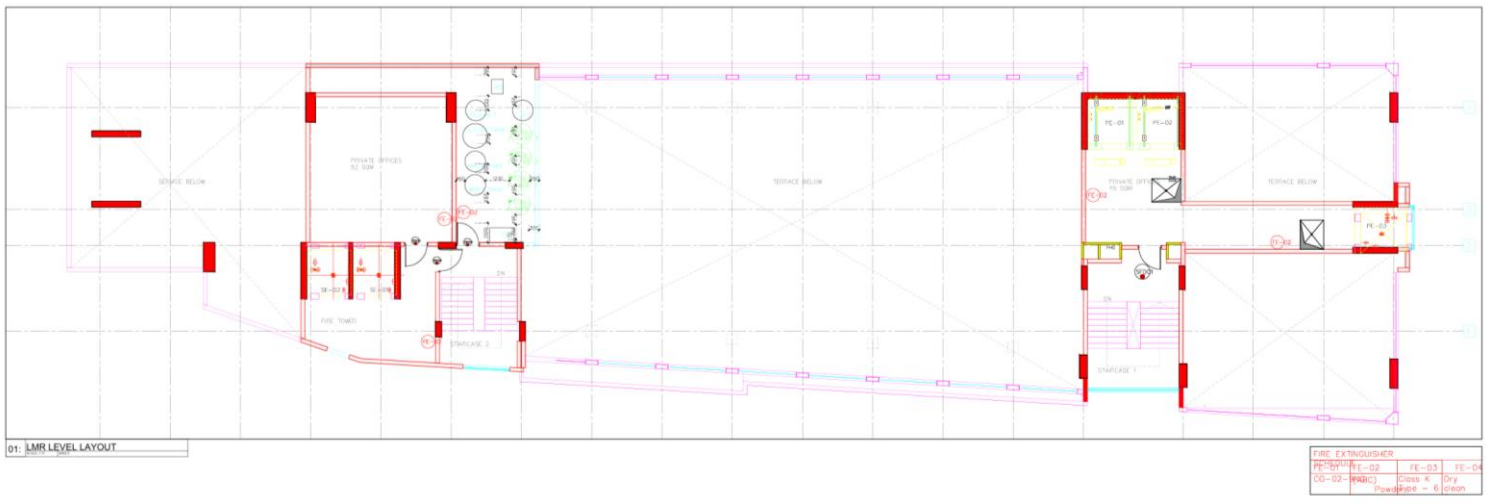
Seventh Floor Plan



Terrace Floor Plan



LMR Layout



4.2.9 GUEST ROOM TYPOLOGY

Total there are 144 rooms which are majorly classified into 4 categories:

i. King Room: Standard double bed configuration.
ii. King Guest Room with Hill View: Same as King but with scenic views.
iii. Family Room: Larger layout for families or groups.
iv. Twin Room: Two separate single beds

King Room

The signature feature of the King Room at Hilton Garden Inn Pune Hinjawadi is its perfect blend of comfort, functionality, and scenic views, tailored for modern travelers. The room offers a spacious king-size bed with ergonomic design, a dedicated work area with an adjustable chair, and floor-to-ceiling windows in select rooms that provide panoramic views of the Pune skyline or Mhatoba Hills.

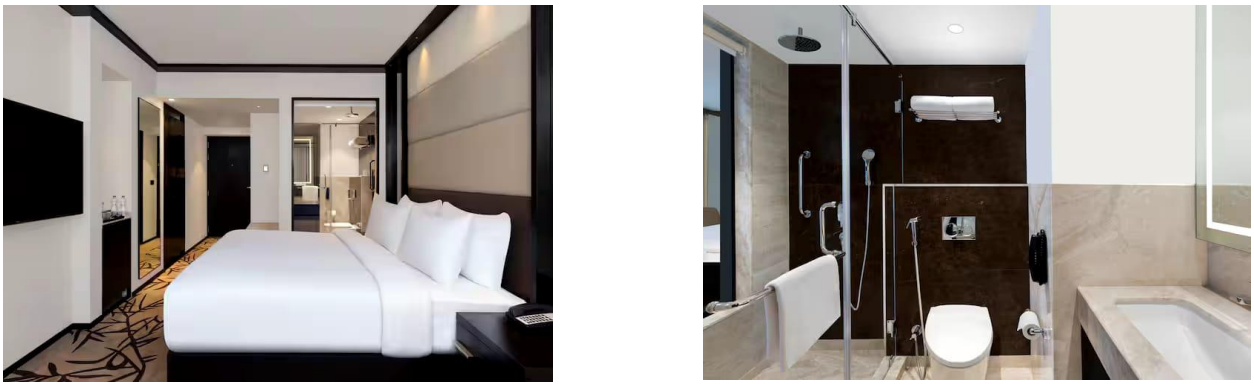


Image 99 King Room Interiors

i. Area: Approx. 27–30 sq. m (290–325 sq. ft)
ii. Occupancy: 2 Adults (1 Child with crib/rollaway bed on request)
iii. Bed Type: 1 King-size bed
iv. Amenities:

- 40” HD TV with satellite channels
- Free Wi-Fi
- Work desk with ergonomic chair
- Tea/coffee maker, minibar (on request)
- Digital Key access (via Hilton Honors app)
- Blackout curtains, iron & board, wardrobe

v. Bathroom: Walk-in shower, premium toiletries, hairdryer
vi. Signature Feature: Balanced business-leisure layout with ergonomic furniture and tech conveniences, ideal for solo or couple stays.

King Guest Room with Hill View

This premium variant of the King Room offers a more scenic and tranquil experience, thanks to its floor-to-ceiling windows that frame sweeping views of the Mhatoba Hills and Pune's western skyline. Sized at about 30 square meters (~325 sq ft), it features a luxurious king-size bed, a dedicated work area, blackout curtains, and soundproofing for maximum privacy. Along with standard amenities like Wi-Fi, smart HDTV, and mini-fridge, this room enhances the stay with enhanced lighting, elevated positioning, and premium linens for a serene retreat.



Image 100 King Room (Hill View) Interiors

i. Area: Approx. 30 sq. m (325 sq. ft)
ii. Occupancy: 2 Adults
iii. Bed Type: 1 King-size bed
iv. Amenities:
- Large window with hill or skyline views
- All core room amenities: Wi-Fi, TV, tea/coffee, digital key
- Desk with scenic view, plush chair
- Soundproofing and blackout curtains

v. Bathroom: Stylish bath with walk-in shower and premium toiletries
vi. Signature Feature: Panoramic views of Mhatoba Hills, offering a serene, elevated atmosphere perfect for relaxation.

Twin Room

The Twin Room is ideal for friends, colleagues, or travelers seeking separate sleeping arrangements without compromising comfort. Spanning approximately 27 to 30 square meters (~290 to 325 sq ft), the room features two single beds, ergonomically spaced with plush bedding. It comes with all the core Hilton amenities: a functional work desk, tea/coffee maker, mini-fridge, 40-inch flat-screen TV, and free

Wi-Fi. The private bathroom includes a walk-in shower and signature Hilton toiletries. Guests can enjoy natural lighting from large windows and full blackout curtains for privacy and sleep quality.

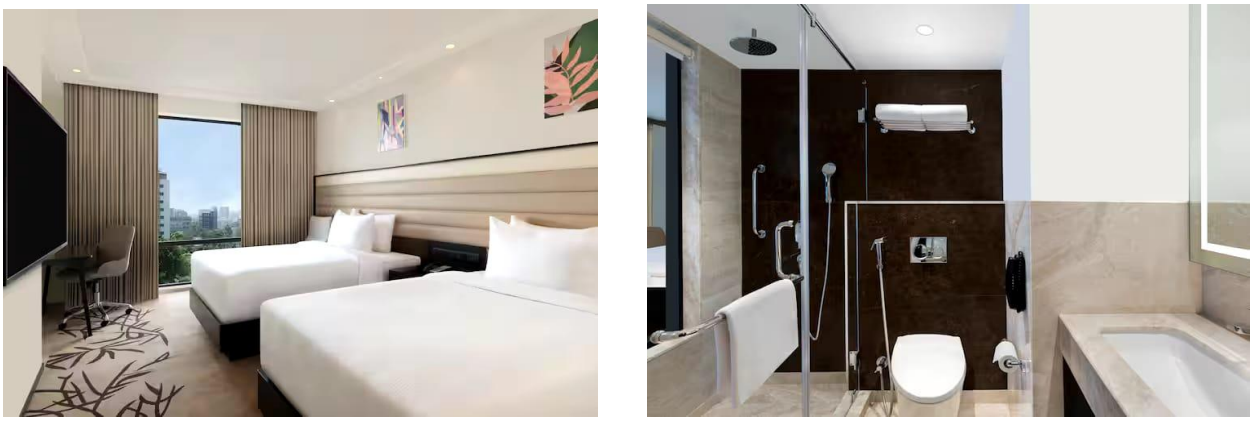


Image 101 Twin Room Interiors

i. Area: Approx. 27–30 sq. m (290–325 sq. ft)
ii. Occupancy: 2 Adults (separate beds)
iii. Bed Type: 2 Single beds
iv. Amenities:

- Same core offerings as King Room
- Individual beds with plush linen
- Workstation, blackout curtains
- Tea/coffee maker, minibar (on request)
- 40” TV, free Wi-Fi

v. Bathroom: Walk-in shower with toiletries
vi. Signature Feature: Ideal for colleagues or friends—offering privacy and shared comfort with separate bedding.

Family Room

The Family Room at Hilton Garden Inn Pune is designed with extra space and comfort in mind, catering especially to families or small groups. Covering around 30–32 square meters (~325–345 sq ft), this room includes a king-size bed with plush bedding and can easily accommodate 2 adults and 1–2 children with the option of an extra bed or crib. It includes a comfortable seating area, a generous work desk, and large windows offering a bright, airy ambiance. Like other rooms, it features individual air-conditioning, a 40-inch HD TV, free high-speed Wi-Fi, and a tea/coffee station. The bathroom is equipped with a walk-in shower, premium toiletries, and fresh towels.

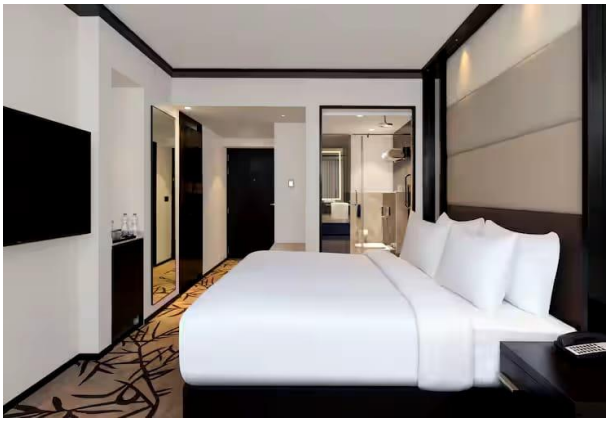



Image 102 Family Room Interiors

i. Area: Approx. 30–32 sq. m (325–345 sq. ft)
ii. Occupancy: 2 Adults + 1–2 Children
iii. Bed Type: 1 King-size bed + space for crib/rollaway
iv. Amenities:
    - Larger floor space and seating area
    - 40” HD TV, free Wi-Fi
    - Tea/coffee setup, mini-fridge
    - Work desk, wardrobe, blackout curtains
    - Iron & board, extra storage
v. Bathroom: Spacious layout with walk-in shower, toiletries
vi. Signature Feature: Extra space for families or longer stays, with flexibility for additional sleeping arrangements.

4.2.10 INTERIOR SPACES

. GUEST ROOM INTERIORS

- King Room / Twin Room / Family Room / Hill View Room
    - Modern, neutral colou.r palettes (beige, grey, soft wood tones)
    - Ergonomic furniture with built-in lighting
    - Soft carpets or wooden flooring
    - Minimalist wall decor with local art accents
    - Floor-to-ceiling windows (in select rooms)
    - Compact bathrooms with walk-in glass showers and premium fittings

FOOD & BEVERAGE AREAS

The Garden Grille (All-Day Dining Restaurant)

- Seating capacity: ~80–100 guests
- Contemporary design with soft lighting and open kitchen
- Buffet and à la carte services
- Indoor + semi-outdoor seating areas

The Garden Bar

- Lounge-style seating with a chic bar counter
- Cocktail menu and light snacks
- Ambient lighting with casual café-style furniture



BUSINESS & MEETING SPACES

Meeting Rooms / Boardrooms

- Multiple meeting rooms (flexible partitioning)
- Capacity: 10 to 150 guests
- Sleek interiors with foldable seating, projection setup, and acoustic walls
- Neutral walls, wood-finish accents, and integrated A/V equipment

Business Center

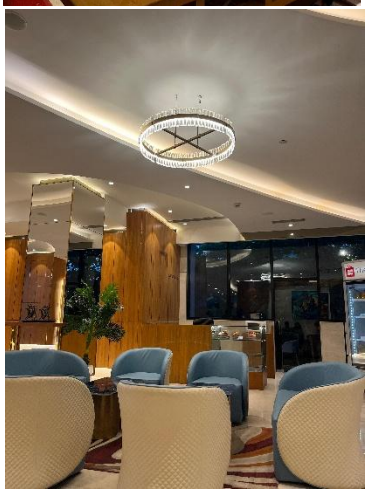
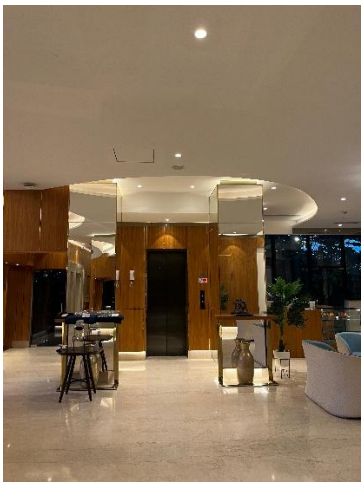
- 24/7 access for guests
- Workstations, printing/scanning stations
- Minimalist layout with enclosed cubicles

LOBBY & RECEPTION

- Spacious double-height lobby with natural lighting
- Marble/tile flooring with modern chandeliers
- Soft-toned furniture with lounge seating
- Digital check-in kiosks and Hilton Honors Desk
- Art walls featuring local Pune-inspired design





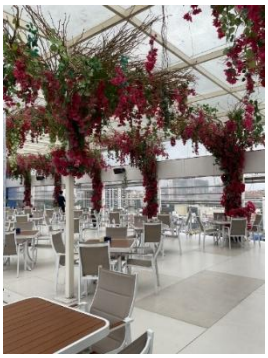



WELLNESS & FITNESS
Fitness Center (Gym)

- Open 24/7
- Modern cardio and strength-training equipment
- Mirrors, rubber flooring, and water station
- TV screens and music system

ROOFTOP POOL & LOUNGE

- Rooftop swimming pool with wooden deck and loungers
- Cityscape and hill views from the terrace
- Adjacent outdoor seating for sunbathing or cocktails
- Poolside bar service available in the evenings



4.2.11 SERVICES

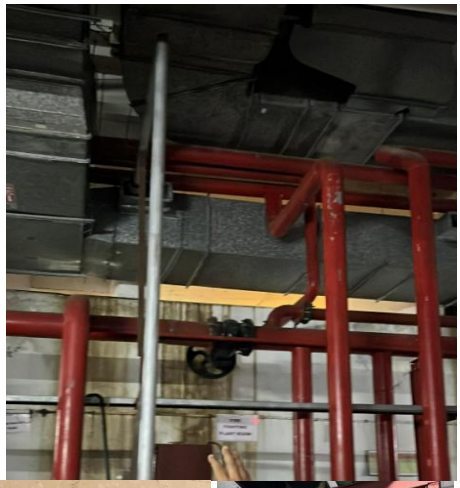
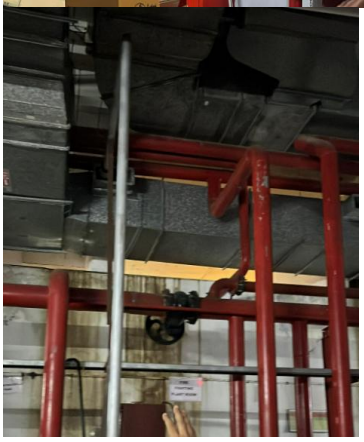
Electrical Services






Fire Fighting







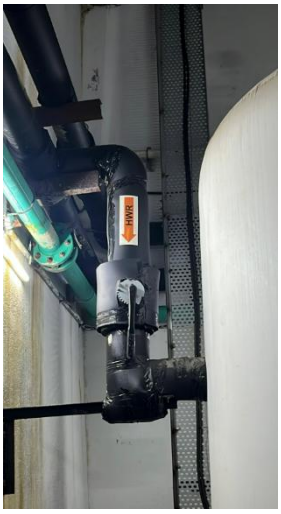
Water Supply & RO Plant







HVAC









4.3 DESK APPRAISAL: GOLDFINCH, MUMBAI

4.3.1 INTRODUCTION

The design philosophy intended on making an identity through the design and maintaining Goldfinch's brand, look, and feel with rational architecture, strong iconic design, modular grid system and poetry in architecture.

Details:

PROJECT	Goldfinch Hotel
LOCATION	Mumbai
CLIMATE	TROPICAL CLIMATE
TOPOGRAPHY	PLAIN LAND
ARCHITECT	Edifice Consultants, Mumbai
NO. OF ROOMS	153
SITE AREA	0.93 Acre
BUILT UP AREA	19725 SQM
FAR	5.19
BUILDING HEIGHT	38 M
PARKING LOT	450 ECS
NO OF FLOOR	10



Figure 19 Goldfinch Mumbai

4.3.2 LOCATION AND CONNECTIVITY

5 KM from Vashi Station

22 KM from Santacruze Airport

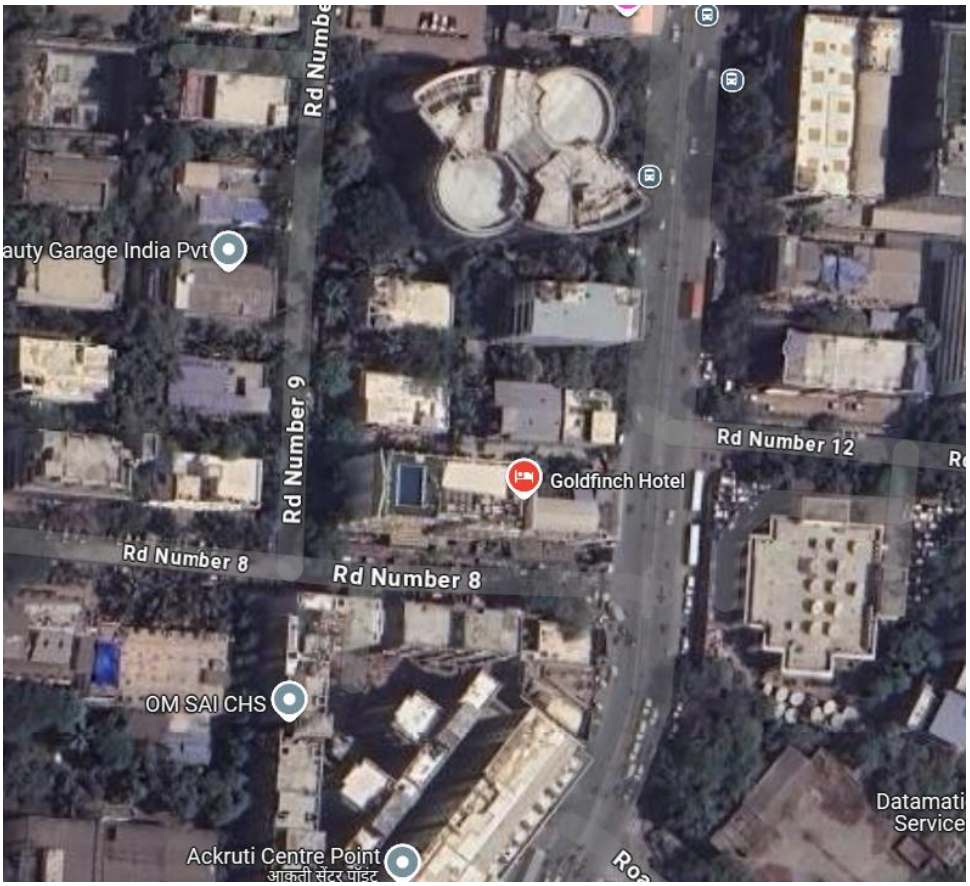


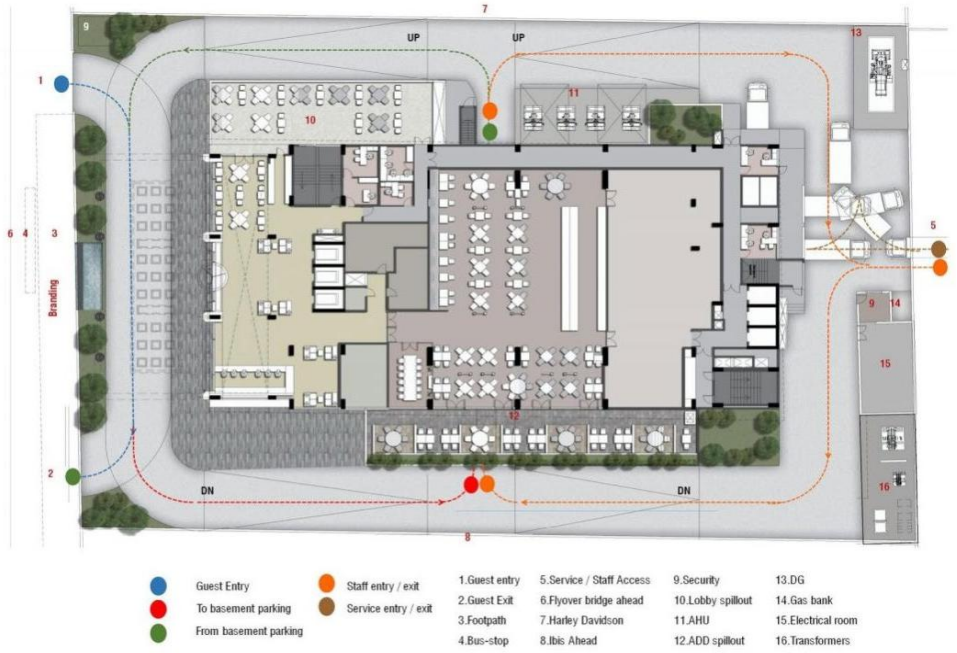
Figure 20 Locaiton on Google maps

DESIGN STRATEGIES

- Single Drop offs for Banquets and Hotel.
- 3 Passenger lifts – 10 pax minimum.
- 2 Service Lifts – for Hotel, 1 Service lift
- All Day Dining – min. 150 covers. In Ground Lvl.
- Reception Lobby – 2500 sq.ft.
- Deli in Reception Lobby.
- Atrium – Triple height for Lobby.
- Banquet – 6000 sq.ft. in 1st floor.
- Banquet – 4000 sq.ft. in 2nd Floor.
- Meeting rooms in 2nd floor.
- 280 sq.ft. Guest Room.
- 2 Stack DG in Grade Level.
- Transformer and Electrical Panel room in Grade Level.
- Chilled Water System for Air Conditioning
- Chillers in Basement 1 and Cooling Towers in Terrace above Kitchen.
- Heat Pump for Hot water in Terrace.
- Scrubbers, Toilet exhaust fans in 2nd Service Floor.
- Brine system for Energy Savings in Basement 2.
- Water tanks and STP in Basement 1 and 2.
- 1.5m x .75m typical room Shaft.
- Separate Staff entry Staircase from Ground to B1.
- Loading Unloading Dock in Ground Floor.
- Bulk Kitchen in Ground Floor.
- Atrium Guest Floors.
- 1 Kebab Studio for 90 covers min.
- Live Kitchen and Buffett for Kebab Studio.
- 2000 sq.ft. Gym and Spa.
- 70 covers Café Mojo.
- Separate Entries to Residential and Non Residential Guests
- Infinity Pool with Sundowner.
- Art Deco Design.
- Finishing Kitchen in Respective Banquet floors.
- Staff facilities in Basement 1.
- Main Stores in Basement 1.
- Accounts offices in Basmeent 2.

