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Dec, 2025

3 Star Resort

Chorwad, Gujarat, India

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MAULANA AZAD NATIONAL INSTITUTE OF

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DEC 2025

ARC 511 – Thesis Project

3 Star Resort

Chorwad, Gujarat, India

Submitted by:

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B. ARCH

9th Semester, 5th Year

UNDER THE GUIDANCE OF

Ar. Savita Raje

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BHOPAL (MP)-462003

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DEPARTMENT OF ARCHITECTURE AND PLANNING

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CANDIDATE DECLARATION

The Thesis Project in the subject ARC 511, entitled "**5 Star Hotel, Gandhinagar, Gujarat, India"**, is being submitted in partial fulfilment of the requirement for the award of degree of Bachelor of Architecture by the undersigned for evaluation.

The matter embodied in this project is a record of my own work. If, in future, it is found that the above statement is false, then I have no objection in withdrawal of Bachelor of Architecture Degree awarded to me by the Institute.

Date: 1st – 2nd Dec, 2025

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RECOMMENDATION

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

Date: 1st – 2nd Dec, 2025

Ar. Savita Raje
Thesis Guide

CERTIFICATION OF EXAMINATION

The Bachelor of Architecture Thesis Viva-Voce examination of Mr Atharv Bhatt Scholar No.211110213, was held on 1/12/2025 to 2/12/25.

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ABSTRACT

Chorwad Palace, a neglected yet architecturally significant Indo-European coastal landmark in Veraval, Gujarat, presents immense potential for heritage-led tourism and sustainable development. This thesis proposes the restoration and adaptive reuse of the Palace as a cultural core, alongside the design of an eco-sensitive coastal resort comprising newly developed cottages and public amenities. Through historical research, site analysis, literature review, and case studies, the project identifies the challenges posed by climate exposure, structural degradation, and the lack of contextual tourism infrastructure.

The design framework integrates traditional construction techniques, vernacular materials, and passive climatic strategies to ensure the Palace's conservation while creating a low-impact, culturally immersive resort environment. Sustainable systems—such as rainwater harvesting, renewable energy solutions, and coastal resilience measures—are incorporated to respond to the sensitive coastal ecology. The project aims to establish a model where heritage conservation, community engagement, and experiential tourism coexist harmoniously. Ultimately, the thesis demonstrates how architectural intervention can revive Chorwad Palace, enhance regional identity, and set a benchmark for integrating heritage restoration with eco-tourism along India's coastline.

ACKNOWLEDGMENT

I express my sincere gratitude to everyone who supported and guided me throughout the development of this thesis.
I extend my heartfelt thanks to my thesis guide, **Ar. Savita Raje**, for their invaluable insights, continuous encouragement, and critical feedback, which shaped the direction and quality of this work. I am also grateful to the faculty members of the **Department of Architecture, MANIT** for providing academic guidance and an inspiring learning environment.

I sincerely thank the administrative authorities and local stakeholders at **Chorwad and Veraval** for assisting with site visits, sharing historical information, and helping me understand the cultural and environmental context of the project. Their cooperation greatly enriched this research.

I am deeply appreciative of my friends and classmates for their constant motivation, constructive discussions, and companionship throughout this journey.

This thesis would not have been possible without the collective contribution of all these individuals, to whom I remain truly thankful.

TABLE OF CONTENT

CHAPTER 1 3

INTRODUCTION 3

OVERVIEW 3

1.1 BACKGROUND 3

1.4 SCOPE AND LIMITATIONS 4

1.6 NEED FOR THE STUDY 5

1.7 SIGNIFICANCE OF THE PROJECT 5

CHAPTER 2 6

DESIGN BRIEF 6

OVERVIEW 6

2.1 PROJECT DETAILS 6

2.2 PROJECT SCOPE 7

2.3 TENDER DETAILS 7

2.4 LIST OF SPACES & AREA PROGRAMMING 9

CHAPTER 3 11

LITERATURE REVIEW 11

OVERVIEW 11

3.1 GUJARAT TOURISM / CRZ GUIDELINES FOR BEACH RESORT DEVELOPMENT 11

3.2 EXISTING GUIDELINES FOR 3-STAR PROVISION OF HOTELS IN INDIA 13

GENERAL DEVELOPMENT CONTROL REGULATIONS 19

PARKING 20

3.3 INDIAN NATIONAL TRUST FOR ART AND CULTURAL HERITAGE (INTACH) 22

3.4 NEUFERT ARCHITECTS DATA 29

..... 35

CHAPTER 4 36

SITE INVENTORY 36

OVERVIEW 36

SITE INVENTORY 37

CLIMATE ANALYSIS 51

DRAINAGE ANALYSIS 61

SITE PHOTOS 62

CHAPTER 5 64

CASE STUDY & DESK APPRAISALS 64

OVERVIEW 64

CASE STUDY 64

REFERENCES 114

CHAPTER 1

INTRODUCTION

OVERVIEW

Chorwad Palace, located along the Arabian Sea in Veraval, Gujarat, is a prominent historical landmark built in Indo-European style. Though once a summer retreat for royalty, the palace has suffered neglect over time. This project aims at the restoration and conservation of Chorwad Palace as a heritage and cultural core, while developing a sustainable coastal resort with newly designed cottages and amenities on the surrounding site. The integration of adaptive reuse, sustainable tourism, and traditional design principles will offer an immersive heritage-driven experience for visitors.

1.1 BACKGROUND

Heritage coastal buildings across India face threats from time, climate, and modern neglect. Chorwad Palace, with its regal past and seafront presence, offers unique potential for heritage-led tourism. However, its fragile condition and lack of adaptive programming limit its current usability.

In parallel, Gujarat's coastline, rich in biodiversity and tourism potential, lacks resort developments that sensitively combine heritage conservation with sustainable coastal hospitality. The palace and its adjoining land provide a valuable opportunity to restore built heritage while creating an eco-sensitive, culturally rich resort through newly designed cottages and public spaces.

1.2 PROBLEM STATEMENT

Despite Chorwad Palace's architectural significance and scenic coastal location, it remains underutilized and physically deteriorating. There is an absence of initiatives that combine historical preservation with eco-tourism in this region. Additionally, existing resorts near coastal zones often disregard local materials, heritage context, and environmental sustainability.

There is a need for a sensitive restoration plan for the palace alongside a climate-responsive, culturally integrated resort master plan that provides modern comfort without compromising heritage integrity or coastal ecology.

1.3 AIM & OBJECTIVES

Aim:

To restore Chorwad Palace as a heritage landmark and design a new eco-tourism resort through vernacular, sustainable architecture that supports cultural tourism and community development.

Objectives:

- Restore Chorwad Palace using traditional techniques and preserve architectural features.
- Design new resort cottages and facilities within the site respecting heritage and coastal climate.
- Use local materials and zero-kilometre philosophy for minimal carbon impact.
- Integrate passive design strategies for ventilation, thermal comfort, and shading.
- Include coastal protection measures and climate resilience in layout and landscape.
- Curate user experiences around heritage tours, local cuisine, wellness, and crafts.

1.4 SCOPE AND LIMITATIONS

Scope:

- Restoration of Chorwad Palace façade, interiors, and public areas.
- Site planning and design of independent resort cottages, spa, dining, and activity zones.
- Landscape design reflecting local ecology and heritage symbolism.
- Integration of rainwater harvesting, renewable energy, and solid waste systems.
- Creating a visitor loop combining history, leisure, and wellness experiences.

Limitations:

- Construction and budget constraints not included.
- Execution may depend on government approvals, coastal regulations (CRZ), and funding.
- Detailed financial feasibility and operations are beyond scope.

1.5 METHODOLOGY

- **Historical study:** Chorwad Palace (archives, gazetteers, material mapping).
- **Site analysis**: Wind, salt spray, sun path, topography, views, and coastal risks.
- **Literature review:** Literature review of resort design, adaptive reuse, and coastal construction.
- **Case studies:** heritage coastal resorts (Goa, Kerala, Neemrana).
- **User profiling:** for different tourist types (heritage, wellness).
- **Design development**: zoning, climate integration, spatial programming.
- **Sustainability strategy**: materials, energy systems, water, and waste design.

1.6 NEED FOR THE STUDY

- Chorwad Palace remains underrecognized and is degrading due to neglect.
- Gujarat lacks examples of restored palaces functioning as cultural tourism hubs.
- Growing demand for experiential resorts blending local culture with comfort.
- Opportunity to set a benchmark for integrating heritage with eco-tourism.

1.7 SIGNIFICANCE OF THE PROJECT

- Revives an important historical monument through architectural conservation.
- Establishes a model for sensitive resort development near coastal heritage sites.
- Encourages local employment and craft revival through on-site cultural programming.
- Showcases sustainable coastal planning adaptable to similar heritage contexts.
- Enhances regional identity and puts Chorwad back on the cultural tourism map.

CHAPTER 2

DESIGN BRIEF

OVERVIEW

3-Star Beach Resort at Chorwad, Gujarat, lies on the Arabian Sea and offers a unique coastal heritage setting characterized by the historic Chorwad Palace, a rocky shoreline, and stretches of open sandy beachfront. Its strategic location provides significant tourism potential, as it is surrounded by cultural and natural attractions, including the Somnath Temple and Gir National Park. The combination of heritage elements, natural beauty, and connectivity makes the site ideal for developing a sustainable and experiential beach resort which foster both relaxation and cultural exchange.

2.1 PROJECT DETAILS

- **Project Title:** Development of Resort at Chorwad, Gujarat
- **Proposing agency:** Tourism Corporation of Gujarat Limited (TGCL)
- **Location:** Chorwad Beach, Junagadh District, Gujarat (approx. 20 km from Veraval, 70 km from Junagadh)
- **Site Context:** Coastal heritage site on the Arabian Sea, featuring a historic palace, rocky shoreline, and open beachfront

1.2 Brief Project Particulars

Brief particulars of the Project are as follows:

Sr. No.	Key Information	Details
1.	Project Title	**Development of Resort at Chorwad, Gujarat**
2.	Location	Land admeasuring about **48,100 sq. m.** located on the Chorwad beach, around 3.6 km from the Chorwad city towards the southwest side at 21.8 km from the Chorwad Road Railway station, 29.3 km from Veraval Railway Station and about 41 km from the Keshod Airport and around 106 km from Porbandar Airport. Location: 21.0004158640739, 70.22745634431269 Brief details of the site is placed at Annexure 3.
3.	Estimated Project Cost	**Rs. 19.50 Crores (Rupees Nineteen Crores Fifty Lakhs Only) including the cost towards restoration of the Chorwad Palace**
4.	Minimum Development Obligations	The Concessionaire shall be required to develop the following facilities:

2.2 PROJECT SCOPE

- **Objective:** Restoration and adaptive reuse of Chorwad Palace with the development of a luxury beach resort.
- **Model:** Public–Private Partnership (PPP) on a DBFOT (Design, Build, Finance, Operate, Transfer) basis.
- **Concession Period:** 35 years from signing of agreement.
- **Construction Period:** 24 months after securing all statutory clearances (which must be done within 12 months of signing).

2.3 TENDER DETAILS

Sr. No.	Key Information	Details
		1. **45 keys** (Luxury Rooms / Cottages / Tents) in 3-Star (or hotel having similar facilities) / Mid-Scale / Budget / Economy Hotel 2. Restaurants (Multi Cuisine Restaurant / Speciality Restaurant / Coffee Shop) – As per requirement 3. Restoration of old building (Old Chorwad Palace) as per prudent restoration practices. o **TCGL has reserved an amount of Rs. 5.00 crore towards restoration of the Chorwad Palace. Concessionaire will be required to restore the building as per prudent practices and will be entitled to get the same amount reimbursed, up to a ceiling of Rs. 5.00 Cr (actual amount spent on restoration or Rs 5.00 Cr, whichever is lower) on initiating Commercial Operation of the Resort.** 4. Reconstruction of other buildings keeping architectural elements similar to the old building. **5.** Provision of car parking to be made as per Local Building Bye-Laws or as directed by TCGL. **6.** Other common and support facilities such as internal roads, streetlights, water harvesting system, solid waste disposal, storm water drainage system, main sewer line, water supply including storage tank(s), transformer, electrical sub-station, green patches etc.

5.	Optional Facilities	• Additional Tents / Cottages / Rooms • Recreational area with Health Club and swimming pool • Any other development with the approval of TCGL
6.	Special Conditions	1. The land shall not be used for the purpose other than tourism related activities and development. 2. Any demolition in the site, has to be pre-approved by TCGL in writing. 3. Clearance under CRZ, if applicable, needs to be obtained by the Concessionaire on its own. 4. TCGL at its discretion shall engage the services of a Conservation Architect, in capacities of Third-Party Agency, for approval of the Conservation Plan submitted by the Concessionaire. The fee to be paid to such an agency shall be shared equally by TCGL and the Concessionaire.

2.3.1 Land & Lease Details

- **Ownership:** Land leased to developer on "as-is, where-is" basis
- **Lease Term:** Co-terminus with concession (35 years)
- **Lease Rent:** ₹1 per sq.m/year + applicable taxes
- **Possession:** Formal handover after signing lease deed and agreement

2.3.2 Regulatory Compliance

- **Applicable Regulations:**
    a) Local building byelaws
    b) Coastal Regulation Zone (CRZ) norms
    c) ASI / State Archaeology for heritage conservation
    d) Forest and Environment clearances (if required)
- **All permits and approvals must be obtained by the developer at their own cost.**

2.3.3 Minimum Development Obligations

Component	Description
Accommodation	Minimum 45 luxury rooms/cottages/tents of 3-star or equivalent category
F&B	Multi-cuisine restaurant / specialty restaurant / coffee shop
Heritage Restoration	Restoration of Chorwad Palace (₹5 Cr reserved for reimbursement, subject to documentation and approval)
Reconstruction	Other buildings must retain visual and architectural harmony with the palace
Parking & Infrastructure	As per local bylaws and TCGL direction; includes internal roads, streetlights, STP, water supply, drainage, RWH, solid waste mgmt., etc.

2.3.4 Optional Development Provisions

- Additional rooms, tents or cottages
- Health club, spa, gym, swimming pool
- Any other tourism-related facility approved by TCGL

2.3.5 Prohibited Development

- Any non-tourism development not permitted by Government of India / Gujarat

2.4 LIST OF SPACES & AREA PROGRAMMING

2.4.1 Mandatory Spaces (Minimum Development)

Space	Description
Luxury Rooms / Cottages / Tents	Minimum 45 keys required, 3-star or equivalent category
Restaurant / Dining	Multi-cuisine restaurant or café; flexible per demand
Restored Palace Zones	Adaptive reuse into lobby, reception, suites, lounges, museum or cultural gallery

Internal Roads	Circulation, drop-off, service roads
Parking	As per local building byelaws – both guest and staff parking
Admin Block	Office spaces, reception, staff rooms
Support Services	Electrical substation, STP, water tank, drainage, waste disposal units, fire safety systems
Landscaped Areas	Open green spaces, gardens, buffer areas
Security & Entry Gate	Main gate with security check, CCTV, watchman's cabin

2.4.2 **Optional / Additional Facilities (Suggestive)**

Space	**Description**
Swimming Pool	Outdoor, luxury pool with deck and lounge area
Spa & Wellness Zone	Ayurveda center / massage rooms / meditation area
Banquet / Conference Hall	Indoor event or meeting space (linked with hospitality)
Fitness Centre	Gym, health club
Cultural Pavilion / Amphitheatre	For showcasing local dance, folk music, etc.
Gift Shop / Souvenir Store	For promoting local handicrafts, tourism
Additional Rooms	Tents / eco-cottages / treehouses (subject to approval)

CHAPTER 3

LITERATURE REVIEW

OVERVIEW

This review examines literature on resort design, focusing on architectural principles, sustainability, guest experience, and cultural integration. It defines the research scope around functional design, eco-friendly practices, and luxury tourism. By analyzing journals, hospitality studies, and case studies, it establishes a conceptual framework to guide design decisions, ensuring alignment with current trends and best practices.

3.1 GUJARAT TOURISM / CRZ GUIDELINES FOR BEACH RESORT DEVELOPMENT

Requirement	Norm
Setback from HTL	≥ 200 m (or hazard line), no construction within LTL–HTL
Plot size	≥ 0.4 ha
Floor Space Index	≤ 0.33
Max height / Floors	≤ 9 m; up to 2 floors
Groundwater use	Forbidden within 200 m; permitted 200–500 m w/ NOC
Sand work	No extraction/leveling within 500 m
Waste management	Must meet standards; no discharge to beach
Public access	≥ 20 m gap between properties; min 500 m spacing
Sensitive areas	Construction prohibited
Approvals	GCZMA clearance; Tourism Dept approval; Forest Act if needed

Setback and Development Zone

No construction allowed within 200 m landward from the High Tide Line (HTL) or between the Low Tide Line and HTL.

Plot & Built-Up Limits

- Minimum plot size must be ≥ 0.4 ha (~4,000 m²).
- Floor Space Index (FSI) max = 0.33; total covered area on all floors ≤ 33% of the plot. Open spaces must be landscaped with vegetation.

Height & Floors

Maximum height: up to 9 m to roof ridge, with no more than two floors (ground + one upper)

Architecture & Environment

- Design should mesh with the surrounding landscape and local architectural style.
- No flattening of sand dunes.
- Live fences or barbed wire fencing with plants may be allowed, provided no obstruction to public beach access.

Groundwater & Sand Extraction

- No groundwater tapping within 200 m of HTL. Between 200–500 m zone, tapping only with approval of the State/Central Ground Water Authority.
- No sand extraction, levelling, or digging on sandy stretches (except structural foundations or a pool) within 500 m of HTL .

Waste & Pollution Control

- Must meet applicable effluent, solid waste, emissions, and noise standards.
- No untreated effluents or solids discharged into waters or on the beach. Treatment systems are mandatory.

Public Access & Spacing

Maintain at least 20 m wide public access gap between any two resorts or hotels, and ensure minimum spacing of 500 m between properties.

3.2 EXISTING GUIDELINES FOR 3-STAR PROVISION OF HOTELS IN INDIA

BEDROOM SIZE REQUIREMENTS

The minimum bedroom sizes (excluding bathroom) for each star category are as follows:

- 3-Star Hotels: Minimum of 130 sq. ft.
- For single occupancy rooms, the size may be a minimum of 90 sq. ft.

LIFT REQUIREMENTS

Hotels are required to provide **2+ hour fire-rated lifts** if their building height exceeds:

- Ground floor + two additional floors
- This is a necessary (N) requirement for all star categories (1-Star to 5-Star Deluxe)

Note: If the design is G+1 or G+2, providing a lift is optional but still strongly recommended for accessibility.

ACCESSIBILITY PROVISIONS

Dedicated Accessible Rooms

Hotels must provide at least one room specifically designed for differently abled guests. The room should include:

- Suitable low-height furniture
- Low peephole and clothes hangers
- Audible and visual (blinking light) alarm system
- Accessible bathroom with proper fittings

Ramps and Access

- Ramps with anti-slip surfaces must be provided at entrances.
- Minimum door width: 1 meter to ensure wheelchair access.
- Free accessibility must be ensured in all public areas and at least one restaurant in 5-Star and 5-Star Deluxe hotels.

Accessible Public Restrooms

- Must include a minimum door width of 1 meter
- Must be wheelchair accessible
- Include a low-height urinal (maximum 24”) with grab bars

SAFETY AND FIRE PRECAUTIONS

Fire Exit Signage

- **Fire exit signs** must be installed on all guest floors
- Must be **connected to emergency or backup power**
- This is a **necessary (N)** requirement

Smoke Detectors

- Smoke detectors must be installed in all rooms
- Can be battery-operated

Fire and Emergency Notices

- Fire safety instructions and emergency procedures must be displayed behind the room door

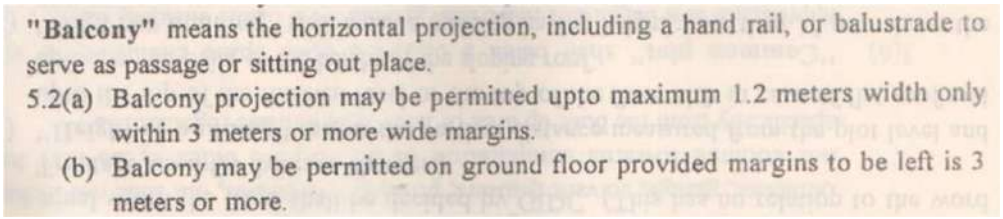
Window and curtain requirements

- All guest room windows must have opaque curtains or screening
- Blackout curtains are mandatory in 4-Star, 5-Star, and 5-Star Deluxe hotels

Water supply

- Hotels must provide hot and cold running water, available 24 hours a day

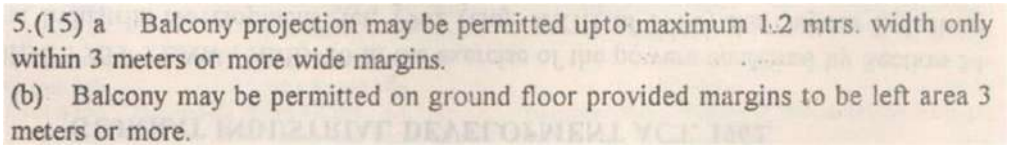
BALCONY



"**Balcony**" means the horizontal projection, including a hand rail, or balustrade to serve as passage or sitting out place.

5.2(a) Balcony projection may be permitted upto maximum 1.2 meters width only within 3 meters or more wide margins.

(b) Balcony may be permitted on ground floor provided margins to be left is 3 meters or more.



5.(15) a Balcony projection may be permitted upto maximum 1.2 mtrs. width only within 3 meters or more wide margins.

(b) Balcony may be permitted on ground floor provided margins to be left area 3 meters or more.

PLINTH

The plinth height should not be less than 45cm.

WIDTH OF LAY OUT ROAD

For Industrial and commercial Development :

Road length	Width of roads
Up to 150 mtrs.	9.0 mtrs.
Above 150 mtrs. & uptot 300 mtrs.	12.0 mtrs.
Above 300 mtrs. & upto 1000 mtrs.	14.0 mtrs.
Above 1000 mtrs.	20.0 mtrs.

6(2) The shape of the plot, the junction of the roads curves at the corners shall be designed as directed by GIDC.

6(3) In case of Termination of internal road or roads. 13.5 mtr. diameter turning circle or 12 mtrs. turning T shal be enfored.

6(4) There shall be minimum 4.5 mtr. distance between two detached structures open to sky in caso of residential and industrial development and 6 mtr. cleart distance between two detached structure. open to sky in case of commercial development.

FLOOR SPACE INDEX (FSI)

9(1) For residetial and industrial development, the maximum permissible floor space index (FSI) of a building unit shall be 1.6 for law rise building. Maximum built up area on any floor for law rise building shall be 50% of the area of building unit for industrial and 40% for residential and commercial purpose. For commercial development, the maximum permissible floor space index for low rise buiding shall be 1.6.

9(2) Height of Building :- The maximum height shall not be more than 13. mtrs, for building with solid plinth and 15 mtrs. for building on stilts clear from the plot level to the top of the building. In case of building for mdustrial purpose, height of more than 13 meters may be permitted of required for industrial purpose and approved by Factory Inspector.

ROAD SIDE MARGINS

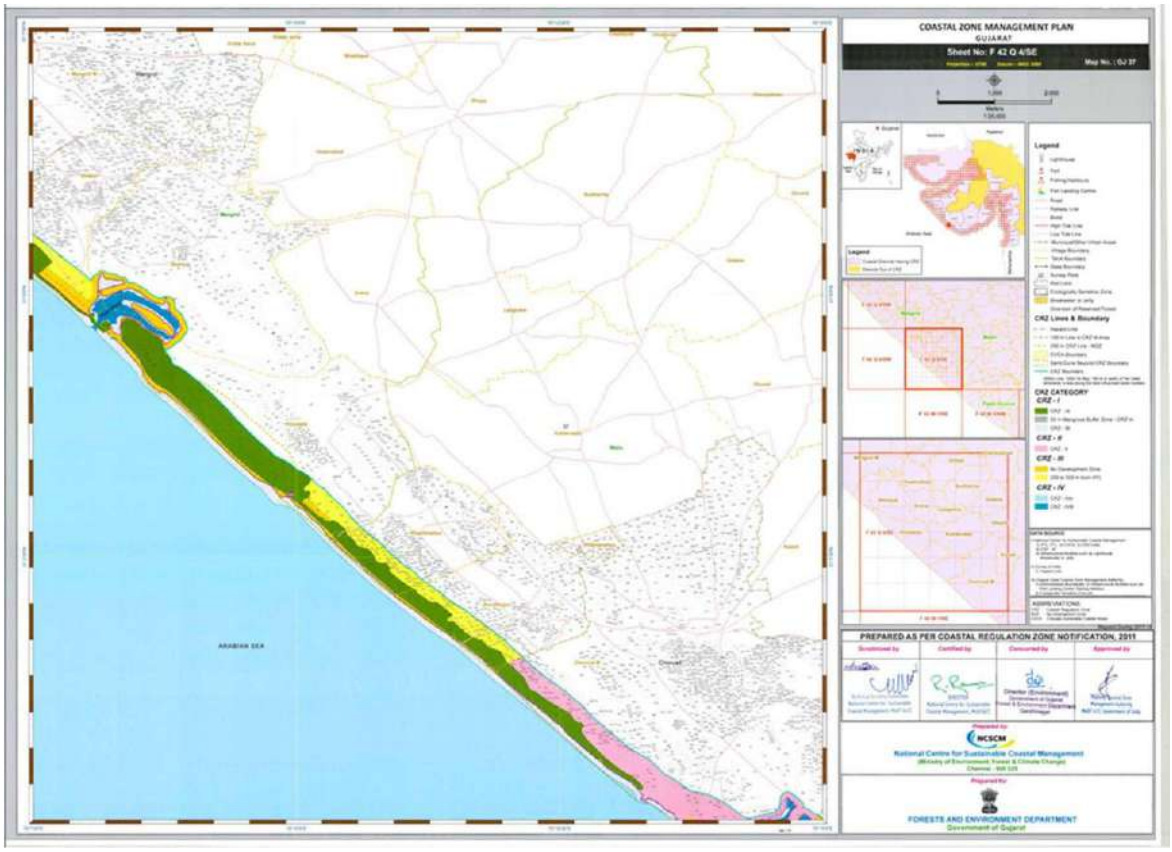
Marginal distance between two detached structures

For residential development	4.5 mtr.
For industrial development	4.5 mtr.
For commercial development	6.0 mtr.

TREE PLANTATION

(i) Building unit having 1000 sq. mtrs. and more area at the rate of 3 trees for every 200 sq. mtrs. of building unit, for all uses, shall have to be planted on the site plan/layout plan and also has to be maintained the same.

COASTAL ZONE MANAGEMENT PLAN



Category-II (CRZ-II) :

The areas that have already been developed upto or close to the shore-line. For this purpose, "developed area" is referred to as that area within the municipal limits or in other legally designated urban areas which is already substantially built up and which has been provided with drainage and approach roads and other infrastructural facilities, such as water supply and sewerage mains.

CRZ-II

(i) Buildings shall be permitted neither on the seaward side of the existing road (or roads proposed in the approved Coastal Zone Management Plan of the area) nor on seaward side of existing authorised structures. Buildings permitted on the landward side of the existing and proposed roads/existing authorised structures shall be subject to the existing local Town and Country Planning Regulations including the existing norms of FSI/FAR.

(ii) Reconstruction of the authorised buildings to be permitted subject with the existing FSI/FAR norms and without change in the existing use.

(iii) The design and construction of buildings shall be consistent with the surrounding landscape and local architectural style.

COMPOUND WALL

22(1) Compound Wall : The height of compound wall shall not exceed 2 mtrs. from road level and where height exceeding the above is provided spacial approval of Managing Director GIDC shall be obtained.

HEIGHT OF FLOOR

17(1) The minimum height of floors in a building measured from floor finish to bottom of the lowest structural member at any point shall be 2.8 mtrs. for residential development and 3 mtrs. for commercial development.

17(2) For dining space, verandah, bath room, corridor, puja room, coal room, passage, stair cabin and pump room the minimum height shall be 2 mtrs.

17(3) The maximum floor height shall not exceed 3.6 mtr.s for residential development, 4 mtrs. for industrial development and 3.60 mtrs. for commercial development. Also refer section 22. But this limit on height may be relaxed for industrial structures if required by industrial process subject to the fire fighting provision being made as per national building code in 17(4) the loft at a minimum height of 2 mtrs. not exceeding 1/ 4th of the area of room may be allowed in any room in residential development. In

PARKING

	Type of Use	Parking space required	Remarks.
2.	Cinema theater, Public assembly hall, auditorium, stadium etc.	1 sq.mtr. per seat.	50% of the total parking space requirements shall be reserved for cars.
3.	Commercial and business establishments including business office, bank, hostel, guest house, restaurant, institutional building and health facilities including hospital and nursing homes etc.	30% of maximum permissible FSI. Note: l) The parking space so required shall be provided excluding required marginal space and built up area with solid plinth subject to other regulation, 2)20% of the parking space required at the ground level shall be exclusively earmarked for visitors.	50% of the total parking space requirements shall be reserved for cars.
4.	Community buildings such as community hall/marriage hall/community wadi/recreational club/and religious building, party not, club house etc.	50% of Building Unit.	50% of the total parking space requirements shall be reserved for cars.

Parking reserved to the visitors shall be provided on ground level only.

21(2) The parking layout shall fulfill the following conditions, namely:-

(i) The minimum width of access to the street from parking space shall be 3.0 meters.

(ii) The car parking space shall have two independent accesses leading to street if its area capacity excees 300 sq.mtrs.

(iii) If the parking space is not provide at street level, the gradient of ram pleading to parking space shall not be more than 1 meter over a horizontal distance of 7 meters.

(iv) Clear heading of 2.8 mts shall be provided on every access leading to parking space and at any point in parking

STAIR, LOBBIES & CORRIDORS

In case residential commercial and in public building the width of lobbies or crorridors in a building unit shall be as under.

(i) Minimum clear width corridors shall be 1 mtr. up to 3 mtr. length and for every additional length of 3 mtrs or part thereof, the width of corridors shall be increased by 15 cms. and upto a maximum of 2.5 mtrs.

(ii) The clear width of common stair shall not be less than 1.2 mtrs. Stair case upto 0.9 mtr. minimum width may be permited in single occupational residential bunglow/ apartment.

(iii) Minimum Stair width for more than six units tenaments on each floor shall be 1.5 mtrs.

(iv) The stair case shall be so located that it shall he within accessible distance of not more than 15 mtr. from any entrance of unit.

(v) Cantilever staircase of width upto 0.9 meters may be permitted in minimum 3 meters width margins in residential building.

VENTILATION

20(1) Every room in residential building should be constructed such that the same shall have for the purpose of ventilation.

A window or windows and/or ventilators clear of such frames, opening directly into an interior or exterior open air space or into an open verandah or gallery abutting on such open air spaces having an opening of not less than 1/10th of floor area of the room or an aggregate opening of door opening on outside open space. windows and ventilations of not less than 1/7th of the floor area of the room or kitchen.

RAINWATER HARVESTING SYSTEM

Percolating well and Rainwater Harvesting System:

For the area of building unit above 500 sq.mtr. and up to 1500 sq.mtr., the owner/developer shall carryout water harvesting system as specified by the authority.

In case where the area of building unit exceeds 1500 sq.mtr. and upto 4000 sq.mtr. owner/developer has to provide/construct percolating well with rain water harvesting system in building unit and at the rate of one percolating well for every 4000 sq.mtr. or part thereof building unit.

(I) Conservation and Harvesting of Rain Water in Building:

Having Plinth built up area of 750 sq. mtrs. or more, every such building shall be provided with required facilities and infrastructure for conservation and harvesting of rain water viz;

(ii) Percolation Pits:

The ground surface around the building shall have percolation pit or bore as recommended by competent authority within the building site, or bore recharge. Such pits shall be filled with small pebbles or brick jelly or river sand and covered with perforated concrete slabs.

(iii) Terrace Water Collection:

The terrace may be connected to a sump or well bore through a filtering tank by PVC pipe as recommended by Competent Authority. A valve system shall be incorporated to enable the first part of the rain water collected to be discharged out to the solid if it is dirty.

(iv) Open ground:

(i) whenever there is open ground a portion of top solid should be removed and replaced with river sand to allow slow percolation of rain water.

(ii) Any other methods proved to be effective in conservation and harvesting of rain water may be adopted in each and every construction taken up.

GENERAL DEVELOPMENT CONTROL REGULATIONS

PLINTH:

Buildings are permitted to have a hollow plinth at the ground level, with a maximum clear height of 3.5 metres and a minimum of 0.30 metres from the finished ground level to the finished first floor level.

CLEARANCE HEIGHT:

- All habitable spaces must have a minimum height of 2.9 metres between finished floor levels.
- Circulation and service spaces (e.g., verandahs, bathrooms, passages, stair cabins, store rooms) must have a minimum clear height of 2.1 metres.
- Basements used exclusively for parking must maintain a minimum clear height of 2.8 metres and a maximum of 4.5 metres, though greater height may be allowed for mechanical parking systems.
- Hollow plinths for parking must have a maximum clear height of 3.5 metres.

MEZZANINE AND LOFT:

- Mezzanine floors are permitted with a minimum clear height of 2.1 metres and an area not exceeding 30% of the enclosed space. Lofts, with a maximum height of 1.2 metres, are also permitted under similar conditions.

RAMPS:

- Vehicular Ramps: For cars, a minimum ramp width of 3.0 metres and a minimum inner curve radius of 3.0 metres are specified. For trucks, these are 6.0 metres and 4.0 metres respectively. The maximum slope of any ramp is 1:7. A level platform of at least 4.5 metres in length is required at the end of ramps at ground and basement levels. A minimum clear height of 2.6 metres must be maintained throughout.

STAIRCASES:

- The dimensions (minimum flight width, tread, and riser) for staircases depend on the building's use and height. Escape routes leading to basements must have the same width as those used for exit and adhere to Fire Prevention and Life Safety Measure Regulations–2016.

RAILINGS:

- A parapet/railing of at least 1.15 metres in height from the finished floor level is required at all accessible edges, such as roof edges, staircases, terraces, and balconies.

PAVING:

- A minimum of 50% of the total open space (including marginal open spaces and common plots) in a building unit can be paved, with the remainder designed for rainwater recharge.

ACCESS PATH:

- The access path from the building unit entry to the building entry or plinth must have a minimum width of 1.8 metres with one user curve. For people with disability, the ramped path must incorporate guiding tiles and materials (conspicuously different in colour, material, or brightness to adjoining ground surfaces) and have a non-slip surface traverseable by a wheelchair user.

DOOR REQUIREMENTS:

- For internal doors of non-detached/semi-detached dwellings, at least one entrance must be accessible by people with a disability. The clear opening of the entrance door must be 900mm, with a level difference at the threshold not exceeding 12mm. Door handles and locks should be located between 900–1000mm above the floor.

VENTILATION:

- All habitable rooms require adequate ventilation from open or semi-open spaces (minimum 1/10th of the floor area), with aggregate openings of at least 1/7th of the room's floor area. Windows should compensate for any deficiency. Basements and all bathrooms/water closets also require adequate ventilation.

AIR-CONDITIONING:

- Air-conditioning in common areas like lobby, restaurants and verandahs, particularly those open to nature, may not be mandatory for nature-oriented hotels and resorts.

PARKING

PARKING STANDARDS AND REQUIREMENTS

Cars:

- Minimum Dimension: Each car parking space must have a minimum dimension of 2.5 metres × 5.0 metres.
- Access/Exit Lanes: Parking spaces should be connected to the street via an access/exit lane. The minimum width for a single-sided parking lane is 3 metres, while for double-sided parking, it is 6.6 metres.

Two-Wheelers:

- Minimum Dimension: Each two-wheeler parking space must have a minimum dimension of 0.90 metres × 2.0 metres.
- Access/Exit Lanes: The minimum width of the access/exit lane connecting to the street is 2.0 metres.
- Clear Height: A minimum clear height of 2.6 metres must be maintained at all points.

Buses and Trucks:

- Minimum Dimension: When truck parking is required, each space must have a minimum dimension of 4.0 metres × 10.0 metres.
- Access/Exit Lanes: The minimum width of the access/exit lane is 6.0 metres.

Parking for People with Disability:

- Mandatory Requirement: Parking for people with disability is required for all buildings, societies except detached and semi-detached dwelling units.
- Number of Spaces: A minimum of two accessible car parking spaces must be provided for every 25 car parking spaces or less.
- Bay and Transfer Lane: The space must have a minimum bay width of 3.6 metres to the side transfer lane, which can be shared by two successive parking bays.
- Location: Accessible parking bays must be located within 30 metres from the main building entrance.

Mixed Development:

- Mixed Development: In mixed-use developments, loading and unloading spaces are required as part of the application process.
    a) One space of 3.5 metres × 7.5 metres must be provided for every 1000 sq m of carpet area or part thereof.
    b) Ramp Widths: Ramps leading to loading and unloading spaces must have a minimum width of 6.0 metres and can also be used for general parking access.
    c) Location: These spaces are permitted on the ground level or in the first basement and are considered part of the overall parking area.

Environmental Management:

- Rainwater Harvesting: Mandatory for all buildings with ground coverage of 80 sq.mt and above, with specific systems (percolation pit/bore recharge or percolating well) depending on the building unit area.
- Greywater Recycling: Mandatory for "Hospitality: Hotels, Lodges, Guest houses" with a built-up area exceeding 10,000 sq.mt. This includes provisions for a recycling plant, separate plumbing, and the use of treated water for non-potable purposes (e.g., toilet flushing, gardening). The recycled water quality must conform to non-potable standards and be tested every six months.
- Solar Water Heating System: Mandatory for "Hospitality: Hotels, Lodges, Guest houses" with a built-up area exceeding 2,000 sq.mt.
- Tree Plantation: Building units larger than 100 sq.mt must provide a minimum of three trees for every 200 sq.mt area or part thereof. Trees should be shade-giving and must not obstruct fire fighting vehicles. A tree plantation deposit may be required

3.3 INDIAN NATIONAL TRUST FOR ART AND CULTURAL HERITAGE (INTACH)

CONSERVATION OBJECTIVES

Adaptive Reuse

The re-use of historic buildings and neighbourhoods is economically sensible. It is an effective strategy to conserve architectural heritage, particularly by using traditional craftspeople in the process. Such re-use distinguishes between preservation as an ideal on the one hand and, on the other, the goal to prolong the useful life of architectural heritage by retaining as much (and not necessarily, all) of the surviving evidence as a vestigial presence.

Priority must be accorded to retaining the continuity of original functions. Any new use must be introduced only after studying its effect on the local context and must conform to the carrying capacity and vulnerability of the architectural heritage. All changes to the original fabric should be preceded and followed by comprehensive documentation. Additions and alterations must respect the coherence of the whole, and must, to the extent possible, engage traditional materials, skills and knowledge in the process.

When it becomes necessary to modernise and comprehensively alter the original internal functional characteristics of the building or site, its external image must be retained. At the outset, the local community must be made aware of the changes envisaged and explained the benefits to be derived.

Restoration/ Replication/ Rebuilding

Restoration is an appropriate conservation strategy to reinstate the integrity or complete the fractured ‘whole’ of the architectural heritage/ site. It must aim to convey the meaning of the heritage in the most effective manner. It may include reassembling of displaced and dismembered components of the structure and conjectural building or replacement of missing or severely deteriorated parts of the fabric. Invariably, restoration work must be preceded and followed by comprehensive documentation

in order to base interventions on informed understanding of the resource and its context, and in conformity with contemporary practices of local craftspeople.

In consonance with traditional ideals, replication can be accepted as an appropriate strategy not only to conserve unprotected historic buildings, but especially if such replication encourages historic ways of building.

