CHITLANG ECO-RESORT

"Rooted in heritage, Sustained by nature"

Chitlang, Makwanpur

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CERTIFICATE

This is to certify that the thesis entitled ***CHITLANG ECO-RESORT: ROOTED IN HERITAGE, SUSTAINED BY NATURE*** at ***Chitlang, Makwanpur,*** submitted to the Department of Architecture of Khwopa Engineering College by **Ms. Esha Musyako** of Class Roll No. 14 /B.Arch./076 has been declared successful for the partial fulfillment of the academic requirement towards the completion of the degree of Bachelor of Architecture of Purbanchal University.

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DECLARATION

I hereby declare that this thesis entitled **“Chitlang eco resort: Rooted in heritage, Sustained by nature”** is the result of my own independent work and research, carried out under the guidance of my supervisor. This thesis has not been submitted, either wholly or in part, for any other degree or diploma at this or any other institution.

All sources of information, data, design references, and assistance used in the preparation of this thesis have been acknowledged. Any work of others included in this report has been properly cited and referenced. I take full responsibility for the content and originality of this work.

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ABSTRACT

This thesis explores the design of an eco-resort in Chitlang, a culturally rich village in Nepal surrounded by hills and agricultural land. The aim of the project is to create a sustainable and culturally rooted retreat that promotes eco-tourism while preserving the natural landscape and traditional character of the region. A qualitative design methodology was adopted, incorporating site analysis, literature review, case studies, and participatory planning. The design emphasizes vernacular architecture, passive design strategies, and environmentally responsible construction. Local climate, topography, and cultural context were carefully studied to ensure a design that is both ecologically sensitive and socially inclusive.

The thesis then explores the layout of the eco resort, designed to blend seamlessly with the natural contours of the site. Accommodation is offered through a mix of villas, family units, and tents, each thoughtfully placed to maintain privacy, preserve existing trees, and frame scenic views. At the heart of the resort lies a central communal zone with a reception, dining area, and open lawn for group activities. Features like a permaculture farm, hydroponic garden, and eco-pool promote sustainability and self-sufficiency. Pathways follow the natural terrain, encouraging guests to move slowly and connect with the landscape. Raised decks, gathering spaces, and quiet forest edges create opportunities for both interaction and solitude. Passive design strategies and eco-friendly systems such as rainwater harvesting and natural ventilation are integrated throughout to reduce the resort's environmental impact while offering a comfortable and meaningful guest experience.

The final design offers a low-impact, comfort-oriented resort that reflects the ecological and cultural essence of Chitlang. It demonstrates how tourism development can respect and enhance local identity through thoughtful, site-responsive architecture. With its emphasis on minimal intervention and vernacular aesthetics, the project serves as a replicable model for sustainable tourism in rural Nepal. Ultimately, the resort fosters environmental awareness, supports cultural heritage, and contributes to local livelihoods.

Keywords: eco resort, sustainable design, vernacular architecture, Chitlang, passive strategies, eco-tourism, rural development, cultural preservation.

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CHAPTER 1: INTRODUCTION

1.1 Background

Nepal is a country of stunning natural beauty, featuring majestic Himalayas, rolling hills, and lush sub-tropical jungles. It is rich in culture, home to beautiful temples and ancient cities, and offers a unique blend of traditions and customs. With its vibrant heritage and dramatic landscapes, Nepal is an ideal destination for unforgettable adventures. Nepal's economy is deeply connected to its natural resources and cultural heritage. Two of the most important sectors that support the country's economy are agriculture and tourism. Agriculture contributes about 24% to Nepal's Gross Domestic Product (GDP) and provides employment to more than 60% of the population. It is the main source of food and income for many families, especially in rural areas. *(Wikipedia, 2024)* Also, tourism is another key sector, contributing approximately 6.6% to Nepal's GDP and supporting over 1.19 million jobs directly and indirectly. *(The Kathmandu Post, 2023)*

1.1.1 Tourism potential in context of Nepal

Nepal stands as a prominent destination in South Asia, celebrated for its majestic Himalayas, rich cultural heritage, and diverse natural landscapes. These unique qualities make Nepal a perfect destination for tourists from around the world. People visit Nepal for trekking, mountaineering, sightseeing, adventure sports, religious pilgrimages, and cultural experiences.

Nepal has experienced a significant resurgence in tourism in recent years, marking a strong recovery from the downturn caused by the COVID-19 pandemic. In 2023, the country welcomed 1,014,885 international tourists, a substantial increase from 614,869 in 2022, representing a 65.1% growth in tourist arrivals. *(Tourism in Nepal, the free encyclopaedia, April 2024)*

This upward trend continued into 2024, with Nepal receiving 1,147,567 international visitors, a 13.1% increase compared to the previous year. This figure represents approximately 96% of pre-pandemic levels, indicating a robust recovery for the tourism sector. *(Nepal tourism statics, 2023).*

The majority of tourists in 2023 hailed from neighboring and Western countries. India accounted for **31.5%** of arrivals, followed by the United States (**9.9%**), China (**6%**), the United Kingdom (**5.2%**), and Australia (**3.8%**).

Table 1 Tourist arrival and average length of stay

2018- 2023 (Contd.)

Year	Tourist Arrivals	Average Length of Stay (Days)	Annual Growth Rate (%)
2018	1,173,072	12.4	—
2019	1,197,191	12.1	+2.1%
2020	230,085	13.1	-80.8%
2021	150,962	15.1	-34.4%
2022	614,869	13.1	+307.4%
2023	1,014,885	13.2	+65.1%

(*Source: Nepal Tourism Statics 2023)*

Table 2 Purpose of visit of the Tourists in Nepal.

Year	Holiday & Pleasure	Trekking & Mountaineering	Pilgrimage	Others (Business, Official, etc.)	Total Arrivals
2018	70.3%	12.8%	10.9%	6.0%	1,173,072
2019	69.5%	12.9%	11.3%	6.3%	1,197,191
2020	64.7%	10.0%	12.9%	12.4%	230,085
2021	65.0%	10.1%	12.8%	12.1%	150,962
2022	64.7%	10.0%	12.9%	12.4%	614,869
2023	62.5%	15.2%	13.1%	9.2%	1,014,885

(*Source: Nepal Tourism Statics 2023)*

These statistics underscore Nepal's strong tourism potential, driven by its natural beauty, cultural heritage, and adventure opportunities. The consistent growth in tourist arrivals highlights the country's appeal as a travel destination and its capacity to attract visitors from around the world.

1.2 Project Vision

My thesis project is focused on designing an eco-resort in Chitlang, a peaceful village in the Makwanpur district of Nepal. The project aims to create a peaceful and environmentally friendly space where people can relax, connect with nature, and learn about sustainable living.

Chitlang has a rich cultural history, with traditional houses, temples, and Buddhist stupas. However, the village has gone through major changes in recent years. Many of the younger people have left for cities or foreign countries to find work. Because of this, many houses are empty, and the traditional beauty of the village is slowly being replaced by modern concrete buildings. Nearby, there are already a few resorts, but most of them are built in a modern style and do not reflect the local identity or respect the natural landscape.

My project aims to design a resort that blends traditional and modern architecture while preserving the natural landform. It uses local materials and building styles inspired by Chitlang's heritage. The resort will include eco-friendly facilities such as organic farming, rainwater harvesting, and proper waste management.

