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5 Star Hotel

Visakhapatnam, Andhra Pradesh, India

Dec, 2025

5 Star Hotel

Visakhapatnam, Andhra Pradesh, India

BACHELOR OF ARCHITECTURE

BY

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DEPARTMENT OF ARCHITECTURE AND PLANNING

MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY, BHOPAL

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ARC 511 – Thesis Project

5 Star Hotel

Visakhapatnam, Andhra Pradesh, India

Submitted by:

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9th Semester, 5th Year

UNDER THE GUIDANCE OF

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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, Visakhapatnam, Andhra Pradesh, 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 subjectARC-511, Thesis Project.

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CERTIFICATION OF EXAMINATION

The Bachelor of Architecture Thesis Viva-Voce examination of Mr/Ms Rhythm Bhalla, Scholar No.211110013-, was held on 1/12/2025 to 2/12/25.

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ABSTRACT

This thesis report presents a comprehensive exploration and design proposal for a 5-star luxury hotel located in the coastal city of Visakhapatnam, Andhra Pradesh. Rooted in a Dutch Colonial–inspired architectural narrative, the project aims to reinterpret historic colonial aesthetics within a contemporary hospitality framework. The design seeks to create a harmonious fusion of heritage, luxury, and modern experiential living, offering guests a distinct sense of place influenced by both cultural context and regional character.

The report includes detailed case studies of exemplary hospitality projects around the world, highlighting the successful adaptation of historical architectural styles into modern hotel environments. These precedents form the theoretical foundation for understanding spatial hierarchy, guest experience, and the integration of cultural identity into built form. Drawing from these insights, the thesis strategically adapts Dutch Colonial elements—steep gabled roofs, arched openings, verandahs, colonnades, and articulated facades—to suit the climatic and experiential needs of Visakhapatnam.

Central to the thesis is the design development of the proposed 5-star hotel, encompassing architectural planning, façade articulation, landscape integration, and material selection. The concept emphasizes a seamless blend of traditional colonial charm with contemporary luxury, employing courtyard planning, shaded walkways, open verandahs, and landscaped pockets to create a cohesive spatial narrative. These features enhance natural ventilation, maximize daylight, and strengthen the connection between built spaces and the surrounding coastal environment.

Sustainability and environmental responsiveness form an integral part of the design approach. The project incorporates passive cooling strategies, energy-efficient systems, responsible material choices, and green landscape practices aligned with the coastal ecosystem. These initiatives reinforce the hotel's commitment to ecological sensitivity while elevating user comfort and operational efficiency.

Through extensive research, contextual analysis, and iterative design exploration, this thesis proposes a visionary blueprint for a luxury hotel that transcends conventional hospitality paradigms. By reimagining Dutch Colonial architecture through a contemporary lens, the project aspires to craft an iconic destination that celebrates heritage, responds to climate, and delivers an elevated guest experience rooted in the cultural and natural richness of Visakhapatnam.

ACKNOWLEDGMENT

The completion of this thesis report has been one of the most significant parts of my thesis study. I would like to acknowledge everyone who has helped me throughout in the completion of this Thesis Report, directly or indirectly.

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Date: 01-12-2025 Rhythm Bhalla

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Chapter 1

DESIGN BRIEF

1.1 INTRODUCTION

The proposed development project envisions the creation of a **Convention Centre with a 5-Star Category Hotel/Resort and Waterfront Entertainment Facilities** on a prime coastal land parcel along **Beach Road in Visakhapatnam, Andhra Pradesh, India**. This landmark project is being undertaken on a **Public-Private Partnership (PPP)** basis under the authority of the **Visakhapatnam Metropolitan Regional Development Authority (VMRDA)**.

Spanning approximately **7.97 acres**, the strategically located site offers immense potential to boost tourism, business, and leisure activities in the region. The project aims to develop high-end hospitality and convention infrastructure along with vibrant, accessible waterfront amenities, aligning with both the regional vision and the **Andhra Pradesh Tourism Policy 2020–2025**.

As part of the **Minimum Development Obligations (MDOs)**, the project shall include:

1. **Convention Centre and 5-Star Category Hotel/Resort:**
    - A **multi-purpose Convention Hall** with a minimum seating capacity of **2,500 persons in theatre-style** configuration, and a ceiling height of at least 15 feet. The hall will feature **modular, non-fixed partitions** for flexibility to host multiple events simultaneously and accommodate **national and international level meetings, exhibitions, and events**.
    - A **5-Star category Hotel/Resort** comprising **not less than 200 guest rooms**, which must secure classification from the **Hotel and Restaurant Association Classification Committee (HRACC)**, Ministry of Tourism, Government of India, within **180 days of operations**.
2. **Waterfront Entertainment Facilities:**
    - To be developed in accordance with applicable **Coastal Regulation Zone (CRZ) norms**, the project shall include:
        - **Shack Restaurants and Cafés** with temporary structures or canopies
        - **Party lawns**, **landscaping/hardscaping**, and open-air **amphitheatres** for outdoor events
        - A **Flea Market**
        - **Exhibition venues** for cultural and commercial activities

1.2 SITE LOCATION

The proposed site located at along beach road, Visakhapatnam is strategically located, spreading across approx. 7.97 acres. The Site is well connected with the road network and all major modes of transportation. The site is flanked by **Beach Road to its West** and lies in close proximity to the **Bay of Bengal** on the East, offering direct waterfront access. Located in the heart of **Visakhapatnam**, the site enjoys excellent connectivity to key city landmarks such as **RK Beach, INS Kursura Submarine Museum**, and **Kailasagiri Hill Park**. Major city roads including **VUDA Park Road and Pandurangapuram Road** provide seamless approach to the site. **Visakhapatnam Railway Station** is located approximately **5 km** away, and the site is well-served by the **city's public bus network and auto-rickshaws**. The site also benefits from its proximity to **Visakhapatnam Airport**, which is about **13 km** away, ensuring regional and national connectivity.



Figure 1 Site Location; Source – APUIAML



Figure 2Site Drone view; Source – VMRDA

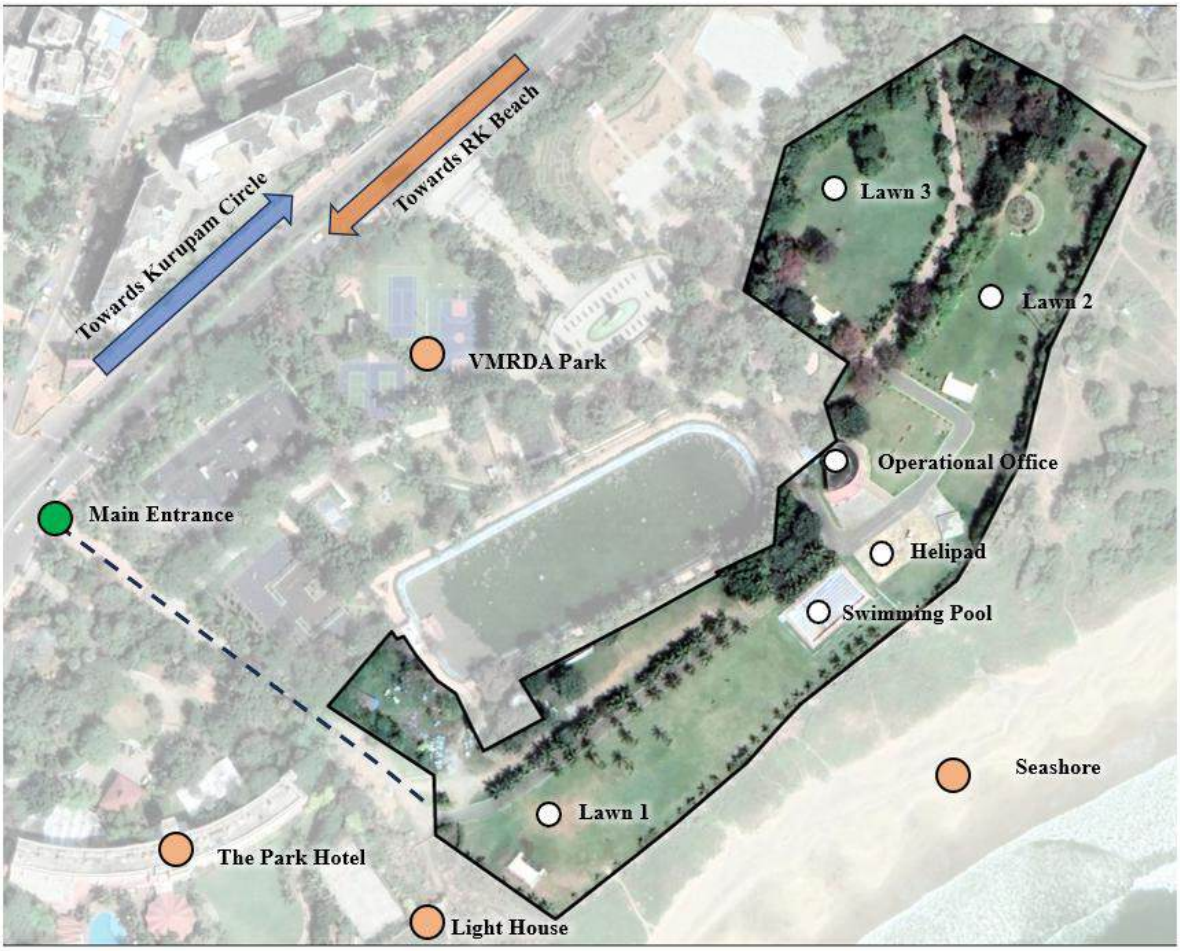

Figure 3 Existing Site features; Source: VMRDA

1.3 SITE PLAN

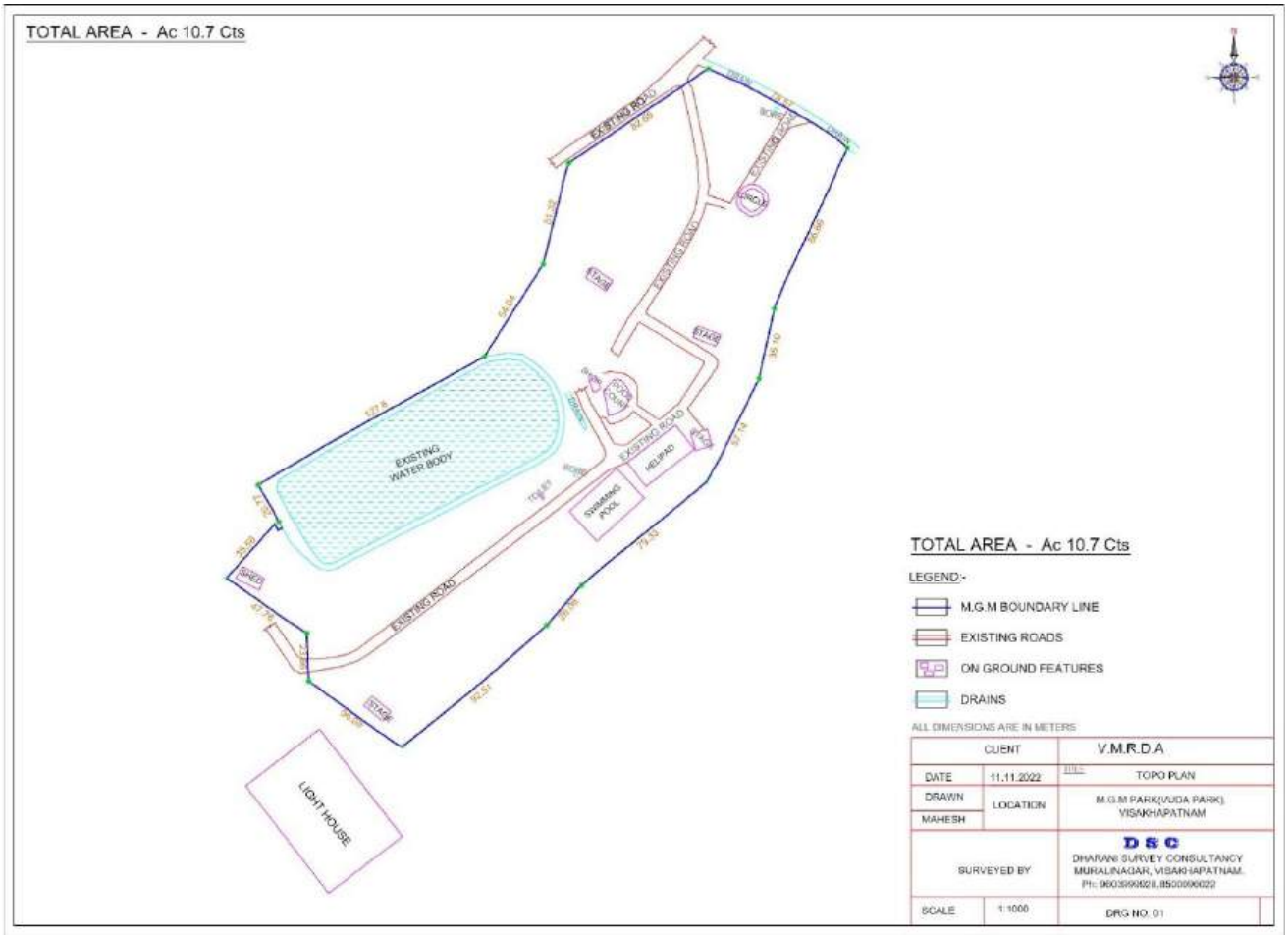

Figure 4 Site Plan; Source: VMRDA

1.3.1 Landscape and Natural Features

Area & Setting: The park spans 55 acres along Beach Road facing the Bay of Bengal. Of this, around 37 acres are dedicated to lawns and lush landscaped gardens, featuring ornamental and flowering plants, shrubs, hedges, and diverse tree species (over 2,500 shade-providing trees).

Topography & Contours: The terrain is gently sloping—elevation starts at about 11m at the Beach Road entrance and slopes gradually down to about 4m at the seafront, yielding a gentle gradient of roughly 7%. Contour lines within the park are widely spaced, signaling minimal elevation change and smooth, walkable surfaces. There are no steep embankments or major valleys, providing open sightlines and easy walking conditions.

Drainage & Soil Management: The gentle slope toward the sea naturally directs rainwater and run-off, limiting waterlogging and soil erosion. Managed lawns and surface grading maintain ecological health and user comfort even after heavy rain.

2. Vegetation & Environmental Management

Flora: The park is home to both native and exotic trees and plants. Lawns are interspersed with flower beds and seasonal color displays. Dense avenues of shade trees line walkways, improving microclimate and air quality.

Sustainability: Green buffers and landscaping serve as windbreaks against harsh sea breezes, saline spray, and cyclone impacts. The park actively participates in urban forestry and city greening projects, making it a model of eco-friendly urban development.

Erosion/Flood Protection: Along the coastal edge, engineered lawns, planting beds, and occasional rockwork protect against coastal erosion and act as a buffer during high tides or storm surges.

3. Built Structures & Recreational Facilities

Core Facilities: The park offers a variety of recreational and built amenities, including:

Children’s play areas, exclusive children’s zone (Children World)

Boating club and feature ponds

Musical fountain plaza and amphitheater (Kala Vedika, capacity ~500 people)

Jogging track (~1km), cycling track, and open-air gym

Yoga center, pagodas, food courts, event lawns, and picnic spots

Entrance plaza designed for seamless visitor entry and events

Accessibility: Paved, level walkways, ramps, and well-designed crossings ensure the park is accessible to all, including the elderly and disabled.

4. Connectivity & Transport

Road Access: Located directly on Beach Road—a prominent artery with easy access to city buses, parking, and pedestrian pathways.

Public Transport: Just 500m from RTC Complex (main bus station); city railway station is about 6km away; airport is roughly 11km distant. The park is a critical hub in the Beach Road recreational and

tourism corridor, with direct walkable access to RK Beach, INS Kursura Submarine Museum, Matsya Darshini Aquarium, and other landmarks.

Non-Motorized Access: Wide promenades and designated cycle tracks support pedestrian and cycling access, aiding last-mile city transit and promoting environmentally friendly travel.

5. Usage Patterns & Events

Gathering Space: The park hosts major local festivals, concerts, parades, and mass gatherings, taking advantage of its open lawns and adjacency to RK Beach.

Visitor Profile: Popular among families, tourists, community groups, schools, and fitness enthusiasts, accommodating several thousand visitors daily.

Art, Culture & Education: Regular cultural events, exhibitions, and educational programs are organized on site, boosting community engagement and awareness.

6. Urban Integration & Land Use

Zoning & Planning: Categorized as public open space under city zoning regulations, VMRDA Park anchors one of the largest continuous urban green belts along the Visakhapatnam coast. It plays a crucial role in city planning for green infrastructure and disaster resilience.

Surrounding Land Use: Surrounded by entertainment venues, hotels, restaurants, and key transport nodes, the park integrates seamlessly with the urban and commercial context of downtown Visakhapatnam.

7. Safety, Maintenance & Urban Improvements

Hazard Management: Minimal hazard risks—no steep slopes or unstable ground. Periodic landscaping and maintenance routines keep facilities, walking paths, and flora in optimal condition.

Lighting & Security: Well-lit after dark, with patrols during events and holidays to ensure visitor safety.

1.4 SITE LOCATION on Master Plan

The Project Site falls under Visakhapatnam Urban Mandal i.e., Part of Visakhapatnam Metropolitan Regional Development Authority (VMRDA). VMRDA Master plan 2041 is approved under by the Government Vide G.O. Ms No:136 Ma Dt. 08-11-2021. Holiday Resorts are permissible under the allowed activities of Proposed Recreation land use Zone. The type of Permissible Developments on the Site shall be limited to VMRDA Master Plan.

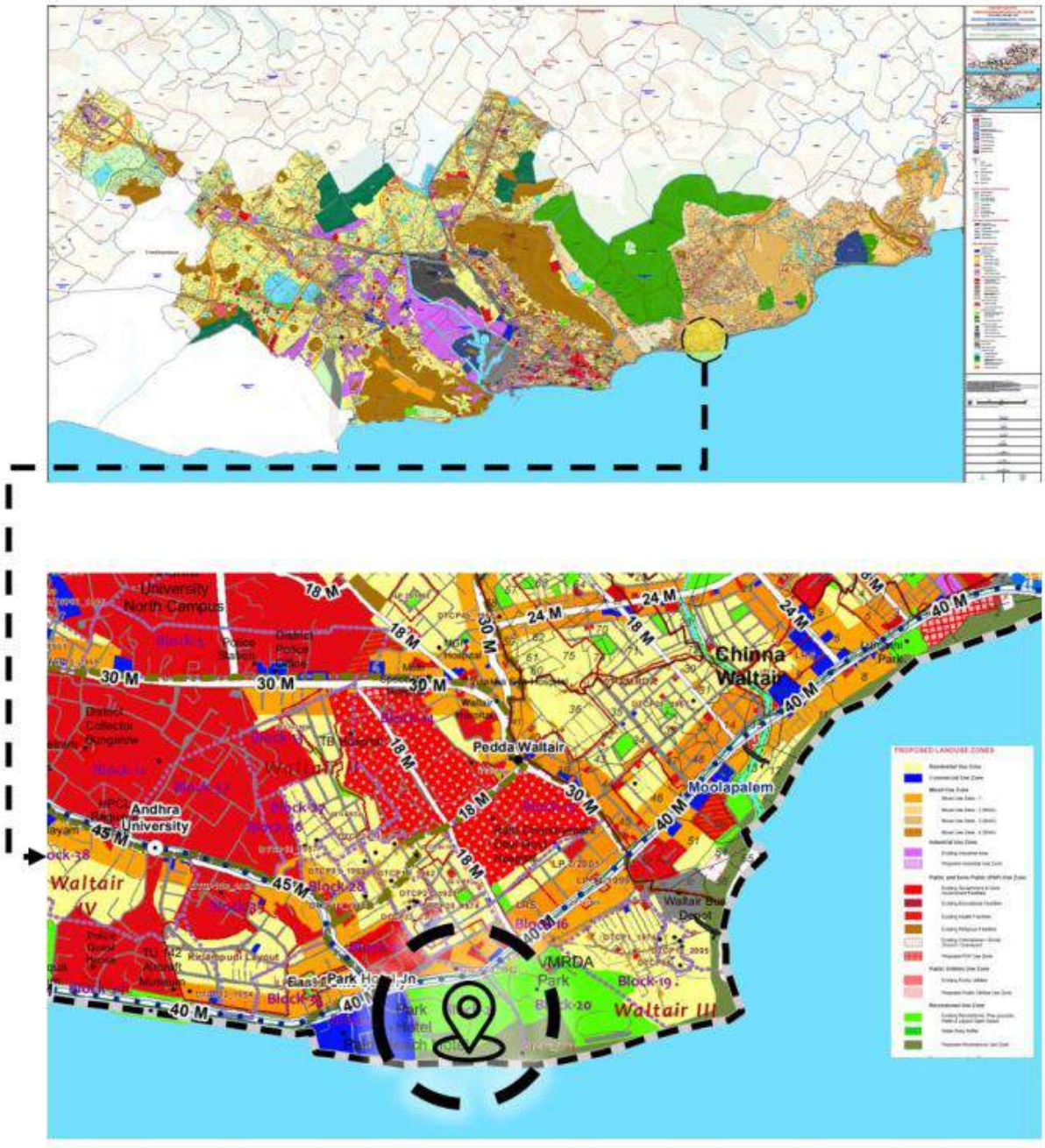

Figure 5 VMRDA Master Plan; Source: VMRDA

1.5 SITE CONTEXT

The proposed project site is a prime land parcel located along **Beach Road**, one of the most prestigious and scenic stretches in **Visakhapatnam, Andhra Pradesh**. The site is in very close proximity to **RK Beach**, a major tourist attraction and recreational zone in the city. Around the site lie prominent destinations such as the **INS Kursura Submarine Museum**, **VUDA Park**, and various upscale **hotels, resorts, and eateries**, making it a vibrant and active urban waterfront.

This area is considered a **premium and high-value zone** due to its natural waterfront setting, touristic footfall, and proximity to key city landmarks. The site spans approximately **10.7 acres** and is roughly rectangular in shape, with **road access along its western edge via Beach Road** and **open views towards the Bay of Bengal to the east**. Its location, connectivity, and surrounding activity offer immense scope for tourism, hospitality, and entertainment-based development.

1.6 DESIGN BRIEF

Attached below are project information as per the "CONVENTION CENTRE & 5 STAR HOTEL /RESORT WITH WATER FRONT ENTERTAINMENT, AT VISAKHAPATNAM ON PPP BASIS"

S. No	Key Information	Details
	Project Details	
1	**Project Title**	Development of a Convention Centre with not less than 5 Star Category Hotel / Resort & other Waterfront Entertainment Facilities on prime land along Beach Road at Visakhapatnam, Andhra Pradesh, India on Public Private Partnership (PPP) Basis
2	**Authority**	Visakhapatnam Metropolitan Regional Development Authority (VMRDA), Visakhapatnam, Andhra Pradesh.
3	**Project Site**	7.97 Acres (approx.) of land along Beach Road at Visakhapatnam, Andhra Pradesh
4	**Minimum Development Obligations (MDOs)**	**1. Convention Centre & 5 Star Category Hotel / Resort** Within Thirty Six (36) months* of the Agreement date, following shall be implemented: **(i) A Convention Centre comprising:** a) Multi-purpose Convention Hall, air-conditioned Main Hall (with the ceiling of minimum 15 feet high; area to accommodate minimum 2500 persons in theatre-style seating) b) This multi-purpose hall shall have no fixed seating and shall be with partitions for flexibility in conducting multiple events simultaneously c) The multi-purpose hall must be capable of hosting and catering to Meetings, Events, Exhibitions of National & International level.
		(ii) 5 Star category Hotel / Resort comprising: a) Not less than 200 guest rooms b) Obtain not less than 5 Star category certification from the Hotel and Restaurant Association Classification Committee (HRACC), Ministry of Tourism, India, within 180 days of commencement of operations **2. Other Water Front Entertainment Facilities:** Within Thirty Six (36) months* of the Agreement date, following shall be implemented:

S. No	Key Information	Details
		(i) Water Front Entertainment Facilities (in the form and manner as permissible under the applicable CRZ Norms) such as: a) Shack Restaurant(s), Café(s) (with temporary structures / canopies, etc.) b) Party Lawns with landscaping / hardscaping (including Amphitheatre, etc) for outdoor events c) Flea Market d) Exhibition Venue The above specified MDOs are subject to the Applicable Development Control Regulations as applicable from time to time. Further, in addition to the MDOs, the Concessionaire shall be permitted to develop any other additional tourism facilities as listed in the Andhra Pradesh Tourism Policy 2020-2025 (in the form and manner as permissible under the applicable CRZ Notification) *In case any of the MDOs that are currently not permissible as per the currently applicable Development Control Regulations / applicable CRZ Notification, the timeline for the implementation of the same shall commence from the date of such amendment / notification permitting the same.

5	**Other Obligations / Conditions**	**a.** Adopt water conservation, water recycling & reuse, rainwater harvesting, if possible, zero discharge of wastewater; and also incorporate Energy efficient designs & utilities. **b.** The Project shall be user friendly and provide eased access to differently able persons to all the project facilities in accordance with "Persons with Disabilities Act, 1995" with subsequent amendments and 'UN Convention for Rights of Persons with Disabilities (UNCRPD)'. **c.** Obtaining all the applicable statutory approvals, licenses and clearances shall be the responsibility of the

1.7 AREA STATEMENT

S.No.	Description	Area/Unit	Unit	Total Area SQM
1	GUEST ROOMS			
1.A	Guest Room Types			
	Executives	42	208	8736
	Junior Suits	85	91	7735
	Senior Suits	130	8	1040
	Additional Area			845
	TOTAL	257	307	17511
1.B	Guest Floor Circulation			
	Corridoor Circulation	363	13	4719
	Lift Lobby	150	13	1953
	Service Lift Lobby	34	13	447
	terrace	150	8	1200
2	PUBLIC FACILITIES			
2.A	Lobby			
	Porte Cochere			
	Lobby (Excluding Lobby Lounge & Lift Lobby)			
	Bell Captain's Desk			
	X-Ray Scanning Machine			190
	Front Desk			
	Concierge Desk			
	House Phones			103
	Lobby Lounge			
	Library			
	News Stand			206
	Deputy Managers Office			12
	Smoking Room			42.6
	Luggage Cart Store			
	Luggage Store			36.5
	Guest Lift Lobby			208
	Guest Toilets Male			98
	Circulation			440
2.B	Food & Beveerage Outlets			
	All Day Dining			695
	Pan Asian Resturant			356
	Pan Asian Open Resturant			435
	Pakwaan Resturant			693
	Bar			222
	Open Bar			508
	24 Hr. Coffee Shop			284
	TOTAL			3193
2.C	Banquets			

	Banquet Lobby			
	Ground Floor			370
	First Floor			183
	Ball Room			
	1 Divisible into : 1/3,2/3,1			640
	2 Divisible into : 1/3,2/3,1			640
	Pre Function Hall			
	Ground Floor			390
	Second Floor			390
	Banquets Manager			20
	Banquets Office			40
	Terrace Garden			187
	Terrace Lawn			1783
	Toilet Terrace Lawn			120
	Store Terrace Lawn			150
	Bridal Room+Toilet			67
	Groom's Room+Toilet			65
	Public Toilets- Male, Female, Disabled, Janitor,s Room			120
	TOTAL			4895

2.D	Activity Centre (Adult/Kids)			625

2.E	Business Centre			
	Reception Lounge			112
	Computer Work-Station			85
	Meeting Room-1			58
	Meeting Room-2			58
	Meeting Room-3			65
	Meeting Room-4			78
	Confrence Room-1			118
	Confrence Room-2			128
	Confrence Room-3			141
	Pantry			18
	Store			49
	Public Toilets- Male,Female,Disabled,Janitor's Room			98
	TOTAL			1108

2.F	Retail			
	Signature Shop			68
	Mixed Use Shop			79
	Jewellery Shop			68
	TOTAL			215

2.G	RECREATION			

2.GA	Swimming Pool			
	SwimmingPool			334
	SwimmingPool Kids			258
	Changing Room Male			269

	Changing Room Female			213
	Pool Pantry & Kitchen			126
	Pool Deck			295
	Steem Room			168
	Sauna Bath Room			158
	Toilets Male, Female			101
	TOTAL			1922

2.GB	Saloon & Spa			
	Massage Room 4	15	4	60
	Couple Massage Room			42
	Couple Treatment Room			39
	Treatment Room			70
	Reception &waiting			63
	Saloon			211
	Spa Store & Pantry			45
	Saloon Store & Pantry			30
	TOTAL			560

2.GC	Fitness Centre			
	Gymnasium			645
	Store			54
	TOTAL			699

3	Back Of The House (BOH)

	Administration			

3.A	Front Office			
	Front Office Manager			36
	Assistant Front Office Manager			23
	Workstations			48
	Reservation Office			20
	Television Supervisor			14
	Secratory Front Office Manager			20
	TOTAL			161

3.B	Executive Offices			
	Waiting			65
	General Manager			39
	Discussion Room			75
	Store & Copying			7
	Pantry			7
	TOTAL			213

3.C	IT Offices			
	IT Manager			12
	IT Executives			36
	Battery/UPS Room			12

	TOTAL			60
3.D	Sales & Catering Offices			
	Dirctor Sales & Marketing			20
	Sales Executive			27
	Banquet Manager			15
	Catering & Sales Manager			15
	Revenue Manager			16
	Food & Baverage Manager			15
	Discussion Room			32
	Storage & Copying			10
	Pantry			10
	TOTAL			160
3.E				
	Room Service			30
	Room Service Kitchen			40
	All Day Dining Kitchen			90
	All Day Dining Kitchen Live			76
3.F	Commissary			
	Commissary Kitchen			208
	Commissary Dishwash			36
	F&B Control Office			14
	Silver Brushing/Painting Room			49
	TOTAL			307
3.G	Speciality Kitchen			
	Kitchen-Pan Asian Dining			139
	Kitchen-Regional Delicacy			160
	Pantry Bar			126
	Kitchen Coffee Shop			67
	Bakery & Confectionary			128
	Pastery			72
	Refrigirated Store			51
	Oven Room			65
	TOTAL			808
3.H	Banquet Kitchens			
	Banquet Kitchen 1			339
	Banquet Kitchen 2			114
3.I	Kitchen Services			
	Masala Grinding Area			84
	Additional Banquet Wash			27
	Central Pot Wash			53
	Cold Food & Grade Manager			13
	Chef's Ofice			22

	Room Service			30
	Veg. Preperation Area			120
	Veg. Refrigirator			25
	Butchery			64
	Butchery Refrigirator			25
	Food Store			79
	Garbage Area			39
	Food Lab			25
	Central Pot Store			56
	TOTAL			662

3.J	Receiving/ Material Management			
	Truck Dock		2	4 M Wide
	Veg./Meat Wash			25
	Purchase Office			33
	Drivers Toilet			8
	Time Office			10
	Security Manager			20
	TOTAL			96

3.K	Garbage			
	Truck Dock			4 M Wide
	Garbage Sorting/ Dry Garbage			20
	Coal Room			13
	Fuel Room			13
	Wet Garbage			13
	Decomposer			10
	Chemical Store			21
	TOTAL			90

3.L	Main Stores			
	F&B Store			62
	Refrigirated Food Store			30
	Beverage Store			47
	Refrigirated Beverage Store			32
	Crockery, Cutlery, Glass Store			52
	General Bulk Store			110
	General Furniture Store			64
	Unused Textile Store			37
	Miscellanous			35
	LIquor Store			20
	Store Manager			20
	TOTAL			338

3.M	Banquet Store			
	Banquet Store 1			192
	Banquet Store 2			215

	Terrace Lawn Store			141
	Banquet Control Room	27	2	54
	UPS Room	11	2	22
	A/V Equipment Room	8	2	16
	TOTAL			640

3.N	Personnel/HR Offices			
	Reception/ Waiting			66
	HR Manager			20
	Asst. HR Manager			18
	HR Executives			68
	Interview Room			20
	Training Manager			21
	Traing Room 1			66
	Traing Room 2			119
	Computer Language Room			88
	E-Learning			68
	Pantry			20
	Store			33
	TOTAL			607

3.O	Employee Facilities			
	Male Staff Lockers			358
	Male Staff Restroom			57
	Male Staff Toilets			127
	Executive Male Lockers			133
	Executive Male Staff Restrooms			47
	Executive Male Staff Toilets			65
	Female Staff Lockers			142
	Female Staff Toilets			83
	Female Staff Restrooms			26
	Female Staff Changing Room			17
	Executive Female Staff Lockers			76
	Executive Female Staff Restrooms			37
	Executive Female Staff Toilets			60
	Executive Female Staff Changing Room			10
	Staff Kitchen			305
	Staff Recreation Area			117
	Staff Dining			506
	Pot Wash			60
	Stone			59
	Toilets			101
	TOTAL			2386

3.Q	Laundry			
	In-House Production			388
	Valet Production			244
	Solid Collection Room			68

	Laundry Manager			17
	Compressor			40
	TOTAL			757

3.R	Housekeeping Office and Stores			
	Executive Housekeepers Office			58
	Deputy House Keeper			11
	Chief House Keeper			10
	Tailor			17
	Staff Breifing Area			50
	Uniform Store			101
	Linen In Circulation			56
	Store, Packing & Vallet			55
	Guest Amenities & Emergency Cleaning Equipment Storage			27
	Lost & Found Store			24
	Mini Bar Store			25
	Carpet & Fabric Store			40
	Sample Room			40
	Florist Counter			30
	Night Keepers Closet			11
	Garden Equipment Closet			11
	Housekeeping Closet			12
	Janitors Closet			13
	Linen Closet			22
	Miscellaneous Closet			39
	TOTAL			662

3.S	Engineering Offices			
	Reception/ Secretary/ Waiting			125
	Engineering Asst. and Monitoring Room			105
	Shift Engineer-1			27
	Shift Engineer-2			30
	Deputy Chief Engineer			27
	Chief Engineer			24
	Store Room			100
	Training Room			145

3.T	Repairs & Maintenance			
	HVAC/ Refrigiration Workshop			138
	Chemical Storage			65
	Paint Workshop			45
	Plumbing Workshop			45
	Electrical Workshop			45
	Construction Materials Store			90

3.U	Misclleanous			
	Driver's Lounge (Parking)			170

	Male Driver's Toilet			13
	Female Driver's Toilet			10
	Valet Driver's Lounge			45

3.V	Mechanical Areas			
	Meter Room			28
	HT Panel Room			125
	HT Breaker Room & Indoor Transformers			153
	LT Panel Room			161
	DG Room			161
	STP			330
	Fire Control & Pump Room			86
	Boiler Room			145
	Pump Room			130
	Chiller Plant & Chiller Pumps			325
	Municipal Raw Water Tank			190 cu. M
	Treated Water Tank		2	265 cu. M
	Soft Water Tank		5	600 cu. M
	Rain Water Harvesting Tank		2	502 cu. M
	Fire Water Tank		5	442 cu. M

4	Parking

As Per NBC 2005

	Description	Units / Area	Remarks	Standard / Number	Total
	Guest Rooms	307	2 Guest Roor	2	153.5
	Seats In Restaurant	514	5 Seats Per 1	5	102.8
	Seats In Coffee Shop + Bar	220	6 Seats Per 1	6	36.7
	Business Centre (sq. m)	1054	25 Sq. m per	25	42.2
	Seats In Banquets & Lawn (sq. m)	2962	25 Sq. m per	25	118.5
	TOTAL				453.7

454 Car Parking Space Required

CHAPTER 2

LITERATURE STUDY

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 1: 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 2: 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.

2.3. 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.

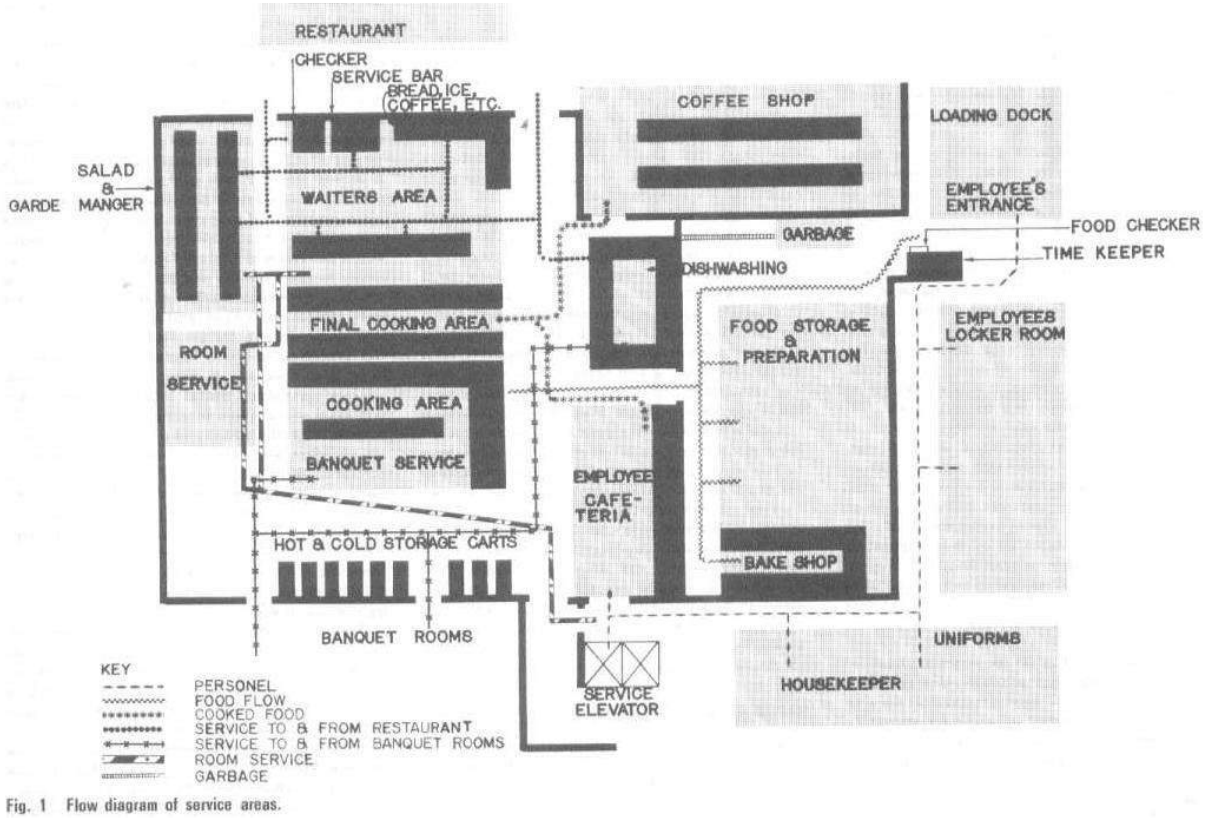

Fig. 1 Flow diagram of service areas.

Figure 7 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.

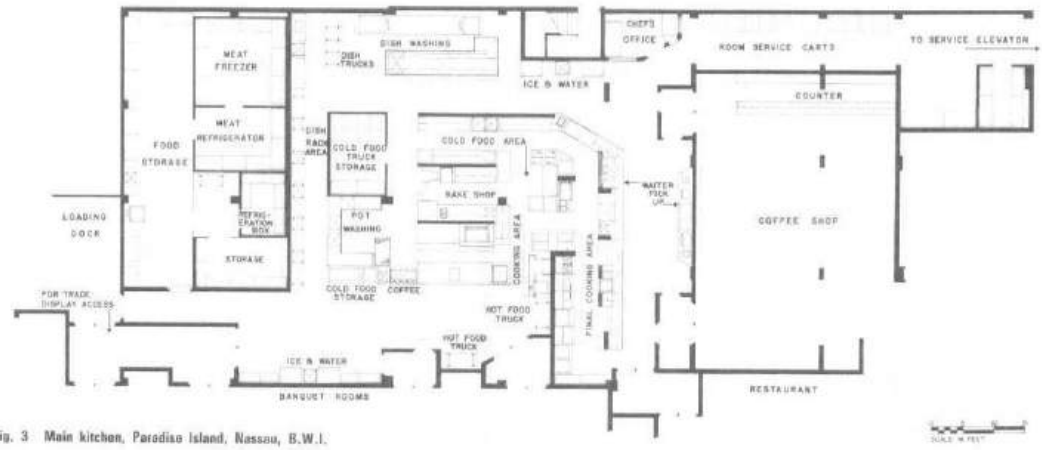

Figure 8 Flow diagram of Service Areas (ITC Hotel Manual)

- 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

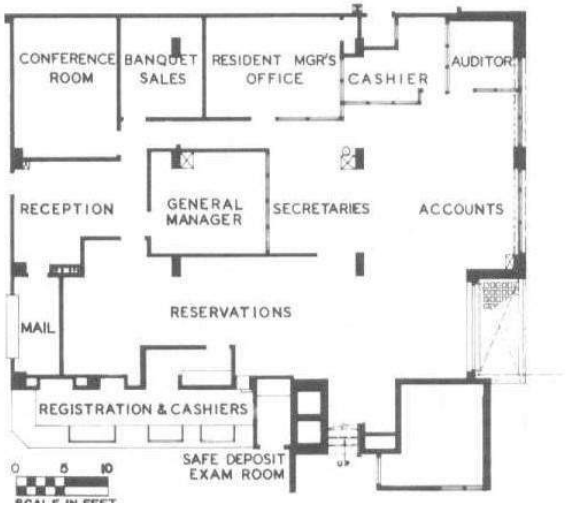

Figure 9 Admin Plan, Churchhill Hotel London

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.

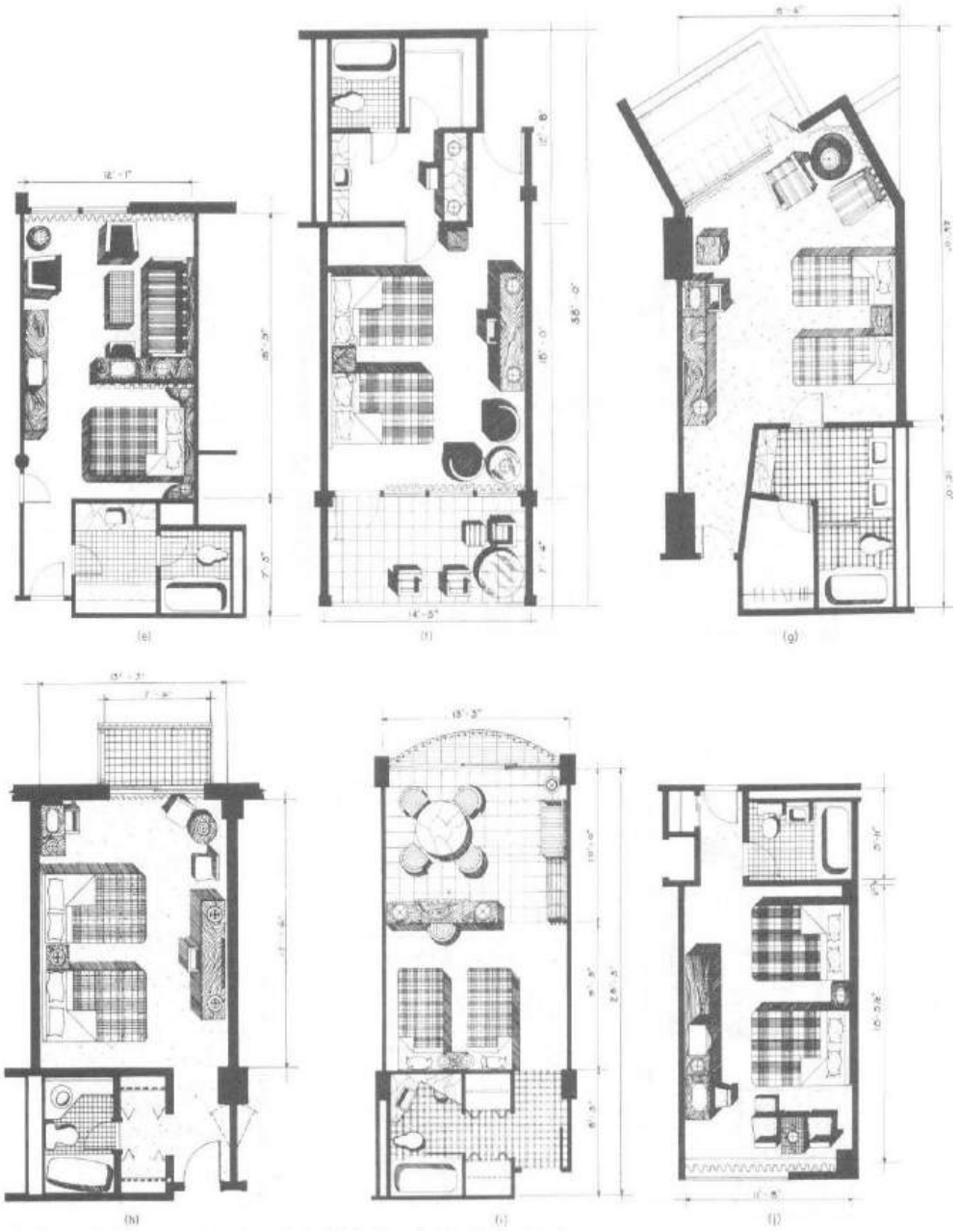

Figure 10 Guest room details (ITC Hotel Manual)

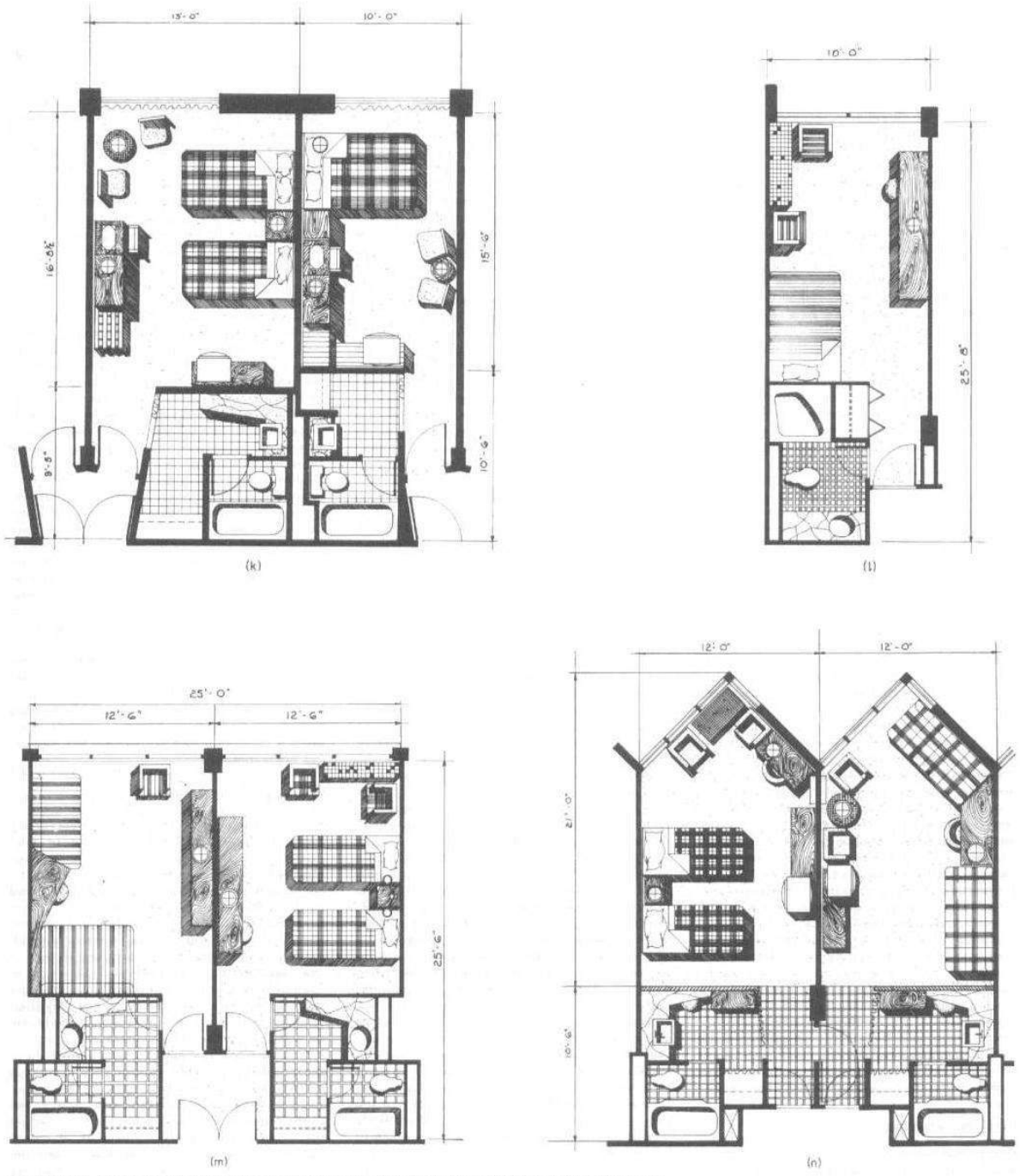

Fig. 5 (cont.) (k) Chicopee Motor Inn, Chicopee, Massachusetts. (l) and (m) Thomas Circle Motor Hotel, Washington, D.C. (n) Riverview Motor Hotel, New York.

Figure 11 Guest room details (ITC Hotel Manual)

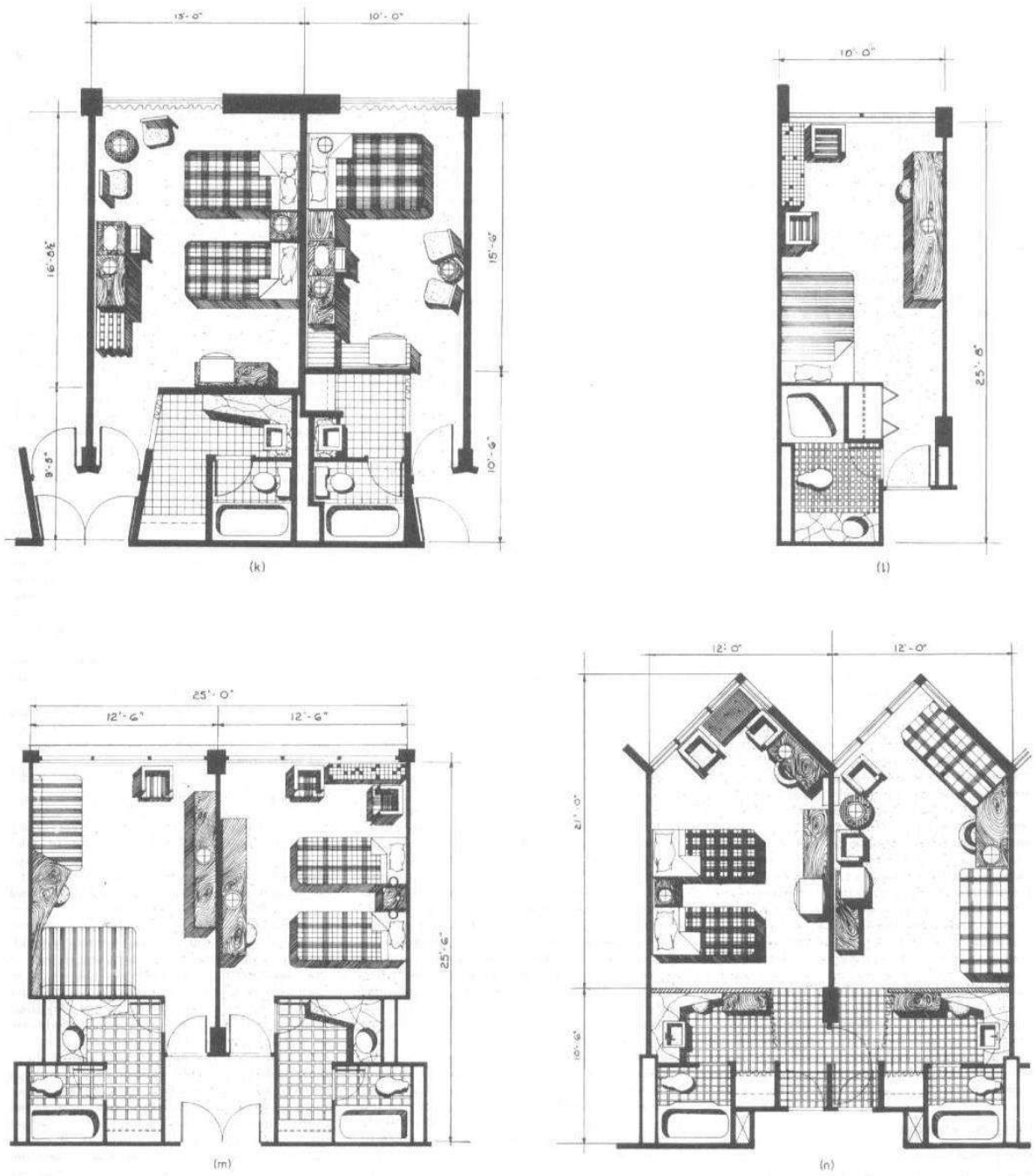

Fig. 5 (cont.) (k) Chicopee Motor Inn, Chicopee, Massachusetts. (l) and (m) Thomas Circle Motor Hotel, Washington, D.C. (n) Riverview Motor Hotel, New York.

Figure 12 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 3 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 4 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.