At the urban level, the objective of rebuilding historic structures should be to enhance the visual and experiential quality of the built environment, thereby providing a local distinctiveness to contest the homogenising influence of globalisation.

In addition, reconstruction/ rebuilding can provide the impetus to develop a parallel market for local buildings materials and new opportunities for the use of alternative systems of building.

Reconstruction based on minimal physical evidence is appropriate where it is supported by the knowledge of local craftspeople, including folklore, beliefs, myths and legends, rituals, customs, oral traditions, etc. The objective of this practice must be to interpret the original meanings of the resource in the contemporary context and reinforce its bond with society.

Employment generation

Conservation strategy must focus on the potential for employing local raj mistris, labour and materials because this will prolong the economic viability of traditional ways of building. In conditions of resource scarcity, the use of architectural heritage can provide an alternate and more economic strategy to meet contemporary needs as well.

Local material and traditional technology

The use of local materials and traditional technologies must invariably be preferred. Their choice must be based on the availability of traditional knowledge systems. Modern substitutes should be considered only after their use is proven efficient and judicious and must not compromise the integrity and continuity of local building traditions.

It is necessary to recognise that the use of certain traditional building materials may be inadvisable on account of the damage this can cause to the natural ecological systems. Thus, the use of shell lime in coastal areas and wood generally may need to be judicially substituted with alternate materials.

Integrated conservation

Conservation of architectural heritage and sites must be integrated with the social and economic aspirations of society. Conservation-oriented development must be the preferred strategy for social and economic progress. This necessitates the formation of multi-disciplinary teams to undertake integrated conservation projects. Since social aspirations are diverse and often at odds with each other, the conservation team must include social workers to facilitate dialogue and decision-making.

Sustainability

The objective of conservation should be to sustain the building and/or the traditional skill and knowledge system of building. In this context, continuity must be seen as evolving over time. The test of its validity must be the positive contribution it makes to the quality of life of the local community.

Selection criteria

Although interrelated, the following three key attributes will determine whether a property is worthy of listing:

- Historic significance
- Historic integrity
- Historic context

One or more of these attributes need to be present in a building to make it worthy of listing.

Historic significance

Historic significance refers to the importance of a property to the history, architecture, archaeology, engineering or culture of a community, region or nation. In selecting a building, particular attention should be paid to the following:

- Association with events, activities or patterns.
- Association with important persons, including ordinary people who have made significant contribution to India's living heritage.
- Distinctive physical characteristics of design, construction or form, representing the work of a master craftsperson.
- Potential to yield important information, such as socio-economic history. Railway stations, town halls, clubs, markets, water works etc. are examples of such sites
- Technological innovation represented. For example: dams, bridges, etc.
- Town planning features such as squares, streets, avenues, etc. For example: Rajpath in New Delhi.

Historic integrity

Historic integrity refers to the property's historic identity, evidenced by the survival of physical characteristics and significant elements that existed during the property's historic period. The "original" identity includes changes and additions over historic time.

Historic integrity enables a property to illustrate significant aspects of its past. Not only must a property resemble its historic appearance, but it must also retain original materials, design features

and aspects of construction dating from the period when it attained significance.

Historic integrity also relates to intangible values such as the building or site's cultural associations and traditions.

Historic context

Historic context refers to information about historic trends and properties grouped by an important theme in the history of a community, region or nation during a particular period of time.

Knowledge of historic context enables the public to understand a historic property as a product of its time.

Precincts or properties with multiple owners

A historic building complex may comprise of numerous ancillary structures besides the main structure. Each structure of the complex must be documented on individual proformas. For example, Jahangir Mahal, Diwan-i-Aam, Diwan-i-Khas and Moti Masjid all form part of the Agra Fort complex but are also individual buildings in their own right and, as such, must be documented individually.

Methodology

The determination of significance is the key component of methodology. All conservation decisions follow from the level of significance that is assigned to a building or site.

Listing work is comprised of two phases:

- Background research
- Field work

Background research

Before commencing actual fieldwork, the lister should gather basic information from various sources including gazetteers, travel books and other specialised books containing information about the architecture and history of the area to be listed and documented. This work could be done in university libraries, the ASI, the National Museum, the Central Secretariat, the respective State Secretariats, Institutes of Advanced Studies and Schools of Planning andArchitecture. In a given area, local experts and university scholars are resource persons who could also provide required guidance and help.

Background research helps to ensure that no important structure or representative style of building is left out of the list. It enables the identification of historic areas, historic development of the area, significant events in the area and important persons associated with the area. In some well-documented areas, distinctive physical characteristics of design, construction or form of building resource can also be identified.

Field work

First and foremost it is necessary to carry out a field survey to identify the buildings and the areas to be listed. Following this, a detailed physical inspection of the property and dialogues with appropriate local people such as the owners of the property, area residents, local panchayats, etc. need to be undertaken. By physically inspecting the property the lister can gather information regarding the physical fabric of the building, such as physical characteristics, period of construction, etc. that need to be cross-checked with the literature survey. By conducting a dialogue with area residents, the lister can determine the changes to the property over time, ownership details, historic function and activities, association with events and persons and the role of the property in local, regional or national history.

When gathering information, the lister must be mindful of proforma requirements (Article 5.12). The proforma is, first of all, a record of the property at the time of listing and consists of current name; historic or other name(s), location, approach and accessibility, current ownership, historic usage, and present use.

Claims of historic significance and integrity should be supported with descriptions of special features, state of preservation, relevant dates, etc.

Mapping of vernacular architecture and historic settlements

The major shortcoming of the current list of legally protected architectural heritage is that it does not recognise vernacular architecture and historic settlements as categories of heritage worthy of being conserved. The listing of unprotected architectural heritage and sites must, therefore, include this category. An example of such an inclusive document is INTACH's "Listing of Built Heritage of Delhi" published in 1999.

Sacred sites must be dealt with due sensitivity and knowledge of the local social and cultural imperatives governing their sanctity. Listing must record such characteristics associated with these sites.

Detailed format for all the structures

Information for each building or site should be recorded as per INTACH's standard format as described below.

- Each proforma must contain information about listers and reviewers. Listing must be carried out by or under the supervision of experienced conservation architects.
- At least one photograph of the property/ building should be recorded for identification purposes. All significant elements of the property also need to be photographed. All photographs should be properly catalogued.
- A conceptual plan (if available, a measured drawing) should be given for each building/ area listed.
- Any additional information related to or affecting the built heritage of the city/town/region documented and its conservation should be included as appendices, for example: laws and regulations on planning and conservation, etc.

- A glossary should be provided explaining the technical and the special words used must be provided. For example: “Imambara - a shrine/ religious structure of Shia Muslims”.
- A bibliography of all books, publications, articles and unpublished work must be provided. The uniform format should be followed throughout.

Grading

The primary objective of listing is to record extant architectural heritage and sites. But the outcome of this process should invariably be to grade the listed heritage into a hierarchical series. This process must be undertaken in a rigorous and transparent manner by a multi-disciplinary team of experts whose recommendations should be available for public scrutiny. The importance of this process cannot be underestimated because its results determine subsequent conservation decisions. Such hierarchical categorisation facilitates the prioritisation of decisions relating to the future of architectural heritage and sites.
This Charter recommends that buildings and sites be classified as Grade I*, I, II and III in descending order of importance.

Grade-I	Grade-I	Grade-I
(A) Definition : Heritage Grade-I comprises buildings and precincts of national or historic importance, embodying excellence in architectural style, design, technology and material usage and/or aesthetics; they may be associated with a great historic event, personality, movement or institution. They have been and are the prime landmarks of the region. All natural sites shall fall within Grade-I.	Heritage Grade-II (A&B) comprises of buildings and precincts of regional or local importance possessing special architectural or aesthetic merit, or cultural or historical significance though of a lower scale than Heritage Grade-I. They are local landmarks, which contribute to the image and identity of the region. They may be the work of master craftsmen or may be models of proportion and ornamentation or designed to suit a particular climate.	Heritage Grade-III comprises building and precincts of importance for townscape; that evoke architectural, aesthetic, or sociological interest through not as much as in Heritage Grade-II. These contribute to determine the character of the locality and can be representative of lifestyle of a particular community or region and may also be distinguished by setting , or special character of the façade and uniformity of height, width and scale.
(B) Objective: Heritage Grade-I richly deserves careful preservation.	Heritage Grade-II deserves intelligent conservation	Heritage Grade-II deserves intelligent conservation (though on a lesser scale than Grade-II and special protection to unique features and attributes).

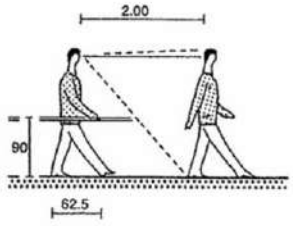
(C) Scope for Changes: No interventions be permitted either on exterior or interior of the heritage building or natural features unless it is necessary in the interest of strengthening and prolonging the life of the buildings/or precincts or any part or features thereof. For this purpose, absolutely essential and minimum changes would be allowed and they must be in conformity with the original.	Grade-II(A) : Internal changes and adaptive re-use may by and large be allowed but subject to strict scrutiny. Care would be taken to ensure the conservation of all special aspects for which it is included in Heritage Grade-II. Grade-II (B) : In addition to the above, extension or additional building in the same plot or compound could in certain circumstances, be allowed provided that the extension / additional building is in harmony with (and does not detract from) the existing heritage building(s) or precincts especially in terms of height and façade.	
(D) Procedure: Development permission for the changes would be given on the advice of the Heritage Conservation Committee.	Development permission for the changes would be given on the advice of the Heritage Conservation Committee.	Development permission for changes would be given on the advice of the Heritage Conservation Committee.
(E) Vistas / Surrounding Development : All development in areas surrounding Heritage Grade-I shall be regulated and controlled, ensuring that it does not mar the grandeur of, or view from Heritage Grade-I.	All development in areas surrounding Heritage Grade-II shall be regulated and controlled, ensuring that it does not mar the grandeur of, or view from Heritage Grade-II	All development in areas surrounding Heritage Grade-III shall be regulated and controlled, ensuring that it does not mar the grandeur of, or view from Heritage Grade-III.

Buildings and sites classified as Grade I*, I and II should be conserved in accordance with the provisions of official and legal manuals of practice (for example, ASI's Works Manual). Some Grade II buildings, however, and all other listed buildings and sites, i.e. Grade III, may be conserved in accordance with principles enunciated in this Charter (Article 2.6). The decision to apply the principles enunciated in this Charter to Grade II buildings must invariably be based on the concurrence of the Advisory Committees of INTACH (Article 7.2.5).

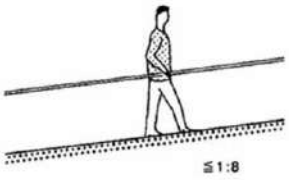
The process of listing should be constantly upgraded and the list updated in keeping with the availability of fresh information, financial and material resources, advances in technology and developments in the understanding of architectural heritage and its constituents.

3.4 NEUFERT ARCHITECTS DATA

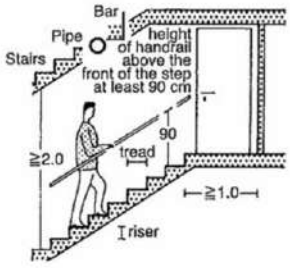
Stairs



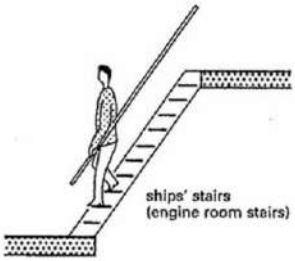
1 Standard stride of an adult on a horizontal surface



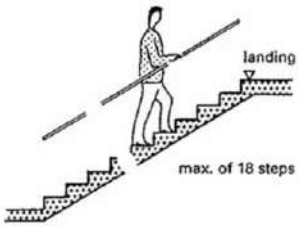
2 On a slope the stride is reduced: a comfortable slope is 1:10–1:8



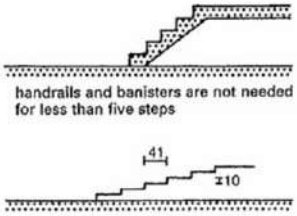
3 Good standard riser to tread ratio 17/29, stride 2 risers + 1 tread = approx. 62.5 cm



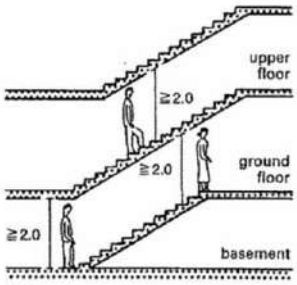
4 Ladder-type stairs with handrail



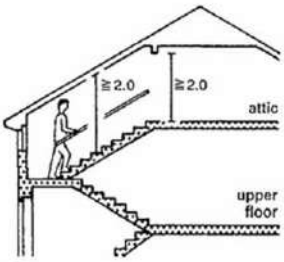
5 Normal stairs 17/29, landing after max. 18 steps for legally essential stairs. Prestigious-style stairs can climb up to a 4 m storey height without a landing.



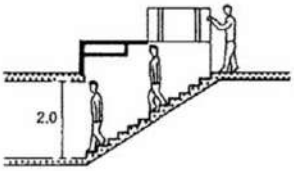
6 Stairs without a handrail



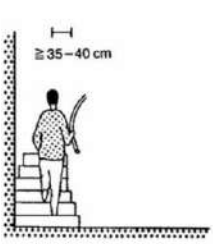
7 Correctly superimposed stairs save space



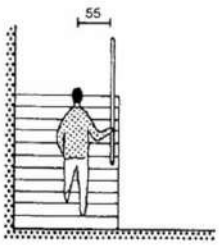
8 If rafters and beams are arranged in the direction of the stairs, this saves space and expensive trimmers



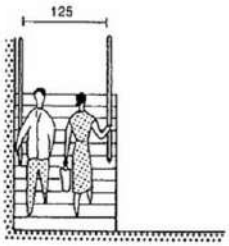
9 Covered entrances to cellars necks and trapdoors are to be avoided; but the arrangement shown here has advantages and is safe



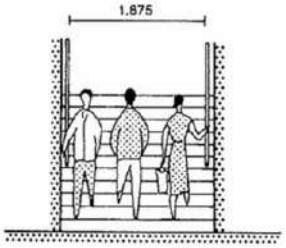
10 For winding stairs, the distance of the walking line to the inner cheek is 35–40 cm



11 For straight stairs, the distance of the walking line to the handrail is 55 cm



12 Stairs on which two people can pass



13 ≧width for three people

Type of hotels

According to the classification system of the German Hotel and Inn Association (DEHOGA), there are five categories, essentially determined by the room's size and features:

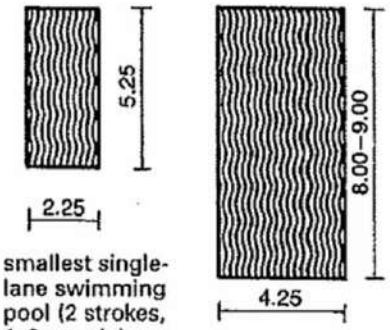
- 1 Star (Tourist): single room 8m2 , double room 12m2 (minimum area for 75% of the hotel rooms, without bathroom), bed, wardrobe, seat, washbasin in the room, reception as a separate area
- Stars (Standard): as before, but single room 12 m2, double room 16 m2 (minimum area for 75% of the hotel rooms, including bathroom and corridor), bathroom in room (for 70% of hotel rooms), seat per bed, colour television (in 70% of the hotel rooms)
- Stars (Comfort): as before, but single room 14 m2, double room 18 m2 (minimum area, see above), bathroom in room (for all rooms in the hotel), telephone, reception area with seating for group, independent reception
- Stars (First Class): as before, but single room 16 m2, double room 22 m2 (minimum area, see above), minibar, armchair/couch with coffee table, lobby with seating and drinks service
- 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.

Swimming pools

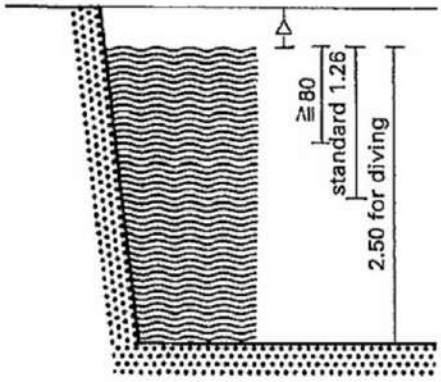
Size: Lane width 2.25 m, stroke length approx. 1.50 m, plus body length: 4 strokes = 8 m length. Water depth: chin height for the smallest adult, not the children! Difference between pool depth/ water depth. depends on the type of extractor system.

Types of pool:

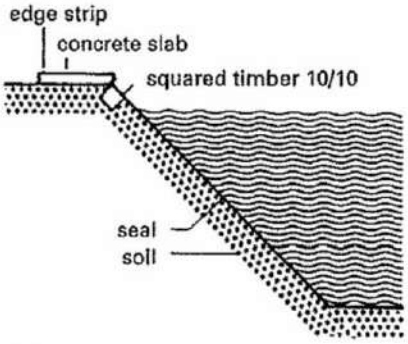
- Normal foil pool (foil = waterproof surface) on masonry-bearing construction, concrete, steel (also above ground) or sunk into ground. Polyester pools, seldom locally produced, mostly with pre fabricated elements, are generally not self-supporting. Lean concrete backfilling is necessary.
- Watertight concrete pool (two-sided in situ concrete, shotcrete with formwork for one side, pre-cast concrete elements); surface mostly ceramic or glass mosaic, occasionally paint (chlorine rubber, cement paint).



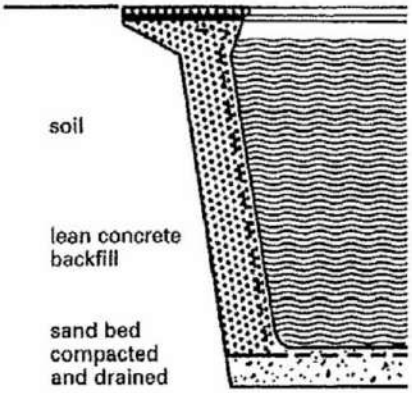
2 Pool sizes



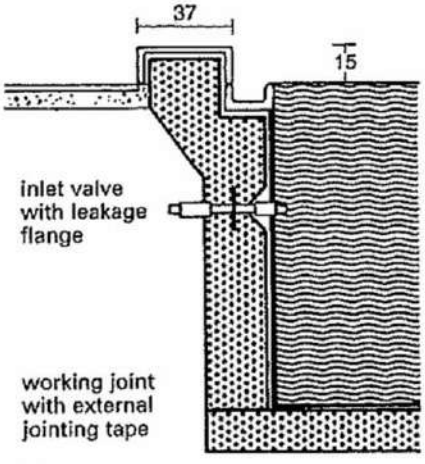
3 Pool depth



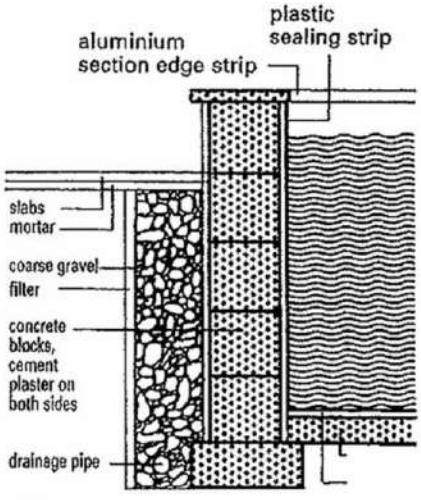
4 Sloping pool with foil; edge formed by timber beam



5 Single-skin prefabricated polyester pool



6 Reinforced concrete pool: simple version with Wiesbaden channel



7 Masonry pool with drainage

Water	Season			Additional months	
temp.	4 Months	5 Months	6 Months	5th Month	6th Month
22°C	1.25/6.5	1.33/7.2	1.55/7.8	1.65/7.2	2.65/7.8
23°C	1.50/7.2	1.70/7.9	2.00/8.5	2.50/7.9	3.50/8.5
24°C	2.08/7.9	2.26/8.6	2.66/9.2	2.98/8.6	4.66/9.2
25°C	2.60/8.5	2.80/9.3	3.20/9.8	3.60/9.5	5.25/9.8
26°C	3.50/9.2	3.75/10.0	4.00/10.5	4.75/10.0	5.25/10.5

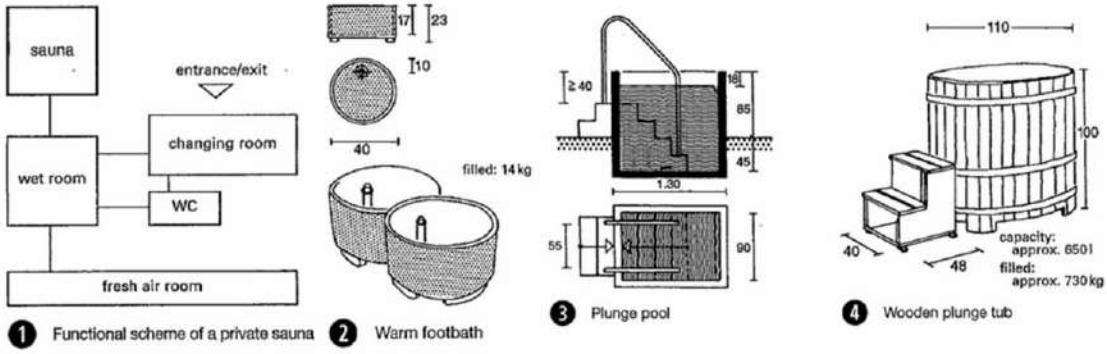
8 Heat loss of an outdoor pool (average/maximum) in kWh/m²d according to measurements by energy company RWE. Special influences are not considered, e.g. considerable heat loss of public pools (hotel pool etc.) through the use of heated pool water for filter back-flushing (up to 1.5 kW/m²d or 1300 kcal/m²d).

Spa

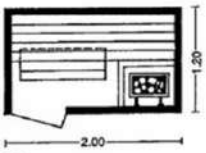
Free-standing sauna cabins or facilities (e.g. in the garden) are normally constructed of spruce in log cabin style, and are either self-built or bought pre-fabricated. The log cabins are available in various versions, either as sauna cabins. or also with shower and changing or relaxation room. There are also sauna cabins available as prefabricated or kit elements for installation in existing rooms.

Sauna stove: Sauna cabins for installation usually have electric stoves (which require a three-phase supply above a certain size), while log cabin types mostly have solid fuel stoves (which require a chimney).

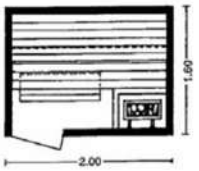
Plunge pool-max. depth 1.20 m. An important part of a proper sauna, a (warm) footbath with a seat are required.



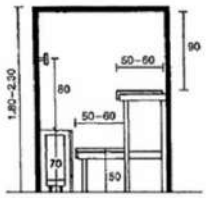
1 Functional scheme of a private sauna **2** Warm footbath **3** Plunge pool **4** Wooden plunge tub



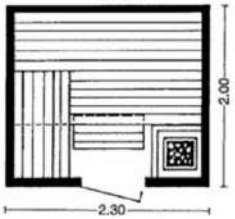
5 Sauna cabin: one person lying or two sitting



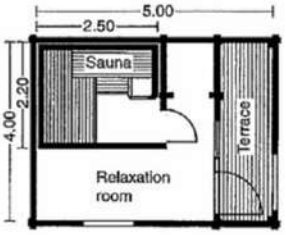
6 Sauna cabin: two people lying or three sitting



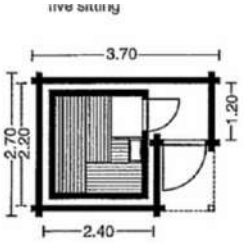
7 Cross-section



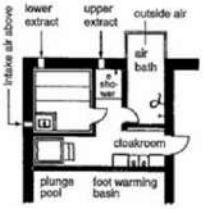
8 Sauna cabin: three people lying or five sitting



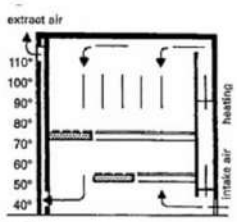
9 Sauna constructed as log cabin



10 Sauna cabin constructed as log cabin

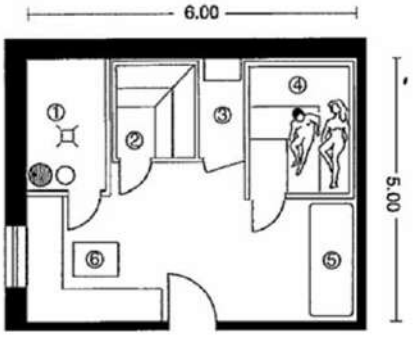


11 House sauna



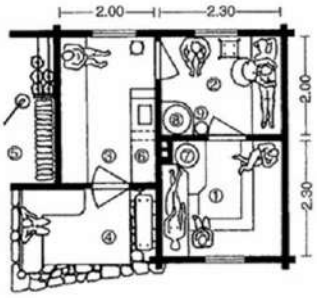
12 Cross-section of sauna with indirect heating (Bernberg)

① Shower
② Steam bath
③ Equipment
④ Sauna
⑤ Sun bench
⑥ Sitting & relaxation corner



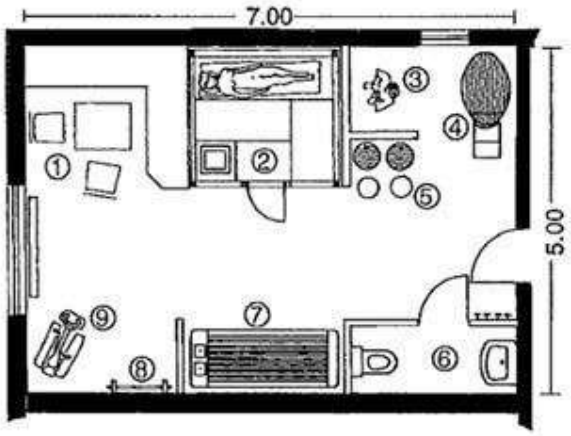
13 Sauna (installed, e.g. in cellar), 30 m², 4–6 people

① Sauna cabin
② Massage & washing room
③ Changing room
④ Veranda
⑤ Wood pile
⑥ Cubboard
⑦ Heating oven
⑧ Water kettle
⑨ Water tub



14 Sauna

① Sitting & relaxing corner
② Sauna cabin
③ Shower
④ Plunge pool
⑤ Footbath
⑥ WC
⑦ Sun bench
⑧ Wall bars
⑨ Ergometer



15 Sauna, 35 m², 4–6 people, sauna cabin as built-in element

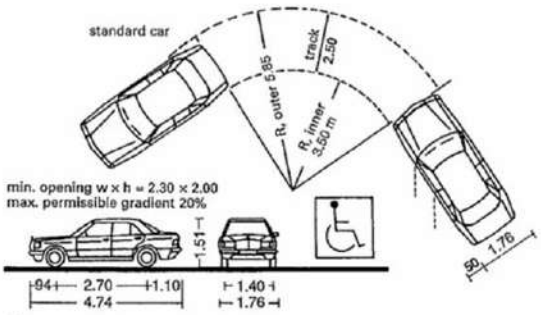
Parking facility

Vehicle turning

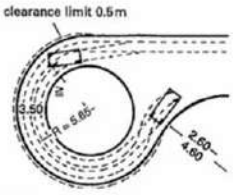
Type of vehicle	External dimensions						
	Length	Wheelbase	Overhang length		Width	Height	External turning circle radius
			Front	Back			
	[m]	[m]	[m]	[m]	[m]	[m]	[m]
Bicycle	1.90				0.60	1.00	
Moped	1.80				0.60	1.00	
Motorcycle	2.20				0.70	1.00	
Car	4.74	2.70	0.94	1.10	1.76	1.51	5.85
HGVs:							
Van/campervan	6.89	3.95	0.96	1.98	2.17	2.70	7.35
HGV (2 axles)	9.46	5.20	1.40	2.86	2.29	3.80	9.77
HGV (3 axles)[1]	10.10	5.30[1]	1.48	3.32	2.50[4]	3.80	10.05
HGVs with trailer:	18.71						
Towing vehicle (3 axles)[1]	9.70	5.28[1]	1.50	2.92	2.50[4]	4.00	10.30
Trailer (2 axles)	7.45	4.84	1.35[3]	1.26	2.50	4.00	10.30
Articulated HGVs:	16.50						
Tractor unit (2 axles)	6.08	3.80	1.43	0.85	2.50[4]	4.00	7.90
Semi-trailer (3 axles)[1]	13.61	7.75[1] 1.61	4.25	2.50	4.00	7.90	
Buses:							
Coach, bus	12.00	5.80	2.85	3.35	2.50[4]	3.70[6]	10.50
Coach, bus[2]	13.70	6.35[2]	2.87	4.48	2.50[4]	3.70[6]	11.25
Coach, bus[2]	14.95	6.95[2]	3.10	4.90	2.50[4]	3.70[6]	11.95
Articulated bus	18.75	5.98/5.99	2.65	3.37	2.50[4]	2.95	11.80
Refuse collection vehicles:							
2 axles (2 Mü)	9.03	4.60	1.35	3.08	2.50[4]	3.55	9.40
3 axles (3 Mü)	9.90	4.77[1]	1.53	3.60	2.50[4]	3.55	10.25
3 axles (3 MüN)[2]	9.95	3.90	1.35	4.70	2.50[4]	3.55	8.60
Highest values permitted in Germany:							
HGV	12.00						
Trailer	12.00				2.55[4][5]	4.00[6]	12.50
HGV with trailer	18.75						
Articulated HGV	16.50						
Articulated bus	18.00						

Notes:
[1] for vehicles with 3 axles, the rear tandem axle is integrated to a middle axle
[2] for 3-axle vehicles with a trailing axle, the wheelbase corresponds to the distance between the front axle and the forward axle of the rear tandem axle
[3] without tow bar length
[4] without external mirror
[5] additional equipment for air-conditioned HGVs up to 2.60 m
[6] as double-decker bus 4.00 m

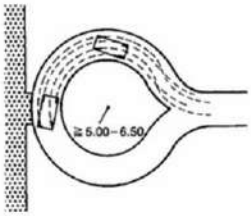
10 Basic vehicle data → p. 397–398



1 Standard car



2 Turning circle of a car



3 Entrance drive, car turning circle radius ≧5–6.50 m

Type of vehicle	External dimensions						
	Length	Wheelbase	Overhang length		Width	Height	External turning circle radius
			Front	Back			
	[m]	[m]	[m]	[m]	[m]	[m]	[m]
Bicycle	1.90				0.60	1.00	
Moped	1.80				0.60	1.00	
Motorcycle	2.20				0.70	1.00	
Car	4.74	2.70	0.94	1.10	1.76	1.51	5.85
HGVs:							
Van/campervan	6.89	3.95	0.96	1.98	2.17	2.70	7.35
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Coach, bus[2]	14.95	6.95[2]	3.10	4.90	2.50[4]	3.70[6]	11.95
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Articulated bus	18.00						

Notes: [1] for vehicles with 3 axles, the rear tandem axle is integrated to a middle axle
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[3] without tow bar length
[4] without external mirror
[5] additional equipment for air-conditioned HGVs up to 2.60 m
[6] as double-decker bus 4.00 m

10 Basic vehicle data → p. 397–398

CHAPTER 4

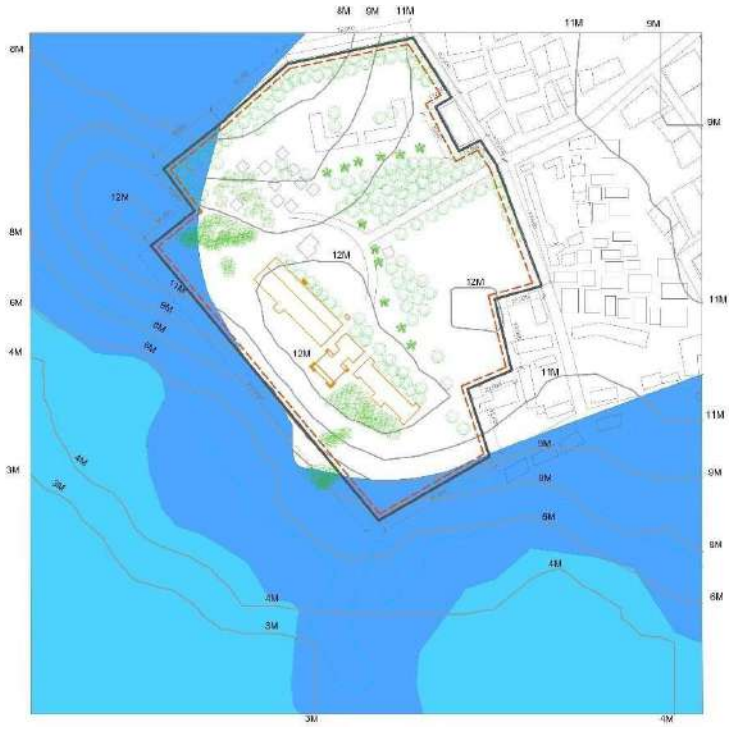
SITE INVENTORY

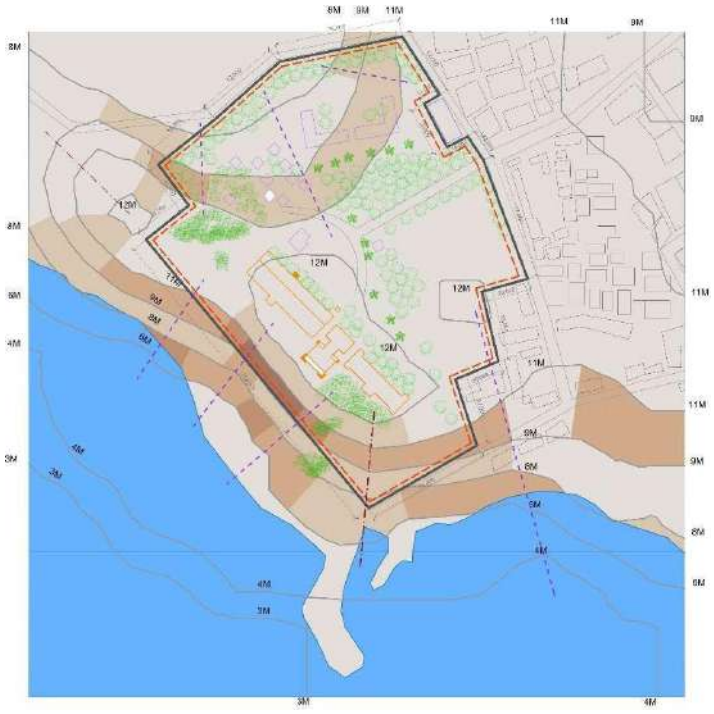
OVERVIEW

A site inventory overview is crucial in the planning and design phase of a resort project, providing a comprehensive understanding of the site's characteristics and context. Conducting a thorough site inventory allows for informed decision-making, effective design solutions, and an understanding of how the site interacts with its natural, built, and cultural environment.



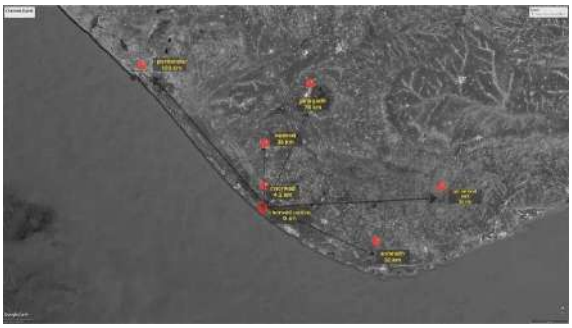
SITE INVENTORY





1. LOCATION & CONTEXT

Distance: Chorwad Beach is about **20–37 km** south of Somnath and approximately **20 km from Veraval** (Somnath Railway Station)

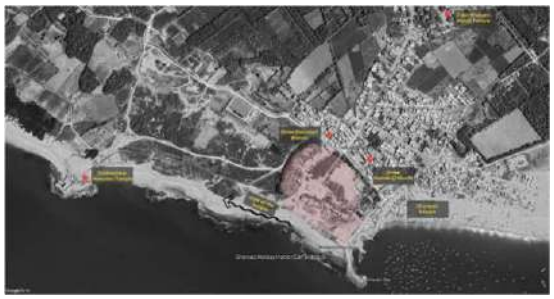




2. NEARBY INFRASTRUCTURE

Nearest rail access is Chorwad Road railway station (~6 km). Airports: Rajkot (~180 km) and Diu/Keshod (~40–110 km); road access via Somnath or Veraval on NH-51





3. HISTORICAL & CULTURAL HIGHLIGHTS

Chorwad Palace—often referred to as the Summer Palace or Daria Mahal—was built in 1930 by Nawab Muhammad Mahabat Khanji III, the ruler of Junagadh, as his coastal summer retreat on the shores of the Arabian Sea in Chorwad, Junagadh district, Gujarat. Constructed around 1928–1930, the palace blends Italian, Muslim, and colonial architectural styles, featuring lofty arched windows, balconies, projecting verandas, landscaped gardens and walkways perfect for seaside promenades.



Originally the exclusive pleasure palace of the Nawab and his entourage, complete with facilities to host royal banquets, horse stables, and lavish displays of luxury, the palace later became the central facility of a government-run beach resort developed by the Tourism Corporation of Gujarat Ltd (TCGL) in the 1970s. It was intended as India's only **beach palace resort**—a singular destination that combined heritage architecture with seaside relaxation.



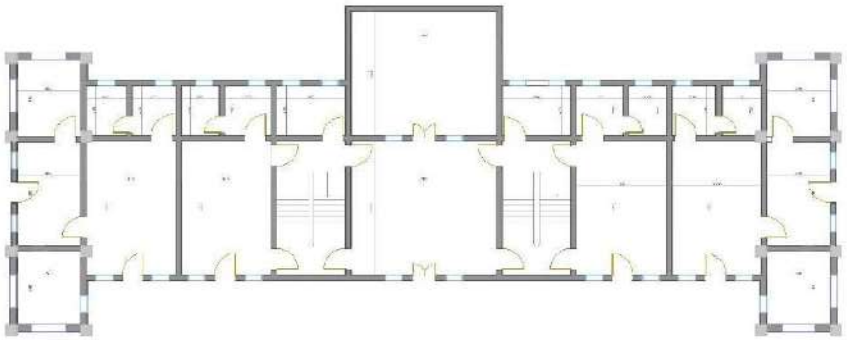
By the late 2000s, the resort and palace were already described as **dilapidated**. Reports indicated that the palace porch had collapsed, while precious **Belgian chandeliers, Italian furniture, and antique décor** were stolen or vandalized. The adjoining TCGL cottages and support facilities, meant to host beach tourists, also became unusable due to decay and lack of upkeep. Even basic infrastructure such as pathways, gardens, and lighting were left in poor condition, discouraging visitors and creating an image of abandonment.