1.3 Introduction to Resort

A resort is a full-service lodging facility that provides access to or offers a range of amenities and recreation facilities to emphasize a leisure experience. Resort is a place used for relaxation or recreation, attracting visitors for holidays and vacation. Resorts may be places, towns or sometimes commercial establishment operated by a single company. A resort can function as a conference centre, as a meeting centre as a banquette, as a restaurant, as a health club and various other functions.

As per the Kathmandu Post, 2018, the requirements for a 3-star resort in Nepal are;

- Minimum Number of Rooms: At least 45 guest rooms are required.
- Room Size: No smaller than 196 square feet (approximately 18.2 square meters).
- Room Features: Should include an entrance hall, bedroom, cupboard, and bathroom.
- Corridors: About 6 square meters per room and at least 1.5 m to 1.8 m wide.
- Parking: Space for at least 15 cars.

Resort could be: Sports resort, Adventure resort, Nature resort, Eco- resort, Agro- resort, Health resort, etc. The main purpose of these resorts is same.

1.3.1 Eco-Resort

Eco-resort is the destination with lodging, dining, and environment where the guests experience the local culture, and landscape where the facilities are intended to have minimal impact on the local environment. The “eco” in eco-resort stands for ecological which means it focuses on minimizing environmental impact and promoting sustainability in every aspect of its design, operation, and guest experience. Unlike conventional resorts, eco-resorts are carefully planned to conserve natural resources, reduce waste, and protect local ecosystems.

This is achieved through measures like using renewable energy sources (such as solar power), applying water-saving systems, choosing eco-friendly construction materials, and incorporating waste management systems like composting and recycling. Eco-resorts are often built with locally available, low-impact materials, and are designed to blend into their surroundings rather than dominate them.

Beyond the physical aspects, an eco-resort encourages guests to interact with nature in a thoughtful and respectful way. The core idea is to create a place where guests can relax and enjoy natural beauty without degrading it leaving the environment as good as or better than they found it.

1.4 Project Justification

The idea for this eco-resort project came from observing the unique character of Chitlang, a quiet, scenic village surrounded by hills, forests, and farmlands. Unlike major tourist destinations in Nepal like Pokhara or Ghandruk—many of which are now crowded and overdeveloped—Chitlang still retains its natural beauty, calm atmosphere, and cultural richness. More visitors are now coming to Chitlang to escape urban stress and reconnect with nature. This presents both an opportunity and a responsibility.

With rising tourism, there is a risk that Chitlang could suffer the same fate as other overbuilt areas—where the natural landscape is damaged by excessive concrete, unmanaged waste, and loss of green space. To prevent this, I chose to design an eco-resort, which promotes sustainable tourism. Unlike a conventional resort, this eco-resort is designed to minimize environmental damage. It uses local materials, respects the natural topography, avoids unnecessary clearing of trees, and includes waste and water management systems that protect the local ecosystem.

The decision to create an eco-resort in Chitlang is not just about offering accommodation—it is about preserving the spirit of the place while allowing tourism to grow in a way that respects the land, culture, and community. By doing so, the resort will provide a meaningful experience for visitors while ensuring that the natural and cultural heritage of Chitlang remains intact for future generations.

1.5 Objectives

- To maximum utilization of potential natural beauty of hills.
- Revive the cultural essence of Chitlang by referencing its settlement patterns.
- Explore ideas for sustainable planning through different techniques.
- Design spaces that promote relaxation, connection with nature, and slow living.

1.6 Scope

Resorts can be recreational area for internal as well as external tourism and also a need of modern lifestyle. Establishing a resort in Chitlang offers strong potential to support both the local community and the environment. Chitlang, with its natural beauty and cultural richness, is facing challenges such as the loss of traditional architecture, and limited local economic opportunities. The scope of developing an eco-resort lies in addressing these issues by encouraging sustainable tourism that respects the land and heritage of the area.

In recent times, more people have started seeking peaceful environments to escape the noise, pollution, and fast-paced life of cities. Destinations like Chitlang have become popular among tourists who want to take a break and experience a quiet, rural lifestyle surrounded by nature. This growing interest creates an opportunity for Chitlang to develop as a destination that offers calm, authentic, and eco-conscious experiences.

Environmentally, the resort can set an example for responsible development by using sustainable design practices that protect the natural landscape, use resources efficiently, and minimize waste. As visitors experience a close connection to nature and culture, it promotes a more thoughtful and respectful form of tourism.

Overall, designing an eco-resort in Chitlang would be highly beneficial. It not only responds to the growing demand for peaceful, nature-based getaways but also supports the revival of a rural area that is rich in culture and tradition.

1.7 Research Methodology

Research methodology is on research, case study analysis and real context. The following methodologies are adopted;

- Study and analysis phase
- Site location
- Design thinking
- Literature review
- Case study

This helps to collect facts, data, standard sizes, rules and limitation. The data so collected is organized to start design phase.

- Site selection and analysis
- Program formulation and Zoning
- Conceptual design
- Design development
- Analysis and evaluation of output design
- Preparation of architectural drawings, 3D views, model and report for final presentation

CHAPTER 2: LITERATURE REVIEW

2.1 Planning of resort

Planning of the resort is divided into three parts; i.e. front house, back of the house and outdoor/recreational area.

Front of house:

This is the area with direct guest contact and services. Thus, it should be planned to provide convince and comfort of the guest. Major component of front of house are:

-Main entrance
-Parking
- Guest House
-Lobby
- Reception

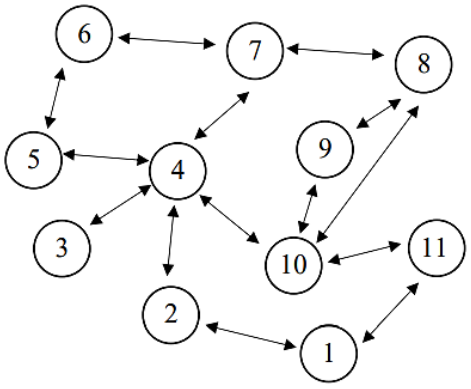
Back of house:

This is the area which must not be seen by the guests yet is the key factor in the smooth running of the resort. It controls the tasks in the resort and should be efficient. It is usually located away from the main centre of the resort but needs close interaction with other departments. The major components are:

-Laundry
-Housekeeping
-Food and beverage
-Kitchen
-Security
-Maintenance
- Storage

2.2 Functional relationship

There should be separation of guest and service areas. Distinction between the front and back house should be maintained so that there is no cross circulation. Back house should be organized separately as far as possible.



- Legends
1. Parking
2. Main entrance
3. Community area
4. Guest room
5. Restaurant
6. Kitchen/servicing
7. Store
8. Back house
9. Administration
10. Service entry

2.3 Direction, Access and Circulation

- Signs and symbols which are in pictorial forms, logos, standard signs or style of construction should be easily noticed.
- Point of entry within the premises must be clearly defined, convenient, free from hazards and appropriate for the purpose.
- Provisions for arrivals of guests, staff with security control, good deliveries, refuse and garbage storage and their removal must be made.
- Planning for goods and services vehicles must be taken into consideration.

2.4 Entry and Lobby

Main entrance of the resort has to be designed so that it attracts the view of the visitors. It is necessary to provide entrance plaza from where welcoming and farewell is done.