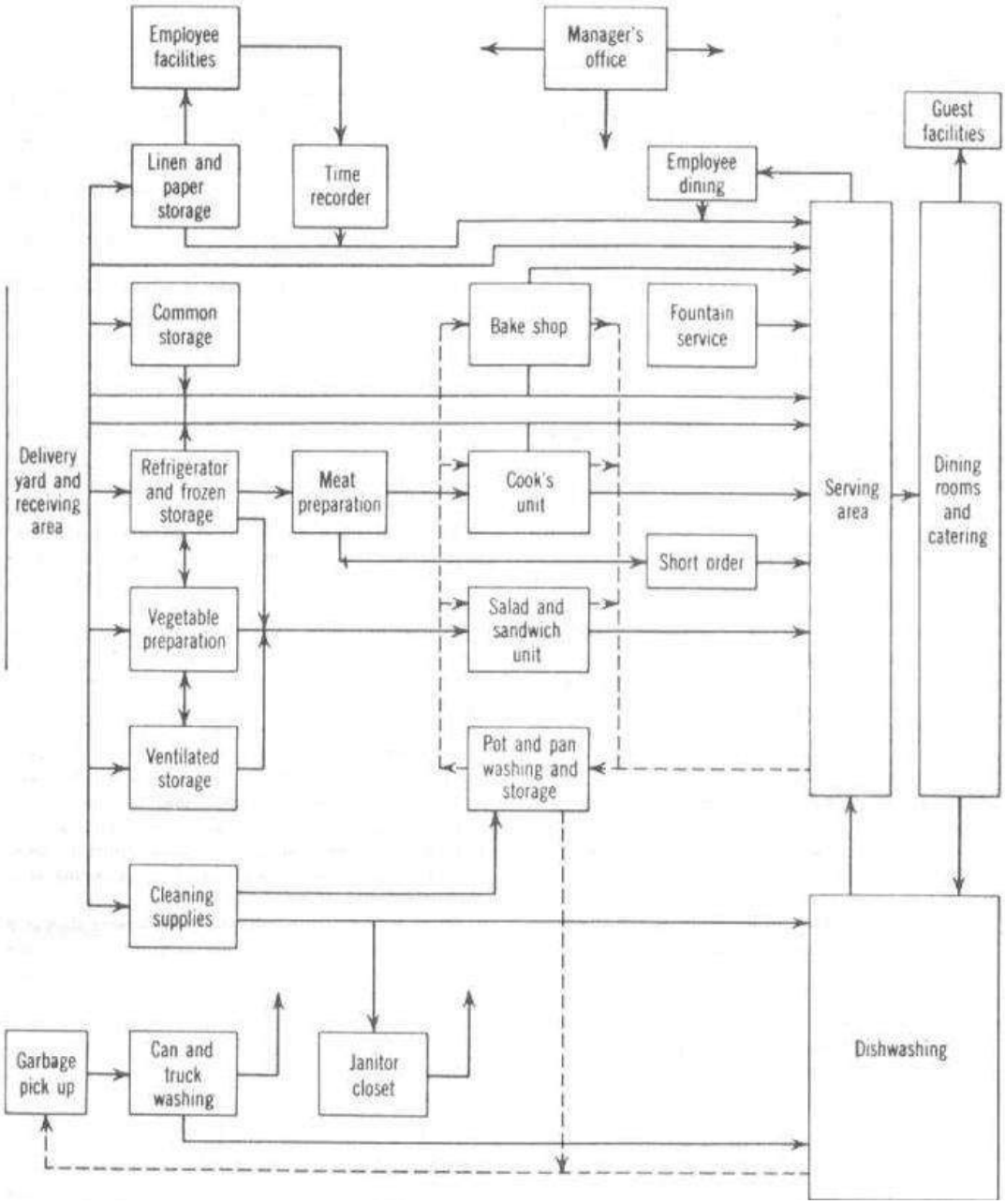


Figure 13 Flow Diagram Showing Functional Relationships (TSS)

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 5 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 6 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	3.0-1.8
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.

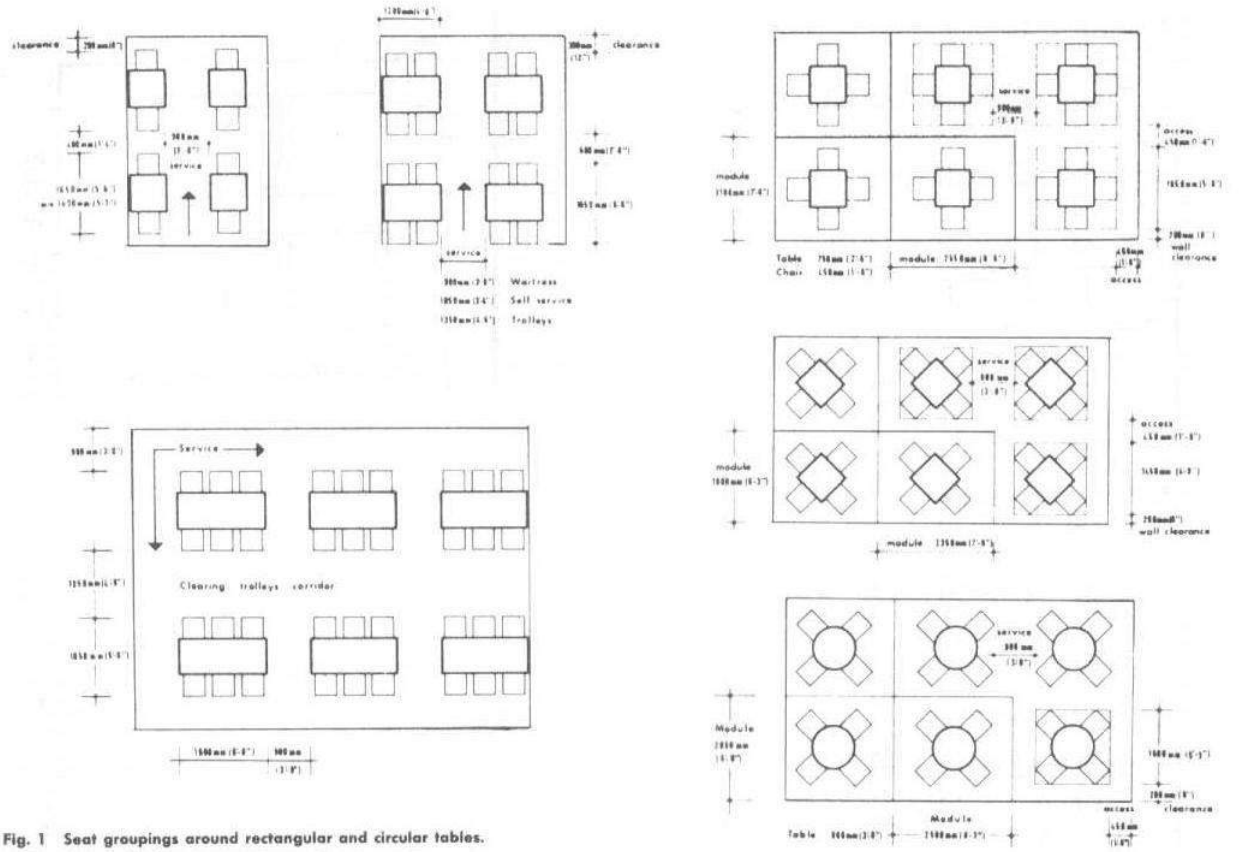


Fig. 1 Seat groupings around rectangular and circular tables.

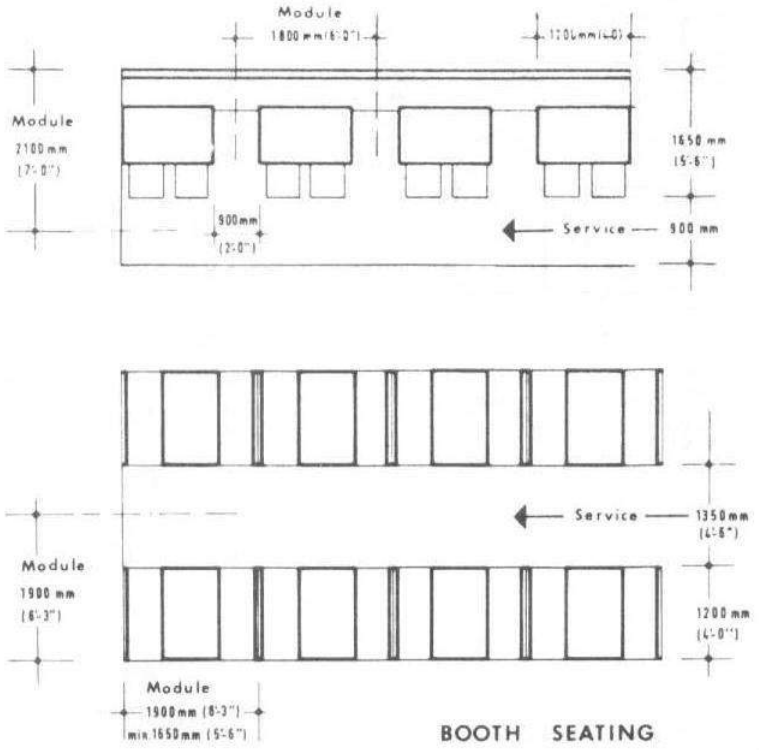
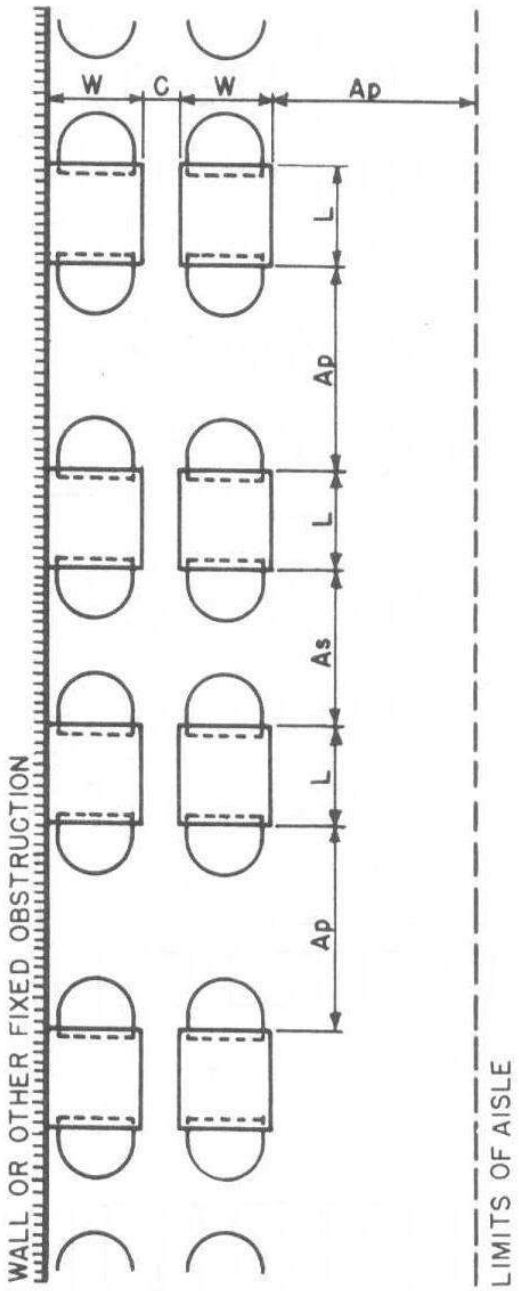
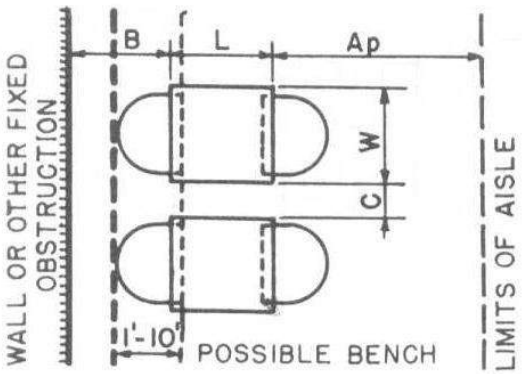


Fig. 2 Banquette seating arrangements and limiting dimensions including space for access and service.

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

Figure 14 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

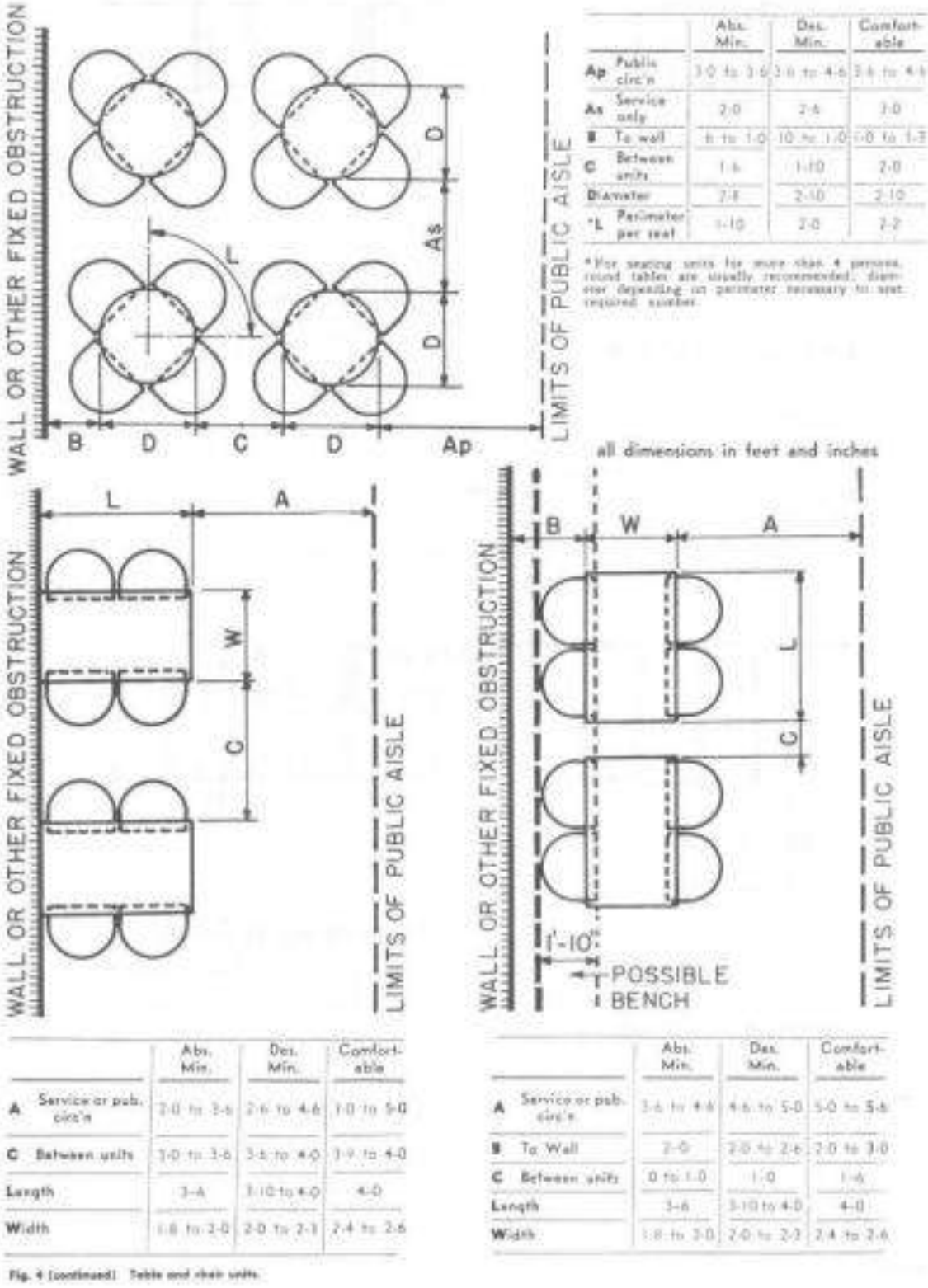
all dimensions in feet and inches

		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.

Figure 15 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
D	Diameter	2-8	2-10	2-10
*L	Perimeter per seat	1-10	2-0	2-2

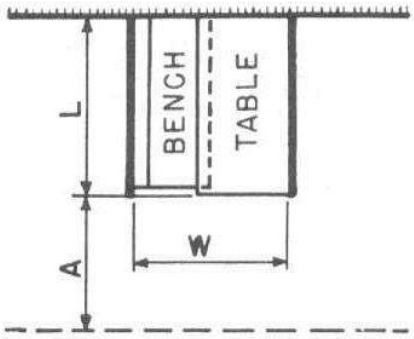
*For seating units for more than 4 persons, round tables are usually recommended, diameter depending on perimeter necessary to seat required number.

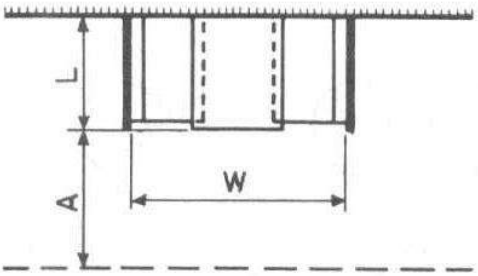
		Abs. Min.	Des. Min.	Comfortable
A	Service or pub. circ'n	2-0 to 3-6	2-6 to 4-6	3-0 to 5-0
C	Between units	3-0 to 3-6	3-6 to 4-0	3-9 to 4-0
Length		3-6	3-10 to 4-0	4-0
Width		1-8 to 2-0	2-0 to 2-3	2-4 to 2-6

		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 2-0	2-0 to 2-3	2-4 to 2-6

Fig. 4 (continued) Table and chair units.

Figure 18 Table & Units (TSS)





2 PERSONS SIDE BY SIDE

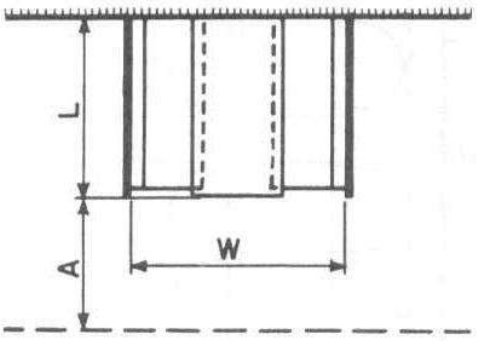
	Abs. Min.	Des. Min.	Comfortable
A Service and pub. circ'n	2–6	3–0	3–6
Length	3–6	3–9	4–0
Width	3–0	3–3	3–6

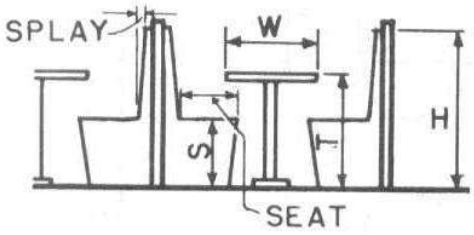
Note: This type not ordinarily recommended.

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

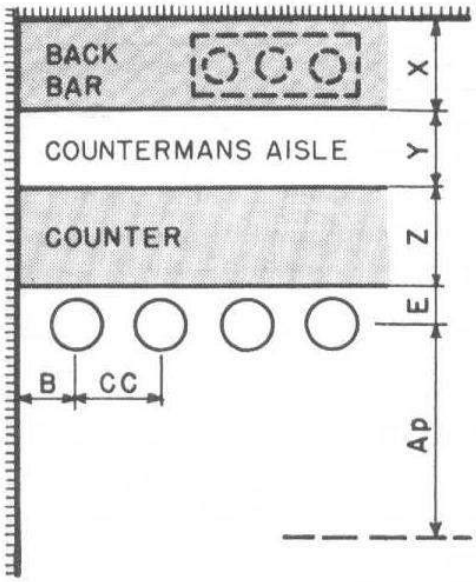
	Abs. Min.	Des. Min.	Comfortable
A Service and pub. circ'n	2–6 to 3–0	3–0 to 4–0	3–6 to 5–0
Length	3–6	3–9 to 4–0	4–0 to 4–2
Width	4–10 to 5–6	5–2 to 5–6	5–8 to 5–10

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

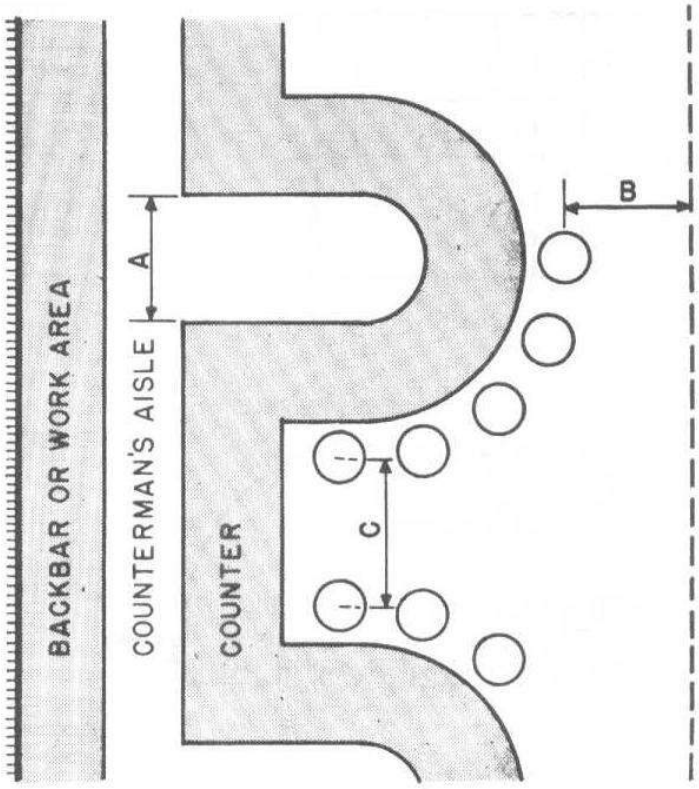
Fig. 5 Booths.

Figure 19 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

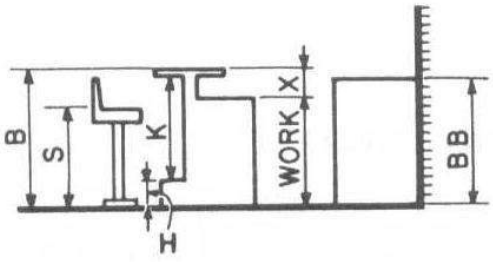


Variations in Shape

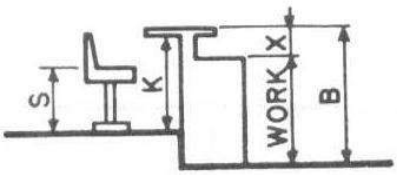
	Usual Minimum
A	2-6 to 3-6
B	2-6 to 4-6
C	2-9 to 5-6

dimensions in feet and inches

HEIGHTS



LEVEL FLOOR



DROPPED FLOOR

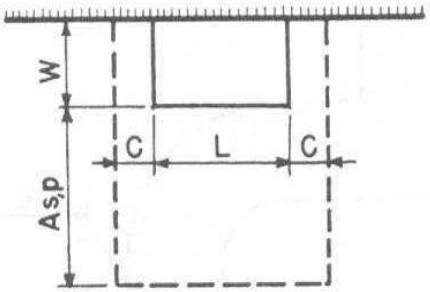
	Range of Dimensions		Range of Dimensions
B	2-6 to 3- 6	X	1-2 to 1- 3
BB	3-0 to 3- 6	Work	2-4 to 2- 7
H	7 to 10	S	1-6 to 2- 6
K	2-4 to 2- 8		

	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.

Figure 21 Food Bars (TSS)

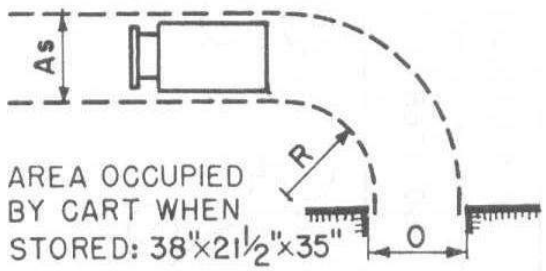
Serving Units



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.			

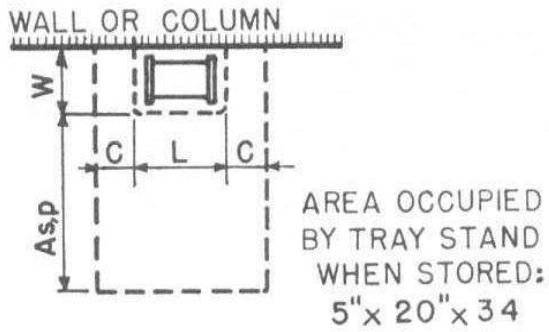
Display tables (hors d'oeuvres, etc.) usually 5' 0" x 2' 0"; (wines), 3' 0" round



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

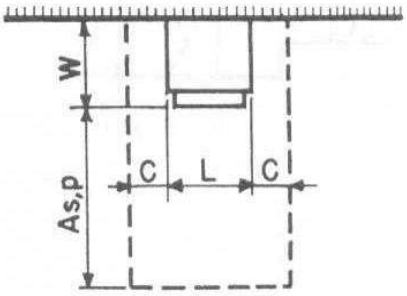
Approx. area when stored: 38" x 21½" x 35"



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.

Figure 22 Serving Units (TSS)

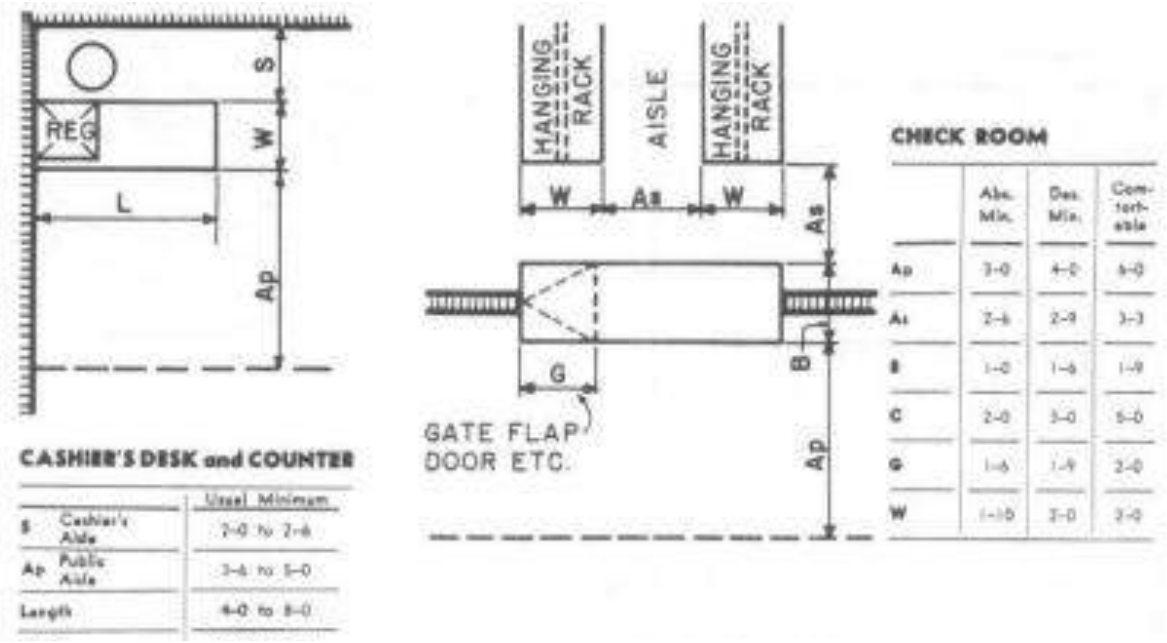


Figure 23 Nondining Spaces (TSS)

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



Figure 26 Traffic movement through aisle side

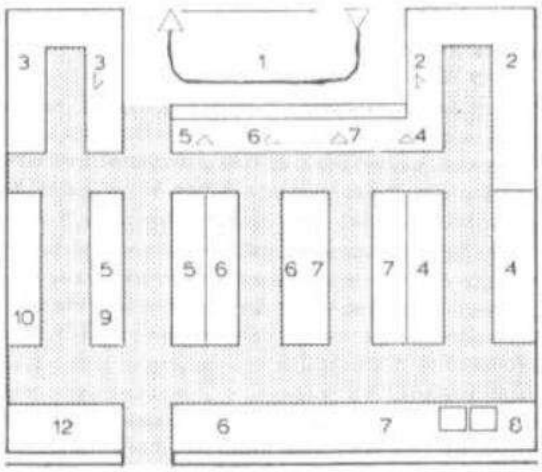


Fig. 1 Hotel or restaurant kitchen or French restaurant of high standard. Capacity for main meals: Hotel—100–200 persons / menu, 100 persons / à la carte. Restaurant—200–300 persons / mealtime from 11:30 to 1:30. Waiters' passageway: tangential. Kitchen: Linear arrangement with large installations in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

Figure 27 Kitchen for 100-200 Persons

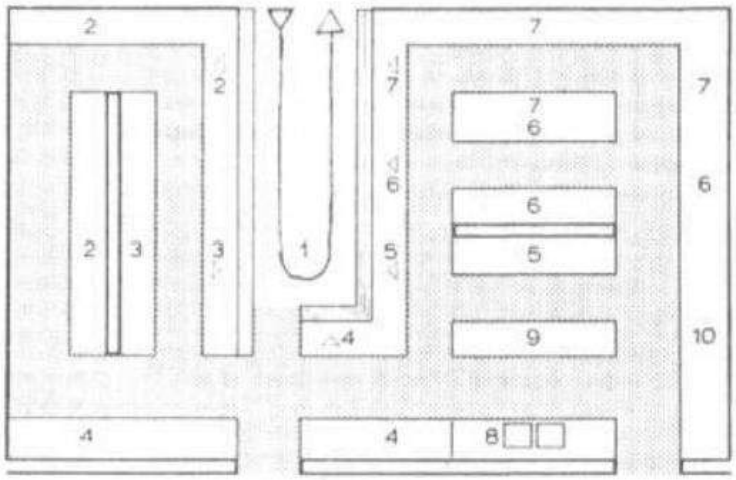


Fig. 2 Hotel or restaurant kitchen. Capacity: With this layout, a 200-seat restaurant will be able to handle three full sittings. This layout can also take care of a hotel with 100 guests and can also accommodate a restaurant open to the general public, an outdoor restaurant, and a private dining area 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.

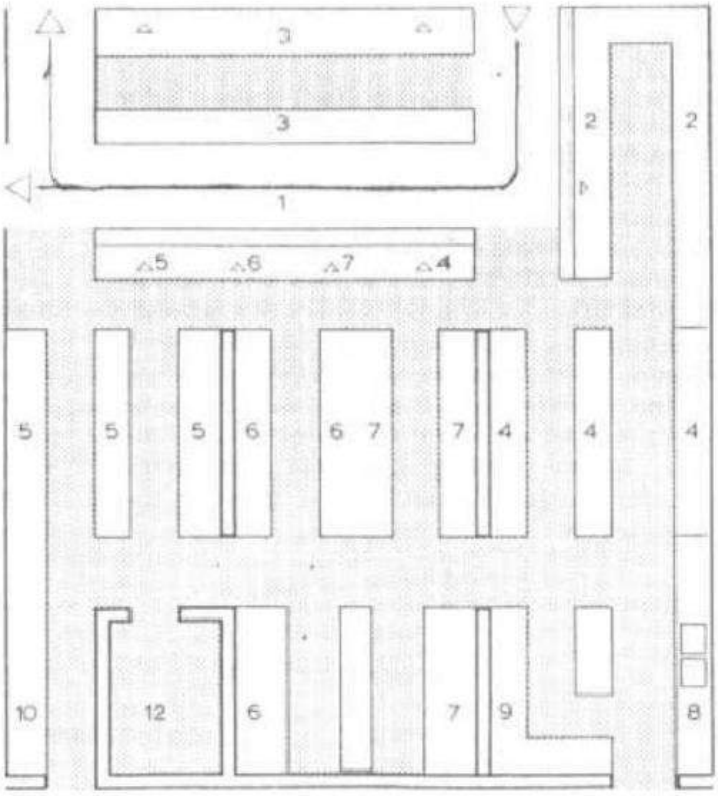


Fig. 3 Large restaurant kitchen for restaurants with many private party and conference facilities or with commissary and catering capacity for other businesses. Suitable also for large hotel with large restaurant for the general public. Capacity: 800–1,000 persons (e.g., 200 seats and fourfold reoccupancy). 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.

Figure 28 Kitchen for 400 Persons (Up), and 800 persons (Down)

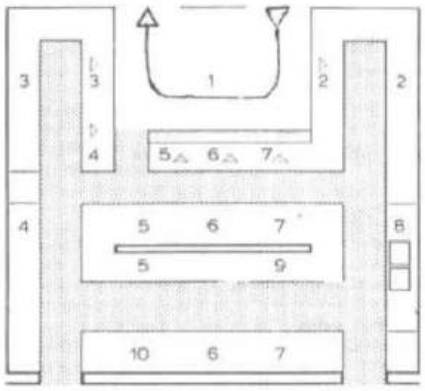


Figure 29 Kitchen for Excursion Restaurants

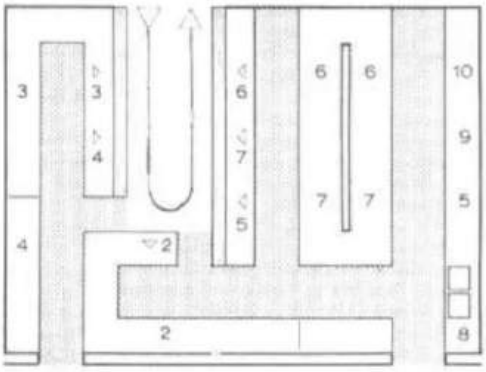


Figure 30 Kitchen for 600 persons, fourfold occupancy of 150 personsz

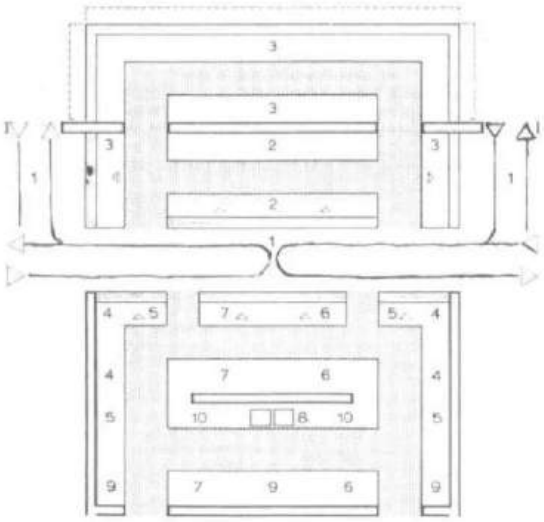


Figure 32 Kitchen for 1000 Persons

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

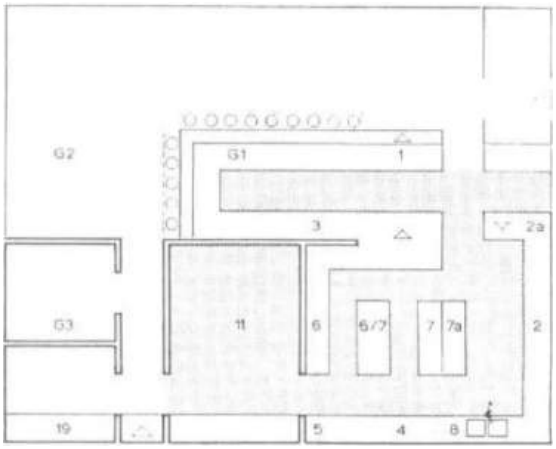


Figure 31 Snack Bar

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

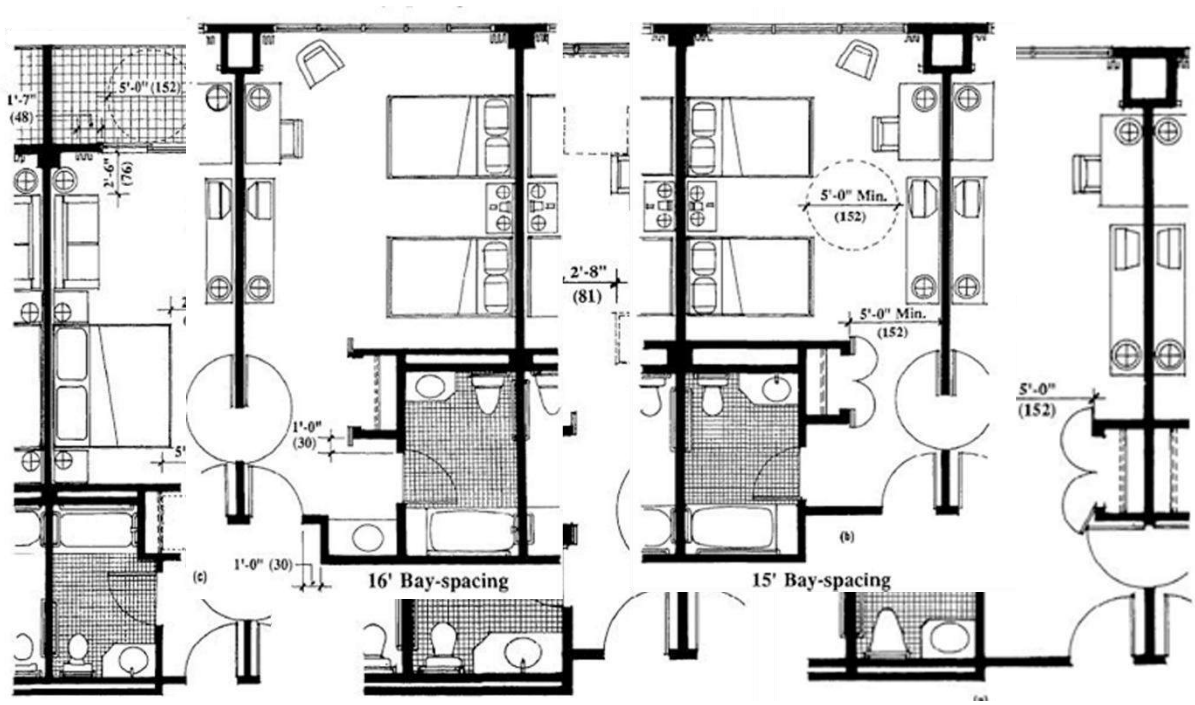
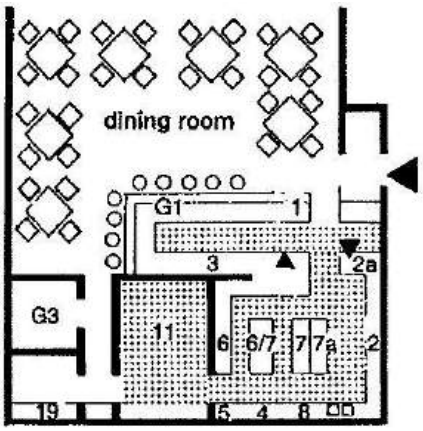


Figure 38 Room arrangements with 12, 13 & 14 ft bay spacing

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.

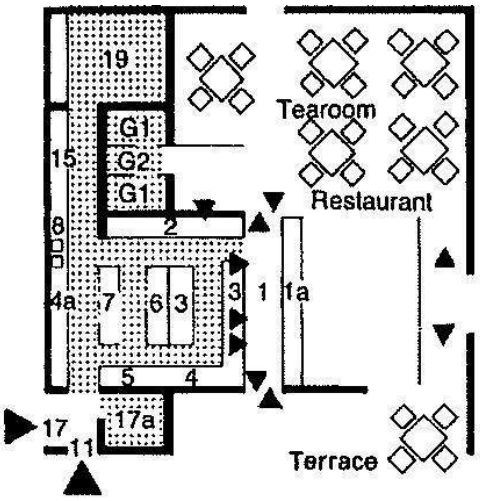


1 meals and drinks servery
2 dishwasher
2a crockery returns
3 drinks bar with mixer, toaster, food containers etc.
4 oven for small pastry items
5 food storage
6 rotisserie
6/7 cooker rings
7a water boiler and steam machine
8 pot and pan washer
11 stores/office; catering size refrigerators and freezers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

Figure 42 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

Figure 41 Cafe-restaurant Arrangement

Cafe:

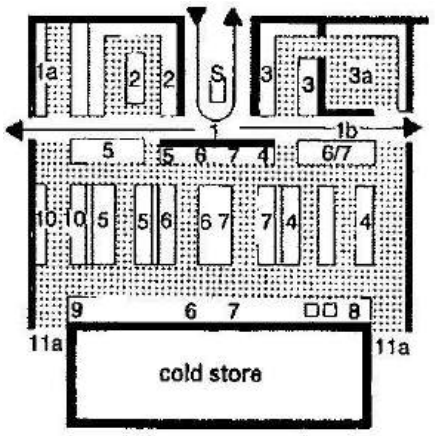
- Alcohol-free drinks, except bottled premium beer, liqueurs etc., patisserie and light food- cold and hot.

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.



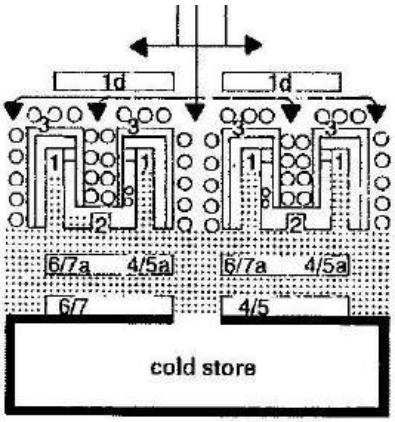
1 waiters' walkway
1a garden service counter
2 dish-washing area
3 drinks counter
3a drinks cellar
4 pastry counter
5 cold dishes
6 hot dishes and sauces
6/7 table with hot store
8 pot and pan washer
9 vegetable preparation
10 meat preparation
11a deliveries, and access to stores, offices, staff cloakrooms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

Figure 43 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:



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

Figure 44 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.

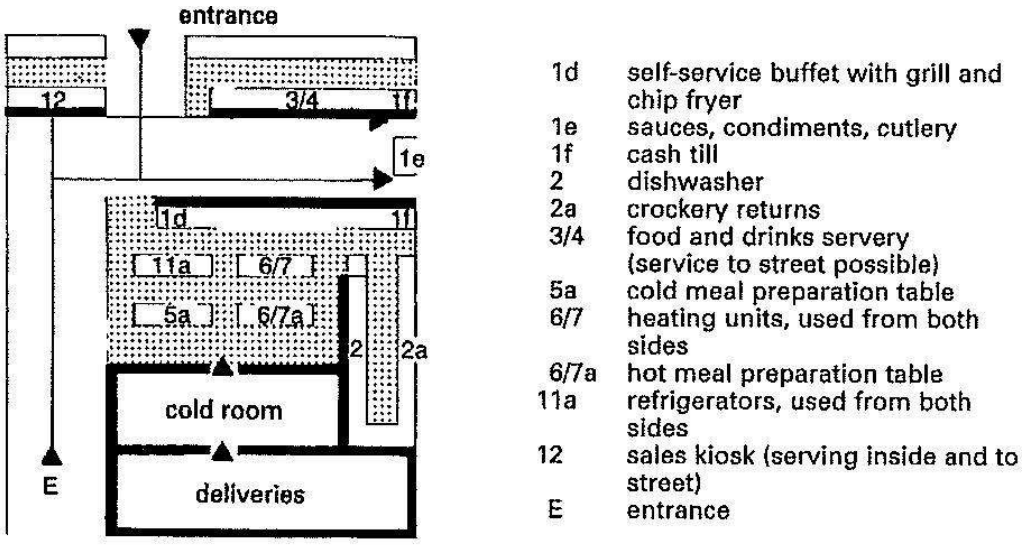


Figure 45 Self Service restaurant

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.

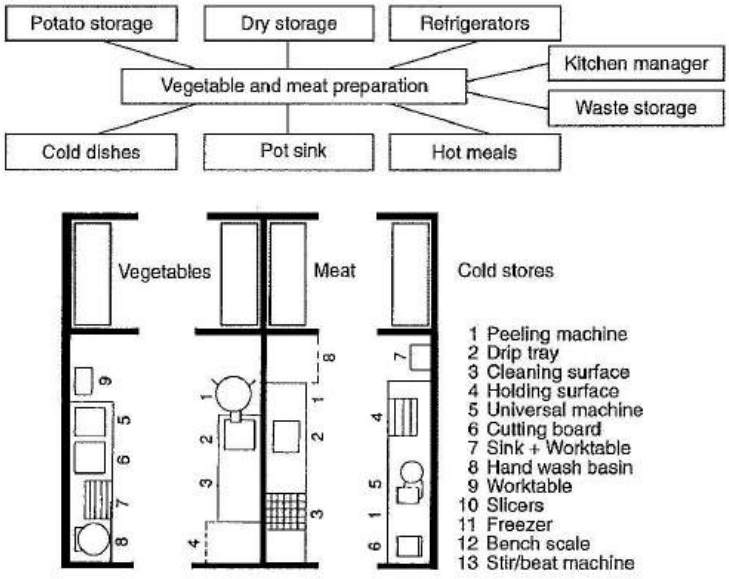


Figure 46 Separate preparation for Meat & vegetables

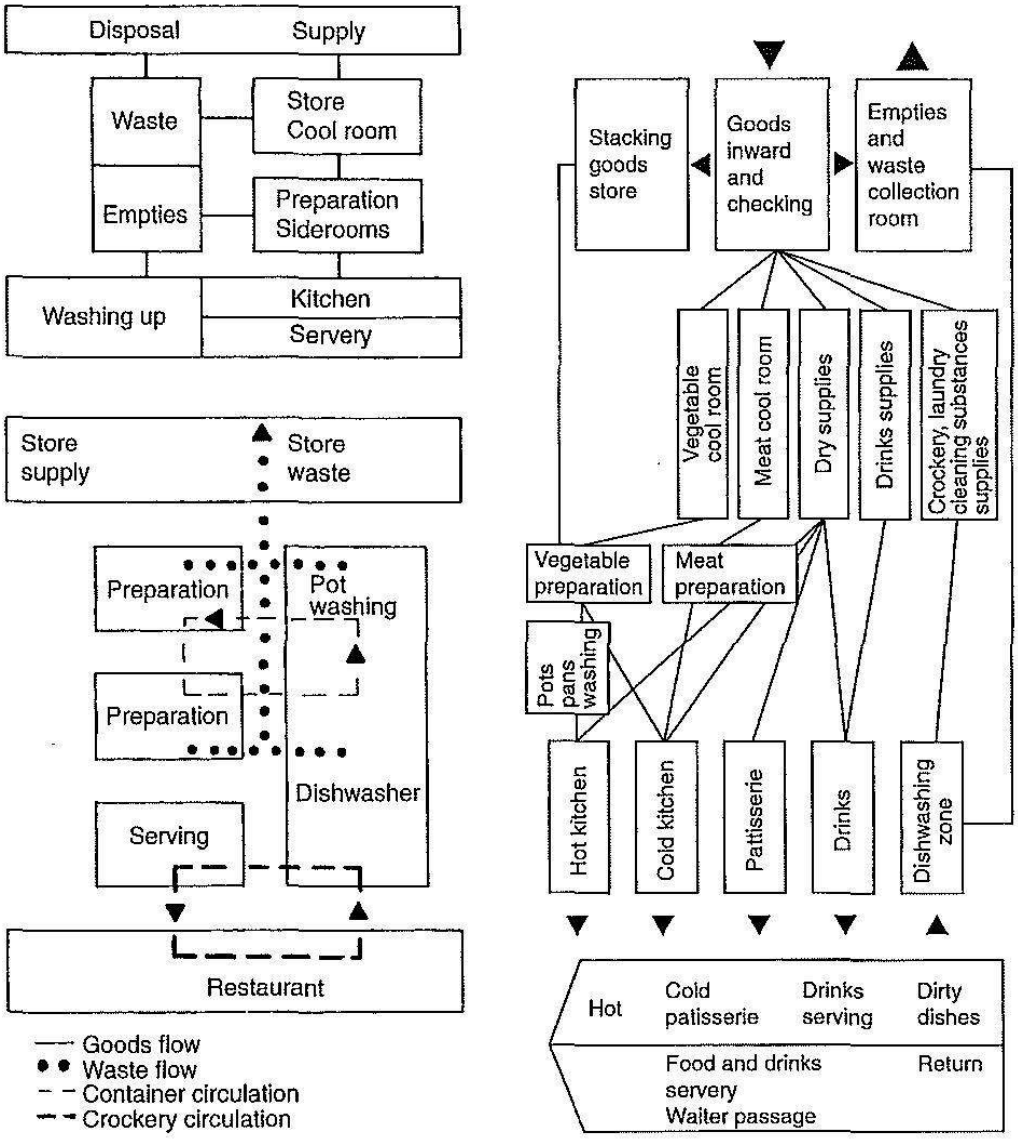


Figure 47 Restaurant Kitchen; Functions & Restaurant kitchen; Organisation

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.

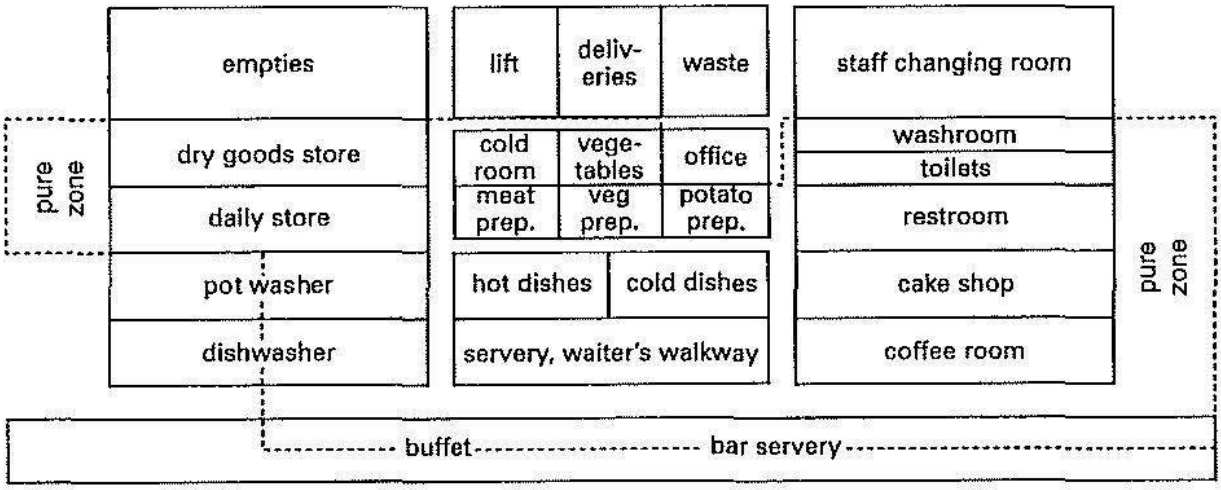
- Bistros, snack bars, small cafes - or specialty restaurants with 40-60 seats- are classified as small operations. Small to medium units (70-1 00 places) require on the other hand carefully zoned and fully equipped kitchen facilities. Large businesses (service areas, fast food restaurants, large hotel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

Table 7 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

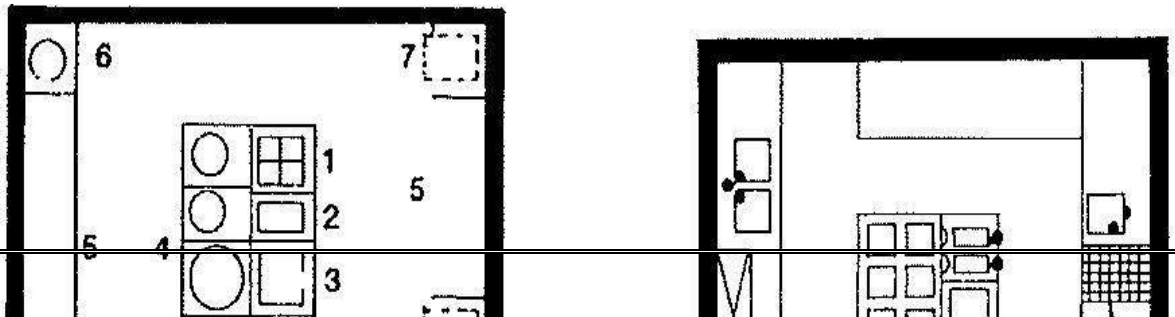
Table 8 Basis for dimensions and space requirements

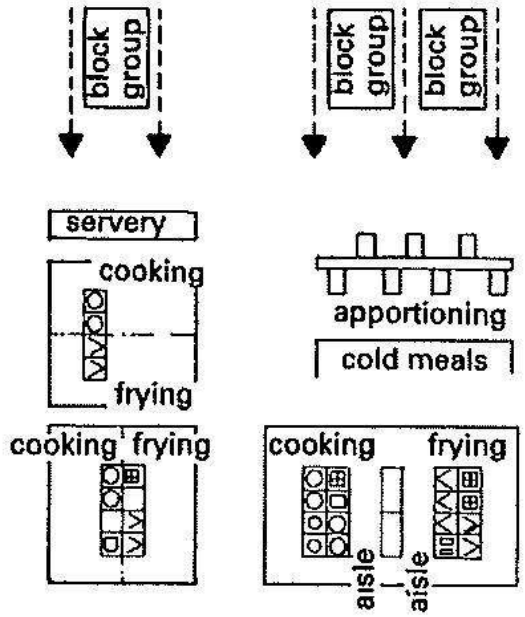
Area	Proportion (%)
goods delivery including inspection and waste storage	10
storage in freezer, cold and dry rooms	20
daily store	
vegetable and salad preparation area	2
cold dishes, desserts	8
patisseries/cakes	8
meat preparation	2
cooking area	8
washing area	10
traffic area	17
staff rooms and office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



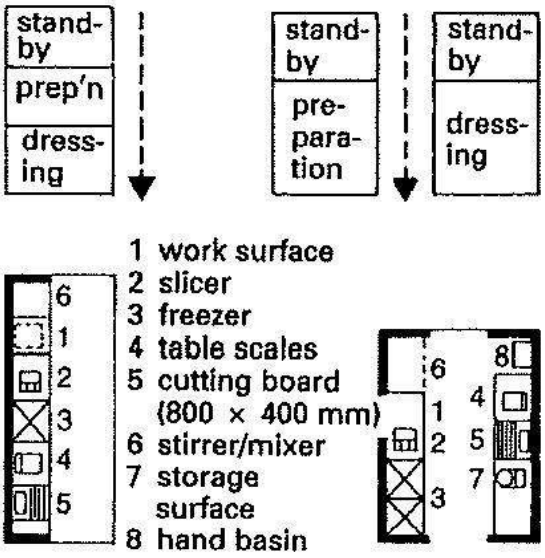
5 Kitchen areas: classification and relationships of functional areas in clean and unclean zones (if earth-covered vegetables are prepared, this must take place in a separate part of the unclean area!)