4.3.3 FLOOR PLANS

Basement 1



Ground Floor Plan



Figure 21 Basement 1 & Ground Floors plan

First Floor Plan



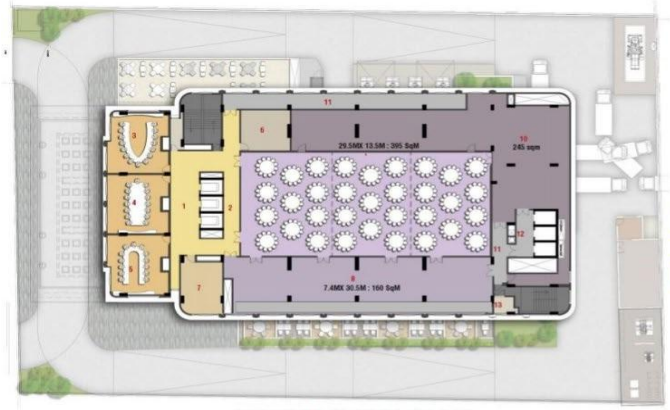


FIRST FLOOR		
	Area in sq.m.	Area in sq.f.t
2.01 Floor Plate	1551.5	16700.35
2.02 FSI	**1166.61**	**12557.39**
2.03 Restrooms	68	731.95
2.04 Banquet Manager	22	236.81
2.05 Prefunction	160	1722.24
2.06 Banquets	560	6027.84
2.07 Kitchen	125	1345.50

FIRST FLOOR PLAN

1.Guest lift lobby
2.Male restrooms
3.Female rest rooms
4.Sales & F/B Mang
5.Pre-function
6.Banquet : 490
7.Pantry
8.Service lift lobby
9.Service corridor
10.AHU equipment's above
11.TFA Room

Second Floor Plan





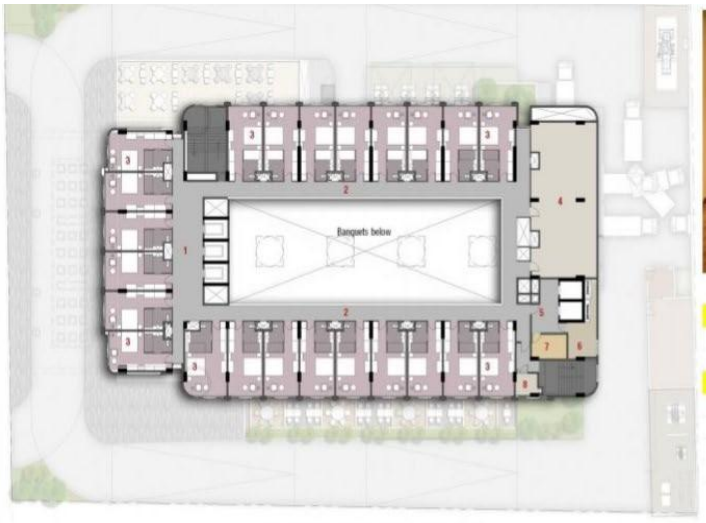
SECOND FLOOR		
	Area in sq.m.	Area in sq.f.t
3.01 Floor Plate	1595	17168.58
3.02 FSI	**199.56**	**2148.06**
3.03 Restrooms	68	731.95
3.04 Meeting room 1	50	538.20
3.05 Meeting room 2	55	592.02
3.06 Meeting room 3	50	538.20
3.07 Prefunction	160	1722.24
3.08 Banquet	395	4251.78
3.09 Kitchen	245	2637.18

SECOND FLOOR PLAN

1.Guest lift lobby
2.Guest Corridor
3.Meeting room-01: 50 sqm
4.Meeting room-02 : 55 sqm
5.Meeting room-03 : 50 sqm
6.Male restrooms : 22sqm
7.Female restrooms : 30 sqm
8.Pre-function : 225 sqm
9.Banquets : 396 pax
10.Pantry
11.Service corridor
12.Service lift lobby

Figure 22 First & Second floor plan with area statement

Sixth Floor Plan





6TH FLOOR - Guest Floor 4		
	Area in sq.m.	Area in sq.f.t
3.01 Floor Plate	1595	17168.58
3.02 FSI	**806.6**	**8682.24**
3.03 Total Keys	23	
3.04 Maids Room	9.25	99.57
3.05 Electrical Room	16.6	178.68
3.06 TFA Room	5	53.82

SIXTH FLOOR PLAN

1.Guest lift lobby
2.Guest corridor
3.Guest room
4.Refuge area
5.Service lift lobby
6.Electrical room
7.Mains room
8.TFA room'

- **Total key at 6th floor :**

23 keys

Terrace Plan







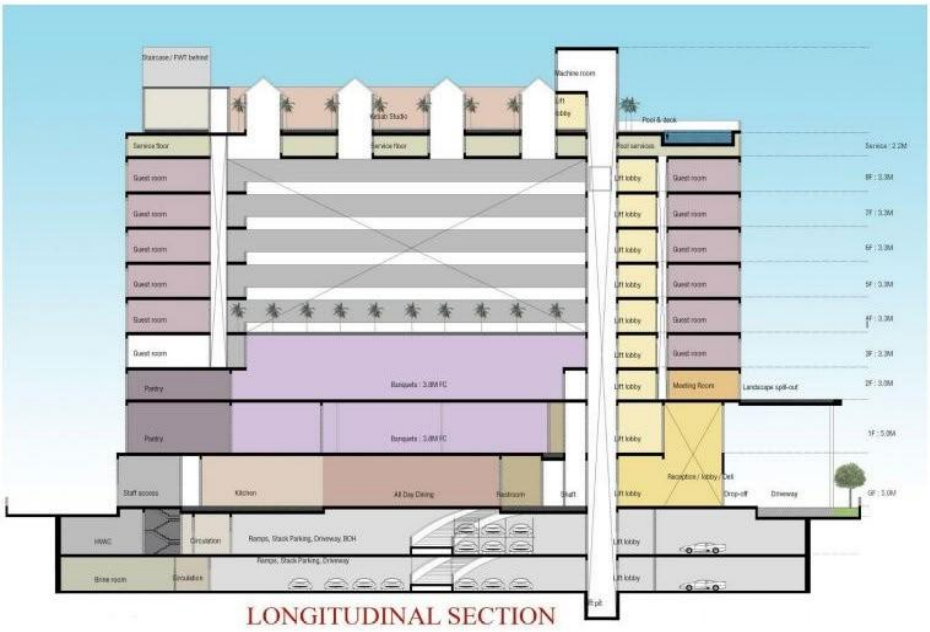
10TH FLOOR - Terrace Floor		
	Area in sq.m.	Area in sq.f.t
10.01 Floor Plate	1595	17168.58
10.02 FSI	**462.89**	**4982.55**
10.03 Kebab Studio Indoor	232	2497.25
10.04 Kebab Studio Outdoor	30	322.92
10.05 Kitchen	115	1237.86
10.06 Kebab Studio Buffet	88	947.23
10.07 Restrooms	23	247.57
10.08 Café Mojo	135	1453.14
10.09 Gym	245	2637.18
10.1 Changing rooms	32.8	353.06
10.11 Pool	104	1119.46
10.12 Pool Deck	125	1345.50

TERRACE FLOOR PLAN

1.Guest lift lobby
2.Pool change : 25SQM
3.Pool deck : 100SQM
4.Pool :14M X 5.7M
5.Café Mojo
6.Gym & SPA
7.Kebab Studio
8.Guest toilets : 20 SQM
9.Kitchen
10.Cut-off lobby
11.Service corridor : 50 SQM
12.Skylights
13.Service lift lobby
14.Pantry
15.Electrical room
16.TFA room

Figure 23 6th Floor plan & terrace plan with area statement

4.3.4 SECTION



1. 38 M FROM GROUND TO TERRACE SLAB
2. 40.3 M FROM GROUND TILL TERRACE TEMP. ROOF TOP
3. LMR TOP : 8 M FROM TERRACE SLAB TOP
4. BASEMENTS 4.5 M & 3.5 M DEEP
5. TRIPLE HEIGHTED LOBBY OF 10 M

Figure 24 Longitudinal Section

4.3.5 ROOM TYPOLOGY



TOTAL KEYS : 157 NUMBERS
TOOTAL GUEST FLOORS : 6 NUMBERS
FLOOR TO FLOOR HEIGHT : 3.3M
- THIRD FLOOR : 26 KEYS
- TOTAL KEYS AT 4TH, 5TH, 7TH & 8TH FLOOR : 27X4=108 KEYS
- SIXTH FLOOR : 23 KEYS
- CARPET AREA PER KEY: 26.735 SQM
- BUA PER KEY :29.26 SQM
- CORRIDOR :1.50M
- FLOOR TO FLOOR HEIGHT : 3.30M
- SILL HETGHT : 0.10M
- WINDOW WIDTH : 3.10M
- WINDOW HEIGHT : 2.30M
- SILL & LINTEL THICKNESS : 0.275M FINISHED.

Figure 25 Guest room layout

4.4. DESK APPRAISAL: DOUBLE TREE BY HILTON, AHMEDABAD

4.4.1 INTRODUCTION

Designed as an iconic building in Ahmedabad, the hotel proposal by Studio Symbiosis focuses on interweaving the concepts of waves in nature. Using fold lines as movement trajectories and perception along with programmatic requirements, the project's form demonstrates a sense of elegance with soft, subtle touches. Seamless waves flowing on the landscape and flowing on the façade are the focal point for this full service five star property.
The different functions in the building with different programmatic requirements are blending thus resulting in this iconic building. The building comprises of three waves which are very carefully translated into dramatic key spaces on the lower floors and on the upper floors they translate into room grids with focus on standardized room sizes. These waves emerge effortlessly from the landscape creating a sense of harmonic relationship with the ground. The profile of the building has been designed with keen emphasis given both to the smooth transition from the horizontal landscape to the vertical building and to the standardization and repetition of the façade components.




Image 103 Double Tree by Hilton Views



Details:

Table 32 Details: Double Tree by Hilton

PROJECT	DOUBLE TREE
LOCATION	AHMEDABAD
CLIMATE	TROPICAL CLIMATE
TOPOGRAPHY	PLAIN LAND
ARCHITECT	STUDIO SYMBIOSIS
NO. OF ROOMS	193
SITE AREA	1.7 Acre
BUILT UP AREA	24000 SQM
FAR	3.5
BUILDING HEIGHT	56.8 M
PARKING LOT	90 ECS
NO OF FLOOR	G+14

4.4.2 LOCATION AND CONNECTIVITY

The site is situated on the main road which makes access easy for the guest. Site is surrounded by residential buildings with high skylines which creates the necessity of unique design to make it stand out from the other tall structures.

The proximity of the nearby airport is 20km and the railway station is 5km. Within 5km radius there are 5 malls, zoo, national parks, gardens, etc.

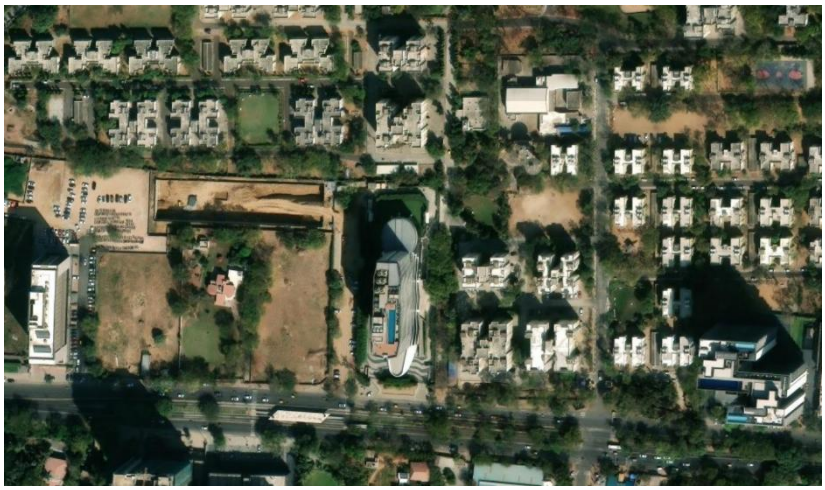


Image 104 Location on Google Maps

4.4.3 FACILITIES

Rooms

Digital Key	Concierge	Spa
Executive lounge	On-site restaurant	Outdoor pool
Fitness center	Room service	Meeting rooms
Pets not allowed		

4.4.4 CONCEPT

- On the lower three floors the proposal consists of a reception lobby, shopping area, banquet hall, meeting rooms, restaurants, lounge space and service areas. All these elements are tied with a coherent design language of natural canyon like formations. The spaces are carved out using the same design principles with which a **wave carves out a canyon.**
- The building comprises three waves which are very carefully translated into dramatic key spaces on the lower floors and on the upper floors they translate into room grids with focus on standardized room sizes. These waves emerge effortlessly from the landscape creating a sense of harmonic relationship with the ground.
- The entry to the building has been marked with a column less cantilever that creates a dramatic entrance space.



Image 105 Entrance Lobby and Gallery (Formed like Canyon)

4.4.5 AREA PROGRAM AND ZONING

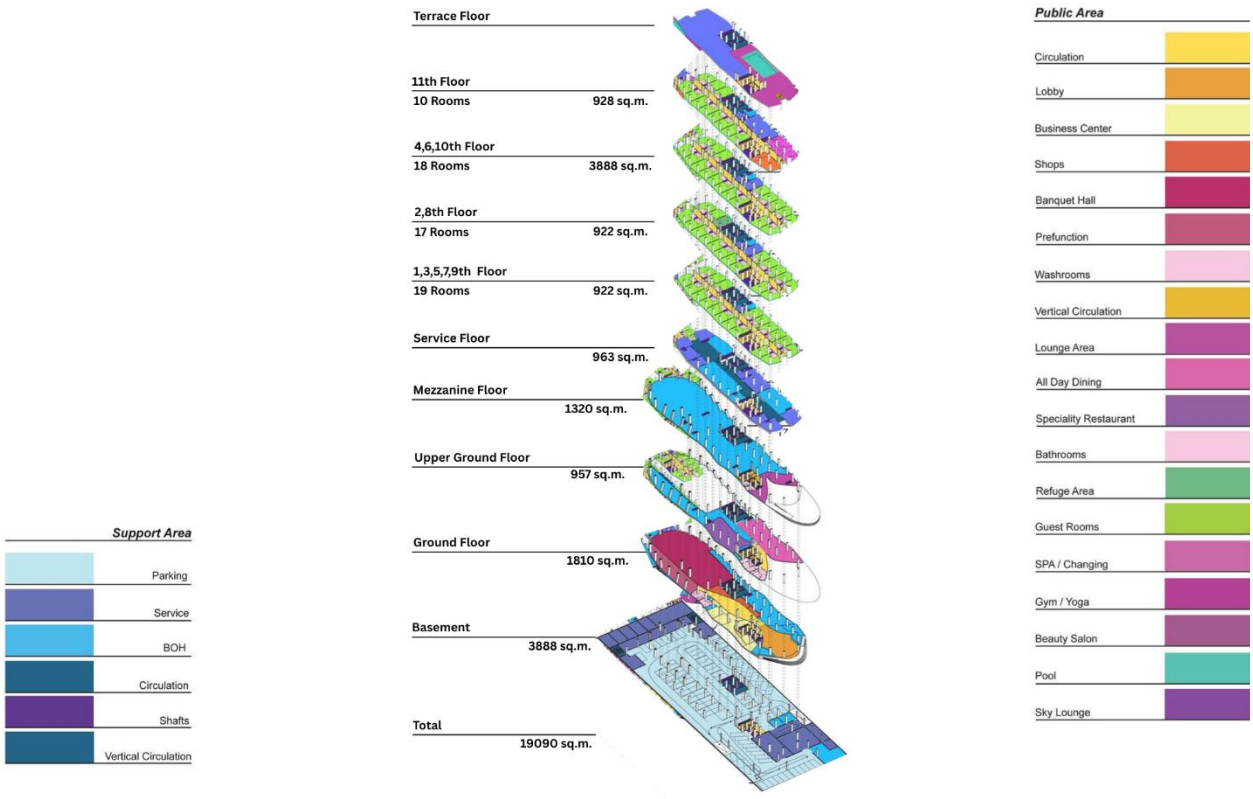
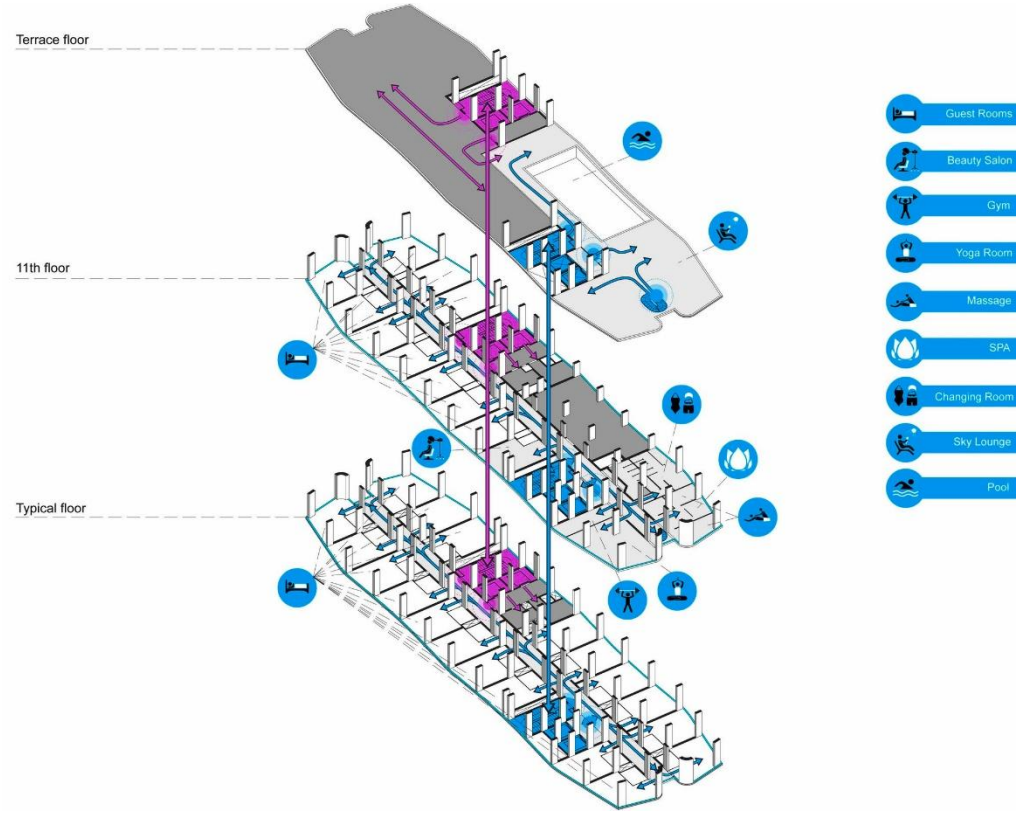


Image 106 Zoning of Double Tree by Hilton

4.4.6 CIRCULATION

A spill out space in the landscape has been provided for the banquet hall whereby adding to the experience of a celebration. Thus helps in creating an animated landscape which has a direct use and is actively used and enjoyed by the guests. The restaurants are located amidst splendid view of the green



with the fascinating façade wrapped around the restaurants making it a unique experience. The all day dining is designed in a way to create a more open feeling where the buffet would be the main attraction. As well as being visible form the main Lobby. In contrast the specialty dining is located one floor higher with an introvert character. This restaurant is about an intimate play between the senses, the space and the food, to create this sense of very intricate relationship it has zones of small and bigger more private areas.