All lobbies should establish contact with the shops, bar, and restaurants, and enable a guest to feel like he's in the heart of hotel.

2.5 Guest Rooms

Resort rooms should accommodate longer stays, more luggage, and double occupancy. They should emphasize seating, dining, and storage spaces. Providing outdoor terraces or balconies with enough space for a chair and table enhances the resort experience.

If views are a priority, the room orientation should focus on them; otherwise, rooms should be oriented north-south with solar radiation trapping systems.

Guest room floor planning objectives according to the orientation/sitting:

- Consider solar gain; generally, N/S preferable to E/W exposures,
- Analyse wind loading,
- Study the potential for guestroom views,

Types of room	Min. Width (W) in m.	Min. Length
Economy	3.0 – 3.3	1.2 W – 1.5 W
Standard	3.3 – 4.0	1.3 W – 1.6 W
Executive	4.0 – 5.0	1.5 W – 1.9 W
Deluxe	≥ 5.0	1.6 W – 2.5 W

Table 3 Sizes of bedroom

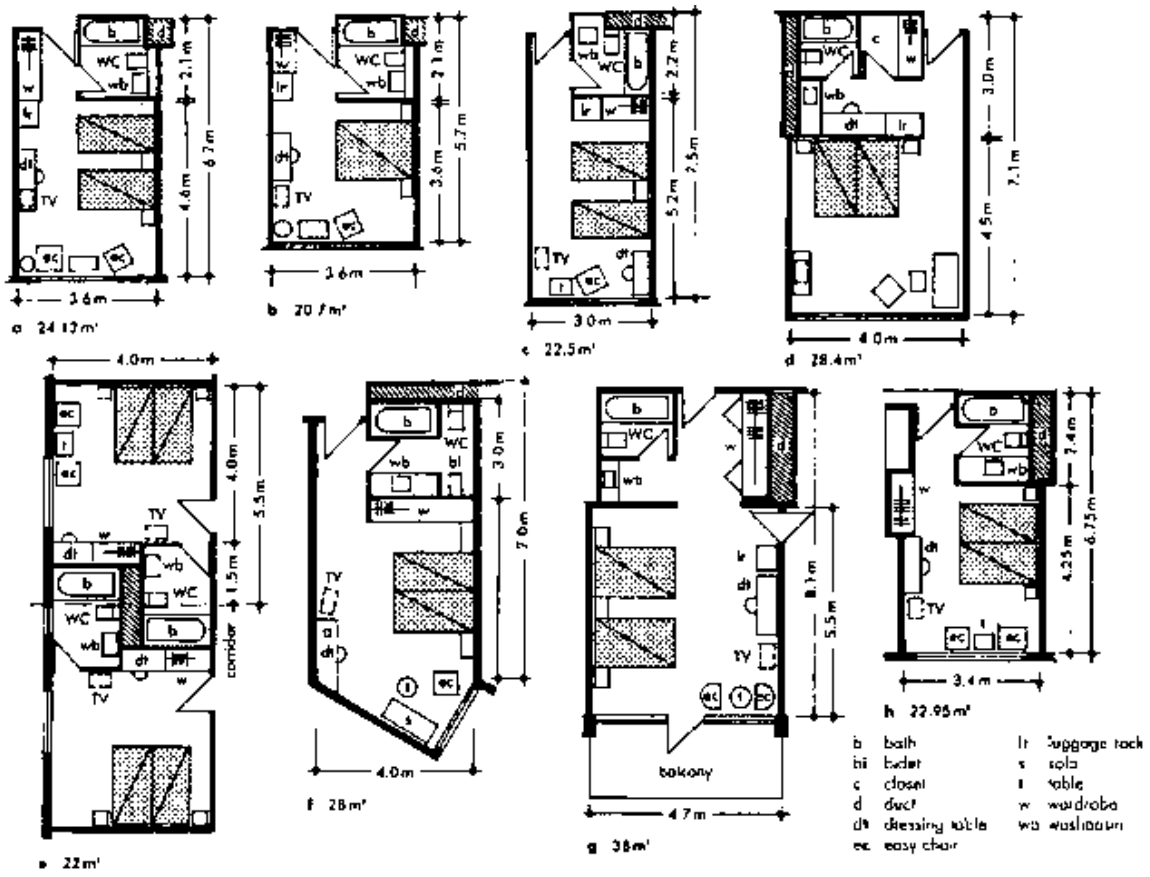


Figure 1. Standard bedroom sizes and layout

Source: Neufert Architects Data

Table 4 Size of beds

Type of bed	Width in m.	Length in m.
Single	0.77	2.13
Twin	1.0	2.13
Double	1.27	2.13
Queen	1.52	2.13
King	1.83	2.13

2.6 Restaurant, Dining and Bars

The restaurant should have a well-planned entry through a reception lounge or foyer to create a welcoming atmosphere. Bars can be designed separately or placed within the restaurant without disrupting guest circulation. The layout should maximize external views, internal displays, and entertainment features while ensuring smooth movement for both guests and staff.

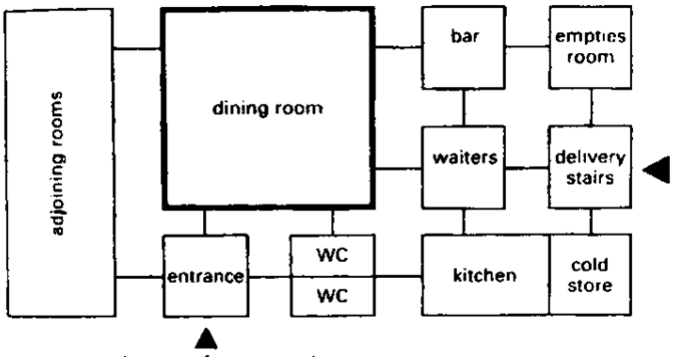


Figure 2 Basic layout of restaurant (*Source: Neufert Architects Data)*

Dining areas should be oriented towards scenic views, such as landscaped gardens and recreational spaces. Seating should be arranged to provide optimal sightlines for all guests. Steps should be minimized to prevent falls or spills, ensuring safety and accessibility.

Semi-private alcoves can create a more intimate dining experience, reducing the institutional feel of a large dining hall. Outdoor dining spaces, such as shaded pergolas or deck seating, should be integrated to enhance the resort experience. Lighting should be warm and inviting, and seating should accommodate different group sizes for flexibility and comfort.