Figure 48 Funtionality of Kitchen Areas

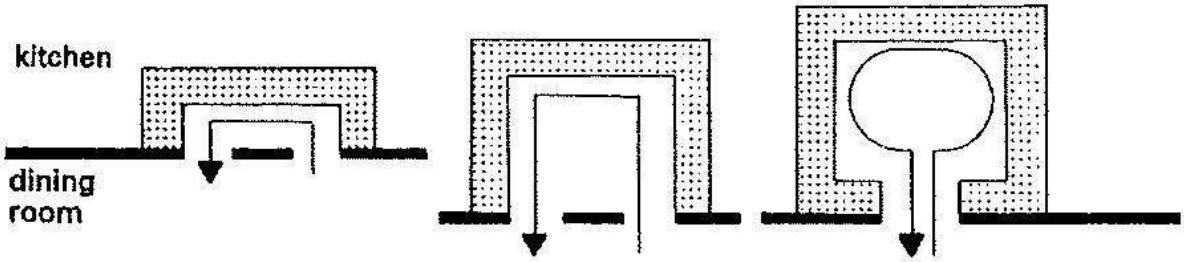




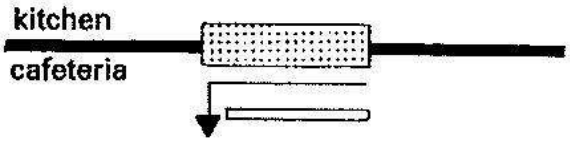
5 Functions and organisation of hot kitchen



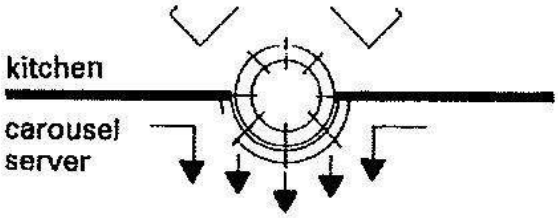
6 Organisation of cold kitchen



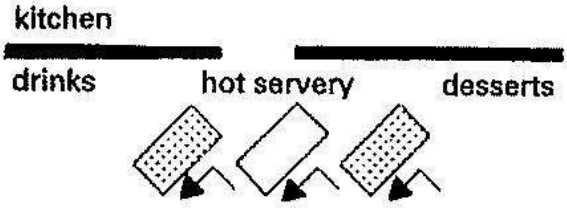
7 Servery, waiter walkway



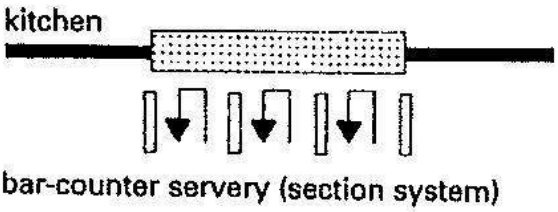
8 Self-service restaurant



9 Self-service restaurant

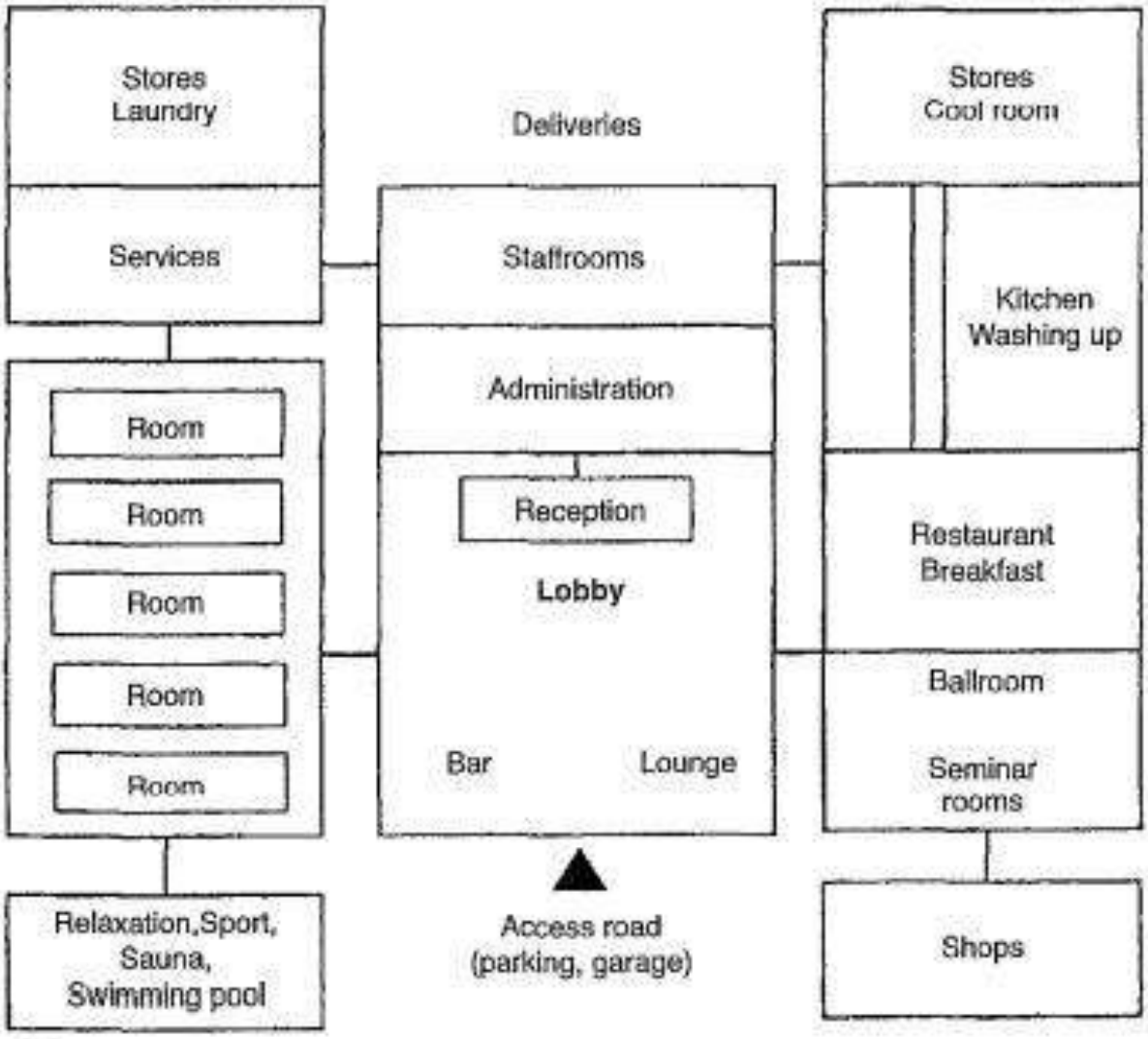


10 Free-flow restaurant



11 Self-service restaurant

2.6.4 BASIC SCHEMES OF HOTEL



2 Room and access scheme of a hotel

Figure 51 Route relationship between spaces

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

Table 9 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.

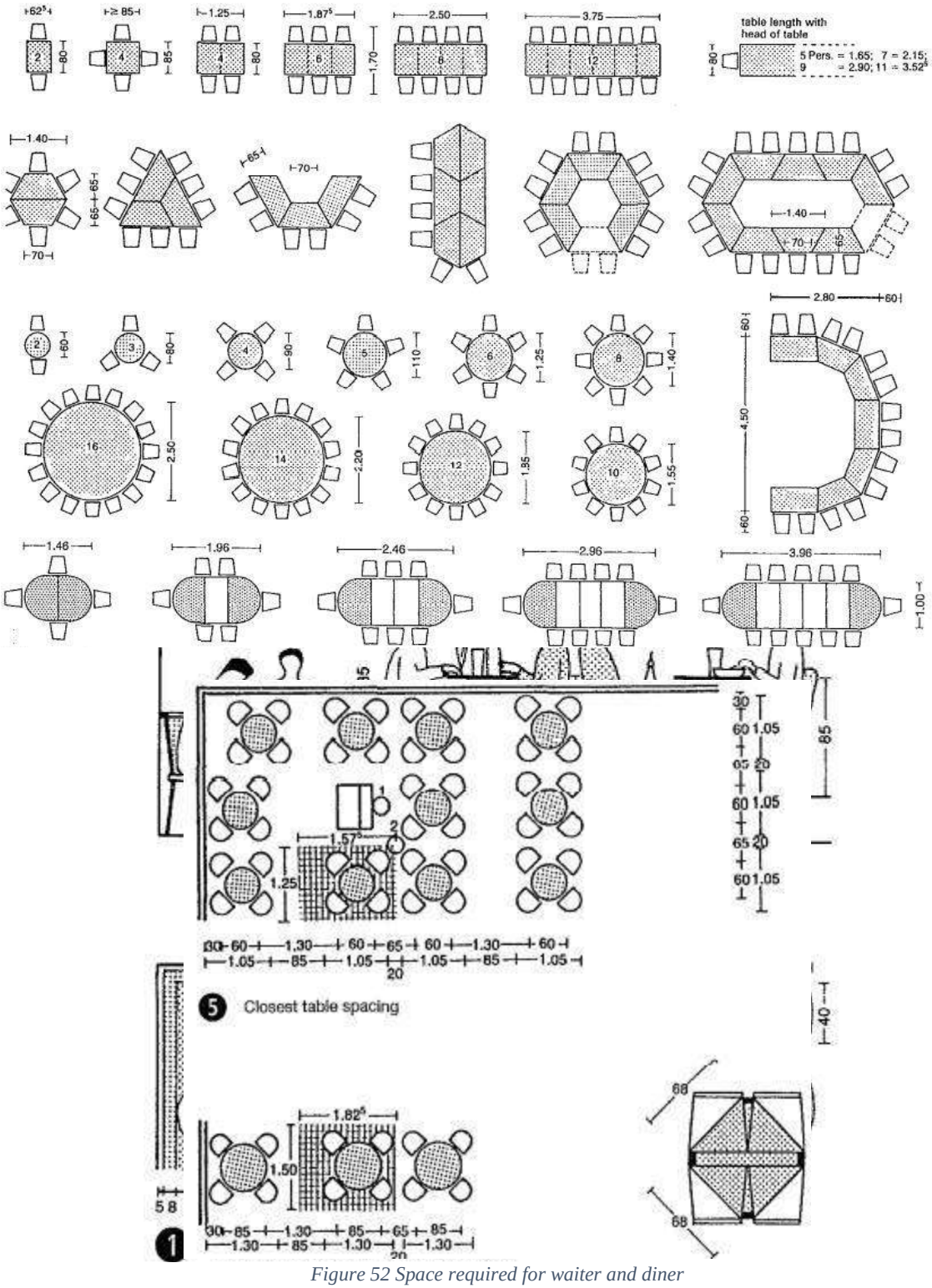


Figure 52 Space required for waiter and diner

Figure 53 Arrangements of dining tables

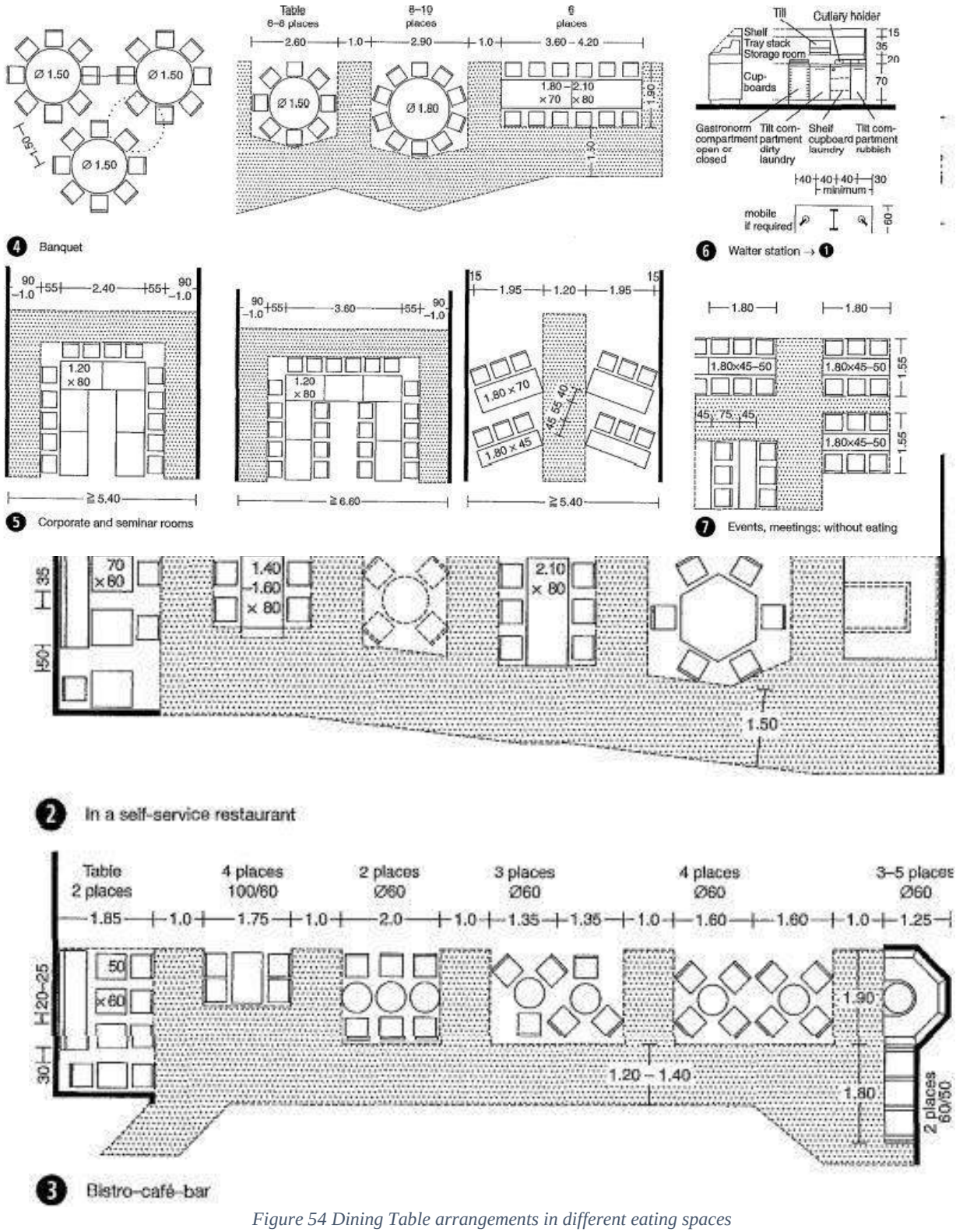


Figure 54 Dining Table arrangements in different eating spaces

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

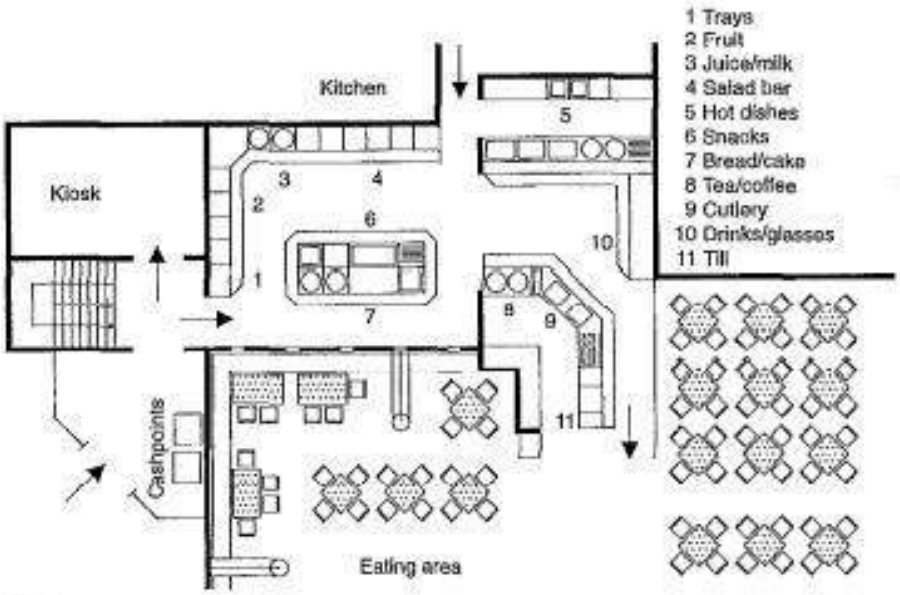


Figure 55 Dining table arrangements in different eating spaces with an example of self-service restaurant

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 10 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 11 ECS requirement

2	Commercial Centres					
	Convenience Shopping Centre/Local Shopping Centre / Local Level Commercial areas	2 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 for every 3 guest room. For Population more than 50 lakh – 1 car parking space for every 2 guest room[143].			
	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				
8.	Above 4000 & upto 10000	9	6	6	6	6
9.	Above 10000	15	9	9	9	9

Source: UDPFI Guidelines 1996.

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 12 Minimum setbacks

2.7.4 SETBACKS WITH RESPECT TO ABUTTING ROAD WIDTH

Front Setback

Table 13 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 14 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 o Upto height of 24 m with one setback: Minimum 6m o Between 24 m and 37.5 m with one setback: Minimum 9 m o 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 15 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 16 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 17 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

2.8 INDIAN STANDARD CODE FOR HOTELS AND RESTAURANTS

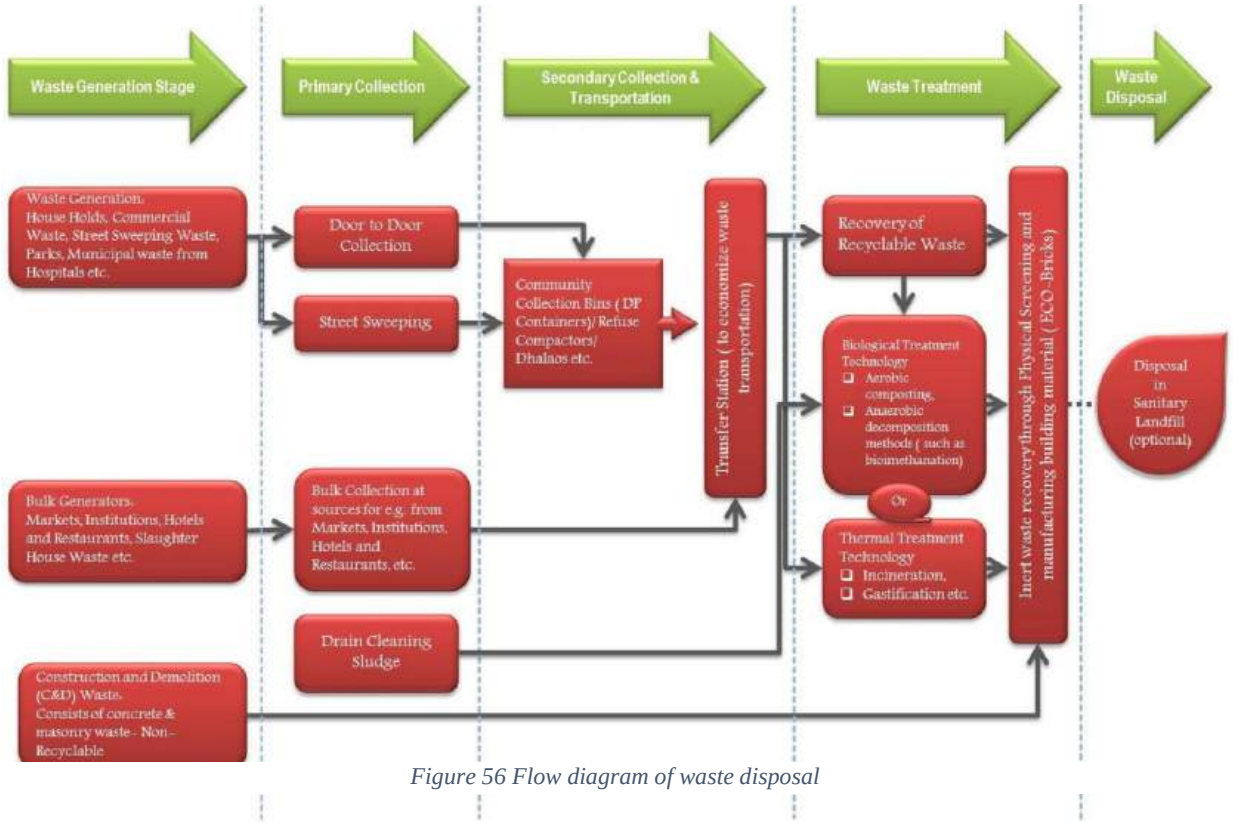


Figure 56 Flow diagram of waste disposal

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 18 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 19 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 20 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 21 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 22 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 23 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 24 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 ANDHRA PRADESH BUILDING BYELAWS - 2017

2.9.1 FLOOR AREA RATIO (FAR) & HEIGHT RESTRICTIONS

FAR depends on road width:

- **9–12 m** road width: FAR = **2.25**
- **12–18 m**: FAR = **2.50**
- **>18 m**: FAR = **3.00**

Height restriction is linked to setbacks and road width. No fixed height cap unless near an airport or restricted zone.

Buildings >15 m must comply with fire safety and open space around = **1/3rd of height**.

2.9.2 SETBACKS & BUILT-UP AREA

For **plots ≥1000 sqm**:

Height of Building	Front	Rear	Side-1	Side-2

≤15 m	4.5 m	3 m	3 m	3 m
>15–18 m	6 m	4.5 m	4.5 m	4.5 m
>18 m	7.5 m	6 m	6 m	6 m

Ground coverage: 50–60% allowed.

Built-up Area: Regulated by FAR × plot size.

2.9.3 BASEMENT AND PARKING

Up to **2 basements** permitted — restricted to parking, MEP, storage (non-habitable).

Parking norms:

- 1 car per 3 guest rooms
- 1 car per 100 sqm banquet area
- 1 two-wheeler per 5 rooms
- Dedicated loading/unloading bay

Ramps: minimum 3.6 m width; slope max 1:8.

2.9.4 FIRE SAFETY

- Fire tender access: **6 m road** width
- Fire lifts and refuge floors (every 24 m)
- Wet risers, hose reels, hydrants, sprinklers
- Smoke detection, fire escapes, emergency lighting
- Fire-resistant materials (Class I) for ceilings, partitions
- Fire drill plan, emergency exit signage
- Annual renewal of fire safety clearance for hotels ≥15 m or above 150 beds

2.9.5 WATER SUPPLY

NBC Part IX Section 1: Specifies per capita water use: hotels may assume ~180 L/day per occupant, plus additional for banquet/restaurant use

- Plumbing systems: flush + potable water supply, hot water, backflow prevention, maintenance access
- Adequate underground + overhead storage based on fixture units and peak demand

- Dual plumbing or reclaimed water reuse encouraged
  AP Rules (Page 14–15): Rainwater harvesting mandatory; recharge pits/trenches for paved areas and rooftops

2.9.6 BANQUET AND RESTAURANT

Banquet halls should:

- Have **minimum ceiling height: 3.6 m**
- **Fire exit doors** at both ends
- Provide **acoustic insulation**
- Attached **pantry and service corridor**

Must plan **dedicated parking**

Ventilation, HVAC, and crowd control layout mandatory

Kitchen: **mechanical ventilation (exhaust hood, grease traps)**, non-combustible finishes, fire-rated walls, slip-resistant flooring

Wastewater: grease interceptors before STP; FSSAI compliance for kitchen hygiene

2.9.7 HVAC REQUIREMENTS

Source: NBC Guidelines (AP Rules indirect reference)

- Centralized air conditioning recommended for:
  - Guest rooms
  - Banquets
  - Restaurant
- **Outdoor Units (OUDs)** should be on terrace or ventilated shafts
- Provide:
  - **Fresh air supply**
  - **Smoke extraction** in corridors/kitchens
  - Duct insulation and acoustic control
- No equipment to discharge hot air into open corridors or adjacent properties

2.9.8 LIGHTING & ELECTRICAL

Source: NBC referenced

- Minimum 300 lux in working/restaurant spaces
- Use of **LED lighting mandatory** in common/public areas
- Solar panels encouraged for:

- Corridor lighting
- Water heating

- Emergency lights required at:
  - Exits
  - Fire staircases
  - Corridors

2.9.9 BACK-OF-HOUSE (BOH) & SERVICES

Dedicated circulation for staff/service areas

Facilities include staff lockers/showers, laundry room, housekeeping store, service lifts, waste management

Service corridor width: ≥1.5 m

Waste segregation rooms per SWM rules; direct access for collection and handling

Table 25 AP building byelaws

Parameter	**Regulation**
Zoning	CRZ-II (urban, developed area) – permits hotels on landward side of existing road with CRZ clearance
FAR (Floor Area Ratio)	Based on abutting road width: • 9–12 m road: 2.25 • 12–18 m: 2.50 • >18 m: 3.00
Height Restriction	No specific CRZ height limit in CRZ-II, but: • Must follow **VMRDA/AP Building Rules** • Fire clearance mandatory if **>18 m** • Airports/Airstrip nearby may impose further limits
Setbacks *(for plots ≥1000 sqm)*	For height **≤15 m**: Front – 4.5 m; Sides/Rear – 3 m For **15–18 m**: Front – 6 m; Sides/Rear – 4.5 m For **>18 m**: Front – 7.5 m; Sides/Rear – 6 mFor **>21 m**: Open space = **1/3rd of building height**
Ground Coverage	Max 50–60% depending on setbacks and height
Basement	Allowed only for:

	• Parking• Services/utilities (DG, STP, HVAC) • **No habitable rooms** allowed • Maximum 2 basements permitted
Parking Requirements	• 1 car/3 rooms • 1 car/100 sqm of banquet area • 1 two-wheeler/5 rooms • Service vehicle parking as per site plan
Fire Safety (mandatory if >18 m height)	• 6 m wide fire tender path • Fire lift • Wet riser, hose reel, hydrants • Minimum 2 staircases • Refuge area at every 24 m
Rainwater Harvesting	Mandatory for all plots >300 sqm
STP (Sewage Treatment Plant)	Required for hotels (all sizes)
Green/Open Space	Minimum 10% of site area as soft landscaping
Access Road Width	Minimum 12 m road width recommended for hotel use; more if building is high-rise

2.10 COASTAL REGION ZONE-NORMS II

II. CRZ-II,-

(i) buildings shall be permitted only on the landward side of the existing road, or on the landward side of existing authorized structures;

(ii) [**buildings permitted on the landward side of the existing and proposed roads or existing authorised structures shall be subject to the existing local town and country planning regulations as modified from time to time, except the Floor Space Index or Floor Area Ratio, which shall be as per 1991 level :**
Provided that no permission for construction of buildings shall be given on landward side of any new roads which are constructed on the seaward side of an existing road :Provided further that the construction in CRZ-II area of Goa, Kerala and Mumbai shall be governed by the provisions of Clause V of paragraph 8."][47]

(iii) reconstruction of authorized building to be permitted subject with the existing Floor Space Index or Floor Area Ratio Norms and without change in present use;

(iv) facilities for receipt and storage of petroleum products and liquefied natural gas as specified in Annexure-II appended to this notification and facilities for regasification of Liquefied Natural Gas subject to the conditions as mentioned in sub-paragraph (ii) of paragraph 3;

(v) desalination plants and associated facilities;

(vi) storage of non-hazardous cargo, such as edible oil, fertilizers and food grain in notified ports;

(vii) facilities for generating power by non-conventional power sources and associated facilities;

Table 27 CRZ norms II

Regulation	**CRZ-II Norm**
No Development Zone (NDZ)	No construction within **50 meters** of HTL in CRZ-II.
HTL Buffer Zone	Must obtain HTL demarcation from **authorized agency** (like NCSCM or MoEFCC certified consultants).
FSI/FAR	As per **local building by-laws** (GVMC/VMRDA norms). CRZ does **not restrict FAR** in CRZ-II.
Height Restriction	As per **local development control rules (DCR)**.
Basement	Allowed only for **parking and services**, not habitable use.
Sewage Treatment	Mandatory **STP (Sewage Treatment Plant)** within the premises. No direct discharge into sea.
Solid Waste Management	Must follow **SWM Rules 2016**, and provide an in-house waste segregation system.
Rainwater Harvesting	Compulsory for buildings >1000 sqm.

CHAPTER 3

SITE INVENTORY

3.1 Proximity of Site

3.1.1 Immediate Location and Adjacency

Address: VMRDA Park is situated on Beach Road, a major arterial road running parallel to the Bay of Bengal in central Visakhapatnam.

Primary Setting: Directly faces Ramakrishna Beach (RK Beach), with its main entrance on Beach Road. There are no significant barriers between the park and the beach—visitors can walk directly from the park to the seafront within minutes.

- Landmark Neighbors (within 250–500m):
- RK Beach (beach promenade, vendors, food stalls)
- Victory at Sea War Memoria
- Submarine Museum (INS Kursura)
- Matsya Darshini Aquarium
- Coastal eateries and boutique shops

3.1.2 Distances to Major City Nodes

2. Distances to Major City Nodes

Destination	Approx. Distance from VMRDA Park	Mode/Notes
RK Beach (main promenade)	200–250m	2–3 min walk, adjoining property
RTC Complex (Main City Bus Stand)	500m	5–7 min walk, direct access
Vishakapatnam Railway Station	~6km	15–20 min by car, auto, or city bus
Visakhapatnam International Airport	~11km	25–30 min by taxi or auto, direct city route

3.1.3 Transport and Access

Road Access: Excellent; located on a major city road with frequent public buses, autos, and easy car parking.

Pedestrian Access: Wide pavements and crossings connect the park to city bus stops, beachfront, and hotels.

Connectivity: VMRDA Park is a central node in Visakhapatnam's tourist corridor, with walkable or short-travel connections to several significant attractions, entertainment venues, cultural sites, and dining options.

3.1.4 Proximity to Events, Festivals, and Tourism Infrastructure

Events and Festivals: RK Beach road is the prime venue for beach festivals, concerts, New Year's and Republic Day celebrations, frequently spilling over into VMRDA Park due to its open lawns.

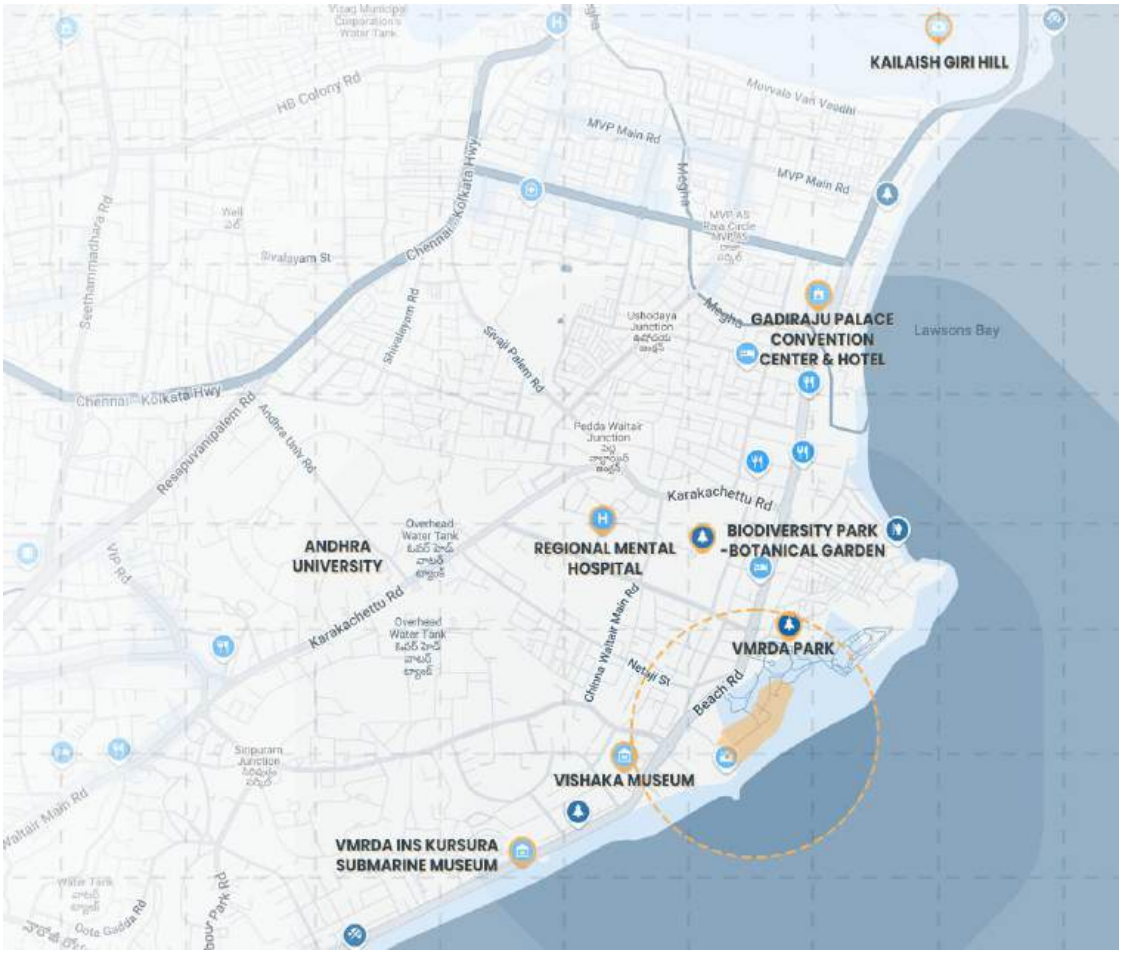
Hotels and Dining: Numerous hotels (ranging from luxury to budget) and seafood restaurants are within 1km, making the park a key part of the city's visitor infrastructure.

Family and Group Visits: Combined access to the beach, museums, and aquarium make it a hub for school outings, family picnics, and tourist groups.

3.1.5 Urban Context and Mapping

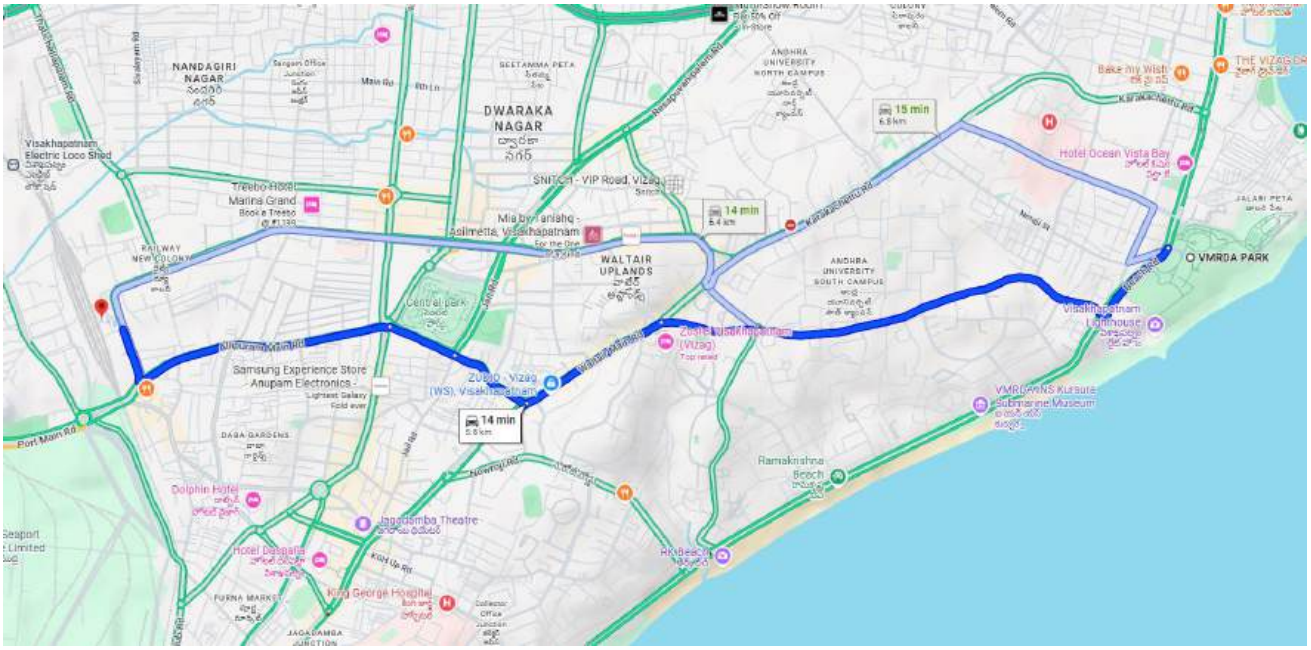
Urban Core: VMRDA Park forms the green "lung" of central Beach Road, providing vital open space amid urban density.

Landscape Integration: The park is visually continuous with RK Beach and nearby memorials, providing unbroken seafront green space along nearly 1km of the city's coastline.



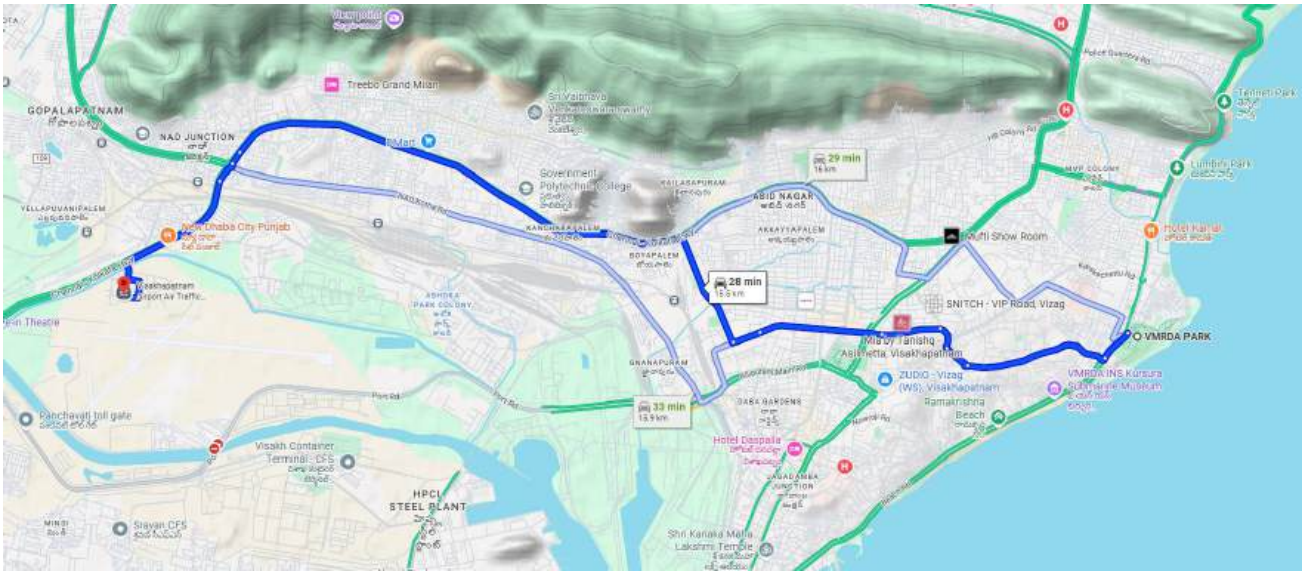
Visakhapatnam Railway Station

VMRDA Park (also known as VUDA Park) is about 6 km from Visakhapatnam Railway Station, making it a quick drive or a short public transport ride away along the Beach Road.



Visakhapatnam Airport

VMRDA Park is around 11 km from Visakhapatnam International Airport, typically taking about 30 minutes by road via Kancharapalem Main Road, NAD Kotha Road, or NH16, with easy taxi and bus options available.



Nearby Hospitals (Apollo Hospitals Ramnagar, Andhra Hospitals, OMNI RK Multi Specialty Hospital, Venkatarama Hospital, Akshaya Hospital, Bharathi Hospital)Several hospitals are within a 3–4 km radius

from VMRDA Park, such as Apollo Hospitals Ramnagar, Andhra Hospitals, OMNI RK Multi Specialty Hospital, Venkatarama Hospital, Akshaya Hospital, and Bharathi Hospital, ensuring quick accessibility in case of medical needs.

- 8–9km from VMRDA Park in the Rushikonda area, accessible in 15–20 minutes by car along the scenic coastal road.





3.1.6 Site Contour

VMRDA (NTR/VUDA) Park, located on the beachfront along RK Beach, covers approximately 55 acres and is known for its lush lawns, recreational facilities, and scenic views of the Bay of Bengal. Its contour and topographical characteristics are crucial to both its usability and natural drainage.

General Terrain

The park is primarily flat to gently undulating, lying adjacent to the coastline with a gradual slope downward toward the Bay of Bengal.

Average elevation at the park entrance (Beach Road side) is about 11m above sea level, while the beachfront drops to about 4m. This yields a typical elevation difference of just 7m across a horizontal distance of 60–120m, resulting in a very gentle slope of roughly 7% from road to shore.

Contour Characteristics

Contours are widely spaced, reflecting minimal variation in elevation within the park itself. There are no abrupt dips, hills, or steep gradients.

The highest points are along the entrance (Beach Road), with gradual, almost imperceptible descent toward the back of the park and the seafront.

Landscaping elements (lawns, gardens) and amenities (paved walkways, cycling tracks) are positioned on these gentle grades, with no zones of sharp contour shifts.

Functional Implications

Accessibility: The gentle and almost level topography allows for easy movement for all age groups, including the elderly and children; wheelchair and stroller access is facilitated.

Drainage: Natural slope toward the sea supports good rainfall runoff and reduces risk of waterlogging, but the gentle gradient ensures there is no risk of slope instability or erosion under typical conditions.

Land Use: The park's nearly level contours support large, contiguous lawns, a musical fountain plaza, play areas, and event spaces, all without requiring significant grading or terracing.

Contrast With Surrounding Areas

Unlike Visakhapatnam's more hilly sites (e.g., Kailasagiri), VMRDA Park is developed on low-gradient, coastal land. Nearby city regions may show greater elevation variability, but the park itself is designed to remain accessible and hazard-free.

Mapping and Survey Data

The park sits within a large urban block with contour lines showing only modest elevation drops from the northwestern entrance (Beach Road) toward the sea. There is no significant contour compression (indicator of steepness), and most of the park remains at elevations between 4–11m.

City master plans and regional development surveys confirm this area as "coastal plain with gentle slope," categorized for open, public recreational use to take advantage of its benign relief and scenic value.

3.2 Site Section/Slope and location

3.2.1 Park Location and Terrain

VMRD Park is a coastal urban park covering about 55 acres, of which 37 acres consist of lawns and landscaping, adjacent to RK Beach and the Bay of Bengal.

Unlike the steeper Kailasagiri Hill (360ft high), VMRD Park is on largely flat to gently undulating terrain due to its immediate proximity to the sea, providing easy access and walkable expanses for visitors.

3.2.2Slope Characteristics

The area is developed on beachfront land, which naturally has a low gradient. This ensures high usability, accessibility for children and the elderly, and minimal risk of erosion compared to hillside parks.

While references to “steep slope” exist in discussions of site selection for other VMRDA development projects (such as stadiums and hillside parks), such steep and varied elevation changes are not present in VMRD Park itself. The park benefits from a “gradually sloping” profile descending gently toward the sea.

The park features no significant hills, abrupt cliffs, or embankments. The minor slopes occurring within the park are carefully managed with landscaping, drainage systems, and paved walkways to facilitate comfort and safety for large crowds.

3.2.3 Flooding and Erosion

The coastal location does expose the park to salt spray, sand drift, cyclone-induced winds, and potential short-term waterlogging during monsoon storms or cyclones, but the gentle terrain lessens the risk of significant structural damage from slope failure.

Proper landscaping, with extensive lawns, flower beds, and shade trees, helps stabilize the surface soil, reduce runoff, and enhance drainage.

3.2.4 Park Design and Accessibility

The park’s nearly level topography allows for open lawns, children’s play areas, jogging and cycling tracks, outdoor gymnasiums, amphitheater seating, and musical fountain installations to be placed without significant modification of the natural grade.

3.2.4 Elevation at the road/park entrance: The average elevation of VMRDA Park is about 11m above sea level. This corresponds closely with the elevation of Beach Road, which runs directly in front of the park and parallel to the coast.

3.2.5 Elevation at the shoreline: The elevation at the shoreline near RK Beach, which is immediately across from VMRDA Park, is approximately 4m above sea level.

3.2.6 Horizontal distance: The distance from Beach Road (adjacent to the park entrance) to the water’s edge ranges from 60m to 120m depending on tidal conditions, beach width, and landscaping features.

3.2.7 Slope gradient: Across this distance (roughly 100m), the elevation drops by about 7m, yielding an average slope of 7%. This is considered a very gentle, walkable slope, and much of the transition from the road to the sea is via lawns or paved paths.


Google Earth


Google Earth



3.2.5 View Point

Kailasagiri Viewpoint

Kailasagiri is Visakhapatnam's most iconic hilltop viewpoint, offering panoramic views of the Bay of Bengal, lush greenery, and the city below. Located approximately 7–8 km from VMRDA Park, it's a quick drive and ideal for a half-day outing; the site features gardens, a ropeway, and the Titanic Sea View Point, but can become crowded during weekends and holidays.

Titanic Sea View Point (Kailasagiri)

Nestled within Kailasagiri, Titanic Sea View Point delivers a remarkable 360-degree panorama of Visakhapatnam and the coastline. It's walking distance (about 15–20 min) from the main entrance of Kailasagiri and roughly the same 7–8 km from VMRDA Park, making it easy to combine both on a single trip; amenities are limited but the views at sunset are memorable.

Dolphin's Nose Viewpoint

Dolphin's Nose, famed for its unique hill formation and lighthouse, provides breathtaking vistas over the sea, port, and city. It lies about 12–13 km from VMRDA Park via a straightforward drive, and its less crowded nature plus the iconic lighthouse make it appealing for those wanting sweeping coastal views and a peaceful experience.

Thotlakonda Viewpoint

Set atop a hill about 15–16 km from VMRDA Park, Thotlakonda offers stunning views of the Bay of Bengal along with the added intrigue of ancient Buddhist ruins. The site is further away than the previous viewpoints but combines natural beauty with cultural exploration, making it suitable for visitors interested in history and coastal landscapes.












VICTORY
AT SEA
1971

3.5 Land Use & Vegetation Trends (2000–2025)

3.5.1 Overview of Land Use Dynamics in Visakhapatnam

Over the past two and a half decades, Visakhapatnam has undergone rapid urbanization, resulting in substantial transformations in land use and vegetation patterns. Between 2000 and 2025, the city expanded significantly in terms of infrastructure, population, industrial activity, and transportation networks. This growth has been accompanied by a marked shift in land use from predominantly forested and agricultural land to urban and industrial development.

The total geographical area of Visakhapatnam district is approximately **11,161 km²**, of which **urban Visakhapatnam city** occupies around **682 km²**. According to satellite imagery analyses and land use data provided by the Indian Space Research Organisation (ISRO) and the Andhra Pradesh State Remote Sensing Applications Centre (APSRAC), the following trends are evident:

Land Use Category	2000 (%)	2025 (%) (Est.)	Change (%)
Forest Cover	35.1 %	26.7 %	–8.4 %
Agricultural Land	37.4 %	26.3 %	–11.1 %
Built-Up Area	8.2 %	18.7 %	+10.5 %
Industrial Zones	1.3 %	10.3 %	+9.0 %
Barren/Unused Land	7.8 %	5.2 %	–2.6 %
Water Bodies	2.4 %	2.8 %	+0.4 %

(Source: APSRAC, TOI 2024 Reports, GFW Land Use Analytics)

This shift reflects a broader trend across urban India, but in Visakhapatnam, the pace has been especially rapid due to the expansion of the IT and pharmaceutical sectors, the development of the Visakhapatnam–Chennai Industrial Corridor, and the growth of the city under the **Smart City Mission**.

3.5.2 Decline in Forest and Agricultural Land

Forest Cover

Visakhapatnam's forested areas, which are part of the Eastern Ghats range, have seen a **decline of nearly 24 %** in forest density between 2000 and 2025. Several forest zones that once hosted tropical dry deciduous and semi-evergreen vegetation have been fragmented or cleared for development projects such as road widening, industrial expansion (e.g., around Parawada and Anakapalli), and urban housing.

Significant portions of the **Kambalakonda forest belt** and adjoining hills near Simhachalam and Kommadi have suffered encroachments and degradation, although some parts remain under protection.

Agricultural Land

Agricultural zones around **Madhurawada**, **Pendurthi**, **Anandapuram**, and **Bheemili** have been urbanized to accommodate residential colonies, apartment complexes, SEZs, and logistic parks. The **decline of over 11 %** in agricultural land reflects both population pressure and a decline in interest in farming among the urbanizing population.

3.5.3 Urban and Industrial Expansion

The built-up area has more than doubled since 2000. Key factors contributing to this rise include:

- The **expansion of IT parks**, especially in Rushikonda and Madhurawada
- Development of **transport corridors** such as the Beach Road–Bheemili corridor and the Anandapuram–Gajuwaka NH-16 bypass
- Growth of **residential townships** under public-private partnerships in Yendada, Kommadi, and PM Palem
- Establishment of large industrial complexes in **Parawada Pharma City**, **SEZs near Atchutapuram**, and **food processing zones**

These developments have not only replaced green spaces but have also led to **fragmentation of ecological corridors** that connect forest patches, especially affecting the movement of native fauna such as peafowl, civets, and monitor lizards.

3.5.4 Impact of Cyclone Hudhud (2014)

A major event that contributed to a sudden loss of vegetation was **Cyclone Hudhud**, which made landfall near Visakhapatnam on October 12, 2014. With wind speeds exceeding **200 km/h**, the cyclone caused widespread destruction of:

- **Over 2 lakh trees** across city parks and roadways
- **75 % canopy loss** in Biodiversity Park and Kailasagiri
- Uprooting of heritage trees along Beach Road and MVP Colony
- Destruction of avenue plantations and roadside green buffers

The aftermath led to increased awareness about the need for disaster-resilient tree species and **multi-tiered planting schemes** to reduce future damage.

3.5.5 Vegetation Replacement and Landscaping Trends

As natural forests declined, there was a parallel increase in ornamental planting and landscape beautification efforts in urban Visakhapatnam. These changes were marked by:

- Increased planting of **exotic and fast-growing species** like *Acacia auriculiformis*, *Delonix regia*, and *Tabebuia rosea*
- Decline in **native shade trees** such as *Tamarindus indica*, *Ficus benghalensis*, and *Terminalia chebula*
- Introduction of **seasonal flowering trees** along roads (e.g., Pink Trumpet Tree) for aesthetic purposes
- Green medians and urban lawn installations, especially in Smart City zones and VMRDA-controlled areas

Though these efforts improved the **visual landscaping**, ecologists warn that **non-native species do not support local biodiversity** and often disrupt ecological balances, including bird nesting, pollination, and soil nutrient cycles.

3.5.6 Summary of Trends (2000–2025)

Category	Key Change	Impact
Forest Area ↓	–8.4 %	Habitat loss, biodiversity decline
Agriculture ↓	–11.1 %	Reduction in rural greenery
Built-up ↑	+10.5 %	Fragmentation of green cover
Industries ↑	+9.0 %	Air & water pollution, green zone shrinkage
Landscaping ↑	+200 % (est.)	Visual greenery increased, ecological quality mixed
Tree Canopy Loss (2014)	>75 % in urban parks	Slow recovery post-Hudhud

3.6 Urban Landscaping in Visakhapatnam

Urban landscaping in Visakhapatnam is a coordinated effort aimed at improving environmental quality, visual appeal, and the well-being of residents. The city's diverse topography—ranging from coastal plains to hilly terrains—has made landscape planning both a challenge and an opportunity. Under the leadership of the **Greater Visakhapatnam Municipal Corporation (GVMC)**, the city has seen a progressive transformation of its green infrastructure.

3.6.1 Role of GVMC in Urban Landscaping

The **Greater Visakhapatnam Municipal Corporation (GVMC)** plays a pivotal role in planning, executing, and maintaining urban landscaping projects. Key roles include:

- **Development & Maintenance** of public parks, green belts, and urban forests
- **Promoting biodiversity** through native tree plantations and floral diversity
- **Beautification of roads** with avenue trees and medians
- **Encouraging citizen involvement** via terrace gardening and "green volunteer" schemes
- **Smart City Integration**: Landscape planning aligned with Visakhapatnam's Smart City vision, ensuring every resident has access to green space within 300 meters

GVMC works in collaboration with the **Visakhapatnam Metropolitan Region Development Authority (VMRDA)** and **horticulture and forest departments**, ensuring expert guidance and scientific implementation.

3.6.2 Public Parks and Urban Green Spaces

Visakhapatnam boasts a range of well-maintained parks and green spaces that serve as lungs of the city. Key examples include:

a. VUDA Park (Taraka Rama Park)



- **Area**: 55 acres
- **Location**: Beach Road
- **Features**:
    - Musical fountain, skating rink, yoga shed
    - Lush lawns and diverse floral arrangements
    - Children's play areas and walking tracks
- **Landscaping Style**:
    - Integration of **shade-giving trees** (like *Peltophorum*, *Rain Tree*)
    - Extensive use of **ornamental shrubs** including *Crotons*, *Dracaena*, *Hibiscus*, and *Areca palms*

b. Kailasagiri Hilltop Park



- **Area**: 380 acres
- **Height**: 173 meters above sea level
- **Design**:
    - Terraced gardens overlooking the Bay of Bengal
    - Pathways flanked with **Bougainvillea**, *Plumbago*, and low hedges
    - Sculptural landscaping with Shiva-Parvati statues
    - Use of native trees (*Neem*, *Pongamia*, *Ficus religiosa*) to prevent erosion
- **Significance**:
  Acts as a **microclimate buffer** and major tourist attraction with an emphasis on sustainable hill landscaping.

c. Tenneti Park



- **Location**: Jodugullapalem (Beach Road)
- **Specialty**: First beach park in the city
- **Landscape Features**:
    - Seaside rock garden

- Coconut palms, *Heliconia*, and *Hibiscus rosa-sinensis* plantations
- Night lighting and pathways for promenade
- Recent additions include fitness stations and seating pavilions

d. Central Park (City Central Park)



- **Area**: ~22 acres
- **Location**: Dwaraka Nagar
- **Highlights**:
  - Musical fountain (largest in Andhra Pradesh)
  - Japanese garden, formal lawns, butterfly garden
  - Landscaping using topiary and hedges
  - Species planted include *Ixora*, *Bougainvillea*, *Thuja*, and *Coleus*
- **Urban Function**:
  Acts as a **central green node** with access from multiple neighborhoods, enhancing walkability and urban cooling.

3.6.3 Use of Ornamental Plants in Landscaping

GVMC and VMRDA have heavily relied on **ornamental and flowering plants** to enhance visual appeal and ecological value in parks and road medians.

Popularly Used Species:

Common Name	Botanical Name	Usage Area
Hibiscus	*Hibiscus rosa-sinensis*	Hedges, flowering beds
Bougainvillea	*Bougainvillea glabra*	Arches, trellises, medians
Crotons	*Codiaeum variegatum*	Low borders, mass planting
Areca Palm	*Dypsis lutescens*	Avenue landscaping
Dracaena	*Dracaena marginata*	Indoor parks, entries
Ixora	*Ixora coccinea*	Butterfly zones, garden beds

These plants are chosen for:

- **Low water requirements**
- **Vibrant year-round foliage or flowers**
- **Compatibility with Visakhapatnam's tropical wet-dry climate**

3.6.4 Avenue Plantations and Road Medians

A key aspect of urban greening in Visakhapatnam is the development of **tree-lined avenues** and **landscaped medians** to reduce dust, improve aesthetics, and enhance pedestrian comfort.

Key Roads with Avenue Plantations:

- **Beach Road**: *Copper Pod*, *Delonix regia* (Gulmohar), *Casuarina*
- **Maddilapalem to NAD Junction**: *Neem*, *Rain Trees*, *Cassia fistula*
- **Gajuwaka Highway**: Palm species, *Pongamia*, and *Silver Oak*

Median Landscaping Techniques:

- Use of **low-height flowering plants** such as *Lantana*, *Acalypha*, and *Jatropha*
- Incorporation of **drip irrigation systems** powered by solar energy
- Periodic replanting during monsoons for consistent greenery
- **Color-themed stretches**: Pink and yellow bougainvillea used to visually differentiate corridors

3.7 Site Vegetation



12.1 Lawn 1 Plantation & Landscaping

Tall palm trees are a distinct group of palm species known for their impressive height, often exceeding 15 meters (50 feet). These trees feature single, unbranched trunks that are usually straight and ringed with old leaf scars. Their crown is composed of large, showy leaves that may be either feather-like (pinnate) or fan-shaped (palmate), depending on the species. Due to their striking appearance, tall palms are commonly used in landscaping for tropical or coastal aesthetics, and many also hold cultural, economic, or ecological significance.



12.2 Lawn 2 Plantation & Landscaping



The Palmyra Palm (Borassus flabellifer) is a tall, robust palm species native to South and Southeast Asia, particularly widespread across India, Sri Lanka, and Thailand. Reaching heights of up to 30 meters, this palm is characterized by its thick, unbranched trunk marked with leaf scar rings and a crown of large, fan-shaped (palmate) leaves. Known for its exceptional drought tolerance, the Palmyra palm thrives in dry, sandy soils and plays a crucial ecological role in preventing soil erosion and providing shade in arid landscapes. It is culturally and economically significant, with nearly every part of the tree being utilized. The sweet sap extracted from its flower stalks is consumed fresh as *neera* or fermented into toddy, while its fruit, commonly known as ice apple or *nungu*, is a popular hydrating summer delicacy. The leaves are traditionally used for thatching, weaving mats, and even as writing material in ancient manuscripts. Its strong trunk wood is employed in rural construction. Long-lived and resilient, the Palmyra palm is not only a symbol of sustainability in rural livelihoods but also a vital species for landscape planning in hot, dry regions.