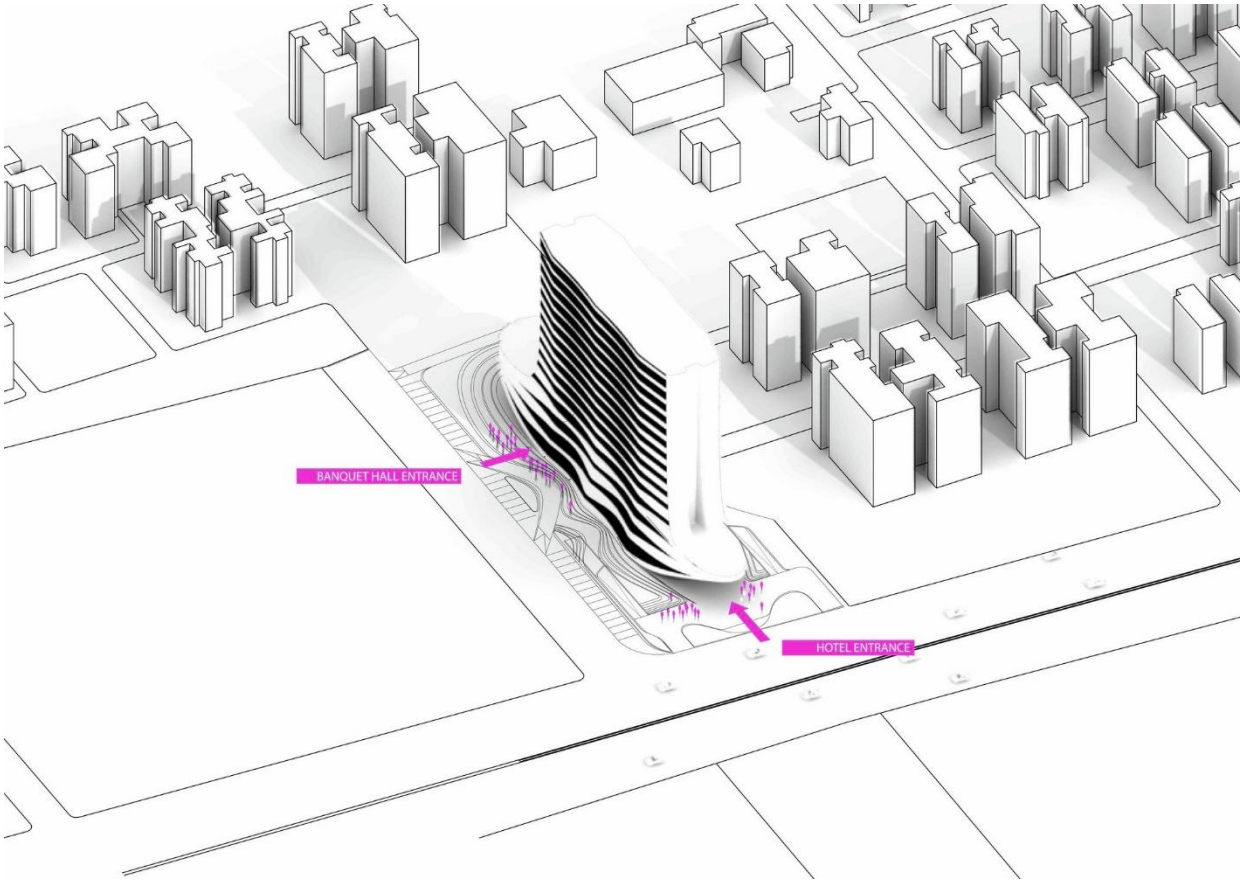
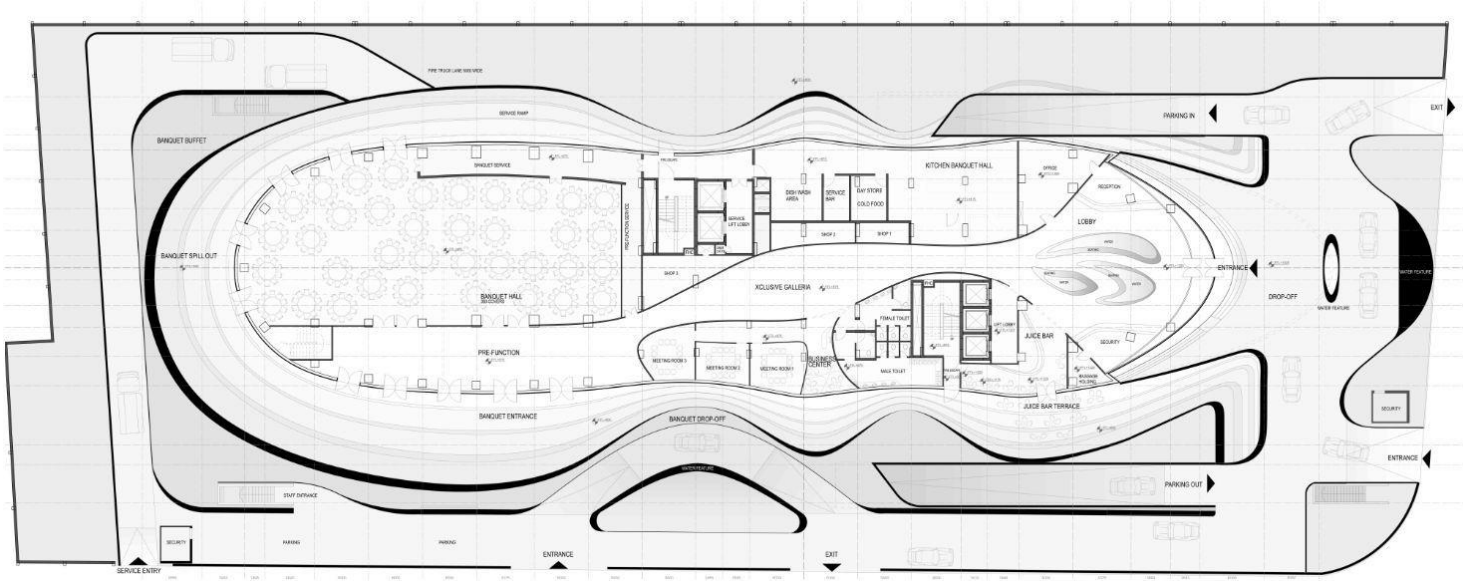


Image 108 Separate Entrances for Banquet and Hotel

4.4.7 FLOOR PLANS

Ground Floor Plan



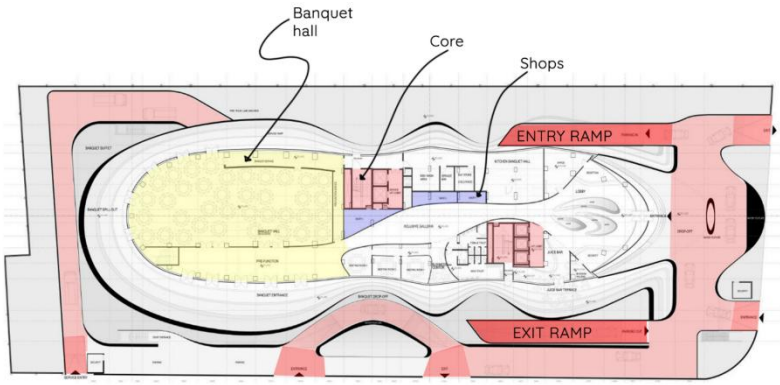


Image 109 Ground Floor Zoning

Typical Floor Plan

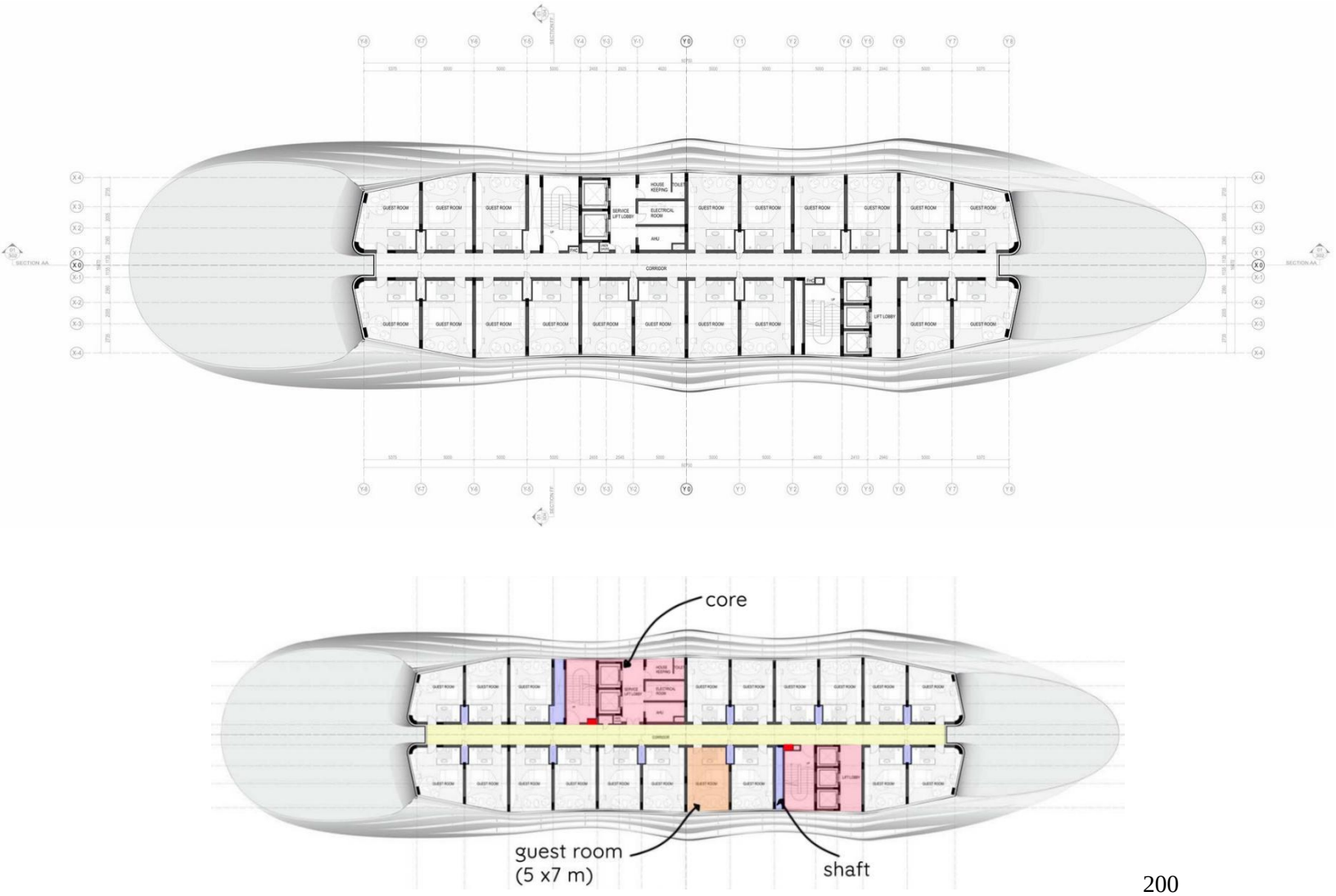


Image 110 Typical Floor Plan Zoning

4.4.8 SECTIONS

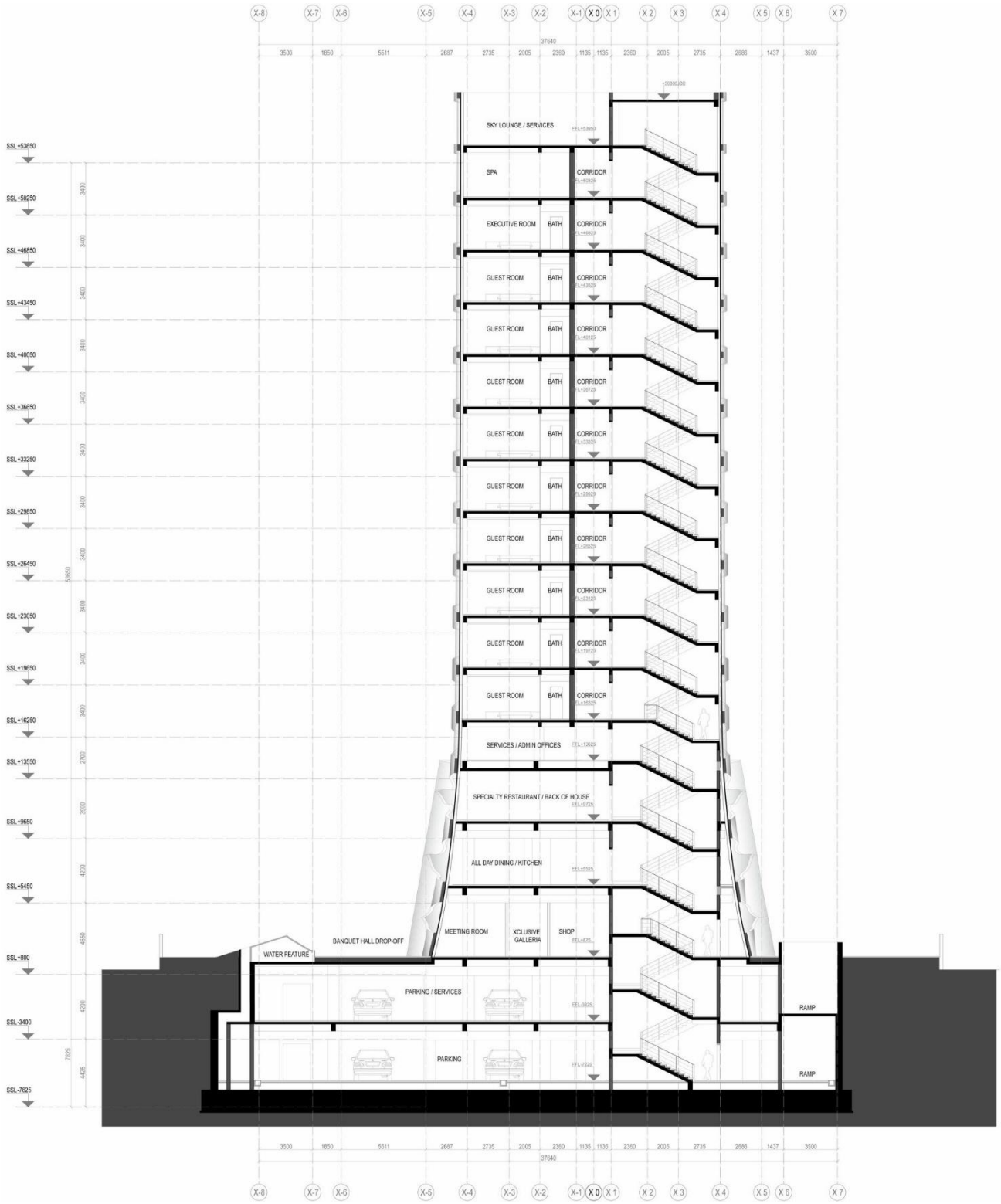


Image 111 Section YO

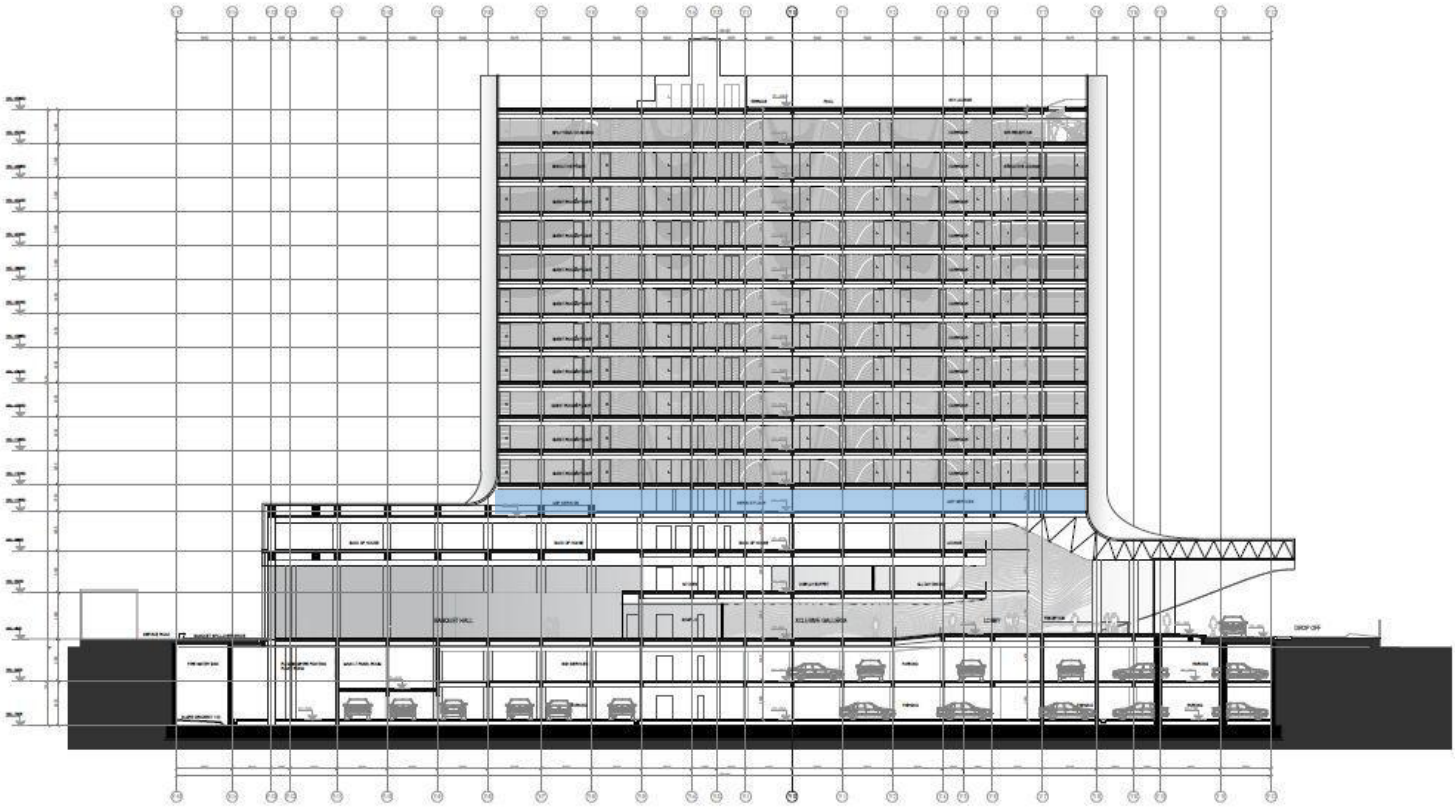


Image 112 Section XO

4.4.9 VIEWS & INTERIORS





Image 113 Guest Room Interiors



Image 118 Roof Top Pool



Image 117 Gym



Image 119 Executive Lounge



Image 116 Buffet and All-Day Dining



Image 115 Restaurant



Image 114 Cafeteria



Image 120 Roof Top Pool



Image 121 Banquet Hall



Image 123 Open-Air Dining



Image 122 Reception Lobby

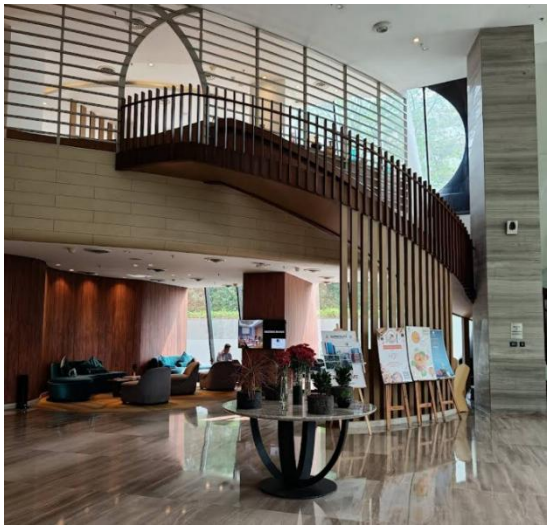


Image 125 Reception Lobby



Image 124 Cafeteria

4.5 COMPARATIVE ANALYSIS

GENERAL PROJECT INFORMATION

Table 33 Comparative analysis 1

Parameter	Taj Lakefront, Bhopal	Hilton Garden Inn, Pune	Goldfinch, Mumbai	DoubleTree by Hilton, Ahmedabad
Location	Bhopal, MP	Hinjawadi, Pune	Mumbai, Maharashtra	Ahmedabad, Gujarat
Connectivity	25 min from Bhopal Intl. Airport; arterial roads nearby	45 min from Pune Airport; Near IT Parks	5 km from Vashi Station; 22 km from Santacruz Airport	20 km from Airport; 5 km from Railway Station
Climate	Humid Subtropical	Hot Semi-Arid	Tropical	Tropical
Topography	Plain land	Plain land	Plain land	Plain land
Architect	JOI Design	Edifice Consultants	Edifice Consultants	Studio Symbiosis
Year of Completion	2021	2022	Not mentioned	Not mentioned
Site Area	4.77 Acres	0.85 Acres	0.93 Acres	1.7 Acres
FAR	2	3	5.19	3.5
No. of Floors	10	G + 6 + Terrace	10	G + 14
Building Height	—	—	38 m	56.8 m

ACCOMMODATION & ROOM TYPOLOGIES

Table 34 Comparative analysis 2

Parameter	Taj Lakefront	Hilton Garden Inn	Goldfinch	DoubleTree
Total Rooms	152	144	153	193
Room Types	Exec. Suite, Twin, King, Presidential	King, Twin, Family, Hill View	Standard layout (details limited)	Standardized executive rooms
Room Sizes	33–152 m²	27–32 m²	—	Likely 30–35 m²
Special Room Features	Lake views, spa bath, designer lighting	Floor-to-ceiling windows, ergonomic work desks	Designed to suit modular hotel standards	Standardized grid + modern finishes
Presidential Suite	Yes (152 m²)	No	Not specified	Likely yes