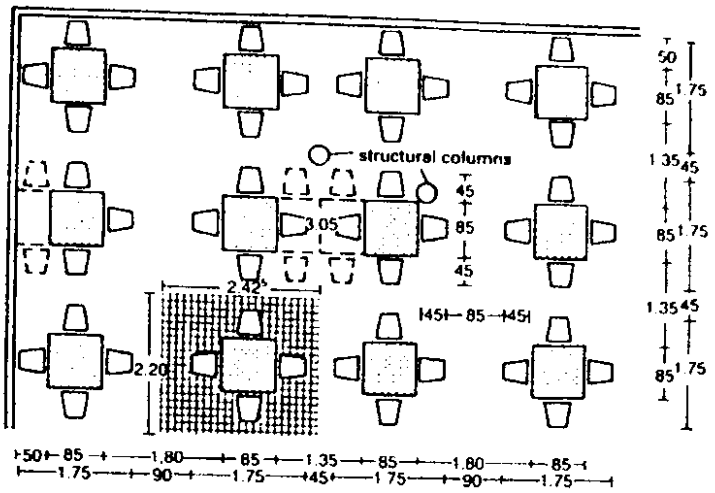


Figure 3 Parallel layout of tables

Source: Neufert Architects Data

Table 5 Floor area requirements according to seats arrangements

Type	Chair occupancy per meal	Kitchen area required (m2/ cover)	Dining area required (m2/ seat)
Exclusive restaurant	1	0.7	1.8-2.0
Restaurant with high seat turnover	2-3	0.5-0.6	1.4-1.6
Normal restaurant	1.5	0.4-0.5	1.6-1.8
Inn/ Guest house	1	0.3-0.4	1.6-1.8

Table 6 Walkway width

Dining floor area (m2)	Walkway width (m)
Up to 100	≥ 1.10
Up to 250	≥ 1.30
Up to 500	≥ 1.65
Up to 1000	≥ 1.80
Over 1000	≥ 2.10

In primary space planning, the rule for determining the area requirement of a restaurant is:

Dining room…… 60% of total area

Kitchen, cooking, storage, preparation…… 40% of total area

Net kitchen area……..……..... 15-20%

Per seat area……..... 1.3-2.15 sq. m.

Ratio of service area to total area……..…. 25-50%

Services aisles…….…….. 0.9-1.35 m (for trolley and guest)

Min width of escape route…….. 1 m. for 150 people

General walkway width……. Min. 1.1 m

Height…… Min. 2.1 m

Window area……..…… 1/10 of area of restaurant

Distance between tables including chairs……..… 1.75 m

Passage between chairs…….…… 18 inches

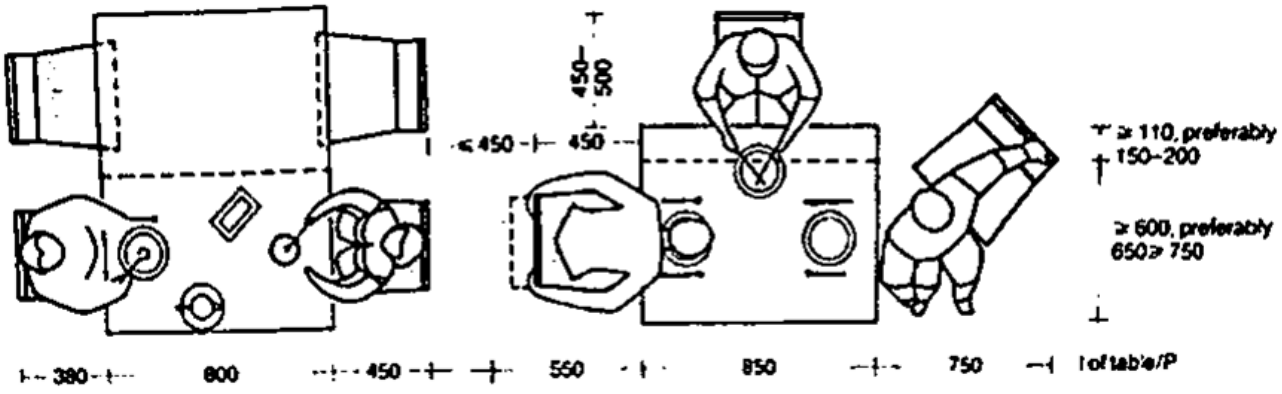


Figure 4 Dining Hall spaces *Source: Neufert Architects Data*

Design considerations for the dining area;

- Before deciding on the layout, it is important to know the expected number and type of client and customer mix.
- Ceiling height of the dining should relate to the floor area.
- Window area about 1/10 or more of room area of restaurant.
- Cashier should be near to exit.
- Ambience can be created through decoration, lighting, creating smaller more intimate space, level differences, etc.
- Waiter station: 1 per 20-30 seats.
- Variety of seating arrangements.
- The minimum width of escape route is 1 m per 150 people.
- Dining area per seat: 1.5-2.15 sq. m.

2.7 Kitchen

Kitchen may be designed with open plan arrangement or with separate rooms or bays for different types of separation. Preparation equipment and workbenches should be designed to facilitate easy cleaning and are usually of stainless steel or aluminium

Space distribution should be as:

Receiving area..... 15%

Food storage.....20%

Preparation……..…....14%

Cooking…….....8%

Baking…….....10%

Ware washing.....5%

Traffic aisles.....16%

Trash storage.....5%

Employee.....15%

Miscellaneous..... 2%

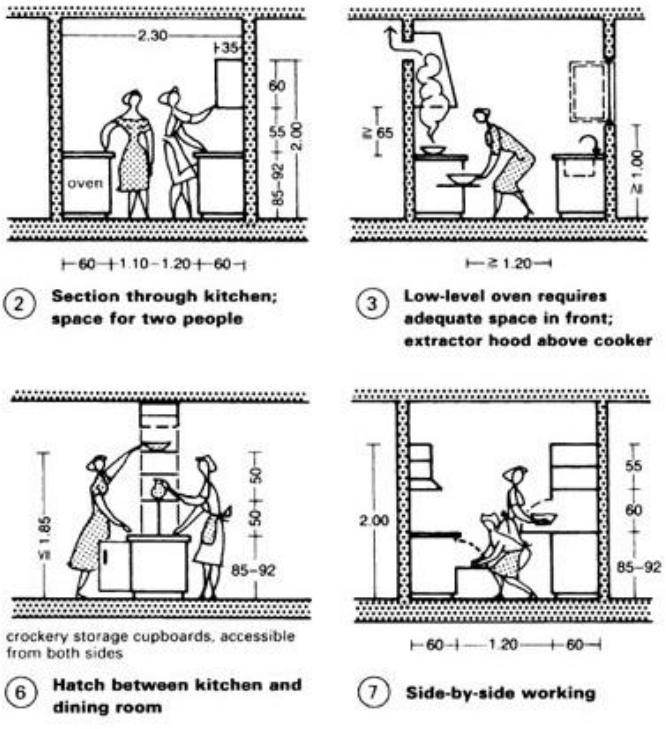


Figure 5 Height of kitchen spaces Source: Neufert Architects Data

2.8 Views

Guestroom views are crucial in site selection, building orientation, form development, and window design. If a site lacks scenic views, designers can enhance them with landscaped gardens, pools, or atriums. For exceptional views like mountains or beaches, a single-loaded corridor layout should be used, placing rooms on the view side. Outdoor terraces or balconies should be spacious enough for seating and relaxation. When views are the priority, orientation should focus on them; otherwise, rooms should be oriented N-S with solar radiation trapping systems.

2.9 Recreational facilities

A resort which is focused in providing recreational facilities has to orient itself towards huge range of recreational activities. If we see the current trend of tour, besides trekking, mountaineering and sightseeing, people go to resort or hotel for swimming, playing golf, tennis, bowling, fitness, spa, sauna etc.

2.9.1 Swimming Pool

The pool area should be positioned for maximum sun exposure, with south-facing pools preferred. Shaded areas, views, and nearby spaces like lawns and cafés should be considered to enhance usability. A kids' pool should be placed beside the adult pool for easy supervision, and privacy should be maintained using plantations or screening methods.