The Grey Mangrove (Avicennia marina) is a salt-tolerant mangrove species widely found along tropical and subtropical coastlines, especially in India, Southeast Asia, Australia, and East Africa. It is a medium-sized evergreen tree or shrub, typically growing up to 10 meters in height, though it can sometimes reach up to 15 meters under favorable conditions. The tree gets its name from the silvery-grey color of its leaves, which are thick, leathery, and salt-excreting. One of its most distinctive features is its pencil-like pneumatophores—aerial roots that protrude from the soil around the trunk, helping the tree breathe in oxygen-poor, waterlogged soils. Grey mangroves are incredibly resilient, thriving in saline tidal zones, estuaries, and mudflats, where they play a critical ecological role by stabilizing coastlines, reducing erosion, filtering pollutants, and providing habitat for numerous marine and bird species. They are also known for their high salt tolerance and ability to survive both submerged and exposed conditions due to daily tidal fluctuations. Traditionally, parts of the tree have been used in folk medicine, firewood, and fish trap construction. As a keystone species in mangrove ecosystems, the Grey Mangrove is essential for maintaining biodiversity and supporting the health of coastal environments.

12.3 Lawn 3 Plantation & Landscaping



Sonamukhi (scientific name: *Senna alexandrina*, formerly *Cassia angustifolia*) is a medicinal shrub native to arid regions of India, especially Rajasthan and Gujarat, as well as parts of North Africa. It belongs to the Fabaceae (legume) family. The plant is small and bushy, growing up to 1–1.5 meters tall, with compound leaves and small yellow flowers. Sonamukhi is widely known for its laxative properties, and its dried leaves and pods are commonly used in herbal medicines to treat constipation, skin disorders, indigestion, and sometimes detoxification therapies in Ayurveda and Unani medicine. The active compounds in the plant are sennosides, which stimulate bowel movement by acting on the colon. It is also valued for being a drought-resistant plant, thriving in sandy, semi-arid soil with very little water, making it suitable for cultivation in dry and desert regions. In traditional Indian households, especially in rural areas, Sonamukhi tea is used as a natural remedy for digestion and purification. However, excessive or prolonged use is discouraged, as it may cause dependency or electrolyte imbalance.



Liriope (pronounced *lir-ee-oh-pee*) is a hardy, grass-like **groundcover plant** from the **Asparagaceae** family, native to East Asia (China, Japan, and Korea). Often referred to as **lilyturf** or **monkey grass**, Liriope is widely used in landscaping for **border edging**, **erosion control**, and **understory planting** due to its dense, clump-forming foliage and tolerance to a range of soil and light conditions. It features **narrow, arching green or variegated leaves** and produces attractive **purple, lavender, or white flower spikes** in late summer, followed by small black berries. There are two common species: **Liriope muscari**, which grows in neat clumps, and **Liriope spicata**, which spreads more aggressively through underground rhizomes. Liriope is highly valued for being **low-maintenance, drought-tolerant, pest-resistant**, and capable of thriving in both sun and shade. It also improves **soil structure** and helps reduce **surface runoff** in sloped areas. While primarily ornamental, it contributes to the ecological landscape by providing shelter to small insects and ground-dwelling fauna.

3.8 Climatic Data Analysis

3.8.1 Geographic Context

- **Location:** Eastern coastal India, in Andhra Pradesh.
- **Coordinates:** 17.6868° N, 83.2185° E
- **Elevation:** Approx. 45 meters above sea level
- **Proximity to Bay of Bengal:** Strong maritime influence on climate.

3.14.2 Climate Classification – Visakhapatnam

Köppen–Geiger Classification: Aw

- **"A" – Tropical climate:** All months have an average temperature above 18°C.
- **"w" – Dry winter season:** A distinct dry season during the low-sun months (winter), where **the driest month receives less than 60 mm of rainfall and less than 100−(meanannualrainfall÷25)100 − (mean annual rainfall ÷ 25)100−(meanannualrainfall÷25).**

Thus, "Aw" = Tropical Wet and Dry Climate (also called Tropical Savanna Climate).

General Climatic Characteristics

Feature	**Description**
Annual Temperature Range	Narrow, with monthly averages between 24°C and 31°C.
Seasonality	High; distinct wet and dry seasons.
Monsoon Influence	Strong; heavy rainfall during June–October due to the South-West monsoon.
Humidity	High year-round, peaking during monsoon (80–90%).
Sunlight	Abundant sunshine except during monsoon.
Wind	Coastal breezes and cyclonic activity in post-monsoon period (Oct–Dec).

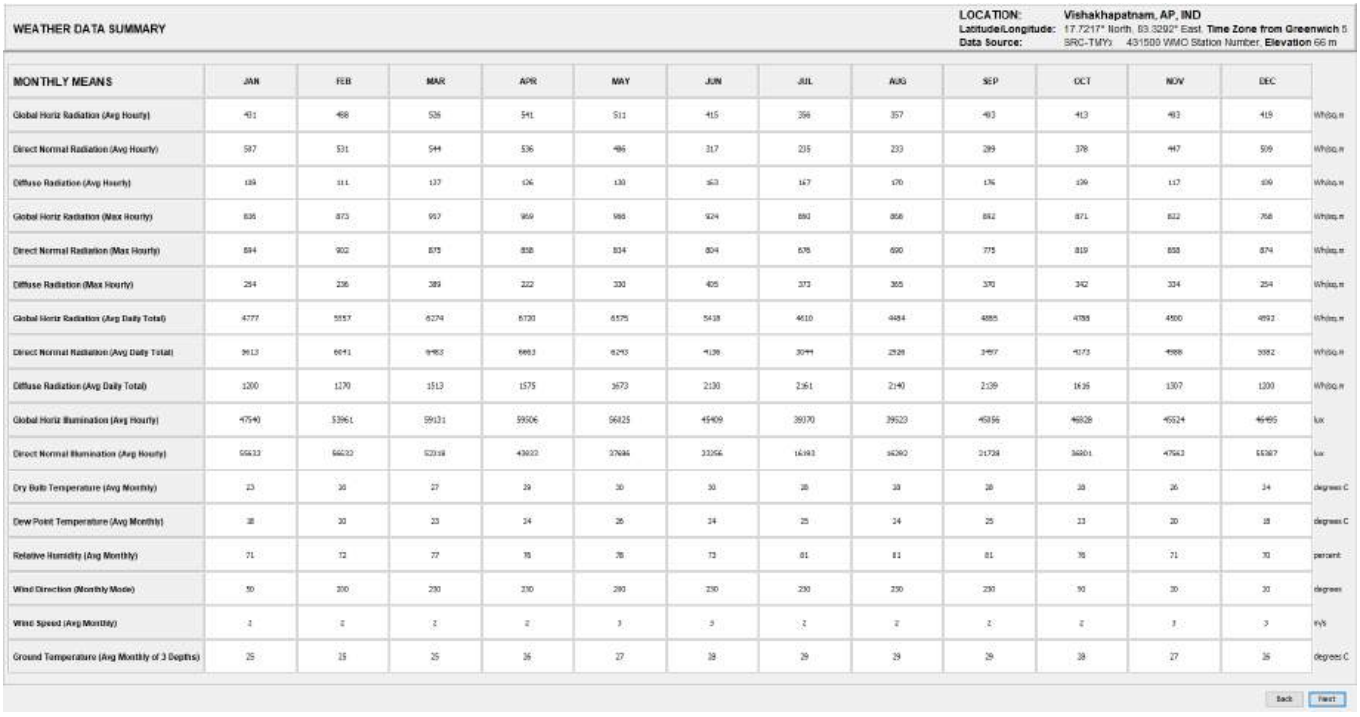
Seasonal Breakdown

Season	**Duration**	Climatic Traits
Summer	**March – June**	Hot and humid; temperature can reach 38–40°C; high discomfort index.
Monsoon	**June – October**	Heavy rainfall (avg. 1100–1200 mm/year); lush greenery; frequent storm activity.

Season	Duration	Climatic Traits
Post-Monsoon	**Oct – Nov**	Intermittent rain with cyclone threats; receding humidity.
Winter	**Dec – Feb**	Mild and dry; temperatures range from 18–28°C; relatively pleasant weather.

Implications of "Aw" Climate on Architecture & Landscape

Factor	Implication
High Humidity	Encourage passive ventilation, large shaded openings, and breathable facades.
Heavy Rainfall	Require efficient stormwater drainage, sloped roofs, and water-resistant materials.
Dry Winters	Promote planting of drought-tolerant species for winter landscape continuity.
Temperature Consistency	Use of thermal mass and solar shading to maintain indoor comfort.
Cyclonic Risk	Strengthened roof anchoring, elevated plinths, and buffer green belts along coasts.



WEATHER DATA SUMMARY

LOCATION: **Vishakhapatnam, AP, IND**
Latitude/Longitude: 17.7217° North, 83.3292° East, **Time Zone from Greenwich** 5
Data Source: SRC-TMY3 431500 WMO Station Number, **Elevation** 66 m

MONTHLY MEANS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Global Horiz Radiation (Avg Hourly)	431	488	526	541	511	415	356	357	403	413	403	419	Wh/sq.m
Direct Normal Radiation (Avg Hourly)	597	531	544	536	486	317	235	233	289	378	447	509	Wh/sq.m
Diffuse Radiation (Avg Hourly)	139	111	127	126	130	163	167	170	176	129	117	109	Wh/sq.m
Global Horiz Radiation (Max Hourly)	836	873	917	969	988	924	880	858	882	871	822	768	Wh/sq.m
Direct Normal Radiation (Max Hourly)	894	902	875	858	834	804	676	690	775	819	858	874	Wh/sq.m
Diffuse Radiation (Max Hourly)	254	236	389	222	330	405	373	365	370	342	334	254	Wh/sq.m
Global Horiz Radiation (Avg Daily Total)	4777	5557	6274	6720	6575	5418	4610	4484	4885	4788	4500	4892	Wh/sq.m
Direct Normal Radiation (Avg Daily Total)	5613	6641	6483	6663	6243	4136	3044	2928	3497	4373	4988	5582	Wh/sq.m
Diffuse Radiation (Avg Daily Total)	1200	1270	1513	1575	1673	2130	2161	2140	2139	1616	1307	1200	Wh/sq.m
Global Horiz Illumination (Avg Hourly)	47540	53961	59131	59506	56825	45409	38070	39523	45856	46828	45524	46495	lux
Direct Normal Illumination (Avg Hourly)	55633	56632	52318	43933	37686	33256	16193	16292	31738	36801	47563	55387	lux
Dry Bulb Temperature (Avg Monthly)	23	30	27	29	30	30	28	28	28	28	26	24	degrees C
Dew Point Temperature (Avg Monthly)	18	20	23	24	26	24	25	24	25	23	20	18	degrees C
Relative Humidity (Avg Monthly)	71	72	77	78	78	73	81	81	81	78	71	70	percent
Wind Direction (Monthly Mode)	50	200	230	230	200	230	230	230	230	50	20	20	degrees
Wind Speed (Avg Monthly)	2	2	2	2	3	3	2	2	2	2	3	3	m/s
Ground Temperature (Avg Monthly of 3 Depths)	25	25	25	26	27	28	29	29	29	28	27	26	degrees C

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Monthly Climate Normals (1991–2020, IMD-based)

Based on official climatological tables, here's monthly data for Visakhapatnam:

Month	Avg Min Temp (°C)	Avg Max Temp (°C)	Avg Temp (°C)	Rainfall (mm)	Rainy Days
January	~20.5	~28.1	—	~10.8	—
February	~22.1	~29.6	—	~8.9	—
March	~24.6	~31.2	—	~8.9	—
April	~26.5	~32.1	—	~28.4	—
May	~27.8	~33.3	—	~73.6	—
June	~27.4	~32.8	—	~134.5	—
July	~26.4	~31.4	—	~133	—
August	~26.2	~31.5	—	~165.3	—
September	~26.0	~31.6	—	~194.9	—
October	~25.2	~31.5	—	~239.9	—
November	~23.2	~30.3	—	~101.7	—
December	~21.0	~28.7	—	~13.2	—
Annual	—	—	~24.7	~1113.1	—

Pulling details from international datasets

- **Average monthly temperature** ranges from ~24–25 °C in January to ~31 °C in May/June; annual mean ≈ 28 °C.
- **Monthly minimums**: ~19 °C in Jan, rising to ~28 °C in June–September.
- **Monthly rainfalls**:
    - Very low from Dec–Mar (<~15 mm),
    - Mild in Apr (~26 mm),
    - Rising sharply May (~70 mm),
    - Heavy from Jun through Oct (June ≈117–135 mm; Oct peaks at ~179–260 mm),
    - Post-monsoon in Nov (~115 mm), dry again in Dec (~9 mm).

- **Rainy days per month**, 1991–2020 normals: roughly 0.5 in dry season, rising to ~9–10 days in August/September, then ~5 in November.
- **Average relative humidity** monthly: lowest ~67% in December; highest ~78% in September; annual mean ~72%.

3. Temperature Data – Visakhapatnam

Visakhapatnam experiences a **moderate tropical temperature profile** throughout the year, with **minor seasonal variation** but **high humidity** levels due to its coastal location.

Seasonal Temperature Overview

Season	Avg Min Temp	Avg Max Temp	Description
Summer (Mar–Jun)	26°C	39°C	Hot temperatures; discomfort intensified by coastal humidity and minimal wind flow inland.
Monsoon (Jul–Sep)	25°C	34°C	Cooler than summer due to cloud cover and rainfall; humidity peaks during this time.
Winter (Dec–Feb)	18°C	29°C	Pleasant and mild; lowest humidity levels; ideal for outdoor activity.

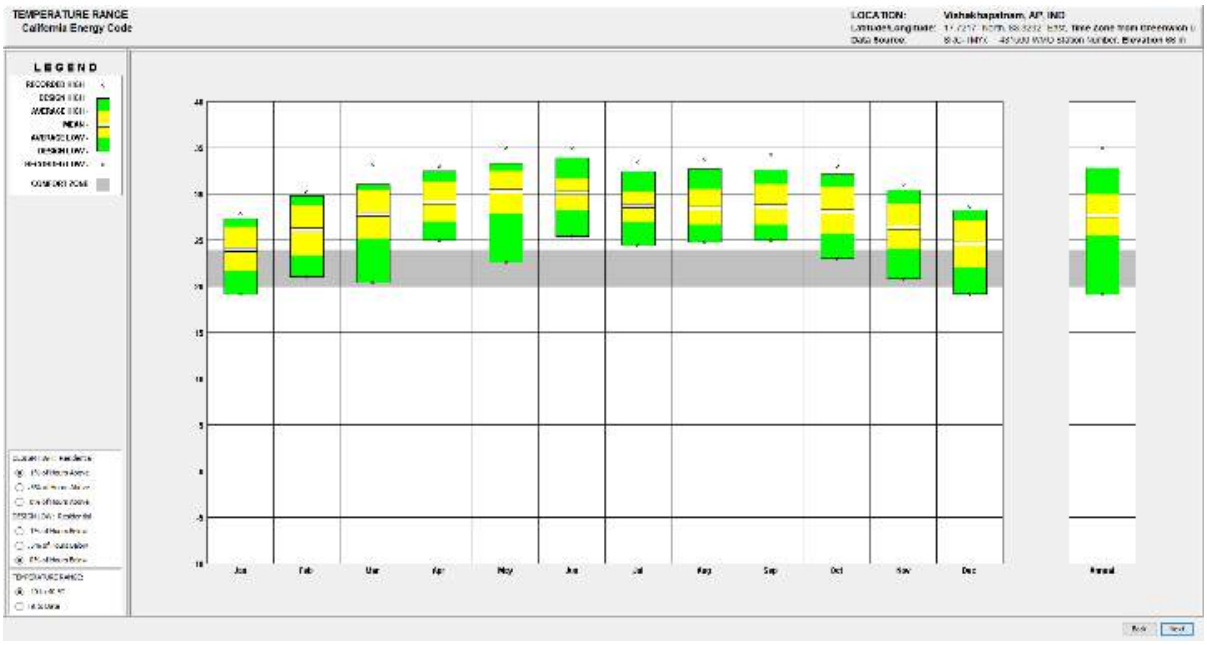
- **Annual Average Temperature:** ~27.5°C
- **Temperature Extremes:** Historically ranges between **17°C (lowest)** in January to **41°C (highest)** in May.

Monthly Temperature Averages (Specific Data)

(Based on 1991–2020 IMD & Weather Atlas records)

Month	Avg Min Temp (°C)	Avg Max Temp (°C)
January	19.7	28.0
February	21.1	29.3
March	24.5	31.6
April	26.8	33.1
May	28.1	34.5
June	27.7	33.2
July	26.4	31.2
August	26.3	31.3

Month	Avg Min Temp (°C)	Avg Max Temp (°C)
September	26.2	31.5
October	25.0	31.2
November	23.2	30.1
December	20.2	28.4



Architectural & Landscaping Implications of Temperature

Factor	Design Consideration
Summer heat	Use of shaded verandas, high ceilings, thermal insulation, and white/reflective surfaces.
Stable temperature	Enables consistent use of **passive cooling** and **natural ventilation** techniques.
Moderate winters	Allows year-round usability of outdoor spaces (terraces, courtyards, balconies).
High night temperatures	Promotes use of light, breathable materials (jalis, lattices, and ventilated facades).

4. Rainfall Patterns – Visakhapatnam

Visakhapatnam receives **moderate to heavy rainfall**, primarily due to the **Southwest monsoon**, with supplementary showers from the **Northeast monsoon**. Its coastal location also exposes it to **occasional cyclonic storms** during the post-monsoon period.

Seasonal Rainfall Distribution

Season	Monthly Avg Rainfall	Contribution to Annual Total	Remarks
Monsoon (Jun–Sep)	120–150 mm	70–75%	Peak rainfall months; essential for agriculture and groundwater recharge.
Post-Monsoon (Oct–Nov)	80–100 mm	15–20%	Often associated with cyclones and thunderstorms.
Pre-Monsoon & Winter (Dec–May)	10–30 mm	<10%	Mostly dry; occasional thunderstorms in April–May.

- **Annual Rainfall:** ~1100–1200 mm
- **Wettest Month:** October (up to 230–250 mm)
- **Driest Month:** January (~8–12 mm)

Rainfall Type & Sources

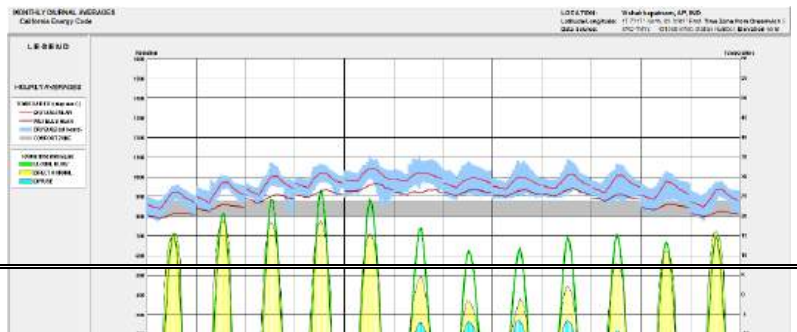
Monsoon Type	Period	Effect
Southwest Monsoon	June – September	Primary contributor; causes steady rain, cloud cover, and drop in temperature.
Northeast Monsoon	October – November	Secondary contributor; associated with short but intense showers and cyclones.

- **Cyclonic Influence:** Frequent in October and November (Bay of Bengal); can cause extreme rainfall in 24–48 hours.

Monthly Rainfall Breakdown (Averages)

(Based on 1991–2020 IMD records)

Month	Avg Rainfall (mm)
January	8–10 mm
February	6–8 mm



March	10–12 mm
April	20–30 mm
May	40–70 mm
June	120–140 mm
July	140–160 mm
August	150–180 mm
September	180–200 mm
October	220–250 mm
November	90–120 mm
December	15–25 mm

Landscape & Design Implications of Rainfall

Rainfall Feature	**Design/Planning Consideration**
Heavy monsoon rainfall	Provide sloped roofing, large gutters, and rainwater harvesting systems.
Short dry season	Use drought-tolerant native plants and soil moisture retention techniques.
Cyclone-prone months	Reinforce roofing structures; avoid large overhangs without supports.
Post-monsoon waterlogging	Ensure proper drainage design, especially in low-lying garden areas.
Consistent rainfall June–Nov	Good opportunity for cultivating lush, seasonal vegetation.

5. Humidity – Visakhapatnam

Visakhapatnam experiences **moderate to high humidity levels year-round**, primarily due to its **coastal location along the Bay of Bengal**. The combination of warm temperatures and high relative humidity significantly influences **thermal comfort**, **architectural design**, and **landscape planning**.

Seasonal Relative Humidity

Time of Year	**Relative Humidity (%)**	**Notes**
Monsoon & Post-Monsoon	**80–90%**	Highest due to persistent cloud cover and rainfall (July–November).

Time of Year	Relative Humidity (%)	Notes
Summer	**60–70%**	Though it's dry inland, coastal humidity persists; causes muggy discomfort.
Winter	**50–60%**	Most comfortable period; humidity is lowest, making it ideal for outdoor activity.

- **Annual Average Relative Humidity:** ~70–75%
- **Peak Humidity:** August to October (~85–90%)
- **Lowest Humidity:** January (~50–55%)

Hourly Humidity Patterns

- **Morning (6–10 AM):** Highest (~85–95%) due to dew formation and cooler temperatures.
- **Afternoon (2–5 PM):** Drops to ~60–70% in summer; ~75–85% in monsoon.
- **Evening (7–10 PM):** Rises again as temperatures drop and moisture lingers.

Impact of High Humidity on Architecture & Comfort

Effect	Architectural/Landscape Response
Elevated Discomfort Index	Design with **cross ventilation**, **passive cooling**, and open floor plans.
Mold and moisture retention	Use **moisture-resistant materials** (lime plaster, breathable paints).
Indoor air stagnation	Include **ventilated facades**, **courtyards**, and **stack ventilation**.
Thermal discomfort in summers	Combine **shading devices**, **light colors**, and **roof gardens**.

6. Wind Patterns – Visakhapatnam

Visakhapatnam, as a **coastal city**, experiences consistent breezes due to the **land-sea wind effect**, along with seasonal winds driven by **monsoonal systems** and **cyclonic circulation** in the Bay of Bengal. These wind patterns play a critical role in **passive ventilation**, **site orientation**, **urban planning**, and **landscape buffering**.

Seasonal Wind Data

Season	Dominant Wind Direction	Average Wind Speed (km/h)	Notes
Summer (Mar–Jun)	South-West	15–20 km/h	Onset of pre-monsoon winds; daytime breezes from sea to land.
Monsoon (Jul–Sep)	South-East	25–35 km/h	Strong, gusty winds; continuous flow brings moisture from Bay of Bengal.

Season	Dominant Wind Direction	Average Wind Speed (km/h)	Notes
Winter (Dec–Feb)	North-East	10–15 km/h	Dry, cool winds; associated with Northeast monsoon and clearer skies.

- **Peak Wind Months:** June–September
- **Cyclonic Wind Gusts (Oct–Nov):** Can reach **60–100 km/h** during storms.

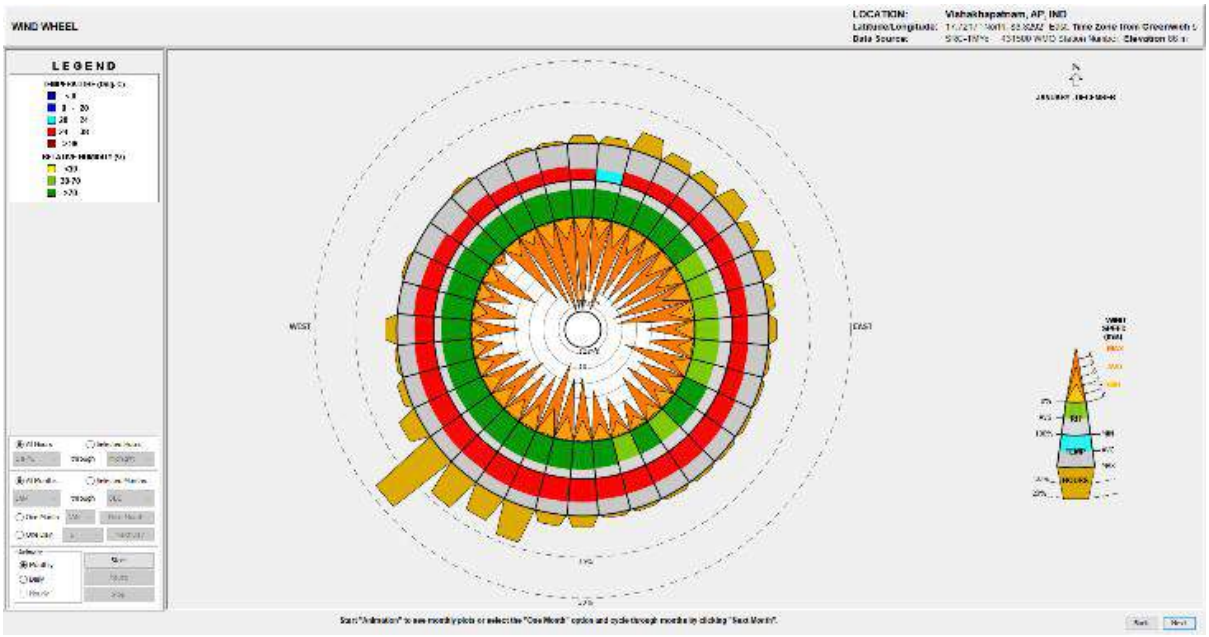
Cyclonic Influence

- **Cyclone-prone Period:** October–December.
- **Wind Gusts:** May exceed 100 km/h during severe cyclonic storms.
- **Notable Events:** Cyclone Hudhud (2014) caused winds up to 195 km/h in Visakhapatnam — highlighting the need for **cyclone-resistant structures**.

Architectural Implications

Wind Feature	Design Response
Summer & monsoon breezes	Utilize for **passive cooling** by orienting openings towards S–W & S–E.
High-speed winds	Design **wind-breaks**, **recessed balconies**, and **sloped roofs**.
Cyclonic threats	Use **reinforced concrete roofs**, **anchored cladding**, and **storm shutters**.
Winter dry winds	Integrate **vegetative buffers** and **thermal mass** to reduce interior cooling.

7. Sunshine Hours – Visakhapatnam



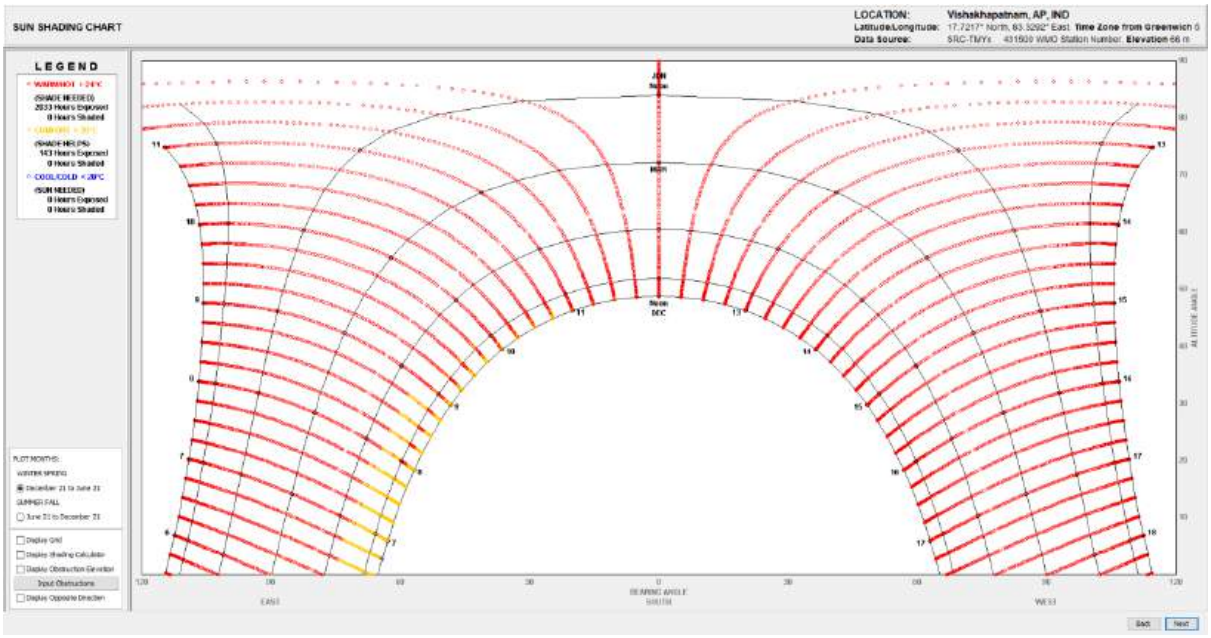
Visakhapatnam receives a **high number of sunshine hours annually**, which supports both **solar energy potential** and **lush vegetative growth**. However, sunshine availability **varies seasonally**, influenced primarily by monsoon cloud cover.

Average Sunshine Duration

Parameter	Value
Average Daily Sunshine	**7–9 hours/day**
Maximum Sunshine Months	**March – May** (Clear skies)
Minimum Sunshine Months	**July – September** (Monsoon)
Annual Total Sunshine	Approx. **2,800–3,100 hours/year**

Monthly Sunshine Breakdown (Approximate Averages)

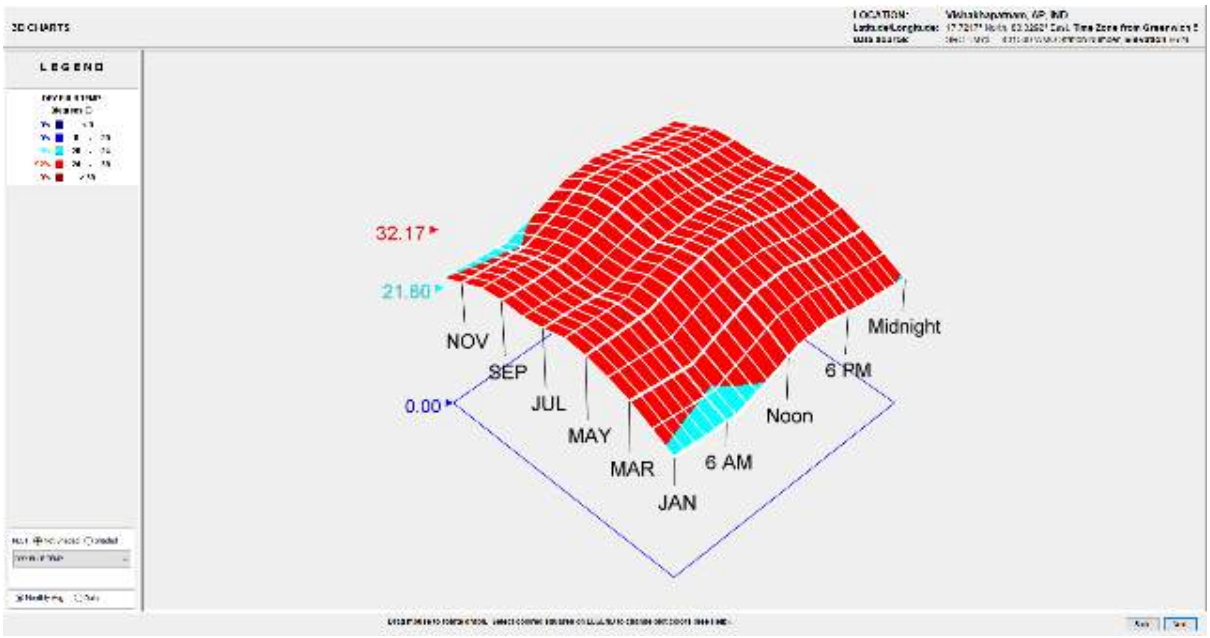
Month	Avg Sunshine Hours/Day	Remarks
January	8.5	Clear skies, dry and pleasant.
February	9.0	Peak clarity, ideal for outdoor use.
March	9.3	Brightest month, very high solar gain.
April	9.1	Continued sun, start of summer heat.
May	8.8	Hot and sunny; onset of humidity.
June	6.5	Cloud cover increases with monsoon.
July	4.5	Heaviest rains, lowest sunlight.
August	4.8	Cloudy and humid, minimal sun.
September	5.6	Gradual increase as rains reduce.
October	7.3	Clearer post-monsoon skies.
November	8.1	Dry and bright conditions.
December	8.4	Mild sun, ideal for winter gardens.



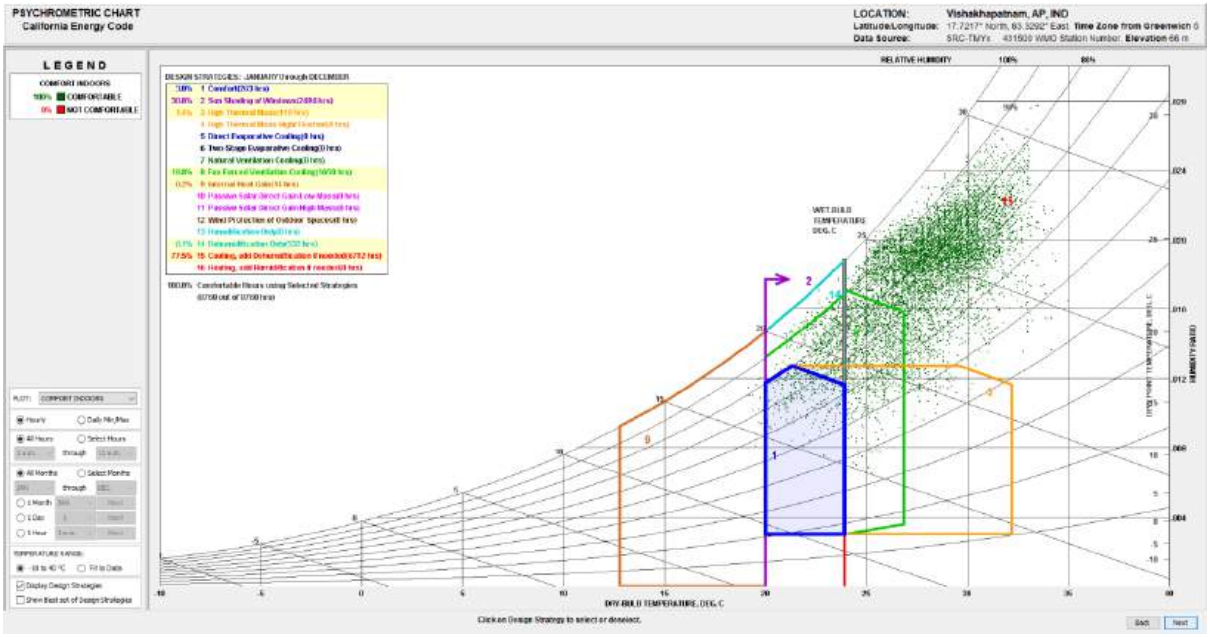
Implications for Design & Planning

Architectural Applications

Climatic Insight	Design Strategy
High solar potential	Use of **solar panels**, **solar water heaters**, **sunspaces**, skylights.
Summer intensity (Mar–May)	Integrate **shading devices**, **louvers**, and **deep verandahs**.
Winter daylight (Nov–Feb)	Allow **maximum sunlight** into interiors for warmth and lighting.
Monsoon dullness (Jul–Aug)	Emphasize **artificial lighting design** and **light-colored interiors**.



8. Psychrometric Data – Visakhapatnam



Psychrometric data refers to **climate information** such as **dry bulb temperature, wet bulb temperature, relative humidity, and dew point**, plotted on a **psychrometric chart**. It helps determine **thermal comfort**, **HVAC requirements**, and strategies for **passive or active cooling**.

Comfort Zone Insights (ASHRAE Standard 55)

- The **thermal comfort zone** lies roughly between:
    - **Dry bulb temp:** 23°C to 29°C
    - **Relative Humidity:** 40% to 70%

Implications for Visakhapatnam:

- For **6–7 months/year**, the city **lies outside the comfort zone**, due to **high humidity** and elevated temperatures.
- **Passive cooling** and **dehumidification strategies** are essential, especially from **April to October**.

Passive Design Strategies Based on Psychrometric Data

Climatic Issue	Recommended Strategy
High humidity	Use **cross ventilation**, **breathable walls**, and **desiccant-based cooling**.
High temperatures	Implement **shading devices**, **roof insulation**, **green roofs**, and **cool colors**.
Few cool/dry months	**Night ventilation**, **thermal mass**, and **evaporative cooling** (effective only in drier months).

Climatic Issue	Recommended Strategy
Discomfort from solar gain	Use **sun-breakers**, **verandahs**, **courtyards**, and **north orientation**.

Design Guidelines (Visakhapatnam – Title 24 Adaptation)

1. **Use cool roofs** with high Solar Reflectance Index (SRI) and insulate roofs to reduce heat gain.
2. **Orient buildings to maximize natural ventilation**, using aligned openings for cross breezes.
3. **Incorporate external shading devices** like overhangs, fins, and pergolas to reduce solar heat gain.
4. **Install low-E double-glazed windows** with low Solar Heat Gain Coefficient (SHGC < 0.25).
5. **Apply wall insulation** especially on west and south façades to block radiant heat.
6. **Limit window-to-wall ratio to under 30%** and favor north/east openings for glare-free daylight.
7. **Install energy-efficient LED lighting** with occupancy sensors and daylight-responsive controls.
8. **Promote passive cooling** through courtyards, thermal mass, water features, and green spaces.
9. **Use solar water heating and rooftop PV panels** for energy independence and lower carbon impact.
10. **Design landscaping using native and drought-resistant species** to minimize water use.
11. **Capture rainwater and use permeable paving** to enhance groundwater recharge.
12. **Use light-colored exterior finishes** to reflect heat and reduce cooling loads.
13. **Integrate natural daylighting** using clerestory windows and light shelves.
14. **Adopt ECBC-compliant HVAC systems** with high ISEER-rated equipment and zone controls.
15. **Design breathable architecture** to manage high humidity and improve occupant comfort.

4.1 Live Case Study 1: Novotel Visakhapatnam Varun Beach

4.1.1 Introduction

Novotel Visakhapatnam Varun Beach is a premier 5-star seafront hotel managed by the Accor Group, located on Beach Road in the heart of Visakhapatnam, Andhra Pradesh. Renowned for its stunning ocean-facing design, every one of its 225 contemporary rooms offers captivating views of the Bay of Bengal, creating a tranquil retreat for both leisure and business travelers.

Guests enjoy a blend of luxury and comfort, including expansive rooms with modern amenities such as minibars, smart controls, bathtubs, and plush interiors. The hotel boasts a variety of exceptional dining options: The Square (an all-day multi-cuisine buffet restaurant), Zaffran (Indian specialty), Red Bowl (Pan Asian cuisine), and Sugarr (a patisserie and café). For relaxation and recreation, Novotel features an infinity pool overlooking the sea, a full-service gym, a soothing spa, and children's play areas. Unique to its complex are an attached multiplex cinema, night club, and shopping mall, making it a well-rounded destination.

Business and event travelers benefit from one of the largest convention centers in the region, with expansive banquet spaces and cutting-edge meeting facilities. The hotel's strategic location ensures easy access to major transport hubs—just minutes from the railway station and airport—and proximity to popular attractions such as the Submarine Museum, Ramakrishna Beach, and the city's business and industrial districts.

Novotel Visakhapatnam Varun Beach stands out for its commitment to exceptional service, cleanliness, and a welcoming atmosphere. It is consistently praised for attentive staff, elegant décor, live entertainment, and memorable dining experiences, making it a top choice for family vacations, couple getaways, and business stays alike.



Figure 57 View of hotel

4.1.2 Location & Urban Context of Novotel Visakhapatnam Varun Beach

Address & Setting Novotel Visakhapatnam Varun Beach is strategically situated on Beach Road in Maharani Peta, Visakhapatnam, Andhra Pradesh (PIN 530003). This is a prime seafront location, directly facing the Bay of Bengal and just steps away from the popular Ramakrishna (RK) Beach. The hotel sits within a vibrant mixed-use complex that includes amenities such as an INOX multiplex, shopping mall, and nightclub, making it a bustling urban destination in itself.

Connectivity:

- **Transport Accessibility:**
    - 3.7km from Visakhapatnam Railway Station (about a 15-minute drive)
    - 13km from Visakhapatnam Airport
    - Easy access to major roads, hospitals, and key city hubs.
- **Proximity to Attractions:**
    - Walking distance to tourist spots like the INS Kurusura Submarine Museum and RK Beach.
    - Short drive to other locations such as Kailasagiri Hill Park and Rushikonda Beach.

Urban Context:

- **Urban Beachfront Corridor:**
  The hotel is located on Dr. NTR Beach Road, a renowned urban corridor stretching nearly 32km from Visakhapatnam Port to Bheemili Beach. This stretch is central to the city's tourism, recreation, and urban life, hosting a mix of public parks, eco-sensitive zones, and cultural landmarks like Rajiv Smruthi Bhavan and the Annamayya Mandapam.
- **Beachfront Redevelopment:**
  The area has witnessed major urban transformation as part of city-led initiatives to rejuvenate the Beach Road, including:
    - Enhanced public infrastructure (promenades, landscaping, disaster resilience)
    - New cycling/pedestrian tracks, plazas, and improved connections between the road and the beach.
    - Restoration efforts post the 2014 Hudhud Cyclone ensured the beachfront is resilient and vibrant for citizens and tourists alike.
- **City Integration:**
  Situated at the heart of Visakhapatnam, Novotel Varun Beach is well-integrated with the city's business, industrial, and leisure zones. The beachfront is both an urban and a recreational asset, and the hotel itself is recognized as a modern landmark within this evolving cityscape.



4.1.3 Facilities and Infrastructure

Accommodation

- **Rooms**: 225 modern guest rooms and suites, all sea-facing. Options range from Superior King (312sq ft/29m²), Premier (355sq ft/33m²), to larger suites, with choices of king or twin beds.
- **Features**: All rooms are equipped with smart controls, minibar, LED TV, hypoallergenic bedding, work desk, plush furnishings, soundproofing, and eco-friendly amenities. Suites offer additional space and lounge areas.

Room Type	Size (approx.)	Bedding	View	Notable Features
Superior Room, 1 King Bed	29m² / 312sq ft	1 King	City/Ocean*	Accessible, hypoallergenic
Superior Twin Room, 2 Single Beds	29m² / 312sq ft	2 Single	City/Ocean*	Soundproofed, accessible
Premier Room, 1 King Bed	33m² / 355sq ft	1 King	City/Ocean*	Enhanced amenities
Premier Twin Room, 2 Single Beds	33m² / 355sq ft	2 Single	City/Ocean*	Enhanced amenities
Executive Suite, 1 Double Bed	66m² / 710sq ft	1 Double	Ocean	Separate living & dining area
Presidential Suite	96m² / 1,035sq ft	King or Queen/Twin	Panoramic Ocean	Top floor, luxury features



Key In-Room Features and Amenities

- **Living Comforts:** All rooms are air-conditioned, soundproofed, and feature blackout curtains for optimal privacy and rest. Separate sitting areas in most categories enhance relaxation and utility.

- **Technology & Entertainment:** Each room is equipped with a 43-inch LCD TV with premium channels and DVD player, free Wi-Fi, MP3 docking station, and direct-dial telephones.
- **Work & Storage:** Laptop-friendly workspaces, desks, wardrobes, and optional connecting rooms to suit families and business guests.
- **Sustainable Touches:** LED lighting, energy-saving switches, eco-friendly cleaning products, bulk dispensers for toiletries, and recycling bins as part of Green Key-certified practices.
- **Bedding:** Premium hypoallergenic bedding, down comforters, pillow menu, and free cots/infant beds on request.
- **Refreshments:** Complimentary tea/coffee makers, bottled water, mini-fridges, and minibars in every room.
- **Bathrooms:** Private bathrooms offer designer toiletries, rainfall showers, separate bathtubs in suites, bathrobes, slippers, bidets, and hair dryers. Suites have additional dressing areas and upgraded amenities.

Special Room Categories & Accessibility

- **Suites:** Executive and Presidential Suites include spacious living and dining areas, panoramic ocean views, and exclusive in-room features for luxury and extended stays.
- **Family Facilities:** Rollaway/extra beds (surcharge), free infant cots, and babysitting available.
- **Accessibility:** Rooms designed for differently-abled guests include wheelchair access and customized bathrooms with roll-in showers.



Guest Services Related to Accommodation

- **Housekeeping:** Daily, with additional change of towels/bedsheets upon request.
- **Laundry/Dry Cleaning**: Available with express service.
- **Room Service:** 24-hour dining and beverage menu.
- **Security:** Digital safes, smoke alarms, and regular safety checks in all rooms.

Unique Features

- **All-Sea View:** Most rooms and suites offer direct, unobstructed sea views.
- **Soundproofing:** Enhanced soundproofing ensures tranquility even in a busy urban beachfront context.
- **Connected Experiences:** Guests have seamless access to the hotel's spa, gym, infinity pool, multiplex, shopping mall, and business center—all within the same complex.



1. Dining & Beverage Outlets

Novotel Visakhapatnam Varun Beach offers an extensive and diverse culinary landscape with a blend of fine dining, casual cafes, bars, and specialty eateries, many of which provide panoramic ocean views and a unique gastronomic experience.

Main Outlets

1. The Square

- **Type:** All-day Dining, Multi-cuisine
- **Ambience:** Spacious, contemporary, and ideal for family or business meals.

- **Cuisine:** Features lavish buffets and à la carte selections, including Indian, Asian, Mediterranean, Continental, and local Andhra specialties for breakfast, lunch, and dinner.
- **Notable Aspects:** Consistently rated among the city's top dining destinations, with live interactive food stations and themed dinner nights.



2. Zaffran

- **Type:** Indian Specialty Restaurant
- **Ambience:** Elegant interiors with royal-inspired art, plush seating, and a view of the Bay of Bengal.
- **Cuisine:** Focused on the culinary heritage of North and South India, featuring signature dishes such as kebabs, biryanis, thalis, and Mughlai preparations. The menu is crafted to highlight both vegetarian and non-vegetarian delicacies. Set by the pool, it provides both indoor and al fresco dining.
- **Special Features:** Private dining rooms for up to 10 guests each and a unique aesthetic with antique and artistic elements.



3. Red Bowl

- **Type:** Pan Asian Kitchen
- **Ambience:** Vibrant, stylish rooftop dining with contemporary Asian décor and expansive ocean views.
- **Cuisine:** Offers a curated menu of classic and contemporary dishes from Japan, China, Thailand, and Korea. Known for sushi, dim sum, stir-fries, and Pan Asian main courses. Designed for culinary enthusiasts and those looking for an immersive Asian dining experience.





4. Sugarr

- **Type:** Patisserie & Café
- **Ambience:** Chic, lobby-level bakery.
- **Cuisine:** Serves fresh bakes, desserts, gourmet chocolates, pastries, breads, cakes, and premium coffee and tea. Ideal for quick bites, business meetings, or casual lounging.

5. Harbour Vue

- **Type:** Bar and Grill
- **Ambience:** Trendy, with indoor and poolside seating, live music, and panoramic views.
- **Cuisine:** Bar food, extensive mocktail and cocktail menu, seafood, and North Indian snacks. Known for party music and happy hours, making it a lively nightlife spot.
- **Special Features:** Live sports screening, happy hours, valet parking, occasional themed nights.

6. Infinity Bar & Kitchen (Rooftop)

- **Type:** Rooftop Lounge/Bar
- **Ambience:** Modern, open-air terrace 150ft above sea level, offering mesmerizing aerial views of the coastline.
- **Cuisine:** Multi-cuisine small plates and grilled specialties, as well as a broad selection of cocktails, wines, and spirits.
- **Highlights:** Popular for sunsets, evening entertainment, and exclusive mixology.



Additional Dining Features

- **In-room Dining:** Available 24x7 with an extensive menu covering all cuisines listed above.
- **Kids' Menu:** Specially designed selections for younger guests.
- **Specialty Nights & Festivals:** The hotel regularly organizes culinary festivals (such as the Indonesian Food Festival in July), Sunday brunches, and themed buffets to showcase global and regional flavors.
- **Outdoor & Private Dining:** Poolside and beachfront options are available for private events and romantic dinners.

Signature Experiences

- **Lavish Buffet Spreads:** Offered daily at The Square, with live cooking and specialty counters for regional and international cuisine.
- **Tailored Culinary Events:** Zaffran hosts curated dinners celebrating India's culinary diversity, with the chef's signature touch.
- **Rooftop Sundowners:** The Infinity Bar hosts sundowner parties and evening events with live DJ/music and a vibrant crowd.

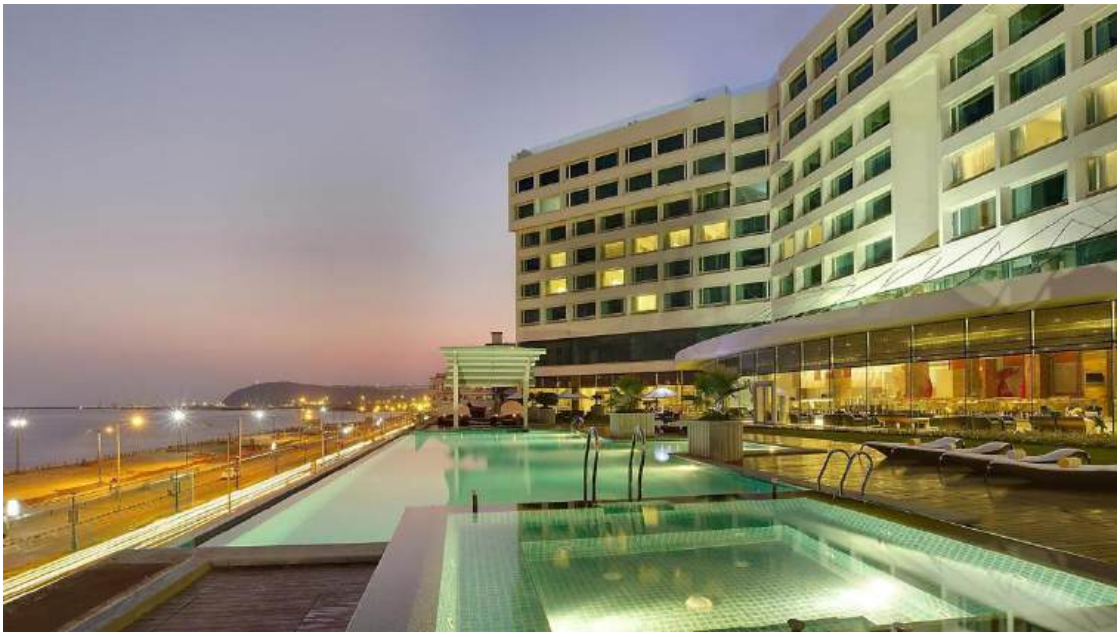
Outlet	Cuisine & Style	Specialty	Ambience
The Square	Multi-cuisine, Buffet/À la carte	Breakfast to dinner buffets	All-day, spacious
Zaffran	Indian Specialty	Kebabs, Biryani, Thalis	Elegant, pool view
Red Bowl	Pan Asian Kitchen	Sushi, Dim Sum, Asian mains	Rooftop, modern
Sugarr	Bakery/Café	Pastries, Chocolates, Coffee	Lobby-level, chic
Harbour Vue	Bar, Grills, Seafood	Mocktails, Cocktails, Snacks	Trendy, poolside
Infinity	Rooftop Bar & Grill	Small plates, Beverages	150ft high, open-air

2. Recreation & Wellness

Novotel Visakhapatnam Varun Beach offers a wide-ranging suite of recreation and wellness options, making it a leading lifestyle hotel in the region for both relaxation and active pursuits.

Infinity Swimming Pool

- **Location & View:** Rooftop, offering panoramic vistas of the Bay of Bengal and Visakhapatnam's coastline.
- **Features:** Sun decks with loungers, poolside bar/service, separate kids' splash area, ambient lighting for evening swims.
- **Ambience:** Designed for tranquil relaxation, sunset watching, and family pool time.



Fitness Centre (In Balance Gym)

- **Setting:** State-of-the-art facility overlooking the ocean.
- **Equipment:** Latest in cardio (treadmills, cross trainers), free weights, resistance machines, and stretch zones.
- **Additional Offerings:** Yoga mats, personal trainers available upon request, separate areas for aerobics and bodyweight exercises.
- **Accessibility:** Open 24x7 to hotel guests, with towels and mineral water provided.

Spa & Salon (Calm – Salon and Spa)

- **Treatments:** Signature spa therapies (Vinotherapy, Balinese, Thai massage, Swedish), bespoke facials, body scrubs, wraps, and hydrotherapy.
- **Facilities:** Five treatment rooms, including couple's suites, steam/sauna, jacuzzi, and a wellness waiting lounge.
- **Salon Services:** Haircuts, styling, bridal makeup, manicure/pedicure, and full beauty care.
- **Ambience:** Serene, zen-inspired décor contributing to the relaxation experience.

Rooftop Jogging Track

- **Highlight:** Jogging and walking tracks at the rooftop with sunrise/sunset views over the ocean, perfect for outdoor enthusiasts.

Kids' Recreation

- **Indoor Play:** Dedicated kids' club/playroom with games, books, and scheduled activities (arts & crafts, movie hours).
- **Outdoor Play:** Secure jungle gym and play area beside the pool.
- **Family Services:** Children's pool, babysitting on request, family entertainment programming on holidays and weekends.

Other Leisure Facilities

- **Multiplex & Mall:** INOX six-screen cinema and a shopping mall directly connected, for entertainment and retail therapy.
- **Nightlife:** Rooftop bars and Harbor Vue lounge with live music, DJ nights, and themed events.
- **Special Activities:** Seasonal events such as beach yoga sessions, aqua aerobics, and wellness workshops.

Wellness & Safety Features

- **Cleanliness & Hygiene:** Regular disinfection, pool water management, therapists follow strict protocols.
- **Accessibility:** All wellness and recreational areas are designed to be accessible, including ramps, elevators, and adapted changing rooms.

Unique Experiences

- **Beachfront Wellness:** Direct access to RK Beach for jogging or group yoga.

- **Sustainable Practices:** Eco-friendly spa products, saltwater pool options, and plastic-free zones supporting the hotel's Green Key certification.

3. Banquets, Events, and Conference Infrastructure

Novotel Visakhapatnam Varun Beach is recognized as one of the premier venues in Eastern India for banquets, conferences, weddings, and social events, offering state-of-the-art, flexible infrastructure designed to accommodate gatherings of every scale with breathtaking ocean views.

V-Convention Center (VCC)

- **Description:** The largest and most versatile event space in the region.
- **Capacity:** Up to 2,000 guests (theater-style: 1,700; banquet: 800), divisible into VCC 1, 2, and 3 for simultaneous multi-event hosting.
- **Size:** Approximately 11,200sq ft of pillarless area, with a grand pre-function foyer overlooking the Bay of Bengal.
- **Features:** Advanced audio-visual (AV) systems, soundproofing, customizable lighting, and automated screens.

Avenue

- **Description:** Mid-sized banquet hall with ocean and pool views, ideal for weddings, seminars, and social gatherings.
- **Capacity:** Around 600 guests; flexible layout for banquets, cocktail parties, and exhibitions.
- **Size:** Roughly 3,584sq ft.
- **Unique Aspects:** Direct pool access, which is popular for pre-wedding events and evening galas.