PUBLIC FACILITIES & F&B

Table 35 Comparative Analysis 3

Parameter	Taj Lakefront	Hilton Garden Inn	Goldfinch	DoubleTree
Restaurants	Multi-cuisine (120 covers), bar, rooftop	Garden Grille, Garden Bar, Pantry	Not specified	Buffet, specialty dining, rooftop
Banquet/Meeting	2 halls, conference room, pre-function	Ballroom (400 pax), Meeting Room	Yes	Banquet, meeting rooms, lounge
Business Center	Yes	Yes	Yes	Yes
Wellness	Gym, Jiva Spa, Salon, Pool	Gym, Rooftop Pool,Salon	Gym, Pool	Gym, Rooftop Pool
Lobby	Triple-height, grand entrance	Double-height, art wall	Standard design	Canyon-inspired design, iconic entrance

BACK OF HOUSE (BOH) & STAFF AREAS

Table 36 Comparative analysis 4

ParA63:E88	Taj Lakefront	Hilton Garden Inn	Goldfinch	DoubleTree
Admin/HR Offices	GM, HR, Sec, Payroll, etc.	GM, HR, Staff Dining	Basic	Yes
BOH Services	Extensive (F&B, Engineering, Housekeeping, Linen, Stores, etc.)	Kitchen, Laundry, Garbage, Waste, Engg.	Not detailed	Separate BOH for banquet, hotel
Housekeeping	Extensive storage and offices	Per floor	Not specified	Standard
Staff Facility	Locker, Cafeteria, Recreation	Staff Dining & Lockers	Not detailed	Standard

HVAC, MEP, PARKING, AND SUSTAINABILITY

Table 37 Comparative Analysis 5

Parameter	Taj Lakefront	Hilton Garden Inn	Goldfinch	DoubleTree
HVAC	Chillers (350T), FCUs in rooms	Rooftop HVAC	Not detailed	Advanced HVAC
STP/WTP	Yes; STP+WTP in basements	RO Plant	Not specified	Yes
Water Tanks	Multiple (Fire, Raw, Domestic, Rainwater)	Yes	Likely	Yes
Parking	600 ECS (B1 + B2)	Basement parking	450 ECS	90 ECS
Energy Backup	2 DG Sets (1250 & 1010 kVA)	Standard	Not mentioned	Yes

ARCHITECTURAL DESIGN & UNIQUE ELEMENTS

Table 41 Comparative Analysis 6

Parameter	Taj Lakefront	Hilton Garden Inn	Goldfinch	DoubleTree
Architectural Concept	Regional craft (Zari, Bagh, Terracotta) + luxury	Contemporary business hospitality	Rational, modular architecture	Canyon-inspired flowing waves
Design Features	Themed floors, heritage integration	Panoramic windows, clean lines	Modular grid, identity design	Folded forms, wave façade
Lobby Design	Grand entrance, luxury finishes	Modern with local art	Simple & functional	Columnless dramatic entry
Façade Expression	Curved and rich in materiality	Linear modern	Clean grid lines	Wave-inspired dynamic surface

4.6 CONCLUSION

- The **Taj Lakefront, Bhopal** succeeds in creating a luxurious hospitality experience with strong regional influences. Its design thoughtfully integrates elements like paisley patterns, bell-metal crafts, and terracotta finishes that reflect the local culture. The building's response to its curved site edge is intelligent, and the lakefront view adds to its architectural quality. However, while interior themes vary across floors, the exterior form does not fully engage with its urban context, making it feel more like a resort enclave than an urban landmark.
- The **Hilton Garden Inn, Pune**, on the other hand, is highly functional and purpose-built for its urban tech-park location. The architectural design is standardized and efficient but lacks emotional or contextual depth. It adheres to global Hilton standards and offers a solid business hotel model. However, its appearance and form do little to enhance or respond to the city's character, making it blend into the surrounding commercial buildings. The rooftop amenities provide some experiential value, but the hotel as a whole is more about utility than visual or spatial identity.
- **Goldfinch Hotel, Mumbai** attempts to maintain a brand identity through a rational and modular architectural system. While the design language aligns with a standard business hotel typology, it doesn't stand out in terms of aesthetics or urban presence. Its compact site area and high FAR have led to a dense vertical structure that performs well in terms of space efficiency but doesn't

interact with the surrounding cityscape. The building feels more like an inserted volume than a designed response to site or climate.

- In contrast, **DoubleTree by Hilton, Ahmedabad** offers the most ambitious architectural language. The wave-inspired form and canyon-like interior volumes provide a unique spatial experience. It is a bold and expressive building that intentionally distinguishes itself from the surrounding skyline. However, while the form is iconic, the interior program still adheres to Hilton's efficiency-driven standards. The hotel performs well both functionally and experientially, making it a successful merger of brand, design, and site expression.

- Among all four, DoubleTree Ahmedabad stands out for its bold design concept, while Taj Lakefront excels in cultural and contextual integration.
- Hilton Garden Inn Pune and Goldfinch Mumbai are functionally robust but fall short in architectural innovation.
- All hotels meet their respective brand standards and service expectations, but only some extend their identity into context-sensitive or expressive architectural design.

CHAPTER V

INFRENCES

5.1 ENTRANCE

- All four hotels are designed with **vehicular approach from main arterial roads**, ensuring visibility and ease of access.
- **Taj Lakefront** has a landscaped entrance and a **triple-height porch** with separate access for banquet guests.
- **DoubleTree by Hilton** uses a **columnless cantilever entry**, making a bold design statement and also creating weather-protected drop-off.
- **Hilton Garden Inn** provides direct access from the road but lacks elaborate entrance zoning — suitable for its business-hotel typology.
- **Inference:** In luxury or iconic hotels (Taj, DoubleTree), **segregated drop-off, pick-up, and service lanes** should be 3.3 m wide with a **4 m-wide entry plaza**. Motion-sensor doors or **revolving doors (2.4–2.7 m dia.)** add energy efficiency and comfort.

5.2 SECURITY & LUGGAGE HANDLING

- **Taj Lakefront** integrates **air-conditioned baggage scanning** and **service entries isolated at the rear** of the site.
- **Hilton Garden Inn** uses **digital key access** and has compact luggage movement.
- **Goldfinch** and **DoubleTree** likely feature isolated BOH/service entries, with hotel guests separated from loading/unloading areas.
- **Inference:** Security must include **air-lock lobbies (3–4 m wide)** to prevent heat ingress. **Enclosed baggage scanner zones** and clear **zoning between staff/service and guests** help with thermal and visual control.

5.3 SERVICES

- **All properties use STP, RO Plants, water tanks**, and **pump rooms**:
    - Taj: 2 × 200 KL fire tanks, 105 KL rainwater tank, 123 KL domestic water tank.
    - Hilton: RO Plant + HVAC room with UPS and panel boards.
- **Boiler room, chiller plant (1.5 sqm per key),** and **DG sets (in Taj)** are standard across all.

- **DoubleTree** has rooftop cooling towers and **mechanical shafts designed into the building's form**.
- **Inference:**
    - STP should cover 80% of demand.
    - Boiler + heat pumps: 0.5 sqm per key.
    - Electrical panel: 0.3 sqm per key in basement.
    - Pump rooms 500–600 mm below tank level for gravity-based flow.
    - Engineering workshops and HVAC rooms must be enclosed and acoustically treated.

5.4 PUBLIC AREAS

- **Lobby Design:**
    - Taj: Triple-height lobby with cove lighting.
    - Hilton: Double-height lobby, business kiosks.
    - Goldfinch: Minimalist.
    - DoubleTree: Canyon-style lobby with seamless design language.
- **Lift & Circulation:**
    - Taj: 2 guest lifts, 2 service lifts, separate luggage lift.
    - Hilton: 3 elevators (2 guest, 1 service), fire staircases.
- **Reception:**
    - Taj has large reception with luggage store and bell desk.
    - Hilton has concierge + kiosk reception.
- **Inference:**
    - For 200 keys: Reception must handle 4–5 kiosks.
    - Min 2 service, 2 guest, and 1 luggage lift recommended.
    - 25-passenger lifts standard in luxury hotels.
    - Lobby lounge: 1 sqm per key, with seating for 40 per 200 sqm.

5.5 DINING & BANQUET

- **Taj:** Two banquet halls with partition walls, 720 sqm banquet zone, pre-function space.
- **Hilton:** 400-seater ballroom + meeting rooms.
- **DoubleTree:** Separate banquet access, high ceiling halls.
- **Inference:**
    - Banquet ratio: 1:1.8 (Ballroom:Lobby), pre-function = 1/3 of banquet.
    - 24×7 dining: Seating divided over 3 shifts; live cooking counters essential.
    - Seating mix: 60–70% 2-seaters, 20–30% 4-seaters, 5–10% sofas for families.
    - Laundry area: ~35 sqm per key in luxury hotels.

5.6 OTHER DETAILS

- **Circulation Planning:**
    - Taj and DoubleTree maintain **independent banquet entry** to avoid guest-service overlap.
    - Staircase spacing is maintained; fire shafts, smoke extraction present.
- **Guest Corridor:**
    - Width: 1.8 m avg., carpeted.
    - Rooms air-conditioned with consistent finishing (wall textures, light fixtures).
- **Bathrooms:**
    - Most rooms use **4-fixture toilets** (WC, basin, shower, bathtub).
    - Presidential Suites include **5 fixtures**.
- **Furniture Standards:**
    - Table: 750 mm
    - Bed height: 550 mm
    - Side/coffee table: 450–550 mm
- **Staffing:**
    - 2.25 employees per key is the industry standard.
    - Built-up area ratio: 125 sqm per key (luxury), 100 sqm per key (standard 5-star).

REFERENCES

Books and Manuals

- Callender, J. H. (2012). Time-Saver Standards for Building Types. New York: McGraw-
- Hill.
- Ministry of Tourism, Government of India. (2018). Guidelines for Classification/Re-
- classification of Hotels. Ministry of Tourism, India.
- Neufert, E., & Neufert, P. (2012). Architects' Data (4th ed.). Wiley-Blackwell.
- Hotels Association of India. (2019). Handbook of Hospitality Standards and Guidelines.
- ITC Hotels. (2018). ITC Hotel Manual: Design, Layout, and Operational Standards. ITC

The Imperial

Thesis Guide: **Dr.ANUPAMA SHARMA**

SUKRITI BHARDWAJ| 211110036 | THESIS 2025

INTRODUCTION

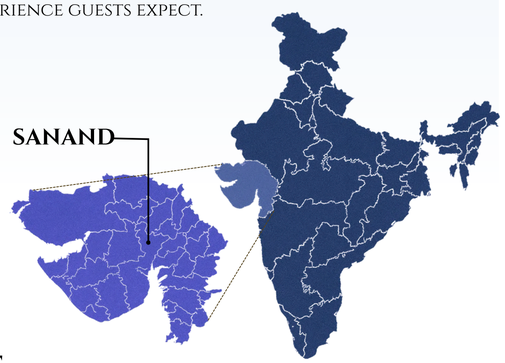
The proposed site for the 5-star business hotel is at **Sanand Industrial Estate, near Ahmedabad, Gujarat.** Over the past few years, Sanand has transformed into a key industrial hub, witnessing rapid growth in infrastructure, job opportunities, and major industrial investments. However, despite this boom, the area still lacks quality, premium hospitality options; creating a strong opportunity for a dedicated business hotel. This location is strategically placed in one of India's fastest-growing industrial corridors, offering excellent connectivity to Ahmedabad city, Sardar Vallabhbhai Patel International Airport, and major highways. Surrounded by leading manufacturing units, upcoming commercial developments, and a rapidly expanding urban landscape, the site is perfectly positioned to cater to corporate travellers, international delegates, and industrial visitors. The primary goal is to design a fully functional, world-class hotel that delivers exceptional service and efficiency, without compromising on aesthetics or the luxury experience guests expect.

Project's Name: Proposed 5 Star Business Hotel

Location: GIDC Sanand-II (Plot SM-39/5), Sanand-II Industrial Estate, Ahmedabad, Gujarat

Site Coordinates: 23°00'21.5"N, 72°14'59.6"E

Proposing Authority: M/s. Bloom Inn Private Ltd



PROJECT DETAILS

S no.	I	II	III	IV	V	VI	VII	VIII
Description	Site Area (SQM)	Site Area (Acres)	Ground Coverage	FAR	Permissible Built-up	Front Setback	Rear & Side Setback	Building Height
Units	20,168.54	4.98	40%	1.8	36,303.37	9m	9m	N.D

SITE LOCATION



LEGENDS

- Site
- Commercial Plots
- Green Cover/ Fields
- Roads
- Accessible Roads
- Built Structure
- GIDC Sanand-II (Plot SM-39/5), Sanand-II Industrial Estate, District Ahmedabad State - Gujarat

N

SWOT

S
- Prime location inside Sanand Industrial Estate.
- Steady demand from industrial and trade visitors.
- Strong highway & road connectivity.

W
- 40 km from Ahmedabad city, less appeal for leisure guests.
- Limited public transport options.
- Fewer entertainment amenities nearby.

O
- Chance to position as a leading corporate hotel.
- Rising industrial investments ensure long-term demand.

T
- Economic slowdown or industry migration could reduce demand.
- Risk of slow infrastructure and civic development

CLIMATE

Sanand, near Ahmedabad in Gujarat, has a semi-arid climate with hot summers (35–45°C) and mild winters (12–25°C), keeping the annual average around 27°C. The area receives about 750 mm of rainfall, mostly during the June–September monsoon, with July and August being the wettest months. Humidity swings from as high as 90% in the rains to as low as 20–35% in dry periods. Winds, mainly from the southwest and west, average 2.5–3.2 m/s and support natural ventilation. Abundant sunshine makes the region ideal for solar energy, while the climate overall demands designs that control heat, improve airflow, and manage rainwater effectively.

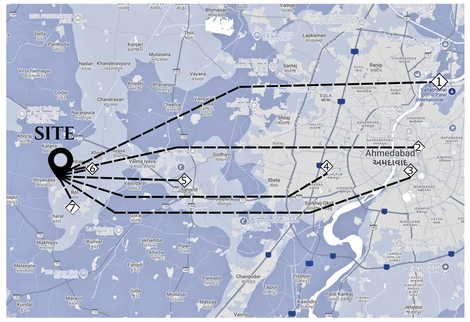
WIND
Direction: S-W
Max: 5.25 m/s
Avg: 2.85 m/s

RAINFALL
Min: 1 mm(Jan)
Max: 213.36 mm(July)
Annually: 750mm

TEMPERATURE
Min: 12°C
Max: 45°C
Avg: 27.5°C

HUMIDITY
Min: 20%
Max: 90%
Avg: 60%

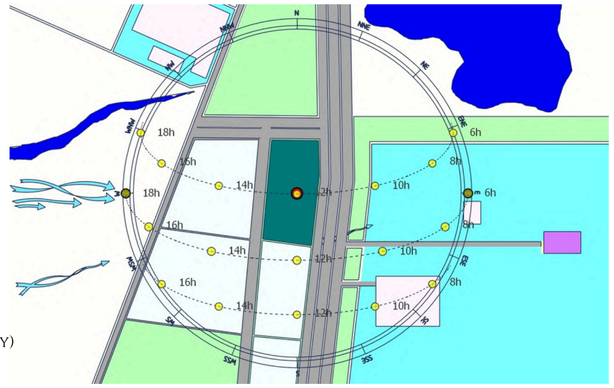
SITE PROXIMITY



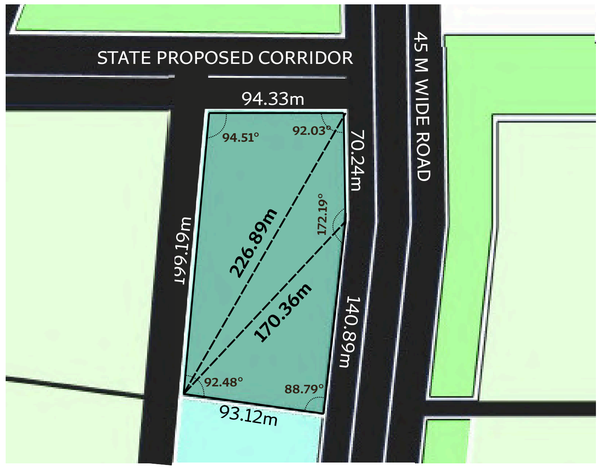
The proposed 5-star business hotel site in Sanand Industrial Estate is well connected by multiple modes of transport, making it ideal for business travelers and corporate guests. The site is approximately 25–30 km from Ahmedabad city and is accessible via State Highway 17 and NH-947. Sanand railway station, on the Ahmedabad–Viramgam line, provides direct rail connectivity, while Sardar Vallabhbhai Patel International Airport lies about 50 km away. Upcoming infrastructure projects, including wider road links and the Delhi–Mumbai Industrial Corridor, further enhance future accessibility and growth prospects.

1. **Airport :** 49 kms
2. **Railway Station :** 42 kms
3. **Bus Stand :** 40 kms
4. **Multi-speciality Hospital** : 34 kms
5. **Healthcare** : 17 kms
6. **Police Station** : 5.6 kms
7. **Clinic :** 4.4 kms

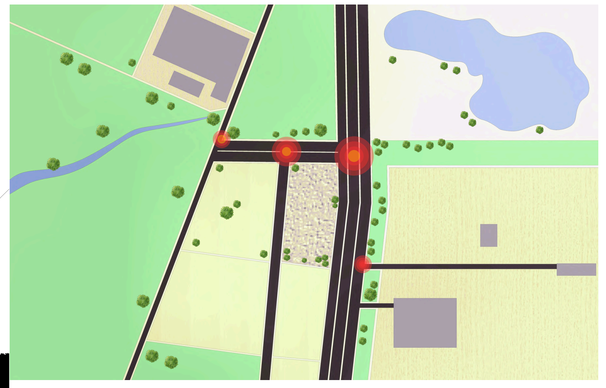
SUN PATH & WIND DIRECTION



SITE DIMENSIONS



EXISTING VEGETATION & TRAFFIC NOISE



SITE SURROUNDINGS & VIEWS

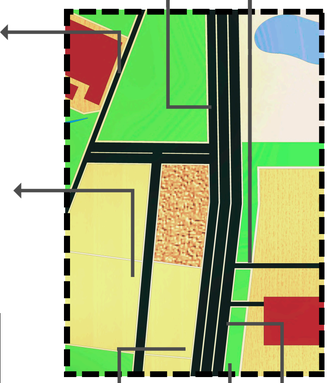








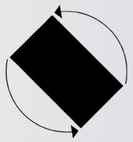






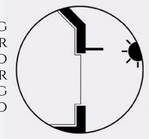


INFERENCES FROM SITE ANALYSIS



ORIENTATION:
The longer axis of the building should be oriented in E-W Direction. This would have ensured the reduction of exposure to hot sun. But due to orientation of the site, the building will be placed with longer axis on N-S direction. The longer side of the building will have to face the undesirable sun on the East and West. Thus a building envelope is recommended.

SHADING:
Due to harsh climate, specifically hot burning summers of Ahmedabad, where the direct sun is never desirable, adequate shading measures are also necessary to protect the building from direct Solar radiation. Should be either shaded by shading devices, roof overhangs or by deciduous trees to protect from direct sunlight.





VEGETATION:
Shade vegetation, especially in the east-west, not too close to the building, giving an area for air movement towards ventilation, shadowing and producing fresh air. Deciduous trees provide shade in summers and sunlight in winters; hence, planting such trees on the west and southwestern side of the building is a natural solar passive strategy.

TOPOGRAPHY:
The site only has mere elevation difference of 4 meters, that too at only some places, therefore we can treat the site as flat and mere levelling would do the job. This relatively uniform terrain simplifies construction and reduces the need for extensive cut-and-fill operations. It also allows for efficient placement of utilities, circulation networks, and landscape features.