Supporting facilities like toilets, changing rooms, and showers should be located nearby for convenience. A café close to the pool is preferred for easy access to refreshments

- Depth of adult pool: 1-2.4 m
- Depth of child pool: 0.5-1 m
- If diving board is to be provided, then depth should be: >3m

Every swimming pool should have:

- Sun bathing area
- Poolside café
- Poolside supervisor's office
- Equipment store

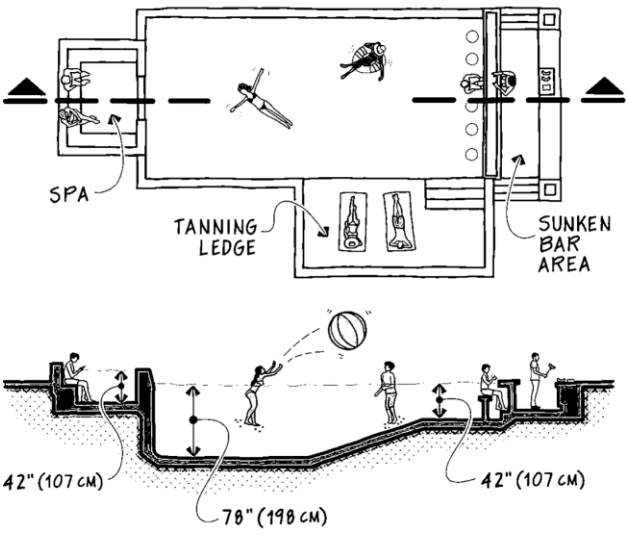


Figure 6 Basic layout of pool (Source: Pinterest)

- Filter room
- Changing room with lockers, toilet and showers

2.9.2 Fitness room

A fitness room consists of a spacious hall with mechanical exercise machines to improve body fitness. The flooring should be absorbent to reduce mechanical noise. Large glass panels on the walls and windows should be used to maximize natural light and ventilation while ensuring artificial lighting does not cause glare. For 40-45 users, a minimum room size of 200 m² is required, with a clear height of 3 meters. A double row machine arrangement requires a minimum room width of 6 meters, and for effective supervision, the room length should not exceed 15 meters.

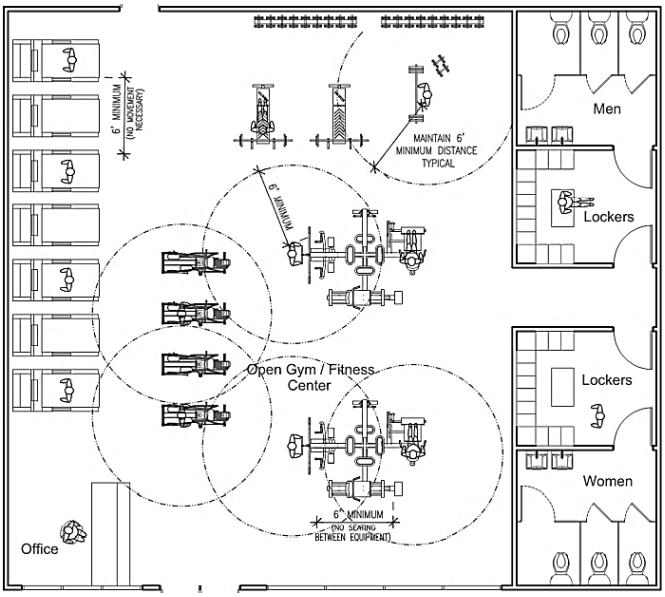


Figure 7 Basic layout of fitness room (Neufert Architects Data)

2.9.3 Sauna

A sauna provides relaxation and promotes sweating at temperatures above 80°C. Proper heat insulation is essential due to the high temperature difference between the inside and outside. Sauna sizes range from small 3' × 4' units to larger commercial saunas up to 10' × 14'.

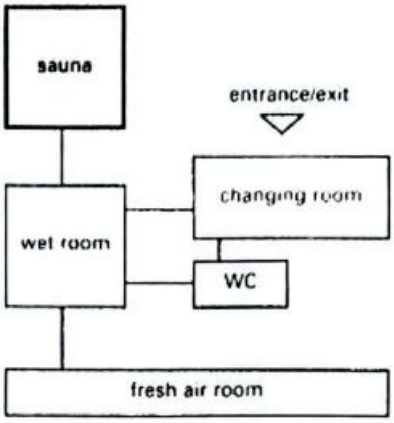


Figure 9 Flow diagram of sauna

Source: Neufert Architects Data

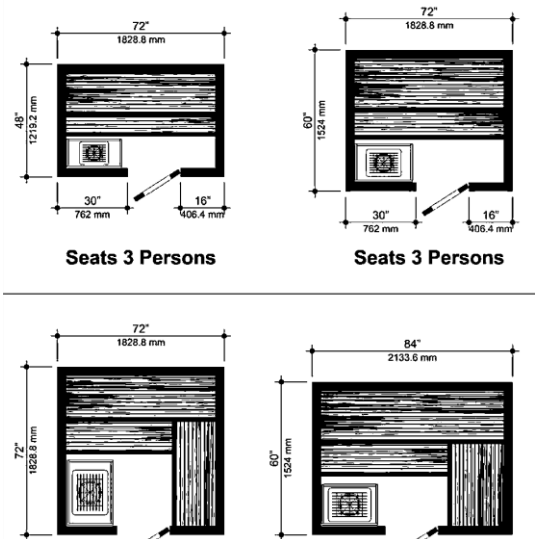


Figure 8 Standard sauna seating (Source: Home stratosphere, Sauna dimensions and layout, Aug 2021)

2.9.4 Spa

A spa is a location where mineral-rich spring water is used to give medicinal bath. All treatment rooms should be large enough to have access for wheelchair users as well. Door width of each room should be at least 900 mm. Treatment areas should be designed sound proof as possible. Non-corrosive materials should be used in high moisture areas for protection. Easy to clean moisture resistant materials should be used so that chemicals don't have to be used for cleaning.

2.10 Internal Environment

Interior of hotel of resort has to meet with certain level of Lighting, Colour and Texture. Acoustics & Noise and particle level. Interior has to be well designed and attractive to the visitors so that it could stamp impression in their eyes. Lighting is an important aspect in architecture. Generally diffused light is preferred in background illumination and work areas. Spot lamps are most effective in illustrating features, works or arts and notices.

Well harmonized colour combination with internal surrounding helps to create psychological com fort to users. Pure colours are more dramatic in their effect than tints or shades and colour combination from different areas of the spectrum must be carefully chosen and balanced. Also, considerations for noise produced should be made. High level of noise which is generated in lobby, public areas, and work areas like kitchen, machinery rooms etc should be reduced through proper planning, insulation, or absorption. Such noise may prove to be sensitive to some areas like guests' units, meeting rooms or other areas which require clarity. By zoning, separation and screening it is possible to plan layouts which minimize the effects of one area on other. This applies particularly to the separation of guest room from public areas to the grouping and screening of work areas.