Coral (1-3)

- **Description:** Three interconnected banquet rooms suitable for conferences, mid-sized meetings, and workshops.
- **Capacity:** Up to 350 guests for a combined session; each section can serve 80–120 guests individually.
- **Size:** 1,960sq ft in total.

Additional Venues

- **Nautica, Summit, Pearl 1 & 2:** Boardrooms and meeting spaces for executive meetings, training sessions, and VIP gatherings—capacities from 20 to 200 attendees.
- **Lawns & Outdoor Spaces:** Beachfront pavilions and poolside terraces available for open-air weddings, cocktail receptions, and themed parties, offering a scenic backdrop and the flexibility for custom décor and staging.

Technology and Support

- **High-Speed Wi-Fi:** Seamless internet access throughout all event spaces.
- **AV Equipment:** Projectors, hi-definition video conferencing, digital podiums, wireless microphones, built-in speakers, and lighting controls.
- **Event Services:** On-site technical support, event planning teams, custom stage/set design, live streaming, and simultaneous translation (by prior arrangement).
- **Decor and Catering:** Themed décor, bespoke wedding setups, and world-class catering services—specializing in Indian, Pan Asian, global cuisines, and live culinary counters.



Special Features

- **Pre-Function/Lounge Areas:** Spacious, stylish lounges for registrations, networking, and refreshments.
- **Bridal Suites and Green Rooms:** Private preparation areas for wedding parties and VIP guests.
- **Accessibility:** Barrier-free venue access, wheelchair ramps, elevators, accessible washrooms.
- **Safety:** Fire safety protocols, security personnel, 24/7 surveillance, and dedicated event staff.

Signature Events Hosted

- **Conventions:** Annual corporate conclaves, product launches, medical and academic symposiums.
- **Weddings:** Lavish Indian/Western-style weddings, destination weddings, reception dinners, sangeet/mehendi functions, and beachside ceremonies.
- **Social Events:** Anniversary celebrations, milestone birthdays, award functions, charity galas, and cultural festivals.

Venue	Capacity (theater/banquet)	Area (sq ft)	Special Features
VCC 1/2/3	2,000/800	11,200	Pillarless, oceanview, pre-function space
Avenue	600/250	3,584	Pool/ocean view, pool access
Coral (1–3)	350/120 (each)	1,960	Interconnected, modular layout
Nautica/Summit	50–200	Varies	Executive boardrooms, small groups
Outdoor Lawns	Up to 1,000	7,500+	Seafront, open-air, customizable

4. Family and Accessibility

1. Rooms and Amenities

- Family rooms are spacious, many offer connecting options, ideal for families of all ages.
- Cribs/cots and extra beds are available on request. Hypoallergenic bedding and blackout curtains enhance comfort for children.
- Complimentary tea/coffee makers, minibars, and in-room entertainment (satellite TV, Wi-Fi) are standard.

2.Children's Facilities

- Dedicated children’s play area with books, games, and toys, as well as outdoor play equipment and a kids’ pool.
- Babysitting and child/infant-care services (advance booking recommended), allowing parents to enjoy uninterrupted relaxation or attend events.
- Special children’s menus in the restaurants, high-chairs, and provision for baby food and bottle warming upon request.
- Family-oriented recreation such as board games, DVDs, and music for children in rooms.

Activities and Entertainment

- Access to an on-site multiplex cinema and shopping mall in the complex, popular for family outings.
- Themed family events, holiday programming, and evening entertainment, such as festive decorations or kids' parties, create a vibrant, engaging atmosphere for younger guests.

Accessibility Features

- Wheelchair Accessibility
  - Multiple wheelchair-accessible rooms are available in each room type (Superior, Premier, Ocean View, Suites).
  - Key public spaces—lobby, restaurants, gym, spa, pool, and banquet halls—are fully accessible with step-free entrances, ramps, and elevators.
  - Wheelchair-accessible paths provided to all main facilities, public bathrooms, and parking areas.
  - Adapted bathrooms with roll-in showers, grab bars, and emergency call systems available in designated accessible rooms.
- Other Accessible Features
  - Braille/raised signage in elevators and common areas.
  - Visual fire alarms, hand-held showerheads, stair-free entrance, and wide doorways in accessible rooms.
  - Staff trained to assist guests with disabilities and special needs, including check-in support and emergency assistance.
  - Priority parking and valet services for guests with reduced mobility.

5.Additional Amenities

- **Business Centre**: 24/7 equipped workspace, printing, and IT support.
- **Multiplex & Shopping Mall**: Connected to an INOX 6-screen cinema and a shopping mall within the same complex.
- **Night Club & Lounge**: For evening entertainment.
- **Parking**: Private parking for 150 cars, valet and self-park options.
- **Transport**: Airport transfer, car rental, taxi/bus services on request.
- **Security & Safety**: 24-hour security, CCTV, emergency exits, fire extinguishers, doctor on call, and ATMs on site.
- **Eco-Initiatives**: Green Key eco-label for sustainable hospitality (LED lighting, waste reduction, water conservation, no single-use plastics, renewable energy code).



4.1.4 Notable Infrastructure Highlights

1.Architectural Brilliance & Design

- **Oceanfront Structure:** The hotel is designed as a prominent, 10-floor contemporary building facing the Bay of Bengal, with all 225 rooms offering breathtaking, unobstructed ocean views—a rare distinction among city hotels.
- **Mixed-Use Urban Complex:** Novotel is integrated with a multiplex (INOX cinema), a night club, and a shopping mall, establishing it as a self-sustaining luxury and entertainment hub in Visakhapatnam.
- **Award-Winning Banquets:** The V-Convention hall stands as the largest pillar-less banquet facility in Andhra Pradesh, capable of accommodating up to 1,250 guests, with the overall banquet space spanning 56,000sq ft. The modular layout allows up to 12 separate event halls.

Engineering & Facilities

- **Infinity Rooftop Pool & Jogging Track:** The rooftop features an infinity swimming pool with panoramic views and a jogging track, both unique for the region. Guests can enjoy the sunrise or sunset along the coastline from these vantage points.
- **State-of-the-Art Event Spaces:** All event venues are equipped with advanced AV systems, digital lighting, and high-speed Wi-Fi. Dedicated pre-function lounges, private green rooms, and executive boardrooms are available for seamless event hosting.
- **High-Tech Guest Amenities:** Each room is smartly furnished with soundproofing, LED mood lighting, digital controls, eco-friendly amenities, and luxury comforts such as minibars and premium bedding. Suites feature separate living/dining, panoramic windows, and exclusive lounge access.

- **Recreation & Wellness:** Facilities include a modern gym with ocean vistas, a spa & salon with multiple therapy rooms, rooftop jogging track, dedicated kids' areas (indoor and outdoor), and accessible pool spaces for families and children.



Eco-Friendly & Sustainable Infrastructure

- **Green Key Certification:** Novotel Visakhapatnam has earned the internationally recognized Green Key Certification for sustainability—acknowledging initiatives like renewable energy (100% use), water-saving fixtures, extensive waste management programs, LED lighting throughout, and eco-friendly procurement.
- **EV Charging & Green Mobility:** The hotel partners with Urzza Charge Tech to boost electric vehicle infrastructure, supporting Andhra Pradesh's electric mobility mission.
- **Accessibility:** The whole property is designed for universal access, with step-free entrances, customized rooms and bathrooms for differently-abled guests, Braille signage, visual alarms, wide doorways, and ramp/lift access to all public zones.

Safety & Security

- **Modern Security Systems:** The building is equipped with advanced fire detection and suppression systems, 24/7 CCTV, regular safety audits, and on-site security staff.
- **Resilience:** The hotel's design and location have been adapted for post-cyclone urban resilience, including disaster management systems and updated coastal protection in collaboration with city authorities.

Urban Context & Connectivity

- **Strategic Central Location:** Situated on Dr. NTR Beach Road, the property anchors the main urban beachfront corridor, offering easy access (3.7km from railway station, 13km from airport) and proximity to cultural icons like the Submarine Museum and RK Beach.
- **Parking & Transit:** Secure parking for over 150 vehicles, valet services, and organized shuttle/taxi links reinforce guest convenience.

Iconic Features At-a-Glance

- All 225 rooms with direct Bay of Bengal views.
- India's only 5-star hotel complex in the city with multiplex, mall, and club on site.
- Largest pillar-less banquet/convention space in the state.
- Infinity pool, rooftop lounge, gym, spa, jogging track with ocean views.
- International sustainability recognition (Green Key).
- Smart technology in hospitality, event planning, and guest safety.

Area	Description
Rooms	225 sea-facing, modern rooms from 312sq ft; suites up to 710sq ft
Dining	4+ outlets: All-day dining, Indian, Pan Asian, bakery, poolside & rooftop bars
Recreation	Infinity pool, gym, spa, rooftop jogging track, kids' play area, multiplex, mall
Meetings/Events	56,000sq ft event space; largest hall seats 2,000; multiple banquet & conference rooms with hi-tech AV
Family/Children	Babysitting, kids' menu, playgrounds, kids' pool
Wellness/Spa	Calm Spa & Salon: massages, therapies, beauty, bridal packages, five treatment rooms
Parking/Transport	150+ car parking, airport shuttles, taxi and rental services
Amenities	24x7 business center, wheelchair accessible, security, on-site ATMs, multiple lounges
Eco-Focus	Green Key certified, energy and water-saving, plastic-free practices

4.1.4 Sustainability & Awards

Novotel Visakhapatnam Varun Beach is recognized as one of India's leading eco-conscious luxury hotels, integrating sustainability throughout its operations.



Green Key Certification

- **Awarded in 2025**, Novotel Visakhapatnam Varun Beach officially achieved the prestigious Green Key Certification, one of the world's most recognized eco-labels for environment-friendly hospitality.
    - This certification, bestowed by the Foundation for Environmental Education (FEE), signifies global best practices in sustainable tourism.
    - It also has recognition from the Global Sustainable Tourism Council (GSTC).

Key Green Practices

- **Exclusive Use of Green Energy:** The hotel purchases electricity from renewable sources.
- **Energy Efficiency:** Implementation of LED lighting, smart controls, and energy-saving appliances across the property.
- **Water Conservation:** Use of water-efficient fixtures, recycling, and responsible housekeeping protocols.
- **Waste Management:** Comprehensive recycling and composting programs, minimal single-use plastics, and eco-friendly procurement.
- **Sustainable Sourcing:** Preference for local, responsible suppliers and eco-certified products.
- **Community Engagement:** Collaboration with local communities and non-profits for social and environmental upliftment.
- **Guest Experience:** Eco-conscious amenities and education are integrated into the guest journey without compromising comfort or luxury.



Awards and Recognitions (2024-2025)

- **Best Contribution to Hospitality in South India** by SIHRA (Southern India Hotels and Restaurants Association) – recognizing the hotel's leadership in tourism and hospitality in South India.
- **Excellence Award for Best Coastal Hotel in India** – For exceptional standards in luxury hospitality in a coastal setting.
- **Nominee and Winner: Andhra Pradesh's Leading Hotel (multiple years, World Travel Awards)** – highlighting consistent regional industry leadership.
- **Restaurant Awards 2024** (Franchise India Holdings) – Celebrating food and beverage excellence at Novotel Visakhapatnam.
- **India's Best Seafront Luxury Wedding Destination** (India Travel Awards) – for excellence in destination wedding experiences.

4.1.5 SWOT Analysis

1.Strengths

- **Prime Location:** Situated on Beach Road with panoramic Bay of Bengal views, central to tourism, business districts, and major attractions (Submarine Museum, RK Beach).
- **Comprehensive Facilities:** 225 luxury sea-facing rooms, multiple specialty restaurants, infinity rooftop pool, state-of-the-art gym, spa, multiplex, and mall within the same complex—making it a self-contained urban resort.
- **Event Leadership:** Home to Andhra Pradesh's largest pillar-less convention facility (V-Convention), modular banquets, and outdoor venues, it is a recognized leader for MICE (Meetings, Incentives, Conferences, and Exhibitions) and weddings.

- **Sustainability & Awards:** Green Key eco-certification (2025), leadership in renewable energy use, waste and water management, minimal plastic footprint, and multiple industry awards for sustainability and hospitality.
- **Brand Reputation:** Flagship property of Accor in Eastern India; high guest satisfaction and loyalty, repeatedly rated 4.5+/5 across key review platforms; consistently wins regional and national awards for luxury and service excellence.
- **Family & Accessibility:** Comprehensive family amenities, accessible rooms and facilities, and robust safety and security protocols.
- **Operational Excellence:** Strong, experienced management team; data-driven revenue management; rigorous service staff training; integration of digital infrastructure and smart controls.

2. Weaknesses

- **Premium Pricing:** Room and event rates are perceived as high compared to local competitors, potentially reducing accessibility for some guest segments.
- **Service Variability:** Despite strong reviews, occasional guest feedback notes delays during peak service periods (check-in/out, room and F&B service).
- **Limited Local F&B Appeal:** Some critiques regarding regional menu variety and food consistency, especially at specialty outlets and for South Indian breakfast options.
- **Coastal Exposure:** Vulnerability to periodic cyclones or storms can disrupt operations and deter bookings, necessitating recurring disaster resilience investments.

3. Opportunities

- **Growing Tourism & Business:** Vizag is emerging as a major business and leisure hub, supported by government investment in coastal corridors, IT, shipping, and tourism infrastructure.
- **Destination Weddings & Luxury Events:** Rising demand for destination weddings and high-end events presents considerable growth potential—with Novotel's established infrastructure as a natural differentiator.
- **Sustainability Leadership:** Heightened global and local demand for sustainable hospitality allows Novotel to further promote and monetize its Green Key and eco-initiatives.
- **Digital Expansion:** Accor loyalty programs, direct online bookings, and smart room controls can be leveraged to attract new digital-native travelers and build stronger guest relationships.
- **Community & Cultural Engagement:** Opportunities to expand partnerships with local artisans, consciously source ingredients, and run socially responsible events to further strengthen the brand's place in the Vizag community.

4. Threats

- **Intensifying Competition:** New hotels and international brands entering Visakhapatnam, along with upscale boutique properties, heighten competition, especially for corporate and wedding clientele.

- **Economic Uncertainty:** Fluctuations in corporate travel budgets, inflation, or a slowdown in discretionary spending could weaken occupancy, ADR, and F&B revenue.
- **Environmental Risks:** Increased severity of extreme weather due to climate change could affect both operations and guest perceptions of safety.
- **Regulatory Shifts:** Changes in hospitality industry regulations, taxes, or local government policies can impact costs, operations, and event hosting.

4.2.1 INTRODUCTION

- The Taj Lakefront, Bhopal epitomizes true luxury. Overlooking the upper lake and just 25 minutes from the international airport, this iconic landmark symbolizes 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 of Bhopal, the paisley prints of Bagh, the Durries of Sironi, 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.



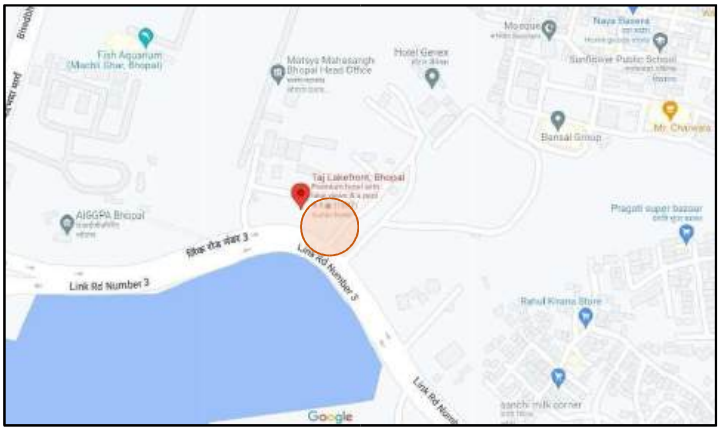


Details:

PROJECT	TAJ LAKEFRONT
LOCATION	BHOPAL
CLIMATE	Humid Subtropical
TOPOGRAPHY	PLAIN LAND
ARCHITECT	JOI DESIGN
COMPLITION YEAR	2021
NO. OF ROOMS	152
SITE AREA	4.77 ACRE
FAR	2

4.2.2 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.



4.2.3 SITE BOUNDARY



Site Boundary
Circulation within the Site

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.

4.2.4 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

4.2.5 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.



4.2.6 VERTICAL ZONING

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



4.2.7 AREA STATEMENT

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

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

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

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

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

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

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

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

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

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

	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**				

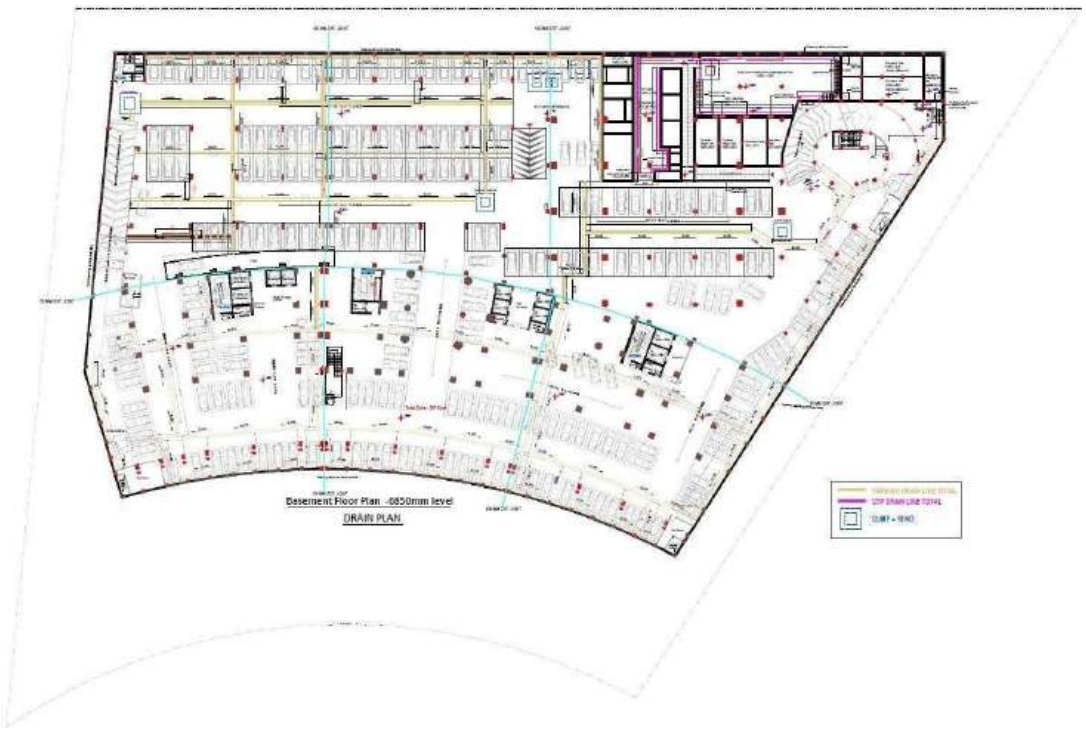
M.	Other BOH (exer mech)				
I	**Mechanical Areas**				
	LV Room	1	56	**56**	
	Indoor Transformers	2	22	**44**	
	LT Panel	1	74	**74**	
	DG Generator Room	1	97	**97**	
	Chiller Plant Room	1	125	**125**	
	Rainwater Tank	105 Cubic Meter			
	Municipal Tank	123 Cubic Meter			
	Raw Water Tank	123 Cubic Meter			
	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**	

4.2.8 FLOOR PLANS

Basement 2 Plan:

- Basement 2 is comprised with services amenities like STP, ETP WTP, Fire Tank, Domestic Water Tank etc. and parking spaces.



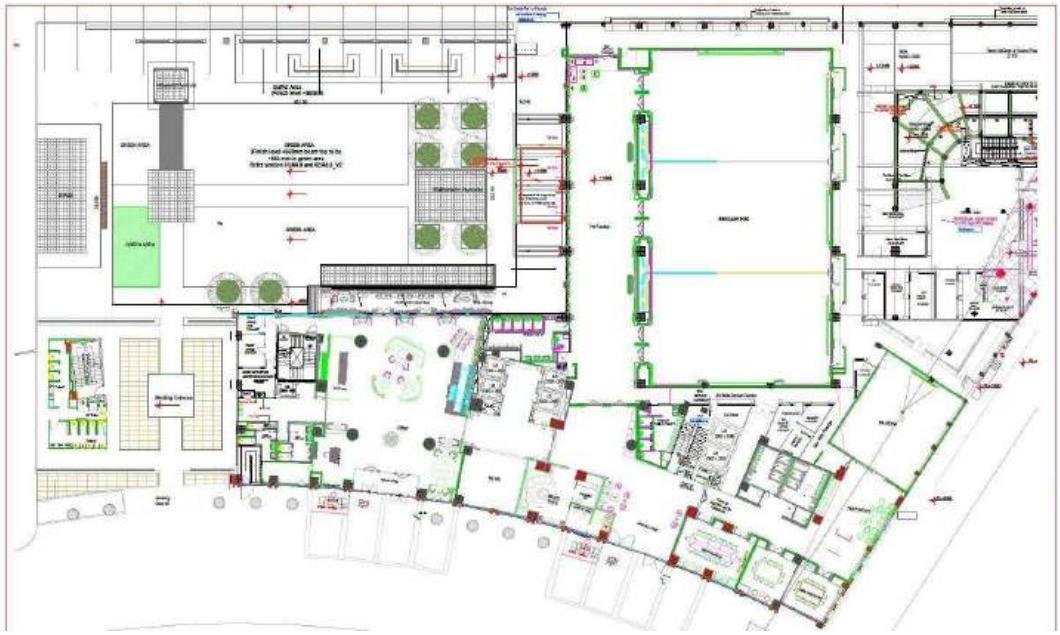
Basement 1 Plan:

- Basement 1 mainly consist of different types of Offices spaces like Housekeeping office , Finance Office, Sales office, Engg 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.



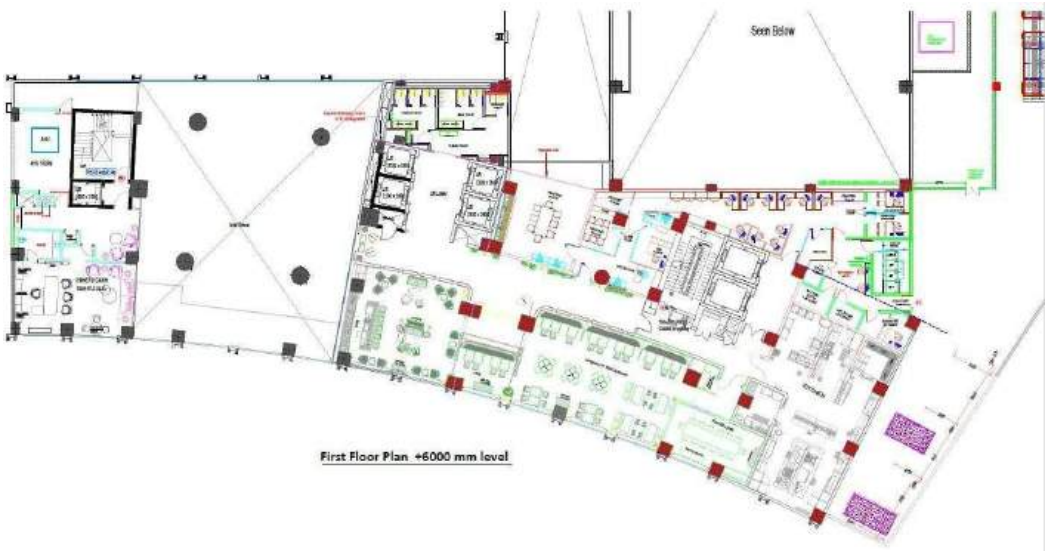
Ground Floor Plan:

- The entrance lobby of the hotel has grand luxury feel as it has triple heighted spaces with very attractive false ceiling consist of cove lighting.
- There is a separate entrance has been provided including Banquet Hall, Meeting room, conference rooms.
- A Banquet Hall can be divided as 3 halls by automatic temporary panels. Washroom for Banquet guests is accessible from Pre-Function Area which act as a buffer space for guest.



First Floor Plan:

- This floor has a Chinese Restaurant with a wonderful Chinese theme based interiors.
- Private Dining Restaurants are also provided in this floor.



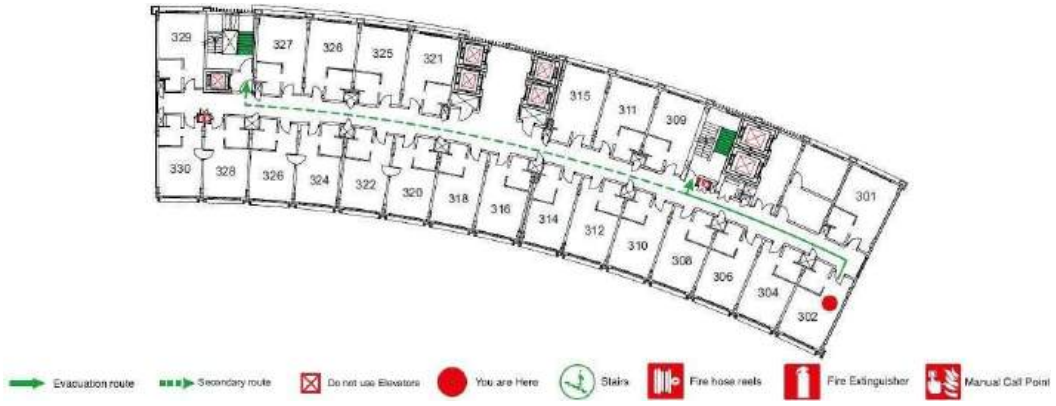
Second Floor Plan:

- 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



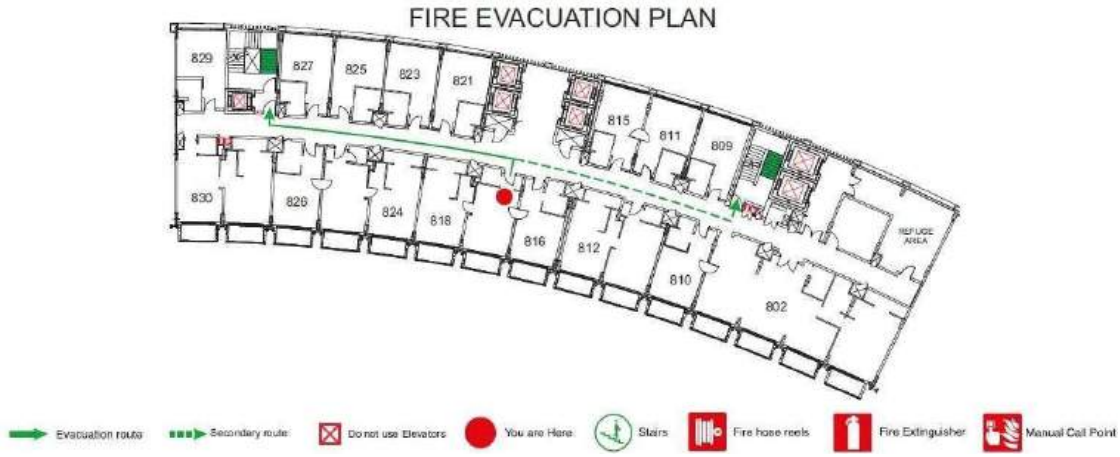
Typical Floor Plan (3rd to 7th) Floor :

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



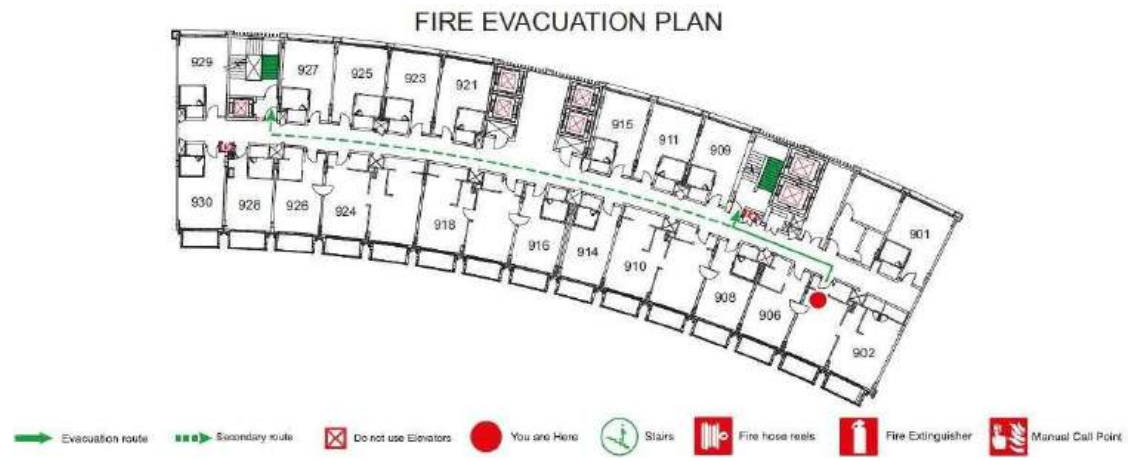
8th Floor Plan :

- 15 guest rooms including Executive Suites, King Bedrooms and 1 presidential suite are there in this floor.



9th Floor Plan :

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



10th Floor Plan:

- Open terrace lounge, club area with the view of swimming pool is provided in the top floor of this Hotel.



4.2.9 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, weighing scale
- 49-inch Smart LED TV



Twin Room

Framed by the picturesque backdrop of the hills, the Deluxe Rooms are the epitome of tranquility and relaxation. The decor seamlessly merges the aesthetic philosophy of Madhya Pradesh with a European

flair. Fully-equipped with quality amenities, including digital connectivity with smart TV and Taj's signature service, the Deluxe Rooms offer an unmatched experience of comfort. Includes complimentary access to the hotel gym and wet areas.





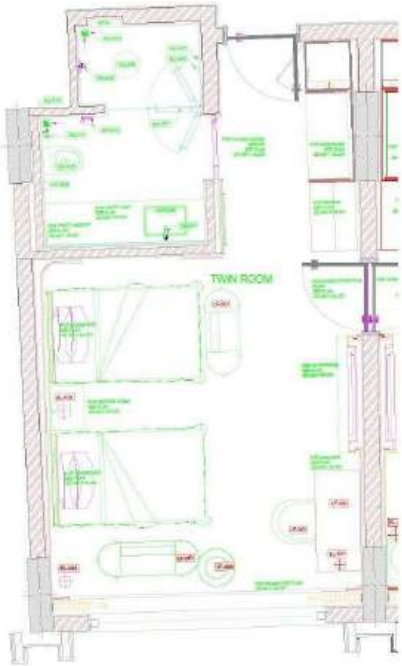
SIZE: 33 sq.m

SIGNATURE FEATURE: Spectacular vistas of the hills

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

OTHER CONVENIENCES

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



King Room

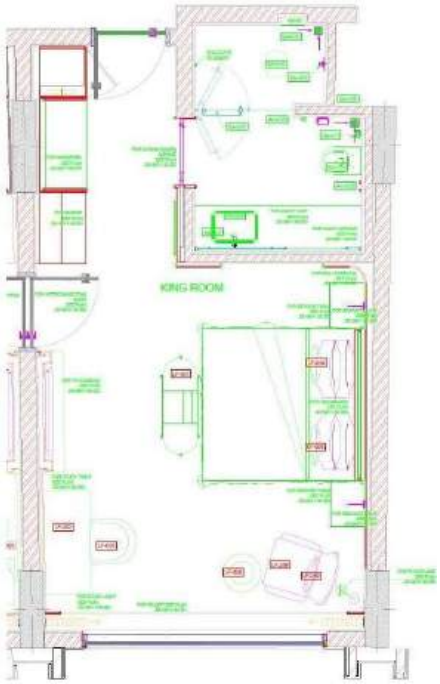
Framed by the picturesque backdrop of the hills, the Deluxe Rooms are the epitome of tranquillity and relaxation. The decor seamlessly merges the aesthetic philosophy of Madhya Pradesh with a European flair. Fully equipped with quality amenities, including digital connectivity with smart TV and Taj's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



SIZE: 33 sq.m

SIGNATURE FEATURE: Spectacular vistas of the hills

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



OTHER CONVENIENCES

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

Presidential Suite

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





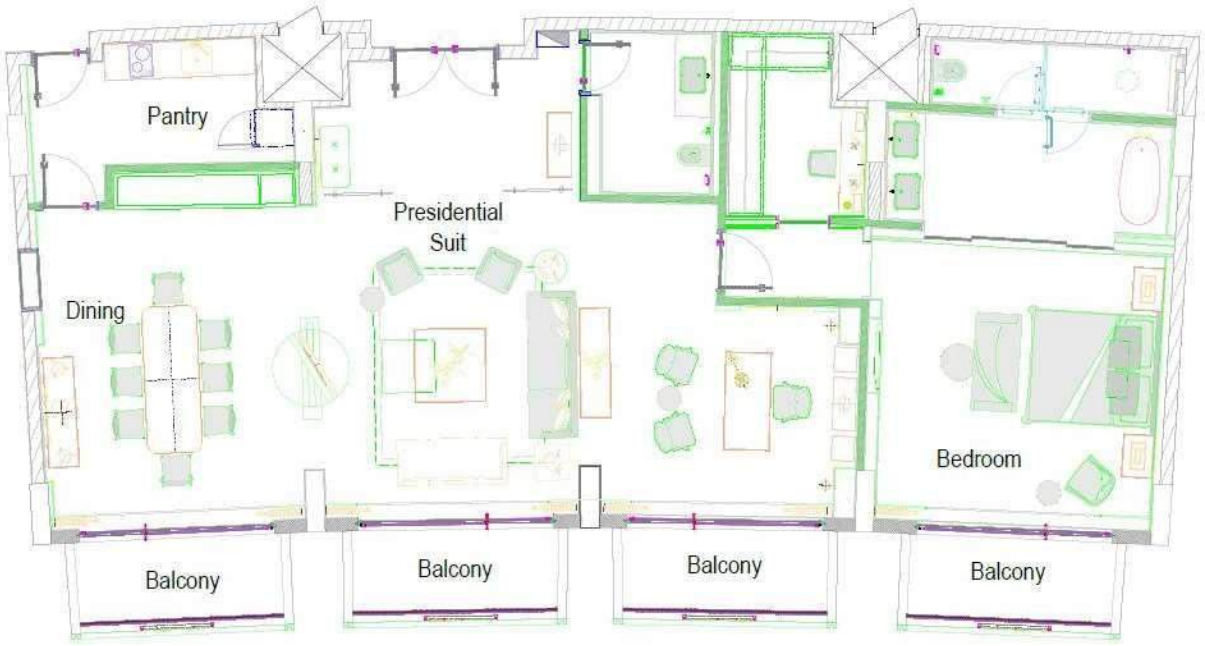




SIZE: 152 sq.m

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

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



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

4.2.10 VIEW/INTERIOR OF SPACES



Spa & Sauna



PDR



Banquet Hall



Swimming pool



Restaurant Seating



Lounge/Bar

Figure 58 Interior views

4.2.11 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
(area-12 sqm)



Tank for swimming Pool

4.3 Desk Appraisal 1: The Westin, Gurgaon

4.3.1 INTRODUCTION

The Westin Gurgaon, New Delhi, a sprawling 313 room hotel, is strategically located in the heart of the millennium city – MG Road, Gurgaon. It is located just 25 minutes from the New Delhi Indira Gandhi International Airport. The hotel brings a fresh, new lifestyle experience to the city, surrounded by upscale shopping malls, entertainment hubs, multiplexes and commercial offices making it an ideal choice for both business and leisure travelers. Its distinct architectural design reflects clutter free spaces laying strong emphasis on openness, natural lighting; reinforcing environmentally friendly practices. While retaining its impeccable services, its offers an array of eclectic and exciting food & beverage options at the onsite world-class restaurants. Embrace wellness at The Heavenly Spa by Westin known for its rejuvenating treatments and therapies or re-gear energy at the signature Westin WORKOUT® Fitness Studio. Westin emphasizes on personal renewal and innovative signature services worldwide.



Figure 59 VIEW- The Westin , Gurgaon

Details:

PROJECT	WESTIN HOTEL
LOCATION	GURGAON
CLIMATE	SUBTROPICAL CLIMATE
TOPOGRAPHY	PLAIN LAND
ARCHITECT	STUDIO U+A NEW YORK/GURGAO
COMPLITION YEAR	2010

NO. OF ROOMS	310
SITE AREA	4.39 acre
FAR	1.5

4.3.2 LOCATION AND CONNECTIVITY

- Westin is located 17 km South-West of IGI Airport - T3.

Situated in the IT hub of Gurgaon sector 29, it is well connected with all the modes of transportation.

- **COMMUNITY**

-Medanta Medicity - 2.0 km

–Lotus Temple (Bahai Temple) - 25.8 km

- **RECREATION**

-Kingdom of Dreams - 0.5 km

-Tennis Court - 3.2 km -Sultanpur Bird Sanctuary - 16.0 km

- **SHOPPING**

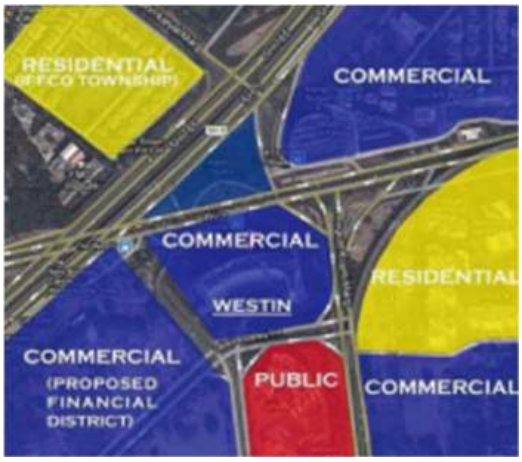
-Dilli Haat - 22.5 km

-Connaught Place - 27.4 km



4.3.3 SURROUNDING LANDUSE AND URBAN CHARACTER

- Materials used in skin cladding are different for all buildings.
- The color beige or earthen yellow can be seen in predominant use.
- Also, the vertical expanses of the buildings are similar, i.e. Eight to ten floors, which is well within the mandatory height restriction of 30 meters as mentioned in the bye laws.



4.3.4 DEVELOPMENT OF FORM

The shape of the building is governed by two major factors, i.e. the site constraints and form of public spaces creating a rather eclectic mix of contemporary and minimalistic design.

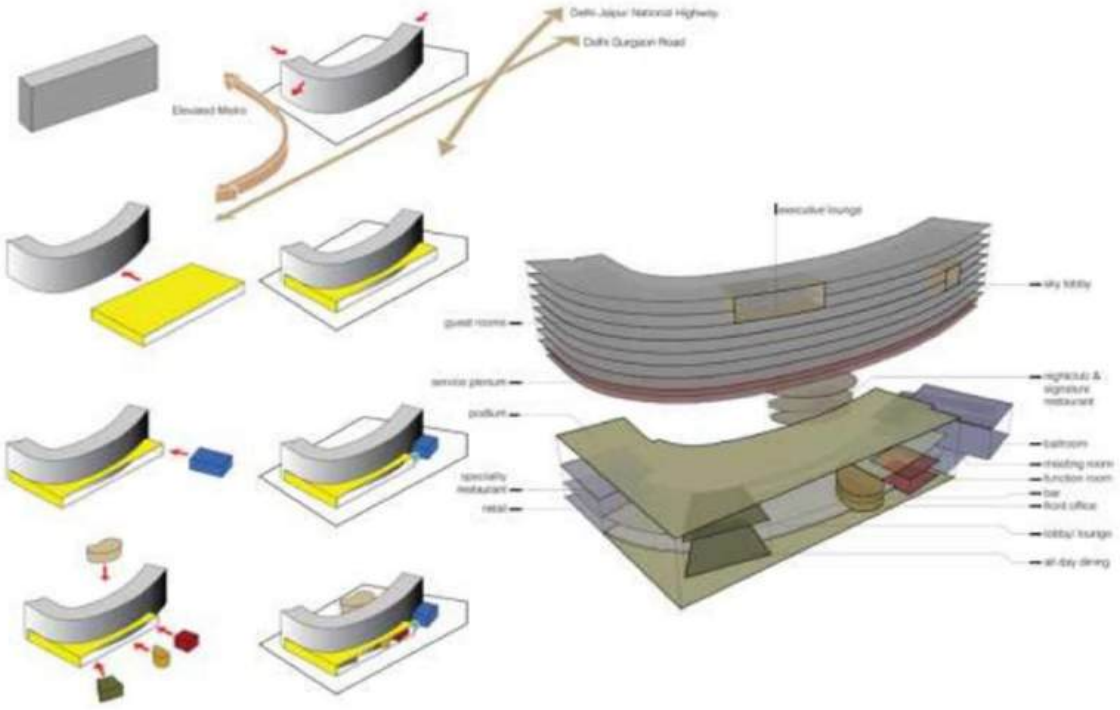


Figure 60 Form development

4.3.5 TRANVERSE SECTION

The north-south transverse section showing the vertical placement of services in the basements and the guest rooms in the curved mass in five.



Figure 61 transverse section

4.3.6 DISTRIBUTION OF FUNTIONAL SPACE

When we go inside the hotel, the first thing that comes into view is the quite spacious lobby. The lobby here overlooks the central water feature. The lobby is connected to the brasserie and the coffee shop.

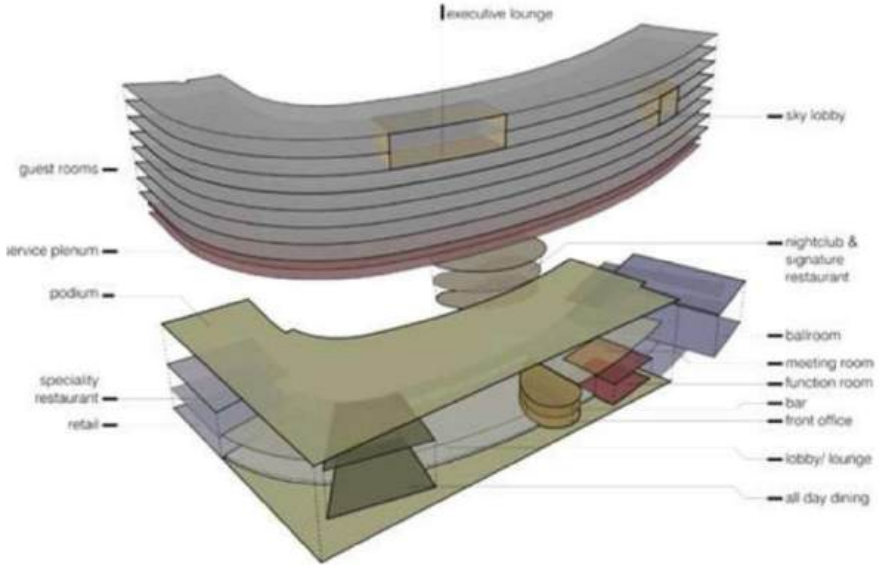


Figure 62 exploded diagram

The materials used in the interior complement the exterior environment and create a sense of expanse; the materials being white and beige Italian marbles for flooring, and textured white paint for wall coating.

4.3.7 CIRCULATION

The circulation network revolves around the main lobby of the hotel, as can be seen from the given plan of the ground floor (Fig. 36). The lobby space connects several spaces, such as, the front office, banquet entrance, coffee shop and brasserie.

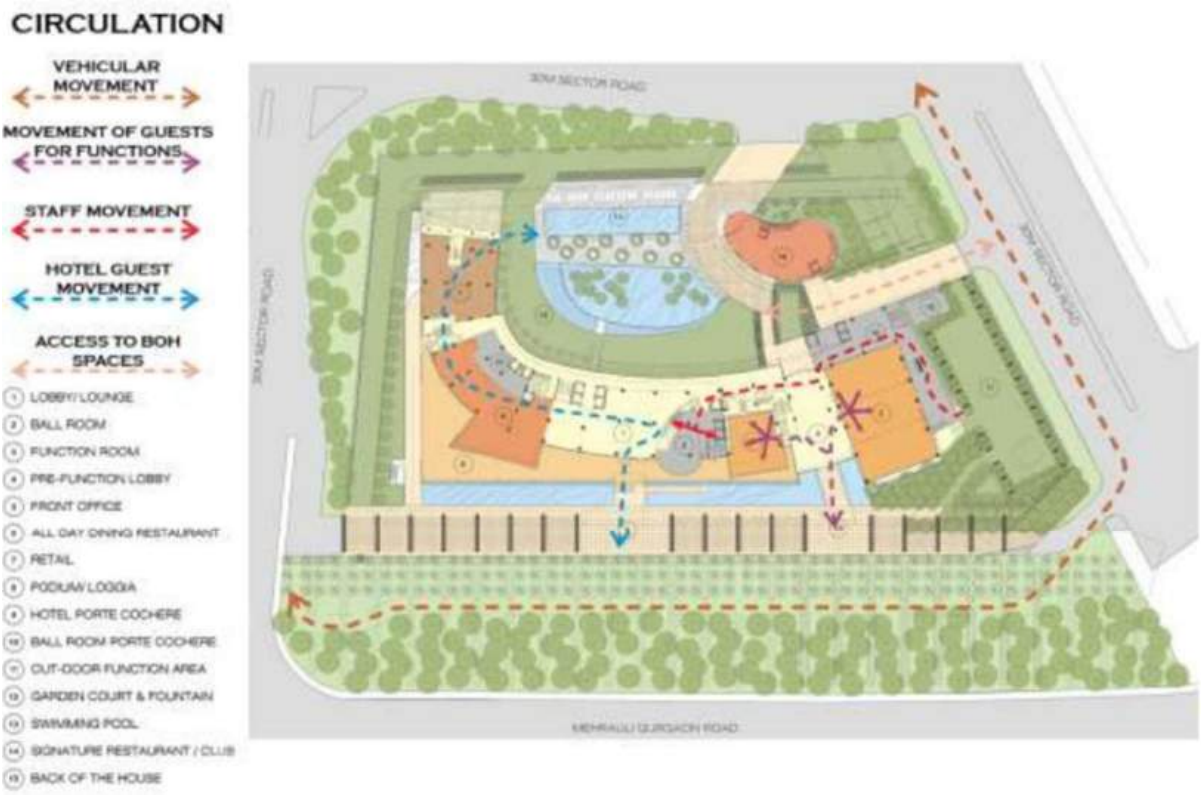


Figure 63 circulation

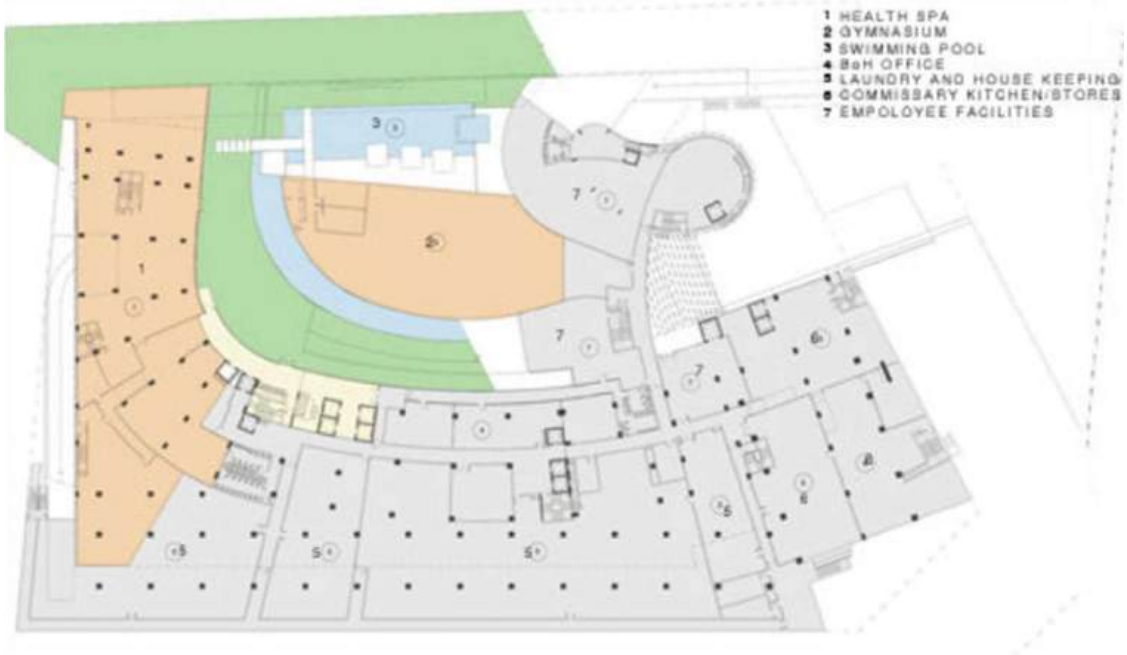


4.3.8 FLOOR PLANS

Ground Floor Plan

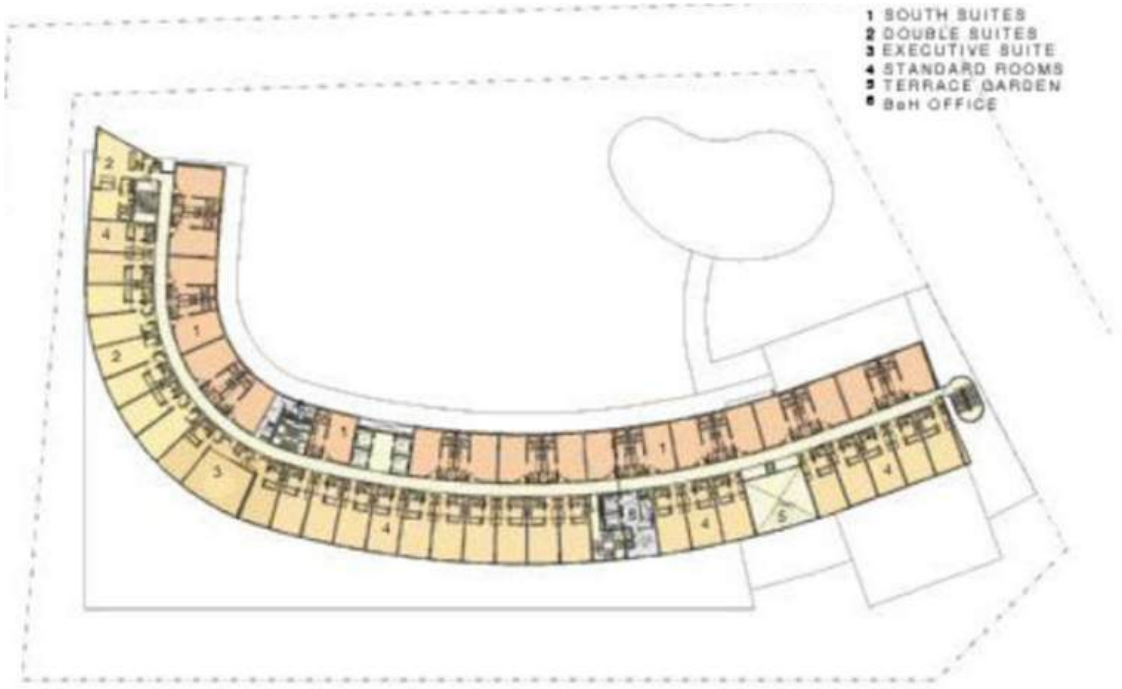


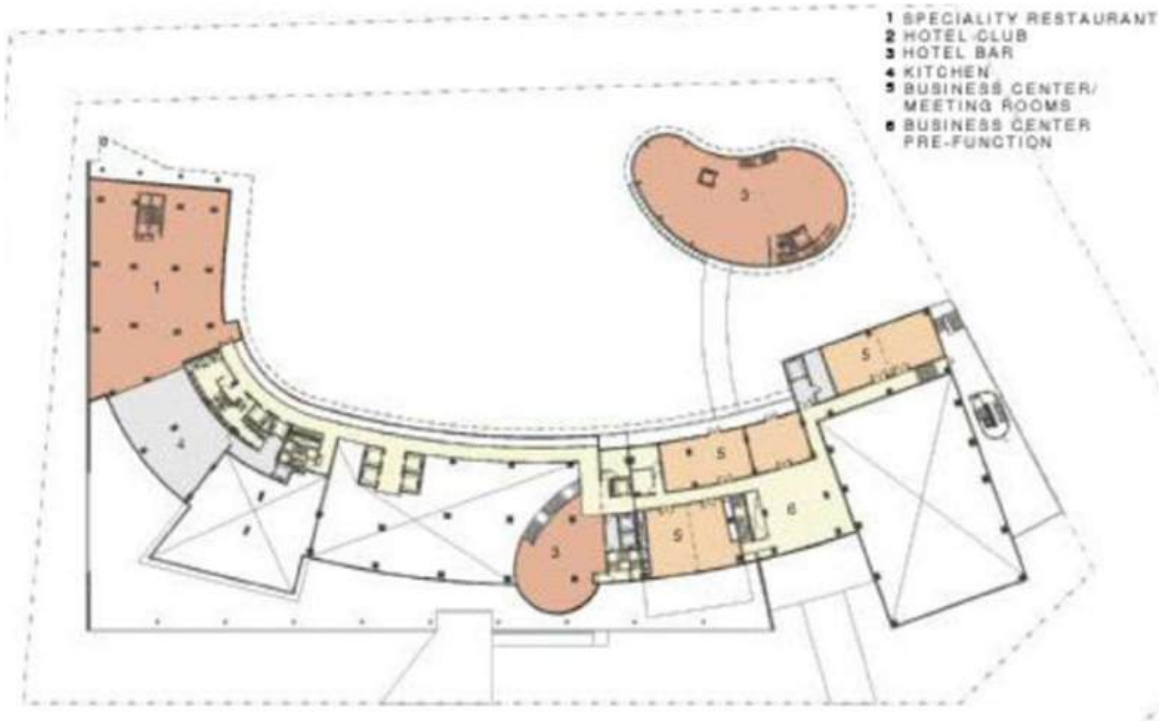
Lower Ground Floor Plan:



First Floor Plan :

Ground Floor Plan:





4.3.9 VERTICAL ZONING

The north elevation, the public face of the hotel, is an arrangement of distinct architectural elements, which have been layered both horizontally and vertically. An elevated two-story open-faced granite Loggia affords views from the street and from within, and contains a set of object buildings, housing the rhomboid All Day Restaurant in travertine, a cylindrical Front Office in hammered bronze, and rectilinear Function Room in green marble.