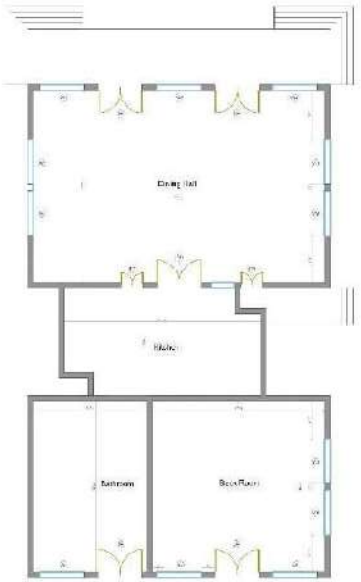




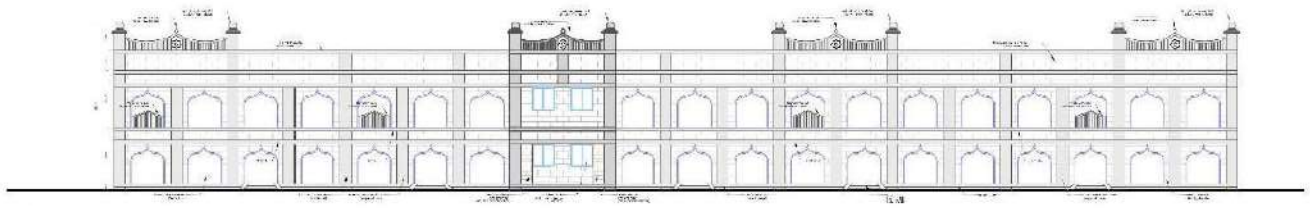
Replica Building



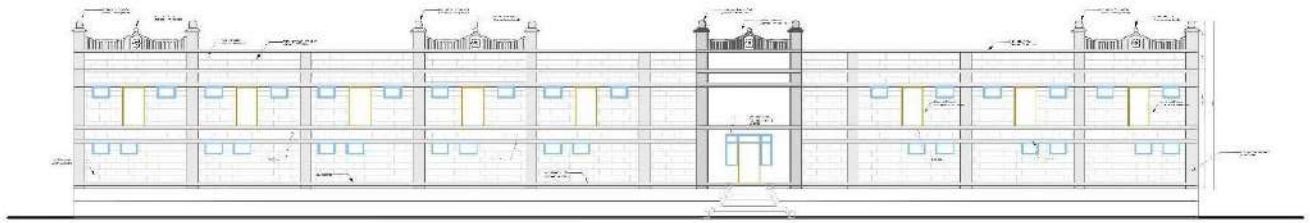
Heritage Building - Palace



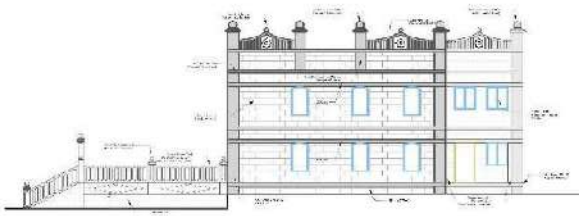
Dining Hall



Elevation E1

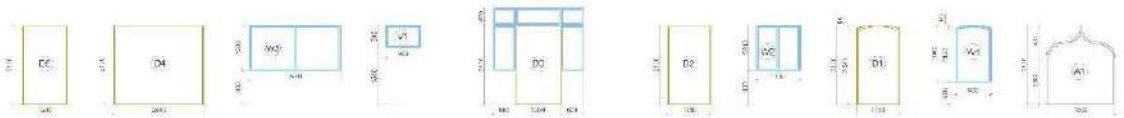


Elevation E2

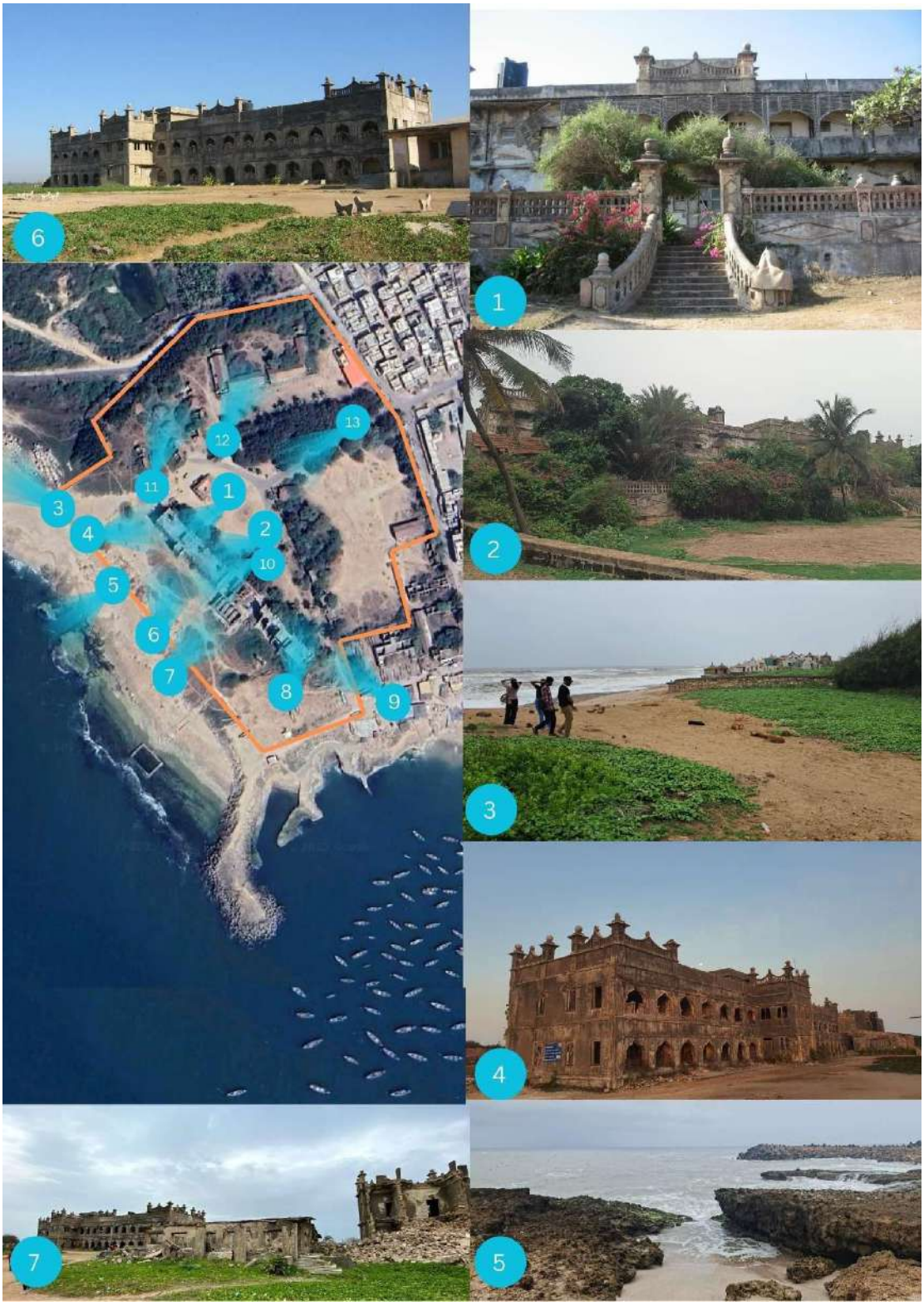


Elevation E3

Arabian Sea



Details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MATERIALS OF CHORWAD PALACE

A full inventory of materials is assembled from the RFP documents, historical descriptions, and the site photographs. The original structure is primarily stone masonry with lime mortar and plaster (as in other Saurashtra palaces). Key materials include:

- **Stone:** The main walls are hewn from local trap (basalt) or similar volcanic rock; lighter Kaand limestone (a yellow-cream limestone) was used for decorative elements, cornices, and carving
- **Lime mortar & plaster:** Masonry joints and exterior finishes were set with lime-based mortar; surviving surfaces show rough lime plaster typical of period construction.
- **Timber:** Wood beams and joists (now largely collapsed) would have supported floors and roof trusses, as in comparable palaces.
- **Roofing:** The original roof likely had *terra-cotta* tile covering (common in coastal Gujarat). No intact roof survives, but fallen tiles and timber suggest a tiled roof structure.
- **Finishes:** Luxury interiors included marble, as indicated by reports of "marble bathtubs" in Chorwad Palace. Indeed, one source describes the palace's bathrooms as containing marble tubs and high-end decor Modern ceramic floor and wall tiles are visible in ruined bathrooms (Figure 3), but these are later additions. Windows and doors would have had glazed glass with metal or wooden frames and decorative iron grilles, as was customary.
- **Metals & Glass:** Iron grills, hinges, and hardware (typical of Muslim-influenced palaces) and glass (for the large arched windows) were also part of the construction.

These conclusions align with what little documentation exists. The Tender/RFP (2024) emphasizes *restoring* the old palace rather than replacing it, implying all original materials (stone, wood, etc.) should be conserved. In absence of a published materials list, the above summary integrates on-site evidence (photos) with period practice. The key takeaway is that Chorwad Palace was built of basalt **masonry with Kaand limestone ornament**, bound by lime plaster, and finished inside with marble and tile.





ENVIRONMENTAL IMPACT ASSESSMENT

CO_2 Emissions by Material

Material	Quantity	CO_2 Factor	CO_2 Emissions
RCC	380 m³ (≈ 912 t)	0.159 kg/kg	145,069 kg (145 t)
Bricks	460.8 m³ (≈ 783 t)	0.24 kg/kg	188,006 kg (188 t)
Terracotta tile	23.04 m³ (≈ 43.8 t)	0.45 kg/kg	19,699 kg (19.7 t)
Ceramic tile	23.04 m³ (≈ 46.1 t)	0.74 kg/kg	34,099 kg (34.1 t)
Paint	2,764.8 kg	2.12 kg/kg	5,861 kg (5.9 t)
****	—	—	**392,735 kg (393 t)**

Total Embodied-Carbon ≈ 393 t CO_2e

Aspect	Recommendation
Orientation	SW-facing views, cross-ventilation NE–SW
Sun Protection	Deep overhangs, jaalis, shaded courtyards
Ventilation	Sea breeze harnessing with courtyards & high openings
Materials	Local stone, RCC frame, lime plaster, terracotta roof tiles
Roofing	Sloped (30–45°) or flat with drains, cyclone-tied structures
Drainage	Raised plinths, permeable paving, bioswales
Landscape	Windbreak trees, shaded trails, water features
Style	Fusion of **Saurashtra heritage** + **modern eco-luxury**

4. SWOT ANALYSIS

Strengths	Weaknesses
Very tranquil & scenic, ideal for relaxing	Not safe for swimming; drowning risk reported

Historic charm vis-a-vis palace & heritage	Minimal on-site infrastructure or amenities
Great sunsets/sunrises with natural backdrop	Limited water access; rough tides

Opportunities	**Threats**
Heritage-oriented tourism via palace resort	Safety hazards at sea; official bans previously issued
Local culture exploration & photography	Weather extremes (summer heat, rough monsoon seas)

5. SITE ORIENTATION & SUN PATH

- **Latitude:** ~20.9° N
- **Sun Path:**
- **Summer (June):** High solar altitude (~85°); sun rises in NE, sets in NW
- **Winter (Dec):** Lower angle (~45–50°); sun rises in SE, sets in SW

6. WIND PATTERNS & VENTILATION

- **Prevailing Winds:**
- **Summer/Monsoon (May–Sept):** Strong SW winds (~25–30 km/h**)**
- **Winter (Nov–Feb):** Mild NE winds (~10–15 km/h)

7. LANDSCAPE & MICROCLIMATE DESIGN

- Use casuarina, palm, neem and other coastal salt-tolerant species as windbreaks.
- Create shaded pathways and green buffers to lower ambient heat.

8. FLORA & FAUNA

A. <u>Flora (plants)</u>

Name	Image	Season / Growth Pattern

Neem (Azadirachta indica)		Evergreen; flowers in spring (March–May)
Coconut Tree (Cocos nucifera)		Evergreen; fruits year-round, peak summer harvest
Casuarina (Casuarina equisetifolia)		Evergreen; withstands coastal conditions all year
Mango (Mangifera indica)		Deciduous; fruits in summer (April–June)
Acacia (Various species)		Deciduous/Semi-evergreen; dry seasons preferred
Banyan (Ficus benghalensis)		grows year-round
Peepal (Ficus religiosa)		Semi-evergreen; sheds briefly in March
Pandanus (Pandanus tectorius)		Evergreen; thrives in coastal areas year-round
Karanja (Pongamia pinnata)		Deciduous; flowers in late spring/summer

Alexandrian Laurel (Calophyllum inophyllum)		Evergreen; blooms intermittently throughout year
Cerbera manghas		Evergreen; flowers mainly in summer
White Mangrove (Avicennia marina)		Evergreen; thrives in brackish water, year-round
Beach Morning Glory (Ipomoea pes-caprae)		Perennial creeper; flowers year-round
Crinum asiaticum (poison bulb)		Summer or early fall
Indian Aloe (Aloe vera)		Perennial succulent; peak growth in dry season
Bougainvillea (Bougainvillea glabra)		Early summer through fall

Frangipani (plumeria)		Flowering from december to april

B. Fauna (animals)

a) Marine Life

- Mollusks: Pearl oysters and various sea slugs.
- Octopus: Known for their unique color-changing abilities.
- Echinoderms: Starfish, sea cucumbers, and sea urchins.
- Fish: Pufferfish, seahorses, stingrays, mudskippers, and a wide array of other finfish. Studies along the Chorwad Coast have documented diverse fish species, including Indian Mackerel (*Rastrelliger kanagurta*).
- Sea Turtles: Endangered species like Green Sea Turtle, Olive Ridley Sea Turtle, and Leatherback Sea Turtle.
- Sea Snakes: Several species of sea snakes inhabit the coastal waters.
- Mammals: Dugongs (Sea Cows) and smaller cetaceans like Finless Porpoises and various dolphin species.
- Coral: Coral reefs are present on 42 islands near the Gujarat coast.

b) Birds

- Waterfowl: Dalmatian Pelican, White-eyed Pochard, and Indian Skimmer.
- Shorebirds: Greater Flamingo, Crab Plover, Sandpipers, and other shorebirds.
- Other Birds: Teals, fowls, Ibis, Curlews, Herons, Egrets, Ducks, Pelicans, Storks, Gulls, and Terns.
- Threatened Bird Species: The Black-necked Stork, a large wading bird.
- Migratory Birds: Winter Visitors (November - March/April):
    1. Ruddy Shelduck: A medium-sized waterfowl species.
    2. Bar-headed Goose: Known for its high-altitude migration over the Himalayas.
    3. Northern Pintail: A medium-sized dabbling duck.
    4. Northern Shoveler: Another duck species that winters in the Indian Subcontinent.

5. Common Swallow: Migrates from Europe and Northern Asia to escape the cold.
6. Siberian Crane: A notable winter visitor to the Rann of Kutch, which is a coastal region of Gujarat.
7. Summer Visitors:

- Black-Crowned Night Heron: Migrates from Eastern Europe and Western Asia to the Indian Subcontinent.
- Eurasian Golden Oriole: Characterized by its bright yellow plumage.
- Blue-tailed Bee-eater: Primarily found in South and Southeast Asian countries and migrates to southern regions after breeding in North and Northwest India

c) Terrestrial Fauna

- Marsh Crocodiles: Inland wetlands in the Kachchh region, which is somewhat close to the coast, harbor the endangered Marsh Crocodile or Mugger Crocodile (*Crocodylus palustris*).
- Mammals: Depending on the distance from the coast and the presence of nearby protected areas like Girnar Wildlife Sanctuary, you might also find mammals such as:
    1. Nilgai or Blue Bull (*Boselaphus tragocamelus*)
    2. Indian Golden Jackal (*Canis aureus indicus*)
    3. Indian Grey Wolf (*Canis lupus pallipes*)
    4. Jungle Cat (*Felis chaus*)
    5. Mongoose
    6. Indian Hare

CLIMATE ANALYSIS

VERAVAL (25Km from CHORWAD)

- **Location**: Holiday Home Palace, Chorwad, Gujarat (near Veraval)
- **Latitude/Longitude**: 21.03°N, 70.23°E
- **Climate Zone**: Composite (hot-dry in summer, warm-humid in monsoon, mild winter)

1. TEMPERATURE ANALYSIS

Data:

- **Max Temp**: 42.1°C (May)
- **Min Temp**: 11.9°C (January)
- **Mean Temp Range**: 22°C (Jan) to 29.9°C (June)

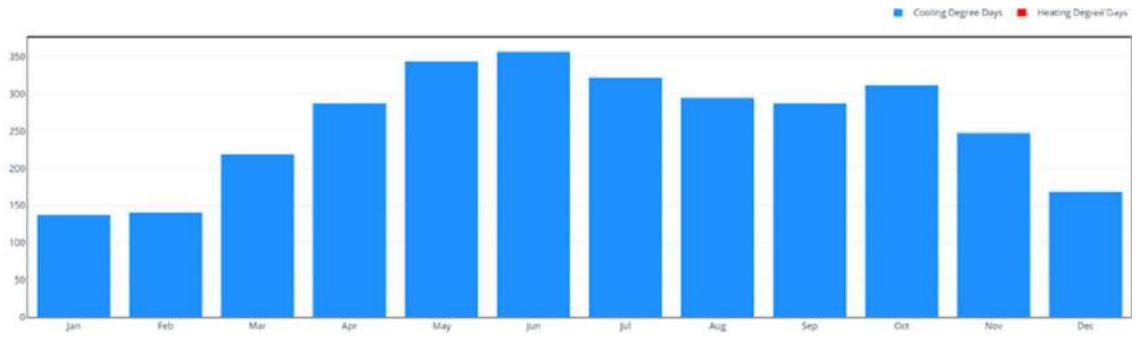
Design Challenges:

- High summer heat (Mar–June) → Thermal discomfort
- Cold nights in Jan → Slight insulation needed
- Large diurnal variation (day-night) in hot months

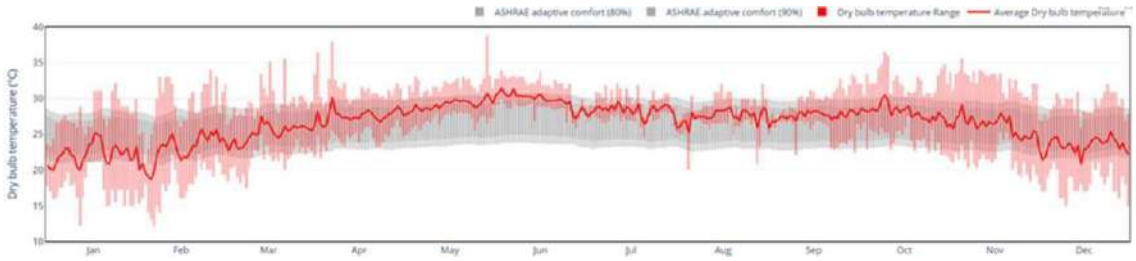
Inferences for Resort Design:

a) Use thermal mass (stone/brick) for stable indoor temps
b) Add roof insulation, light-coloured roofing, ventilated attic
c) Courtyards & terraces to enhance night-time cooling
d) Double-glazing or shading to reduce heat gain in rooms

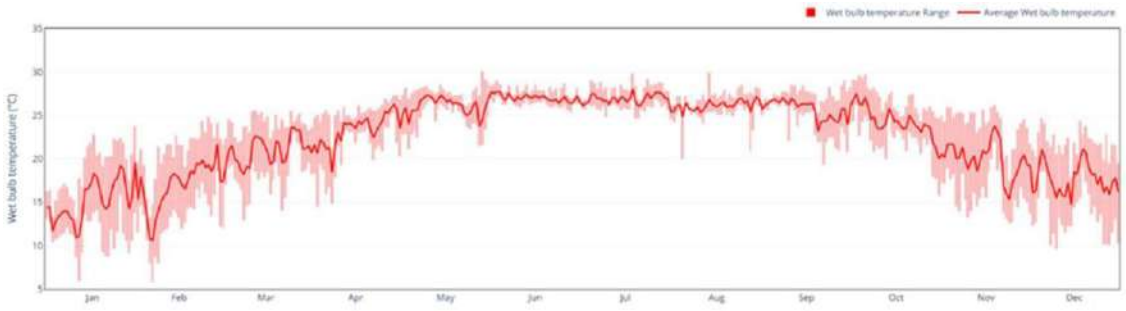
Heating and Cooling Degree Days



DRY BULB TEMPERATURE (YEARLY)



WET BULB TEMPERATURE (YEARLY)



DEW POINT TEMPERATURE (YEARLY)



2. HUMIDITY ANALYSIS

a) **Highest**: 89.7% (Aug)
b) **Lowest**: 35% (April)
c) Humidity rises from May and peaks in July–Sept

Design Challenges:

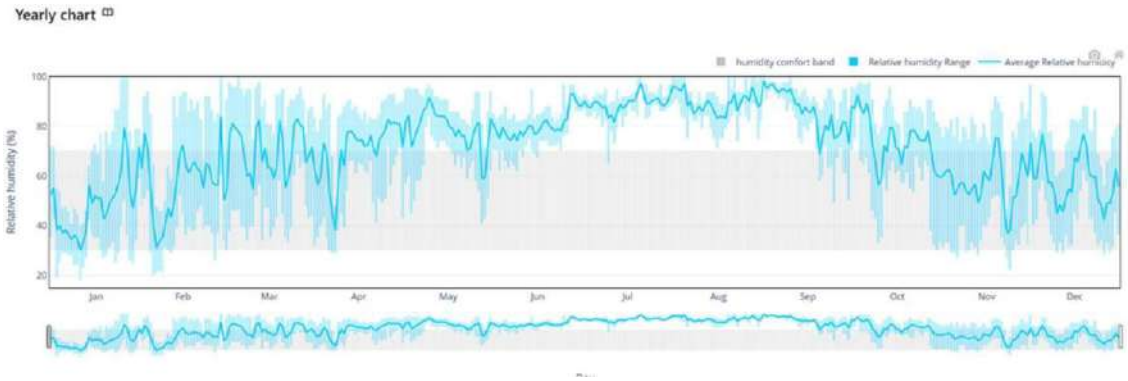
- Mold, condensation, mustiness in enclosed spaces during monsoon
- Reduced comfort due to high latent heat

Inferences:

- Use cross-ventilation and perforated elements like *jaalis*
- High ceilings, ventilation shafts

Use lime plaster, clay, and moisture-wicking materials

HUMIDITY (YEARLY)



3. WIND ANALYSIS

Data:

- **Summer Wind**: SW (Sea breeze)
- **Winter Wind**: NE (cool, dry)

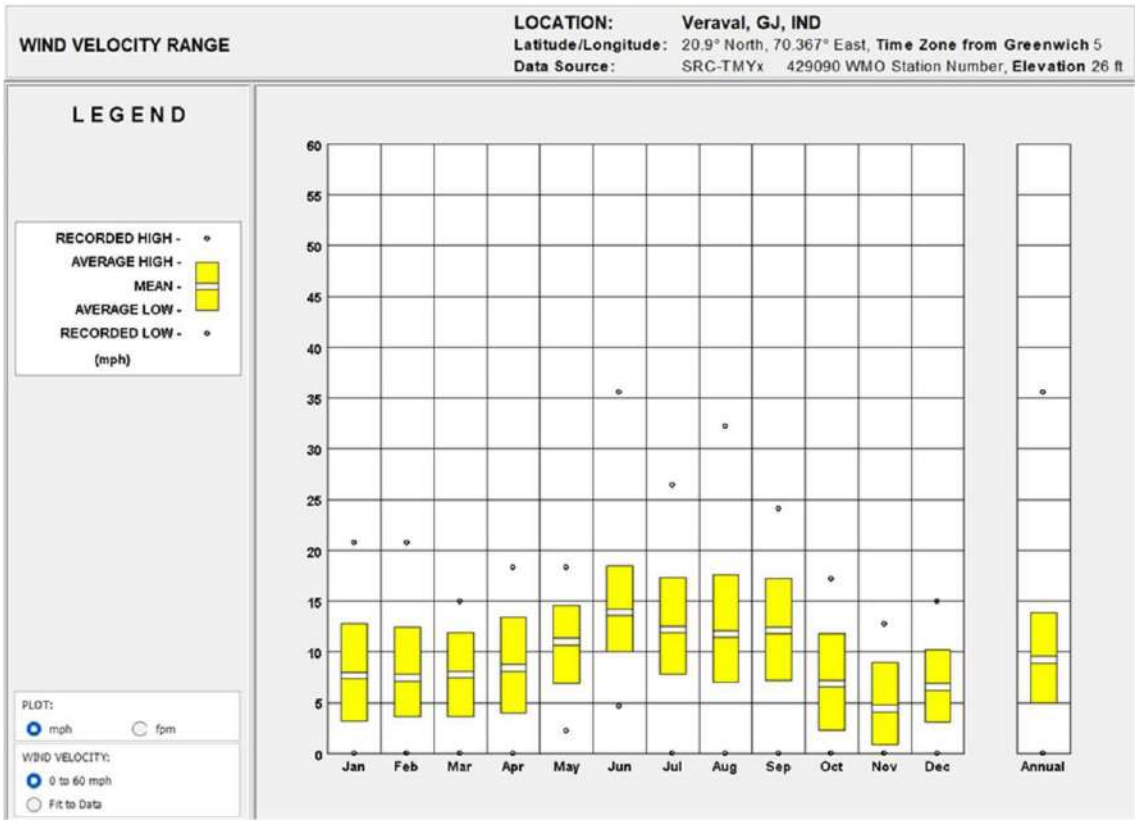
Challenges:

- Need to optimize **natural ventilation** in hot/humid months
- Avoid **heat loss** in winter

Inferences:

- Orient courtyards and windows toward SW
- Avoid major openings on NE side in winter

Use **wind towers**, **vent blocks**, **louvres** for guided air flow



WIND ROSE (ANNUAL + SEASONAL)

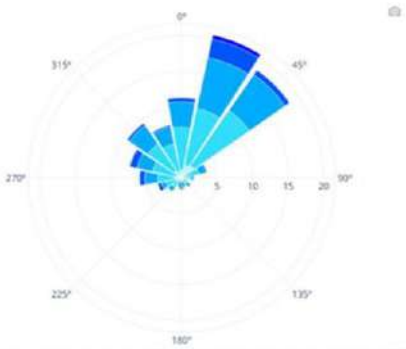
Observations:

- Summer: Predominantly **SW** (favourable for ventilation)
- Winter: **NE**, drier and cooler

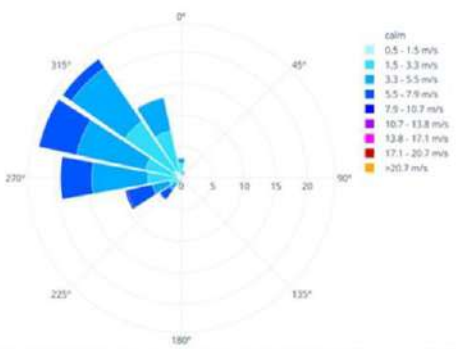
Inferences:

- Locate **resort lounges, dining areas, verandahs** along SW-facing orientations
- **Dense planting on NE sides** for wind buffering in winter

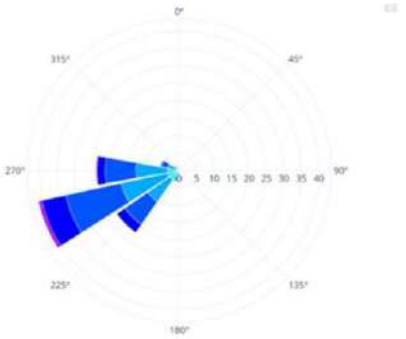
SEASONAL WIND ROSE



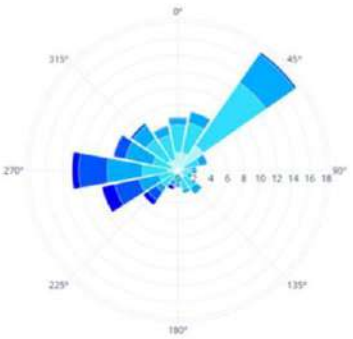
Observations between the months of Dec and Feb between 01:00 hours and 24:00 hours. Selected observations 2160 of 8760, or 24 %. 37 observations have calm winds.



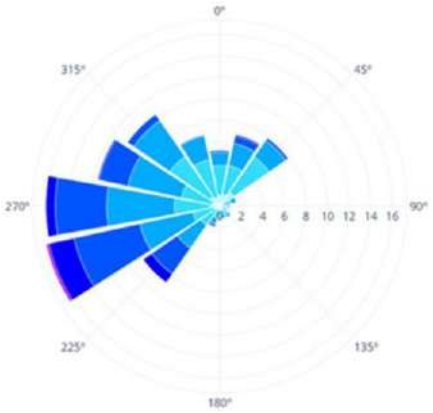
Observations between the months of Mar and May between 01:00 hours and 24:00 hours. Selected observations 2208 of 8760, or 25 %. 21 observations have calm winds.

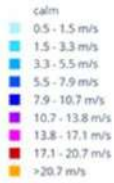


Observations between the months of Jun and Aug between 01:00 hours and 24:00 hours. Selected observations 2208 of 8760, or 25 %. 12 observations have calm winds.



Observations between the months of Sep and Dec between 01:00 hours and 24:00 hours. Selected observations 2928 of 8760, or 33 %. 88 observations have calm winds.





4. RAINFALL AND RAIN DAYS

Data:

- **Total Annual**: ~1100 mm (majority in July–Sept)
- **Peak Rainfall**: July (426 mm)

Design Challenges:

- Water stagnation
- Site flooding due to intense short-duration rainfall

- Soil erosion near coastal edges

Inferences:

a) Sloped roofs, deep overhangs, gutter systems
b) Rainwater harvesting tanks for utility use
c) Elevated plinths, well-drained paving
d) Use gravel channels, bioswales in landscaping

5. SOLAR RADIATION AND SUN PATH

Data:

- High sun angle in summer
- East & west façades get max exposure
- South walls get low sun angle (winter sun)

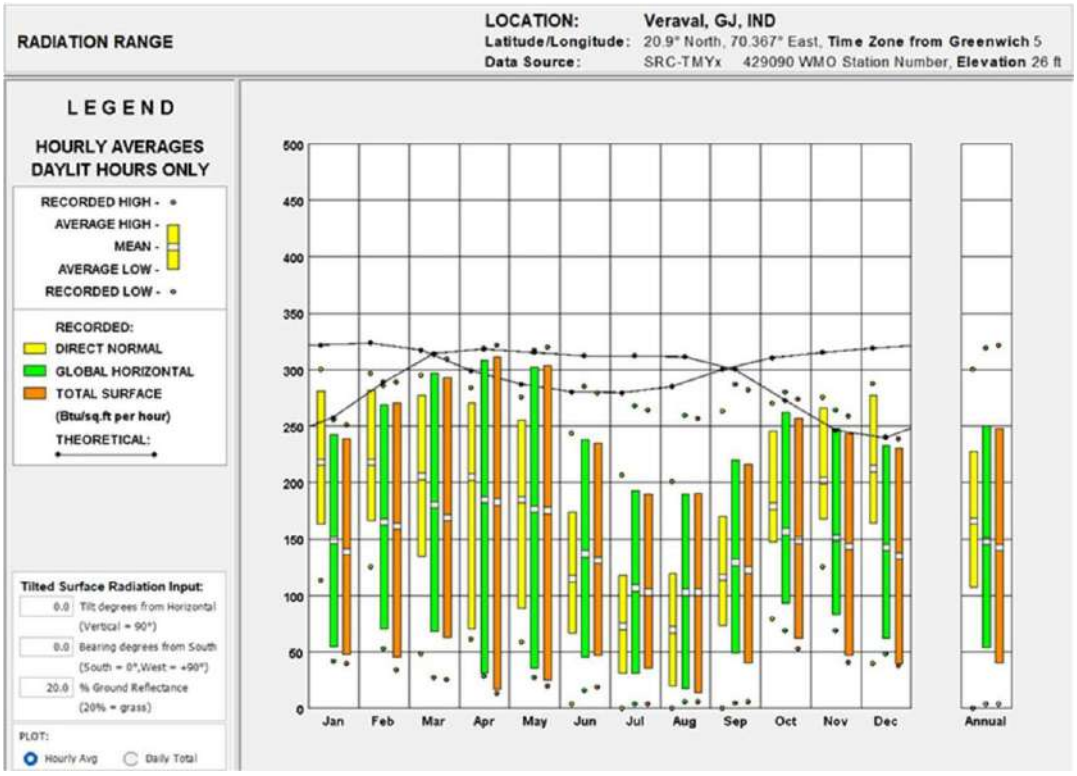
Challenges:

- Overheating on east & west walls
- Need daylighting without heat gain

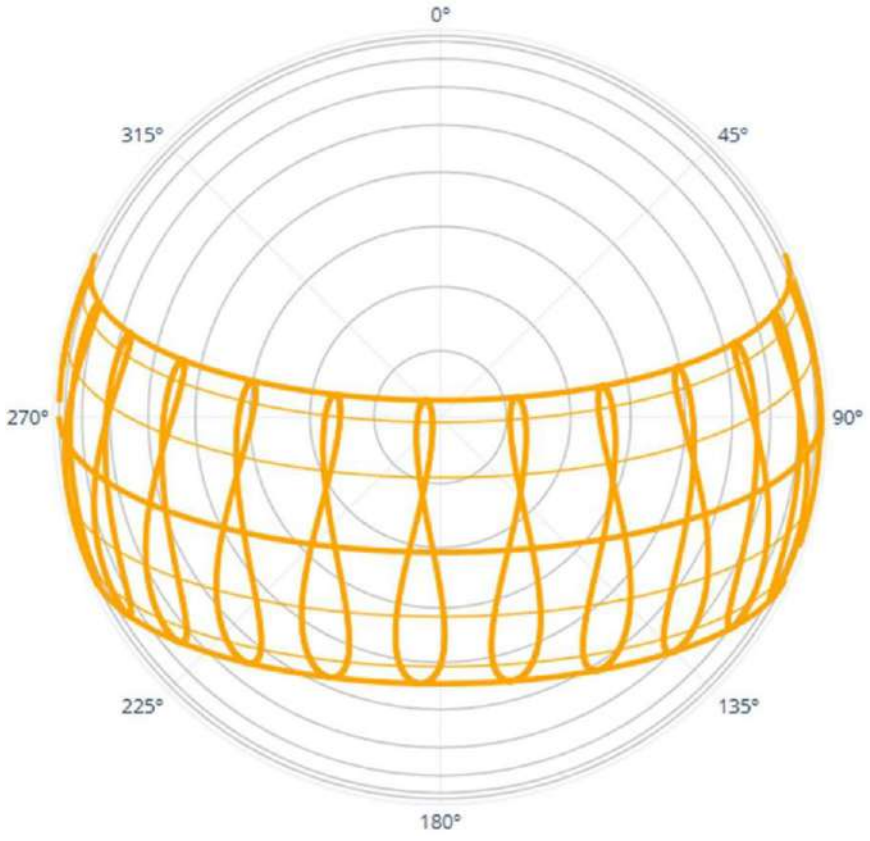
Inferences:

a) Horizontal shading (chajjas) on south
b) Vertical fins/louvres on east & west
c) Integrate light shelves, clerestories, and skylights

Use solar control glazing or tinted glass


RADIATION RANGE
LOCATION: Veraval, GJ, IND
Latitude/Longitude: 20.9° North, 70.367° East, Time Zone from Greenwich 5
Data Source: SRC-TMYx 429090 WMO Station Number, Elevation 26 ft
LEGEND
HOURLY AVERAGES
DAYLIT HOURS ONLY
RECORDED HIGH -
AVERAGE HIGH -
MEAN -
AVERAGE LOW -
RECORDED LOW -
RECORDED:
DIRECT NORMAL
GLOBAL HORIZONTAL
TOTAL SURFACE
(Btu/sq.ft per hour)
THEORETICAL:
Tilted Surface Radiation Input:
0.0 Tilt degrees from Horizontal (Vertical = 90°)
0.0 Bearing degrees from South (South = 0°,West = +90°)
20.0 % Ground Reflectance (20% = grass)
PLOT:
Hourly Avg
Daily Total
500
450
400
350
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Annual

SUN PATH


0°
45°
90°
135°
180°
225°
270°
315°

6. CLOUD COVER & SOLAR AVAILABILITY

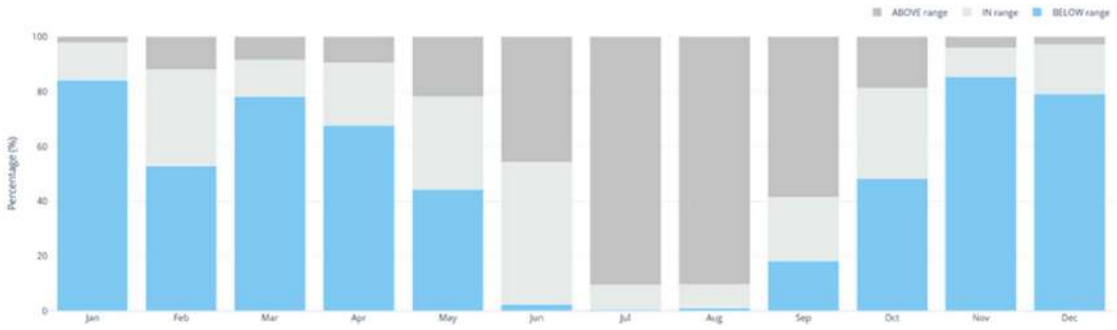
Data:

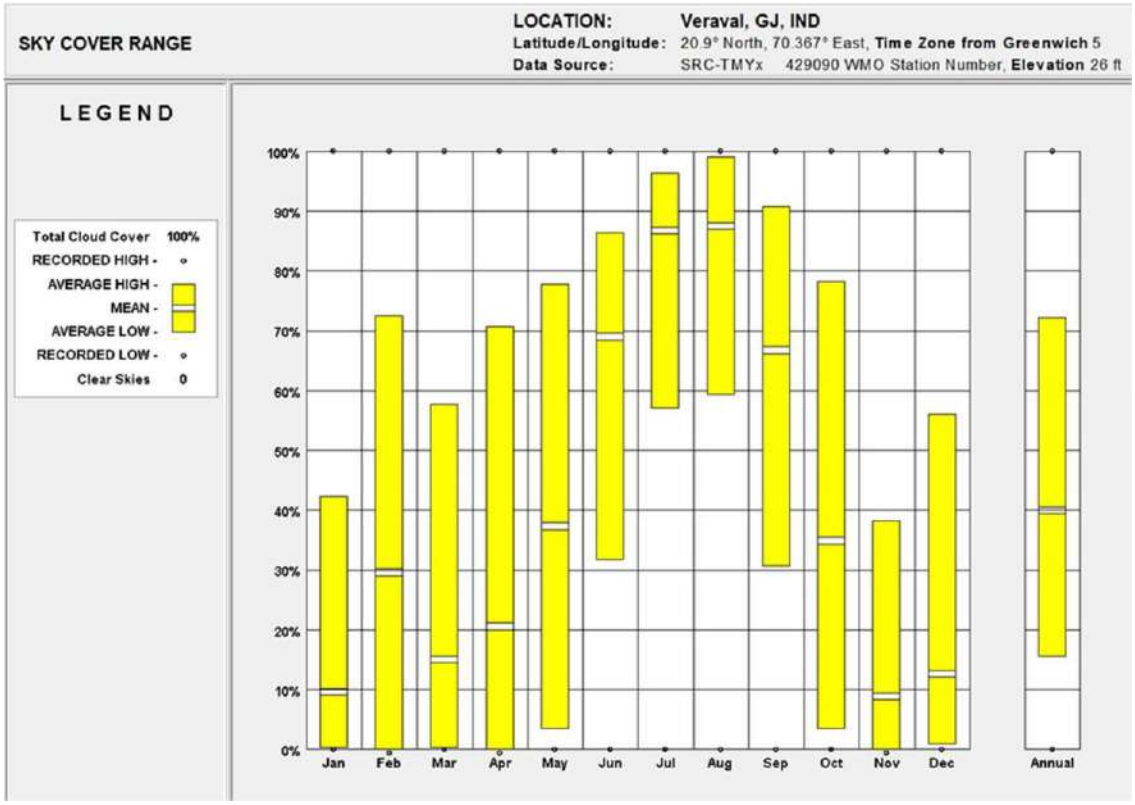
- July–Sept: cloudiest months → Reduced daylight
- Oct–May: mostly sunny

Inferences:

- Use daylight redirecting devices
- Incorporate skylights, light wells in shaded zones

CLOUD COVERAGE





MAHONEY TABLE (Based on Monthly Data from Veraval)

Month	Mean Temp (°C)	RH (%)	Rain	Mahoney Zones	Inferences
Jan	22.23	48.5	No	Comfort (Dry Winter)	Slight heating, open design
Mar–May	25–29.1	70–78	No	Hot-Dry	Thermal mass, courtyards, shade
Jun–Sep	28–29.9	80–89	High	Warm-Humid	Cross ventilation, rain protection
Oct	28.1	74.5	Low	Transition	Combine both strategies
Nov–Dec	23–26	57–58	No	Cool-Dry	Light thermal mass, openable glazing

KEY INFERENCES FOR RESORT DESIGN:

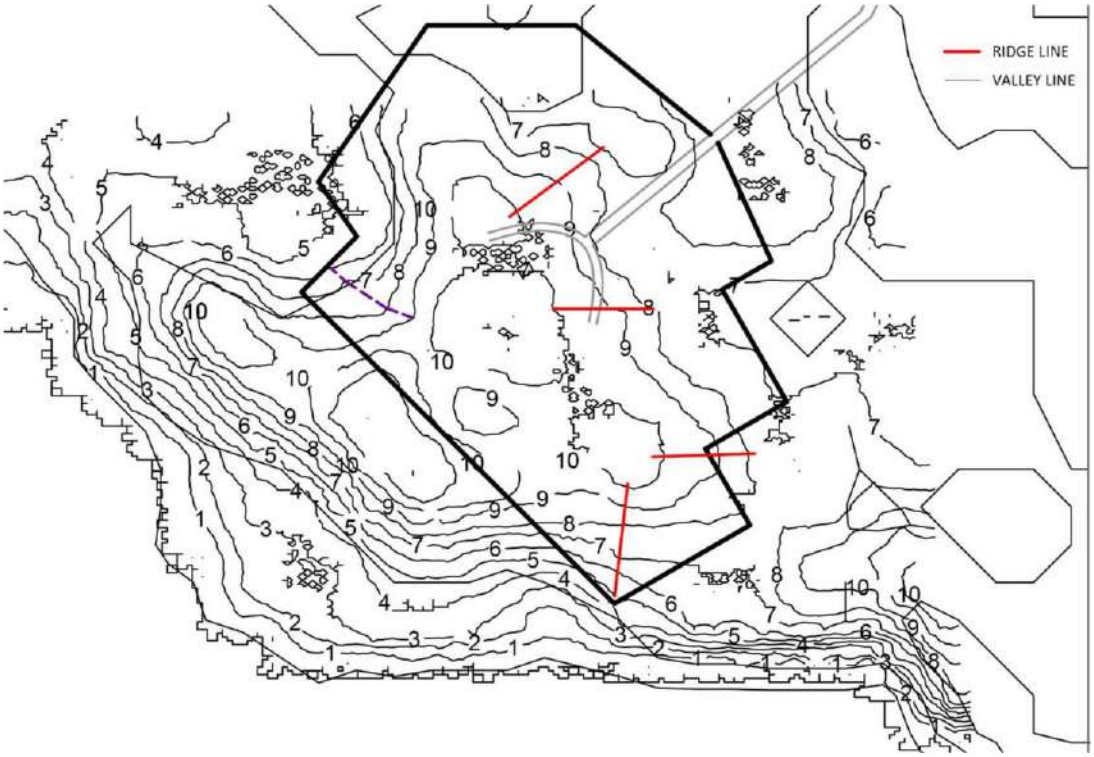
1. Blend of cooling and ventilation strategies across seasons
2. Outdoor-indoor transitions via shaded verandahs and pergolas
3. Maximized cross-ventilation for humid months
4. Rainproof but breathable design in monsoon
5. Use of traditional passive cooling: jaalis, courtyards, water features
6. Materials should be locally sourced, moisture-resistant, and breathable

MAHONEY TABLE-BASED DESIGN GUIDELINES:

Parameter	Recommendation
Orientation	Long axis E-W to reduce sun on E/W walls
Openings	Moderate, with shading (louvers/chajjas)
Walls	Heavy (thermal mass) with light finishes
Roofs	Insulated, sloped with overhangs
Courtyards	Yes – shaded, vegetated, with water elements
Rain Response	High plinths, covered walkways, rainwater harvesting

Ventilation	Cross ventilation mandatory in all occupied spaces
Ground Surface	Permeable paving, grass or gravel to prevent runoff
Construction Material	Brick, stone, lime plaster, local laterite

DRAINAGE ANALYSIS



SITE PHOTOS















CHAPTER 5

CASE STUDY & DESK APPRAISALS

OVERVIEW

This chapter analyses four case studies- Kohinoor Resort, Azzaro Resort,- chosen for their beachside locations, climatic responsiveness and integration of historical buildings/elements. Key aspects like site planning, architectural character, climate responsiveness, cultural integration and service planning were studied, providing valuable insights for designing a beachside resort in Chorwad.