2.11 Lighting

Lighting plays a crucial role in both guest experience and energy efficiency. Maximizing natural light and using efficient artificial lighting reduce energy costs and cooling loads. Multiple light sources and directional lighting create a more comfortable ambiance than uniform overhead lighting. Indirect and ambient lighting schemes enhance satisfaction compared to direct illumination. Natural light is essential not just for visibility but also for creating a pleasant atmosphere, providing a connection to the time of day, weather, and outdoor views, which help with relaxation.

Table 7 Lighting in resorts

Areas	Types of work	Recommended lux (min)
Bedroom	General	150
	Localized: Beds	500-(250)
	Localized: Offices	500-(250)
Kitchens		500-(250)
Large area	Press Conference, restaurant, bar, Exhibition Halls	500-(250)
Large area	General	**150**
	Supplementary lighting mirror	500-(250)
Halls, Staircase		**150**

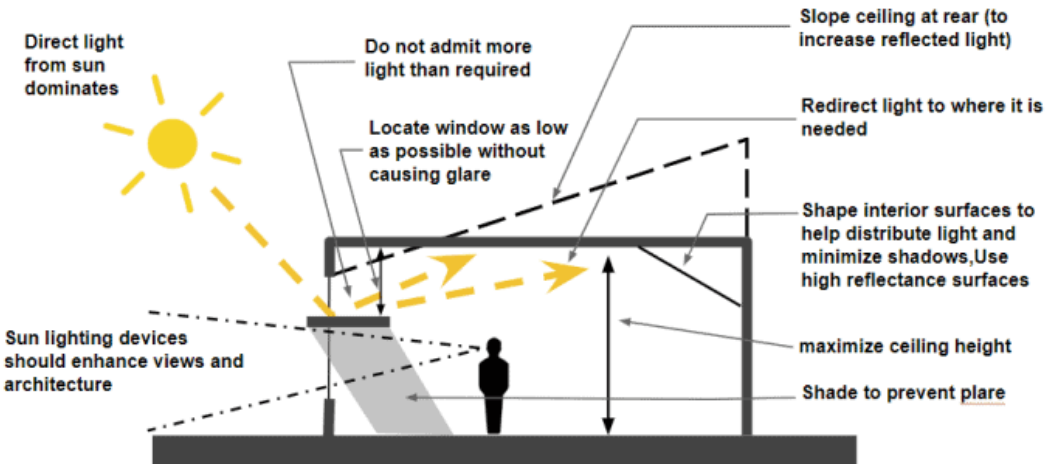


Figure 10 Basic strategy to use sunlight

(Source: Planlux, Source of Natural lighting)

2.12 Landscape

A resort is spread over a large area, offering high potential for landscape design. Landscaping extends indoor spaces using elements like decks, lawns, and terraces while enhancing the building's appearance. Beyond aesthetics, landscaping serves functional purposes such as screening work areas, loading bays, and refuse stores, as well as reducing wind, solar heat, and exposure. It also aids in ground drainage and stabilization. Landscaping includes not just plants and trees but also seating areas, pergolas, gazebos, walkways, and water features like ponds, fountains, and artificial waterfalls. A well-integrated natural setting makes a resort more inviting and immersive.

2.12.1 Design consideration

Variety of spaces: Landscape helps to heal the social health of people. Provision of space for group and single person should be allocated in landscape garden. It would be better to provide variety in landscape rather than monotonous as the user does not bear the same kind of perception.

Prevalence of green material: Hard surface has to be minimized and it is preferred to have a large scale of greenery with varieties of trees, herbs, and shrubs with soft land finish. Maximum 1/3 of total landscaped land can have a hard surface.

Encourage exercise: Garden should encourage walking as a form of exercise to improve physical as well as mental health.

Minimize intrusion: Negative factors like smoke, dust, noise, litter, and dry bushes/trees are avoided, and promoting natural light, wind, and greenery, which are positive factors of landscape.

Sensory stimulants: Factors which create stimuli in our sense organs. This can be achieved through considering the following:

Sound:

- Generated by the whistle of plants, wind flow, water flow, wild animals, birds, etc.
- Sound is limited by the amount of background noise—this can be partially screened by a barrier of noise-absorbing trees or fencing, but never removed totally.

Water

- Flowing water: It requires electricity for pumping if there is no presence of a down-flowing water stream on site.
- Water generates different sounds if it comes and hits across baffles and obstructions and also by varying the speed of water flow.
- The sensation of getting wet is very powerful, particularly for people who might otherwise rarely get wet in an outdoor situation.

Air

- Moving air can generate soothing sounds as it blows through trees, bamboo, or grasses.
- A man-made chime of different materials makes different sounds.

2.13 Safety and Security

Safety in a resort depends not only on efficient design but also on regular inspection, maintenance, and proper handling of equipment. Seismic safety should be ensured through structural strengthening, while fire safety requires separating high-risk areas to prevent hazards.

To enhance fire protection, automatic fire and smoke detection systems, alarms, and firefighting equipment must be installed at regular intervals. Fire escapes should be within 100 meters from any endpoint, and fire alarms must be visible and glowing at all times. Fire extinguishers should be placed every 25 meters, while smoke detectors are mandatory in all guest bedrooms and desirable in most areas except kitchens, where continuous smoke is generated. Emergency exit signs should be clearly visible in all common circulation spaces.

Security is also a crucial aspect of resort design, especially for large-scale resorts with extensive grounds and multiple small units. A well-planned security system is essential to protect guests, their assets, and the overall property, ensuring a safe and comfortable stay.

2.14 Administration and Service Area

The front of the house is operated and controlled by functioning of back of the house. In a resort, extensive service area has to be allocated for proper orientation. Wise and controlled operation of services through efficient administration helps to maximize the profit of resort.

Administration area covers;

-Front office
- Meeting Halls

-Account sections
- Staff cubicles

-Managerial staff rooms
- Office store

-Executive officers' rooms

Service area includes;

-Laundry section (Washing, Drying, Ironing, and Linen storage)

-HVAC Control room
- Storage

-Generator room
- Kitchen and supplementary area

-Maintenance department
- Staff facilities

2.15 Parking

For a well-planned parking area in a resort, each parking space should be at least 10 feet wide to allow comfortable access. If the parking is meant for guests without drivers, 135 square feet per car should be allocated. The roads within the parking area should be 20 feet wide for two-way traffic and 12 feet wide for one-way traffic to ensure smooth and safe vehicle flow.

Single parking:

- Parking bays are perpendicular to circulation road.
- Suitable for two way and large no. of vehicles

Angled parking:

- Parking bays are inclined in 30°, 45°, 60°, 90°.
- Reduces the width of the parking lots.
- Suitable for one way traffic which has separate entrance/ exit.