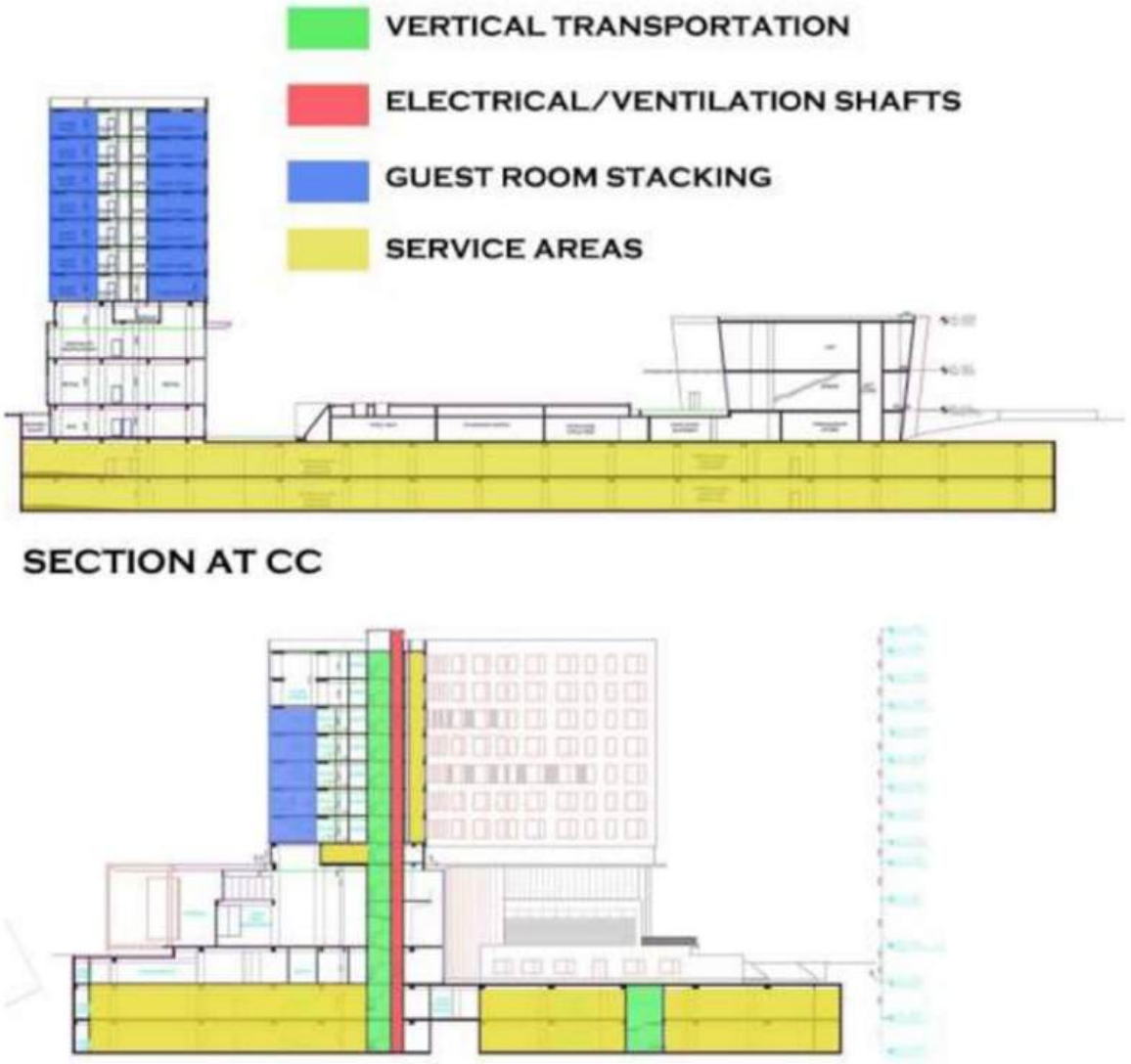


Figure 64 Sections

4.3.10 SERVICES

1. Air conditioning - Central A.C plant located in basement with AHUs for guest rooms on the respective floors and in plenum for banquet halls

2. Electrical layout - Transformer is located beside Prego. Main panels are located in the basement with shafts running to serve all the floors.

3. Fire protection - There is a fire escape staircase on the western corner of the hotel with every floor provided with four fire hydrant closets.

4.3.11 INTERIORS





- The corridors are constricted according to standards but, the quality of the space is improved by cladding the walls with wooden panels.
- Art installations are placed everywhere a corridor terminates. The sense of expanse is enhanced by providing both sides of the lobby with floor to floor curtain glazing.
- The lobby is flooded with diffused sunlight in the day and in the night the artificial lighting is done by hanging fixtures from the double heighted ceiling.
- It is made sure that the intensity of the lighting is kept at an optimal level to give a serene environment to the guests.

4.4 Desk Appraisal 2: Vivanta, Bengaluru

4.4.1 ABOUT

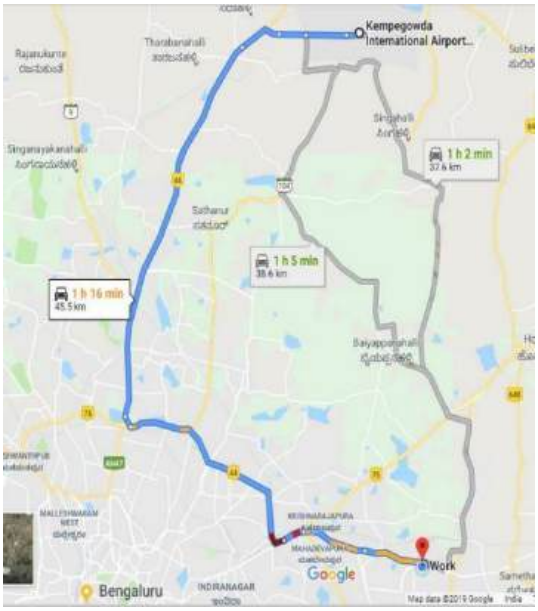
Vivanta Bengaluru, Whitefield is a contemporary hotel that usher global jetsetters into a dynamic lifestyle at the heart of India's technology capital. The hotel building is conceived as a 'landscaper' A green-roofed promenade swoops up in a mathematically inspired Möbius curve (infinite loop) and sweeps across the dynamic and inviting public spaces, blurring the distinction between architecture and landscape.

Architects: WOW Architects | Warner Wong Design
Area: 19638 m²
Year: 2009
Address:Whitefield, Bangalore, Karnataka, India
Country-India
State-Karnataka
Metro-Bangalore
•Government Body-BBMP

TAJ Hotels, Resorts, and Palaces engaged WOW Architects | Warner Wong Design to design the flagship of their new brand Vivanta. Located at the entrance of the International Tech Park at Whitefield, Bangalore (ITPB), India, the hotel is a gateway statement between the IT Park and the developing city around it. The brief inspired the team to question and push the boundaries of hotel design, not just to address the needs of the discerning business traveler coming to Whitefield, but also to redefine and intensify the hotel as a contemporary socio-cultural hub for both the IT Park and IT-based population in Whitefield.

4.4.2 CONNECTIVITY

- Hotel To International Airport – 45 km
- Hotel To Bengaluru Railway Station – 35 km
- In the vicinity of International Tech Park Bangalore.
- Close proximity to Business areas of EPIP Industrial Area and Prestige Shantiniketan.



4.4.3 SITE PLAN AND GOOGLE EARTH VIEW



Figure 66 Site view

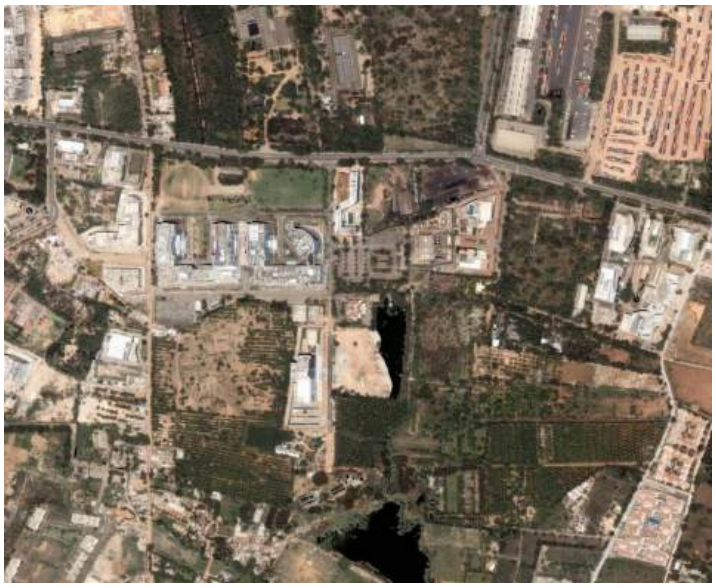
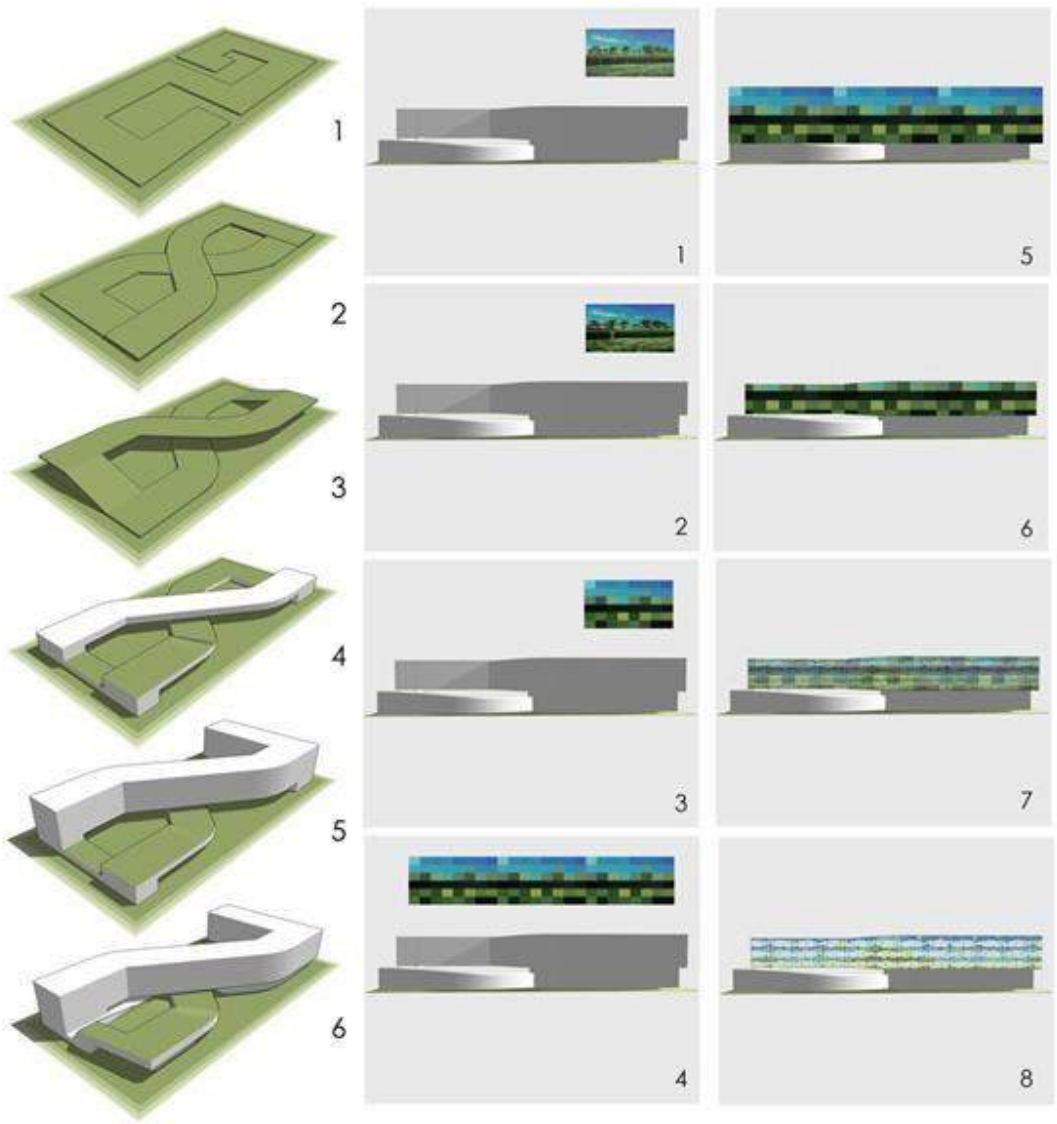


Figure 65 Vivanta by Taj, Whitefield, Bangalore

4.4.4 CONCEPT

Solution for Architecture, Interior, Landscape



The hotel offers 7 room categories:

- Deluxe Room Garden View Queen bed
- Superior Room City View Queen bed
- Premium Room Pool View Queen bed
- Deluxe Suite City View King bed
- Loft Suite Pool view King bed
- Premium Suite Pool View King bed
- Vivanta Suite Pool View King bed

ROOMS AND SUITES

Room Type	No of Rooms
Superior Room City View Queen Bed	89
Deluxe Room Garden View Queen Bed	48
Premium Room Pool View Queen Bed	33
Deluxe Suite City View King Bed	21
Premium Suite Pool View King Bed	3
Premium Suite Pool View King Bed 3 Loft Suite Pool View King Bed	4
Vivanta Suite Pool View King Bed	1

- Superior Room
  Superior Rooms are ideal for the business traveler who seeks distinctive and smart design coupled with comfort and practicality.

- Deluxe Room
  Deluxe Rooms offer sweeping vistas of the hotel's remarkable exteriors and manicured garden. Space-saving design, cool marble flooring, a refined color palette with sophisticated furnishings, and ergonomic furniture go a long way in relieving jet lag and cocooning you in bliss.

- Premium Room Pool View
  Premium Rooms offer breezy views of the pool and badminton court. When not admiring the striking hotel exterior, guests can sink into the surprising warmth of furniture that is as aesthetic as it is ergonomically designed to de-stress fatigued travelers.

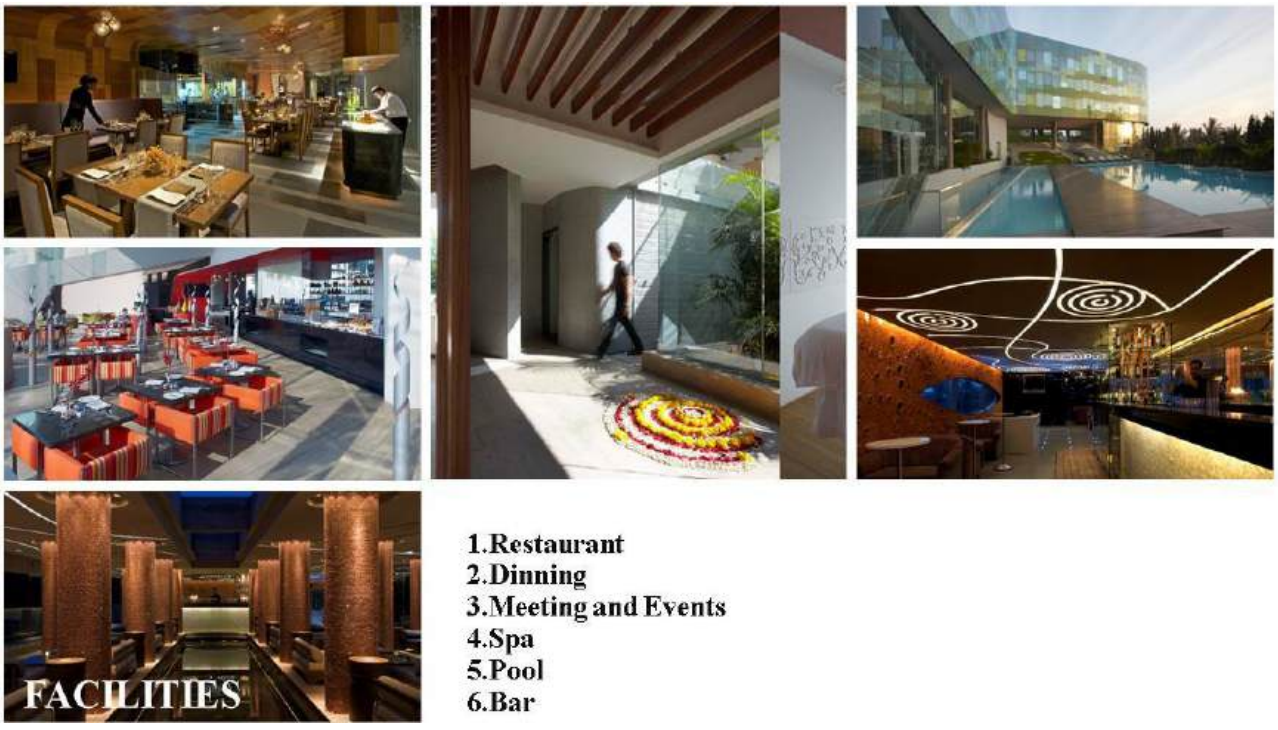
- Deluxe Suite City View
  Our 447 square feet Deluxe Suites are counted among Bengaluru's trendiest guest residences. A separate living room - with a two-seater sofa, dining table, and chic coffee table – leads to the bedroom with a king-sized bed and a Rest easy menu with a choice of pillows.

- Loft Suite Pool View

For fans of the quintessential New York apartment, Vivanta Bengaluru, Whitefield's Loft

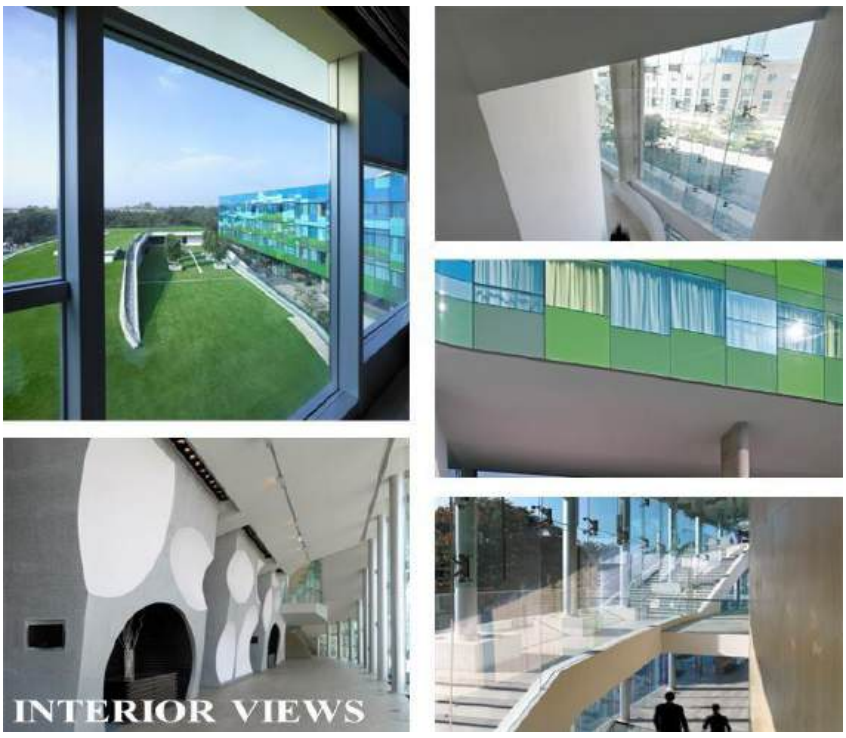


HOTEL FACILITIES

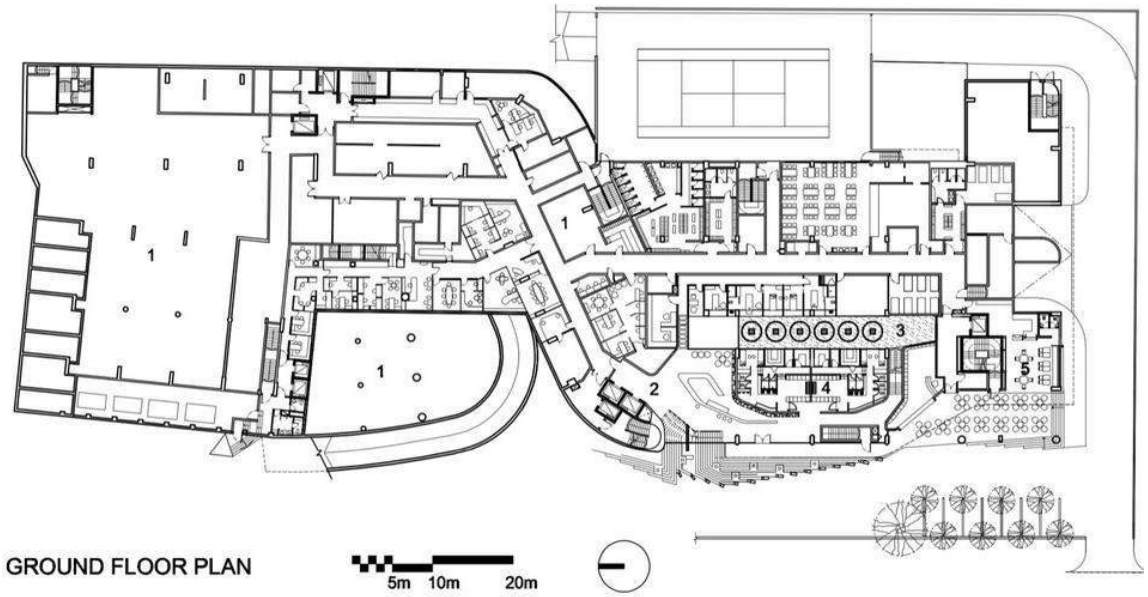


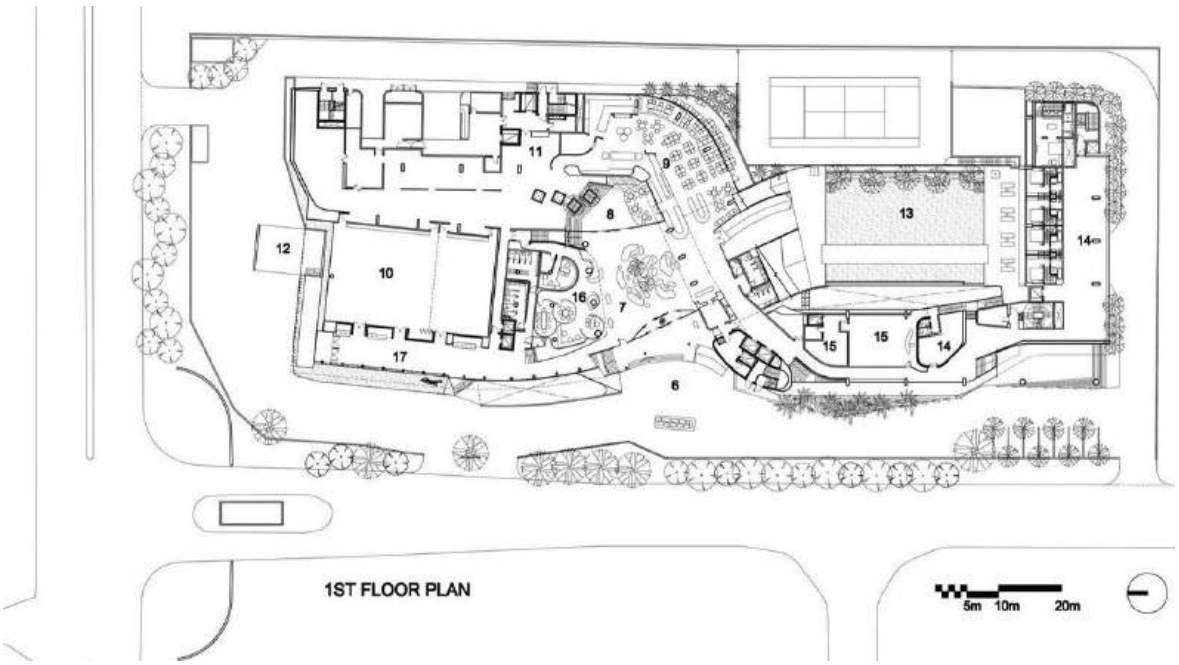
The hotel rooms are housed in a pixelated greenspace. This façade design grew out of a desire for remembrance of the original site prior to development. A digitized image of the site's lush landscape was transposed onto the façade. such that from a distance, the building merges contextually with the greens of the earth and the blues of the sky.





4.4.5 PLANS


1
1
1
2
3
4
5
GROUND FLOOR PLAN
5m 10m 20m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14m
17
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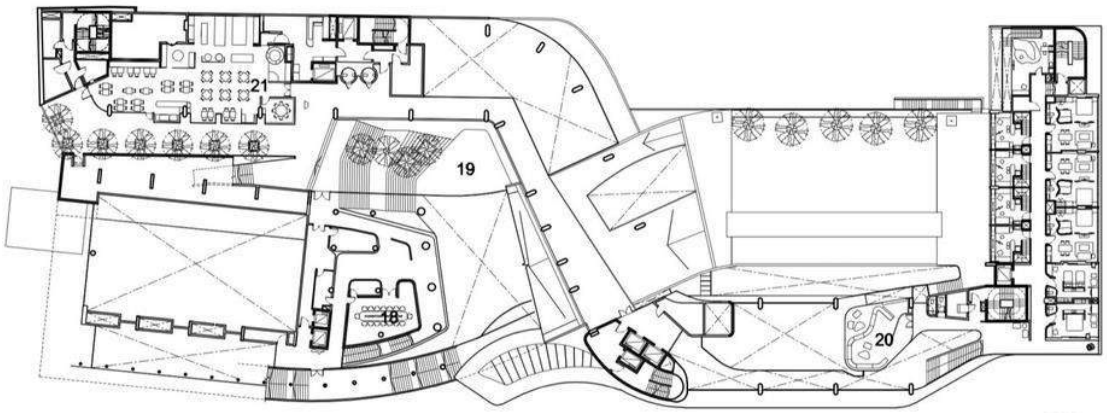
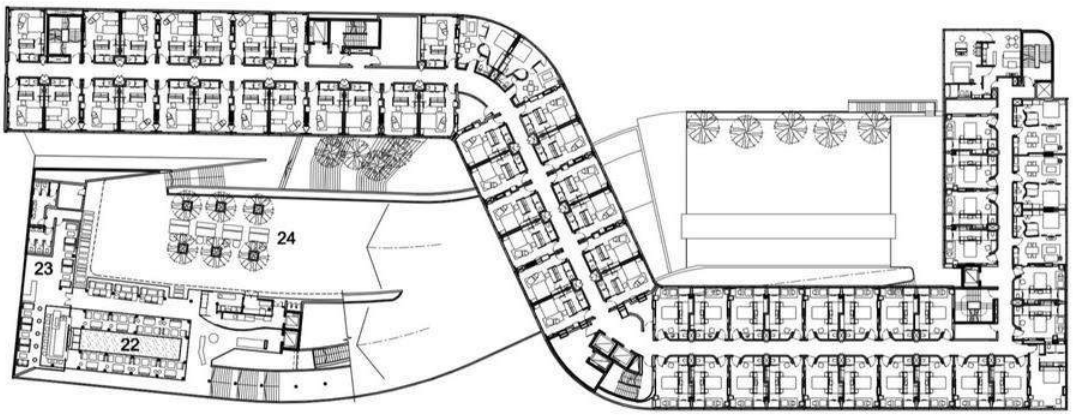
14
6
1ST FLOOR PLAN
5m 10m 20m



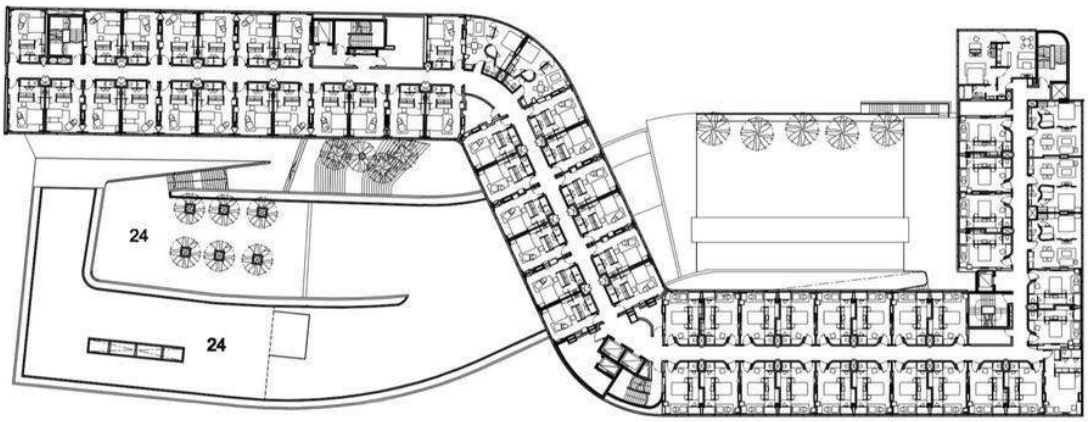
2ND FLOOR PLAN

5m 10m 20m



3RD FLOOR PLAN

5m 10m 20m



4TH FLOOR PLAN

5m 10m 20m

4.4.6 ELEVATIONS

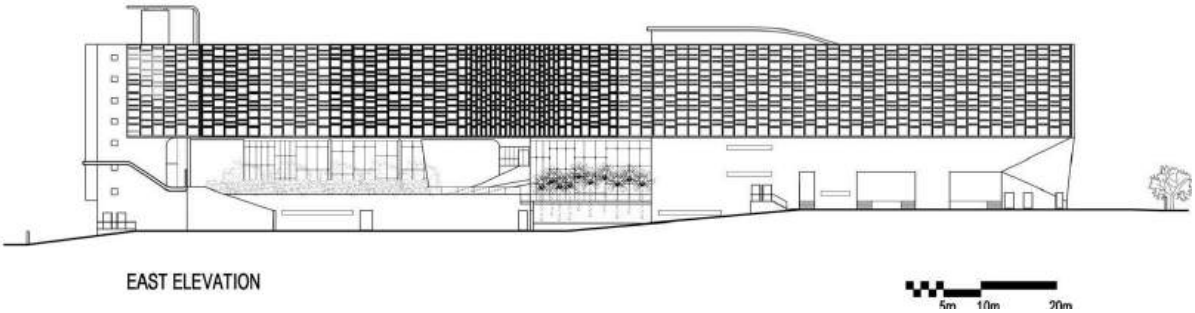


Figure 70 East elevation

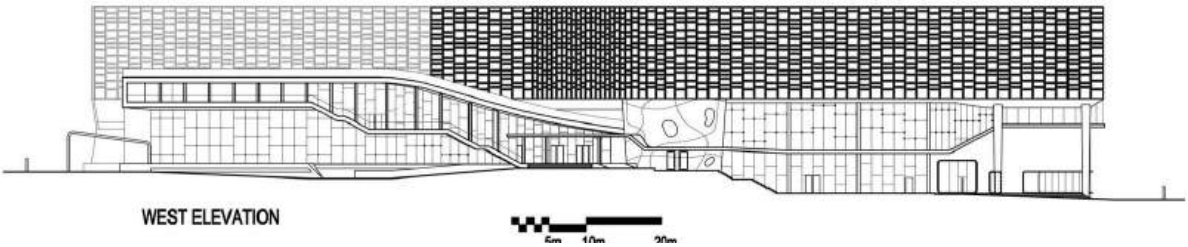


Figure 69 West elevation

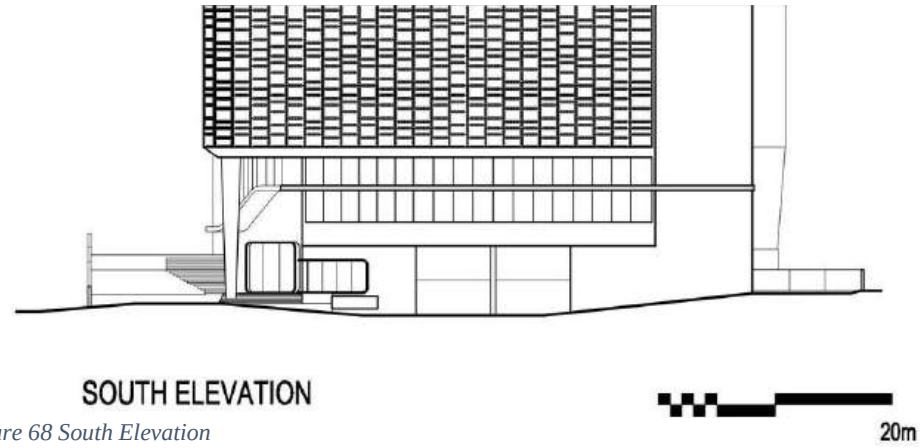


Figure 68 South Elevation

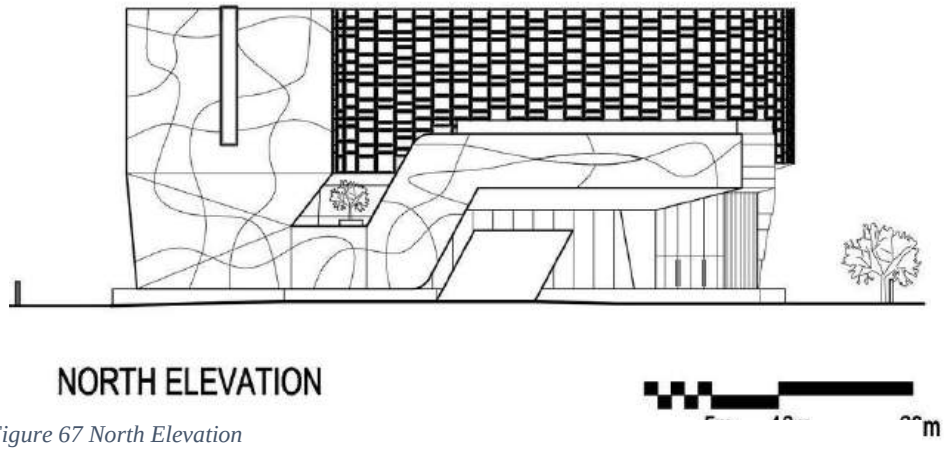


Figure 67 North Elevation

4.4.7 SECTIONS

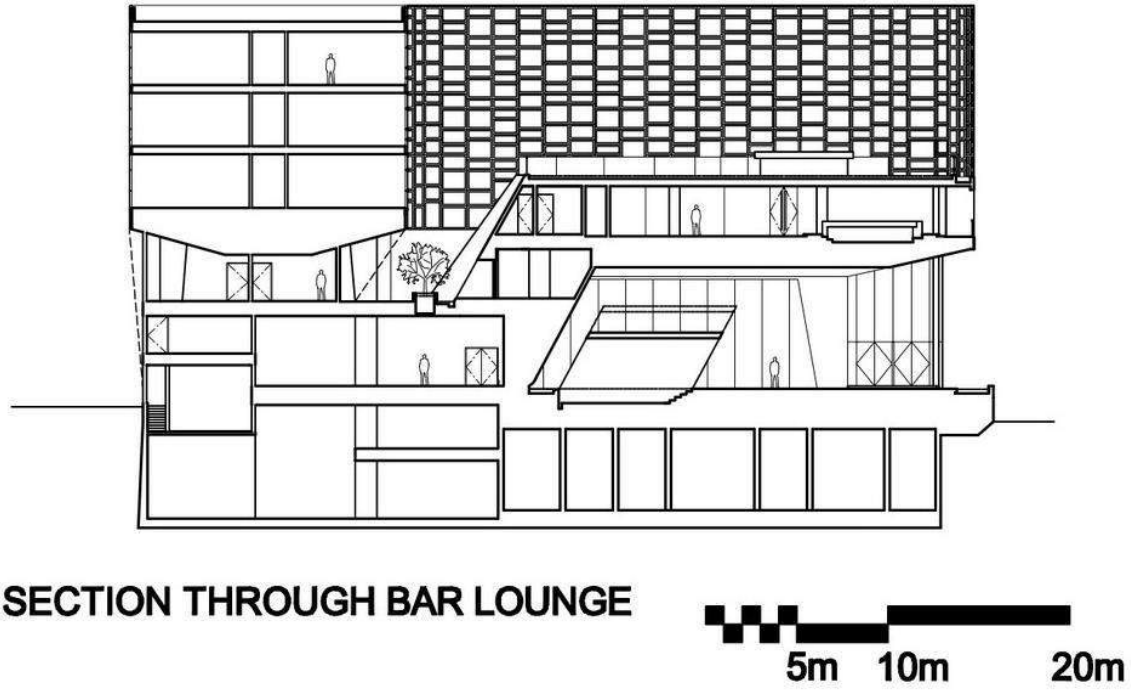


Figure 71 Section through Bar lounge

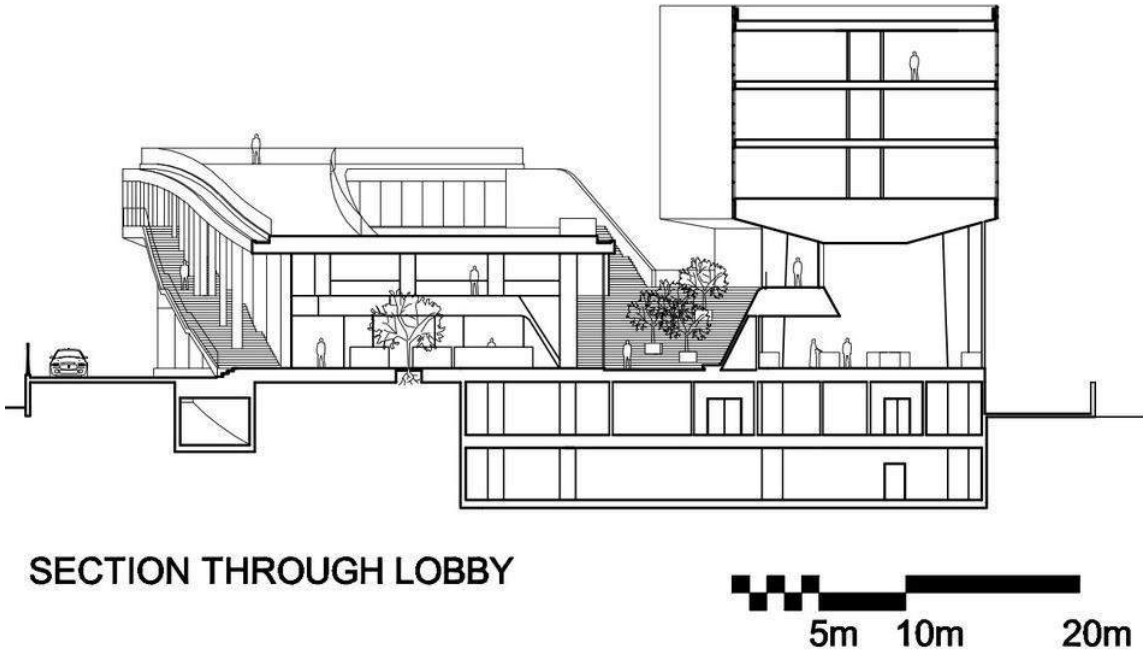


Figure 72 Section through Lobby

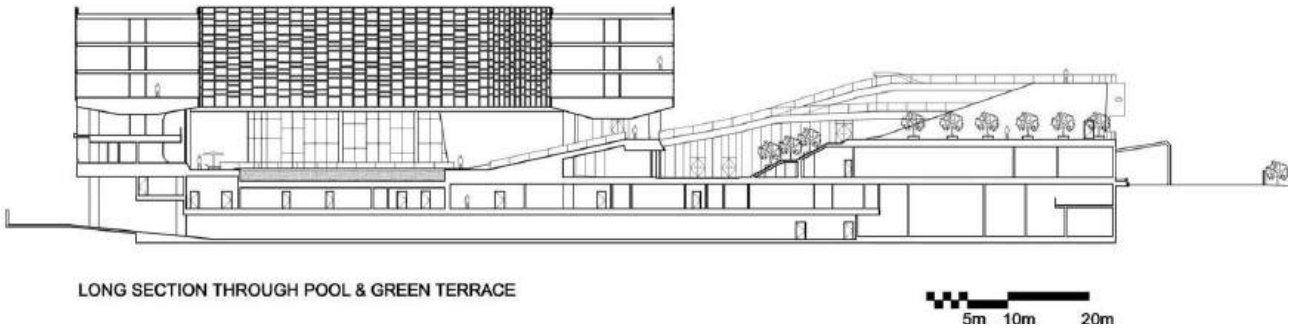


Figure 75 Section through pool and terrace

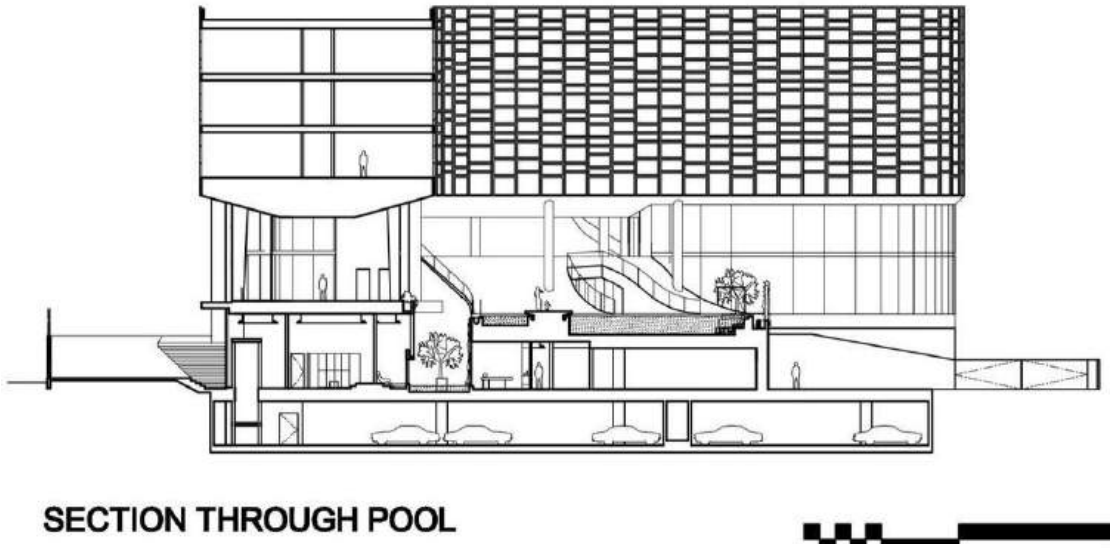


Figure 74 Section through pool

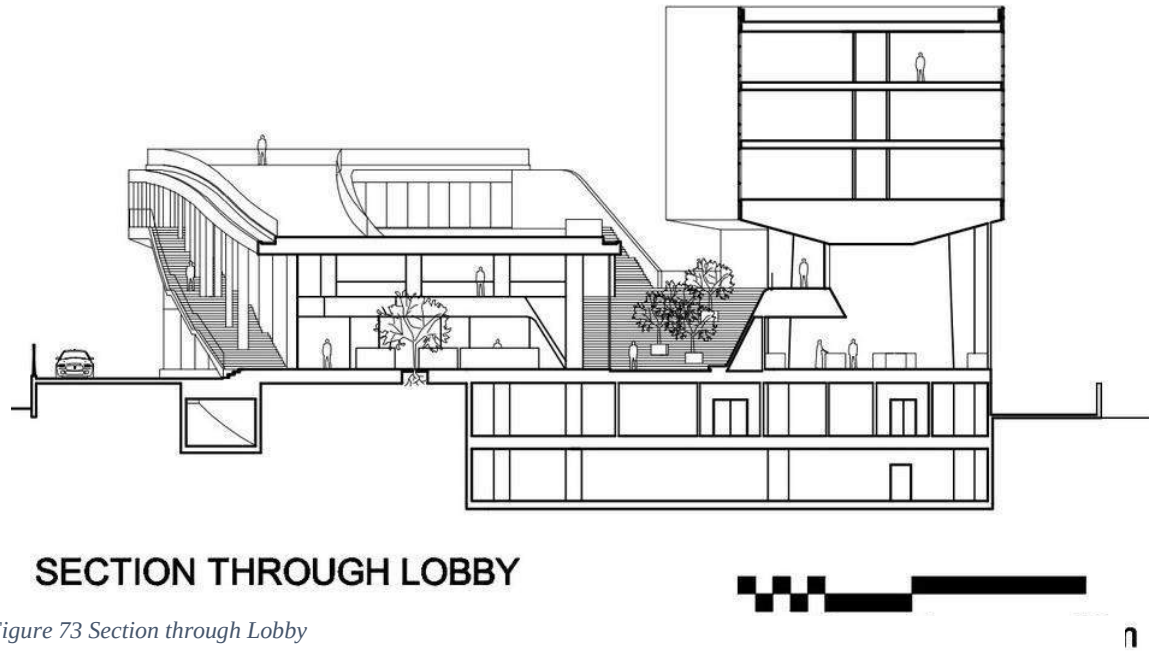


Figure 73 Section through Lobby

4.4 Desk Appraisal 2: Avasa Hotel, Hyderabad

Architect: Nandu and Poole Architects
Founder: Abhimanyu Dhanania
Type: Hospitality
Use: Hotel
Location: Hyderabad, Telangana

Status: operational, inaugurated in year 2012
Site area: 8179 m² (2 Acre approx.)
Built up area: 21,120 sq.m
FAR: 2.5
Year of completion: 2012



Avasa Hotel is designed by Nandu and Poole Associates and takes on unique architecture, interior, and contemporary designs. This well-appointed, 5-star accommodation has 11 floors and houses 217 rooms and suites fit for guests with modern needs and a desire for luxury. The hotel has 17,000 sqft of banquet and convention space. The three dining options include Pi for all day

4.4.3 LOCATION







4.4.3 DESIGN PHILOSOPHY

As you drive towards Hi tech city, looking at block after block of built FAR, there is a break from the concrete boxes of commercial and apartment buildings. You see the 9 floor frame with stepped terrace gardens, 'The Avasa'.

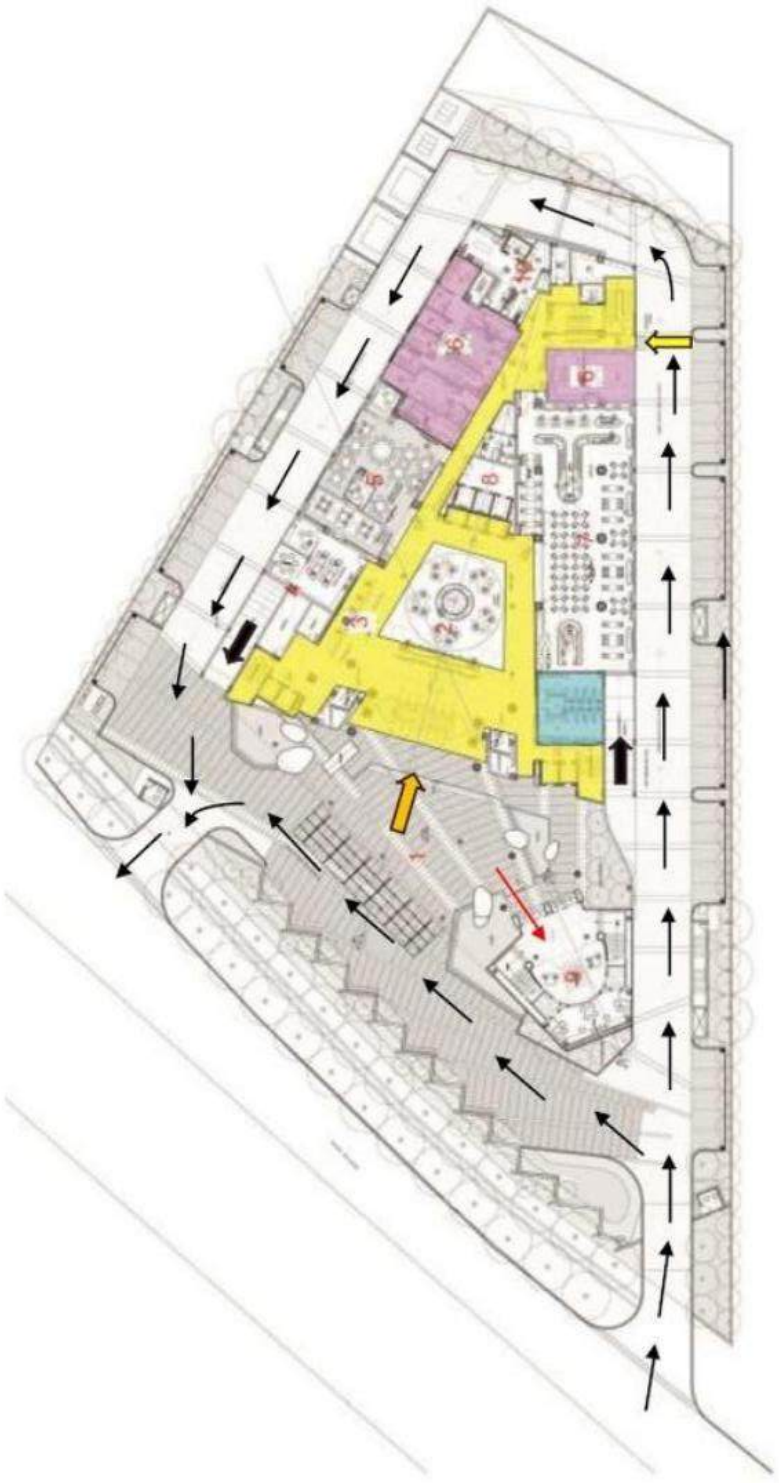
The irregular shaped site was the biggest design challenge. The site is wide towards the road and narrows down towards the back. The building follows the site and looks like the letter 'A' in plan.
One of the aims of the design was to respect the given site. Thus, the design of the hotel responds to its context with a highly site-specific scheme. Due to limited open space on site and in the vicinity, a continuous green space has been conceived in the form of stepped terraces. These terraces are visually connected from the third level to the top floor. Thus, the rooms are arranged along the two arms of the 'A' and the connecting slab between the two arms acts as terrace space which step back as one goes to the higher levels.