CASE STUDY

5.1 KOHINOOR RESORT, DIU



OBJECTIVE OF THE CASE STUDY:

The objective of this case study is to analyze the architectural design, spatial planning, and functional aspects of Hotel Kohinoor, Diu, with a focus on its response to climate, cultural integration, and user experience. It aims to evaluate how the resort incorporates sustainable practices, aesthetic appeal, and efficient spatial organization to serve as a successful hospitality model in a coastal context.

LOCATION:

Hotel Kohinoor is situated in the Fudam (Fofrara) area along Nagoa Beach Road on the island of Diu, in the Union Territory of Dadra & Nagar Haveli and Daman & Diu, India. It sits directly opposite Azzaro Resort & Spa, roughly 4 km inland from Nagoa Beach and about 4 km from Diu Fort, offering strategic proximity to major attractions. The property is approximately 6.9–7.7 km from Diu Airport, making it an easy 12-minute drive by car. Located near landmarks such as the Kohinoor Water Park and Gangeshwar Mahadev Temple, the hotel blends accommodation with easy beach and heritage access, suitable for both leisure and pilgrimage visits.



Location, The Kohinoor hotel

HISTORICAL CONTEXT:

Hotel Kohinoor is located in Diu, a former Portuguese colony with a rich maritime and architectural legacy. After Diu's integration into India in 1961, the region gradually developed as a coastal tourism hub. Established in the late 20th century, Hotel Kohinoor reflects this shift, offering modern hospitality while being situated near historical landmarks like Diu Fort and Gangeshwar Temple. Its presence in the Fudam area showcases the town's evolution from a colonial outpost to a growing tourist destination.



The kohinoor Hotel view

OWNER & ARCHITECT:

Owner: Yatin Fugro, a Goan entrepreneur and hospitality developer; the property is managed under Hotel Sea-View Pvt. Ltd.

Architect: Rudra Natekar – credited with designing the hotel's resort-style ambiance, blending Portuguese/Mediterranean motifs with local craftsmanship and coastal sensitivity.

Accessibility:

- **By Air:** Located just 4–5 km from Diu Airport
- **By Train: No railway station in Diu**, Nearest station: **Veraval Junction (~90 km)**.
- **By Road:** Well-connected by state transport and private buses**.**

Proximity to Attractions:

- **Naida Caves –** Around 2–3 km, one of the most popular caves on Diu.
- **Diu Museum & INS Khukri Memorial** – About 2 km away, located centrally in Diu town.
- **Diu Fort** – Roughly 2.5–3 km, a significant Portuguese-era landmark.
- **Nagoa Beach** – Approximately 3.6–5.8 km from the resort; less ideal for walking, better accessed via vehicle.

Surroundings and Context:

Hotel Kohinoor is situated in the calm Fudam area of Diu, along Nagoa Beach Road. Surrounded by greenery and low-rise development, it lies close to major attractions like Nagoa Beach, Diu Fort, and Gangeshwar Temple. The setting offers a quiet retreat with easy access to both the natural beauty and historical charm of the island, making it ideal for tourists seeking a balance of relaxation and exploration.







The Kohinoor surroundings

Architectural Style:

Hotel Kohinoor features a **Portuguese-inspired resort architecture**, reflecting Diu's colonial heritage. The design includes **arched windows**, **cream-colored façades**, **balconies (balcaos)**, and **red-tiled roofs**, creating a Mediterranean coastal village feel. The layout emphasizes **courtyard planning**, **open spaces**, and a central pool, blending heritage aesthetics with modern comfort and functionality.



Building facade

Vernacular Elements:

Hotel Kohinoor incorporates several vernacular elements inspired by Diu's regional and colonial past. Features such as arched openings, balcaos (covered porches), sloping red-tiled roofs, and locally sourced materials reflect the traditional Portuguese-Goan architectural language. The use of courtyards, natural ventilation, and shaded walkways also aligns with the local climate and cultural context, blending modern resort design with regional identity.

Modern Design:

While rooted in heritage aesthetics, Hotel Kohinoor incorporates modern design elements to enhance guest comfort and functionality. These include well-planned circulation, spacious interiors, contemporary furnishings, and modern amenities like a swimming pool, banquet hall, and wellness facilities. The architecture subtly balances traditional forms with clean, functional layouts, offering a refined resort experience suited to present-day hospitality standards.

Eco-Friendly Practices:

Hotel Kohinoor adopts several eco-friendly practices to promote sustainability. These include the use of natural ventilation and lighting, landscaped green spaces that reduce heat absorption, and local materials in construction to lower environmental impact. Water-saving fixtures, rainwater harvesting systems, and basic waste segregation measures also contribute to eco-conscious operations, reflecting an effort to harmonize with Diu's sensitive coastal environment.

Inspiration:

Hotel Kohinoor draws inspiration from Portuguese colonial architecture and the coastal charm of Diu. The design reflects the island's historical roots, with features like arched windows, balcaos, and red-tiled roofs, reminiscent of traditional Goan and Diu houses. The aim was to create a resort that blends heritage with comfort, offering guests an immersive experience rooted in the local architectural identity.

Luxury:

Hotel Kohinoor offers a luxurious stay through its spacious rooms, elegant interiors, and premium amenities such as a swimming pool, banquet hall, fine-dining restaurant, and landscaped gardens. The blend of heritage-inspired design with modern comforts creates an upscale resort experience, appealing to both leisure travelers and business guests seeking refined hospitality in a serene coastal setting.



Luxury Rooms

AMENITIES:

Guest Amenities:

- Swimming pool (outdoor) with Jacuzzi for relaxation and recreation
- Splash Water World (on-site water park) and Footloose Discotheque for entertainment
- Casino-style nightlife and party lawn ("Bageecha") accommodating up to ~200–600 people for events and gatherings.



Swimming pool



Lawn

Business & Events:

- Fully air-conditioned conference hall seating 45–150 people in theatre style.
- Board room for smaller meetings or executive sessions
- Outdoor party lawn "Bageecha", ideal for weddings, social gatherings, or corporate events (200–600 capacity)



Fig 1; Conference room



Fig 2; Conference room

Rooms & In-Room Facilities

- 50 well-furnished guest rooms: Classic Deluxe, Royal Deluxe, Royal Executive, and Suites
- All rooms equipped with air-conditioning, satellite TV, mini-bar, safe, telephone, and free Wi-Fi
- Attached bathrooms with hot and cold running water, complimentary toiletries, and daily housekeeping.

Construction and design features:

- Tiled sloping roofs and canopies to handle coastal rain and heat.
- Centralized layout: buildings arranged around common amenities like the pool and lawns.
- Multiple public amenities: discotheque, water park, spa, banquet hall, and pastry shop.
- Centralized layout: buildings arranged around common amenities like the pool and lawns.

Lighting & Ventilation

1. **Natural Lighting:**

- Large windows and verandahs allow ample daylight into rooms, reducing the need for artificial lighting during the day.
- Courtyards and open corridors are strategically placed to enable light penetration in inner spaces.

2. **Artificial Lighting:**

- Warm-toned lighting in common areas and guest rooms enhances comfort and hospitality.
- Emphasis on ambient lighting in the reception and lounge areas to create a welcoming mood.

Ventilation Design

1. **Passive Ventilation:**
    - Cross-ventilation is achieved through opposite-facing windows and open corridors.
    - Traditional courtyard planning encourages air movement within the building, especially in hot and humid climates like Diu.
    - The architecture borrows from Portuguese and coastal Indian styles, which favor natural ventilation over air conditioning reliance.
2. **Mechanical Ventilation:**
    - Air conditioning is used in rooms and banquet halls; however, natural airflow reduces HVAC load, improving energy efficiency.

- Ceiling fans and ventilators support air circulation in semi-open spaces like balconies, dining pavilions, and lobbies.

Sustainability Methods:

- Low-rise bungalow layout reduces energy use (no elevators, less mechanical cooling).
- Courtyard and pool-centric planning promotes natural ventilation and passive cooling.
- Large windows and open balconies support daylighting and reduce reliance on artificial lighting.
- Use of **Portuguese colonial design** possibly include**s locally available materials**, minimizing transportation emissions and supporting local craftsmanship.

Guest Experiences:

- Smooth check-in/out
- Activities: Swimming pool & Waterpark
- Dining: Local & global cuisine
- Events: Indoor/outdoor venues for weddings & conferences

Events



Restaurant in The Kohinoor, Diu



The Kohinoor hotel waterpark, Diu

Environmental and Cultural Integration:

- Portuguese-inspired colonial architecture reflects Diu's historical and cultural identity (arches, balconies, pastel façades).
- Event spaces and banquet halls support local cultural events, weddings, and festivals.
- Central swimming pool and open spaces support passive cooling and social interaction

- Low-rise bungalow layout allows better air circulation and reduces energy demand (no elevators needed).

SWOT ANALYSIS:

- **Strengths**

1. Portuguese colonial-style architecture creates a culturally rich and attractive ambiance.
2. Large landscaped area (3.5 acres) with lush gardens, lawns, and open spaces for events.
3. Multiple amenities: swimming pool, discotheque, water park, pastry shop, spa, and banquet hall.

- **Weaknesses**

1. **Aging infrastructure:** visible deterioration in bathrooms, rooms, and furnishings.
2. **Poor maintenance:** broken fixtures, mold issues, and outdated interiors.

- **Opportunities**

1. Renovation and modernization can revive the property and improve guest satisfaction.
2. Sustainability upgrades like solar panels, rainwater harvesting, and waste management can attract eco-conscious travelers.

- **Threats**

1. **Strong competition** from newer, better-maintained resorts like Azzaro or beachside properties.
2. **Coastal wear and tear** from Diu's saline environment can accelerate property degradation.

CASE STUDY INSIGHTS:

1. **Responding to Local Culture & Climate**: Designed in Portuguese colonial architectural style, with cream-hued façades, moldings, pilasters, trellises, balconies, and pillared porticoes—reflecting Diu's heritage and creating a strong sense of place.
2. **Bungalow Typology:** Built as single or low-rise bungalow clusters with individual balconies, encouraging privacy while maintaining visual openness around the pool core. This low-rise form helps reduce need for elevators, simplifies service circulation, and improves guest accessibility.
3. **Landscape & Amenity Integration:** Spread across 3.5 acres of lush gardens, lawns, and

outdoor event spaces—making available not only accommodation, but recreation zones like lawns for 600-person gatherings, a discotheque, water-park, spa, pool, pastry shop, and conference rooms.

APPLICATION TO THESIS

- Emphasize cultural identity and environmental consciousness.
- Design multifunctional, user-friendly spaces.
- Adopt detailed sustainability frameworks in resort planning.

5.2 AZZARO RESORT, DIU



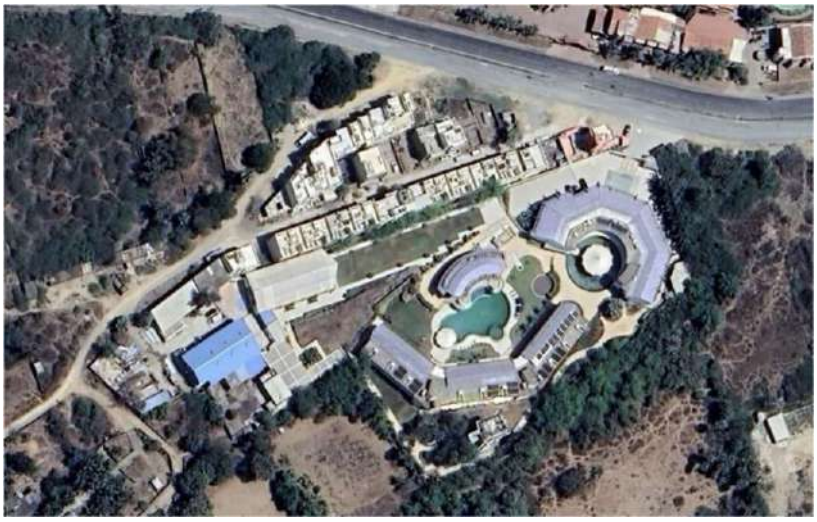
OBJECTIVE OF CASE STUDY:

The objective of this case study is to analyze Azzaro , Diu as a sustainable and culturally responsive hospitality project. It aims to:

1. Understand the site context and how the design responds to the coastal environment of Diu.
2. Study the architectural planning, spatial organization, and integration of vernacular design elements.
3. Evaluate the use of local materials and sustainable practices like natural ventilation and rainwater harvesting.
4. Assess the user experience, circulation, and functionality of the resort.
5. Explore the project's contribution to local tourism, culture, and economy.

LOCATION:

Azaro, officially known as *Azzaro Resort & Spa*, is located in the coastal town of Diu, which is part of the Union Territory of Dadra and Nagar Haveli and Daman and Diu, India. The resort is situated on Nagoa Beach Road in the Fudam area, directly opposite Hotel Kohinoor. It lies approximately 4 kilometers from Nagoa Beach and around 7 kilometers from the Diu Airport, offering convenient access for tourists. The location is also close to several key attractions such as the Diu Fort, Naida Caves, and Gangeshwar Mahadev Temple, making it a strategically positioned hospitality destination. Its placement near the Arabian Sea provides guests with scenic views and a coastal ambience, ideal for tourism and leisure activities.



HISTORICAL CONTEXT:

Portuguese Legacy: Diu was under Portuguese rule from 1546 to 1961, which left a lasting impact on the island's architecture, culture, and cuisine. The Portuguese influence is evident in structures like Diu Fort, St. Paul's Church, and various other colonial buildings. Azzaro Resort & Spa leverages this historical backdrop, providing guests easy access to explore these historical sites and immerse themselves in the island's unique Indo-Portuguese culture.

CLIMATE:

Diu enjoys a coastal climate influenced by the Arabian Sea.

1. **Temperature:** The weather is generally pleasant throughout the year.
    - Summer (March-May): Hot with temperatures reaching a maximum of 36°C.
    - Monsoon (June-September): South-west monsoon brings rain, but not as heavy as nearby South Gujarat. The average rainfall is around 560 mm per year, with July being the wettest month with an average rainfall of 311.68 mm and approximately 16 rainy days. Humidity averages close to 79% in July.
    - Winter (December-January): Mild with day temperatures around 20°C and nights around 15°C.

2. **Wind:** Diu is windy throughout the year. The average hourly wind speed in Diu experiences extreme seasonal variation. The windiest part of the year lasts for approximately 4 months, from May to September, with average wind speeds of more than 12.4 miles per hour. The windiest month in Diu is July, with an average hourly wind speed of 17.0 miles per hour. The predominant average hourly wind direction in Diu is from the west for most of the year.

3. **Topography**

- Diu is a small island located near the coast of Kathiawad, separated from the mainland by a narrow channel or creek.
- Elevation: The altitude of Diu is 6 meters above sea level. There are hillocks that reach a maximum height of 30 meters.
- Terrain: The topography is generally plain with undulating dips like typical sand-dune deposits.
- Coastal Features: Diu features several beautiful beaches, cliffs made of limestone, and bays. The beaches are not very deep, making them suitable for swimming and water sports

Accessibility:

- **By Air:** Located just 4–5 km from Diu Airport
- **By Train: No railway station in Diu**, Nearest station: **Veraval Junction (~90 km)**.
- **By Road:** Well-connected by state transport and private buses**.**

Proximity to Attractions:

- **Naida Caves –** Around 2–3 km, one of the most popular caves on Diu.
- **Diu Museum & INS Khukri Memorial** – About 2 km away, located centrally in Diu town.
- **Diu Fort** – Roughly 2.5–3 km, a significant Portuguese-era landmark.
- **Nagoa Beach** – Approximately 3.6–5.8 km from the resort; less ideal for walking, better accessed via vehicle.






CONCEPT AND DESIGN PHILOSOPHY:

Architectural Style A blend of elements designed to create a luxurious and comfortable experience, drawing on both modern aesthetics and local contextEmbodies Victorian and Colonial architectural styles, characterized by pitched roofs, wooden flooring, period-style furnishings, and intricate detailing. The heritage character is maintained through the restoration of original elements and the use of antique décor.

Design Theme

Surrounded by a wide range of green land, Azzaro offers you peaceful, soothing and refreshing view. With gracious hospitality and courteous staff, experience the luxury and make your stay memorable. Every benefit clubbed together, Azzaro in Diu makes in for a perfect beach destination to get away from the hustle of the city.

MASTER PLAN AND ZONING



Private Party Space



Water tank tower



Swimming pool



Restaurant

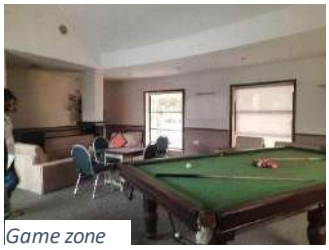
Deluxe Rooms



Entrance

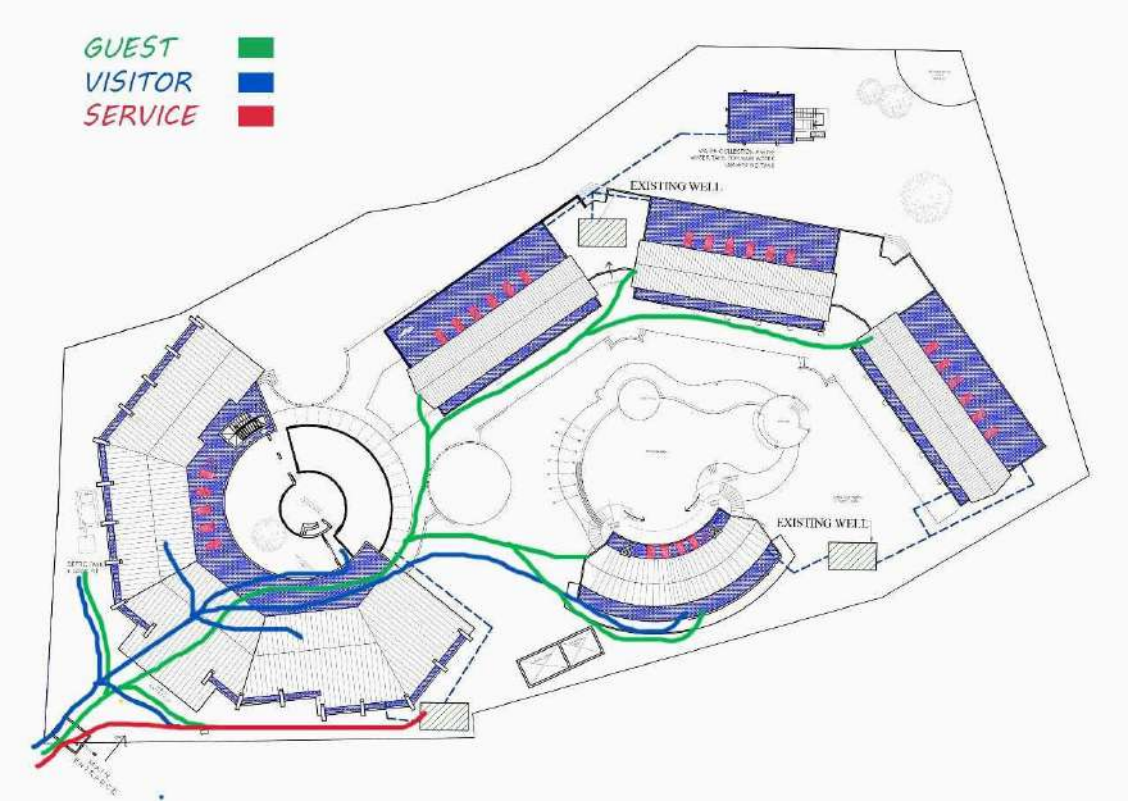


Lawn



Game zone

CIRCULATION:



AMENITIES:

- **Swimming Pool –** Large outdoor pool with sun loungers and poolside service.
- **Spa & Wellness Center** – Full-service spa offering massages, therapies, and sauna.
- **Restaurant & Bar** – Multi-cuisine restaurant and a bar serving Indian, continental, and local dishes.
- **Free Wi-Fi** – Available in rooms and public areas.
- **Parking Facility** – Free private parking for guests.
- **Fitness Center** – Basic gym equipment available for guest use.

LANDSCAPE DESIGN:

- **Poolside Landscaping**: The swimming pool is a central feature, and the surrounding lawns contribute to its beauty, especially at night with thoughtful lighting. This suggests a deliberate effort to integrate the pool area with the natural surroundings.

ROOM TYPOLOGIES:

- **Total Rooms:** There is a total of 38 rooms at the resort.
- **Room Distribution:** These 38 rooms are spread across 1 floor.
- **Club Royal Rooms**: There are 36 Club Royal rooms.
- **Size:** Each Club Royal room is 225 sq. ft (21 sq. mt).
- **Occupancy:** Standard occupancy for a Club Royal room is 2 adults, and 1 extra guest can be accommodated.
- **Suites**: There are 2 luxurious suites.
- **Beds**: Rooms are equipped with King-sized beds. Some sources also mention the possibility of a sofa-cum-bed.





CONSTRUCTION AND DESIGN FEATURES:

Exterior Features:

- **Architecture:** Fusion of Portuguese colonial and modern tropical styles.
- **Structure:** RCC frame with local stone, brick masonry, and lime plaster.
- **Roofing:** Sloped tiled roofs with Mangalore tiles for thermal protection.
- **Open Spaces:** Courtyard layout, verandahs, shaded walkways, and landscaped gardens**.**
- **Landscaping:** Native plant species, water features, and paved stone pathways.





Interior Features:

- **Style:** Elegant, minimalist design with natural finishes.
- **Materials:** Use of wood, terracotta, and stone flooring for warmth and durability.
- **Furniture:** Locally crafted wooden furniture with soft furnishings.
- **Lighting:** Soft ambient lighting with natural daylight emphasis.
- **Decor:** Elements of local art, cultural motifs, and traditional crafts.







Sustainable Design Method:

- **Low-Rise Construction:** Spreads horizontally rather than vertically, reducing energy load on lifts and elevators (though it lacks lift access).
- **Natural Lighting:** Rooms and public areas designed with large windows and open spaces, allowing for maximum daylighting and reduced artificial lighting during the day.

- **Courtyard and Pool-Centric Planning:** Central pool and open courtyards enhance natural ventilation and passive cooling, reducing dependence on air conditioning.

Lighting & Ventilation:

- Large windows, verandahs, and courtyards allow abundant daylight, reducing dependency on artificial lighting during the day.
- Indoors, the resort uses warm**,** energy-efficient LED lights to create a cozy and inviting atmosphere.
- Rooms and common areas are planned with openings on opposite walls to allow natural airflow, keeping interiors cool without full-time air conditioning.
- Tall ceilings, shaded balconies, and pergolas help regulate temperature and circulate fresh air.







GUEST EXPERIENCE:

- **Check-In/Out:** Efficient with express service options.
- **Recreation:** Games room, children's play area, tea boutique, library, and fitness center.
- **Dining:** Multi-cuisine restaurant and in-house bar with ambient settings.

EVENTS:





ENVIRONMENTAL & CULTURAL INTEGRATION:

- Use of locally sourced stone, lime plaster, and terracotta reduces environmental impact and supports sustainability.
- Incorporates native plants and water features, blending built form with the natural surroundings.
- Rainwater harvesting, water-efficient fixtures, and waste segregation contribute to a low ecological footprint.
- Combines Portuguese colonial elements with contemporary design, reflecting Diu's rich heritage.
- Interiors showcase local craftsmanship, handmade furniture, and traditional art.
- The resort offers regional dishes and cultural experiences that connect guests to the local lifestyle.

SWOT ANALYSIS:

1. **Strengths**
    - Spacious, pool-facing rooms in a well-laid-out resort across ~10 acres, providing a pleasant ambiance and greenery.
    - Good food (especially breakfast) and decent hospitality highlighted in several reviews.

2. **Weaknesses**
    - Maintenance issues are common: broken tiles, chipped fittings, mold, leaks, faulty geysers—leading to discomfort.
    - No lift—but multiple floors, inconvenient for senior guests or families with luggage.
3. **Opportunities**
    - Renovation and improved infrastructure would significantly boost guest satisfaction—especially in bathrooms, corridors, and communal spaces.
    - Staff training and service upgrades could deliver a more consistent, welcoming experience.
    - Expanding menu options, adding seafood or more cuisine variety, would add value. Several reviews cite limited food choices.
4. **Threats**
    - Competition from newer, better-maintained resorts in Diu where guests expect higher standards at similar or lower rates.
    - High pricing relative to quality leading to poor value perception: many guests felt it's overpriced given current condition.

CASE STUDY INSIGHTS:

- **Importance of Long-Term Maintenance-Friendly Design:** Choosing weather-resistant materials (especially in humid coastal regions like Diu), and ensure the design allows for easy repair and access to plumbing, electricals, etc.
- **Integration of Nature and Built Form:** Design should blend built spaces with nature—gardens, water bodies, and open courtyards can create a luxurious yet calm environment.
- **Room Orientation & Views Enhance Luxury:** Orienting rooms towards best views (sea, garden, pool) using passive design principles (e.g., natural light, cross ventilation).
- **Coastal Context Awareness:** Using marine-grade materials, and design for wind shading and thermal comfort using pergolas, overhangs, and shaded courtyards.
- **Designing for Memory & Identity:** Design should reflect local materials, crafts, and architectural language to make it memorable and authentic, vernacular architecture fused with modern luxury (e.g., Portuguese colonial or Saurashtra coastal influences in Diu).

APPLICATION TO THESIS:

- Emphasize cultural identity and environmental consciousness.
- Design multifunctional, user-friendly spaces.
- Adopt detailed sustainability frameworks in resort planning.

5.3 DESK APPRAISAL Banyan Tree Corniche Bay, Mauritius

INTRODUCTION

Sir Norman Foster presented a project for a series of cabins to be used as a tourist resort.

Its strengths are the large buildings, business structures, masterplans, airports, theatres… but this work allows one to see Foster's nearest habitable design at the human level. Designed for relaxation and comfort for the occupants, these houses make one dream of fresh and natural luxury design, idyllic holidays with bamboo and timber from a turquoise sea.

The luxury resort is immersed in the rich tropical vegetation of the area, with an unbeatable view of the mountains of Morne Brabant, a natural site that is part of the UNESCO World Heritage Site.

The coast that the project faces is one of the most beautiful in the world and is made up of coral reefs.



LOCATION

H9C6+G4J, Corniche Bay, La Gaulette, Mauritius

FEATURES

- 201 detached hillside villas with individual swimming pools
- 9-hole golf course designed by Player Design
- Golf clubhouse/academy
- 62 bed Banyan Tree Spa and Hotel
- Beach club
- Required utilities and amenities
- Access roads with 24-hour manned security access point

- Footpaths and pedestrian bridges with 1 pedestrian/golf cart tunnel passing under road to lagoon frontage

Appointment Year	2006
Completion Year	2006

Client	Tatorio Holdings Ltd
Architect	Fosters + Partners
Collaborating Architect	d'Unienville & Associates Architects Ltd
Area	859,400 m^2

CONCEPT

Key Principles

- **Natural Materials:** Local volcanic rock, sustainably harvested timber shingles and wood, and lush vegetation form an organic palette that anchors buildings to their surroundings.
- **Water Integration:** Vegetation "green fingers" cascade toward the sea; sculptural roofs collect and channel rainwater for treatment and reuse.
- **Climate-Responsive Form:** Dramatic, undulating timber-shingle roofs maximize cross-ventilation and daylight while receding into the tropical canopy.
- **Energy Self-Sufficiency:** Solar panels power on-site electric vehicles; highly integrated energy-efficiency systems aim for net-zero operation.
- **Landscape Harmony:** Low-rise volumes connected by corrugated wooden canopies nestle amid a hectare of designed gardens, offering uninterrupted Indian Ocean views with minimal visual impact.

Design Concept
By merging luxury with sustainable strategies—rainwater harvesting, solar energy, natural ventilation—and using locally sourced materials, the resort embodies a new model of eco-luxury that regenerates, rather than exploits, its exotic island setting.

SPACES

The complex features a spectacular golf course designed by Gary Player, and the Banyan Tree Hotel and Spa, in the resort on the sea.

The inspiration for the architecture of the cabins evolved from a single line which is then transformed into an infinite number of curves to reflect the topography of the land. There are six types of cabins, all connected through the common language of the ceilings, creating a family of uniform design. They have a total area of between 540 and 930 m^2, and all the cabins are located on lots between 0.8 and 1.25 hectares.

Among its amenities, the rooms are equipped with individual swimming pools, whirlpools, yoga decks, home theatre outside the rooms connected to the main pool, and have a bathroom with sauna and spa, plus rooms for reading and relaxing.








Component	Area (Ha)	Acres
Golf Course	31.82	78.63
Villas and Landscaping	119.63	295.55
Hotel and Spa	25.43	62.84
Beach area	13.47	33.28
Total	**190.35**	**470.30**

Villa Type	Gross Internal Area (m^2)	Covered External Area (m^2)	Total Covered Area (m^2)	Total Living Space (m^2) *
I-2	155.2	125.90	281.10	230.90
I-3	201.2	162.10	363.30	312.30
I-4	320.00	163.40	483.40	465.61
T	488.60	310.56	799.16	834.73

TYPES OF HOUSING

Typology	Covered Area and Terraces	Programs	Roof and Neighbours	Layout and Circulation	Outdoor Features	Auxiliary / Service Building
Type I1	279 m² internal + 110 m² terraces	• 3 suite bedrooms • Kitchen • Dining room • Living room • Office • Bathroom • Laundry	Undulating slab roof shaped to respond to adjacent buildings' heights and sightlines	Single longitudinal axis organized around a central corridor divided into eight modules (six main-function zones + two transitional modules)	• Transition 1: landscaped courtyard ending in a jacuzzi • Transition 2: water feature linking to outdoor pools • Large terrace along the open side (partially under the main roof deck) • Clear-roofed segment forming an outdoor dining/viewing area	Separate, detached structure housing service offices plus a covered vehicle porch
Type I2	279 m² internal + 110 m² terraces	• 3 suite bedrooms • Kitchen • Dining room • Living room • Office • Bathroom • Laundry	Undulating slab roof (same form as I1)	Single longitudinal corridor with two modified "bay" transitions: – **Pedestrian Bay:** shallow pond (now disconnected from pool) and jacuzzi relocated to terrace front – **Pool Bay:** replaces courtyard garden with a continuous pool that spans interior–exterior, partly roof-covered and partly open	• Interior–exterior pool bisecting the main terrace • Front-terrace jacuzzi situated in the pedestrian bay • Pond feature at the secondary bay	Detached block for staff offices and covered car porch (identical in position to I1)
Type S	Not specified	• 4 en-suite bedrooms (each with a private sitting room) • Entry hall • Kitchen • Dining area • Primary and secondary studies • Courtesy	Not specified	Plan follows two opposing "S" curves (one concave, one convex) joined at an inflection point that hosts the main entrance and a small pond. A continuous serpentine corridor runs around the full perimeter—twice as wide where it serves as an outdoor walkway—terminating in a full-length covered porch on the landscape side.	• Concave ends each terminate in a circular pavilion—one provides a vehicle turnaround, the other encloses a circular pool • Inflection-point pond at the entrance • Separate, open-air	Detached service annex containing staff offices and a covered vehicle porch

		bathroom • Laundry			"Summer Pavilion" sited for panoramic views	
Type U1	116 m² covered	• 4 bedrooms (1 beside entry; 3 at the curved outer ends, each opening onto the roof deck) • Living area • Dining area • Kitchen	Not specified	Footprint is a quarter-circle segment. Vehicle entry via a semicircular roundabout whose center aligns with the housing arc's center. Sequence of spaces along the arc: entry pond → pool view + adjacent terrace with jacuzzi → central social zone (living/dining/kitchen). A continuous porch-wing shelters the curved perimeter overlooking the pool.	• Entry pond • Outdoor pool beside the terrace • Jacuzzi adjacent to the terrace • Roof deck accessible from outer bedrooms • Protective curved porch	Separate staff-office pavilion plus covered vehicle porch
Type U2	116 m² covered	• 4 bedrooms (same arrangement as U1) • Living area • Dining area • Kitchen	Not specified	Quarter-circle layout as in U1, but vehicular approach is replaced by a winding pedestrian path from a remote parking area. The same axial sequence applies (pond → terrace → social zone), but without the roundabout.	• Pool relocated to the outer edge of the porch, with both decked (roof-covered) and open-air sections to expand leisure space • Jacuzzi remains adjacent to the terrace • Roof deck off the outer bedrooms	Detached service block for staff offices plus covered car porch (same form as U1)
Type T	212 m² covered	**Main Unit:** • 3 en-suite bedrooms • Kitchen • Dining • Living room • Courtesy laundry & bath **Secondary Unit:** • 1 bedroom • 1 bathroom • Living area	Not specified	Split-level access: upper level for parking & service units, then a descent to the main ground floor. The two units flank a central, covered-open core. This core functions as both circulation and a semi-courtyard.	• Central open core with a pond, pool, and a tree under a covered roof (courtyard effect) • Long front porch spanning the main façade • One bedroom in the main unit sits separately across the courtyard for extra privacy	Parking and service spaces are integrated into the upper level; no fully detached annex

		(relies on main unit for kitchen access)				



Figure 1 - Floor Plan Type I1



Figure 1 - Floor Plan Type I2



Figure 4 - Floor Plan Type S



Figure 3 - Floor Plan Type U1



Figure 2 – Floor Plan Type U2



Figure 1 - Floor Plan Type T

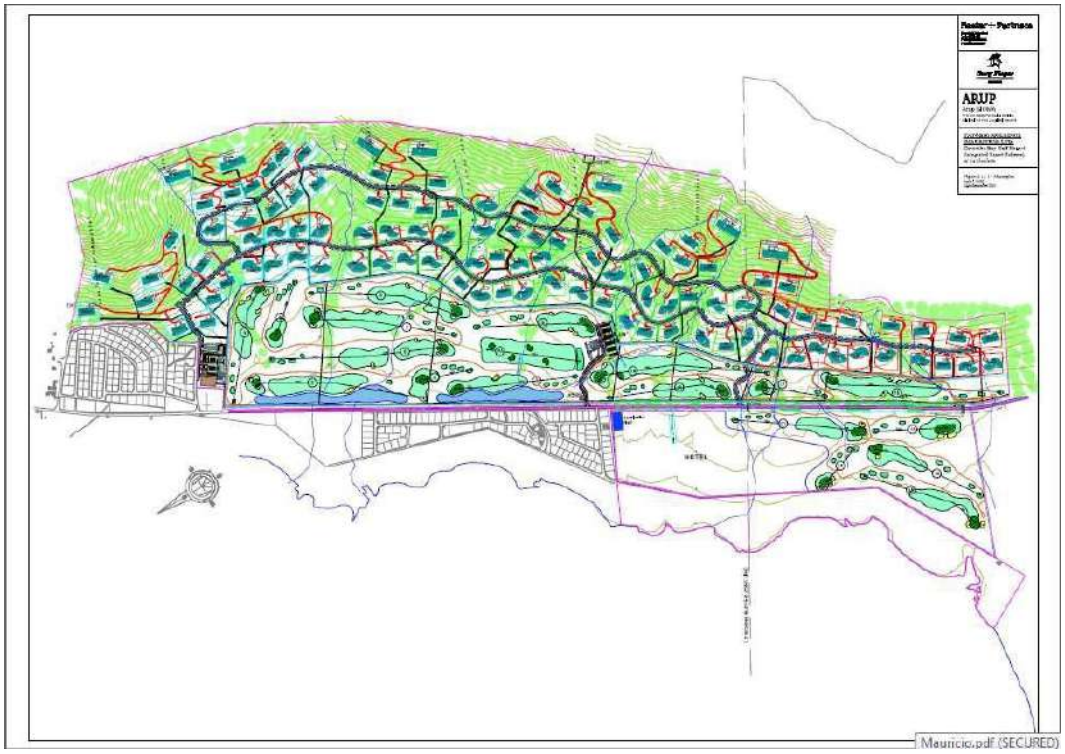


Figure 5 - Site Plan

STRUCTURE

- In its effort to mimic the environment, the housing structure is designed like wooden huts built by the Indians in the wild.
- The cover of the dwellings is as rolling, twisty, and organic as the forest that surrounds it. Wooden beams are placed with different inclinations allowing them to create a regulated area.
- The interior is covered, generating dynamic spaces with different heights and escaping to the outside, bringing the inside in contact with their environment.