SPACES	CASE STUDY : 1 TAJ, BHOPAL		CASE STUDY : 2 HILTON, PUNE		DESK AP. : 1 DOUBLE TREE HILTON, AHMEDABAD		DESK AP.RAISAL : 2 GOLDFINCH, MUMBAI		INFERENCES	
	Space Required	Area(m²)	Space Required	Area(m²)	Space Required	Area(m²)	Space Required	Area(m²)	Space Required	Area(m²)
LOBBY	Front Desk	40	Front Desk	25	Front Desk	40	Front Desk	32	Front Desk	40
	Lounge Area	100	Lounge Area	80	Lounge Area	150	Lounge Area	120	Lounge Area	150
	Toilets	30	Toilets	28	Toilets	60	Toilets	35(3)	Toilets	2(30)
	Luggage Store	15	Luggage Store	8	Luggage Store	20	Luggage Store	12	Luggage Store	20
	Bell Man	4	Bell Man	6	Bell Man	10	Bell Man	4	Bell Man	10
	Guest Lifts	55 X 2	Guest Lifts	40X2	Guest Lifts	60	Guest Lifts	25 x2	Guest Lifts	55 X 2
	Business Centre	36	Business Centre	65	Business Centre	135	Business Centre	60	Business	135
	Retail Shops	25	Retail Shops	50X2	Retail Shops	50	Retail Shops	45	Retail Shops	50X2
OFFICES	General Manager	151	General Manager	20	General Manager	30	General Manager	25	General Mngr	30
	Secretary GM	9	Secretary GM	9	Secretary GM	15	Secretary GM	20	Secretary GM	20
	FO Mgr	5	FO Mgr	7	FO Mgr		FO Mgr	10	FO Mgr	10
	Revenue Mgr	8	Revenue Mgr	8	Revenue Mgr	15	Revenue Mgr		Revenue Mgr	15
	F&B Mgr		F&B Mgr	9	F&B Mgr	15	F&B Mgr		F&B Mgr	15
	Reservation Office	8	Reservation Office	9	Reservation Office	30	Reservation Office	25	Reservation	25
	Work Stations	25	Work Stations	15	Work Stations	20	Work Stations	24	Work Stations	25
	Discussion Rooms	4	Discussion Rooms	10	Discussion Rooms	25	Discussion Rooms		Discussion	25
	Chief Accountant	15	Chief Accountant	10	Chief Accountant	15	Chief Accountant		Chief Acc	15
	Credit Manager	8	Credit Manager	8	Credit Manager	15	Credit Manager	15	Credit	15
	Cashier	5	Cashier	8	Cashier	15	Cashier		Cashier	15
	Controller	8	Controller	8	Controller	10	Controller	10	Controller	10
	Payroll Manager	5	Payroll Manager	8	Payroll Manager	10	Payroll Manager		Payroll	10
	Acc. Records	10	Acc. Records	10	Acc. Records	20	Acc. Records	12	Acc. Records	20
	Meeting Room	19	Meeting Room	30	Meeting Room	15	Meeting Room		Meeting Room	30
	Computer Room	17	Computer Room	12	Computer Room	150	Computer Room		Computer	150
	UPS	35	UPS	12	UPS	25	UPS		UPS	25
	Records	10	Records	20	Records	20	Records	24	Records	20
	Storage &	9	Storage & Copying	20	Storage & Copying	8	Storage &	18	Storage &	8
	Sales Mgr	8	Sales Mgr	12	Sales Mgr	10	Sales Mgr	12	Sales Mgr	10
	Banquets Mgr	8	Banquets Mgr	12	Banquets Mgr	25	Banquets Mgr	24	Banquets Mgr	25
BANQUETS	Banquet hall	225 X 2	Banquet hall	400	Banquet hall	800	Banquet hall		Banquet hall	800
	Pre Function area	80 X 2	Pre Function area	160+119	Pre Function area	100	Pre Function area	200	Pre Function	200
	Conference room	50	Conference room	85	Conference room	60	Conference room	400	Conference	60
	Toilet	60	Toilet	42	Toilet	70	Toilet		Toilet	70
	Outdoor Terrace		Outdoor Terrace		Outdoor Terrace		Outdoor Terrace	90	Outdoor	90
	Banquet BOH	130	Banquet BOH	71	Banquet BOH		Banquet BOH	300 +	Banquet BOH	300 +
	& Kitchen		& Kitchen		& Kitchen		& Kitchen	250	& Kitchen	250
RECREATIONAL AREA	Swimming pool	100	Swimming pool	60	Swimming pool	100	Swimming pool	150	pool	150
	Pool change room	50	Pool change room	20	Pool change room	50	Pool change room	25	Pool change	50
	Gym	100	Gym	58	Gym	75	Gym	100	Gym	100
	Massage rooms	6	Massage rooms	6	Massage rooms	8	Massage rooms	15x 3	Massage	15x 3
	Saloon	50	Saloon		Saloon	20	Saloon	40	Saloon	50
GUEST ROOMS	King Bedroom	33 X 5	King Bedroom	23.5 X 19	King Bedroom	4224	King Bedroom		King Bedroom	23.5 X 19
	Executive Suite	66 X	Executive Suite	28.3 X 14	Executive Suite	1088	Executive Suite	12 X 78	Executive Suite	28.3 X 14
	Twin Bed Rooms	33 X 5	Twin Bed Rooms	25 X 26	Twin Bed Rooms		Twin Bed Rooms		Twin Bed	25 X 26
	Suites	152 X 1	Suites	28 X 4	Suites	469	Suites		Suites	28 X 4
F&B OUTLETS	Multi-Cuisine Rest	300	Multi-Cuisine Rest	640	Multi-Cuisine Rest	250	Rest	384	Rest	640
	Bar	100	Bar	195	Bar	80	Bar		Bar	100
	Coffee Shop		Coffee Shop		Coffee Shop	40	Coffee Shop	30	Coffee Shop	40
	Bakery	20	Bakery		Bakery	40	Bakery		Bakery	40
KITCHEN	Main Kitchen	85	Main Kitchen	80	Main Kitchen	80	Main Kitchen	76	Main Kitchen	80
	Room Service Kit	20	Room Service Kit	20	Room Service Kit	20	Room Service Kit	25	Room Service	20
	Pastry	32	Pastry	20	Pastry	15	Pastry	25	Pastry	15
	Bakery	20	Bakery	20	Bakery	25	Bakery	17	Bakery	25
	Commissary	40	Commissary	20	Commissary	25	Commissary	50	Commissary	25
	Dishwash	20	Dishwash	15.5	Dishwash	20	Dishwash	25	Dishwash	20
	Pot Wash	12	Pot Wash	9	Pot Wash	10	Pot Wash	30	Pot Wash	10
	Cold Kitchen	18	Cold Kitchen	14.8	Cold Kitchen	15	Cold Kitchen	17	Cold Kitchen	15
	Cafe Kitchen	12	Cafe Kitchen		Cafe Kitchen	15	Cafe Kitchen	20	Cafe Kitchen	15
	Show Kitchen	8	Show Kitchen		Show Kitchen	15	Show Kitchen	20	Show Kitchen	15
	Bar Pantry		Bar Pantry		Bar Pantry	15	Bar Pantry	15	Bar Pantry	15
	Bar Counter	15	Bar Counter		Bar Counter	10	Bar Counter	25	Bar Counter	10
	Chef's Office	13	Chef's Office	4	Chef's Office	6	Chef's Office	12	Chef's Office	6
HOUSE KEEPING	Issue/Tailor/Dirties	5	Issue/Tailor/Dirties	5	Issue/Tailor/Dirties	8	Issue/Tailor/Dirties	12	Issue/Tailr/Dirtis	8
	House Keeper Ex.	10	House Keeper Ex.	10	House Keeper Ex.	10	House Keeper Ex.	15	House Keeper	10
	House Keeper Asst.	8	House Keeper Asst.	8	House Keeper Asst.	8	House Keeper Asst.	10	House Keeper	8
	H/K Office	16	H/K Office	10	H/K Office	10	H/K Office	8	H/K Office	10
	Dead Store	30	Dead Store	15	Dead Store	20	Dead Store	20	Dead Store	20
	Guest Supply Str	10	Guest Supply Str		Guest Supply Str	8	Guest Supply Str	34.7	Guest Supply	8
	Bulk Linen Store	5	Bulk Linen Store		Bulk Linen Store	10	Bulk Linen Store	90	Bulk Linen	10
	Tailor	10	Tailor		Tailor	5	Tailor		Tailor	5
	Upholstery Store	5	Upholstery Store		Upholstery Store	10	Upholstery Store	15	Upholstery	10
	Lost & Found	5	Lost & Found	6	Lost & Found	5	Lost & Found	20	Lost & Found	5
HUMAN RESOURCES	HR Manager	8	HR Manager	8	HR Manager	8	HR Manager	20	HR Manager	8
	Secretary	4	Secretary	5	Secretary	5	Secretary	20	Secretary	15
	Training Room	20	Training Room	20	Training Room	50	Training Room	12	Training Room	50
	Locker Room	10	Locker Room	10	Locker Room	5	Locker Room	305	Locker Room	5
	Interview Room	8	Interview Room	8	Interview Room	10	Interview Room	34.7	Interview	20
SECURITY	Staff Entry & Time Keeper	10	Staff Entry & Time Keeper		Staff Entry & Time Keeper	15	Staff Entry & Time Keeper	22	Staff Entry & Time Keeper	15
	Security Manager	8	Security Manager		Security Manager	10	Security Manager	15	Security Mngr	10
STAFF FACILITY	Male Toilets & Lockers	100	Male Toilets & Lockers	42	Male Toilets & Lockers	70	Male Toilets & Lockers		Male Toilets & Lockers	100
	Female Toilets & Lockers	70	Female Toilets & Lockers		Female Toilets & Lockers	40	Female Toilets & Lockers		Female Toilets & Lockers	70
	Kitchen	25	Kitchen		Kitchen	30	Kitchen		Kitchen	30
	Staff Cafeteria	90	Staff Cafeteria		Staff Cafeteria	80	Staff Cafeteria		Staff Cafeteria	80
	Staff Recretion Ar	15	Staff Recreation	50	Staff Recreation Ar	15	Staff Recreatn Ar		Staff	15
REPAIR & MAINTENANCE	Head of Eng.	8	Head of Eng.		Head of Eng.	10	Head of Eng.		Head of Eng.	10
	Asst. Eng.	8	Asst. Eng.		Asst. Eng.	10	Asst. Eng.		Asst. Eng.	10
	Secured Store	10	Secured Store		Secured Store	10	Secured Store		Secured Store	10
	Paint Shop	10	Paint Shop		Paint Shop	10	Paint Shop		Paint Shop	10
	Eng Store	10	Eng Store		Eng Store	10	Eng Store		Eng Store	10
	Carpentary	10	Carpentary		Carpentary	10	Carpentary		Carpentary	10
	Spare Parts	5	Spare Parts		Spare Parts	5	Spare Parts		Spare Parts	5
MISC.	Drivers Restroom	15	Drivers Restroom		Drivers Restroom	20	Drivers Restroom		Restroom	20
	Drivers Toilet	22	Drivers Toilet		Drivers Toilet	25	Drivers Toilet		Drivers Toilet	25
	Microbiologist	8	Microbiologist		Microbiologist	10	Microbiologist		Microbiologist	10
BOH SERVICES	LV Room	56	LV Room	43	LV Room	50	LV Room		LV Room	50
	Indoor Trnsfrmrs	22 X 2	Indoor Trnsfrmrs		Indoor Trnsfrmrs	40	Indoor Trnsfrmrs		Indoor	40
	LT Panel	74	LT Panel		LT Panel	50	LT Panel		LT Panel	50
	DG Gn. Room	97	DG Gn. Room		DG Gn. Room	75	DG Gn. Room		DG Gn. Room	75
	Chiller Plant	125	Chiller Plant		Chiller Plant	100	Chiller Plant		Chiller Plant	100
	Rain Water Tank	105	Rain Water Tank		Rain Water Tank	80	Rain Water Tank		Rain Water	80
	Municipal Tank	123	Municipal Tank		Municipal Tank	80	Municipal Tank		Municipal Tank	80
	Raw Water Tank	123	Raw Water Tank		Raw Water Tank	80	Raw Water Tank		Raw Water	80
	Fire Tank	105	Fire Tank		Fire Tank	80	Fire Tank		Fire Tank	80
	Treated Tank	123	Treated Tank		Treated Tank	80	Treated Tank		Treated Tank	80
	Salt Storage	12	Salt Storage		Salt Storage	10	Salt Storage		Salt Storage	10
	Pump Room (Fire)	20	Pump Room (Fire)		Pump Room (Fire)	25	Pump Room (Fire)	20	Pump Room	25
	Pump Room	60	Pump Room		Pump Room	50	Pump Room		Pump Room	50
	Boiler Room	58	Boiler Room		Boiler Room	50	Boiler Room	50	Boiler Room	50
	STP	80	STP		STP	75	STP		STP	75
	Workshop	22	Workshop		Workshop	20	Workshop	20	Workshop	20
	Engineering Office	8	Engineering Office		Engineering Office	10	Engineering Office		Engineering	10
	Engineering Store	10	Engineering Store		Engineering Store	10	Engineering Store		Engineering	10
	Control Room	15	Control Room		Control Room	10	Control Room		Control Room	10
	Oil Storage Tanks	190	Oil Storage Tanks		Oil Storage Tanks	100	Oil Storage Tanks		Oil Storage	100
	Swimming Pool		Swimming Pool		Swimming Pool		Swimming Pool		Swimming	
	Filtration Plant	12	Filtration Plant		Filtration Plant	20	Filtration Plant		Pool Filtration	20

INFERENCES FROM CASE STUDIES

ENTRANCE:

- Entrances should be prominent and visible with proper signage and separate.
- Separate entrance for banquet from main hotel entrance to avoid crowd during functions.
- From drop off lane there is a 4m wide entrance plaza waiting + Security check + Space for pick up bags.

PARKING:

- Parking facilities ensure no chaos, provides proper coordination during busy hours.
- Traffic flow should be in smooth flow without any congestion.

ARCHITECTURAL FEATURES:

- The building should complement the area of the city.
- Using of architectural elements as per the climate and culture of the city.

DINING & BANQUET:

- All-Day Dining (24x7) should include:

I. A breakfast area designed to accommodate guests in 3 shifts.
II. For a 200-key hotel, dining should serve 0.75–1 guest per key, i.e., ~150–200 guests at peak.
III. Include live food preparation counters for guest interaction and variety.

- Buffet Counter:

I. Allocate 0.1 meters of buffet length per key, totalling ~20 meters for 200 keys.

- Seating Configuration:

I. 60–70% two-seater tables
II. 20–30% four-seater tables
III. 5–10% banquet-style family sofa seating

HOTEL ROOMS:

- Rooms should be designed efficiently with no negative spaces as it counts in saleable area.
- Bedrooms and suites are located to benefit from views and designed to mase house disturbance.
- Repetitive modular construction of rooms adjacent to vertical ducts enclosing pipes, cables and other technical services.

SERVICES:

- Provision must be made for storage of fuel, method of supplying electrical power and the handling of Linen.
- Separate provision of service lifts is needed for housekeeping and room services.
- Sprinkler systems with fire mode ventilation switching, and alarm, smoke door and let activation are to be used.
- The Sewage Treatment Plant (STP) output is 80 litres per key and can be reused within the hotel if the daily water requirement per key is 100 litres. • Pump rooms should be positioned 500–600 mm below the water tank level to ensure efficient gravity-fed operation.
- RO plants (Reverse Osmosis) are to be included for water purification needs.

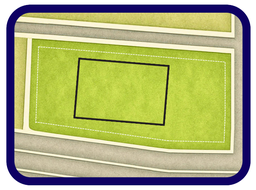
VERTICAL & HORIZONTAL CIRCULATION :

- Provide a staircase every 45 meters for effective emergency egress and compliance with safety codes.
- All guestroom doors should be recessed 150–200 mm from the corridor to maintain visual privacy and clean corridor aesthetics.
- Corridor width (with carpeted flooring) should be between 1.5 to 1.9 meters to ensure comfortable guest movement and luggage handling.

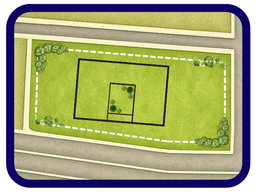
SITE ZONING



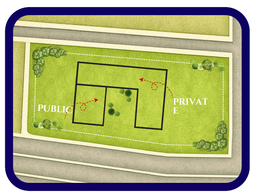
As per the Norms, Front , Rear & Side Setbacks of the site are **9m**



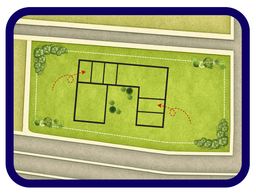
Following the site geometry & forming conventional hotel design.



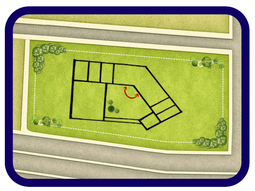
Bringing in the green zones in with the heip of **Courtyard**



Dividing the blocks for **public, private** and **restricted zones.**



To bring in the **green stepped terraces** have been introduced.



Tilting one side to make the built look like **welcoming with open arms** and expand the courtyard. This gives a dynamic form.



LEGENDS

1-Main Entry
2-Hotel Drop-off
3-Main Exit
4-Garden for Banquet
5-Internal Courtyard
6-Building
7-Service Entry
8-Generator
9-Water Features
10-Service Exit
11-Electrical line from Substation
12-Water Supply Line
13-Rain Water Drainage Line

CONCEPT

THE HAVEN OF VERTICALITY
AANGAN-E-AHMEDABAD

Aangan has always been the soul of Ahmedabad's architecture; a space for light, life, and connection. This hotel reimagines that aangan not on the ground alone, but **cascading upwards, becoming lush terraces that bring nature and community into every floor.**It is where Ahmedabad's heritage meets contemporary hospitality, blending warm tradition with sleek luxury.Aangan-e-Ahmedabad preserves the cultural connection to Ahmedabad's traditional courtyard homes (pol houses and havelis) and adds a sense of modernity and vertical grandeur, telling the story of how the aangan rises floor by floor into stepped terraces, merging earth, heritage, and sky.

THEMATIC INFERENCES



Stepped Floor Plates as Elevated Courtyards



Central Courtyard as the Heart



Hierarchy of Spaces

CLIMATE RESPONSIVE METHODS



Evaporative Cooling with Water Features

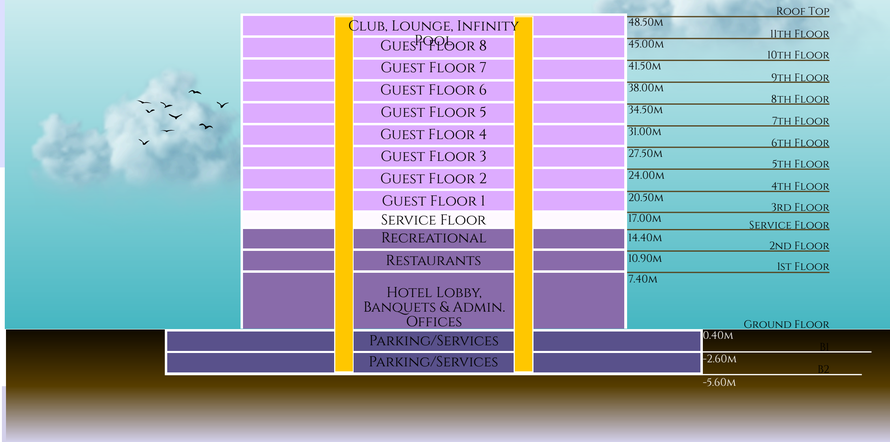


Courtyard Planning



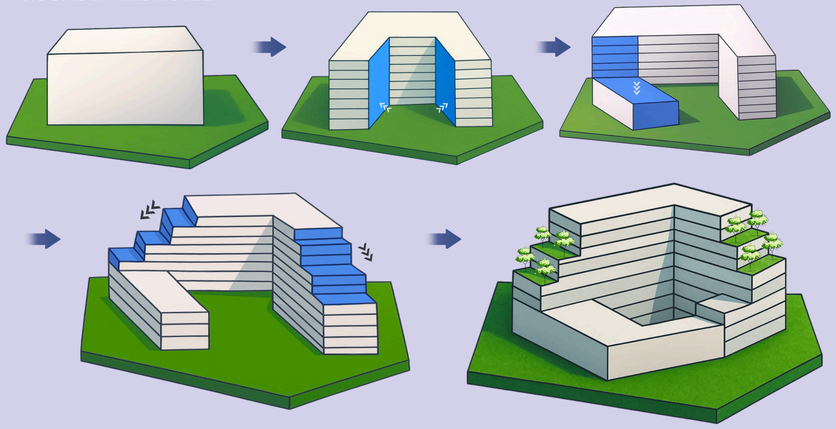
Roof Gardens & Green Terraces

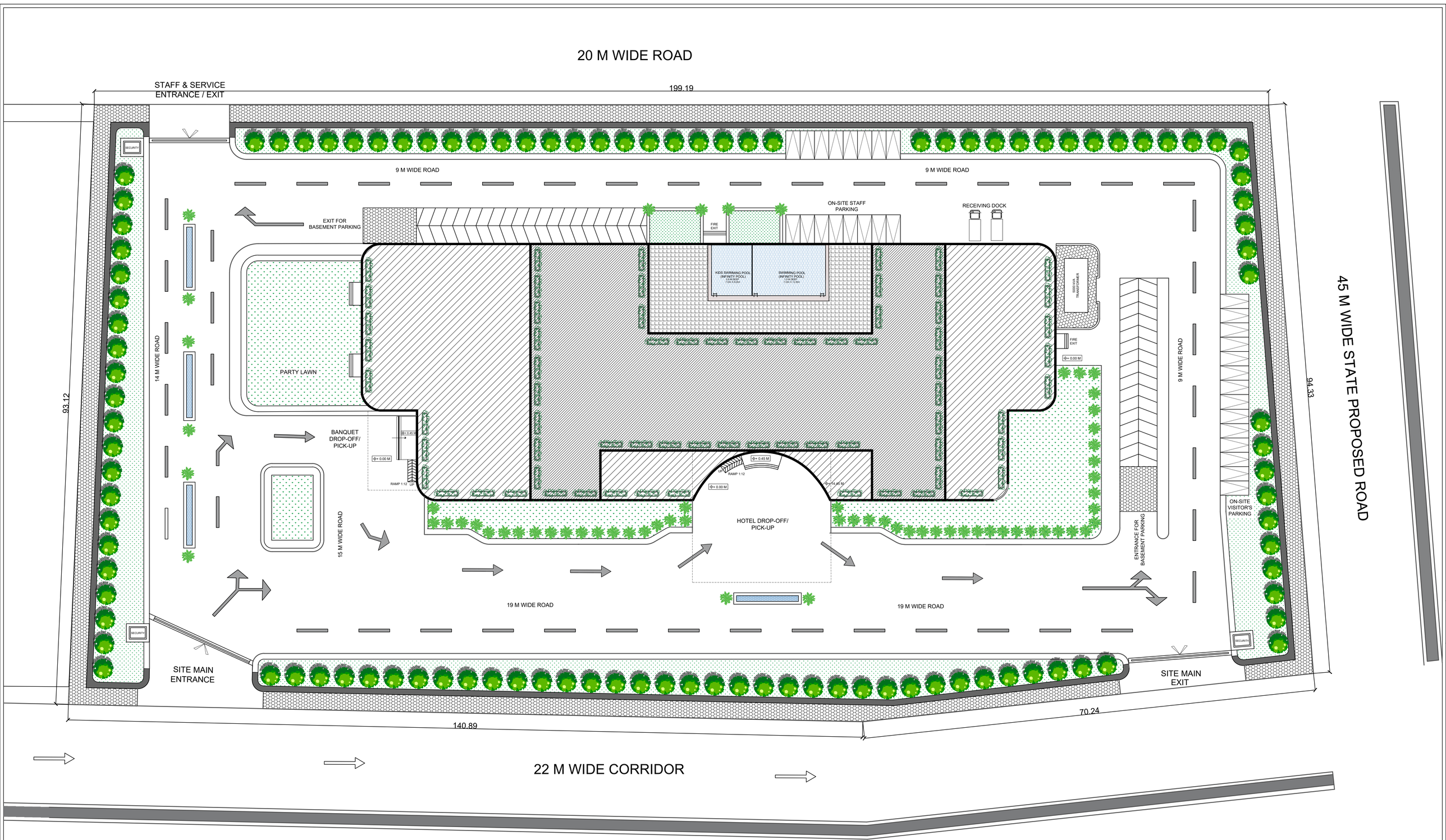
VERTICAL ZONING



FORM EVOLUTION

The final schematic building form is developed stepping up alternate floors and public areas put in the bottom. Final built plan derived satisfies both the vehicular movement and opens up the courtyard yet along with that adds to the dynamics of the building. The concept of stepped terraces has been kept on the floor plates alternating to provide one breakout zone for each floor. This breaks the symetrical steps yet provide a large built mass with dynmaic impactful form.Along with that the stepped floors add to the heirarchy of rooms in the hotel.