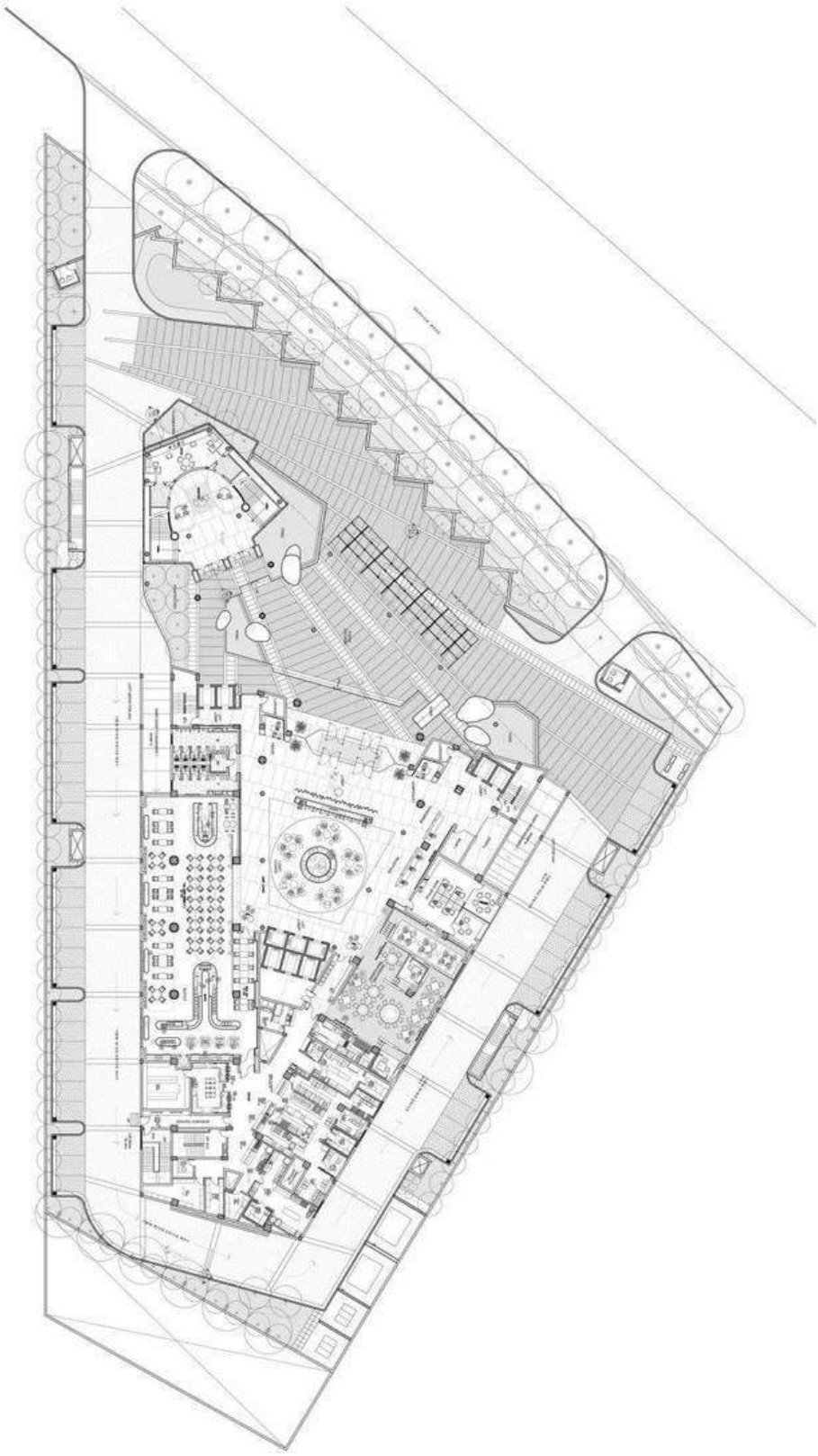


4.4.4 SITE PLAN



4.4.5 FLOOR PLANS

MASTER PLAN – GROUND LEVEL



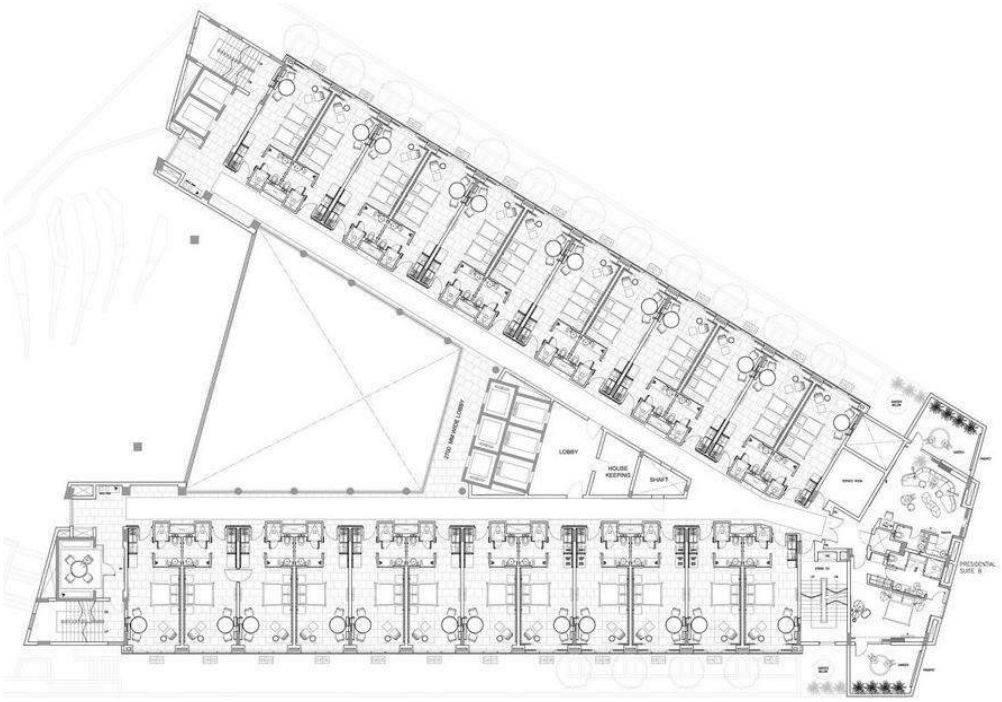


Figure 76 Third floor plan

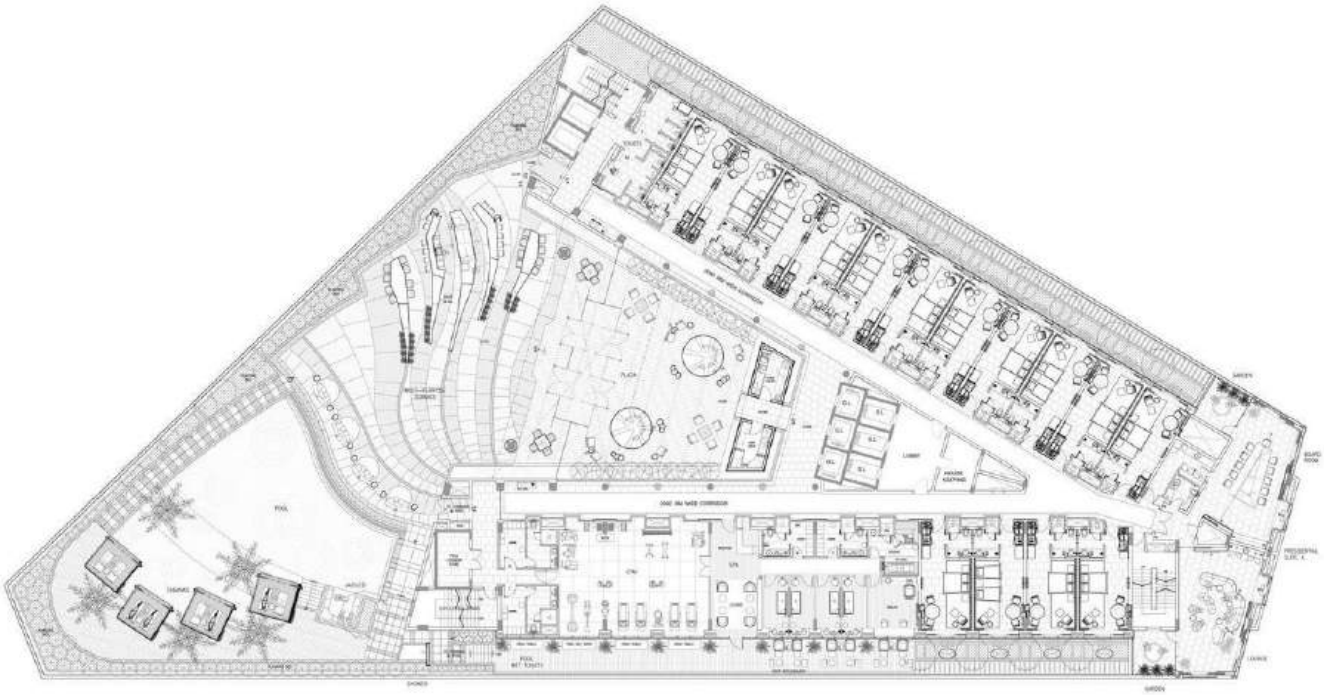


Figure 77 Fourth floor plan

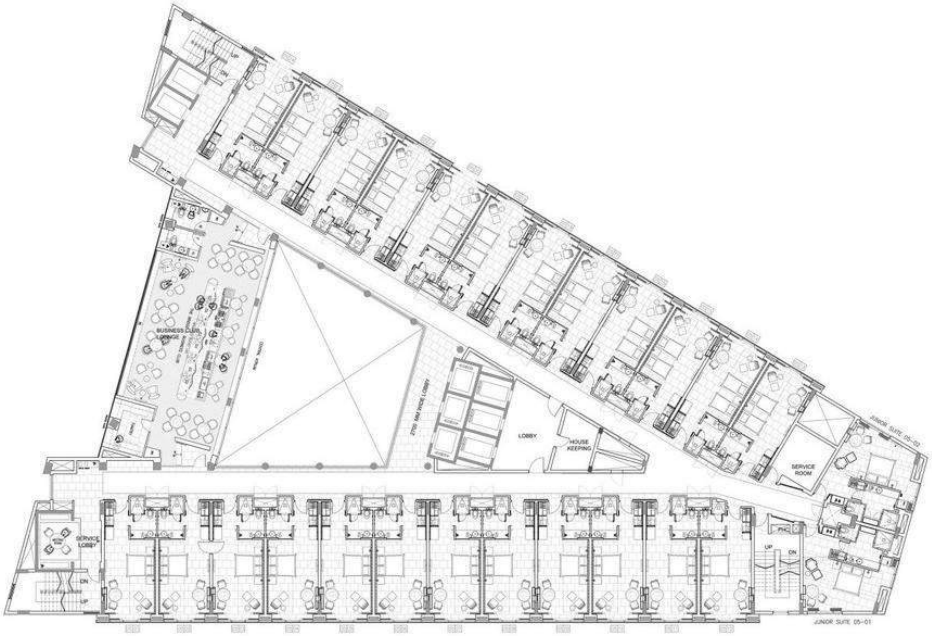


Figure 78 Fifth floor plan

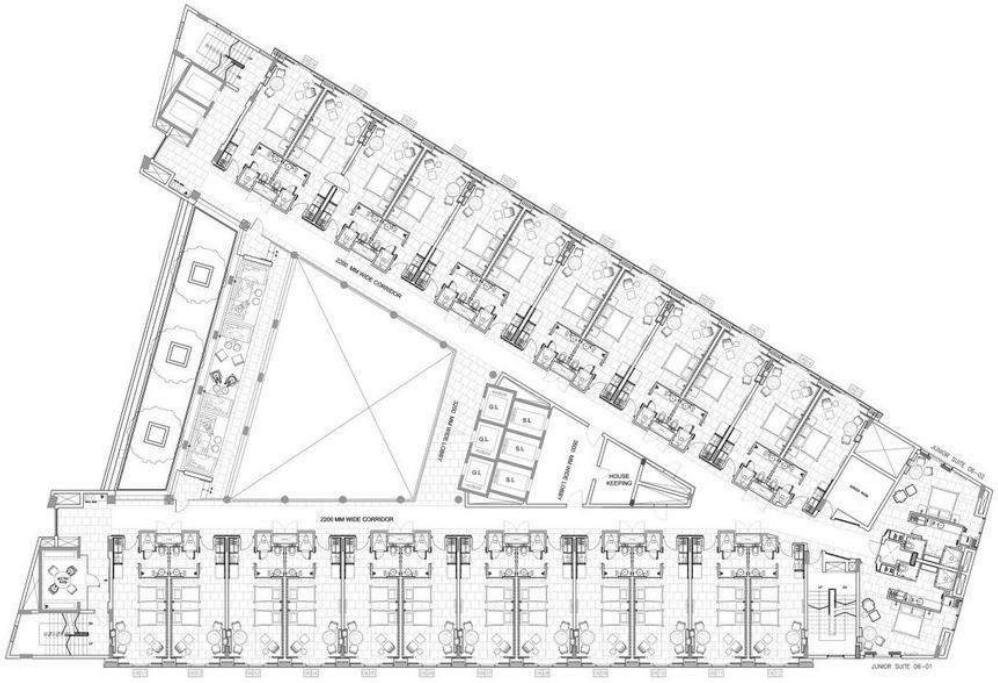


Figure 79 Sixth floor plan



Figure 80 seventh floor plan



Figure 81 Eight and ninth floor plan



Figure 82 tenth floor plan

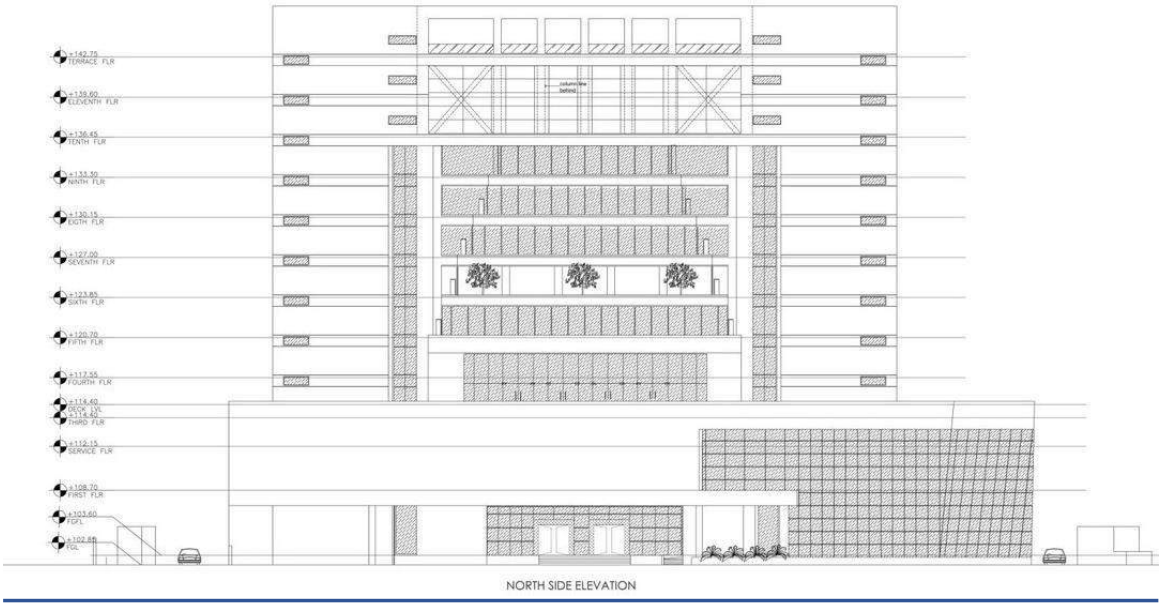


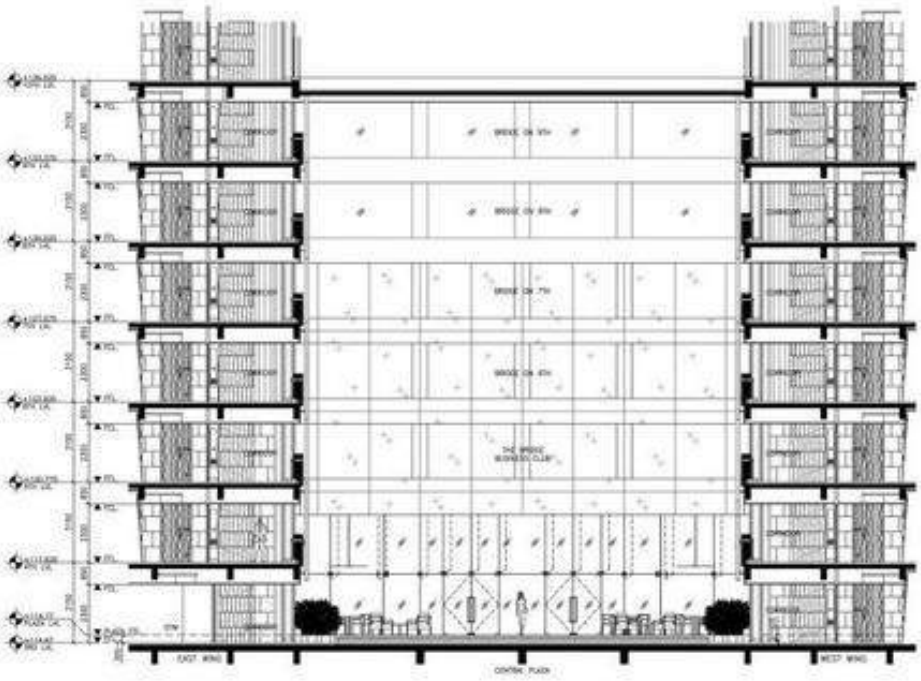
Figure 83 North side elevation



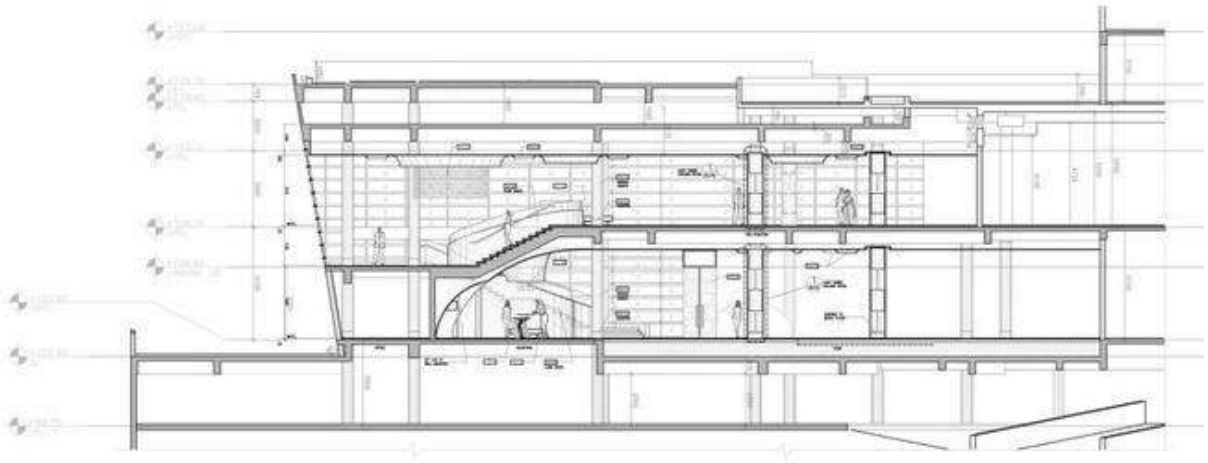
Figure 84 West side elevation



SECTION 1-SECTION THROUGH TERRACE AND CENTRAL PLAZA



SECTION 2-SECTION THROUGH CENTRAL PLAZA FACING TERRACE



SECTION 3-SECTION THROUGH GRAND STAIR-CASE

AVASA SILVER AND PLATINUM CLUB

1. Room – 35 sqm, Toilet – 7 sqm
2. LCD TV
3. iPod docking station
4. Wired & wireless broadband internet access
5. Electronic safe
6. Personal bar
7. Iron Board
8. Complimentary Buffet Breakfast
9. One Way Airport Conveyence
10. Media Hub, Happy Hour cocktails at Bridge Business Club



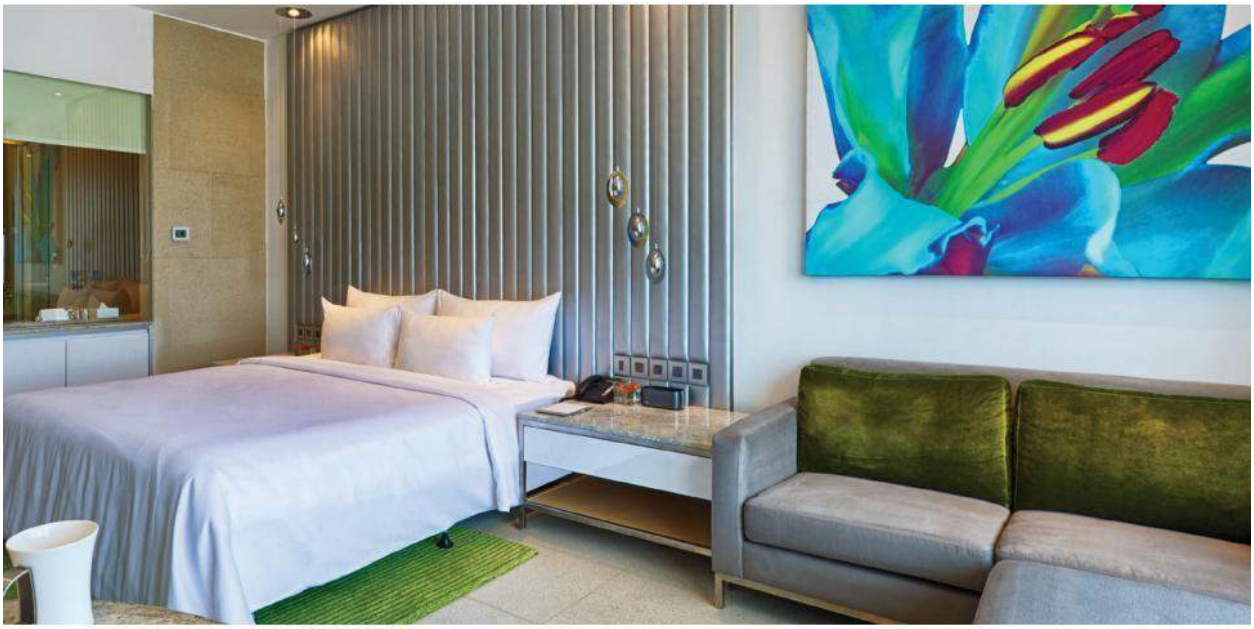
AVASA STUDIO SUITE

1. Room – 40 sqm, Toilet – 12 sqm
2. LCD TV • iPod docking station
3. Wired & wireless broadband internet access
4. Electronic safe
5. Personal bar
6. Iron Board
7. Complimentary Buffet Breakfast
8. An hours' use of the Meeting room
9. Two-way Airport conveyance



AVASA GALLERY SUITE

1. Room - 70 sqm, Toilet – 12 sqm
2. LCD TV
3. iPod docking station
4. Wired & wireless broadband internet access
5. Electronic safe
6. Personal bar
7. Iron Board
8. Complimentary Buffet Breakfast
9. 2 hours use of the Meeting room
10. Two way Airport conveyance
11. Complimentary Cocktails at Bridge Business Club



VEGA MEETING ROOM

1. Ball room
2. Area: 186.27 sqm
3. 140 seater



4.4.6 AREA DIVISIONS

SPACE	AREA (sqm)	CAPACITY
Entrance Lobby	270.423	25
Back Office	83.18	12
Service Area	210	30
Restaurant 1 Kitchen 1	468.8 210.2	100
Restaurant 2 Kitchen 2	240 175.8	70
Servicing Area	96.08	
Administrative Area	125.8	
Ballroom 1	532.3	550
Ballroom 2	186.27	140
Conference Hall	145.8	100
Boardroom 1	74	25
Boardroom 2	70	20
Gym	166.8	20
Spa	161.1	20
Swimming Pool	500.45	
Room 1	35	2
Room 2	40	2
Room 3	70	2
Business lounge	180	45
Sky Bar + Lounge	208.6	70
Shops	30	

COMPARITIVE ANALYSIS

Parameter	Novotel Hotel Vizag	Hotel Taj Bhopal
		
Architect / Designer	Not publicly specified; built by Novotel group	Indian Hotels Co. Ltd. (Taj Group)
Client / Owner	Accor Hotels	Taj Hotels & IHCL
Year of Construction (Start & Completion)	2008 – 2011 (approx.)	Early 2000s
Total Project Cost (Budget)	N/A	N/A
Site Area	~4 acres beachfront	~5 acres near lake
Built-Up Area	~300,000 sq ft	~250,000 sq ft
Primary Function	5-star luxury beachfront hotel	5-star luxury heritageinspired hotel
Climatic Conditions	Hot & humid coastal climate	Composite climate (hot summers, monsoon, mild winters)
Orientation & Views	Oriented to maximize Bay of Bengal sea views	Lake-facing orientation, landscaped courts
Accessibility & Road Network	Located on RK Beach Road, well connected to city	Near central Bhopal & airport
Public Transportation / Pedestrian Connectivity	Good – connected to city transit & beach promenade	Connected to city bus & road network
Topography of Site	Flat coastal site	Slightly undulating near lake
Zoning & Legal Restrictions	Coastal Regulation Zone norms	Local municipal zoning norms

Integration with Surroundings	Strong visual & functional link to RK Beach	Blends with Bhopal's lakefront & historic sites
Historical / Cultural Significance	Modern coastal identity	Inspired by Mughal/local architectural heritage
Design Idea & Philosophy	Coastal leisure + modern business hospitality	Heritage + luxury blend
Landscape Features	Lawns, pool deck, sea-facing terraces	Lakefront gardens, courtyards
Sustainability Features	Passive cooling, daylight use, local vegetation	Local stone, energyefficient systems

Structural System	RCC frame + glass façade	RCC frame, stone cladding
Materials Used for Structure	Glass, steel, RCC	Sandstone, RCC, concrete
Façade Treatment	Contemporary glass façade with sea-facing balconies	Local stone cladding + modern elements
Ventilation & Lighting	Natural + mechanical	Natural courtyards, artificial
Services (MEP, HVAC, Safety)	Modern HVAC, sprinklers, safety norms	Centralized HVAC, fire exits
Renewable Energy Features	Solar panels (partial)	Limited renewable integration
Water Management	Coastal water conservation	Water recycling & storage
Waste Management & Recycling	Segregation, modern practices	Local disposal systems
User Experience & Comfort	Leisure-oriented, panoramic sea views	Blend of tradition + luxury, immersive
Cultural / Design Influences	Coastal / nautical interiors	Mughal + local motifs
Other Features	Infinity pool, spa, beachside dining	Heritage-inspired lobby, gardens
Inference (Design Learnings)	Orientation to natural site enhances sustainability & comfort	Blending heritage with modern luxury adds timeless identity

Hotel Vivanta Bangalore	Avasa Hotel Bangalore	Galle Face Hotel Sri Lanka
		
Indian Hotels Co. Ltd.	Avasa Group collaboration with architects in Bangalore	Originally built by British entrepreneurs; restored by Galle Face
Taj Hotels & IHCL	Avasa Hotels	Private Heritage Hotel Group
2009 – 2012	2011	1864 (colonial era) – restored multiple times
N/A	N/A	N/A (heritage restoration costs ongoing)
~2 acres (urban IT hub)	~2 acres	~10 acres seafront
~200,000 sq ft	~220,000 sq ft	Large colonial block (~400 rooms)
5-star business + leisure	5-star business + convention	Heritage luxury seafront resort
Tropical wet & dry climate	Tropical wet & dry	Coastal tropical with high humidity
Tower form with city views	Podium + tower format	Sea-facing, colonial veranda orientation
Located in Whitefield/IT hub	In commercial district	Colombo seafront, accessible from city center
Strong metro & IT corridor links	Urban road connectivity	Strong pedestrian link with Galle Face promenade
Flat urban land	Flat	Flat coastal strip
Urban Bangalore building norms	Business district zoning	Heritage conservation restrictions
Fits Bangalore's IT skyline	Merges with commercial hub	Seamlessly integrates with Colombo promenade

Contemporary Indian design	Modern corporate style	Colonial-era landmark since 1864
Business + leisure, technologydriven	Convention/business-oriented luxury	Heritage preservation + luxury
Rooftop gardens, terraces	Rooftop pool, banquet lawns	Colonial lawns, seafront promenade
IGBC certified, efficient lighting & HVAC	Rainwater harvesting, recycling systems	Thick walls, adaptive reuse, natural ventilation

RCC with curtain wall	RCC with curtain wall	
Glass, steel, modern finishes	Glass, aluminum, RCC	additions Lime plaster, timber, stone
Sleek curtain wall, reflective glass	Minimalist geometric façade	Restored neoclassical façade, arches, verandahs
Natural light with efficient glazing	Daylight & artificial	Large colonial windows, verandahs for airflow
Smart HVAC + modern fire safety	Central AC, advanced safety systems	Adaptive reuse + modernized fire & safety
Solar energy + water saving	Rainwater harvesting + greywater reuse	Minimal renewables, relies on heritage techniques
Rainwater harvesting, STP	Rainwater harvesting & reuse	Historic wells + modern systems
Advanced hotel waste mgmt.	Segregation & disposal	Heritage-sensitive systems
Business + leisure, tech features	Business comfort, large banquets	Heritage nostalgia + luxury
Modern Indian chic	Minimalist modern	Colonial + Sri Lankan cultural heritage
Tech-enabled rooms, rooftop lounges	Convention center focus	Museum-like heritage displays, restored ballrooms
Vertical compact planning suits urban hubs	Business-convention typology requires multifunctional spaces	Heritage preservation + adaptive reuse enhances sustainability & cultural identity

Masonry + timber + colonial RCC

INFERENCES

FOLLOWING ARE THE INFERENCES DRAWN OUT OF THE ENTIRE STUDY-

1. Hotel should have multiple entries. The entries for the visitor to restaurants and banquet hall should be separate from the entry to visitor who are coming hotel for stay.
2. To ensure the seamless flow of activity the individual kitchen of every restaurant, pantry of banquet should connect to the main kitchen.
3. Since the size of the plot is restricted therefore incorporating green punctures inside the building could help in
4. Low to medium price range room with major footfall are generally placed in lower floors as compared to luxury suits.
5. A clear circulation pattern should be formed so the it will could help in general running to the hotel and the speedy visitor.
6. Provision for waste management and energy saving should be done.

A 5-star hotel is typically considered to be a luxury accommodation option that offers a high level of service, amenities, and facilities. Based on this understanding, here are some inferences about a 5-star hotel:

1. **Superior Service**: A 5-star hotel is known for providing exceptional customer service. The staff is expected to be highly trained, professional, and attentive to guests' needs. They should be able to assist with various requests promptly and efficiently, ensuring a memorable and comfortable stay.
2. **Elegant and Comfortable Rooms**: The hotel should offer well-appointed rooms that are spacious, elegantly furnished, and equipped with modern amenities. This may include comfortable beds with premium bedding, a minibar, flat-screen TV, high-speed internet access, and a private bathroom **with luxurious toiletries.**
3. **Dining Options:** A 5-star hotel typically offers a variety of dining options, ranging from upscale restaurants to casual cafes and bars. These establishments are expected to provide a diverse menu of high-quality cuisine prepared by skilled chefs. Room service is also commonly available 24/7.
4. **Recreational Facilities:** To enhance guests' experiences, a 5-star hotel often provides a range of recreational facilities. This may include a well-equipped fitness center, swimming pool, spa, sauna, steam room, and possibly even a salon. These amenities are designed to promote relaxation, rejuvenation, and overall well-being.
5. **Business and Event Facilities**: Many 5-star hotels cater to business travelers and offer comprehensive business facilities, such as meeting rooms, conference halls, and audiovisual equipment. Additionally, they may provide event planning services for weddings, parties, and other special occasions.

Extraordinary Amenities: A 5-star hotel often goes above and beyond to offer unique amenities that set it apart. These could include a concierge service, valet parking, chauffeur

services, a luxury car rental, personal butlers, a helipad, or even private access to exclusive areas like a club, lounge or a secluded beach.

7. Prime Location: 5-star hotels are commonly situated in desirable locations, such as city centers, popular tourist destinations, or scenic areas. They often offer beautiful views, convenient access to local attractions, and proximity to business districts or transportation hubs.

It's important to note that while these inferences generally apply to 5-star hotels, the specific features and services can vary between establishments. It's always advisable to check the amenities and services provided by a particular hotel before making a reservation.

ENTRANCE

- Entry to be divided in lanes each 3.3 m wide
- Lanes divided into 3 parts DROP OFF LANE, PICK UP LANE, BYPASS LANE.
- From drop off lane there is a 4m wide entrance plaza waiting + Security check + Space for tall console + Pick up Bags

SECURITY AND LUGGAGE

- Baggage scanner opens inside hotel (it is enclosed and air conditioned to reduce heat generation)
- Isolated service entry
- Temperature-22 -23 degree Celsius inside hotel and outside temperature is higher
- Air lock lobby (pressurized lobby) at entrance to maintain inside temperature and avoid heat waves entering hotel when door is opened
- Air lock lobby should be 3-4m wide with sliding doors +motion sensors
- Revolving door at entrance serves the same purpose as airlock lobby but is expensive.3 or 4 wing with 2.4 or 2.7m dia. revolving door
- Avoid multiple entrances to hotel
- No floating column

SERVICES:

- STP-80lt from STP can be used inside hotel if requirement is 100lt.
- Pumprooms-500-600 mm down from water tank
- Ro plants
- Water tank-2 sq m per key
- Boilers, hot water/heat pumps-0.5 sqm per keY

- HVAC- chiller (basement and enclosed and 1.5 sqm per key) and cooling tower (at higher lvl and open)
- Panel room-basement ,0.3 sq m per key
- Engineering workshop
- Gym area-4 keys

PUBLIC AREA

- Reception-minimum 4 people on reception.4-5 kiosk for reception, front desk working 24x7, luggage room connected with luggage elevator
- Small space for luggage inside hotel after baggage check.
- Separate lifts for luggage, service and guests
- Min. 2 service (1 for garbage) and 2 guest lift and 1 luggage lift and structure elevator
- 25 passenger lift (guest and service) in luxury hotel
- Max. waiting time for lift-45 sec (speed 5km/hr)and for car is 3 min.
- Isolated hidden space for service vehicle
- Empoyee-2.25 per key
- Built up area -125 sqm per key (high luxury 5 star) and 100 sq m for normal 5 star
- Lobby lounge area-1 sqm per key 130
- Lobby lounge-also act as emergency assembly point and should have separate restrooms for 200 sq m of space max 40 seating.
- Reception, lobby, guest lift, banquet should be near each other.

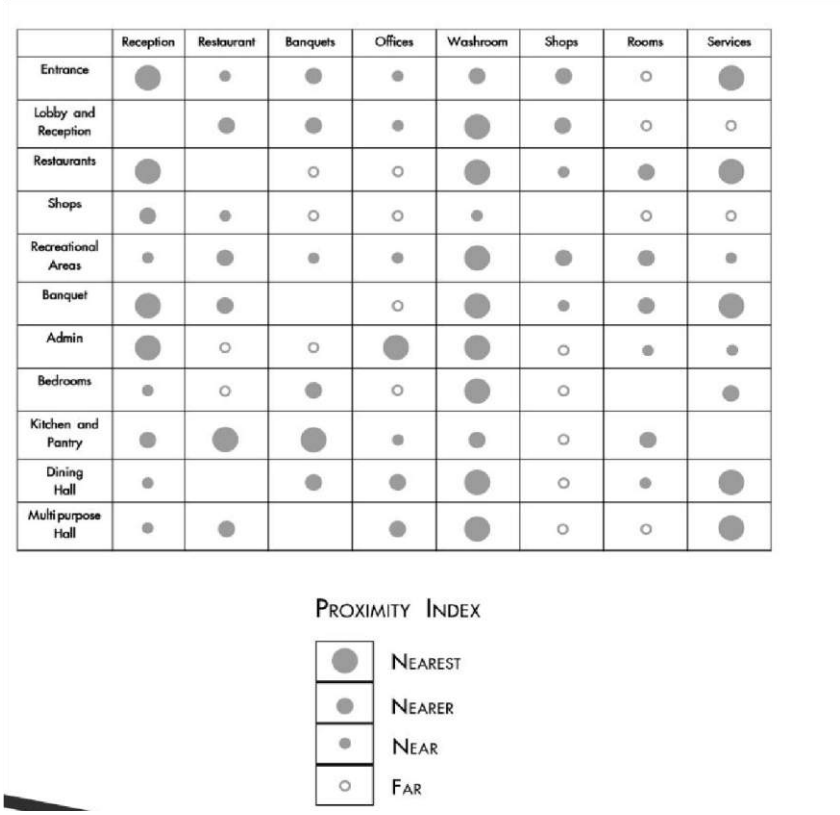
DINING AND BANQUET

- All day dining 24x7-breakfast space (divide people in 3 shifts). For 200 key hotel 0.75-1 passenger per key. live counters for food preparation
- Buffet-length is 0.1m per key. Design max 2seater (60-70%) and 4seater (20-30%), Banquet sitting-sofa for families (5-10 %)
- Laundry-35 m sq. per key
- Banquet- ballroom style or theatre style
- For 200 key hotel-100-person banquet (B:L=1:1.8,1:1.2) with separate restrooms and kitchen.
- Pre function area -1/3 of banquet (social gathering and food serving)
- Service corridor behind banquet connecting it with kitchen
- Min ht-5-5.5m clear ht.

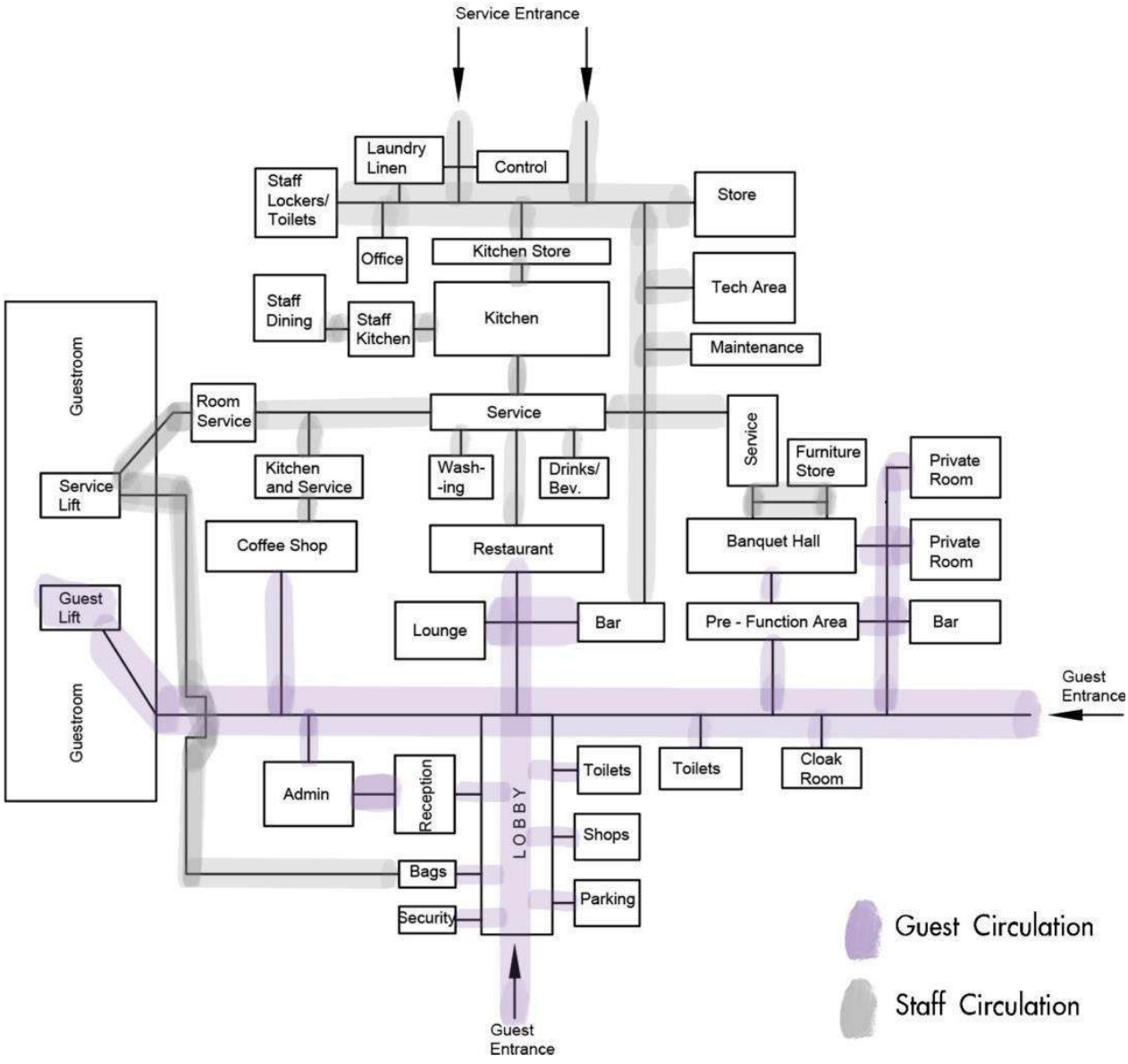
OTHER DETAILS

- Major traffic /circulation-convention + hotel + retail + banquet (entry and exit of hotel and other components should be separate)
- Separate banquet from hotel to avoid crowd during functions.
- Staircase at every 45 m
- Doors should be 200-150mm inside from corridor (not to be seen from corridor)
- Corridor-carpeted floor-l.5-1.9m wide
- Shafts for toilets (shared by 2)- 1.35xO.75m
- Air-Conditioned Rooms
- Furniture-
    - Table -750mm
    - Bed -550 mm
    - Side table/coffee table-450/550
    - Toilet fixtures-
    - 4 fixture toilet-w.c, wash basin, shower, bathtub
    - 5 fixture toilet-w.c , 2 washbasins, shower , bathtub

PROXIMITY OF SPACES



CONNECTIVITY OF SPACES



5.1 DESIGN THEME

The proposed 5-star hotel draws its architectural inspiration from **Dutch Colonial design**, reinterpreting the timeless elegance of the style through a contemporary lens. Rooted in symmetry, proportion, and a strong visual rhythm, Dutch Colonial architecture provides a refined aesthetic that aligns seamlessly with luxury hospitality. The design language of the hotel integrates the signature elements of Dutch Colonial heritage—**steeply pitched gable roofs, wide overhangs, masonry façades, arched openings, and finely detailed wooden features**—while adapting them to the functional and experiential needs of a modern 5-star property

5.2 AREA STATEMENT

S. NO.	Description	Area/Unit	Unit	Total Area SQM
	GROUND FLOOR			
	HOTEL RECEPTION			
1	Waiting Area			109.02
2	Currency Exchange			55.44
3	Double Height Hotel Lobby			307.56
4	Bell Boy			20.5
5	Front Office			19
6	Common Meeting Room			54
7	Toilet (F)			36.3
8	Toilet(M)			24.42
9	Toilet(PH)			3.6
	BANQUET			
1	Banquet's Manager			55.44
2	Meeting Room			28.8
3	Double Height Banquet lobby			307.56
4	Asst. Banquet's Manager			34.56
5	Store And Record			20.88
6	Banquet Hall 250 Capacity Double Height			511.94
7	Stage			44.94
8	Pre Function Area Double Height			201.64
9	Toilet (F)			28.8
10	Toilet (M)			21.6
11	Toilet (PH)			6
12	Junitor			7.8
13	Plumbing Shaft			6.4
14	Bride's Room			23.68
				23.68
	SERVICES			
1	Plumbing Shaft			3.3
2	Luggage Room			36
3	Mec.Duct			5.25
4	AHU			21
5	Electrical Room			13.68
6	Electrical Duct			2.7
7	Garbage Chute			2.7
8	Garbage Room			13.32
	STORAGE AREAS			
1	Room Linen Store			33.63
2	Guest Supply And Amenity Store			24.99
3	Upholstery Store			22.05
4	F&B Linen Store			30.38
5	Wash Area			63.84
6	Dish And Pot Wash			63.84

7	Dish And Pot store			91.96
8	Housekeeper Executive			26.46
9	Tailer			21.56
10	Dry Clean Area			50.82
11	Store Manager			26.46
12	Room llinen Store			21.56
13	storage			97.28
14	Furniture store			57
15	F&B store			83.25
	RESTAURANT & KITCHEN			
1	Lobby			115.92
2	Fine Dining Restaurant			468.93
3	Bar			170.8
4	Restaurant Kitchen			195.92
5	Room service kitchen			125.43
6	Kitchen storage			52.17
7	Banque kitchen			139.86
8	Refrigerated Beverage			17.15
9	Beverage Stoe			17.15
10	Bakery Area			19.11
11	Store Room			28.4
12	Chef's Office			42.3
	FIRST FLOOR			
	SWIMMING POOL			
1	Swimming pool filtration plant			98.58
2	swimming pool filtration plant			104.72
3	swimming pool support plant			69.75
4	Plumbiing Shaft			4.75
	OFFICES			
1	Discussion Room			33.55
2	Accounts Office			86.68
3	Executive Office			88.2
4	General manager			34.65
5	Discussion Room			34.65
6	Store & copying			27.9
7	IT Office			85.76
8	Battery /Ups Office			43.52
9	Sales & catering Office			214.2
10	Common Meeting Room			75.05
11	Pantry			26.07
	KITCHEN			
1	Staff kitchen			319.8

2	Kitchen store			64.78
3	staff Dinning			453.05
	TRAINING CELL			
1	E Learning			50.56
2	HR Manager			32.13
3	Training Manager			24.99
4	Ass. HR Manager			22.95
5	Training Room 1			49.28
6	Training Room 2			49.28
7	Female Staff Lockers			169.92
8	Female Staff Restroom			120.08
9	Male Staff Restroom			134.55
10	Male Staff Room			149.04
11	Female Staff Changing			40.28
12	Male Staff Changing			36
	SERVICES			
1	Electrical Room			13.68
2	Garbage Room			2.7
3	Elec Duct			2.7
4	Garbage Chute			13.32
5	AHU			21
6	MEC Duct			**5.25**
7	Banquet Hall storage			106.88
8	Plumbing shaft			6.4
9	Storage			44.8
10	Toilet (M)			
11	Toilet(F)			
12	Toilet(PH)			
	SECOND FLOOR			
	SPA / SALON / SWIMMING POOL			
1	Swimming Pool			222
2	Kids Swimming Pool			124.32
3	Male Changing Room			79.36
4	Female Changing Room			103.5
5	Steam Room Female			89.28
6	Steam Room Male			129.36
7	Steam Room Reception			37.8
8	SPA &Salon			504.51
9	Massage Room			15.04
10	Salon			73.92
11	Couple Massage Room			20.21
12	SPA Store & Pantry			52.5
13	Salon			90.52
14				
	CAFETERIA / SHOPPING AREA			

1	Cafeteria			229.08
2	Kitchen			53.9
3	Shopping Arcade			324.3
4	Activity Centre			278.76
5	Gymnasium Store			44.37
6	Gymnasium			530.7
7	Male Change Room			21.42
8	Female Change Room			22.95
9	Multisport Court			135
	MEETING ROOMS			
1	Meeting room 3			39.84
2	Conference Room			70.29
3	Business Center			550.14
4	Store			36
	SERVICES			
1	Toilet(M)			21.6
2	Toilet(F)			28.8
3	Toilet(PH)			6
4	Junitor			7.8
5	AHU			21
6	Garbage Room			13.32
	THIRD FLOOR			
	RESTAURANT AND KITCHEN			
1	Asian Fusion Restaurant			633.42
2	All Day Dining Restaurant			576
3	Outdoor Seating			1008
4	Activity Space			982.8
5	Kitchen			215.28
	SERVICES			
1	Toilet (M)			28.38
2	Toilet(PH)			3.6
3	Toilet(F)			18.9
4	AHU			21
5	Store Room			43.4
6	Electrical Room			13.68
	FIFTH FLOOR - NINTH FLOOR			
1	Executive Suite	32.68	22	718.96
2	Queen Suite	32.68	14	457.52
3	Library			67.94
4	House Keeping Room			38.7
5	AHU			21

6	Garbage Room			13.32
7	Electric Room			13.68
8	Elec Duct			2.7
9	Mec Duct			5.25
10	Garbage Chute			2.7
	TENTH - ELEVENTH FLOOR			
1	King Suite	66.22	12	794.64
2	Presidential Suite	134.16	3	402.48
3	Library			67.94
4	House Keeping Room			38.7
5	AHU			21
6	Garbage Room			13.32
7	Electric Room			13.68
8	Elec Duct			2.7
9	Mec Duct			5.25
10	Garbage Chute			2.7

5.3 DRAWINGS

Drawings are attached next

CHAPTER IV

REFERENCES

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Visakhapatnam

5 STAR HOTEL VISHAKHAPATNAM ANDHRA PRADESH

PROJECT BRIEF

5 star Hotel with a Convention center and Waterfront Entertaintment Facilities

Authority- *Visakhapatnam Metropolitan Regional Development Authority (VMRDA).*

Objective- *To boost tourism, business, and leisure activities in the region*



PROJECT BRIEF

Location -*Vetropolitan Regional Development Authority (VMRDA)beach road, Visakhapatnam.*

Site area - *10.7 Acre*



SITE CONNECTIVITY/ LANDMARKS

Site Connectivity

RTC Complex(Main City Bus Stand)	500m
Vishakhapatnam Railway Station	6 Km
Vishakhapatnam International Airport	11 Km

Landmarks

Victory at Sea War Memorial	1.1 Km
Submarine Museum (INS Kursura)	1.2 Km
Matsya Darshini Aquarium	2.5 Km
Kailasagiri Park	6 Km
RK Beach	1 Km

BUILDING BYE LAWS & DEVELOPMENTAL CONTROLS

Ownership	VMRDA
Permissible land use	Recreational land use zone
Local Development authority rules	VUDA,
Coastal & Environmental regulations	CRZ-II

LEGAL & REGULATORY ANALYSIS

FAR	2.5
Ground Coverage	30%
Building height restrictions	30M
Setbacks	10M(On all sides)
No. of Basements	2
No. of floors	G+7

PHYSICAL & SPATIAL ANALYSIS

Topography	Gentle sloping terrain
Existing features	Water body present
Cut & fill requirements	none
Orientation	Sea facing site SW
Soil type	Sandy Loamy soil
Foundation	Pile/Raft
Entry/Exit points	1
Road width	8M
Proximity to Primary road	One approach road
Existing footpaths & vehicular circulation	none

CLIMATE ANALYSIS

Type of Climate- ***Tropical wet and Dry***

 # TEMPERATURE

- Average monthly temperature ranges from ~24–25°C in January to ~31°C in May/June
- Monthly minimums: ~19°C in Jan, rising to ~28°C in June–September.
- Annual Average Temperature: ~27.5°C

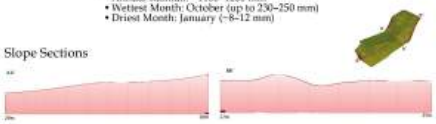
 # WIND

- Peak Wind Months: June–September
- Cyclonic Wind Gusts (Oct–Nov): Can reach 60–100 km/h during storms.

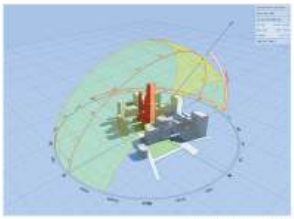
 # RAINFALL

- Annual Rainfall: ~1100–1200 mm
- Wettest Month: October (up to 230–250 mm)
- Driest Month: January (~8–12 mm)

Slope Sections







Sun Path diagram

ENVIRONEMNTAL ANALYSIS

Vegetation cover	Coconut Palms (Cocos nucifera)	
	Indian Almond(Terminalia catappa)	
	Toddy Palm(Borassus flabellifer)	
	Ornamental hedge plants (Iresine herbstii, Acalypha wilkesiana, Althernanthera denata)	
Water bodies	Bay of Bengal Sea	
	1 existing water body on site	
Soil Type	Sandy Loamy	

Site Photos



SWOT ANALYSIS

S STRENGHTS

- **Prime Location**
  Situated on Beach Road with panoramic Bay of Bengal views, central to tourism, business districts, and major attractions (Submarine Museum, RK Beach).
- **Comprehensive Facilities**
  200 luxury sea-facing rooms, multiple specialty restaurants, infinity rooftop poolgym, spa, multiplex, convention,it will be a self-contained Hotel.
- **Event Leadership**
  Home to Andhra Pradesh's largest pillar-less convention facility , modular banquets, and outdoor venues, it will be a recognized leader for MICE (Meetings, Incentives,Conferences, and Exhibitions) and weddings.

W WEAKNESS

- **Road connectivity**
  The site is not located directly to the main road or NH Highwaybut a secondary road connects the site to the primary road.
- **Coastal Vulnerability**
  its vulnerability to cyclones, high humidity, and salinity causes erosion of materials.

O OPPORTUNITY

- **Monopoly**
  It will be one of its kind 5 star hotel located in Vizag that incorporates convention center within the building itself.
- **High Footfall**
  Since it is locted near to the beach , has water sports facilities and a convention center as well, its footfall will be more than the other hotels located nearby generating greater revenue.

T THREATS

- **Intensifying competition**
  New hotels and international brands entering Visakhapatnam, along with upscale boutique properties, heighten competition, especially for corporate and wedding clientele.
- **Cyclone & flood vulnerability**
  Repeatedly exposed to severe cyclones (Hudhud 2014, Gulab 2021) causing infrastructural and ecological damage.

INFERENCES FROM SITE ANALYSIS

Physical & Topographical Inferences

The flat coastal terrain makes construction easier, but the low elevation near sea level raises concerns of flooding and storm surges.

The sandy soil demands deep foundations (pile/raft) and corrosion-resistant structural systems.

Natural slope towards the sea allows for stormwater drainage, but needs integration of permeable paving, rain gardens, and bioswales to avoid urban flooding.

The dual-view corridor (Bay of Bengal to the east, Eastern Ghats to the west) is a unique advantage → offers potential for double-fronted architecture (rooms with sea or hill views).

Climatic Inferences

Sea breeze during the day can provide passive cooling , building orientation should harness cross-ventilation.

High humidity (70–90%) impacts comfort and materials & design must encourage ventilation, anti-microbial finishes, and breathable surfaces.

Materials prone to dampness must be avoided; instead, use marine-grade wood, aluminium cladding, anti-corrosive paints.

Cyclone-prone zone requires aerodynamic building forms, braced frames, storm shelters, and shatter-proof glazing.

Salt-laden air accelerates corrosion & materials like stainless steel, aluminium cladding, marine-grade wood, GRC (glass reinforced concrete) are recommended.

Ecological & Environmental inferences

The site falls within CRZ II regulation, hence strict control over FSI, setbacks, and building height.

Existing coastal vegetation (coconut, casuarina) acts as natural wind barriers and should be preserved/integrated into the landscape design.

Landscaping can be designed as green buffers, not only for wind resistance but also to create microclimates for outdoor comfort.

Opportunity for rainwater harvesting, stormwater reuse, and greywater treatment given high rainfall in monsoon.

Site has potential for solar power generation (rooftop PV panels) due to strong year-round sunlight.

View Corridors & Visual Topography

Eastward: Unobstructed sea views (prime hotel façade/room orientation).

Westward: Hills of Eastern Ghats visible, giving dual natural view opportunities.

Integration of these visual assets can enhance the guest experience.



Rhythm Bhalla | 211110013 | 9th Semester

Thesis Guide : Prof. Neha Kolhe

CULTURAL HISTORY OF VISHAKHAPTNAM

Visakhapatnam's cultural history is a blend of Buddhist heritage, Hindu dynastic traditions, colonial legacies, and modern cosmopolitan growth—making it one of India's most diverse coastal cities.



ANCIENT & EARLY HISTORY — COLONIAL ERA — MODERN PERIOD

CONCEPT

"Colonial Echoes by the Sea"

Coastal Essence +Vizag's cultural identity+Luxury hospitality design



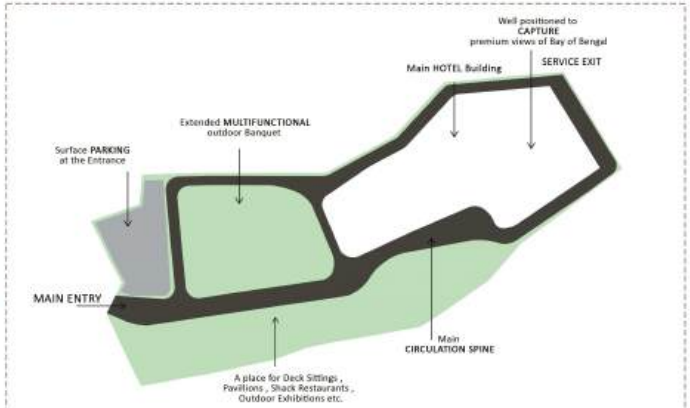
WHY CHOSE THIS STYLE?

- An old identity of Vizag which is **unkown/unpopular** in today's time.No such hotel in Vizag constructed on the same lines,hence it would be first one of its kind 5 Star hotel.
- This style would give an **emotional connect** , a kind of nostalgia depicted through the storytelling of its architecture and interiors.
- Hotel has to spread **horizontally** and not vertically as per the norms and bylaws since it can only go upto **G+7 Floor**, therefore this style would be perfect match for the hotel.
- It will become a **cultural destination** for the tourists to feel the forgotten identity of Vizag , a hotel with a different concept in Vizag.

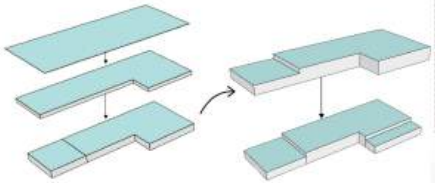
DUTCH INFLUENCE IN VIZAG

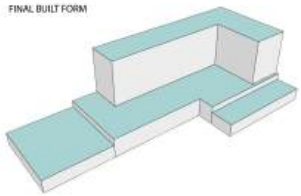


SITE ZONING

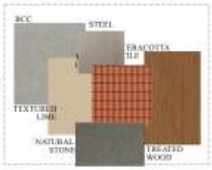


FORM DEVELOPMENT





MATERIAL PALETTE



Climatically resilient
(withstands humidity, salt, cyclone winds)

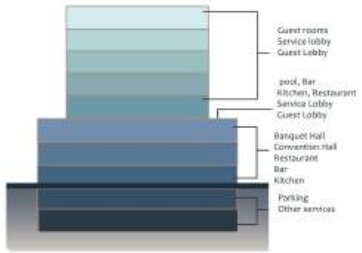
Operationally low-maintenance
(easy cleaning, long lifespan)

Aesthetically rooted in heritage
(Dutch colonial character)

Luxurious & sustainable
(aligns with 5-star hospitality standards).

Luxury + Heritage + Longevity

VERTICAL ZONING



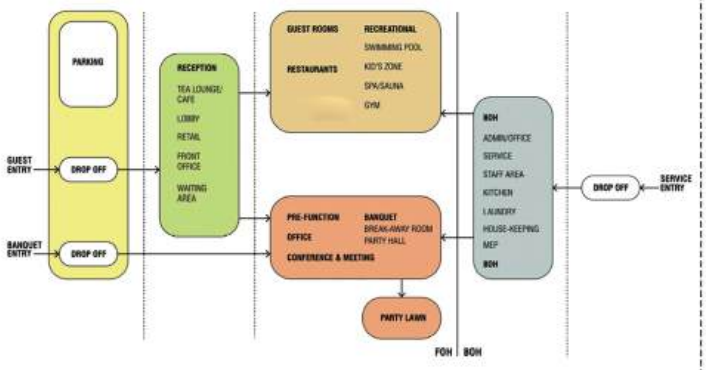
The overall building is divided into 3 parts.

1. **BASEMENT** , consists of 3 floors , includes parking and the building services.

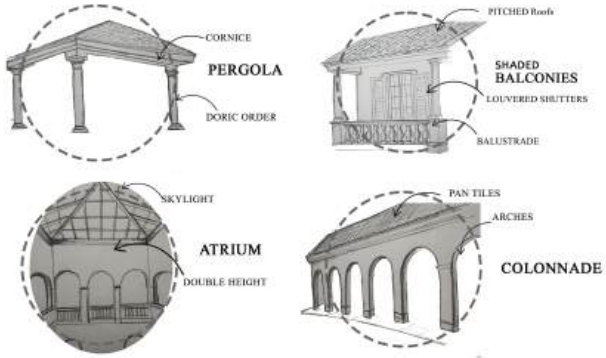
2. **PODIUM** , consisting of 3 floors that forms the base of the building on the ground, majorly comprising of public areas.

3. **TOWER** , comprising of 5 guest room floors ,service floor, and a public areas floor. This is where the semi-private and public both the types of spaces are present.