MATERIALS

- Due to the isolated situation of Mauritius and also to create a link between the landscape of the place and the new buildings, they were constructed as closely as possible using indigenous materials as far as possible.
- These materials also create this link between the island and the nature of housing for the smooth aging buildings and the materials are prepared to withstand the weather conditions in the area.
- The main material is wood that solves the vast majority structure and covered. Water is the second element that is present in all corners of the project once again promoting the integration of their homes with natural wild.

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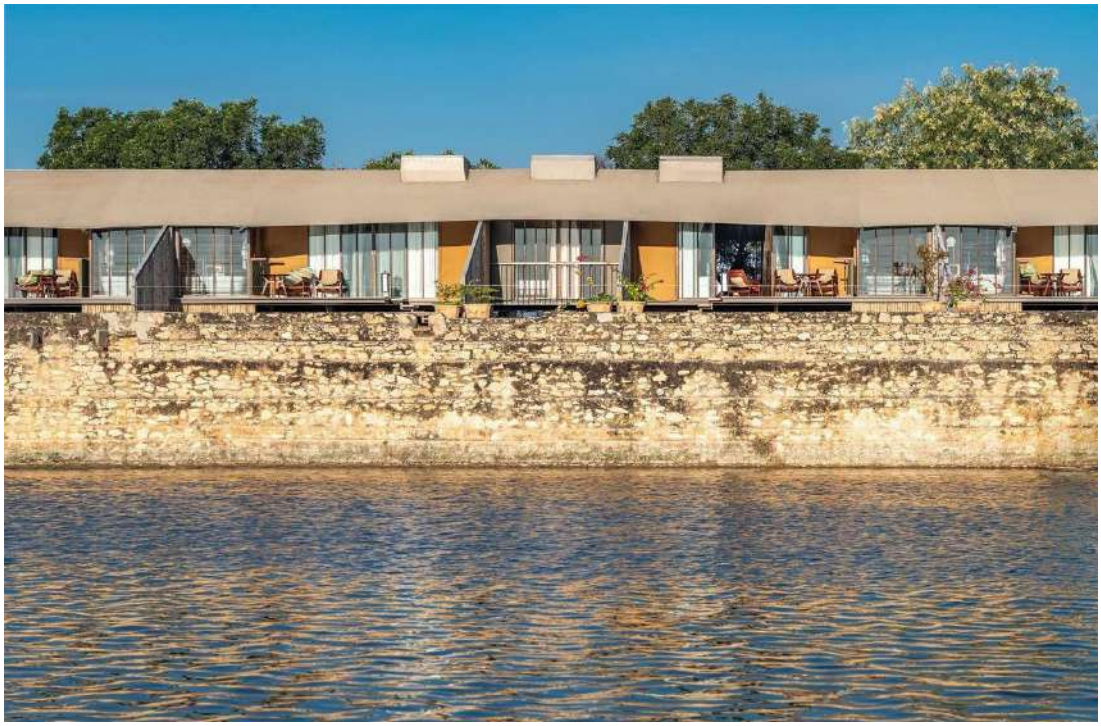
5.4 RAAS Chhatrasagar, Nimaj, Rajasthan

INTRODUCTION

RAAS Chhatrasagar is a 16-key hospitality property located near the town of Nimaj, in Rajasthan. Perched atop a nearly 150-year-old check dam that forms a perennial rainwater lake, it reinvents the earlier property that used to operate out of seasonal tents, thereby providing guests with a year-round opportunity to observe the region's abundant biodiversity amidst 800 acres of pristine forest.

The tents are sound-proofed and solid structures. Each is contemporary with soft muted colours, Jodhpur stone, teak furniture and sky lights; understated but chic and fresh. Every space has air-conditioning and heating so the camp remains open all year round – one of the few tented camps in India to do so.

A walkway to the tents allows you to sit outside your tent in addition to giving more privacy, whilst retaining the idyllic views. There's nothing quite like sitting on your veranda, with a good book, sipping a chilled glass of something, and being rewarded with glorious, uninterrupted views and virtually no sign of habitation.



LOCATION

Chhatrasagar, Nimaj, Rajasthan

THE ESSENCE AND EXPERIENCE

The essence of the camp is making any improvements to the property in a sensitive way. A major focus remains on the birdlife, farming communities, walks and rewilding.One can explore the farm, local temples and meet the villagers. A gentle dawn stroll around the lake, or an evening jeep drive through the grasslands, spying myriad bird species and herds of blue bull.

surprise sundowner, relax in the lovely tented sitting room and enjoy chatting around a blazing fire under a canopy of stars, before settling into a culinary feast for dinner. The food here is exceptional – use of local, organic home produce as much as possible, with meals made using age-old family recipes, which have received some of the highest praise in Rajasthan.

TYPES OF ROOMS

RAAS Chhatrasagar has a total of 16 luxury tents, including 04 family tents and 02 twin tents. All tents are open all year around and are overlooking the lake in the East, the peaceful natural vistas on the other side and have private sit outs offering panoramic views. They are spacious, comfortably furnished with relaxing furniture and have well-appointed private facilities.

- **Family Tents**

Total Rooms	04
Unit Area	682 sqft
Sleeps	4
No. of Beds	3
Amenities	Bath & Walk-in Showers, Bath Salts, High Speed Wi-Fi, Laptop safe, Adapters, Heating, Minibar, Electronic Safety Deposit Box, Baby Cot (On Request), Bathtub, Curated range of toiletries, Air-conditioning, Outdoor Seating Area, Torch, Hair Dryer









- **Luxury Tent**

Total Rooms	12
Unit Area	510 sqft
Sleeps	2
No. of Beds	1
Amenities	Bath & Walk-in Showers, Bath Salts, High Speed Wi-Fi, Laptop safe, Adapters, Heating, Minibar, Electronic Safety Deposit Box, Baby Cot (On Request), Bathtub, Curated range of toiletries, Air-conditioning, Outdoor Seating Area, Attached Kids Room, Hair Dryer

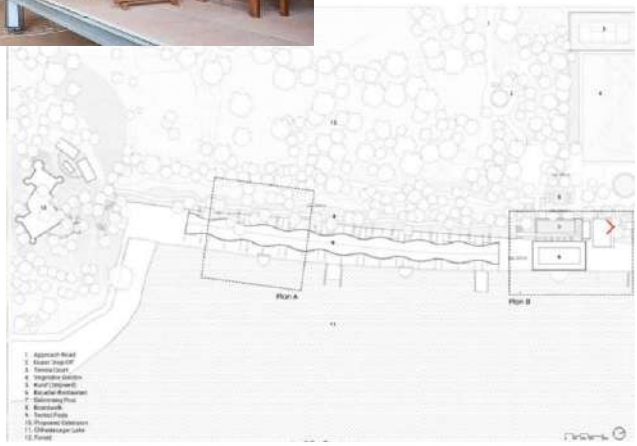




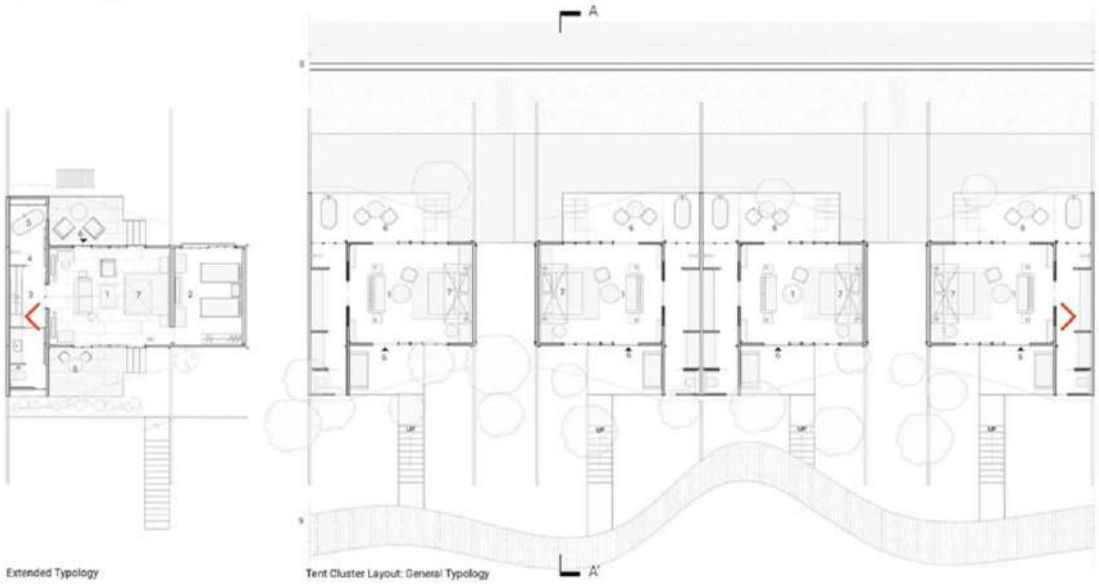




Plans / Sections



Plan A: Tent Layouts

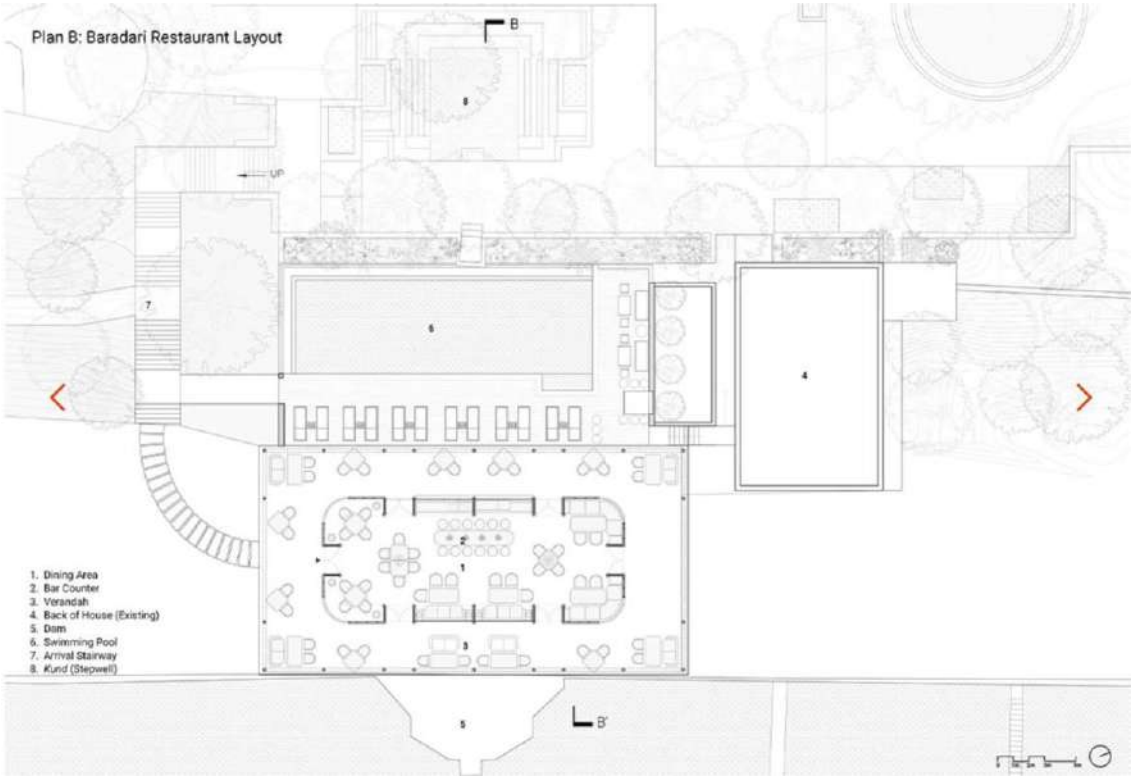


Extended Typology

1. Bedroom
2. Kid's Bedroom
3. Washroom
4. Shower Area
5. Outdoor Bath
6. Deck
7. Skylight
8. Dam
9. Boardwalk

Tent Cluster Layout: General Typology

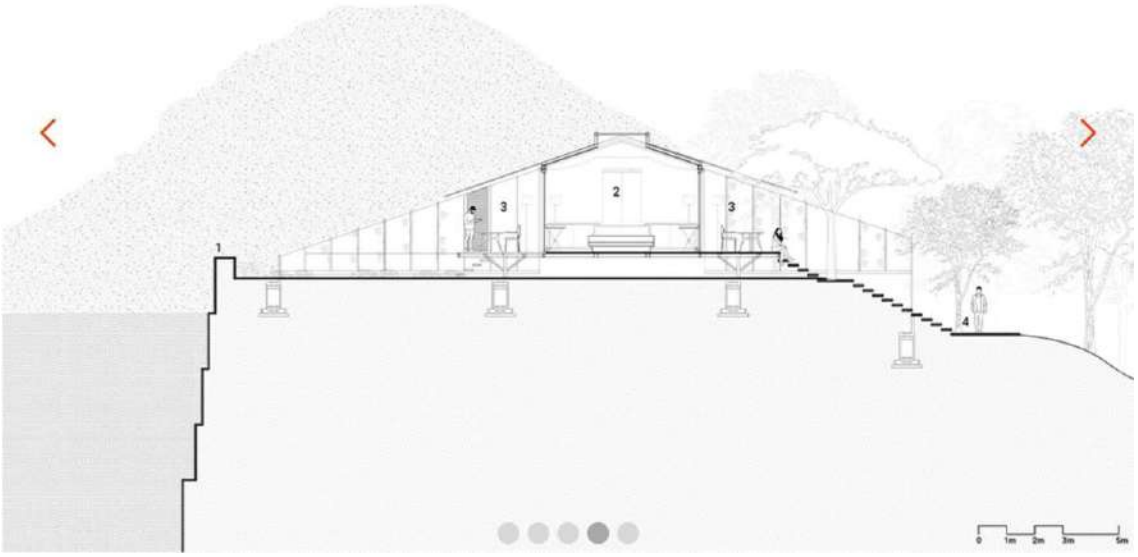
Plan B: Baradari Restaurant Layout



1. Dining Area
2. Bar Counter
3. Verandah
4. Back of House (Existing)
5. Dam
6. Swimming Pool
7. Arrival Stairway
8. Kund (Stepwell)

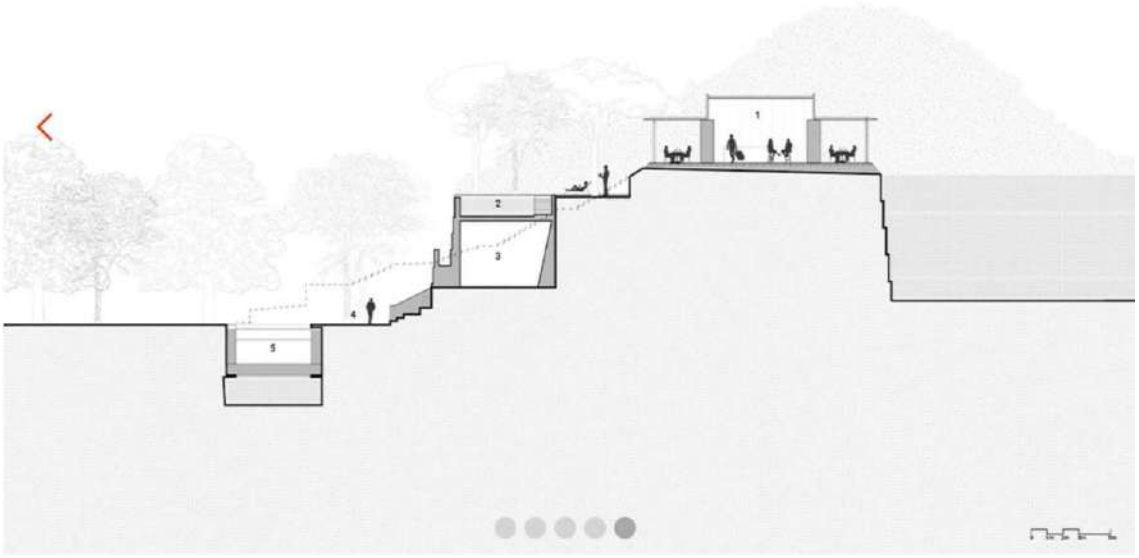
Section AA'

1. Embankment Wall Level
2. Bedroom
3. Deck
4. Boardwalk



Section BB'

1. Baradari Restaurant
2. Pool
3. Back of House
4. Boardwalk
5. Kund



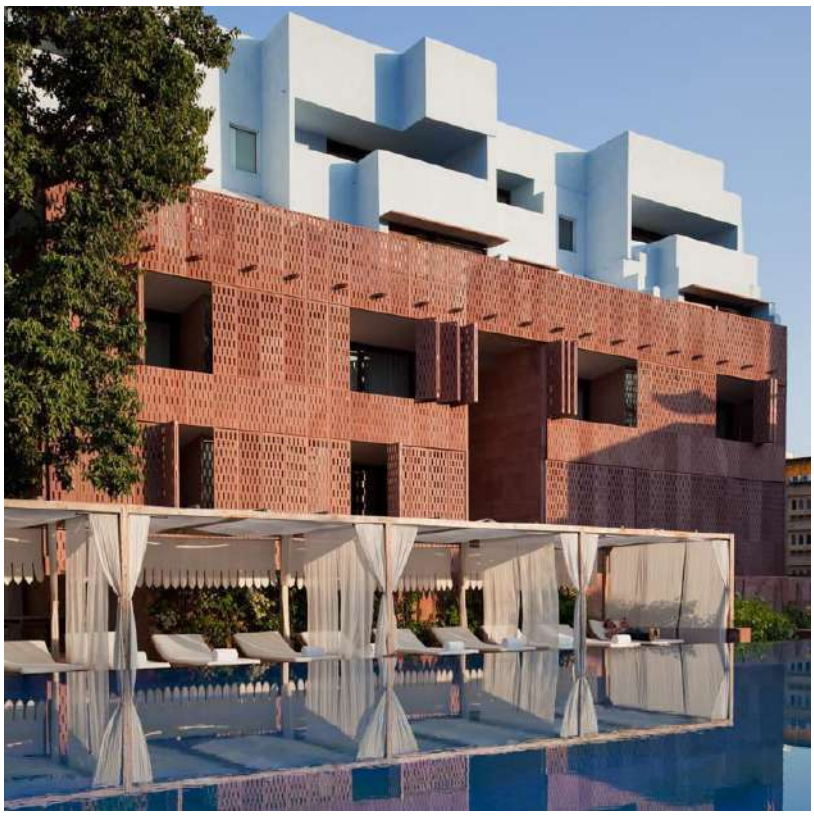
STRUCTURE AND MATERIAL

- Lightweight metal frame structure dry-mounted with hand-dressed stone infills
- Contemporary take on the Rajputana baradari as a gathering space
- Houses the property's restaurant, linking lake panoramas and forest-belt serenity
- Built envelope extends to embankment walls on one side and a deck beside a private infinity pool on the other
- Country-style furniture in locally sourced Acacia (Kikar) wood contrasts pink stone finishes
- Bar counter with hand-carved relief depicting a flock of flamingos, evoking the landscape
- Continuous tensile fabric canopy over partitions for waterproofing and insulation
- Canopy extends beyond pods to form shaded verandahs with panoramic views
- Retractable skylights in the roof to capture shifting diurnal and nocturnal light variations

FEATURES

- Design frames outdoor views on both edges of each pod for lake sunrises and forest sunsets
- Individual pods include spill-out areas for outdoor lounging
- Metal privacy screens with bamboo infill separate pods while preserving uninterrupted views
- Interior fabrics celebrate regional flora and fauna through prints and embroidery
- Hand-crafted furniture by Mangrove Collective complements woodblock-printed illustrations and hand-embroidered textiles from Flora For Fauna
- Sixteen conjoined suites are raised on stilts to protect the embankment and route MEP services above the dam
- Elevated design allows rainwater to drain directly into the lake
- Guest arrival via a landscaped walkway through forested slopes and gardens, ascending stone steps to a deck entrance

5.5 RAAS JODHPUR



LOCATION

RAAS is located in the Old Walled City (Umed/ Makrana Mohalla / Tunvar Ji ka Jhalra area) of Jodhpur, immediately below Mehrangarh Fort, address commonly listed as Tunvar ji ka Jhalra, Makrana Mohalla, Jodhpur 342001. This unique sun-bowl siting creates direct visual relationship with the Fort and the old city rooftops.

HISTORICAL CONTEXT

The hotel is centred on an **18th-century haveli** (the Darikhana and other historic fragments) previously belonging to a Thakur/aristocratic family. The project conserved and restored these historic structures and inserted contemporary buildings and courtyards to form the hotel complex.

OWNER / CLIENT

The RAAS collection is operated by RAAS Hotels / Walled City Hotels Pvt. Ltd.; RAAS Jodhpur was developed by the RAAS group (founders include Nikhilendra Singh and family).

ARCHITECT / DESIGN TEAM

Primary architectural authorship is credited to **Studio Lotus** (with Praxis / The Lotus Praxis Initiative collaboration on delivery). The project brief and execution are frequently attributed to Ambrish Arora / Studio Lotus + Praxis team.

ACCESSIBILITY

- Nearest airport: **Jodhpur Airport** (~15–20 min drive).
- By rail/bus: Jodhpur railway and bus stations are within the city; access into the walled city is by narrow streets — vehicular access can be constrained by the historic urban fabric. Guest reviews and booking sites note narrow/ congested approach streets typical of historic cores.

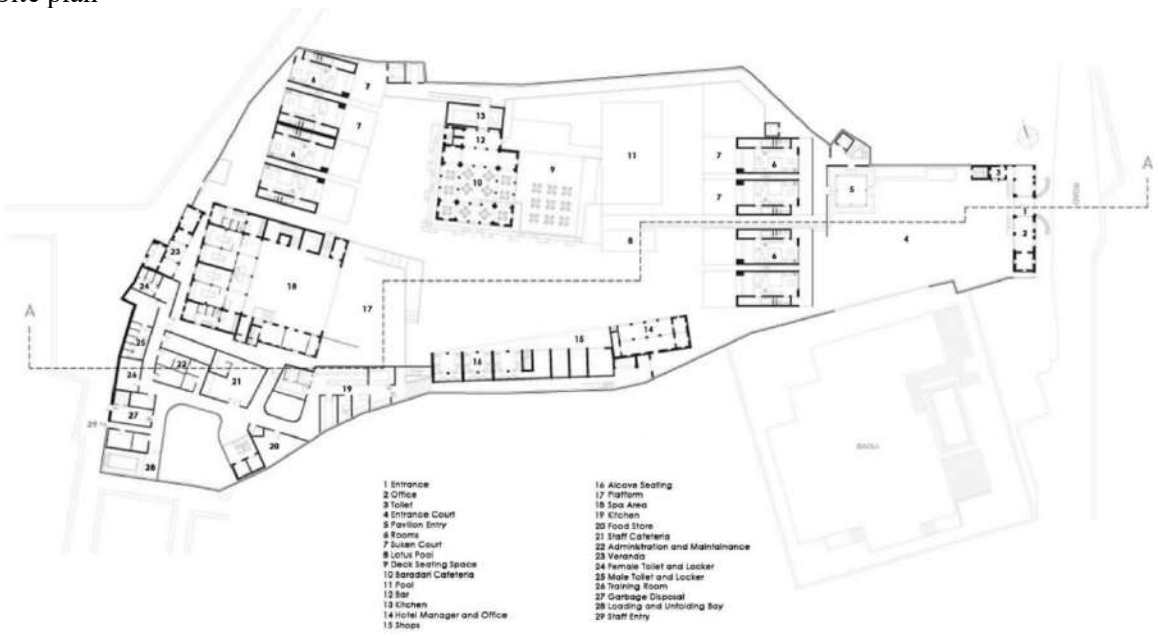
Proximity to attractions

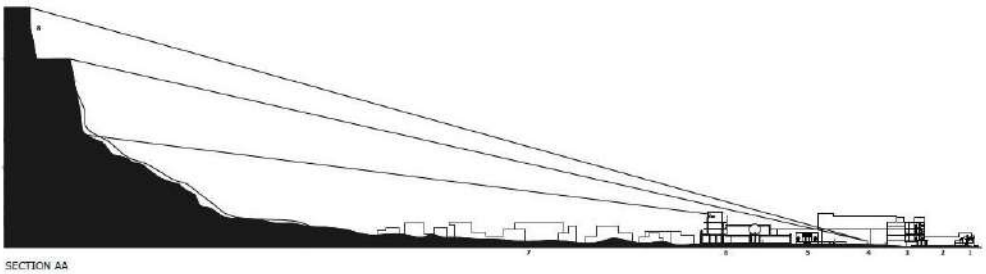
Directly under **Mehrangarh Fort** (visual and physical proximity), and walking distance to Clock Tower (Sardar Market), Toorji Ka Jhalra (stepwell) and other walled-city attractions — major asset for cultural tourism and viewpoints.

Surrounding and context

RAAS sits within dense, low-rise historic fabric of the walled city. The design strategy intentionally dialogues with nearby sandstone architecture (rose/red sandstone) and vernacular elements (jaali, courtyards, stepwells) while inserting new blocks with modern geometries. This creates a layering of old haveli fragments and new rose-sandstone volumes.

Site plan





SECTION AA

1.ENTRANCE GATE
2.ENTRANCE COURTYARD
3.A BLOCK
4.POOL
5.BARADARI
6.C BLOCK
7.JODHPUR OLD CITY
8.MEHARANGARH FORT

Architectural style

- **Adaptive-reuse + contemporary insertions**: original haveli buildings conserved; new volumes in rose/blue sandstone and textured screens form courtyards and terraces.
- **Material honesty**: exposed sandstone, lime finishes, punched jaali screens, carved stone details and modern minimal interiors (clean lines, timber furniture).
- **Spatial sequencing**: a series of courtyards, terraces, and axial views toward the Fort; layering of public, semi-public and private zones.

AMENITIES

- Rooftop/terrace **swimming pool** with Fort views; lawns and formal courtyards; multi-venue dining (Darikhana, Baradari, Stepwell Cafe); spa and wellness centre (Ayurvedic treatments).
- Event/banquet spaces in the restored pavilions (Baradari).
- Gym , spa , bar ,laundry services



Room types & In Room Facilities

Typical room mix (as listed by the hotel): **Luxury Rooms, Garden Rooms, Duplex Suites, Heritage Suites, Stepwell Suite**, totalling roughly 39–40 rooms. Rooms feature bespoke furniture, en-suite bathrooms, many with direct views to Mehrangarh Fort
All rooms equipped with air- conditioning , high speed wi-fi, satellite tv, safety deposit box coffee machine and hair dryer

Construction and design features

- Restoration used traditional techniques (lime mortar, conservation of carved elements) where possible; new construction uses locally sourced sandstone and contemporary structural systems.
- Emphasis on tactile finishes, local craft joinery and custom furniture. The project blends conservation with new build in a compact historic site.

Lighting and ventilation

- **Daylighting strategy**:

  jaali screens, perforated facades and courtyards modulate harsh sunlight, create patterned daylight in interiors.

- **Natural ventilation**:

  courtyards, cross-ventilation in many room types and shaded terraces reduce cooling loads. At the same time, modern HVAC is used for guest comfort. Photographs and design descriptions emphasize dappled light and ventilated courtyards.

Environmental & cultural integration

- Cultural: project conserves historic elements (Baradari, Darikhana) and integrates local craft and forms (jalis, carved stone).
- Environmental: passive strategies (courtyards, shading),
- use of local materials (reduced embodied transport), and retaining existing building fabric reduce new-build impacts. The project has been recognized for sensitive restoration and context-driven design.






SWOT ANALYSIS

Strengths

- Exceptional siting with uninterrupted views to Mehrangarh Fort — huge experiential and marketing value.
- Strong narrative: authentic adaptive reuse combined with high-quality contemporary interventions.
- High design recognition and awards strengthen cultural capital.

Weaknesses

- Constrained access and narrow streets typical of walled-city sites — logistics, deliveries, guest vehicular access are limited.

Opportunities

- Interpretive design research: use of RAAS as a model for combining conservation, cultural tourism and sustainable retrofit in historic cores.
- Potential to document craft techniques and conservation methods for academic publication.

Threats

- Over-tourism pressures on the walled city; conservation vs. commercialization tensions.

- Climate stress (hot dry climate) may increase energy demands if passive measures aren't carefully maintained.

CASE STUDY INSIGHTS

- **Dialogue of old + new** — RAAS is a strong example of *insertion* rather than imitation: new volumes do not try to pastiche the haveli but refer to material, scale and rhythm.
- **Landscape of courtyards** — the project uses courtyards, terraces and stepwell-adjacent spaces to control microclimate and create a sequence of public to private spaces.
- **Cultural authenticity + contemporary comfort** — success lies in retaining original fabric and rituals (baradari, darikhana) while adding modern hospitality standards.
- **Awards as validation** — international awards helped position RAAS as a reference project for conservation-led hospitality in heritage cities.

APPLICATION TO YOUR THESIS

- **Chapter idea**: *Adaptive reuse strategies in historic urban cores* — use RAAS as a primary example; compare its intervention strategies (conservation, insertion, material palette) with 1–2 other examples.
- **Design diagrams to produce**: site/context plan (showing relation to Mehrangarh), sectional diagrams of courtyard ventilation, sequence of public→private spaces, material palette board. Use photos (official + critical reviews) for visual analysis.
- **Methodology**: field observation (if possible), archival research (history of the haveli), interviews (hotel/architect if accessible), and comparative performance analysis (passive strategies vs. typical hotels).

5.6 FOUR SEASON RESORT BALI ,AT JIMBARAN BAY



LOCATION

- The resort is located on the southwestern tip of Bali, along the golden shores and gentle curve of Jimbaran Bay, on a terraced hillside area called “Bukit Permai” (which means “beautiful hill”).
- It spans approximately 35 acres of ocean-front tropical gardens, cascades down the hillside toward a long stretch of beach at Jimbaran Bay.

STARTED

- The resort opened in **June 1993**.
- At the time of its completion, it was pioneering: it is credited as the first large-scale luxury all-villa beach resort and the first resort “to incorporate a plunge pool in every guest villa.” This set a new benchmark in resort design globally.
- Over time, the resort has undergone upgrades — most recently a major renovation finished in 2017, when all villas were modernized to maintain high standards of comfort while preserving the original Balinese-village feel.

OWNER / MANAGEMENT

The resort is managed by Four Seasons Hotels and Resorts (global luxury hotel-resort operator).

ARCHITECT

Original architectural design was by Grounds Kent Architects (GKA), Fremantle, Australia.

- The original interiors (for the villas) were designed by Dale Keller & Associates, Hong Kong.
- During the 2015–2017 renovation, the interior redesign and refurbishment (upgrading villas, décor, amenities) were managed by Jaya International, Jakarta.
- Landscape design (for gardens, outdoor spaces) was done by P.T. Wijaya Indosekar International, Denpasar, Indonesia.

Accessibility

- The resort lies about **15 minutes by car from** Ngurah Rai International Airport (Denpasar), making it relatively easy and quick to reach upon arrival in Bali.
- For broader travel around Bali: from Jimbaran Bay, many of Bali's southern and central tourist areas (temples, cultural sites, nightlife areas, other beaches) are accessible but likely require some travel (as is typical in Bali).

Proximity to Attractions

- The resort's beachfront gives direct access to the bay — sunset views, beach recreation, and water-based activities.
- There is proximity (in terms of travel time) to regional attractions — for example, many cultural sites, temples and Bali's natural / coastal attractions are accessible, making the resort a good base for exploring the island while staying in comfort.

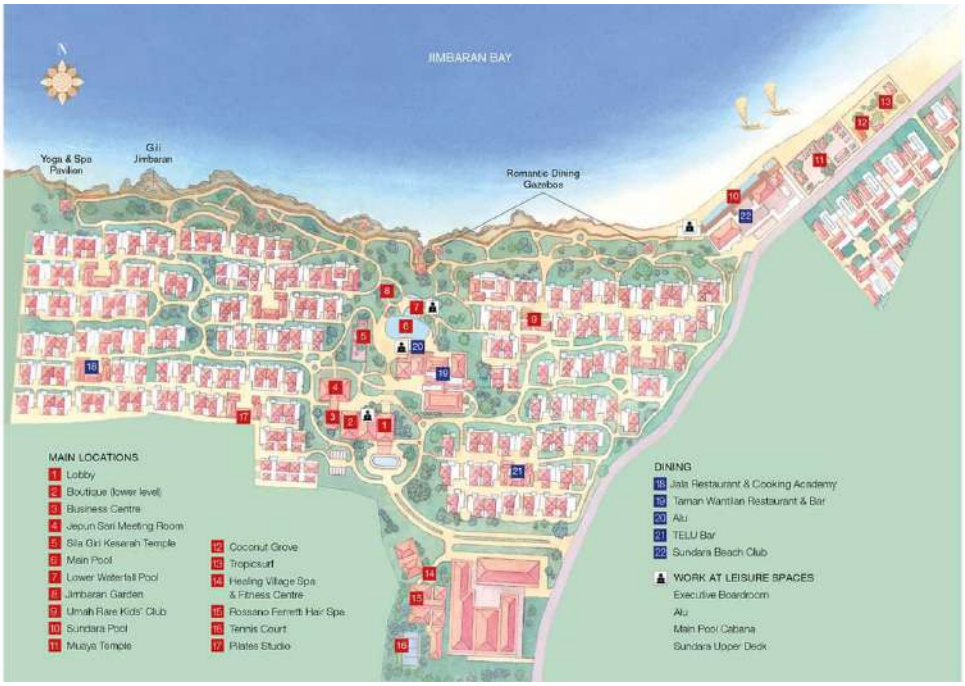
Surrounding and Context

- The resort is set amidst tropical gardens, lush landscaping, and thoughtfully designed outdoor spaces. The 35-acre site is landscaped with gardens, lawns, and natural stone walls, blending built form with tropical nature.
- The layout and clustering of villas in "village squares" evoke the spatial organization of a traditional Balinese village — rather than a typical resort block — fostering a sense of community-scale settlement rather than high-density resort hotel.

CONCEPT

Architectural Style / Design Features

- The resort's architectural ideology draws on a **traditional Balinese village (banjar)** model: villas are clustered around "village squares", connected by meandering pathways, within lush gardens.
- Villas feature thatched roof, locally sourced materials (wood, volcanic stone, teak), handcrafted details, stone walls, inward-facing courtyards, private gardens, and private plunge pools.
- Interiors and open-air pavilions blur indoor and outdoor living — pavilions, verandahs, and outdoor-inspired spaces connect to nature, giving a resort aesthetic deeply rooted in local architectural sensibility.



AMENITIES

The resort offers **private pool villas** (each villa has its own pool), making every accommodation effectively a private retreat.

- Facilities include a large spa and wellness centre: the Healing Village Spa with multiple spa suites, holistic treatments, and wellness offerings.
- Diverse dining and culinary experiences: restaurant venues with both local Balinese and international cuisine, cooking classes (through the resort's cooking school), and culturally immersive activities like traditional dance, music, crafts.
- Recreational and leisure activities: besides the private villas and pools, the resort offers water-based activities, beachside experiences, cultural tours, and wellness/yoga sessions.

Room Types & In Room Facilities

- The resort comprises **147 private pool villas** (as of the renovated setup) and a few residences.
- Villas are categorized — including one-bedroom villas (standard pool villas), upgraded villas (post-renovation Deluxe / Premier), and premium offerings: **Royal and Imperial Villas**.
- The top-end Imperial Villa (and Royal) offer multi-level living spaces: with private infinity pools, spacious living/dining areas or kitchen, lush landscaping, high privacy, and in-villa services (private chef, personal trainer / yoga master, etc.) — catering to high-end guests, events, weddings.
- Interiors feature local craftsmanship (teak wood, locally hand-crafted fittings), thatch roofs, stone walls, private gardens — blending luxury comfort with traditional Balinese sensibility.

Deluxe villa - 280m^2 ,




Imperial villa – 450-750m^2




Residence villa – 1000-1500m^2




CONSTRUCTION & DESIGN FEATURES

- Built using local materials: volcanic stone, teak wood, thatch roofs, traditional Balinese construction and styling.
- The master plan clusters villas in small "village squares", within 35 acres of landscaped gardens — this village-scale master planning reduces density, enhances privacy, and preserves a sense of calm and nature.
- The 2015–2017 renovation aimed to modernize villas while preserving the original ambiance: upgrades to interiors, furnishings, but retaining the Balinese-village aesthetic — balancing heritage-style architecture with contemporary luxury standards.

Lighting and Ventilation

The villas' design — thatched roofs, open-air pavilions, private courtyards and gardens — inherently supports natural ventilation and the tropical living paradigm, enabling indoor-outdoor connection and passive cooling.

- Layout of villas amidst gardens and vegetation, with stone walls and traditional material palette, helps attenuate heat and create shaded, comfortable microclimates — suited to Bali's tropical climate
- Public and private spaces are interwoven with greenery, pathways, and open-air pavilions, enabling natural light, breezes, and visual connection with nature throughout the resort — creating immersive spatial experience rooted in locality.

ENVIRONMENTAL & CULTURAL INTEGRATION

The resort emphasizes support for local culture and community: through workshops and activities in its cultural centre (traditional dance, crafts, music), engaging local artisans in furnishing, art, interiors.

- Environmental efforts: the resort participates in beach cleanups, supports local environmental NGOs (e.g. coral reef restoration, waste management, community outreach) — as part of its sustainability initiative.
- Use of locally sourced materials, locally crafted furniture and décor, and integration of Balinese cultural motifs and traditional architecture contribute to a sense of place and cultural authenticity — avoiding generic "international luxury" style in favor of a resort rooted in Bali's identity.
- The resort's management of amenities, social responsibility (via community programs, donations, local sourcing) aims to positively impact local society — making the resort not just a luxury bubble but more embedded in local ecology and culture.

SWOT Analysis

Strengths

- Unique pioneering status: first large-scale all-villa beach resort with plunge pool in every villa — offering unmatched privacy and exclusivity.

- Strong integration with local culture and landscape: Balinese village-inspired layout, local materials, cultural immersion, natural setting — offers a sense of place, authenticity, and experiential richness.
- High-quality service, amenities, and continual investment/renovation (2015–17 renovation) ensuring modern comfort while respecting traditional architecture.
- Variety of accommodation options (standard villas to ultra-luxurious Imperial / Royal Villas), catering to different segments — from secluded couples to high-end travelers seeking private events.