SITE CALCULATIONS				
S.NO.	DESCRIPTION	SPECIFICATIONS	UNITS	
1	SITE AREA (ACRES)	4.98	ACRES	
2	SITE AREA (SQM)	20,168.54	SQM	100%
3	GROUND COVERAGE	5000	SQM	25%
4	FAR	1.8		
5	MAXIMUM BUILT-UP	36,303	SQM	
6	ACHIEVED BUILT-UP	27,936	SQM	
7	M.O.S (ALL SIDES)	9	M	
8	MAXIMUM HEIGHT	NOT DEFINED	M	
9	ECS / 100 SQM FLOOR AREA	1.67		
10	MINIMUM PARKING	466		

NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

SITE PLAN

GUIDED BY

DR. ANUPAMA SHARMA

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NAME : SUKRITI BHARDWAJ
SEMESTER : IX
SCHR NO. : 211110036
COLLEGE : MANIT BHOPAL

SHEET NO



NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

GROUND FLOOR

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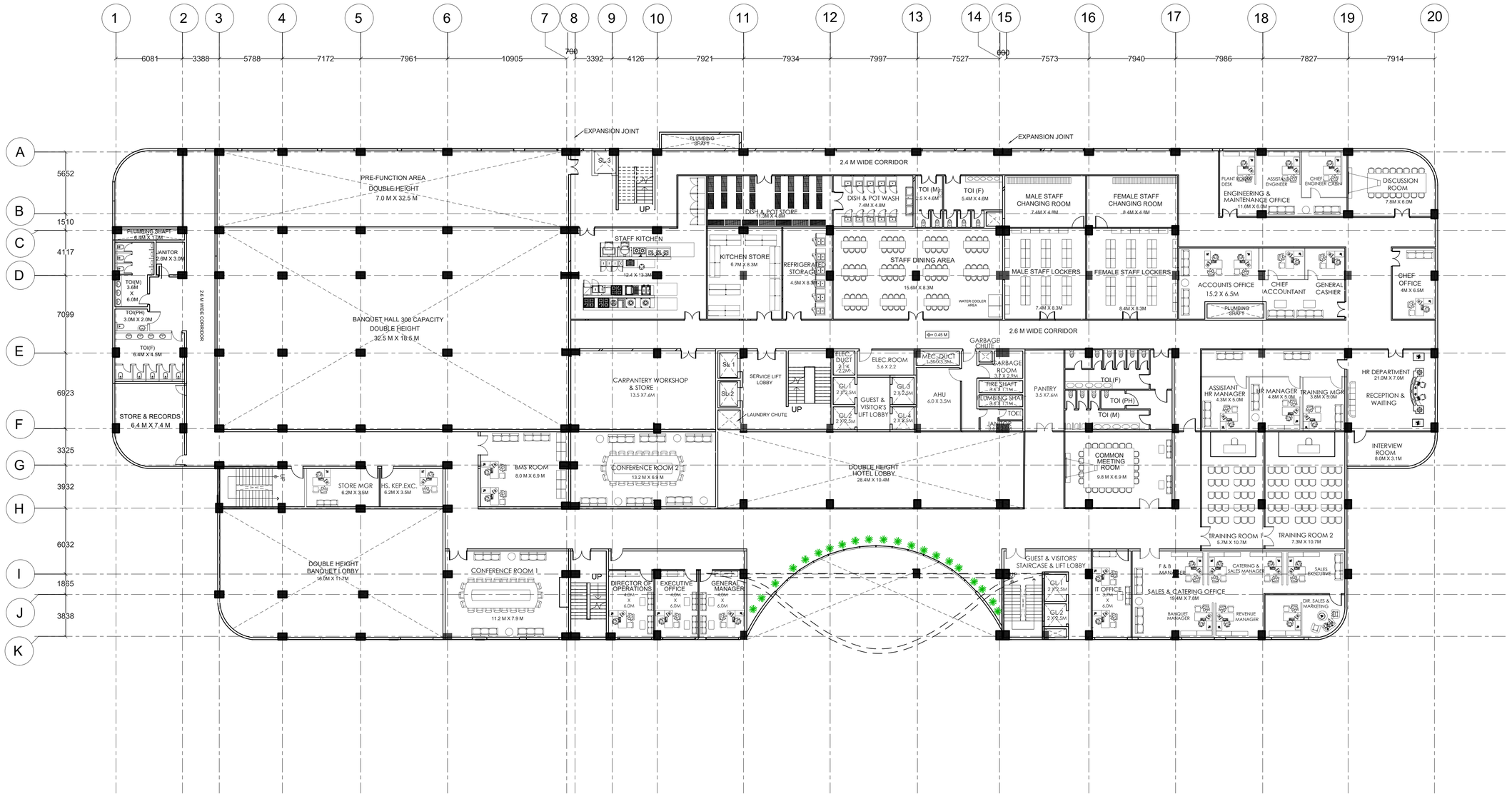
SHEET NO



NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

UPPER GROUND FLOOR

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NORTH

SCALE
1:200
ALL DIMENSIONS IN METRE

BUSINESS FLOOR

GUIDED BY
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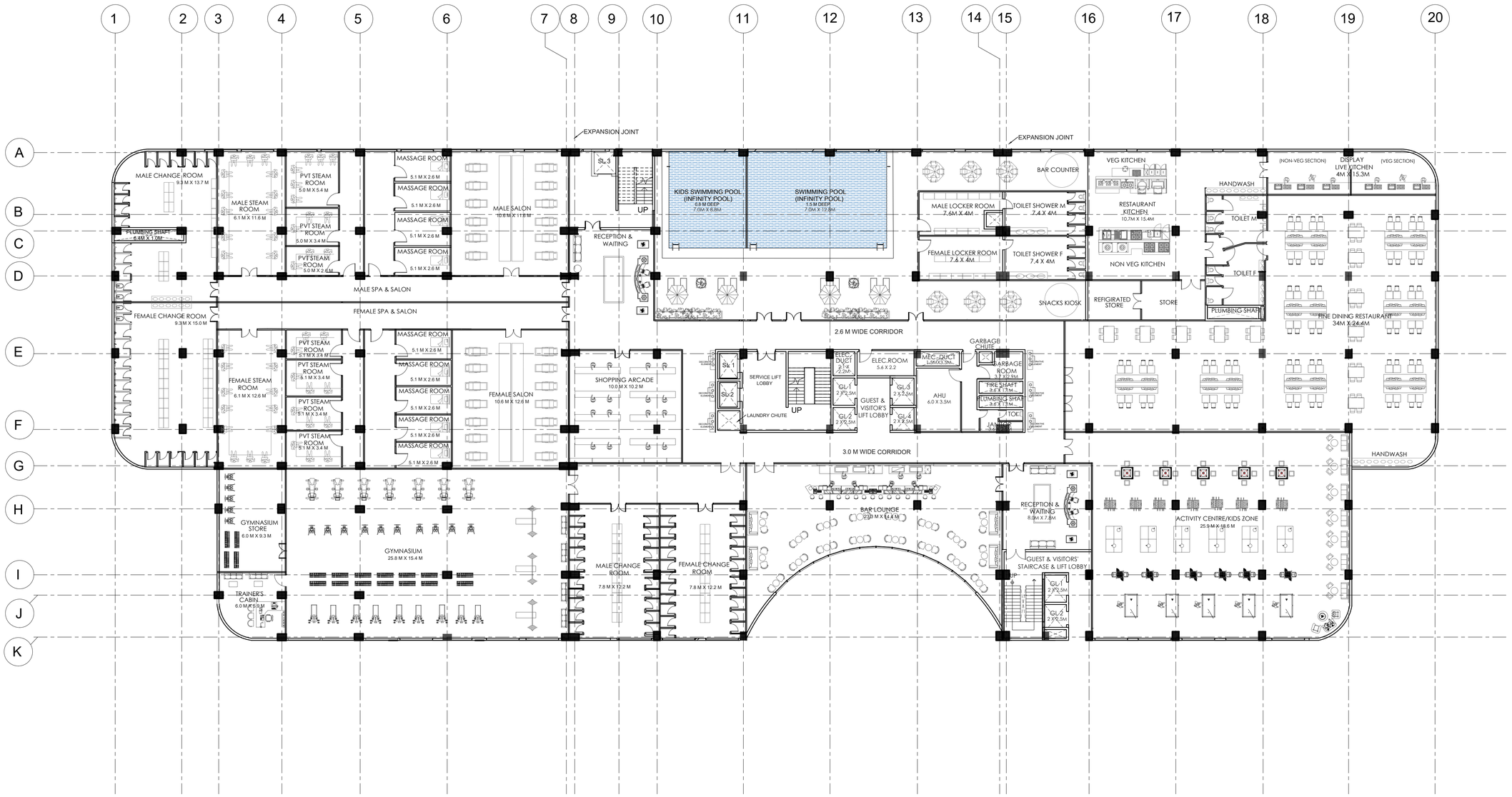
SHEET NO



NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

RECREATIONAL FLOOR

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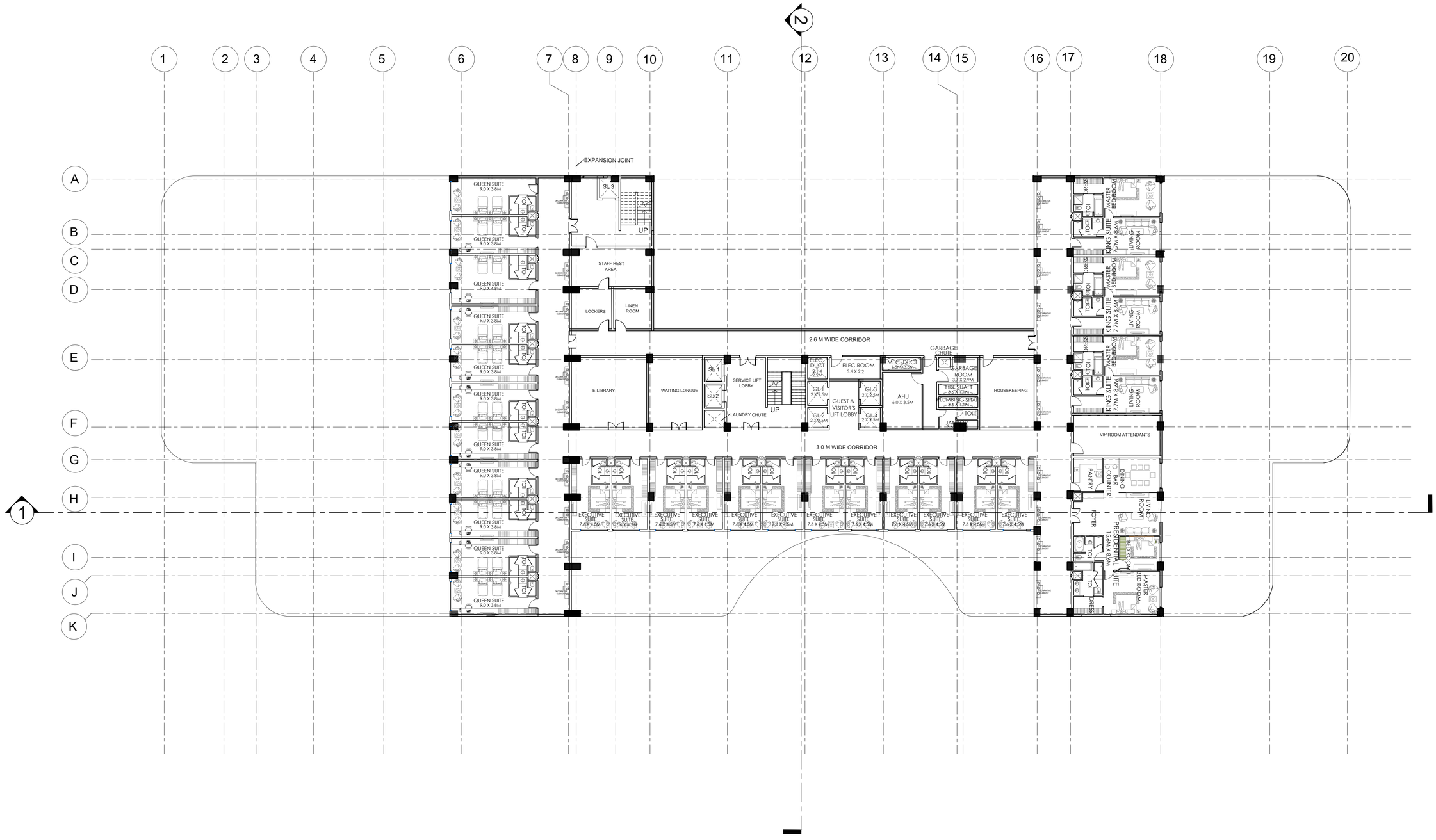
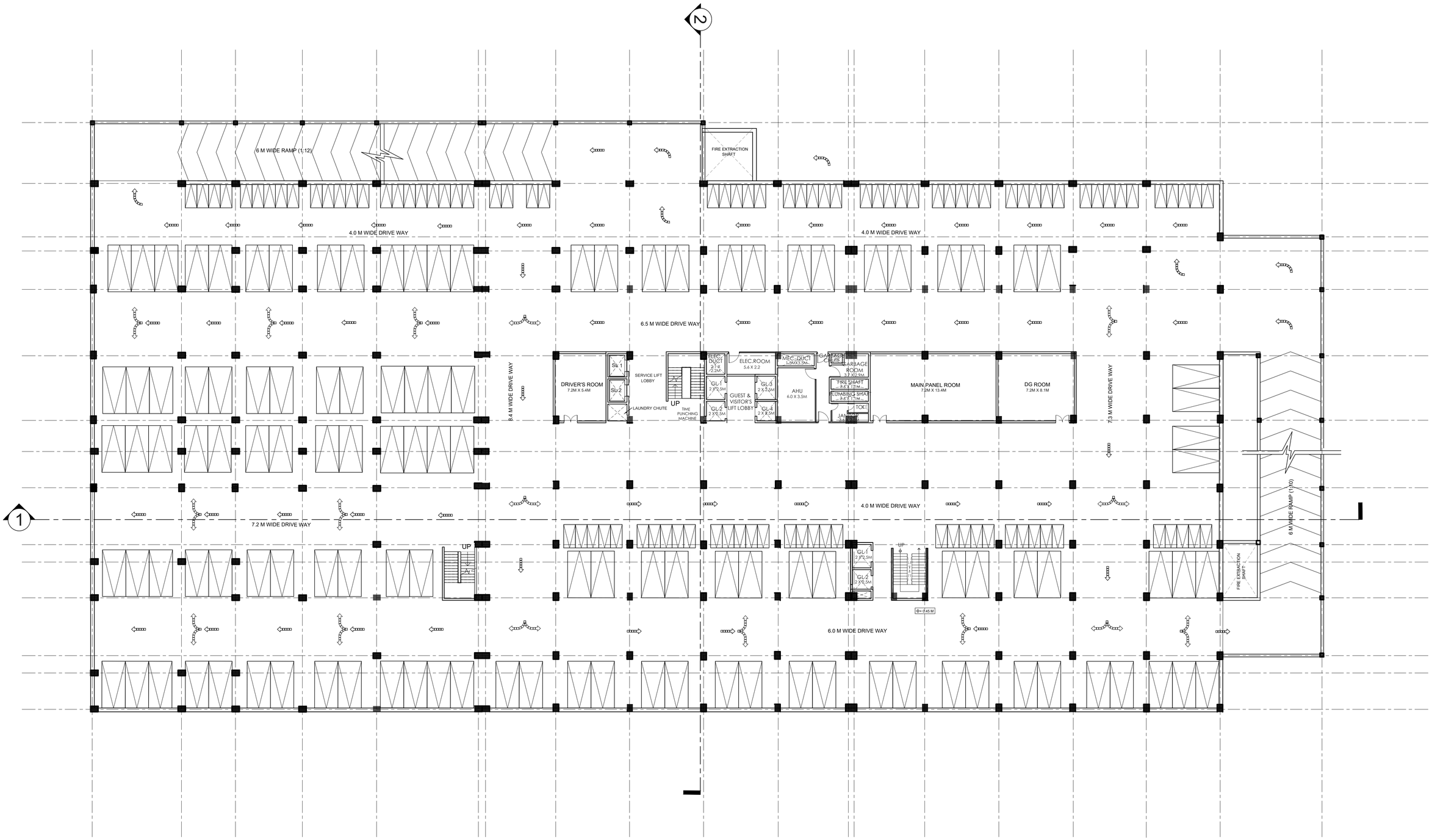
SHEET NO



NORTH	SCALE 1:200	# TYPICAL GUEST FLOORS (4th-11th)	GUIDED BY DR. ANUPAMA SHARMA	PROJECT : 5 STAR BUSINESS HOTEL, SANAND NAME : SUKRITI BHARDWAJ SEMESTER : IX SCHR NO. : 211110036 COLLEGE : MANIT BHOPAL	SHEET NO
	ALL DIMENSIONS IN METRE				



NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

PARKING FLOOR PLAN - B1

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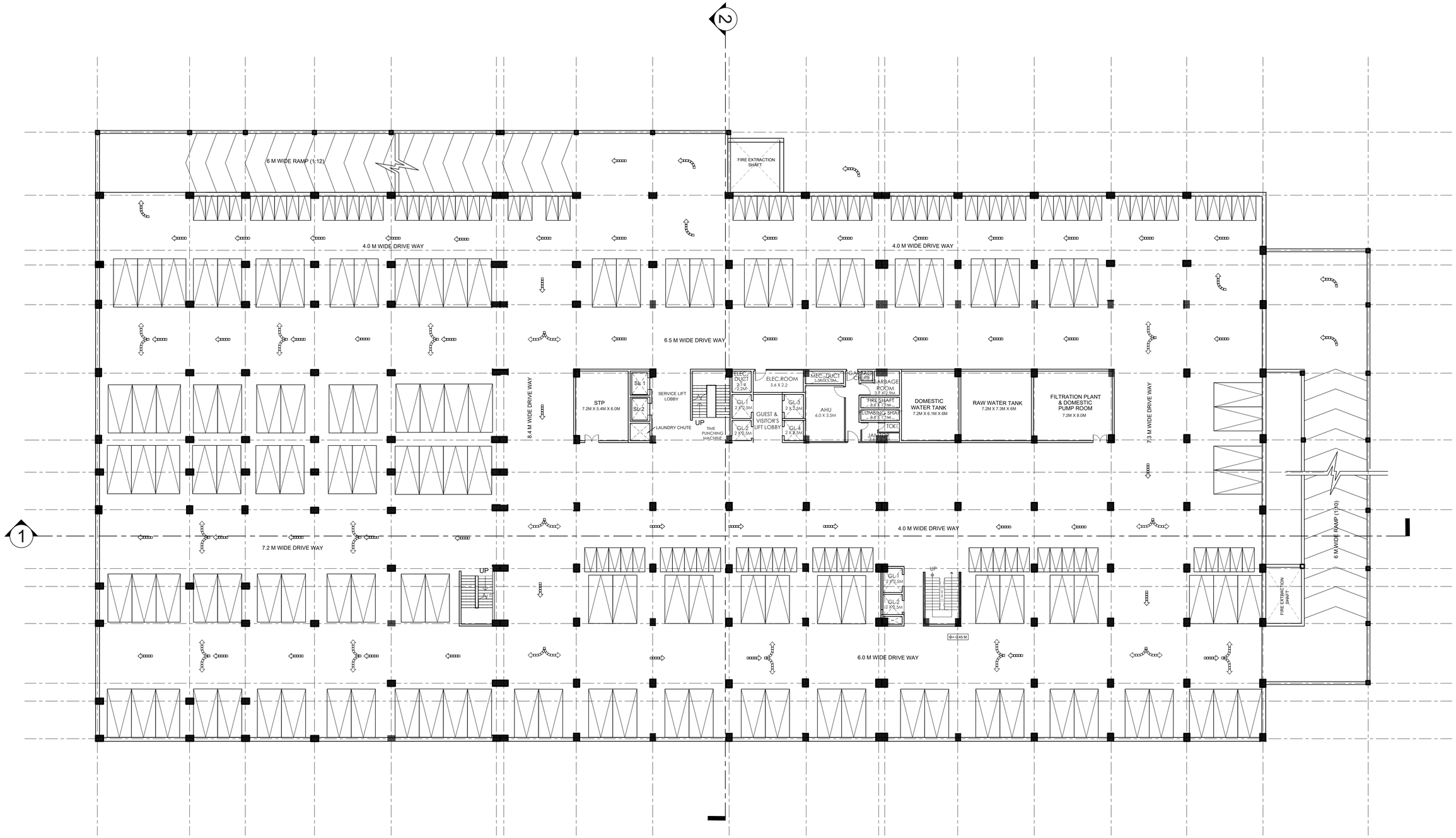
SHEET NO



NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

PARKING FLOOR PLAN - B2

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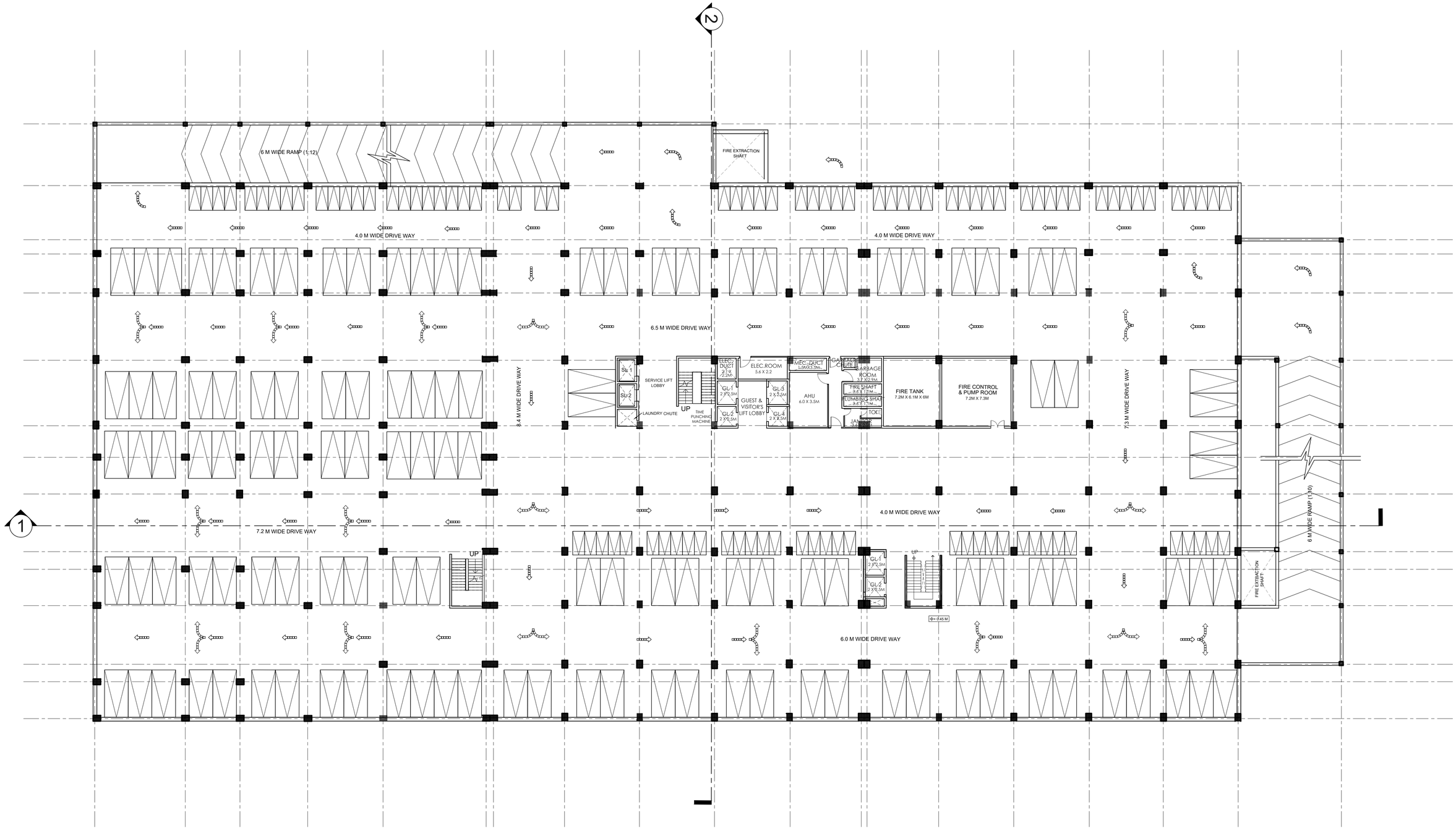
SEMESTER	: IX
SCHR NO.	: 211110036
COLLEGE	: MANIT BHOPAL

SHEET NO



NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

PARKING FLOOR PLAN - B3

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SEMESTER : IX
SCHR NO. : 211110036
COLLEGE : MANIT BHOPAL

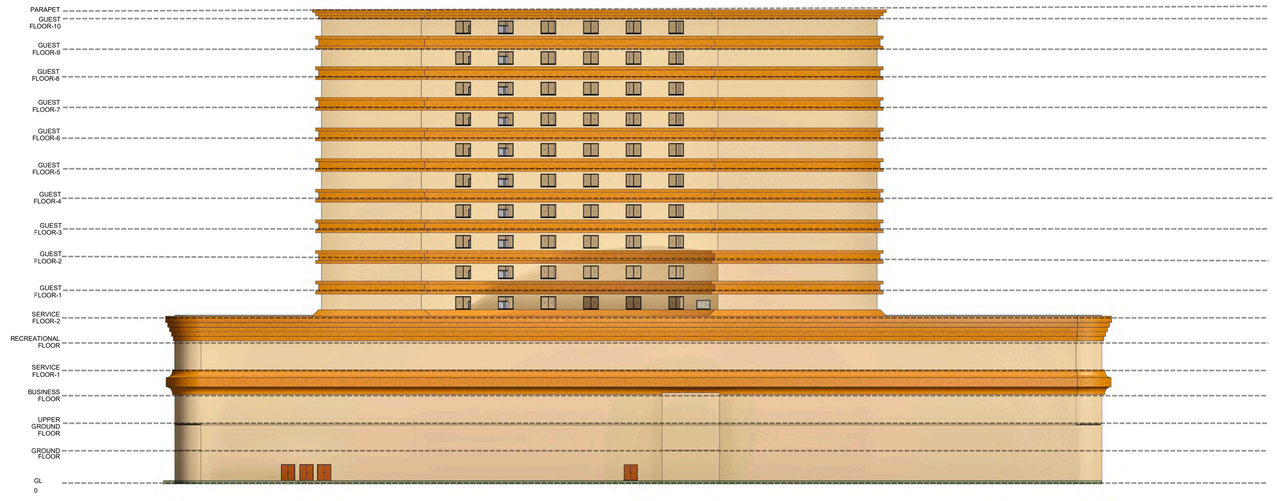
SHEET NO



FRONT ELEVATION



SIDE 1 ELEVATION



BACK ELEVATION



SIDE 2 ELEVATION

NORTH

SCALE
1:400
ALL DIMENSIONS IN METRE

BUILDING ELEVATIONS

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SHEET NO



NORTH

SCALE
1:200
ALL DIMENSIONS IN METRE

BUILDING SECTION -1

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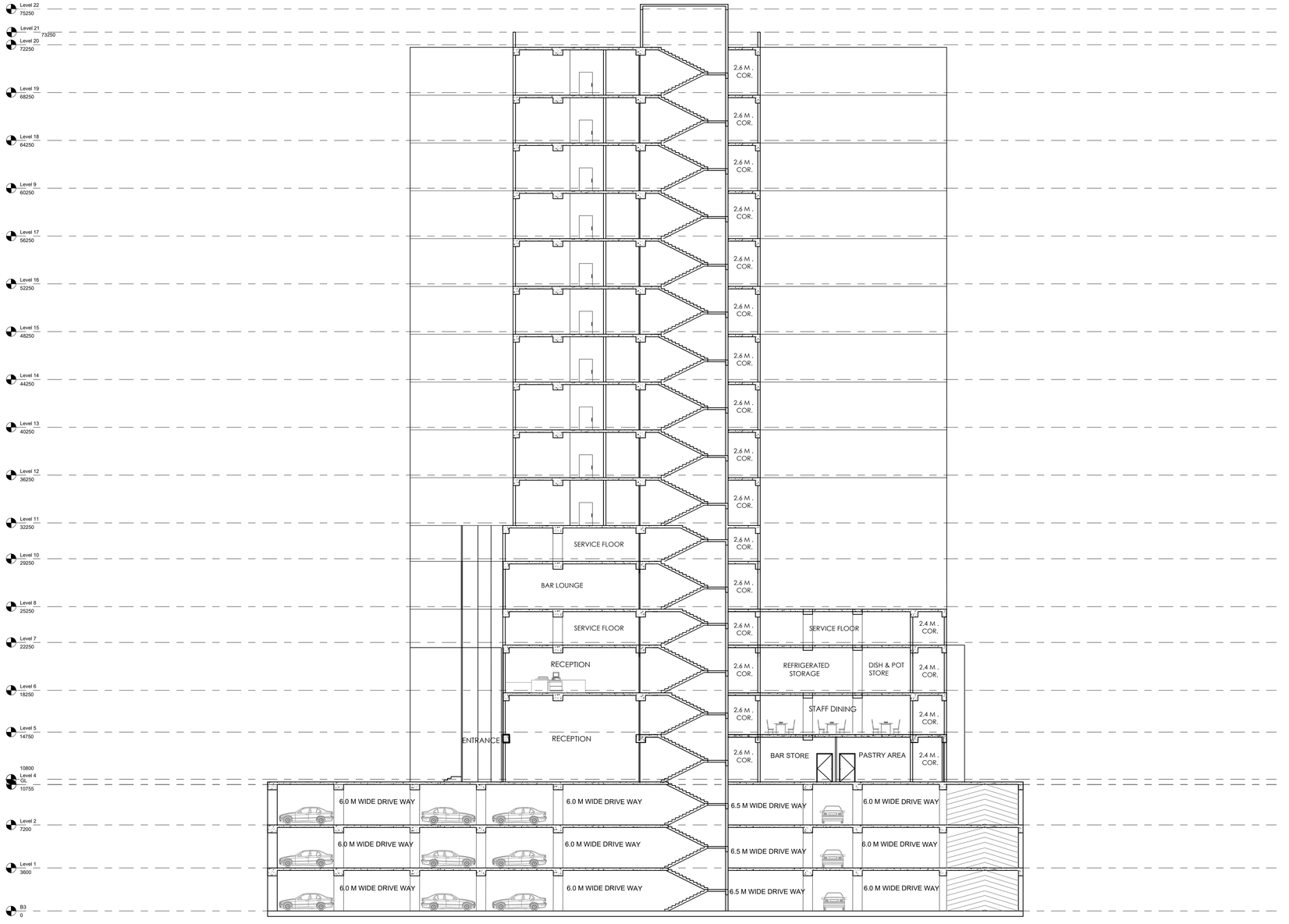
SHEET NO



NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

BUILDING SECTION -2

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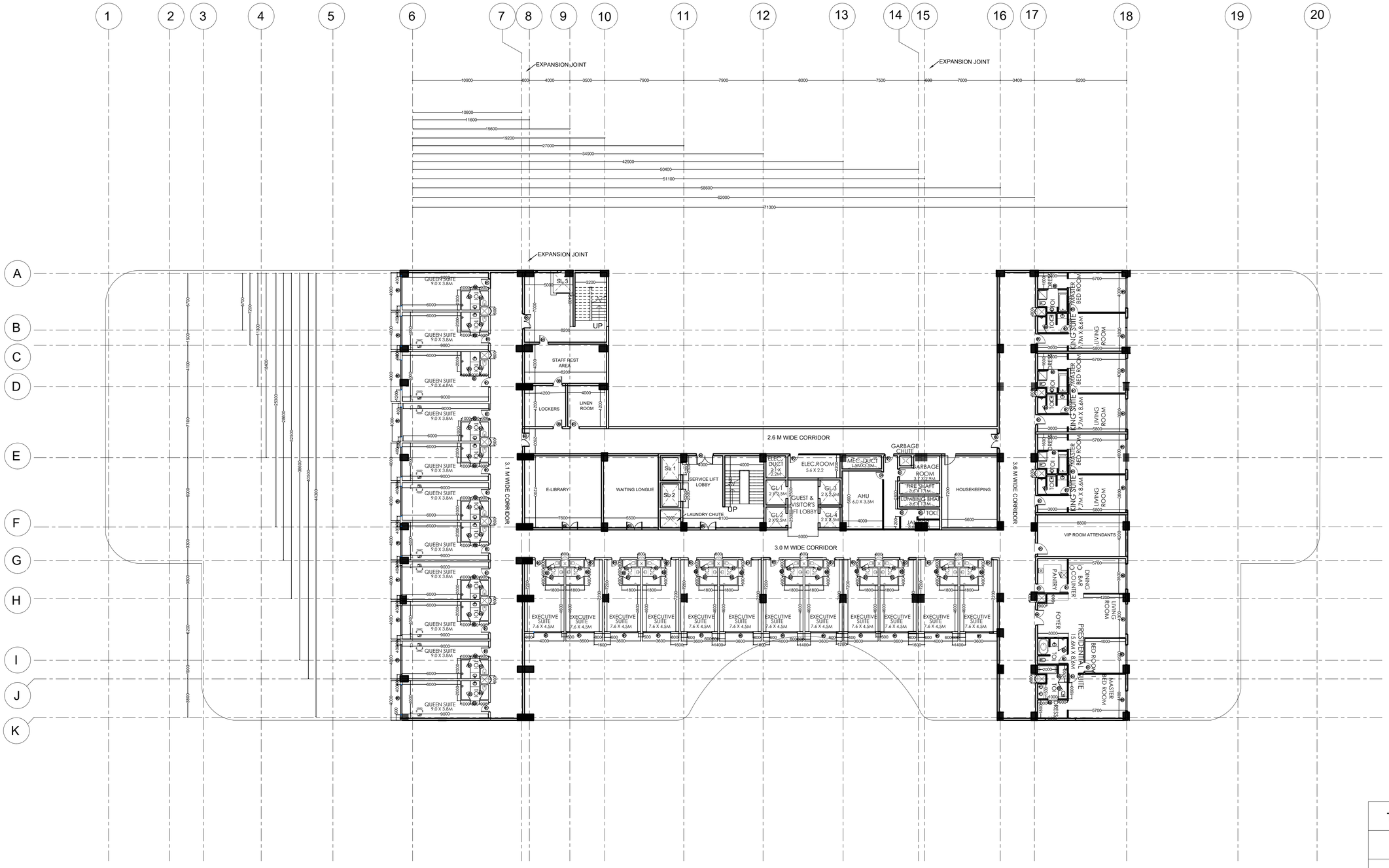
SHEET NO



DOOR & WINDOW SCHEDULE

TYPE	SIZE
D1	1.0M X 2.4 M
D2	0.9M X 2.1 M
D3	0.8M X 2.1 M
D4	1.5M X 2.1 M
W1	3.0M X 1.8 M
W2	4.8M X 1.8 M

BRICK MASONRY LAYOUT PLAN
TYPICAL FLOOR PLAN 4TH TO 11th FLOOR

NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

WORKING DRAWING

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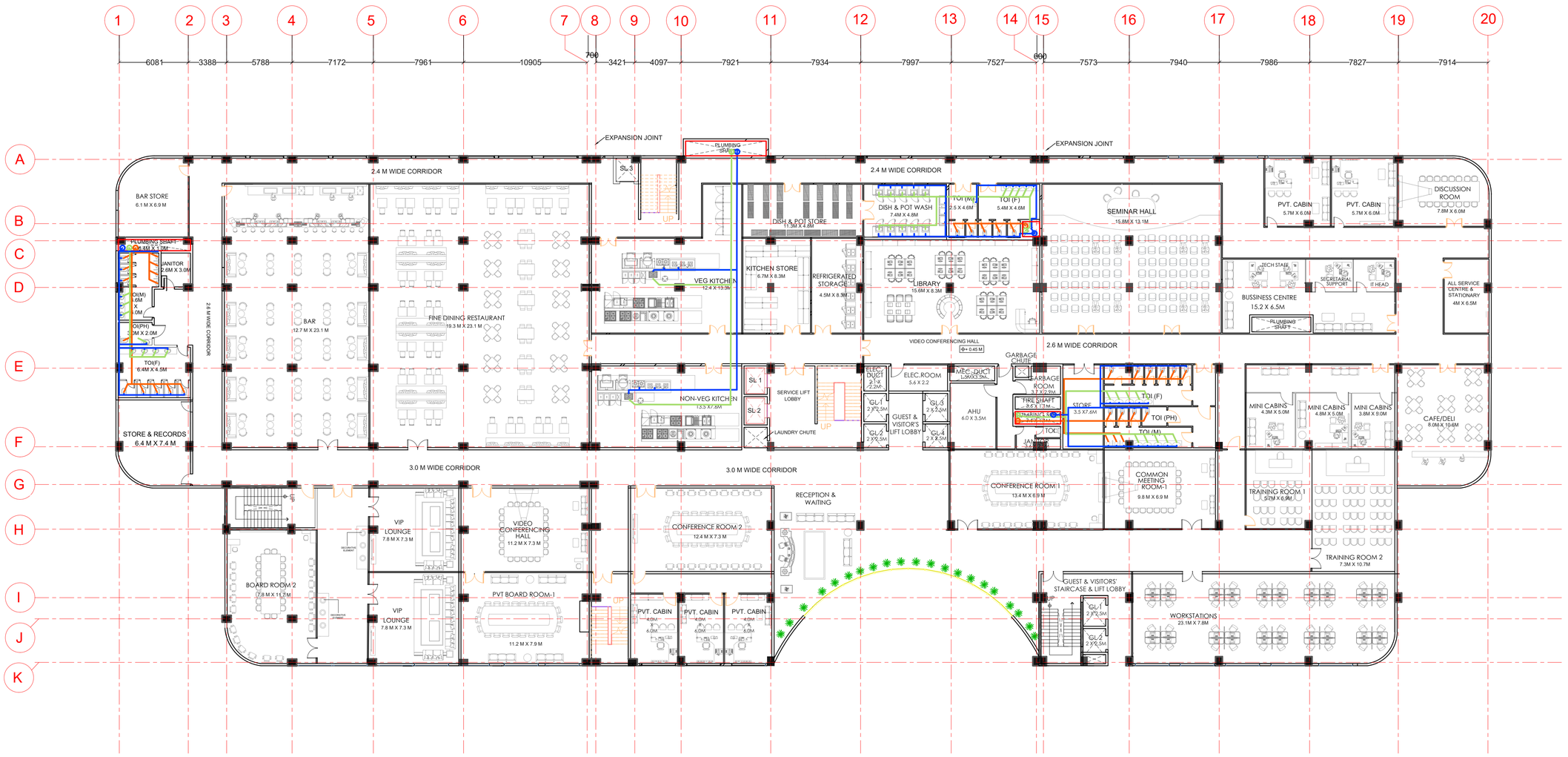
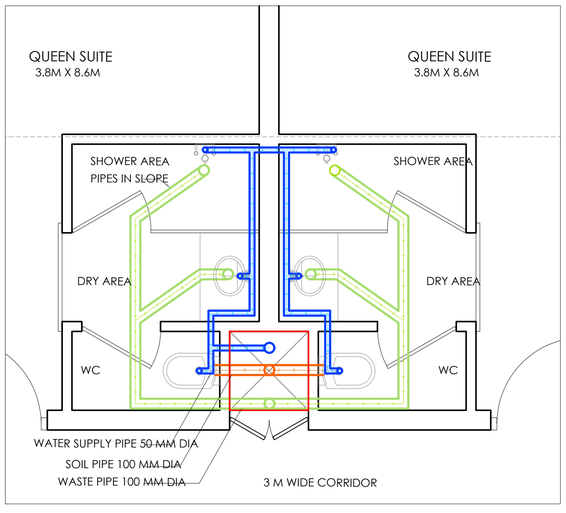


PLUMBING LAYOUT - BUSINESS FLOOR PLAN



PLUMBING LAYOUT - GUEST FLOOR

WATER DEMAND			
	No.s	Requirement Per Day (L)	Total Requirement
200 Guest Rooms (2 Users Avg. Per Room)	400	320	128000
600 Restaurant Seats (Turnover 1.8 Covers/Seat)	1080	70	75600
Bar Seats	150	35	5250
Banquet Hall Seats	300	30	9000
Staff (0.6 Staff/Key)	120	45	5400
Landscaping (L/sqm./day)	3320	7	23240
Laundry/HVAC/Pool (25% of Room Consumption)			32000
TOTAL WATER DEMAND			278490

WATER STORAGE			
Specification	Remark	Litres	
Total Storage Capacity	1.5 X TWD	417735	≈439cum.
Under Ground Tank	65% of Total Capacity	271527.75	≈285 cum.
UGT Size (6m Height)	10X5X6		
Over Head Tank	35% of Total Capacity	146207.25	≈154 cum.