SPATIAL COMPOSITION & HIERARCHY



DUTCH-COLONIAL INSPIRED ELEMENTS



SUSTAINABLE STRATEGIES

PASSIVE DESIGN STRATEGIES



MODERN SUSTAINABLE TECHNOLOGIES

ENERGY EFFICIENCY
SMART LIGHTING CONTROL
SOLAR INTEGRATION
DOUBLE GLAZING

SMART GUEST TECHNOLOGIES
KEY CARD/ OCCUPANCY SENSORS
SMART ROOM CONTROLS(IOT BASED)
EV CHARGING STATIONS (IN PREMISES)

WATER CONSERVATION
SEWAGE TREATMENT PLANT
RAIN WATER HARVESTING
SENSOR BASED AUTOMATIC PLUMBIC FIXTURES

INDOOR ENVIRONMENTAL QUALITY
BIOPHILLIC DESIGN
LOW VOC FINISHES
ACOUSTIC TECHNOLOGIES

WASTE MANAGEMENT
WASTE SEGREGATION ON SITE
BIO GAS PLANT
REUSABLE SERVICEWARE IN KITCHEN

DIGITAL MONITORING & CERTIFICATIONS
IOT BASED ENERGY METERING
WATER FLOR SENSORS & LEAK DETECTION
AIR QUALITY MONITORING

CONCEPTUAL DESIGN

5 STAR HOTEL , VIZAG

Rhythm Bhalla | 211110013 | 9th Semester
Thesis Guide : Prof. Neha Kolhe

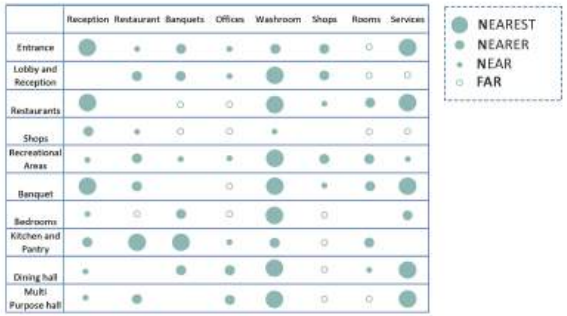
CASE STUDY ANALYSIS

Parameter	Novotel Hotel Vizag	Hotel Taj Bhopal	Hotel Vivanta Bangalore	Avasa Hotel Bangalore	Galle Face Hotel Sri Lanka
					
Architect / Designer	Not publicly specified; built by Novotel group	Indian Hotels Co. Ltd. (Taj Group)	Indian Hotels Co. Ltd.	Avasa Group collaboration with architects in Bangalore	Originally built by British entrepreneurs; restored by Galle Face
Client / Owner	Accor Hotels	Taj Hotels & IHCL	Taj Hotels & IHCL	Avasa Hotels	Private Heritage Hotel Group
Year of Construction (Start & Completion)	2008 – 2011 (approx.)	Early 2000s	2009 – 2012	2011	1864 (colonial era) – restored multiple times
Total Project Cost (Budget)	N/A	N/A	N/A	N/A	N/A (heritage restoration costs ongoing)
Site Area	~4 acres beachfront	~5 acres near lake	~2 acres (urban IT hub)	~2 acres	~10 acres seafront
Built-Up Area	~300,000 sq ft	~250,000 sq ft	~200,000 sq ft	~220,000 sq ft	Large colonial block (~400 rooms)
Primary Function	5-star luxury beachfront hotel	5-star luxury heritage-inspired hotel	5-star business + leisure	5-star business + convention	Heritage luxury seafront resort
Climatic Conditions	Hot & humid coastal climate	Composite climate (hot summers, monsoon, mild winters)	Tropical wet & dry climate	Tropical wet & dry	Coastal tropical with high humidity
Orientation & Views	Oriented to maximize Bay of Bengal sea views	Lake-facing orientation, landscaped courts	Tower form with city views	Podium + tower format	Sea-facing, colonial veranda orientation
Accessibility & Road Network	Located on RK Beach Road, well connected to city	Near central Bhopal & airport	Located in Whitefield/IT hub	In commercial district	Colombo seafront, accessible from city center
Public Transportation / Pedestrian Connectivity	Good – connected to city transit & beach promenade	Connected to city bus & road network	Strong metro & IT corridor links	Urban road connectivity	Strong pedestrian link with Galle Face promenade
Topography of Site	Flat coastal site	Slightly undulating near lake	Flat urban land	Flat	Flat coastal strip
Zoning & Legal Restrictions	Coastal Regulation Zone norms	Local municipal zoning norms	Urban Bangalore building norms	Business district zoning	Heritage conservation restrictions
Integration with Surroundings	Strong visual & functional link to RK Beach	Blends with Bhopal's lakefront & historic sites	Fits Bangalore's IT skyline	Merges with commercial hub	Seamlessly integrates with Colombo promenade
Historical / Cultural Significance	Modern coastal identity	Inspired by Mughal/local architectural heritage	Contemporary Indian design	Modern corporate style	Colonial-era landmark since 1864
Design Idea & Philosophy	Coastal leisure + modern business hospitality	Heritage + luxury blend	Business + leisure, technology-driven	Convention/business-oriented luxury	Heritage preservation + luxury
Landscape Features	Lawns, pool deck, sea-facing terraces	Lakefront gardens, courtyards	Rooftop gardens, terraces	Rooftop pool, banquet lawns	Colonial lawns, seafront promenade
Sustainability Features	Passive cooling, daylight use, local vegetation	Local stone, energy-efficient systems	IGBC certified, efficient lighting & HVAC	Rainwater harvesting, recycling systems	Thick walls, adaptive reuse, natural ventilation
Structural System	RCC frame + glass façade	RCC frame, stone cladding	RCC with curtain wall	RCC with curtain wall	Masonry + timber + colonial RCC additions
Materials Used for Structure	Glass, steel, RCC	Sandstone, RCC, concrete	Glass, steel, modern finishes	Glass, aluminum, RCC	Lime plaster, timber, stone
Façade Treatment	Contemporary glass façade with sea-facing balconies	Local stone cladding + modern elements	Sleek curtain wall, reflective glass	Minimalist geometric façade	Restored neoclassical façade, arches, verandahs
Ventilation & Lighting	Natural + mechanical	Natural courtyards, artificial	Natural light with efficient glazing	Daylight & artificial	Large colonial windows, verandahs for airflow
Services (MEP, HVAC, Safety)	Modern HVAC, sprinklers, safety norms	Centralized HVAC, fire exits	Smart HVAC + modern fire safety	Central AC, advanced safety systems	Adaptive reuse + modernized fire & safety
Renewable Energy Features	Solar panels (partial)	Limited renewable integration	Solar energy + water saving	Rainwater harvesting + greywater reuse	Minimal renewables, relies on heritage techniques
Water Management	Coastal water conservation	Water recycling & storage	Rainwater harvesting, STP	Rainwater harvesting & reuse	Historic wells + modern systems
Waste Management & Recycling	Segregation, modern practices	Local disposal systems	Advanced hotel waste mgmt.	Segregation & disposal	Heritage-sensitive systems
User Experience & Comfort	Leisure-oriented, panoramic sea views	Blend of tradition + luxury, immersive	Business + leisure, tech features	Business comfort, large banquets	Heritage nostalgia + luxury
Cultural / Design Influences	Coastal / nautical interiors	Mughal + local motifs	Modern Indian chic	Minimalist modern	Colonial + Sri Lankan cultural heritage
Other Features	Infinity pool, spa, beachside dining	Heritage-inspired lobby, gardens	Tech-enabled rooms, rooftop lounges	Convention center focus	Museum-like heritage displays, restored ballrooms
Inference (Design Learnings)	Orientation to natural site enhances sustainability & comfort	Blending heritage with modern luxury adds timeless identity	Vertical compact planning suits urban hubs	Business-convention typology requires multifunctional spaces	Heritage preservation + adaptive reuse enhances sustainability & cultural identity

TYPOLOGY OF SPACE



PROXIMITY INDEX



CASE STUDY + LITERATURE INFERENCES

HOTEL ROOMS & SUITES

- Guest rooms should have uninterrupted views, privacy, and noise control.Use of modular room layouts for ease of construction and maintenance.
- Integration of smart room controls (lighting, curtains, climate).
- Soundproofing measures between rooms, corridors, and service areas.
- Luxurious bathroom designs with separate wet and dry areas.

PUBLIC SPACES & CIRCULATION

- Zoning of spaces: public (lobby, restaurants), semi-private (conference rooms), and private (guest rooms, spa).
- Clear circulation hierarchy for guests, staff, and service movement.
- Grand staircases and elevator lobbies as visual focal points.
- Universal accessibility with ramps, elevators, and tactile pathways.

BACK-OF-HOUSE OPERATIONS

- Separate vertical circulation cores for staff and service movement.
- Dedicated waste disposal zones with recycling provisions.
- Security control rooms with CCTV surveillance and emergency response system.

OTHER DETAILS

- Major traffic +hotel+retail+banquet/entry and exit of hotel and other components should be seperate).
- Separate banquet from hotel to avoid crowd during functions.
- Staircase at every 45 m
- Shafts for toilet.

RECREATIONAL FACILITIES

- Infinity pools, rooftop lounges, and landscaped gardens for relaxation.
- A wellness zone including a spa, sauna, yoga room, and gym.
- Ballrooms and banquet halls with flexible partitioning for events.

FOOD & BEVERAGE (F&B) AREAS

- Multiple restaurants, bars, and cafés catering to different cuisines.
- Efficient back-of-house kitchen planning for smooth service operations.
- Outdoor seating areas integrated with landscape and water features.
- Seamless service routes for F&B delivery and waste management.

ENTRANCE

- Entry to be divided in lanes each 3.3 m wide
- Lanes divided into 3 parts DROP OFF LANE, PICK UP LANE, BYPASS LANE.
- From drop off lane there is a 4m wide entrance plaza waiting + Security check + Space for tall console + Pick up Bags

SECUIRTY & LUGGAGE

- Baggage scanner opens inside hotel(it is enclosed and air conditioned to reduce heat generation).
- Isolated service entry.
- Temperature-22-23 degree celcius inside hotel and outside temperature is higher.
- Air lock lobby(pressurized lobby) at entrance to maintain inside temperature and avoid heat waves entering hotel when door is opened.

Rhythm Bhalla | 211110013 | 9th Semester

Thesis Guide : Prof. Neha Kolhe



SITE LOCATION	VISAKHAPATNAM
SITE AREA	43301.36 sq.m
GROUND COVERAGE	12990.40 sq.m
F.A.R	2.5
TOTAL BUILT-UP	108253.4 sq.m
BUILDING HEIGHT	43.5M
SET-BACKS	14M (On all sides)
HOTEL BUILDING AREA	47728 sq.m
CONVENTION CENTER	8650 sq.m
PARKING	
On Site (60 cars)	2970 sq.m
Basement (510)	32448 sq.m

SITE PLAN (SCALE 1:750)

5 STAR HOTEL , VIZAG

Rhythm Bhalla | 211110013 |9th Semester
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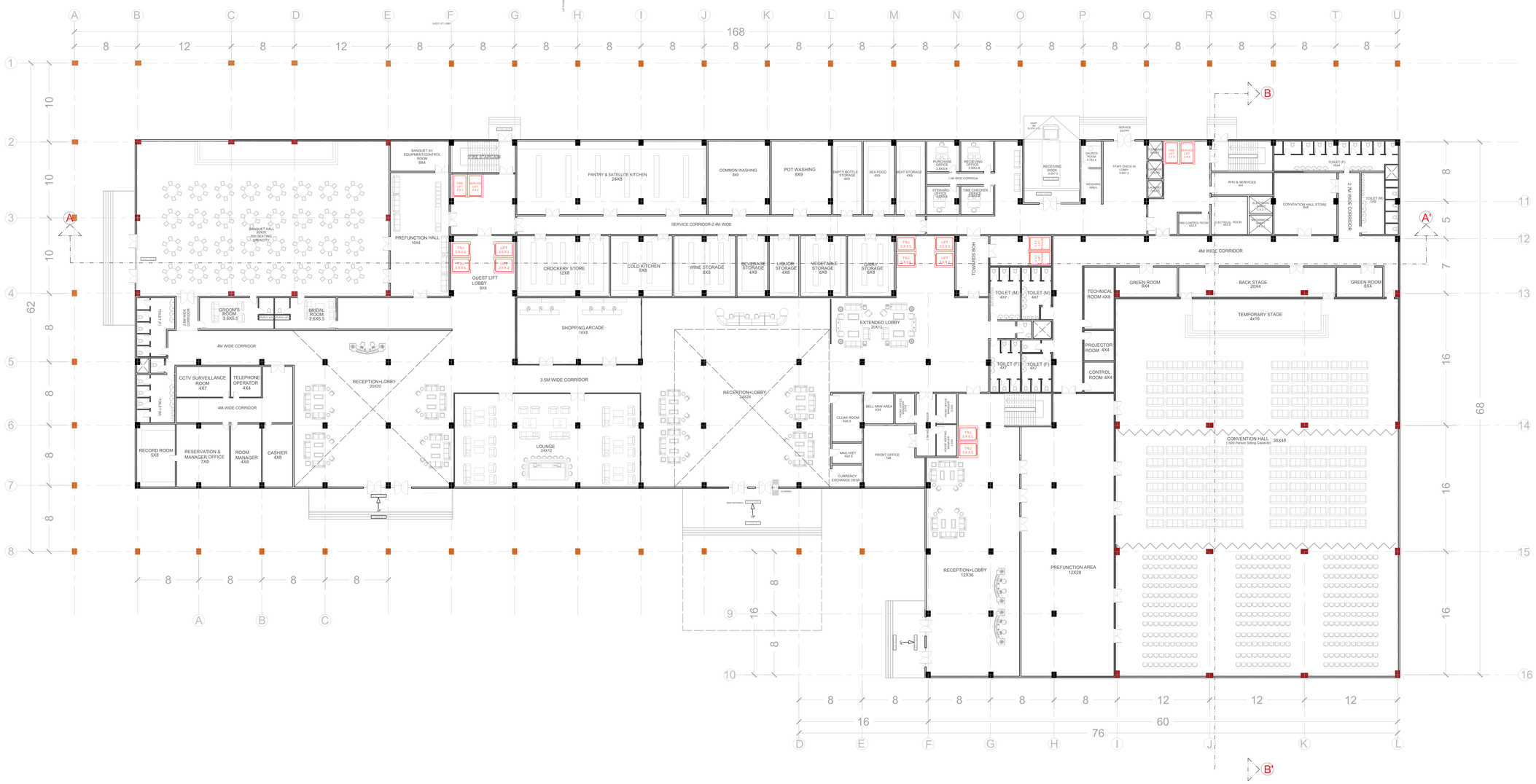

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PROJECT: 5 STAR HOTEL

CLIENT: MANIT BHOPAL

DRAWING:
5 STAR HOTEL - VISAKHAPATNAM

SCALE:
1:200

PURPOSE:
NOT FOR CONSTRUCTION

DEALT BY:
RHYTHM BHALLA
211110013

NORTH:

CHECKED BY:
DR.NEHA KOHLE

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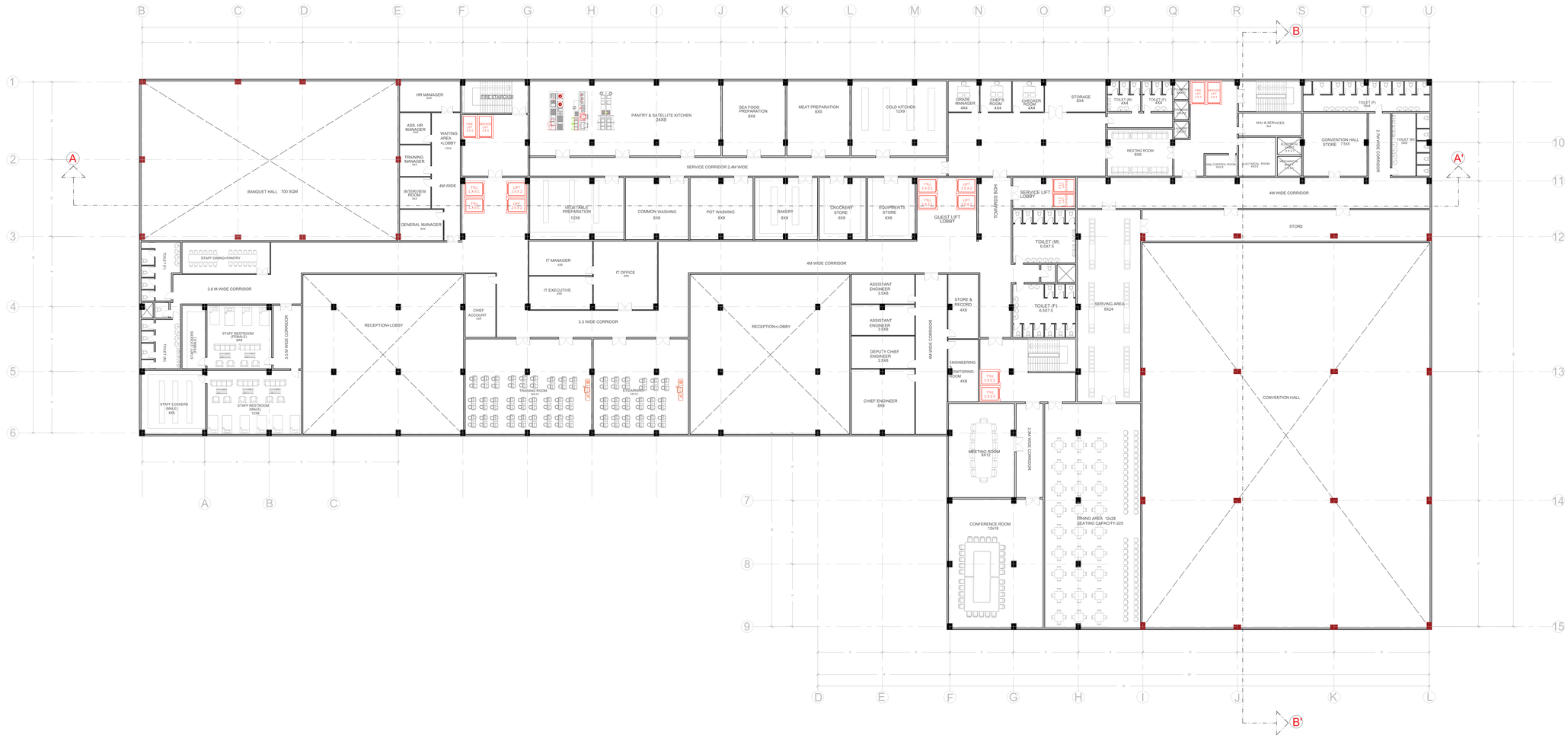

FIRST FLOOR PLAN

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SCALE:
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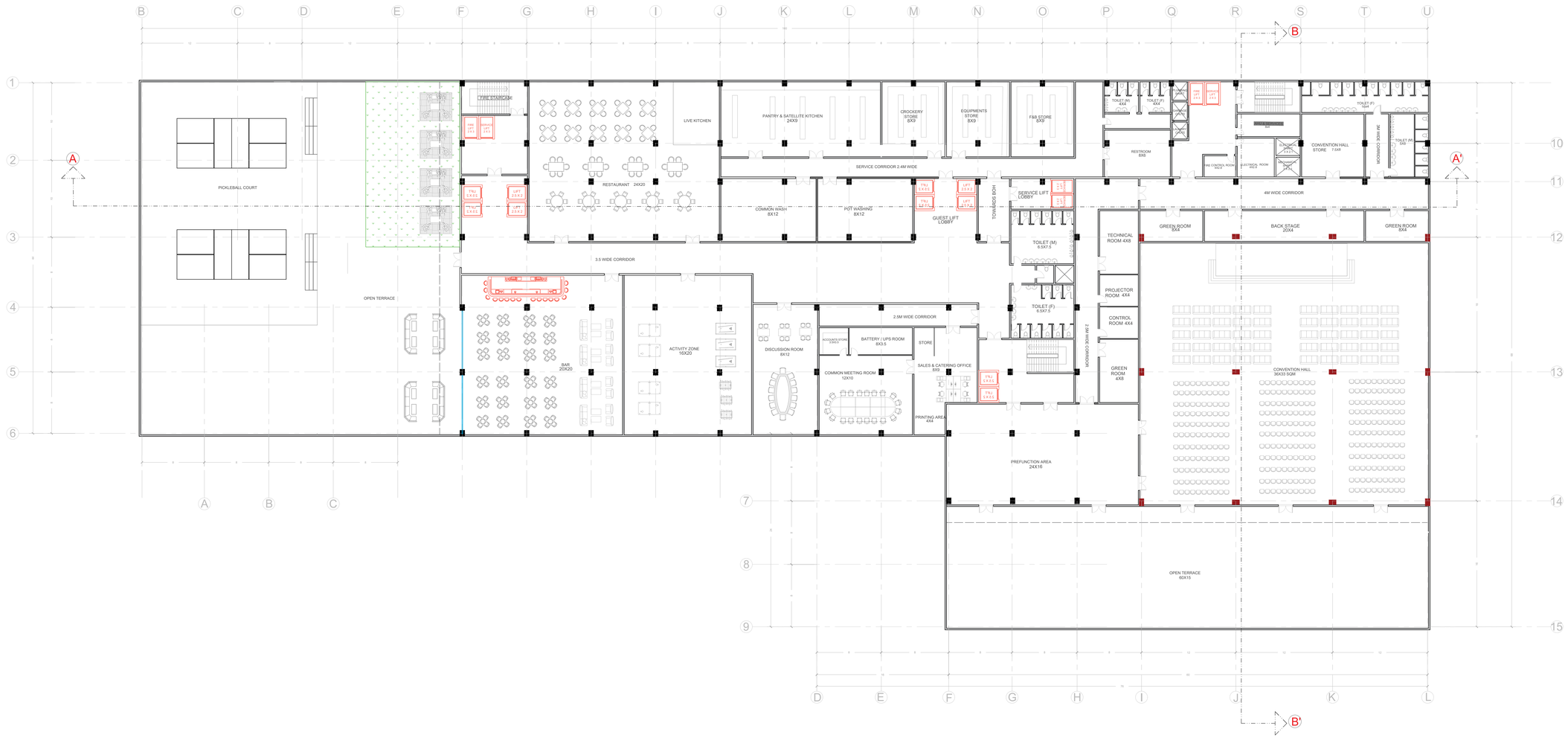

SECOND FLOOR PLAN

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CLIENT: MANIT BHOPAL

DRAWING:
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SCALE:
1:200

PURPOSE:
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NORTH:

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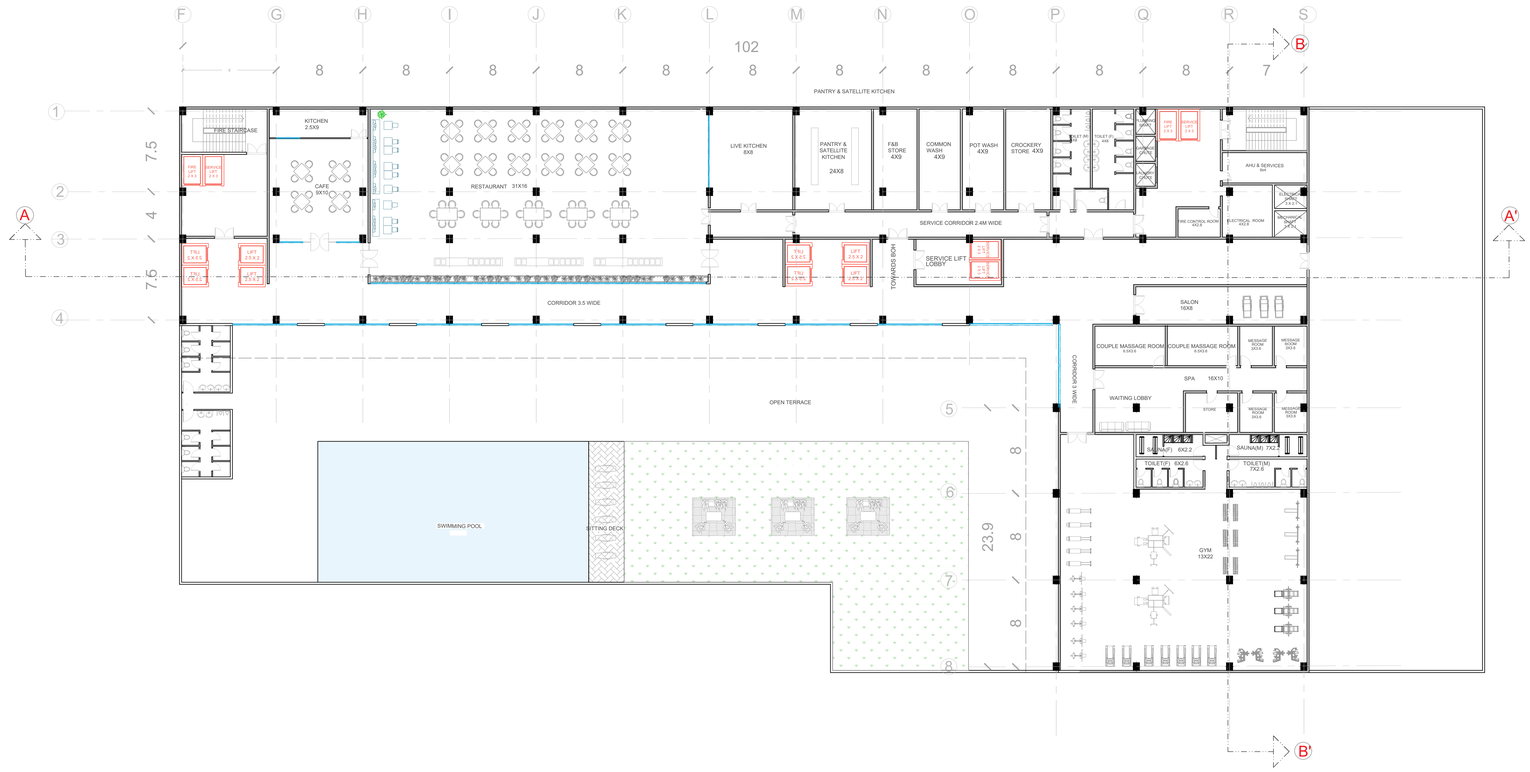

THIRD FLOOR PLAN

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CLIENT: MANIT BHOPAL

DRAWING:
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SCALE:
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PURPOSE:
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FOURTH FLOOR PLAN

KING SUITE 38
TWIN SUITE 10



FIFTH FLOOR PLAN

KING SUITE 26
TWIN SUITE 10
EXECUTIVE SUITE 06



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SEVENTH FLOOR PLAN

KING SUITE 20
TWIN SUITE 10
LUXURY SUITE 09



EIGHT FLOOR PLAN

KING SUITE 20
TWIN SUITE 10
EXECUTIVE SUITE 03
PRESIDENTIAL SUITE 02



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5 STAR HOTEL - VISAKHAPATNAM

SCALE:
1:200

PURPOSE:
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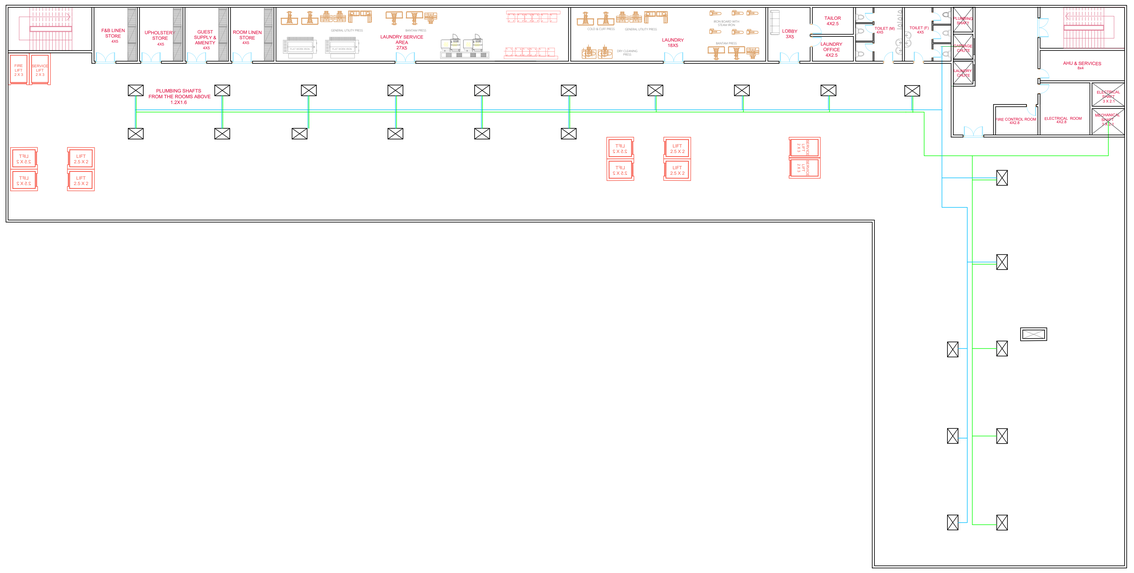

SERVICE FLOOR PLAN

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SCALE:
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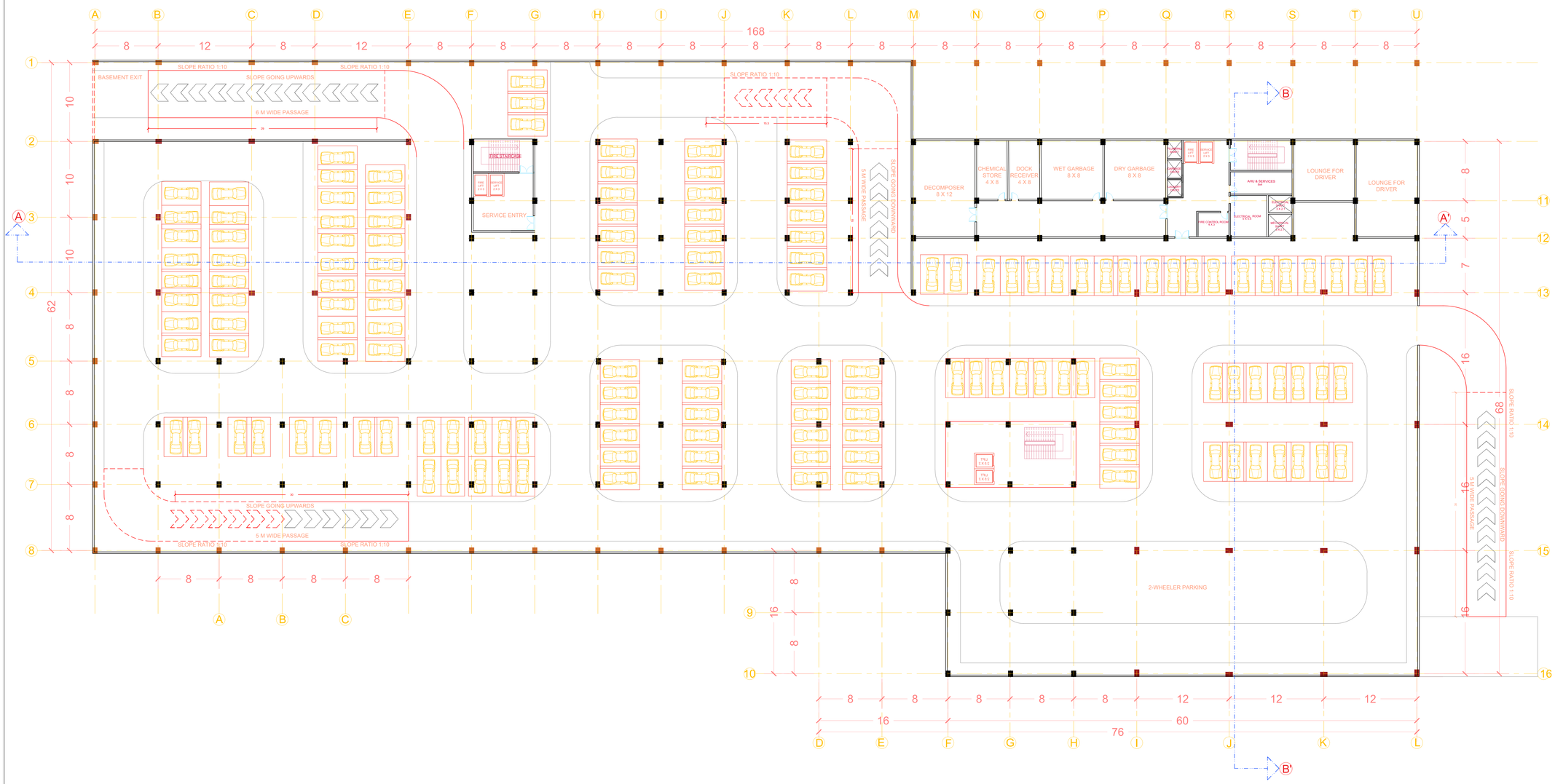

BASEMENT - B1
TOTAL NO. OF CAR IN B1 = 143
TOTAL BASEMENT PARKING CAPACITY = 510

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8. THE DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF 7TH SEM B.ARCH & IS ISSUED TO THE PARTY FOR THE SPECIFIC PURPOSE AS STATED IN THE AGREEMENT AND IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF DIRECTLY OR INDIRECTLY USED FOR ANY PURPOSE OTHER THAN FOR WHICH IT IS FURNISHED.

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REVISION:

NO.	DETAILS	DATE	CHECKED	APPROVED

PROJECT: 5 STAR HOTEL

CLIENT: MANIT BHOPAL

DRAWING:
5 STAR HOTEL - VISAKHAPATNAM

SCALE:
1:200

PURPOSE:
NOT FOR CONSTRUCTION

DEALT BY:
RHYTHM BHALLA
211110013

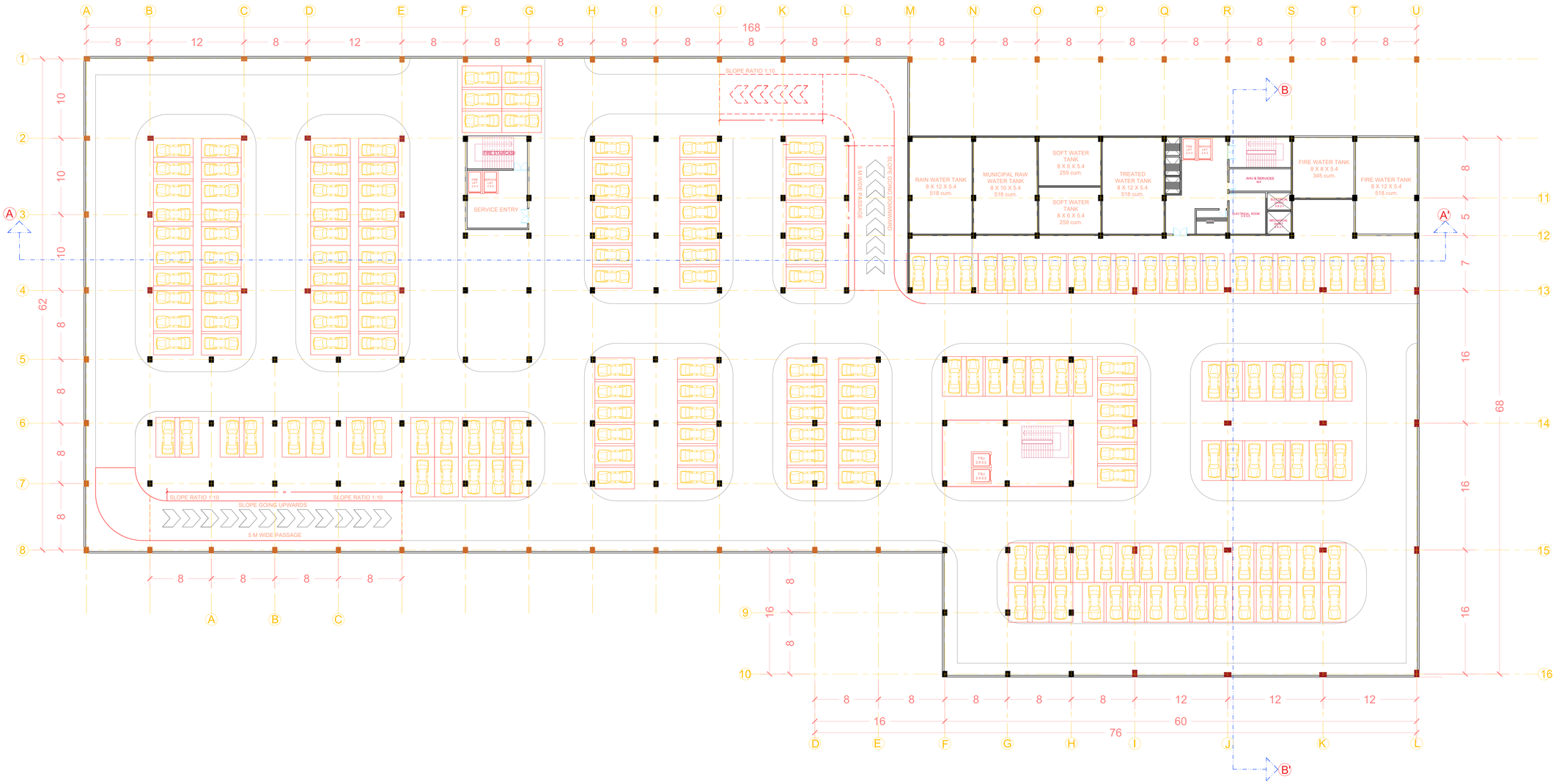
NORTH:

CHECKED BY:
DR.NEHA KOHLE

REVISIONS

A	B	C	D

DRAWING NO.
AR01



BASEMENT - B2 & B3
TOTAL NO. OF CAR IN B2 = 184
TOTAL BASEMENT PARKING CAPACITY = 541

NOTE:

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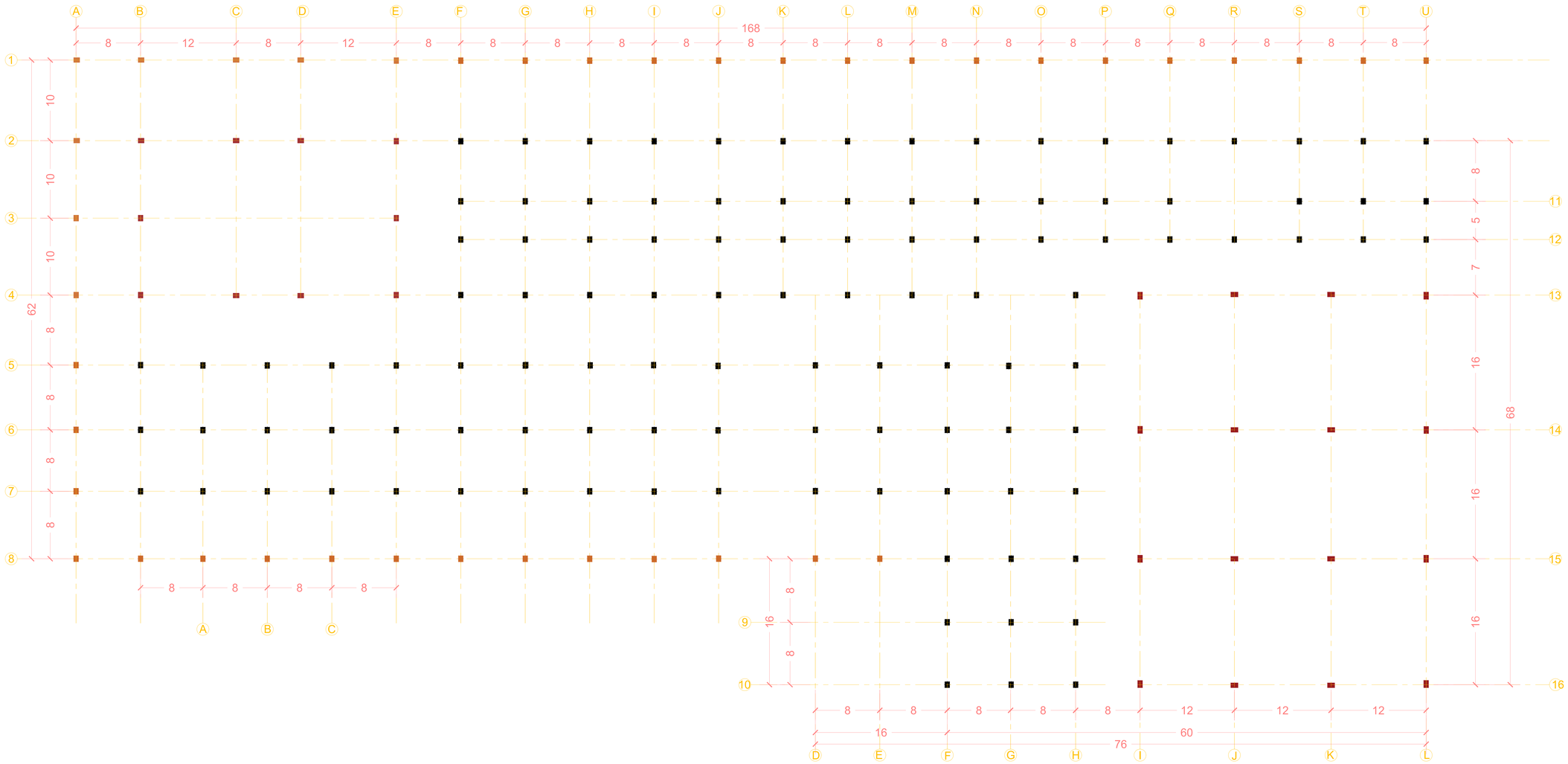
AR01



COLUMN LAYOUT

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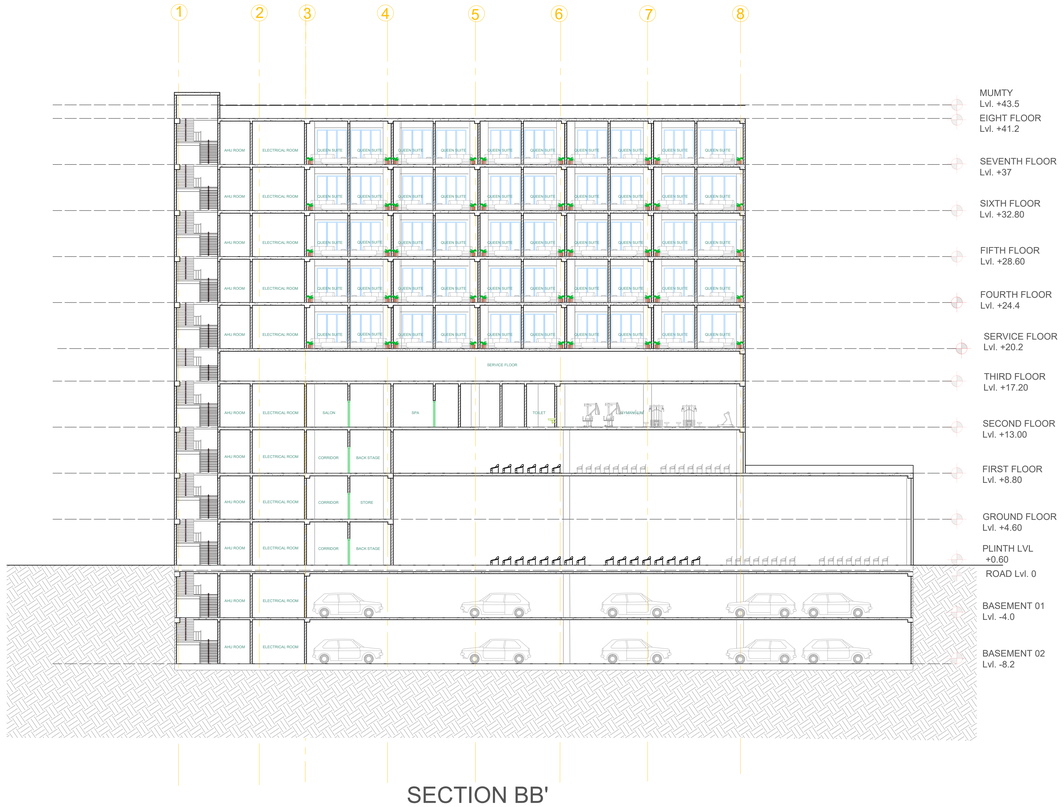

SECTION BB'



SECTION AA'

NOTE:

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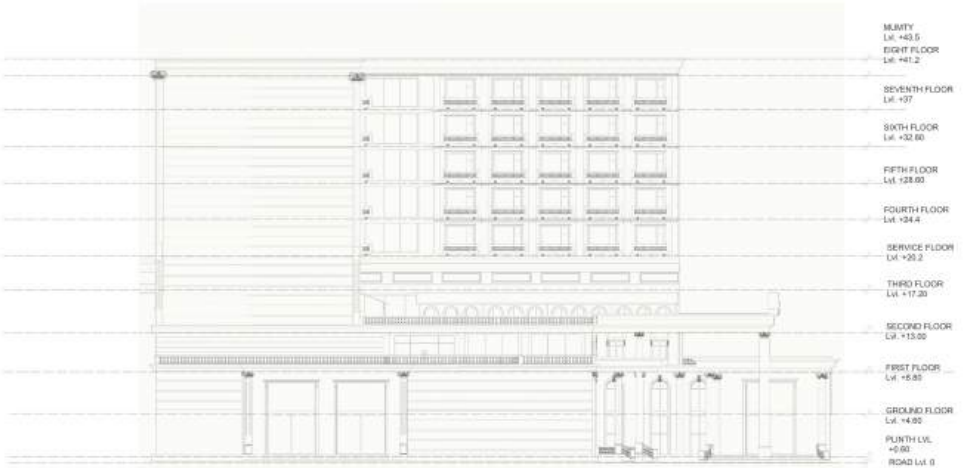
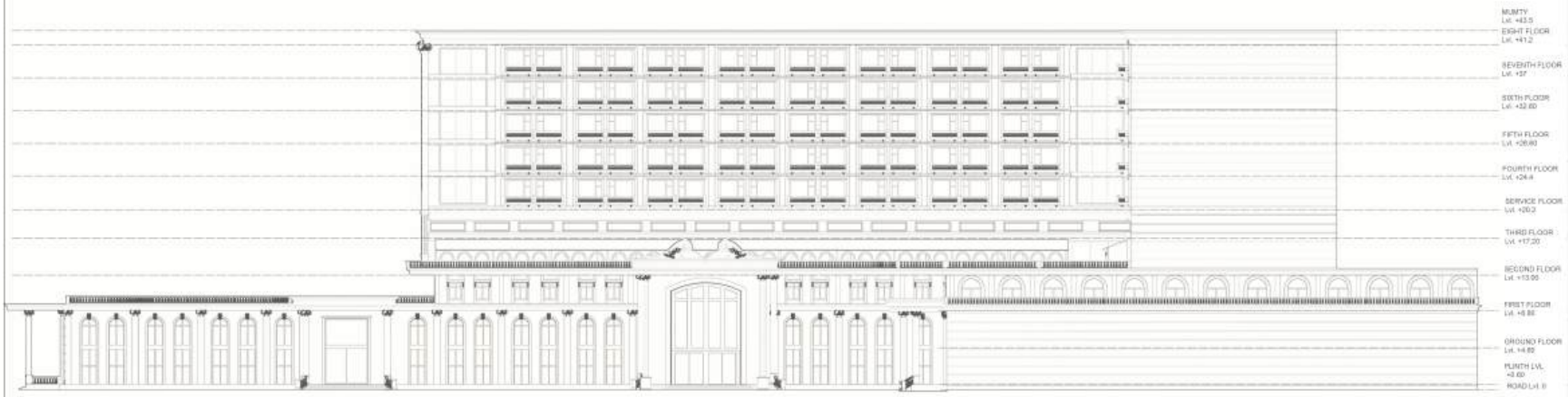


SIDE ELEVATION



FRONT ELEVATION

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DEALT BY:
RHYTHM BHALLA 211110013

CHECKED BY:

NORTH:

REVISIONS

A	B	C	D	E

DRAWING NO.
AR01

Landscape PLANTATION

S. No	Local Name	Botanical Name	Description	Height & Spread	Image
1	Coconut Palm	Cocos nucifera	Iconic coastal palm; shade; seaside use	H:15–25m | S:5–8m	
2	Bermuda Grass	Cynodon dactylon	Hardy lawn grass; coastal tolerant	H:0.05–0.1m	
3	Italian Cypress	Cupressus sempervirens	Tall narrow conifer; formal avenues	H:10–20m | S:1–2m	
4	Indian Privet	Ligustrum ovalifolium	Dense evergreen hedge	H:2–4m | S:1–2m	
5	Manila Grass	Zoysia matrella	Premium turfgrass; soft; fine texture	H:0.05–0.12m	
6	White Frangipani	Plumeria alba	Fragrant white flowers; evergreen	H:4–8m | S:3–5m	
7	Ficus Microcarpa	Ginseng Ficus / Chinese Banyan	Decorative miniature trees	H:0.3–1.5m	
8	Madagascar Almond	Terminalia mantaly	Tiered umbrella canopy	H:10–18m | S:6–10m	

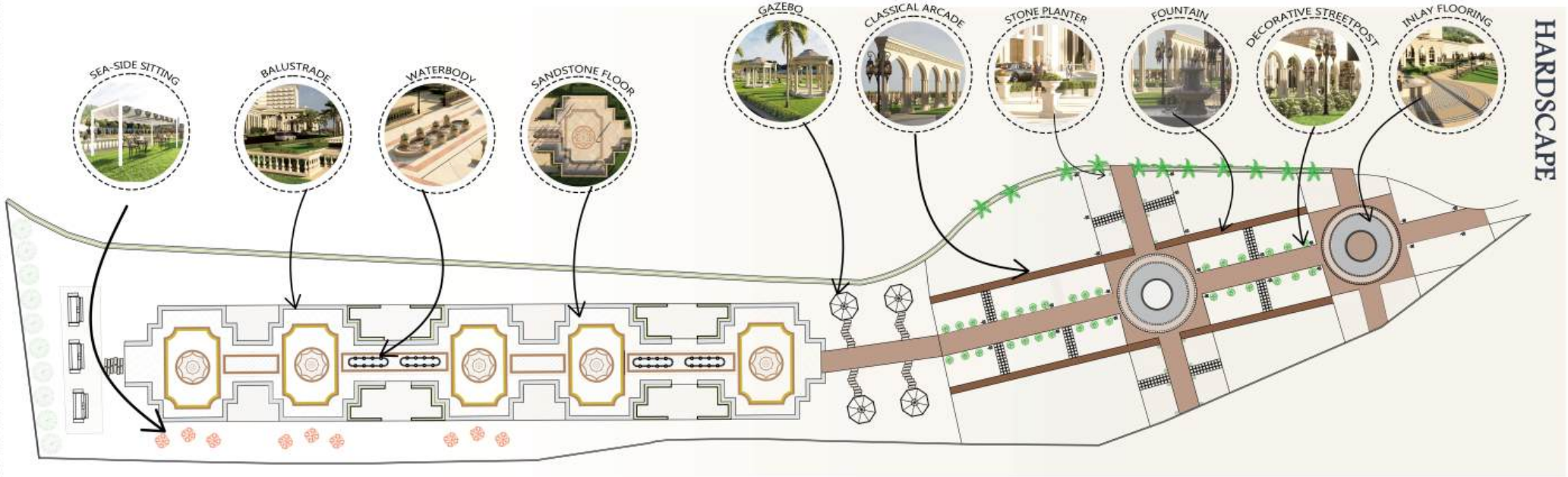


Landscaping VIEWS









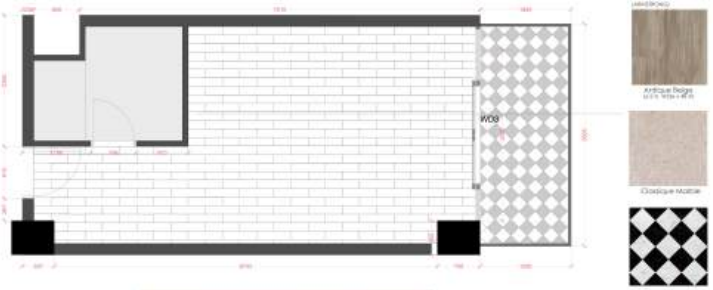
LANDSCAPING

5 STAR HOTEL , VIZAG

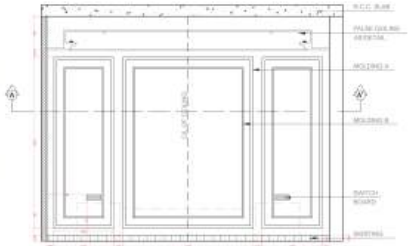
Rhythm Bhalla | 211110013 |9th Semester
Thesis Guide : Prof. Neha Kolhe



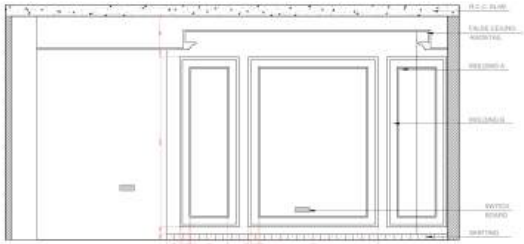
LAYOUT PLAN



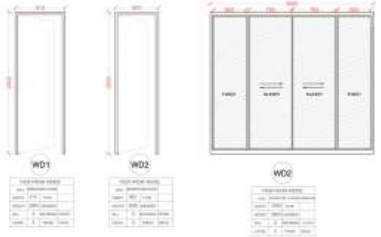
WALL WORKING



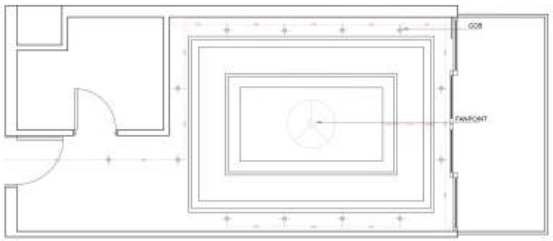
FRONT ELEVATION



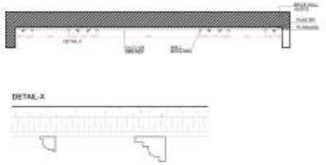
BACK ELEVATION



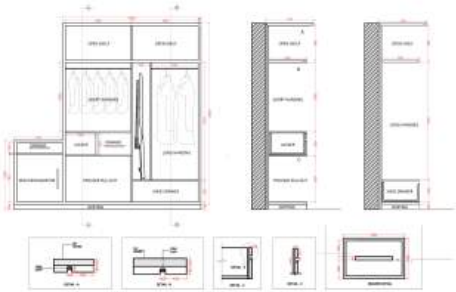
DOOR+WINDOW SCHEDULE



CEILING LAYOUT PLAN



ELEVATION SECTIONAL DETAILS



WARDROBE DETAIL



CEILING SECTIONAL DETAILS

WALL ELEVATIONS - TOILET





Classical-themed

KING SUITE

4X8M







Rhythm Bhalla | 211110013 |9th Semester
Thesis Guide : Prof. Neha Kolhe



SITE RENDERS

5 STAR HOTEL , VIZAG

Rhythm Bhalla | 211110013 |9th Semester
Thesis Guide : Prof. Neha Kolhe










M-2
KING SUITE
INTERIOR
5 STAR HOTEL , VIZAG
LANDSCAPING
5 STAR HOTEL , VIZAG
SITE PLAN
5 STAR HOTEL , VIZAG
FIRST FLOOR PLAN