Weaknesses

- Because of the villa-by-villa, low-density layout across a large hilly site, accessibility may involve a lot of walking or dependency on internal transport (buggies) — may not be ideal for guests with mobility issues.
- High operating costs likely — maintenance of large grounds, private pools per villa, extensive staff — which may translate to high room rates, limiting accessibility to affluent clientele only.
- The exclusivity and seclusion may limit interaction with broader local community or urban context — potentially reducing exposure to the "real Bali" outside the resort bubble.

Opportunities

- As a model for sustainable and culturally integrated resort design, the property can be studied for best practices in resort architecture sensitive to context — valuable for academic thesis comparing heritage-inspired resort design.
- Potential for further enhancement of sustainability measures (renewable energy, waste reduction, deeper community involvement) and documentation of socio-cultural impact as a case of responsible tourism.
- Adaptive reuse / redesign of other resorts or hospitality projects — lessons from FS Jimbaran Bay design (villa-based layout, local material use, village-inspired master-planning) can inform new developments in tropical regions or heritage-rich sites.

Threats / Challenges

- Environmental pressures: coastal site — vulnerability to sea-level rise, coastal erosion, changing climate, which could threaten long-term sustainability.
- Cultural commodification: balancing luxury tourism with authentic cultural preservation can be delicate — over-reliance on "heritage aesthetic" could risk superficiality if not managed sensitively.
- Market shifts: high-end resorts are susceptible to fluctuations in global travel demand (economic downturns, pandemics), which may impact viability.
- Maintenance burden: given the scale (private pools, large gardens, traditional materials), continuous upkeep and management is resource-intensive; any lapse may degrade the authenticity/quality over time.

CASE STUDY INSIGHTS

Pioneering villa-based resort typology — FS Jimbaran Bay demonstrates how a resort can move beyond conventional hotel-blocks towards a distributed, privacy-focused villa format, with each villa offering its own amenities (pool, garden) — valuable for studying spatial design models for luxury hospitality.

- **Integration of architecture, landscape and culture** — the resort's village-inspired master plan, use of local materials and traditional design vocabulary show how modern hospitality can embed itself in local context rather than impose foreign typologies.
- **Balance between authenticity and luxury** — the resort shows how traditional architectural forms (thatched roofs, stone walls, pavilions, local craftsmanship) can be adapted for modern comfort, creating a hybrid typology relevant for contemporary resort design.
- **Sustainability & community engagement** — through cultural workshops, local sourcing, environmental & community initiatives — presents a case of socially conscious luxury tourism, useful for studies on tourism-architecture and sustainable hospitality.
- **Adaptation and evolution over time** — the 2015–17 renovation underscores the dynamic nature of such resorts: how continuous investment, modernization, and sensitivity to guest feedback and environmental context are necessary to keep the project relevant without losing identity.

APPLICATION TO YOUR THESIS

Depending on your thesis focus, here are ways to apply FS Jimbaran Bay as a case study:

- **Typology analysis**: If you are studying resort typologies or adaptive design for hospitality in tropical contexts — use FS Jimbaran as a reference for "village-style villa resort" and compare with conventional hotel-tower typologies.
- **Cultural-sensitivity & context-integration**: Use this as example of embedding architecture within local context (material, culture, climate), compare with resorts/hotels that don't — to argue for contextual design in global tourism.
- **Sustainability & community impact**: Use the resort's environmental and community programs to study how large resorts can contribute to (or harm) local ecology and culture; possibly propose better / improved models.
- **Design + Landscape + Guest Experience**: Analyze spatial sequencing (pathways, villas, gardens, pavilions), user circulation, privacy vs. communal spaces, landscape-architecture relationship, indoor-outdoor living—use as model for designing hospitality spaces in your own work.
- **Evolution over time**: Study how the original 1993 design was revamped in 2015–17 — explore how hospitality architecture must evolve to respond to changing guest expectations, sustainability demands, and design aesthetics.

REFERENCES

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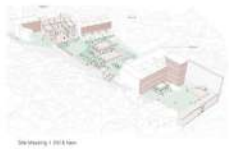
- https://www.raashotels.com/chhatrasagar/accommodation/luxury-tent/
- https://www.fourseasons.com/jimbaranbay/accommodations/
- https://www.fosterandpartners.com/projects/banyan-tree-corniche-bay

- Embrace locally sourced, climate-appropriate materials (e.g., indigenous stone or timber) to root the resort in Chorwad's coastal context and ensure durability under seaside weather
- Frame dramatic views—sunrise over the Arabian Sea and sunset against the hinterland—by orienting guest units with dual-facing apertures and spill-out terraces
- Elevate structures on stilts or podiums to preserve dune and embankment integrity, facilitate natural drainage of monsoon runoff, and reduce site disturbance
- Use lightweight metal or timber framing with dry-set infill (stone or block) to achieve a minimal-impact envelope that conveys craft-quality detailing
- Integrate continuous tensile-fabric canopies or deep overhangs for waterproofing, solar shading, and thermal insulation—extending beyond building footprints to create shaded outdoor verandahs
- Incorporate retractable skylights or operable roof elements to capture changing light conditions and enhance cross-ventilation in public pavilions and guest suites
- Celebrate regional biodiversity through interior textiles and graphics that depict local flora and fauna, supplemented by hand-crafted furniture from local artisans to reinforce place identity
- Organize accommodation clusters as "pods" or villas linked by landscaped walkways and perforated screens (e.g., bamboo or metal mesh) to balance privacy with visual connectivity to the beach and vegetation
- Embed water as a unifying element—private plunge pools, reflecting ponds at entry thresholds, and infinity edges that visually merge with the sea—to reinforce the coastal character
- Provide discrete service and staff facilities in detached pavilions to maintain the guest areas' serenity and avoid disruption of key vistas

CASE STUDIES & DESK APPRAISALS

PARAMETER	Live Case Studies		Desk Appraisals				Inferences from Case Studies
	Hotel Kohinoor	**Azzaro Resorts and Spa**	**Banyan Tree Corniche Bay**	**RAAS Chhatrasagar**	**RAAS Chhatrasagar**	**Four Seasons Resort**	
SITE AREA	3.5 Acres	2.5 Acres	212 Acres	3.99 Acres	1.50 Acres	35 acres	-
ARCHITECT	Rudra Natekar	Dipak Kamat & Associates	Foster + Partners	Studio Lotus	Studio Lotus	Dale Keller & Associates	-
SITE LOCATION	Fudam, Diu	Fudam, Diu	Corniche Bay, Mauritius	Nimaj, Rajasthan	Jodhpur, Rajasthan	Jimbaran Bay, Bali	-
CLIMATE	Coastal Diu climate — hot summers, windy (May–Sept), monsoon peak July; mild winters.	Coastal Diu climate — hot summers, windy (May–Sept), monsoon peak July; mild winters.	Tropical maritime — warm, humid, ocean-moderated with definite wet season.	Semi-arid climate — hot summers, seasonal monsoon, cool winters; lake and forest moderates microclimate.	Hot arid desert climate, very hot, dry summers, weak monsoon, and mild winters (Dec–Jan) with cool to chilly nights (~4–8°C). Low humidity, large day–night temperature swings, and frequent dust/wind are typical.	Tropical maritime — warm, humid, ocean-moderated conditions of Bali	Composite Coastal: very hot pre-monsoon, humid monsoon (SW sea breeze May–Sept), mild winters — **Design for cross-ventilation + monsoon rainproofing.**
SITE PLANNING	Low-rise bungalow clusters arranged around central pool/lawns; courtyards, shaded walkways and event lawn; centralized amenity core. 	Courtyard+pool-centric masterplan: Entrance Lobby → Pool → Clustered Deluxe Rooms, lawn, restaurant and private party spaces 	Low-density, low-rise villas on terraced spaces, linked by paths and bridges; golf course and hotel spine. 	Clustered tent-pods/suites raised on stilts along landscaped walkways; arrival via forested ramp to a central baradari deck. 	Three restored 17th–18th century haveli structures around a central courtyard, new contemporary framing buildings around the fort views. 	All-villa, low-rise beachfront plan — private courtyards and direct beach access, centered on pool and gardens. 	· **Low-rise**, Courtyard + Pool · **E–W building axes** · **SW-facing public terraces** to capture breeze **Elevated plinths** near shore and parking at entry.
ACCOMMODATIONS & TYPOLOGIES	**4 Blocks** B1 - Blue, 18 deluxe rooms,B2 - Red, 14 deluxe, 2 suite C1 - Green, Executive Deluxe 4 rooms C2 - Pink, Premium Deluxe 4 Rooms 	**Total 38 rooms** 36 Club Royal rooms @225 sq.ft each) + 2 suites Single-storey, one-floor distribution. 	**201 detached Hillside Villas** (private plunge pools) + Banyan Tree hotel and spa; Villa sizes 540–930 m² on 2–3 acres lots. 	**16 Luxury units** 12 luxury tents, 4 family tents Unit Sizes @510–682 sqft having private sit-outs, verandahs and panoramic lake/forest views. 	**39 rooms** 3 heritage suites in old haveli, 36 contemporary rooms  	**156 contemporary Balinese-style villas** Each with private pool and courtyard garden emphasises privacy and outdoor living. 	**Mixed Rooms Typologies:** Reconstruct Roytal Suites (Replica Building) **45 low-rise cottages** (sbilted where near tide/rock) **Private sit-outs and verandahs.**
AMENITIES	Central pool, waterpark, banquet hall, restaurant 	Large outdoor pool, full-service spa & wellness, restaurant & bar, fitness centre, parking, poolside lawns and private party spaces. 	9-hole Gary Player golf course, clubhouse, academy, beach club, spa, restaurants, extensive landscaped grounds. 	Restaurant/bar (baradari), infinity pool & deck, guided nature walks, jeep safaris, curated local food experiences. 	Central courtyard with pool, dining areas, spa, open lounges—all within restored historic spaces 	The Healing Village Spa (~2,000 m²) with specialised light, sound, colour therapy suites, yoga studio, fitness centre and Rossano Ferretti Hair Spa, multiple restaurants, Sundara beachfront, cooking academy, water sports and sunset cruises. 	**Central Ensemble:** · Central pool + courtyard · Baradari / Cultural pavilion **Nature's Forest Camp:** · Wellness (Gym / Spa) · Yoga & Meditation **Heritage Experience:** · Restoration of Palace as a Museum and heritage restaurant · Restaurant with SW promenade
ARCHITECTURAL FEATURES	Portuguese-inspired — arched openings, balcaos (balconies), colorful façades, red-tiled pitched roofs, verandahs and courtyards. 	Modern tropical: pitched tiled roofs, verandahs, courtyards, landscaped pool setting 	Undulating timber-shingle roofs, sculptural canopies, water-integration and landscape framing. 	Lightweight raised pods, continuous tensile canopies, metal privacy screens with bamboo infill, retractable skylights and verandahs framing sunrise & sunset. 	Foldable jharokha-style stone jaali screens for passive cooling and privacy; "lantern-like" framing of the fort; dialogue between old and new forms. 	Balinese pitched roofs, private courtyards, sweeping terraces, and water-suspended spa features framing views and rituals. 	**Deep overhangs** **Jaali screens** **Foldable jharokhas** for privacy & shading **High ceilings** **Shaded transition verandahs** Framed temple and sea views
INTERIOR DESIGN	Warm ambient lighting, contemporary furnishings; emphasis on natural daylight via large windows and verandahs. 	Elegant-minimal interiors with natural finishes — wood, terracotta/stone floors, locally crafted furniture; ambient lighting and local art motifs. 	Natural, warm palette — timber, organic finishes, indoor-outdoor living with terraces & yoga decks. 	Muted contemporary palette with Jodhpur stone, teak furniture, handcrafted textiles and local craft detailing. 	Hand-cut stone, pigmented cement terrazzo floors and furniture, sheesham wood furniture, authentic craftsmanship by regional artisans 	Warm natural palette with Balinese craft; seamless indoor–outdoor flow, generous terraces, and calming materials and finishes. 	**Warm, local palette:** Hand-crafted, stone flooring, terracotta roofs, minimal finishes in wet zones Use of **mosaic tiles to prevent salt erosion.**
BUILDING MATERIALS & TECHNIQUES	Brick masonry, tiled sloping roofs, vernacular detailing.	RCC frame + local stone/brick masonry; sloped Mangalore-tiled roofs, lime plaster and natural flooring.	Local volcanic rock, sustainably harvested timber shingles and timber structure; sculptural roofs that collect rainwater.	Lightweight metal framing with hand-dressed stone infill, timber joinery, tensile fabric canopies; raised stilts to protect embankment and services.	Jodhpur sandstone, lime mortar restoration, in-situ terrazzo, local woods—all handcrafted.	Brand materials emphasise nature inspired finishes and landscape integration, use of timber, stone, tropical planting and water features.	**Conserve Kaand limestone and lime mortar in palace**, for new constructions: stone infill, lime plaster where possible, raised precast plinths, corrosion-resistant metal, treated timber, fiber-cement
SUSTAINABILITY MEASURES	Passive ventilation (cross-ventilation, courtyards), landscaped buffers, rainwater harvesting, water-saving fixtures; low-rise layout to reduce HVAC loads.	Low-rise footprint, natural daylighting and cross-ventilation, courtyard & pool passive cooling, use of local materials, rainwater harvesting and landscaping for microclimate.	Rainwater harvesting & reuse, passive ventilation/daylighting, solar EV charging and energy-efficiency systems.	Elevated design for drainage and minimal site disturbance, use of local materials, passive orientation to frame views and drain rain directly into lake.	70% of materials and labor sourced within 30 km, rainwater harvesting, wastewater reuse (STP), solar-heated water, VRV air-conditioning, LEED-rated	Landscape-driven microclimate management, garden and water integration, use of lacally available materials.	On-site STP + greywater reuse, Rainwater Harvesting tanks, solar-heated water, local sourcing of labour & materials ≥70%, passive cooling (courtyards + cross-ventilation).
INFERENCES	Strong cultural identity + low-rise, pool-centric planning supports passive cooling and event programming; maintenance and coastal material durability are key weaknesses to address.	Compact, well-zoned plan that uses courtyards/pool for passive comfort; room sizes are modest — efficient for mid-market hospitality; good example of climate-responsive colonial vernacular fusion.	Eco-luxury resort, low-impact, landscape-first planning that pairs strong climate strategies with high-end villa privacy.	Sensitive, low-impact "rewilding" approach — frames biodiversity, uses local craft and materials, and balances luxury comfort with strong landscape and drainage strategies.	Exemplifies the fusion of heritage conservation with modern luxury; deeply rooted in local culture, craftsmanship, and sustainability; frames the fort as part of the guest experience.	The masterplan focuses on privacy, wellbeing and ritual — pairing traditional Balinese healing practices with high-tech treatments (Healing Village). The all-villa model plus water and landscape-first planning creates wellness tourism.	**Heritage-led resort:** Low-rise, landscape-first masterplan will: · Reduce HVAC/embodied carbon · Use salt-resistant construction & build with corrosion-proof finishes · Require CRZ approvals and staged phasing to minimise risk.

PROJECT BRIEF

Development of 3 ★ Resort at Chorwad, Gujarat

- **Tender Authority** - Tourism Corporation of Gujarat Limited (TGCL)
- **Proposal Year** - 2024
- **Estimated Project Cost** - 19.50 Crores (5 Crores reserved for the restoration of the Chorwad Palace)
- **Objective** - Promote tourism in Chorwad with restoration and adaptive reuse of Chorwad Palace with the development of a luxury beach resort.
- **Expected Impact** - Eco-Cultural revitalization, economic boost, tourism, heritage revival

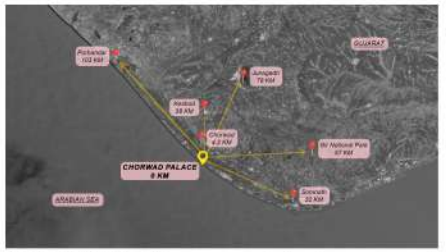


Google Earth Site Demarcation in Yellow

LOCATION DETAILS

Site Description

- **Site Location** - Chorwad, Gujarat
- **Site Coordinates** - 21.0004158640739, 70.22745634431269
- **Site Area** - 48,100 sqm / 11.88 acres
- **Site Context** - Coastal Heritage site on Arabian Sea, featuring a historic palace, rocky shoreline, and open beachfront.
- **Administrative Region** - Chorwad, Maliya Hatina, Junagadh District



Google Earth Site Proximities

Site Connectivity

- Chorwad Village Center - Approx. 4.2 KM
- Airport - Keshod Airport - Approx. 38 KM
- Railway - Chorvad Road - Approx. 11 KM
  Veraval Junction - Approx. 29 KM
- Bus - G.S.R.T.C. Chorwad - Approx. 4 KM

Landmarks and Tourist Spots

- Dadheswar Mahadev - Approx. 01 KM
- Somnath Temple - Approx. 32 KM
- Prabhas Patan Museum - Approx. 31 KM
- Triveni Sangam, Somnath - Approx. 31 KM
- Bhalka Tirth - Approx. 25 KM
- Veraval Fishing Harbour - Approx. 18 KM
- Sasan Gir National Park - Approx. 57 KM
- Junagadh - Approx. 71 KM
- Girnar Hill - Approx. 77 KM

SITE INVENTORY

1. Physical and Spatial Analysis

• Topography	• Central flat plateau at ~12 M where existing structures are present. • Steep seaward descends to 3-4 M with a smal drainage channel. • The NE and SE having gentler undulating slopes with access road.
• Contours	• Highest Contour - 12 M Height • Lowest Contour - 8 M Height
• Accessibility	• A single 6 M wide Approach Road • Accessible by G.S.R.T.C. Chorwad as well as by private vehicles. • Absence of existing pedestrian circulation and footpaths.
• Surrounding Landmarks and Views	• Unobstructed views from all directions clockwise • N, NE - Chorwad Village • E, SE - Chorwad Dock • S, SW, W - Arabian Sea • NW - Dadheswar Mahadev Temple
• Existing Structures and Boundaries	• Heritage Chorwad Palace(a) • Royal Dining Hall (later addition)(b) • Replica Building (later addition)(c) • Cottages (may be demolished)(d) • Existing boundary wall in some places

2. Environmental Analysis

• Flora	• Neem, Coconut, Mango, Casuarina Acacia, Banyan, Peepal, Pandanaus, Karanja, Alexandrian Laurel, Beach Morning Glory, Bougainvillea, Crinum Asiaticum, Plumeria
• Waterbody	• Site overlooking the Arabian Sea.
• Adjacent Marine Life	• Bangda (Indian Mackerel), Paplet (Pomfret), Khechi (Catfish), Kunga (Flying Fish), Rawas (Indian Salmon)
• Migratory Birds	• Moto Hanj (Greater Flamingo), Dhongili (Kentish Plover), Samanya Tutvari (Common Sandpiper), Kalo Pet Kichadiyo (Dunlin)
• Soil Type	• Calcerous white sand soil with sandy-clay loam
• Noise and Air Quality	• AQI - 37, Good • Sea Breeze carrying misst during high tides during monsoon season. • Steady, rhythmic rush of water breaking agaisnt sand and rocks.

3. Cultural & Social Analysis

• Community Engagement	• Visited by the local villagers and adjacent towns for leisure. • People spending time with their families in the shaded areas with their children asleep on hammocks.
• Ethnic and Demographic Profiles	• Population of 21,196 in village • About 1200-1500 people visit on weekends (as per the maintenance staff)
• Languages and Dialects spoken	• Gujrati (widely spoken), Kathiawadi, Hind, Sindhi

4. Infrastructure & Utilities Analysis

• Water Supply	• Water is supplied from the storage at the Meghal Tidal Regular Check Dam, located on the Vrajmi River.
• Electrical Supply	• 66KV Adri (GETCO) (8.5 KM)
• Wastewater Management	• No exisiting facilities

5. Legal & Regulatory Analysis

• Zoning and Land-use	• Site is not under municipal limits.
• Regulatory Guidelines Followed	• Gujarat Bye-Laws : CGDCR-2017 GCDCR-2017, GCZMA-Junagadh -2023, CRZ-2001
• Ownership and Rights	• Owned by the Tourism Corporation of Gujarat Limited (TCGL)

CLIMATE ANALYSIS

Type of Climate - Composite (hot-dry in summer, warm-humid in monsoon, mild winter)

Latitude 21.0004 | Longitude 70.2274

Temperature

- Summers - Average Range: 25°C - 31°C
- Winters - Average Range: 20°C - 25°C
- Maximum Temperature: 42.1°C
- Minimum Temperature: 11.9°C

Season	Months	Avg. Temperature (°C)	Typical climate / notes
Winter	Dec – Feb	20°C – 24°C	Mild, dry and pleasant. Clear skies, low humidity, comfortable days, cooler mornings.
Summer	Mid – May	24°C – 31°C	Gradual warming; humidity rises towards May. Afternoons get hot (peak in May), but sea breeze moderates temperatures compared with inland Gujarat. Thunderstorms/heat-haze possible late in the season.
Monsoon	Jun – Sep	26°C – 29°C	Southwest monsoon — majority of annual rainfall. High humidity, overcast skies, frequent heavy showers and brief thunderstorms.
Autumn	Oct – Nov	23°C – 28°C	Humidity falls, mostly clear skies and pleasant conditions — warm days and comfortable evenings.

Rainfall

- Annual - 1100 mm (July–Sept)
- Peak Rainfall: July (426 mm)

Wind Analysis

- Summer: Predominantly SW
- Winter: NE, drier and cooler



Wind Rose Diagram

Humidity

- Highest: 89.7% (Aug)
- Lowest: 35% (April)
- Humidity rises from May
- Peaks in July–Sept



Humidity Yearly Chart

SITE ANALYSIS

Strength :
- Very peaceful and pretty — a great place to relax.
- Lots of historic character because of the nearby palace and heritage.
- Beautiful sunrises and sunsets with a natural, scenic background.

Weakness :
- Not safe for swimming — there have been drowning incidents.
- Very few facilities and services on site with little to no maintenance
- Non-maintained buildings may be hazardous to human life.

S W O T

Opportunity :
- Could attract visitors by developing a palace-themed or heritage resort.
- A picturesque spot for exploring local culture.
- Could generate employment in the local community.

Threat :
- Dangerous sea conditions during the peak monsoon seasons.
- Extreme weather: very hot summers and rough seas during the monsoon.

INFERENCES

Zoning

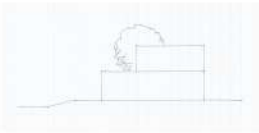
- **Location of Accommodations** - North, East and North- West
  - Maximizes ventilation throughout the day
  - Provides views of Arbian Sea, Dock and Garden
- **Recreational Activities** - Central to the site
  - Creates a niche of existing + new structures
  - Ensures daylight and accessibility
- **Existing Structures** - Restoration and Reconstruction
  - Heritage Restoration of Chorwad Palace
  - Reconstrucution of other buildings
- **Wellness Centre and Spa** - North
  - Accessible and Peaceful between the foliage of trees

Climate Inferences

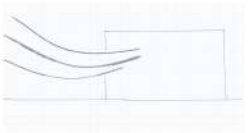
- **Orientation** - Long axis E-W to reduce glare on E-W walls
  - Maximizes ventilation throughout the day
  - Openings and shaded courtyards on SW oriented.
- **Prevailing Winds** - SW - NE
  - Summer W / SW sea breezes and westerly flow
  - Winter N / NE cooler and calmer winds
  - Staggered Layout to reduce wind obstruction and smoother air flow
- **STP** - Located at lower elevation for efficient drainage
- Use of traditional passive cooling: jalis, courtyards, waterscapes



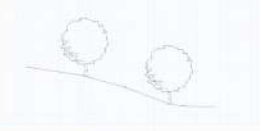
Extraction of maximum outdoor spaces as the area has soothing sound along nature.



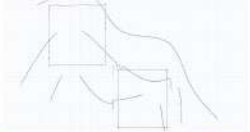
Providing terraces for picturesque views all around the site.



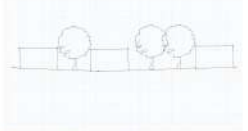
Orient courtyards and windows towards SW for maximum ventilation and views.



Drainage will be from positive to negative of the contour of the site.



Maximizing orientation towards the SE to NW direction clockwise for the sea and dock view



Design will respect the tropical greenery and vegetation around.

BYE-LAWS DATA

Gujarat Comprehensive Development Control Regulations - 2017

- **FAR and Ground Coverage -**
  Chorwad Category for development - D7
  Site Area - 11.88 Acres / 48,100 SQM
  For building Units with area more than 1500 SQM, Ground Coverage = 65%

- **Total Permissible Built-up Area -**
  Site Area x FAR = 48,100 x 1.8
  = 86,580 SQM

- **Ground Coverage - 65%**
  Site Area x 65% = 48,100 x 0.65
  = 31,265 SQM

Zone	Permissible FAR	Maximum Permissible Height
Residential-Commercial	1.8	16.5 M

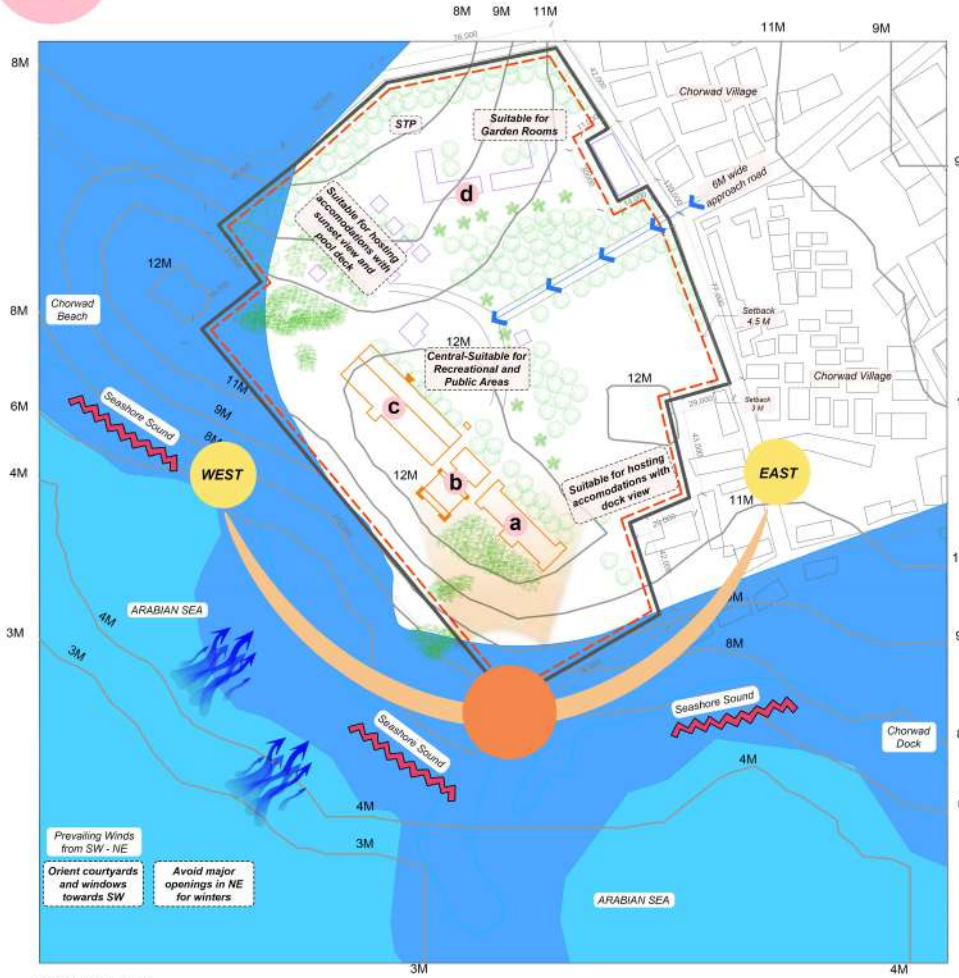
Use	Plot Size(PS), Building Height(BH)	Rear	Side
Residential and Others	PS>1000SQM BH≥16.5M	4.5 M	3M

- **Parking Requirements**

Type of Use	Minimum Parking	Visitor's Parking
Commercial	50% of utilised FAR	20% of required

Other Bye-Laws Followed -

- **TSS - Time Saver Standards**
- **Heritage Tourism Policy for the State of Gujarat**
- **CONSERVATION OF HERITAGE SITES INCLUDING HERITAGE BUILDINGS, HERITAGE PRECINCTS AND NATURAL FEATURE AREAS**



SITE PLAN



SECTION 01



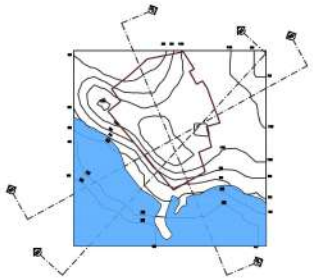
SECTION 02



SECTION 03

LEGENDS

- Heritage Building (a)
- Royal Dining Hall (b)
- Replica Building (c)
- Existing Cottages (d)
- Temple
- Ground Line
- Site Boundary
- Existing Building
- High Tide +4 M
- Low Tide -0.8 M
- Highest Contour - 12 M
- Lowest Contour - 8 M
- Ridge Line
- Valley Line
- 0-5 %
- 5-10 %
- 10-15 %
- 15-20 %
- 20-25 %
- Tropical Indian Trees
- Coconut Tree
- Vegetation



KEY PLAN (NTS)



SLOPE AND DRAINAGE ANALYSIS



Neem Tree



Coconut Tree



Casuarina Tree



Mango Tree



Acacia Tree



Banyan Tree



Peepal Tree



Crinium Asiaticum



Karanja Tree



Plumeria Tree

VEGETATION

04 EXISTING BUILDINGS CONDITION ANALYSIS

CHORWAD BEACH RESORT

ARCHITECTURAL THESIS 2025

HISTORICAL BACKGROUND

- **Year of construction -** 1930
- **Original use -** A Summer Seaside Palace for Royals of Junagadh
- **Architectural style -** Blend of Indo-Islamic and Italian/Colonial elements
- **Later Use -** Taken over by the Tourism Corporation of Gujarat (TCGL) in the 1970s and operated as a government "holiday camp" from 1974–79 onward; gradually falling into disrepair thereafter. There are no records of any heritage restoration/conservation tender specifically for Chorwad Palace prior to 2025.

BYE - LAWS & RESTRITIONS

Heritage status: Grade-II (MoHUA Bye-Laws of Conservation)

AMASR Act, 1958 defines 100 m "prohibited zones" and 200 m "regulated zones" around protected monuments. Restoration or construction within these zones requires approval from the Competent Authority and potentially expert.

Aspect	Guidelines for Grade II Heritage (Gujarat)
Permitted Changes	Interior changes, adaptive reuse, sensitive extensions/additions (Grade II-B), structural strengthening, renewable installations, etc.
Prohibited Actions	Demolition, reconstruction, façade alteration, removal of original artwork (unless cleared by HCC)
Approval Process	Must obtain clearance from HCC (or Vice-Chairman) based on HCC advice; decisions usually within 30 days
Surroundings	Development nearby must preserve views and not diminish building's grandeur
Zone-specific rules	No basements, limited height (max 9m), no road widening, transparent low compound walls, maintain FSI limits

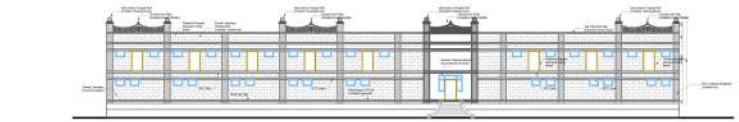
CONDITION REPORT

ELEMENT	LOCATION	PHOTOS	DEFECT	SEVERITY	URGENCY
Foundation	Seaward/ground contact beneath plinth (visible rubble at base)	-	Stones and soil at the base are exposed and washed away.	Moderate	Medium term
Plinth	Bottom perimeter and entrance steps		Stones missing, crumbling mortar, gaps.	Moderate	Medium term
Wall material	External façades and internal partition walls		Mortar falling out, loose and broken stones	Moderate	Short term
Flooring	Ground-floor interiors / entrance areas		Layer of debris and rubble; original floor finishes not collapsed/missing	High	Immediate (restrict entry); repair after structure stabilised
Roof	Roof slab & parapet, internal ceiling plaster		Large cracks, plaster falling	High (safety hazard)	Immediate — danger of collapse
Joinery	All openings (arched windows, doors, frames)		Missing/broken timber frames, shattered/boarded openings, unsecured openings.	Medium–High	Short term (security & weatherproofing)
Plaster	Internal & external wall surfaces		Plaster peeled or missing; salt stains and mould growth.	High	Short term
Finishes	External façade ornament, interior finishes, tiles (toilet)		Decorative elements eroded, paint/finishes lost, tiled WC intact but dirty; overall finish failure.	Medium–High	Medium term (rehabilitation after structure)
Drainage	Ground around building, entrance approach, vegetation zones	-	No visible functioning drains; blocked channels, surface ponding, vegetation against walls accelerating moisture ingress and	High	Short term — urgent to re-route/runoff

DOCUMENTATION - PLANS / ELEVATIONS / SECTIONS



Elevation E1



Elevation E2



Elevation E3

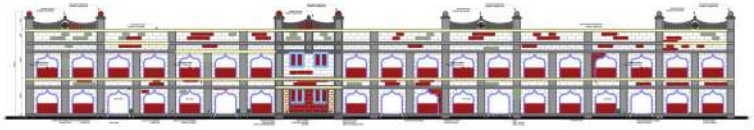


Details of Doors / Windows / Arches



CRACK MAPPING

SEVERITY LEVELS





LEGEND

HIGH

MODERATE

LOW

(THE EXACT MEASURES AND APPROACHES TO BE TAKEN CAN BE DETERMINED BY Laboratory tests SUCH AS: Mortar analysis / petrography / salt analysis / paint analysis)

COMMON STRUCTURAL PROBLEMS NOTICED

1) **Salt Air Damage (Seaside location):** Lime mortar joints between stones are wearing away.
2) **Cracks and Collapses:** Arches and walls show cracks due to missing stones, no side support, or movement in foundation.
3) **Corroded Iron:** Metal rods and beams are rusting badly, especially in RCC slabs.
4) **Plant Growth:** Vegetation is growing through cracks, breaking the structure more.
5) **Plaster Damage:** Decorative plaster is peeling, falling, or missing.
6) **Foundation Issues:** Some parts are sinking—maybe due to bad drainage or soil erosion.
7) **Rainwater Problems:** No visible rainwater pipes, so water might be collecting and damaging the walls.

MATERIAL STUDY & INFERENCES

MATERIALS USED IN THE PALACE

1) **Walls:** Made of stone blocks, held together with lime mortar (a traditional mix that lets walls "breathe").
2) **Plaster Work:** Thin layer of lime plaster or stucco, especially around arches and decorative areas.
3) **Arches & Openings:** Built using stone pieces arranged in curves (called voussoirs).
4) **Roof/Ceilings:** Some parts have old wooden beams, but others were later replaced with RCC (Reinforced Cement Concrete) slabs.
5) **Decoration:** Includes jharokhas, battlement-style railings, cornices, and stone bands.
6) **Other:** Iron or wooden joists for roof support (many are missing now).



CONSERVATION APPROACHES

i. "Preservation" means and includes maintaining the fabric of a place in its existing state and retarding deterioration.

iv. "Restoration" means and includes returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without introducing new materials.

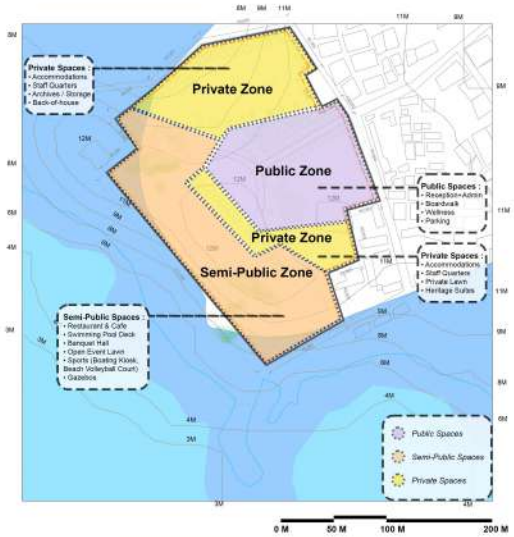
v. "Reconstruction" means and includes returning a place as nearly as possible to a known earlier state and distinguished by the introduction of materials (new or old) into the fabric. This shall not include either recreation or conjectural reconstruction.



ZONING

Initial Zoning : Public, Semi-Public and Private Areas

- **Public Areas** - Open to all users (guests / staff / outsiders / visitors)
- **Semi-Public Areas** - Services, utility & staff quarters, restricted to guests or paid users
- **Private Areas** - Reserved for resort guests & staff



SPACE ALLOCATION

Space Allocation Criteria :

- **Scenic Views** - Oriented toward all sides of the Arabian Sea
- **Coastal & Ecological Buffer** - Protecting tidal zones while ensuring beach access.
- **Pedestrian Circulation** - An Accessible, Planned network of paths in a clear hierarchy



CONCEPT

Coastal Sanctuary : A sacred leisure in trees, calm and spirituality.

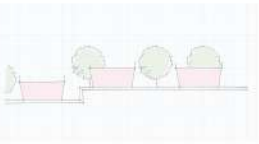
Description - An experience blending heritage and wellnes, where tree lined paths and garden rooms open to sunset framed pavillions over the sea. Making movement itself meditative, the 3 Star Heritage Resort caters to a mix of Pilgrims of Somnath Temple as well as Eco-tourists of Gir National Park.

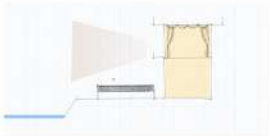
Historical Context	1. Built c.1928-30 by Nawab Muhammad Mahabat Khanji III as a seaside summer palace and royal retreat. 2. Converted into a government beach resort in the 1970s and neglected by the 2000s, creating an urgent conservation need.	1. Somnath is an ancient, sea-facing Shiva shrine (a famed jyotirlinga) whose repeated destruction and rebuilding over centuries made continual restoration and ritual practice central to the community's identity -devotion here reads as resilience and renewal. 2. Spirituality at Somnath is lived as cyclic purification and service: sea-cleansings, circumambulation and festivals turn life into a rhythm of devotion, charity and reverence for nature, linking inner renewal with the coastal landscape.
Architectural Influence	1. Mixes Italian/Muslim/colonial elements-arched windows, verandas, cornices-built of basalt, limestone, lime plaster and timber for thermal mass and cross-ventilation. 2. Preserve massing and high openings, repair with local materials and lime mortar, and add low-rise cottages that echo verandah depths and cornice lines for coastal resilience.	1. Staged sensory route (trees, water, framed views) that reads as a ritual approach for Somnath pilgrims and a mindful nature promenade for Gir eco-tourists. 2. Design as stewardship (local materials, verandahs, courtyards, soft lighting) creating humble devotional spaces and quiet wildlife-watching.
Examples	 	 

IMPLEMENTATION IN DESIGN

1. ABSTRACT

The staggered, slanted-form cottages form a meditative flow — compact, sheltered units that step with the contour to frame sunset and forest views while minimizing disturbance of abundant presence of greenery.



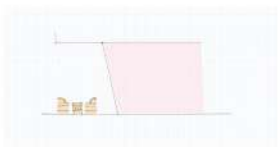


2. INSPIRATION

Design replicating the nature of Gir forest. Preserve canopy of trees followed by narrow paths, materials and colors to blend with nature. Small private niches for yoga & meditation.







3. HERITAGE & SUSTAINABILITY

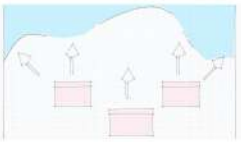
Passive cross-ventilation, shaded verandahs, native planting, integrate Junagadh's Indo-Saracenic vernacular architecture.