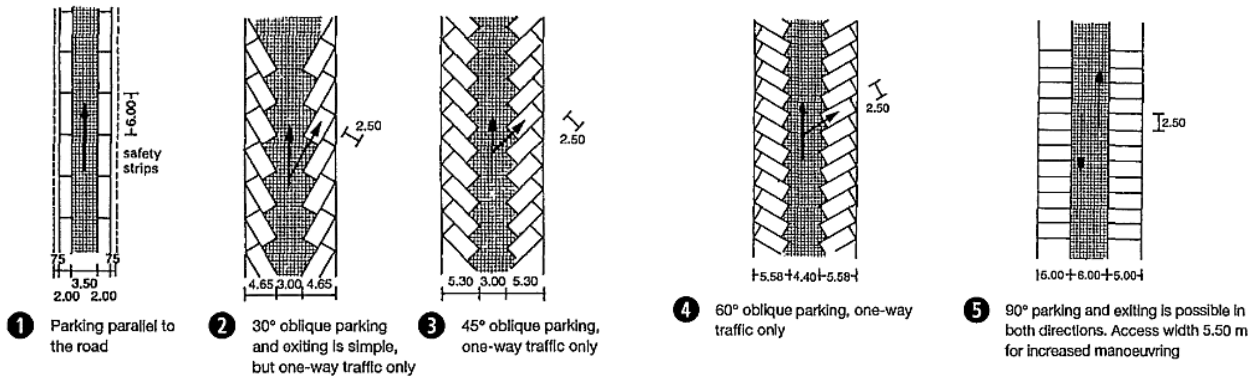


Figure 11 Standard dimension of parking lots (Source: Neufert Architects)

Table 8 Size of vehicles

Types of Vehicles	Length (m)	Width (m)	Turning radius (m)
1. Motorcycle	2.2	0.7	1
2. Car			
• Standard car	4.7	1.75	5.75
• Small car	3.6	1.6	5
• Large car	5	1.9	6

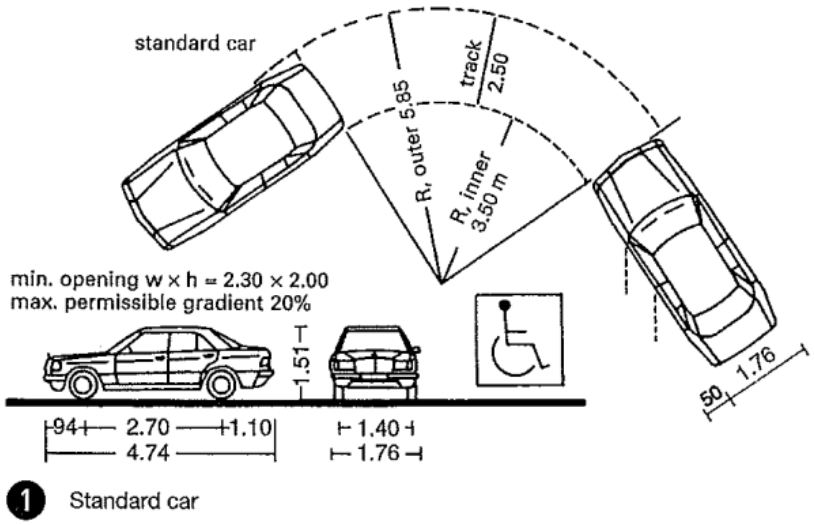


Figure 12 Turning radius of a car (Source: Neufert Architects Data)

2.16 Universal Design

Differently able people should be considered while designing the public space or public building. Special consideration should and care should be taken in architecture design and finishing. Simple consideration in designing can be very much acceptable for differently able people such as pedestrian walks at street curbs should be ramped and it should be non-slip surface and curb jambs should be coloured. This simple consideration and construction really helped a lot for such person who uses wheel chairs. While designing such public building or spaces consider spaces for differently able people in public area such as;

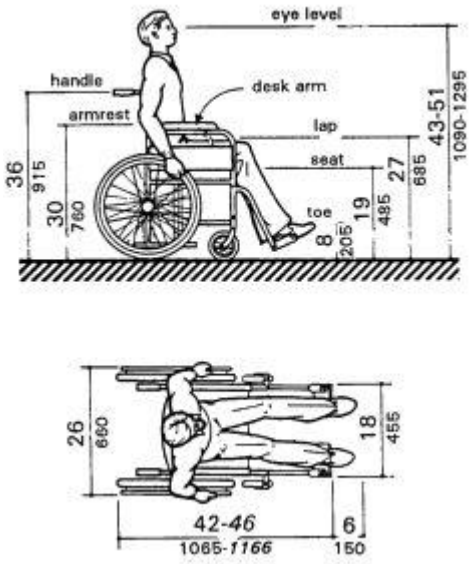


Figure 13 Wheelchair dimension

(Source: Neufert Architects Data)

- Corridor spaces
- Parking area
- Bathroom
- Sitting space

General consideration

- Knowledge of detail dimension of wheel chair.

- Negotiate ramp sloped 5 percent (1:20) whereas steeper ramps limit independent of wheel chair use.
- Ramps should be no longer than 20 ft.
- 5 ft-6 in ample rest space is need for longer ramps.
- Safer arrangement would be 90 or 180° turn at the platform.
- Recommended width for a one-way ramp is 3 ft. between handrails.
- At least 6 ft should be provided for two-way circulation.
- Handrails installed for children should be at inch high.
- Seating for wheelchair users should be on at least 2 ft. 6-inch centre to centre and tables should be 3-6" wide.
- Service area such as elevators should be considered for vertical circulation.

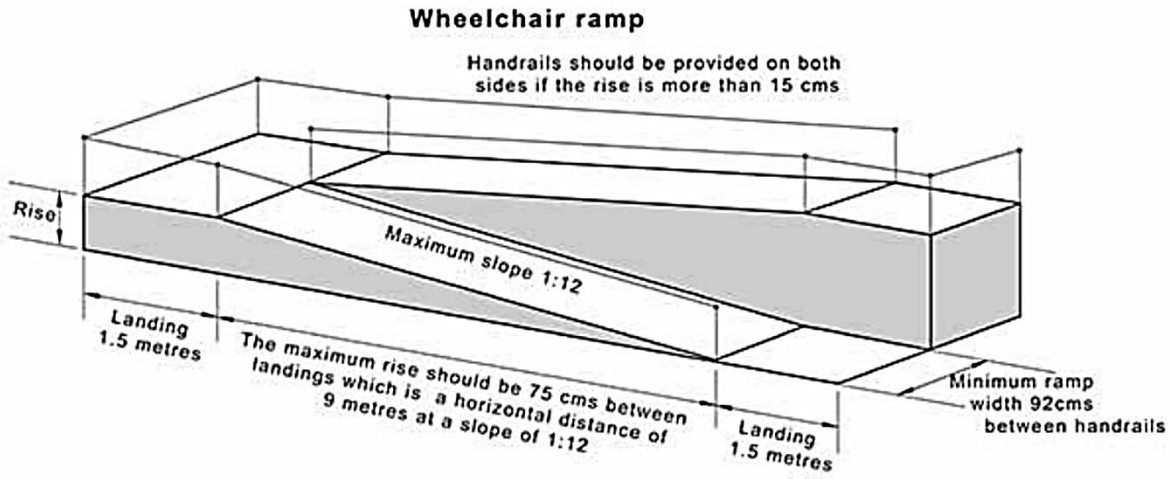


Figure 14 Wheelchair ramp

Important Factors in Planning of the resort

- Visual linkage should be provided between indoor and outdoor spaces.
- Privacy should be maintained in the guest units.
- Outdoor spaces should be well planned incorporating natural elements circulation provided concerning the flow of people and services.
- Circulation pattern must be clear; it should not create confusion in the flow of the people.
- Creation of a healthy environment within the resort is important.
- Facilities, services along with good quality of food are a must.
- Special concern should be provided for children, elderly people and disabled.