SEWAGE TREATMENT			
Specification	Remark	Litres	
Average Sewage Generation	90% of TWD	250641	≈263cum.
STP Design Capacity	ASG X 1.3 Peak Factor	325833.3	≈342cum.
STP Size	8 X 7 X 6		

NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

PLUMBING & SANITATION

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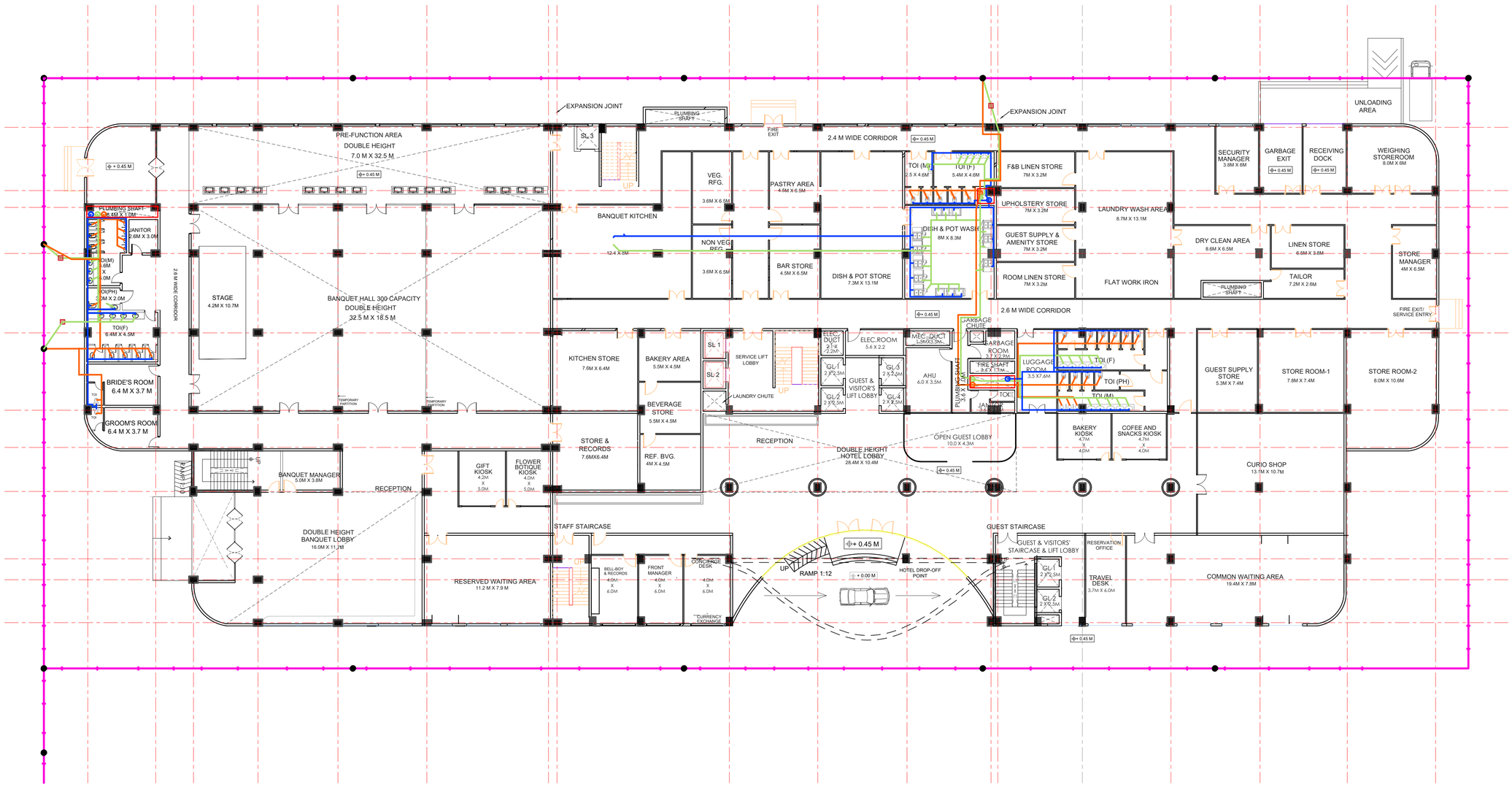

PLUMBING LAYOUT - GROUND FLOOR PLAN

LEGEND

- SEWER LINE 300 MM DIA
- SOIL PIPE 150 MM DIA
- WASTE PIPE 150 MM DIA
- SUPPLY PIPE 150 MM DIA
- GULLY TRAP 600X600 MM
- MANHOLES 600 MM DIA AT 30M C/C
- PLUMBING SHAFTS

NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

PLUMBING & SANITATION

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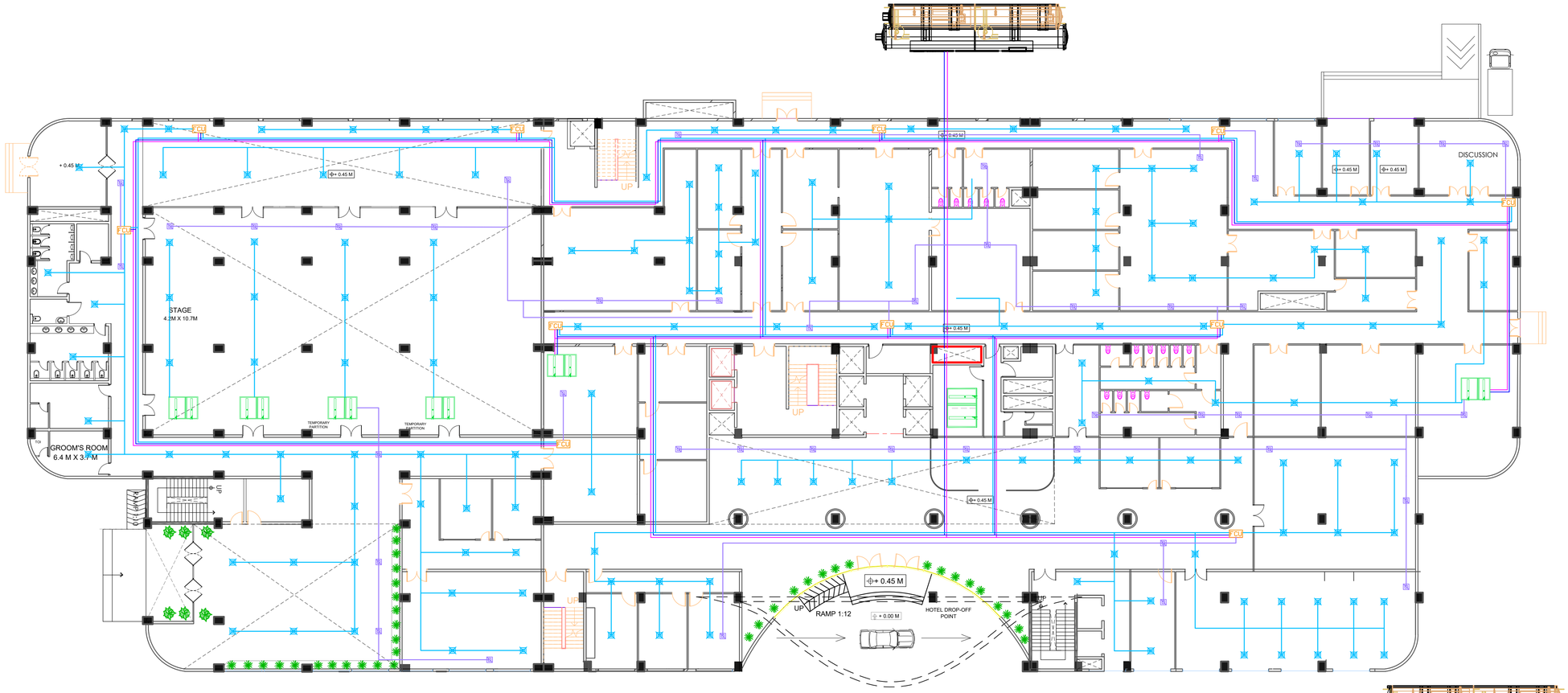
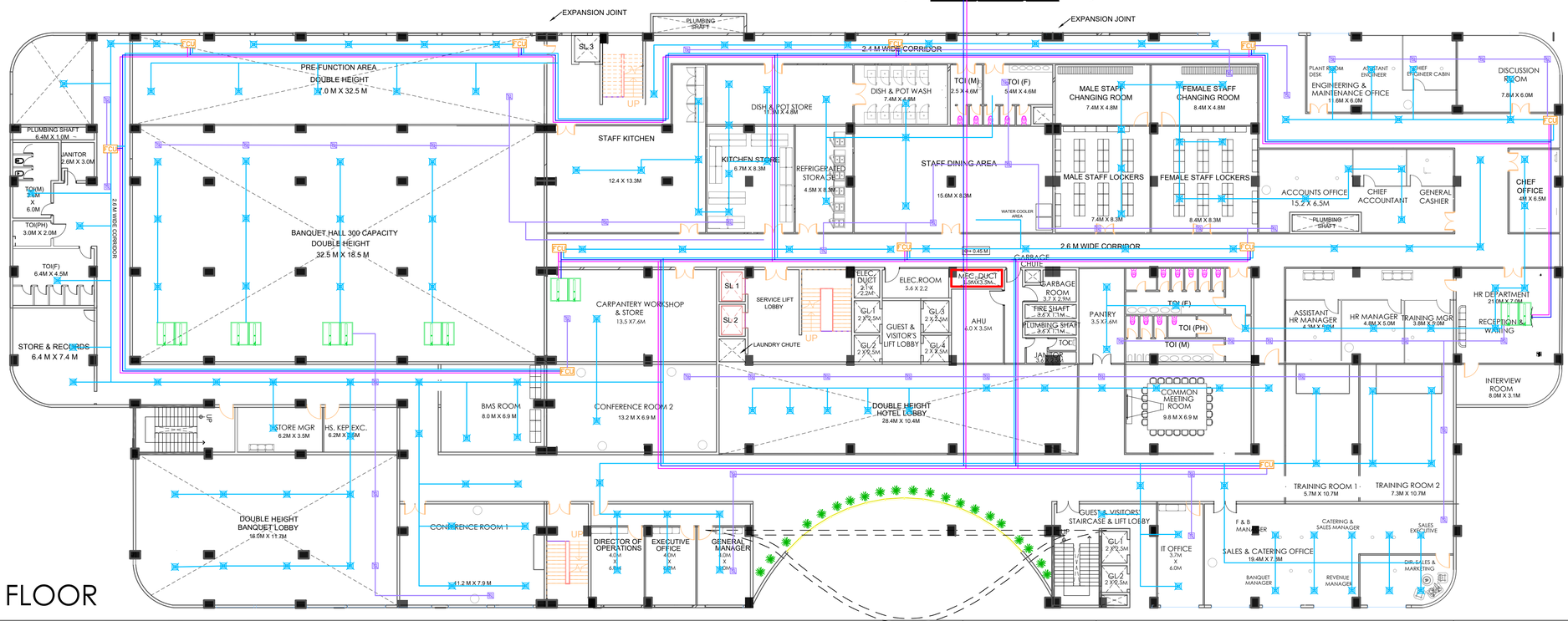


GROUND FLOOR



UPPER GROUND FLOOR

LEGEND:

- AIR SUPPLY DUCT
- AIR RETURN DUCT
- CHILLED WATER SUPPLY
- CHILLED WATER RETURN
- FCU — FAN COIL UNIT
- AIR SUPPLY DIFFUSER
- AIR RETURN DIFFUSER
- HVAC CONTROL ROOMS
- AHU IN FALSE CEILING

NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

HVAC LAYOUT

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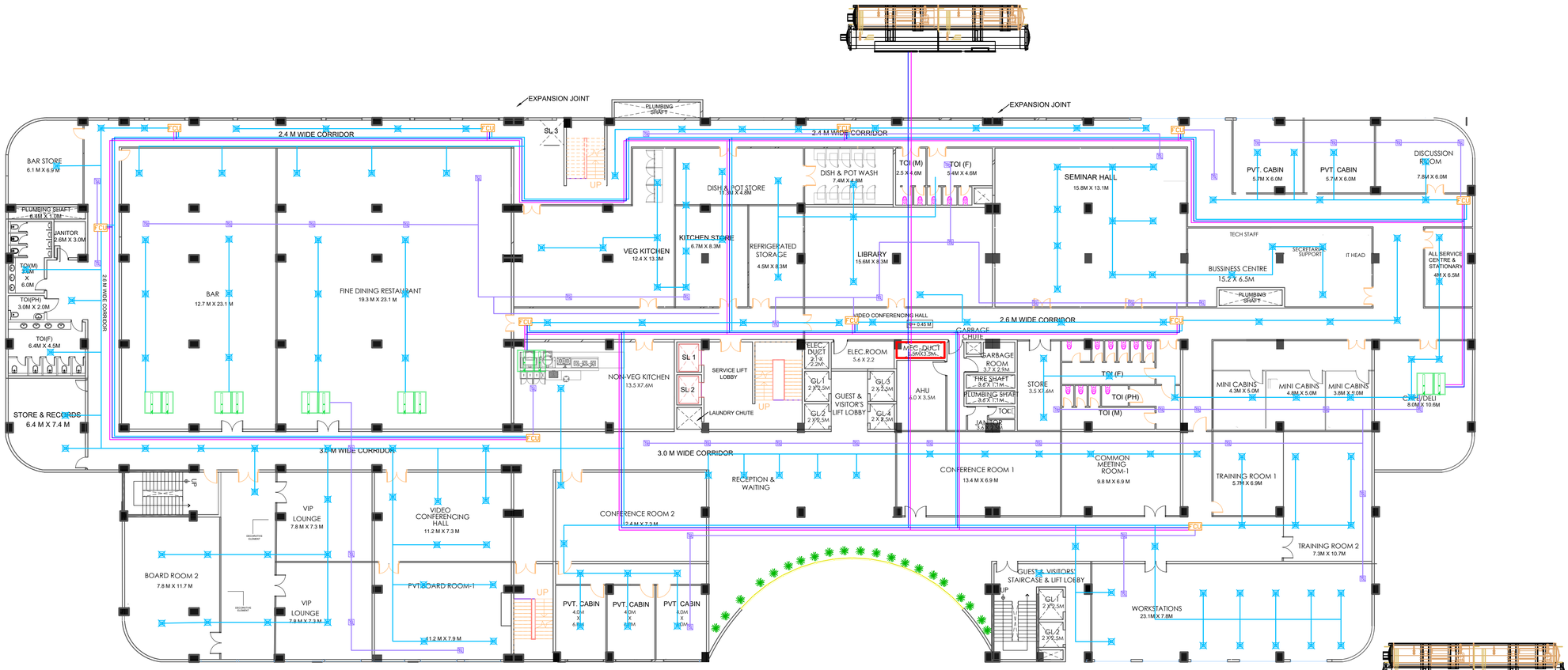
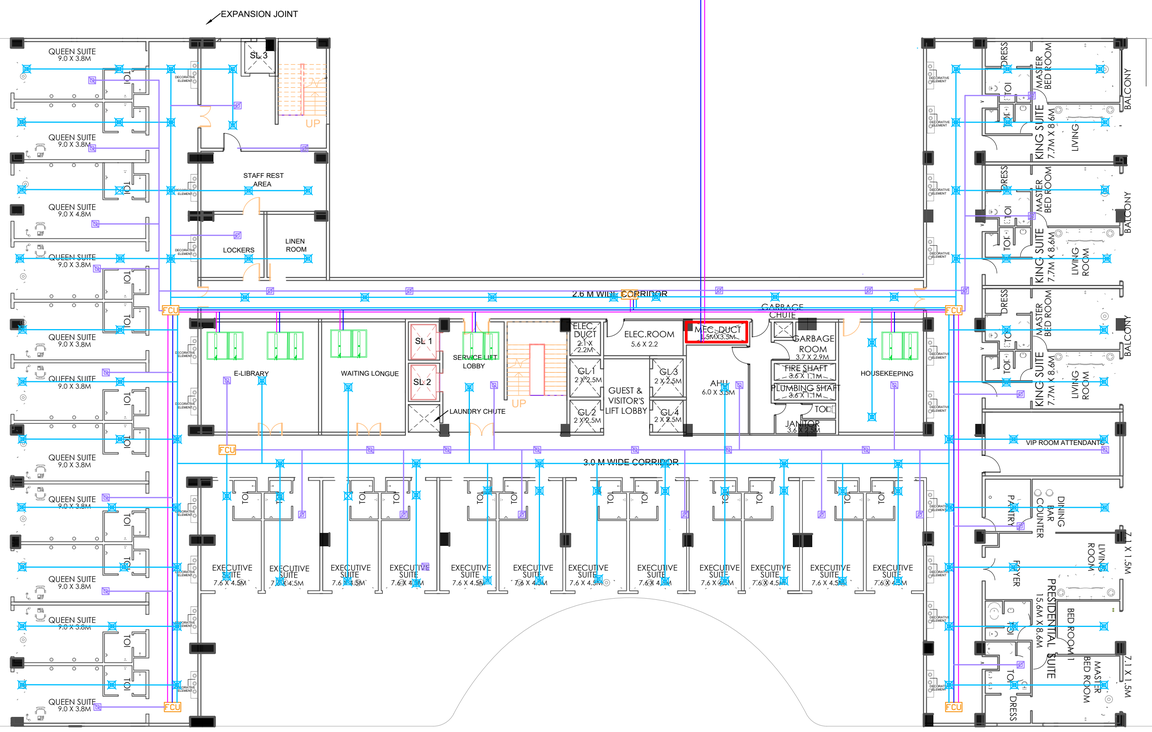


BUSINESS FLOOR



RESIDENTIAL FLOOR

HVAC Calculations

S.No.	Floor	Spaces	Floor Area (sqmt.)	BTU Required
1	Ground Floor	Reception, Banquet, Admin., BOH	5124	377
2	Upper Ground Floor	Administartion & BOH	5124	485
3	First (Business Floor)	Banquet and Business Oriented	5024	592
4	Second (Recreational) Floor	Restaurants, Bar, Spa, Gym	5024	700
5	3rd & 4th Floors	Guest Floor	2126	861
6	5th & 6th Floors	Guest Floor	1960	1076
7	7th & 8th Floors	Guest Floor	1794	1921
8	9th & 10th Floors	Guest Floor	1628	1507
9	11th & 12th Floors	Guest Floor	1628	1722
10	Basement 1	Parking	5530	377
11	Basement 2	Parking	5150	377
12	Basement 3	Parking	5240	377
13	TOTAL			

Provide 2 X 1000 Ton and 1 X 800 Ton Chiller

NORTH

SCALE 1:200

ALL DIMENSIONS IN METRE

HVAC LAYOUT

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SHEET NO









BUILDING VIEWS

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SUKRITI BHARDWAJ
THESIS 2025



MODEL PICTURES

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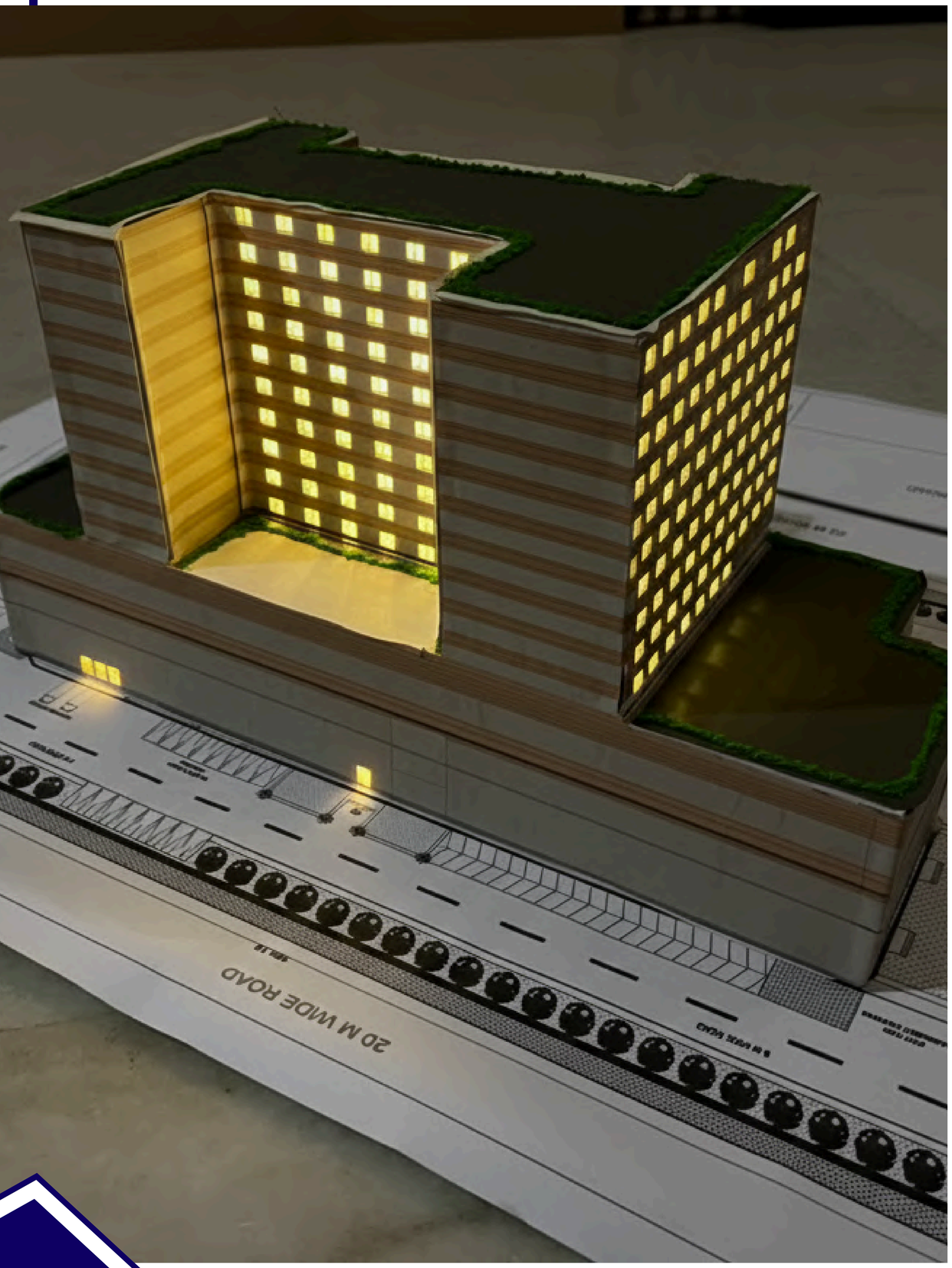
THESIS 2025





MODEL PICTURES

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