4. COMPOSITION

Rowed cottages with long axes toward the views, service cores to the village side, covered verandas and fraamed pavilions.



5. ORIENTATION

Living & veranda faces W-SW towards sunsets, bedrooms oriented to capture morning light and cross-ventilation, circulation as narrow, shaded paths that prioritize privacy and makes one feel closer to nature and oneself.

INFERENCES FROM CASE STUDIES

1. Incorporation of local activities

- Boating
- Swimming pool deck with sunset view
- Using whirlpools and jacuzzis
- Practicing yoga on private decks
- Relaxing in saunas and spas
- Enjoying beach club facilities



- Birdwatching around the sea
- Enjoying sundowners in scenic spots
- Socializing in the tented sitting room
- Stargazing around a campfire
- Dining with local, organic, home-style meals
- Relaxing on private verandas with panoramic views





2. Sustainability Measures

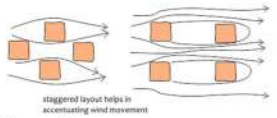
- **Water management:** Rainwater collection, treatment, and reuse; water features integrated into design.
- **Energy efficiency:** Solar panels for powering on-site electric vehicles; highly integrated systems aiming for net-zero operation.
- **Climate-responsive architecture:**Undulating timbe shingle roofs maximize cross-ventilation and daylight while blending into tropical canopy.
- **Landscape integration:** Low-rise, nature-harmonized forms; lush vegetation "green fingers" toward the sea.
- **Passive cooling & shading:** Tensile-fabric canopies, deep verandahs, and retractable skylights for thermal comfort.
- **Cultural integration:** Interiors feature local flora/fauna motifs, hand-crafted furniture, and traditional craft techniques.

3. Materials and Color Palette

- **Local materials:** Rock, sustainably harvested timber shingles, and indigenous wood.
- Water as a recurring design element (pools, ponds, water features).
- **Color Palette:** Natural earthy tones from kaand stone (dark greys, browns)
- Lush green vegetation as visual accent
- Blues and aquas from integrated water features.



INFERENCES FROM CASE STUDIES



A staggered form creates stepped overhangs that provide self-shading and sequential openings that direct airflow, reducing solar gain while enhancing cross-ventilation for cooler, naturally ventilated interiors.

Staggered Form

The south-facing cottages use stepped setbacks to provide mutual shading and channel the prevailing SW breeze for strong cross-ventilation. Terraces frame protected SW sunset views while deep overhangs and adjustable screens limit late-afternoon heat.



Apt Ventilation from SW

Atharv Bhatt | 211110213 | Semester IX
Thesis Guide - Ar. Savita Raje



SITE PLAN

Information -

- **Site Area - 11.88 acres / 48,100 SQM**
- FAR - 1.8 permissible, Maximum height - 10.5 M
- Ground Coverage - 65% = 31,265 SQM
- Setbacks - 4.5 M rear, 3.5 M other sides

- **Total parking provided - 96 ECS**
- **Amenities** - Swimming pool, Infinity public pool, viewing deck, bicycle / EV driven paths, camel ride experience, public plaza, health & wellness center

- **Ground Covered - 13.5% = 6,500 SQM**
- Admin - 200 SQM
- Accommodations - 3270 SQM
- Health , wellness & spa - 400 SQM
- Restaurant & Cafe - 230 SQM
- Heritage Building - 500 SQM
- Services - 300 SQM
- Staff Quarters - 650 SQM
- **Height Achieved - 8 M**
- **FAR Achieved - 0.2 (built-up - 10,000 SQM)**

Transport Choices -



Camel ride taking the guests after the check-in to their respective suites.



EV Ride carrier for luggage as well as elderly people.



Bicycle ride experience taking the guests after the check-in to their respective suites.

Area Programming -

ACCOMMODATIONS



AMENITIES (SPA & WELLNESS CENTRE)



HERITAGE BUILDING (RESTORATION)

PURPOSE - GROUND FLOOR - MUSEUM + WORKSHOP
FIRST FLOOR - HERITAGE F&B RESTAURANT

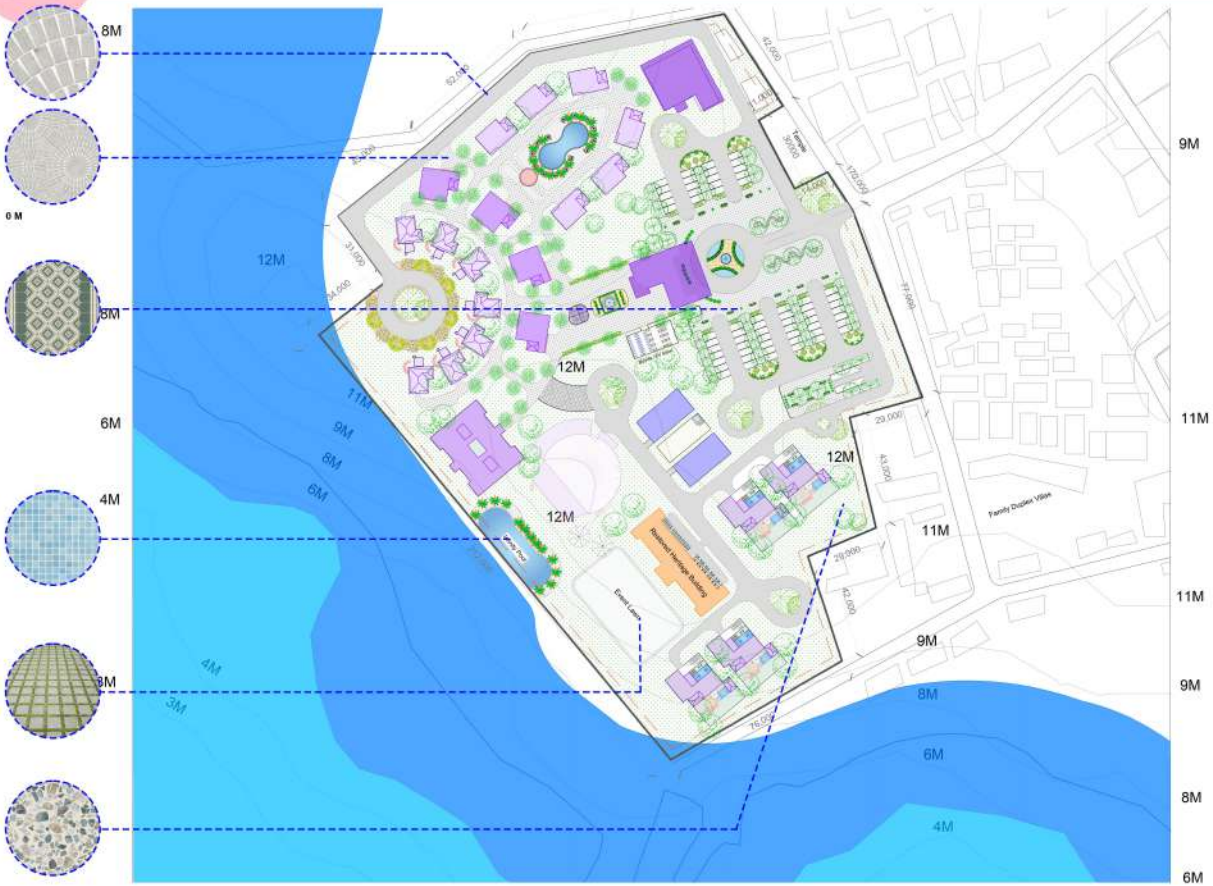
CASE STUDIES AREA COMPARISON



PROPOSED SITE PLAN WITH ROOF PLANS



SITE PLAN

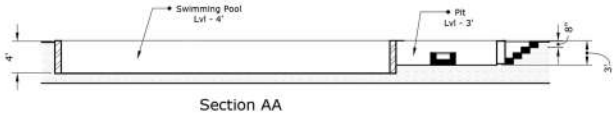


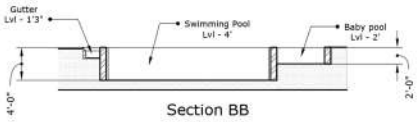
Shrubs

Local Name	Botanical Name	Type / Use	Image
Crinum	Crinum asiaticum	Coastal shrub	
Aloe Vera	Aloe vera	Succulent	
Indian Hawthorn	Rhaphiolepis indica	Structured	
Ixora	Ixora coccinea	Flowering	

Lighting

Type	Description	Zone	Image
Lime-washed Pillar Lanterns	Stone/metal lanterns	Pathways	
Bracket Lanterns	Indo-Islamic lighting	Verandahs	





SITE PLAN

POOL SECTION DETAILS

Flowering Trees

Local Name	Botanical Name	Description	Height & Spread	Legend	Image
Frangipani	Plumeria rubra	Sculptural branches, coastal flowering	6–8 m H, 5–6 m S		
Cerbera	Cerbera manghas	Glossy leaves, coastal tolerant	6–10 m H, 3–5 m S		
Alexandrian Laurel	Calophyllum inophyllum	Evergreen, fragrant flowers	8–12 m H, 6–8 m S		
Mango	Mangifera indica	Broad crown, seasonal flowering	10–15 m H, 10–12 m S		

Native Trees

Local Name	Botanical Name	Where Planted	Why	Legend	Image
Neem	Azadirachta indica	Near cottages	Shade		
Pandanus	Pandanus tectorius	Near beach edges	Salt tolerant		

Bougainvillea

Local Name	Botanical Name	Application	Height/Spread	Legend	Image
Bougainvillea	Bougainvillea glabra	Privacy partition	2–4 m H, 3–5 m S		

Creeper

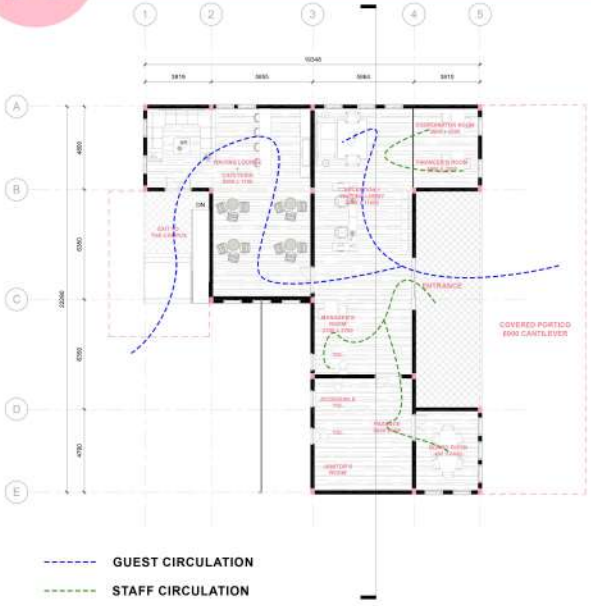
Local Name	Botanical Name	Use	Legend	Image
Beach Morning Glory	Ipomoea pes-caprae	Coastal stabilising creeper		

Pavement Materials

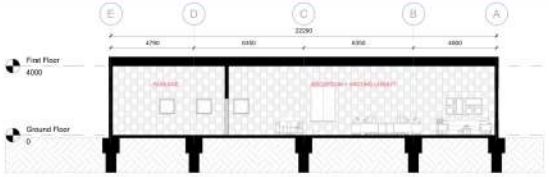
Zone	Material	Notes	Image
EV Pathways	Eco-pavers	Permeable	
Internal Roads	RCC concrete	Vehicular	
Kid's Play Area	EPDM rubber	Impact absorbent	
Swimming Pool	Mosaic tiles	Pool finish	
Fountain Pedestal	Bush-hammered stone	Non-slip	
Decking	Engineered wood deck	Coastal rated	

Local Herbs

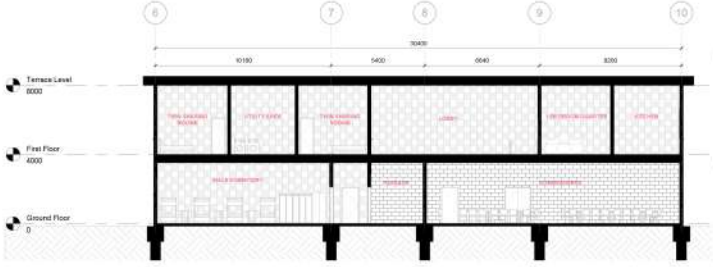
Herb	Botanical Name	Use	Image
Lemongrass	Cymbopogon citratus	Tea, aroma	
Mint	Mentha arvensis	Cooking	
Ajwain	Trachyspermum ammi	Flavouring	



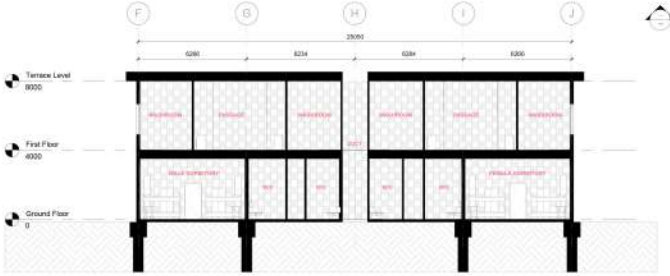
ADMIN - FLOOR PLAN (1:150)



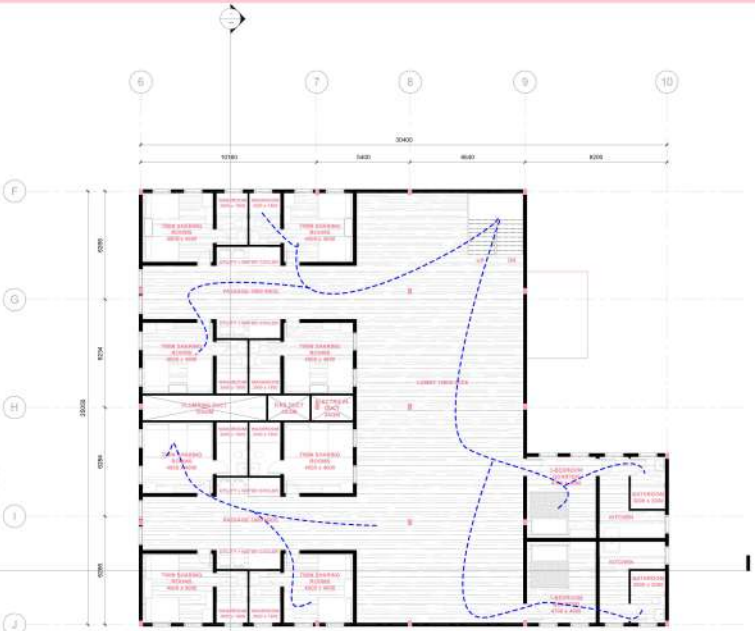
ADMIN - SECTION



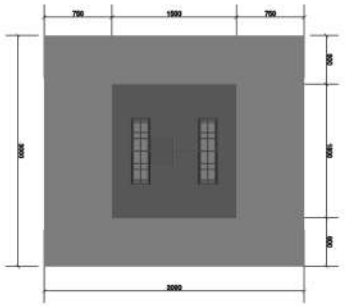
STAFF QUARTERS - SECTION 1



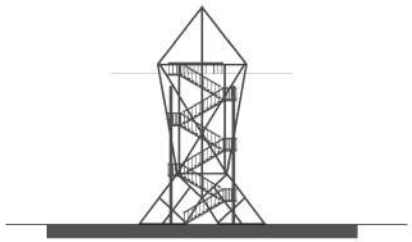
STAFF QUARTERS - SECTION 2



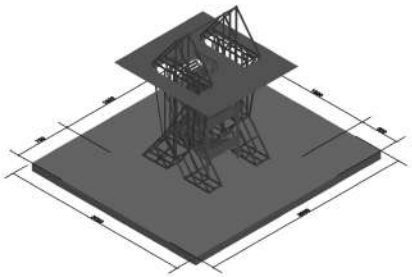
STAFF QUARTERS - FIRST FLOOR (1:150)



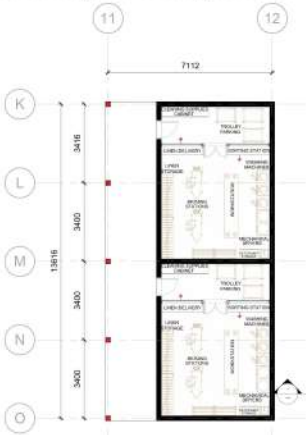
BIRD OBSERVATORY AT BEACHFRONT - PLAN (1:50)



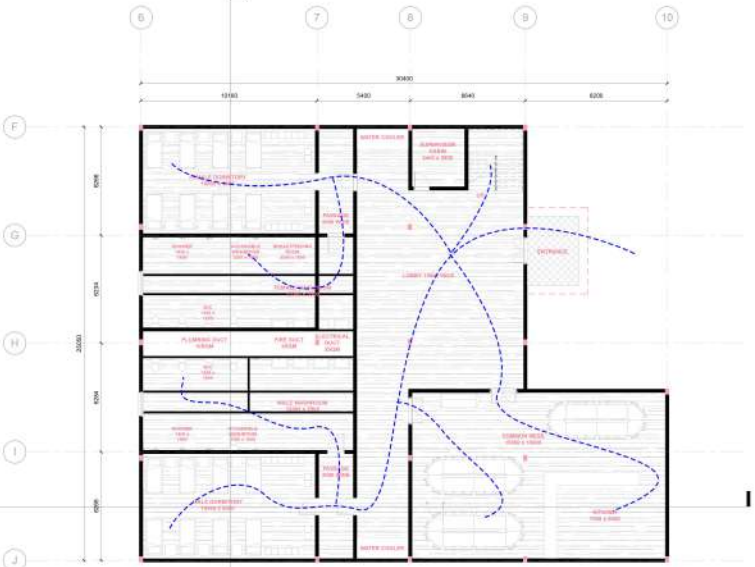
BIRD OBSERVATORY AT BEACHFRONT - ELEVATION



VIEW



HOUSEKEEPING ROOM (1:100)



STAFF QUARTERS - GROUND FLOOR (1:150)

ACCOMMMODATION TYPE 1: HERITAGE SUITES

01

HERITAGE SUITES

INFORMATION

Concept - A pol experience by the beachfront - framed sunsets, traditionally crafted roms, along a central courtyard, a G+1 cluster of 8 pol houses with a rooftop private dining with views to all the campus and adjoining frames.

Total Units - 8
Size - 90 SQM (970 Sqft) / Unit
Occupancy - 2 Adults + 1 Child

Guest Profile - Heritage Enthusiasts
- Beachfront Luxury Couples
- Beachfront Luxury small family
- Culture-luxury seekers
- International Travelers

Views - Infinity Swimming Pool Deck
- Dadheshwar Mahadev Mandir
- Sunset / Sea View
- Heritage Building

Unique Features - Direct Infinity Pool Access
- Traditional Pols living experience
- Private Otla with sunset / sea view
- Central tulsi angan
- Modern Heritage construction
- Carved Jaali box-window
- Traditional Snan Ghar reimagined
- Rooftop deck with exclusive private dining

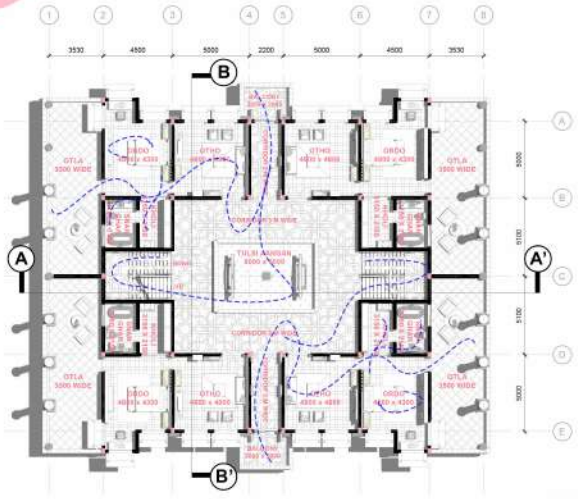
Decor / Material Palette - Clay pavers in tulsi aangan
- Terracotta glazed tiles for snan ghar
- Carved teak bed
- Athangudi tiles flooring
- Marble-inlay verandah (otla)



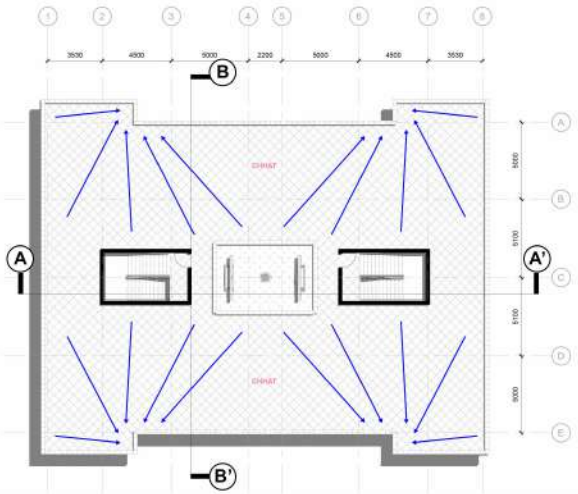
Design Considerations



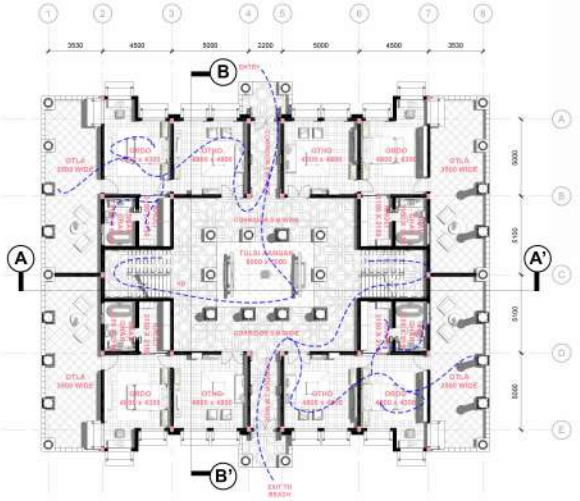
Design Considerations



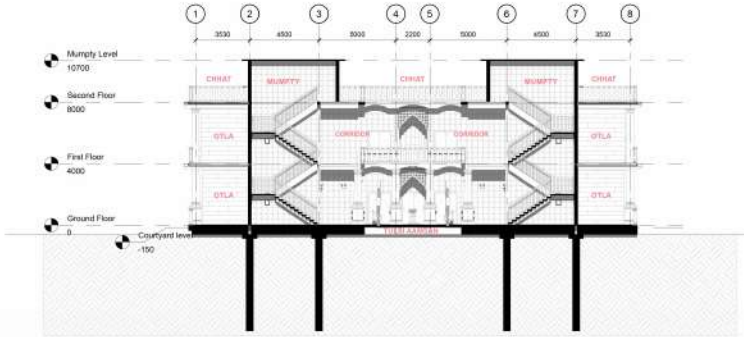
FIRST FLOOR PLAN



TERRACE PLAN



GROUND FLOOR PLAN



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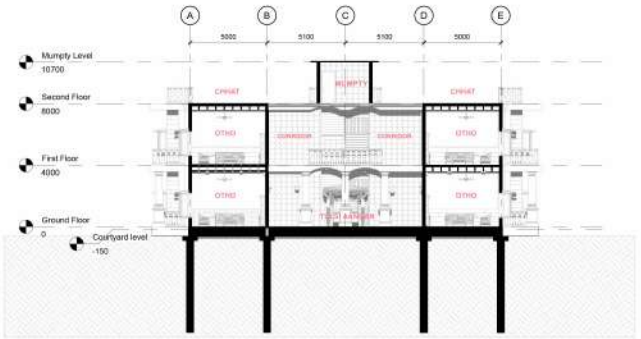

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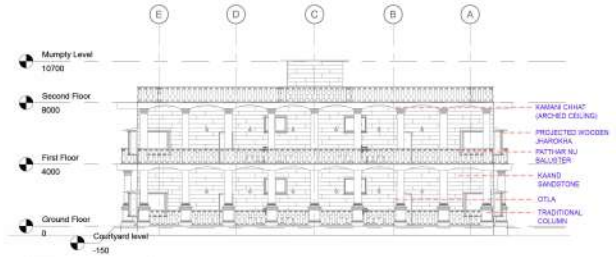
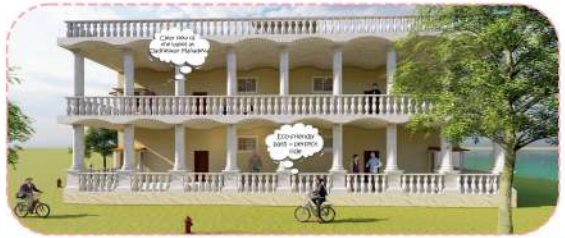


SIDE ELEVATION

3D VISUALIZATIONS

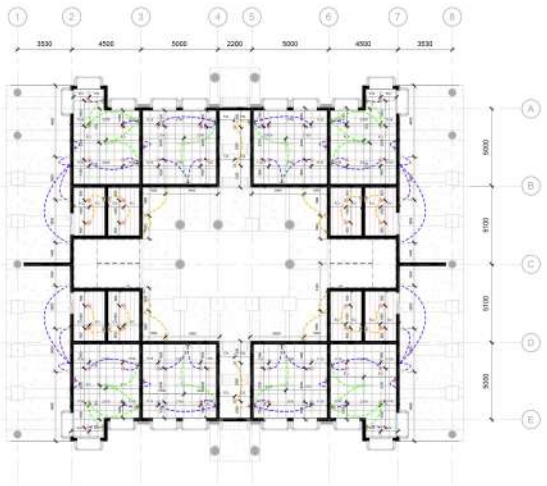




0 M 5 M 10 M 20 M

SCALE - 1:150

Atharv Bhatt | 211110213 | Semester IX
Thesis Guide - Ar. Savita Raje



GROUND FLOOR ELECTRICAL LAYOUT

WIRING			
	SINGLE CONNECTION		WALL LIGHT
	SERIES CONNECTION		CEILING LIGHT
	TWO-WAY CONNECTION		BALCONY WALL LIGHT
	SWITCH BOARD		CEILING FAN

S. No.	FIXTURE	POWER RATING	COUNT	IMAGE	COST	MANUFACTURER	URL
1)	Ceiling Fan	100 W	16		3,900-4200 / unit	Garuday Electrical Works	https://www.justdial.com/Jitwari/Gandhinagar-Gujarat/Standard-Ceiling-Fan/pid-10104908-wnr4-3.8842679
2)	Traditional Ceiling Light	60W-120V	104		999 / unit	BDCraft Store	https://www.amazon.in/Bedcraft-Vintage-Antique-Dining-Iron-Included/dp/B0B4KX7YCV/ref=pd_day_0_sccl_1_1/521-1752106-9784665?pd_rd_w=1Z5Bk&content-
3)	Wall Light	100W-120V	16		1215 / unit	Lal Haveli Store	https://www.amazon.in/Rajasthani-Handmade-Mosaic-Decorative-Indian/dp/B01B6FMQPW
4)	Balcony Wall Light	120 V	24		5500 / unit	The Black Steel	https://www.theblacksteel.com/products/tbs-golden-ring-wall-lamp

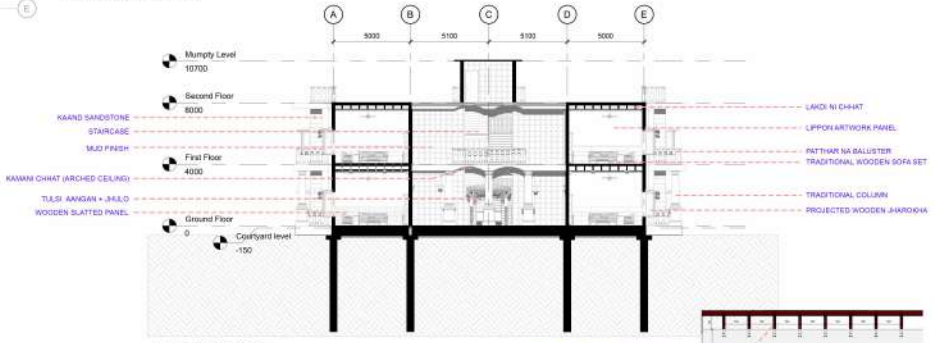
ELECTRICAL FIXTURES DETAILS



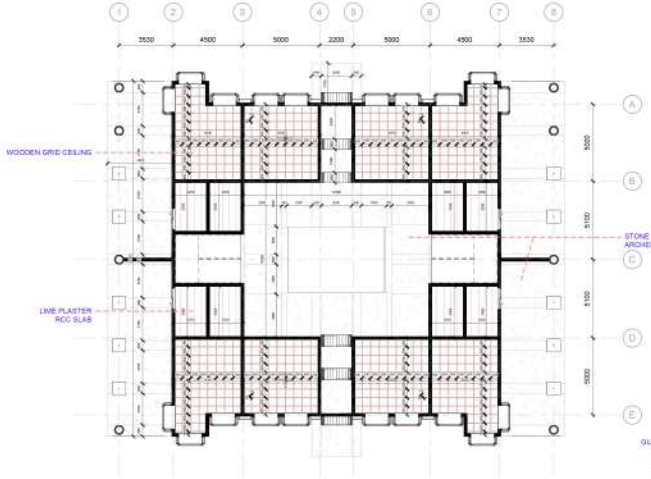
MATERIAL / COLOR PALETTE

SWITCH BOARD	HEIGHT (FROM FFL)	FIXTURES							SWITCHES		
		Ceiling Fan	Ceiling Light	Wall Light	Balcony Wall Light	Regulators	6 Amp Socket	16 Amp Socket	6 Amp 1-way	6 Amp 2-way	16 Amp 1-way
GROUND FLOOR											
SB01 (SB11, SB21, SB31)	1200	1	2	-	-	1	2	-	4	1	-
SB02 (S12, S22, S32)	1200	1	2	-	-	1	2	1	4	1	1
SB03 (SB13, SB23, SB33)	1200	-	-	-	-	-	1	2	1	-	2
SB04 (S14, SB24, SB34)	900	1	2	-	-	1	2	-	4	1	-
SB05 (SB15, SB25, SB35)	900	1	2	-	-	1	2	-	4	2	-
SB06 (SB16, SB26, SB36)	1200	-	-	-	-	-	1	2	1	-	2
SB07 (SB17, SB27, SB37)	1200	-	2	-	-	-	1	1	2	1	1
SB08 (SB28, SB28, SB38)	1200	-	2	-	-	-	-	1	-	-	1
SB09 (SB29, SB39, SB49)	1200	-	2	-	-	-	-	1	-	-	1
SB10 (SB30, SB30, SB40)	1200	-	-	-	3	-	2	1	5	-	1
SB41 (SB44)	1200	-	2	-	-	-	-	-	1	-	-
SB42 (SB43, SB45, SB46)	1200	-	-	2	-	-	-	-	1	-	-
SB47 (SB48)	900	-	-	1	-	-	1	-	2	-	-

ELECTRICAL SCHEDULE



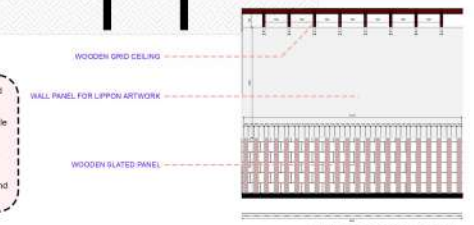
SECTION AA'



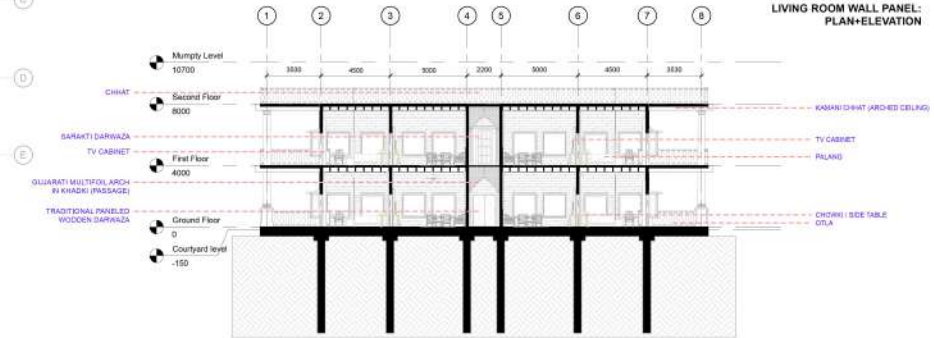
GROUND FLOOR FALSE CEILING LAYOUT

concept

- Warm interiors echo Gujarati Pol houses, with carved wood, lime-plastered arches, and kaand sandstone suited to coastal climate.
- Timber grid ceilings and traditional furniture create a familiar character while adapting well to seaside conditions.
- The snan ghar feels calm and old-school, with lime-plaster patterns, brass fittings, and ample daylight for a fresh coastal atmosphere.
- The tulsi aangan forms the heart of the home, framed by kamani arches and ottas, opening to soft sea breezes and old neighbourhood charm.



LIVING ROOM WALL PANEL: PLAN+ELEVATION



SECTION BB'



OTHO / LIVING AREA



ORDO / BEDROOM

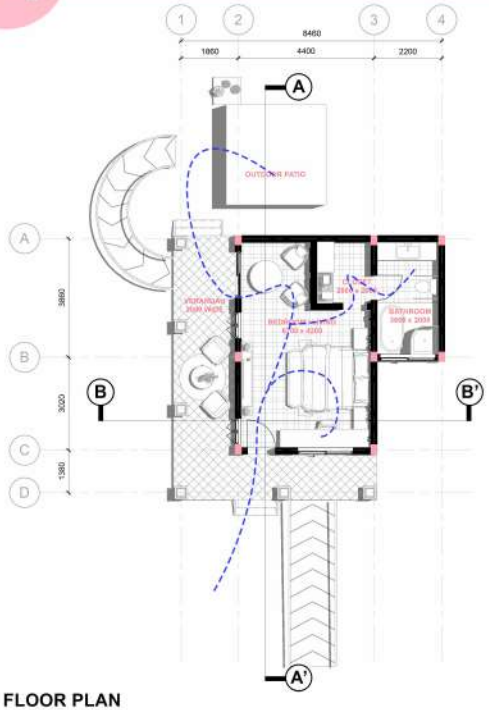


SNAN GHAR / BATHROOM

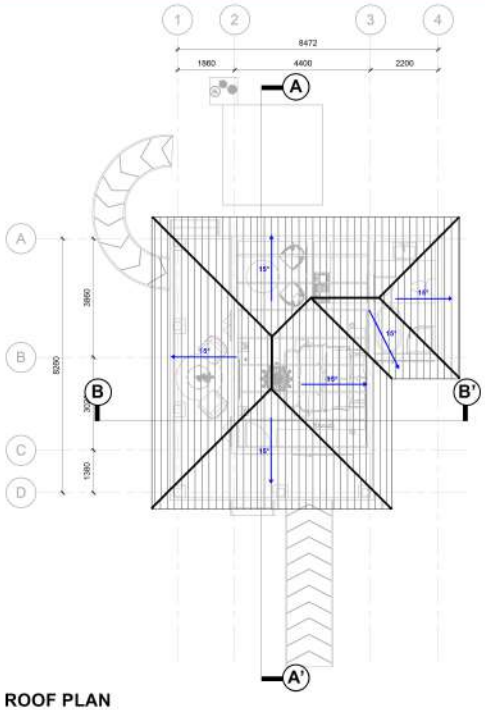


TULSI AANGAN

ACCOMMMODATION TYPE 2: PATIO-DECK SUITES



FLOOR PLAN



ROOF PLAN



ENTRANCE



VERANDAH

PATIO-DECK SUITES

02

INFORMATION

Concept - Minimalistic style, nature-integrated units with private pavilions for yoga and meditation. They offer calm, privacy and indoor-outdoor flow and caters to guests wanting a quiet and spiritual retreat.

Total Units - 7
Size - 60 SQM (650 Sqft) / Unit
Occupancy - 2 Adults + 1 Child

Guest Profile - Pilgrims visiting Somnath Temple
- Eco-tourists of Gir National Park needing to stay close to nature
- Spiritual and devotees
- Guests needing calm, quiet and digital detox
- Individuals wanting private yoga / meditation

Views - Shree Hanuman Mandir
- Partial view of Dadheshwar Mahadev Mandir
- Lush foliage



Unique Features - Private Pavilion for yoga & meditation
- Private Garden / Courtyard
- Nature's view bathing experience
- Common Herb-Garden Experience (guests pick their own fresh herbs from the garden, then cook a dish along with the chef)
- Engineered-timber thatch sloping Roof
- Stone Verandah

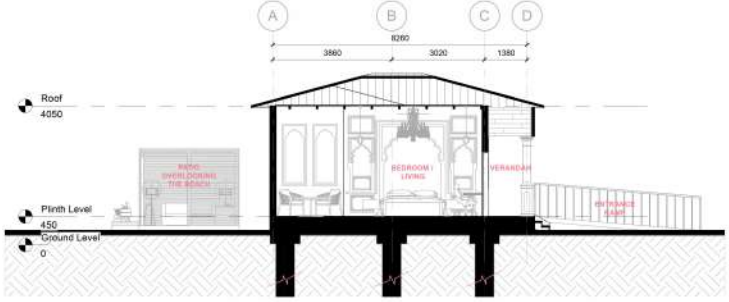
Decor / Material Palette - Lime-wash stone walls
- Cane furniture
- Electrochromic Glass (reduces glare from sea & sun)
- Jaiselmer Yellow Stone flooring for verandah, outdoor dining and interior.







3D VISUALIZATIONS



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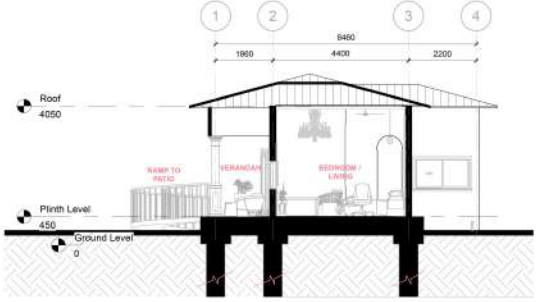

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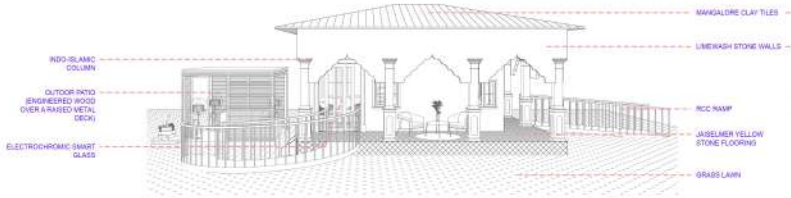
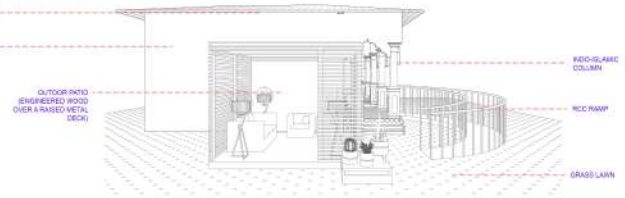


FRONT ELEVATION



SIDE ELEVATION



ELECTRICAL PLAN



FALSE CEILING PLAN



TILE FLOORING PLAN

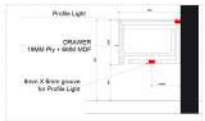
LEGEND			
	SINGLE CONNECTION		PENDANT LIGHT
	SERIES CONNECTION		CEILING LIGHT
	TWO-WAY CONNECTION		WALL LIGHT
SB	SWITCH BOARD		CEILING FAN

SWITCH BOARD	HEIGHT (FROM FFL)	FIXTURES								SWITCHES		
		Ceiling Fan	Ceiling Light	Pendant Light	Wall Light	Chandelier	Regulators	6 Amp Socket	16 Amp Socket	6 Amp 1-way	6 Amp 2-way	16 Amp 1-way
GROUND FLOOR												
SB01	1200	1	2	-	-	1	1	2	-	4	2	-
SB02	900	-	-	1	-	-	-	1	1	2	-	1
SB03	900	-	-	1	-	-	1	1	1	2	-	1
SB04	900	-	-	-	-	1	-	1	1	1	-	1
SB05	1200	-	2	-	-	-	-	1	-	2	-	-
SB06	1200	-	2	-	-	-	-	1	-	2	1	-
SB07	1200	-	2	-	-	-	-	-	1	1	1	1
SB08	1200	-	3	-	4	-	-	1	1	3	1	1

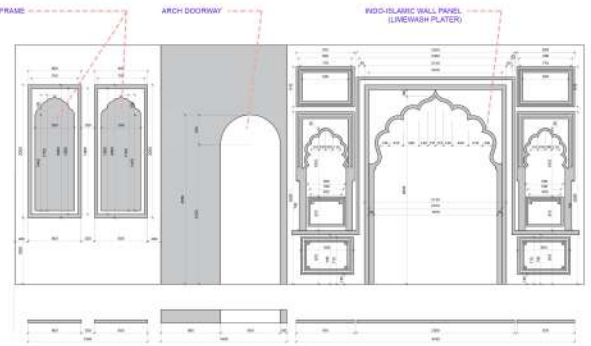
ELECTRICAL SCHEDULE

S. No.	FIXTURE	POWER RATING	COUNT	IMAGE	COST	MANUFACTURER	URL
1)	Ceiling Fan	100 W	1		1800 / unit	Nilkanth Engineering	https://www.indiamart.com/proddetail/13000...
2)	Pendant Light	60W-120W	2		7900 / unit	Tri Light Library	https://www.thelightlibrary.in/products/gl...
3)	Wall Light	100W-120V	4		1440 / unit	Janssens Emporio	https://www.janssensemporio.com/collections/...
4)	Chandelier	120 V	1		22,900 / unit	Harold Electricals	https://haroldelectricals.com/collections/...
5)	Ceiling Light	60W-120V	12		16990 / unit	The White Teak Company	https://www.whiteteak.com/block-pens-smart-led-ceiling-light/

ELECTRICAL FIXTURES DETAILS



SIDE TABLE DETAIL



FOLDED ELEVATION 1 (SCALE - 1:100)

S. No.	FIXTURE	LEGEND	COUNT	IMAGE	SIZE	COST (in Rs.)	MANUFACTURER	URL
1)	Jaiselmer Yellow Stone Tiles		278		300 x 300	20-25 / sqft	Jaiselmer Stones	https://jaiselmerstones.com/jaiselmer-stone/
2)	Chequered Floor Tiles		115		600 x 600	64-66 / sqft	Laxmi Pavers	https://www.tradeindia.com/manufacturers/chequered-tiles.html
3)	Kota Stone Tiles		6		1000 x 900	39-80 / sqft	Mandana Stone Company	https://www.kotastone.com/

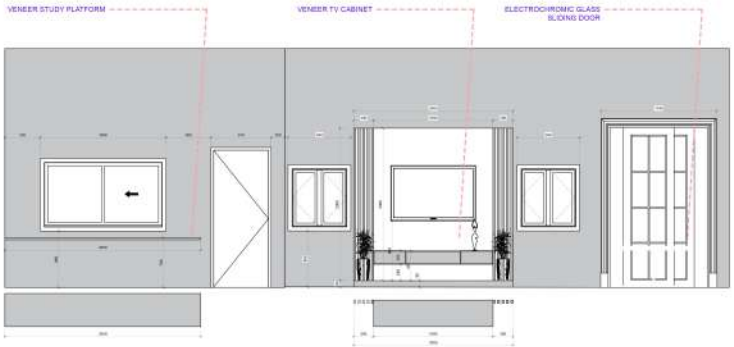
TILING DETAILS

concept

- Arched wall panels and soft Indo-Islamic profiles reinterpret Gujarati detailing in a clean, contemporary way.
- A warm rhythm of exposed wooden beams and light plaster forms a calm, structured ceiling.
- Earthy tones, natural woods, and subtle textiles keep the palette grounded and distinctly Gujarati.
- The room functions through quiet zoning—resting, study, living, and dressing areas defined by shifts in texture, furniture, and light.



MATERIAL / COLOR PALETTE



FOLDED ELEVATION 2 (SCALE - 1:100)



RESTING BAY



STUDY AREA



LIVING AREA



DRESSING / CLOSET

ACCOMMMODATION TYPE 3: SUN DECK SUITES

03

PATIO-DECK SUITES

INFORMATION

Concept - Colonial Style, open to shaded verandahs, blending the indoors of the rooms with the outside, creating a calm, coastal feel. A G+1 cluster with 1 suite on the ground and the first floor, with the terrace level providing view range to all around. Perfectly framed picteresque views.

Total Units - 8
Size - 77 SQM (830 Sqft) / Unit
Occupancy - 2 Adults + 1 Child

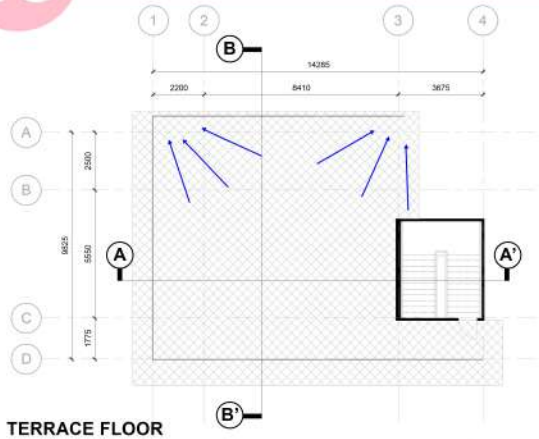
Guest Profile - Upper Middle to Luxury Travelers
- Honeymoon Couples
- Small Families
- Nature Travelers (sea / birdwatching)
- Photographers

Views - Swimming Pool Deck
- Dadheshwar Mahadev Mandir
- Arabian Sea

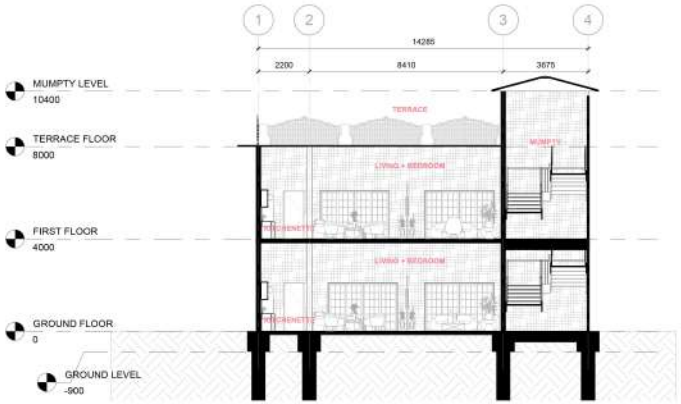
Unique Features - Multiple framed views simultaneously
- Stilted platform for high tides
- Colonnaded Verandah / Deck / Balcony
- Privacy and comfort
- Soothing water sounds
- Stone Verandah

Decor / Material Palette - Exposed Porbandar limestone cladding
- Kota Stone flooring for verandah and interior
- Electrochromic Glass (reduces glare from sea & sun)
- Natural wooden furniture

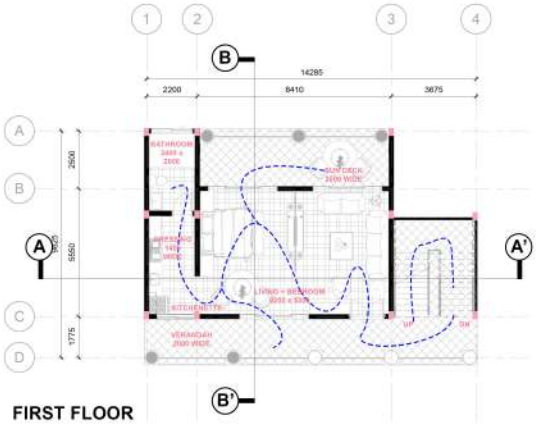




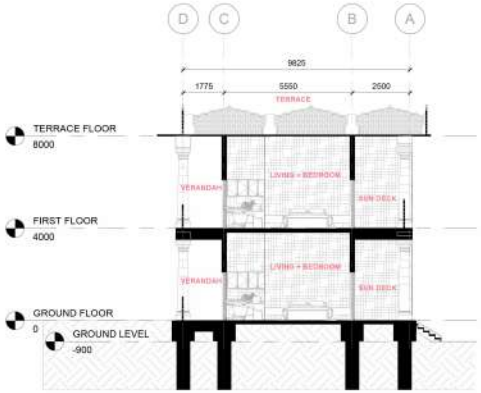
TERRACE FLOOR



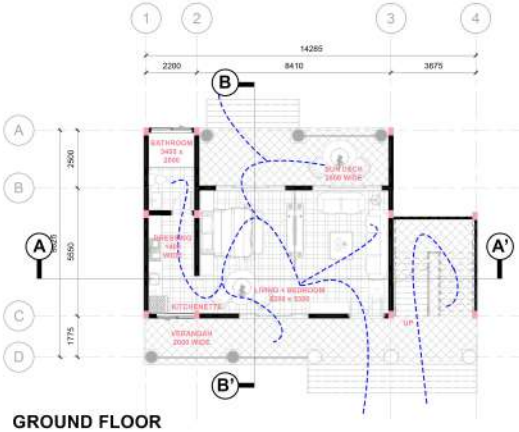
SECTION AA'



FIRST FLOOR



SECTION BB'



GROUND FLOOR

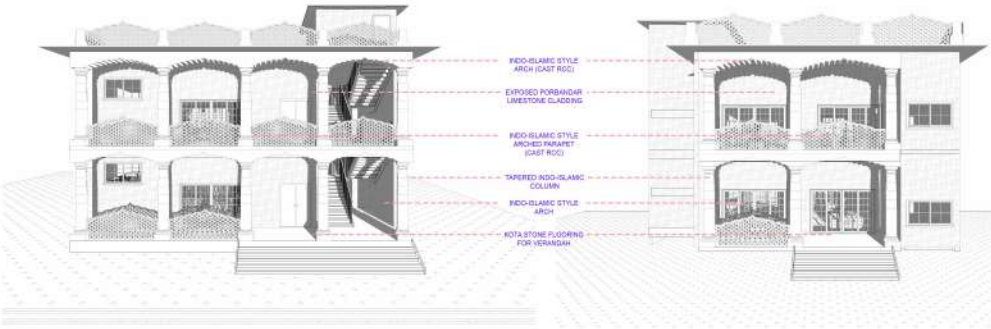
3D VISUALIZATIONS









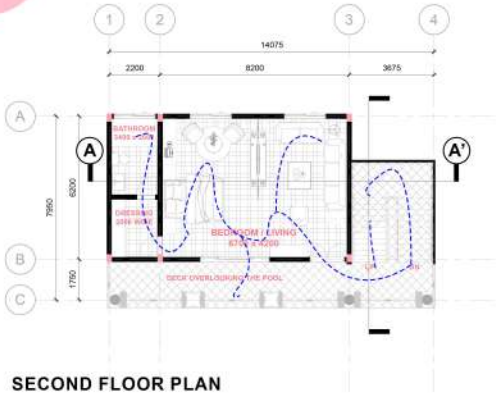


FRONT ELEVATION

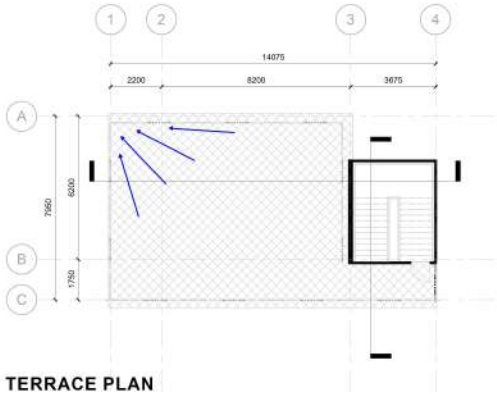
BACK ELEVATION



ACCOMMMODATION TYPE 4: POOL DECK SUITES



SECOND FLOOR PLAN



TERRACE PLAN

POOL DECK SUITES

04

INFORMATION

Concept - Colonial Style, open to shaded verandahs, blending the indoors of the rooms with the outside, creating a calm, coastal feel. A G+2 cluster with 1 suite on the ground, first and second floor each, with the terrace level providing view range to all around.

Total Units - 18
Size - 64 SQM (690 Sqft) / Unit
Occupancy - 2 Adults + 1 Child

Guest Profile - Couples
- Small family
- Wellness Guests (yoga and swimming reps)
- Solo-travellers
- Weekend Leisure Guests (economical of all types)

Views - Swimming Pool Deck
- Partial view of Dadheshwar Mahadev Mandir
- Partial sunset / sea view

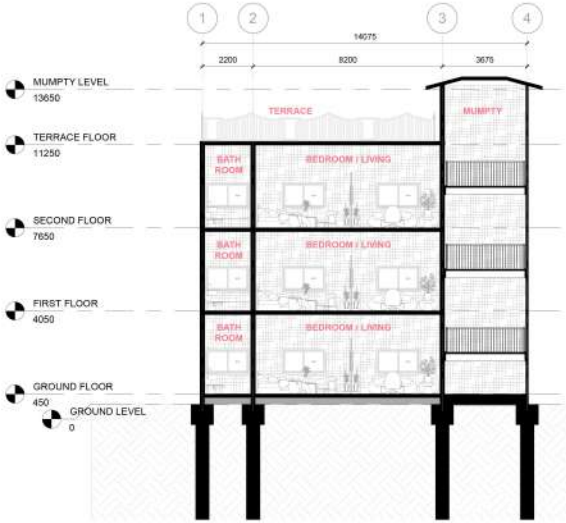
Unique Features - Direct Pool Deck Access
- Framed Views during day / night
- Colonnaded Verandah / Balcony
- Economical sunset lounge
- Soothing water sounds
- Stone Verandah

Decor / Material Palette - Exposed Porbandar limestone cladding
- Kota Stone flooring for verandah and interior
- Electrochromic Glass (reduces glare from sea & sun)
- Natural wooden furniture





FIRST FLOOR PLAN



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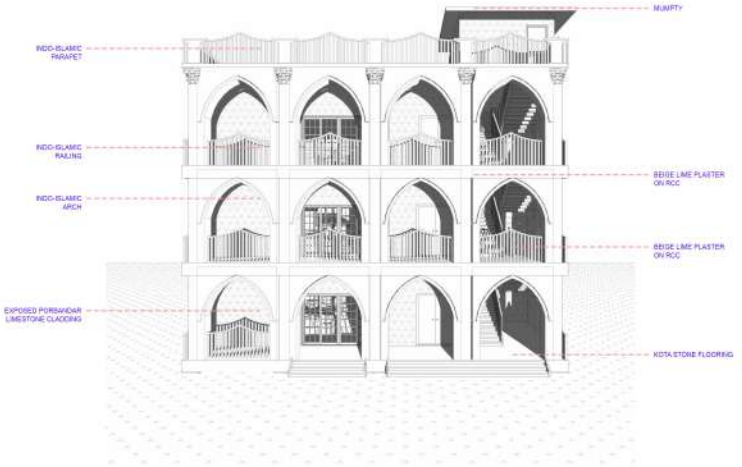
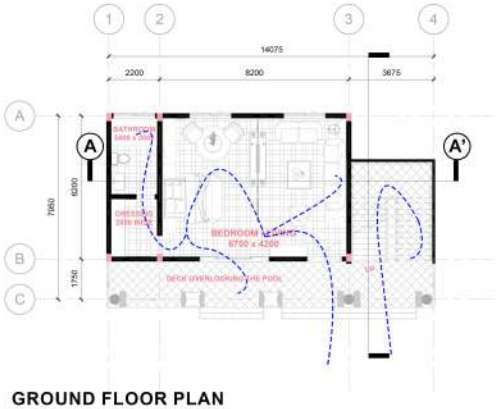


FRONT ELEVATON



GROUND FLOOR PLAN

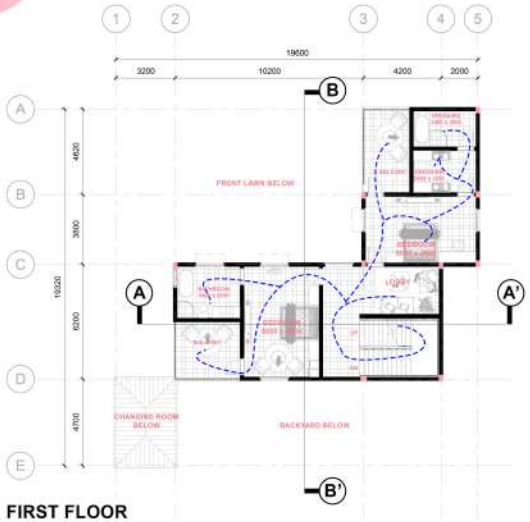
3D VISUALIZATIONS



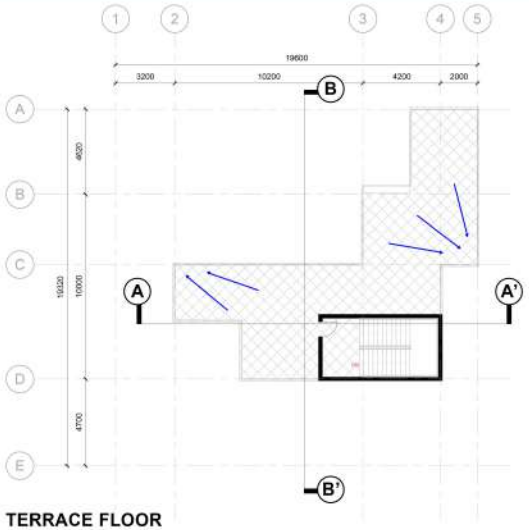




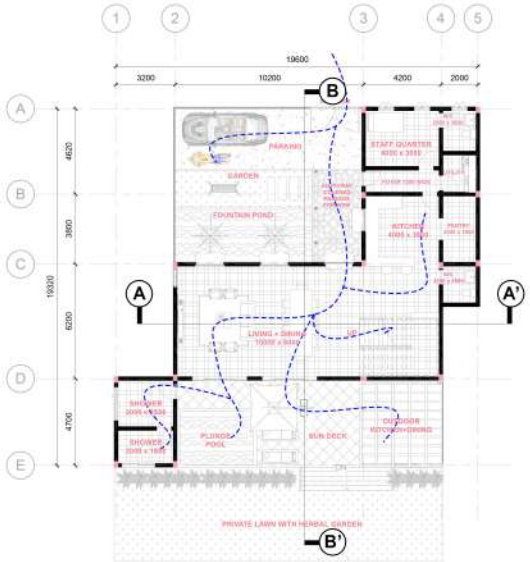
ACCOMMMODATION TYPE 5: FAMILY DUPLEX VILLA



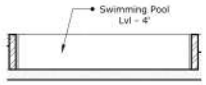
FIRST FLOOR



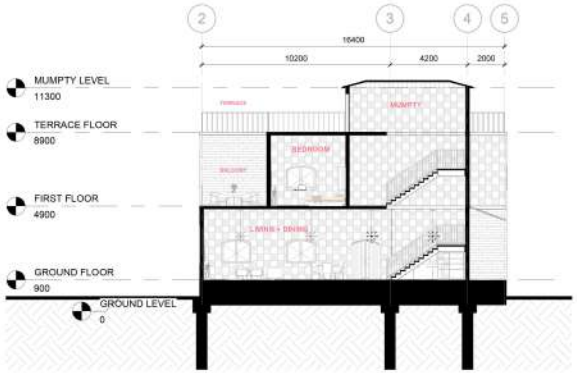
TERRACE FLOOR



GROUND FLOOR



POOL SECTION



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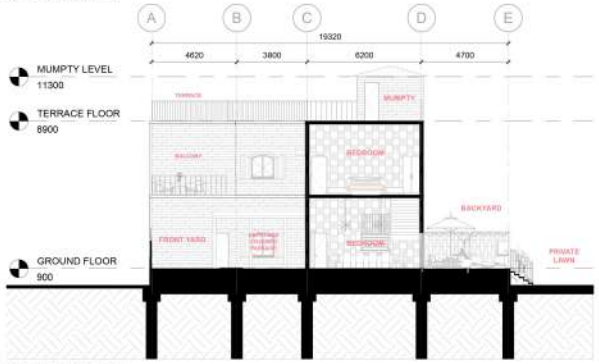


SECTION BB'

FAMILY DUPLEX VILLA

05

INFORMATION

Concept - A pol experience by the beachfront - framed sunsets, traditionally crafted roms, along a central courtyard, a G+1 cluster of 8 pol houses with a rooftop private dining with views to all the campus and adjoining frames.

Total Units - 4
Size - 260 SQM (2800 Sqft) / Unit
Occupancy - 4 Adults + 2 Child

Guest Profile - VIP Families
- Large friend groups
- Destination Wedding Guests
- Luxury Wellnes seekers
- International Luxury Travelers
- Private event hosts

Views - Chorwad Bandar (Dock)
- Heritage Building
- Banquet Hall
- Arabian Sea

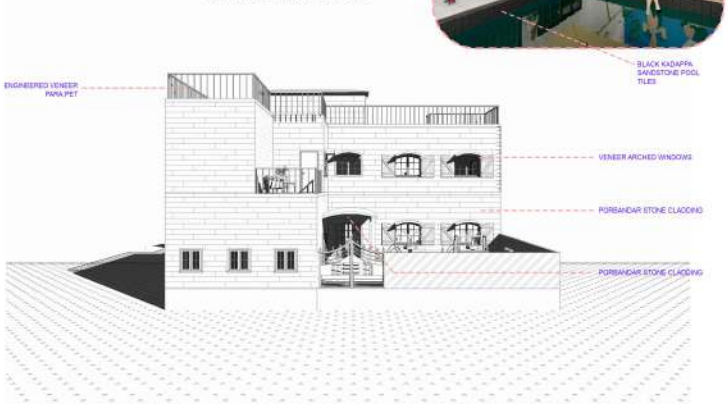


CHORWAD BANDAR

Unique Features - Private Pool + Dine-in Patio with dock view
- Private Lawn
- Luxury Bedrooms and Bathrooms
- Large private terraces for framed views
- Private service entry and stay for staff
- Small private gathering spaces
- Use of local crafts and luxury decor depicting culture
- Native plants: neem, champa, coconut

Decor / Material Palette - Porbandar Stone Cladding
- Ambaji Marble (locally available)
- Terrazzo tiles in bathrooms
- Cane and wicker furniture
- Ajrakh block prints (Kutch) decor
- Black Kadappa sandstone pool tiles





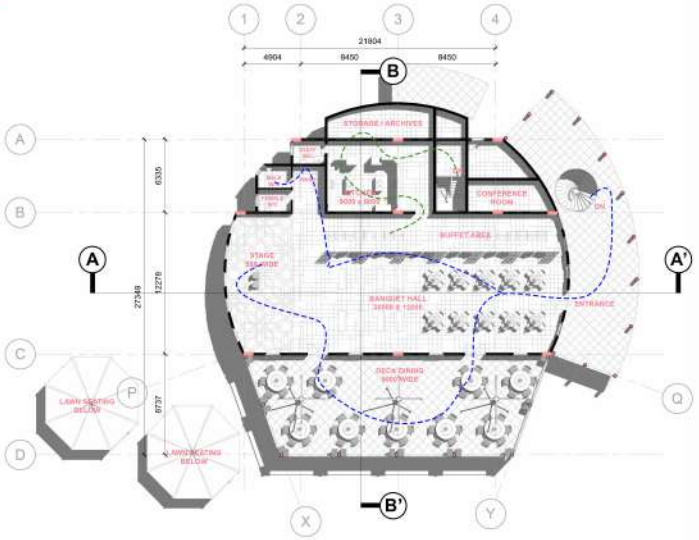
FRONT ELEVATION

3D VISUALIZATION



RESTAURANT & BANQUET HALL

CHORWAD BEACH RESORT

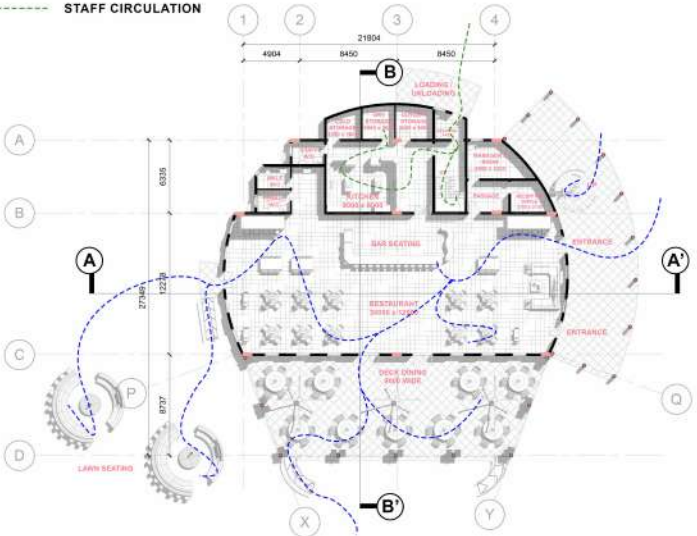


GROUND FLOOR - BANQUET HALL

INDOOR SEATING - 72
DECK SEATING - 30
EVENT LAWN - 200
TOTAL - 302

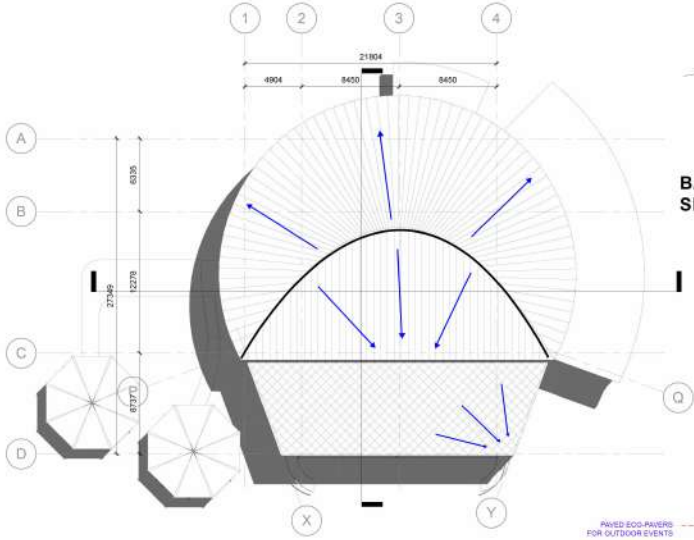
GUEST CIRCULATION

STAFF CIRCULATION

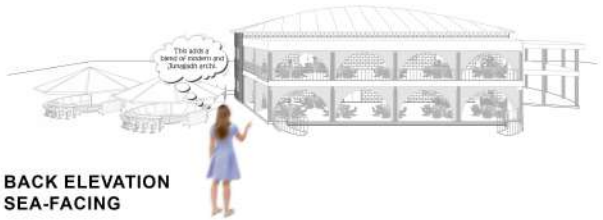


GROUND FLOOR - RESTAURANT

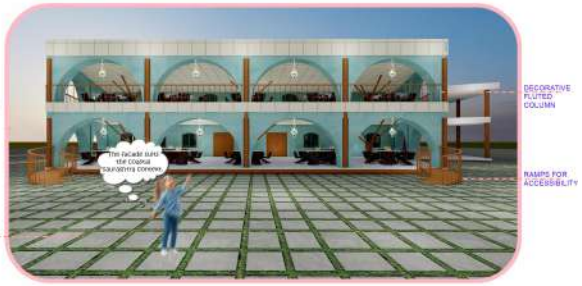
INDOOR CAPACITY - 72
DECK CAPACITY - 30
LAWN SEATING - 42
TOTAL - 150



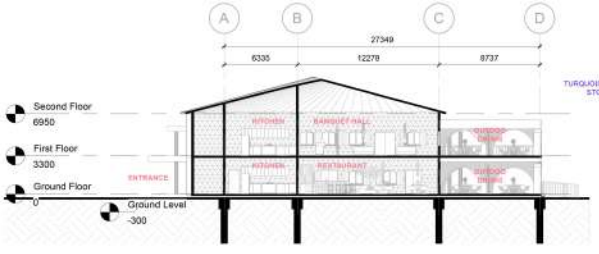
ROOF - SLOPED-CURVED



BACK ELEVATION SEA-FACING



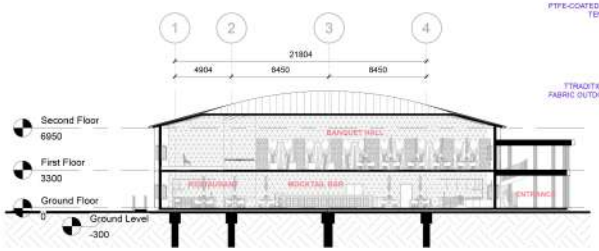
OUTDOOR EVENT LAWN



SECTION AA'



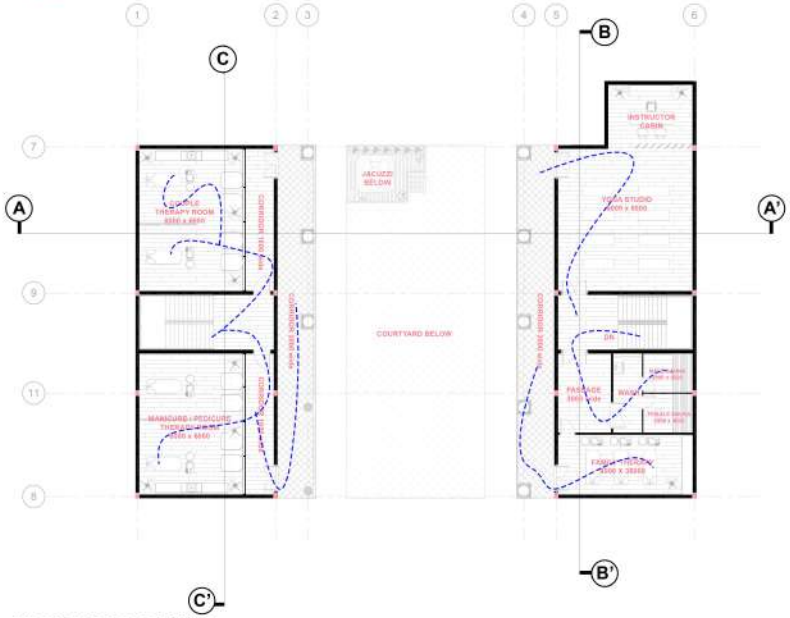
OUTDOOR SEMI-OPEN DINING



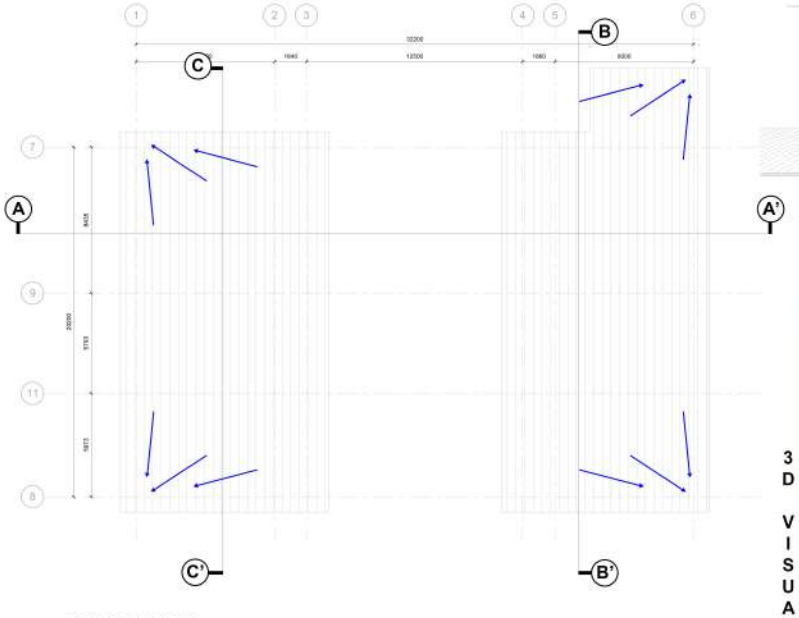
SECTION BB'



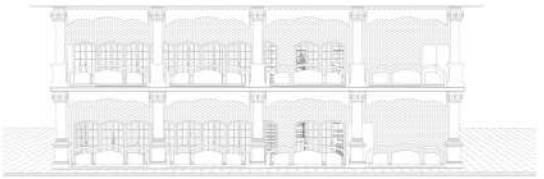
OUTDOOR DECK SEATING



FIRST FLOOR PLAN



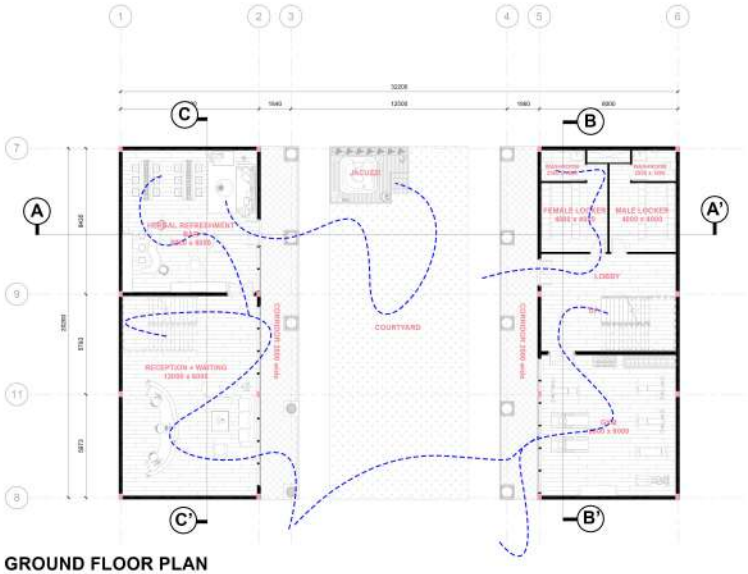
TERRACE PLAN



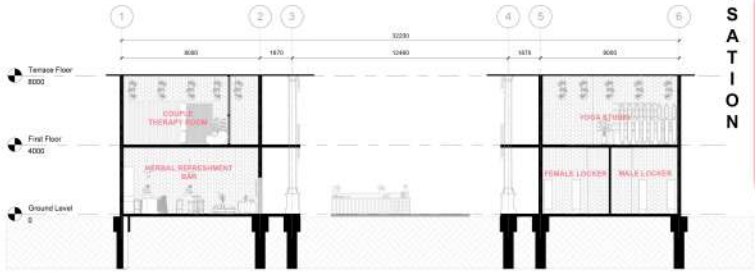


3D VISUALISATION





GROUND FLOOR PLAN



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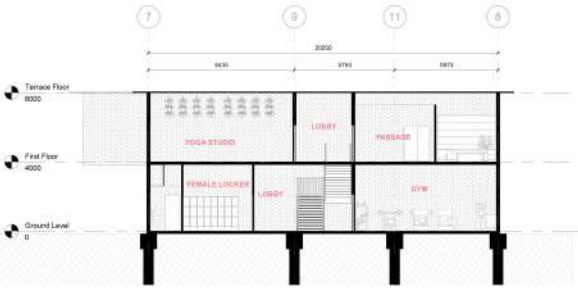

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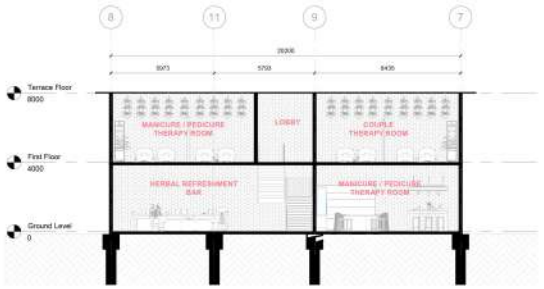
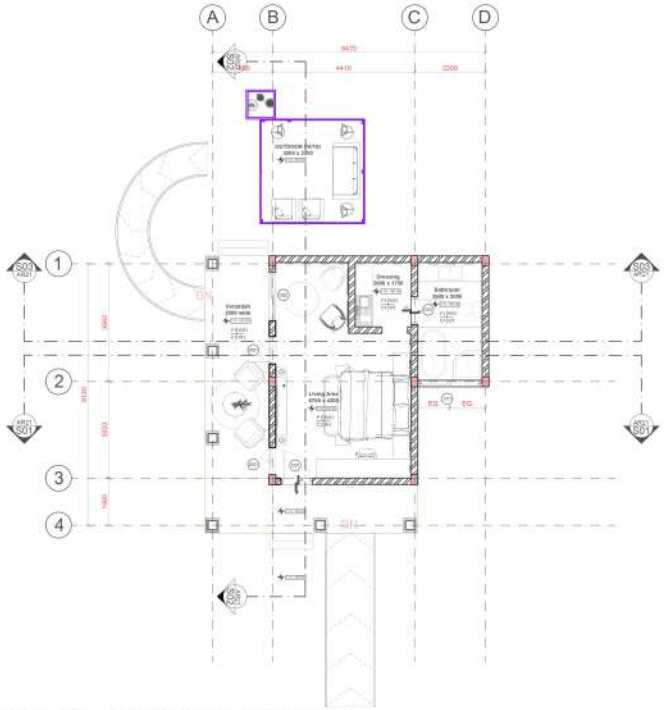
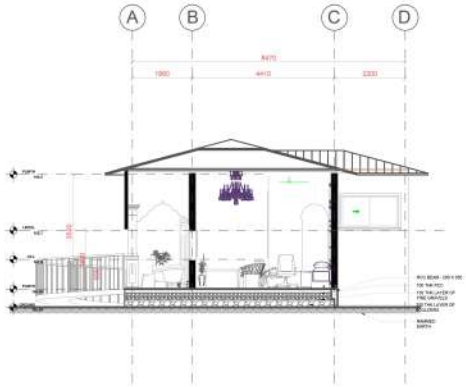


SECTION CC'

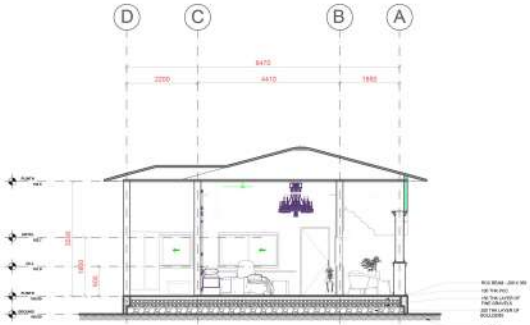
WORKING DRAWING OF A STANDARD COTTAGE



FLOOR PLAN - STANDARD COTTAGE



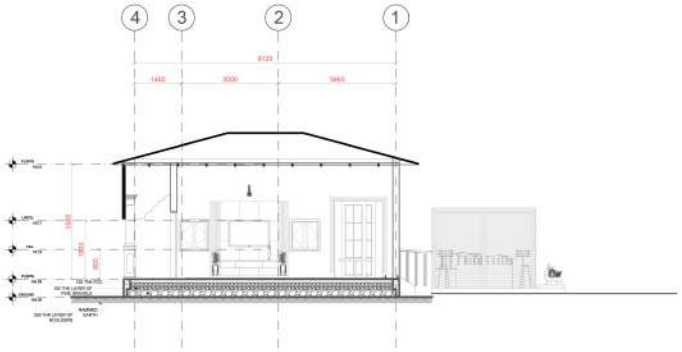
SECTION 03



SECTION 01

Door Schedule			
Mark	Count	Width	Head Height
D01	1	1000	2100
D02	1	1500	2100
D03	1	900	2100

Window Schedule				
Mark	Count	Width	Height	Sill
W01	2	850	900	900
V01	1	1800	1200	1800



SECTION 02



ELEVATION