CHAPTER 3: STUDY OF ECO-SENSITIVE ARCHITECTURE

Eco-sensitive architecture is a design approach that prioritizes harmony between buildings and nature. It focuses on minimizing environmental impact, conserving resources, and creating energy-efficient structures while ensuring human comfort. This architectural philosophy responds to climate, topography, and natural ecosystems, making spaces more sustainable and liveable.

3.1 Site Responsive design

Site-responsive design is an architectural approach that adapts to the natural environment, utilizing local climate, topography, vegetation, and cultural context to create sustainable and harmonious spaces. In the context of an eco-resort, this approach ensures that the built environment blends seamlessly with nature while minimizing its ecological footprint. A well-planned site-responsive design enhances guest experience, reduces energy consumption, and promotes sustainability.

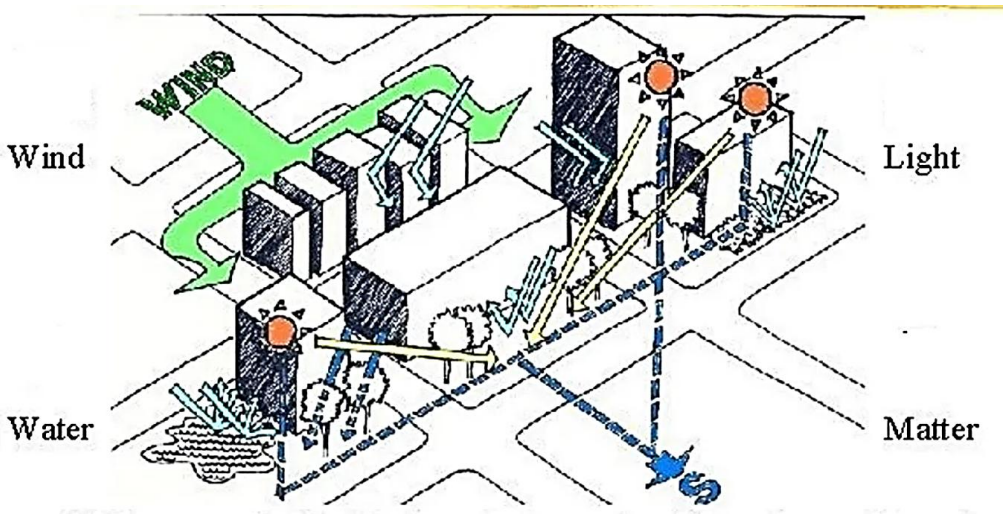


Figure 15 Site responsive design (Source: Archi- Monarch, Site climate)

3.2 Passive Design

Passive Design refers to the use of natural elements such as sunlight, wind, and shade to create comfortable living spaces while minimizing energy consumption. It is an architectural approach that relies on building orientation, site selection, building materials, insulation, and ventilation systems to reduce the need for mechanical heating, cooling, and lighting.

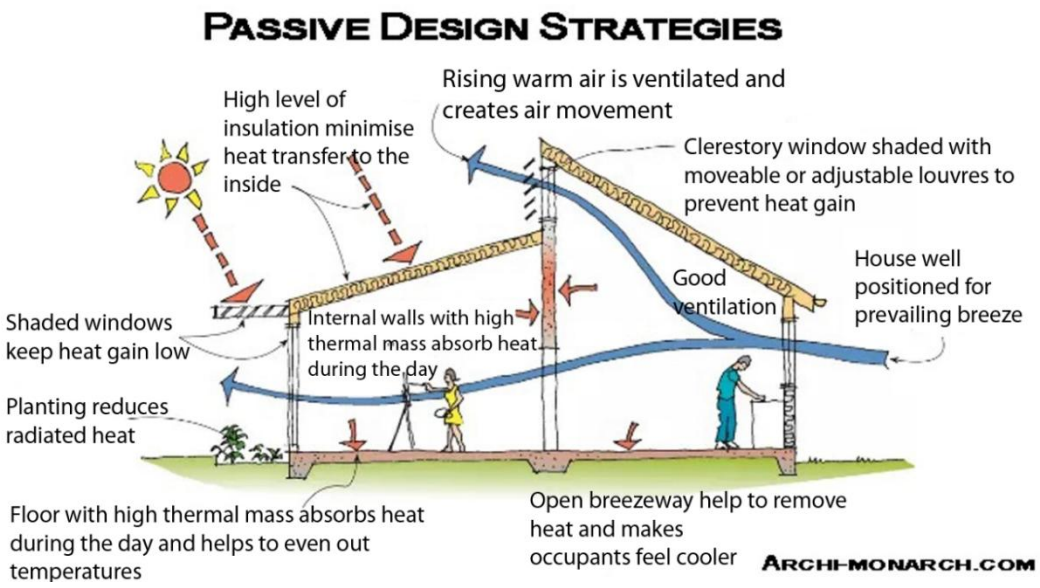


Figure 16 Passive design strategies

Passive Design principles are based on the use of the natural elements such as sunlight, wind, and shade to create comfortable living spaces. These principles include;

3.2.1 Site and Orientation

When selecting a site, consider factors such as the slope, vegetation, soil quality, and microclimate. A south-facing slope with minimal vegetation and good drainage is ideal for solar gain, while a site with trees or hills to the west can provide natural shading in the afternoon.

In the Northern Hemisphere, south-facing windows and walls receive the most solar gain, while north-facing walls receive the least. East-facing windows can provide morning sun, while west-facing windows can provide afternoon sun but can also cause overheating in summer.

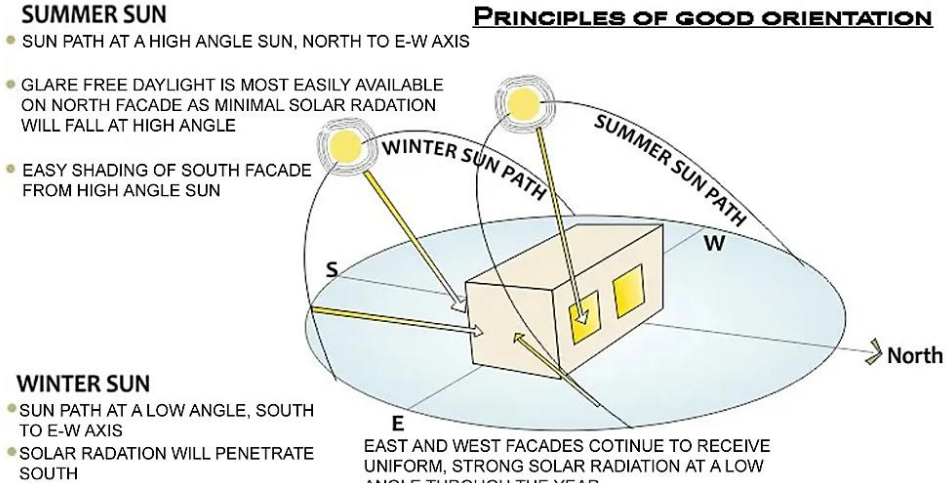


Figure 17 Principles of good orientation

3.2.2Building Envelope

Insulating and sealing the building envelope helps to reduce heat loss and air leakage. Using high-performance windows and shading devices to regulate heat gain and glare.

3.2.3 Ventilation

Natural ventilation is essential strategy in passive design which helps to improve indoor air quality, regulate temperature and humidity and also reduce the need of mechanical ventilation.

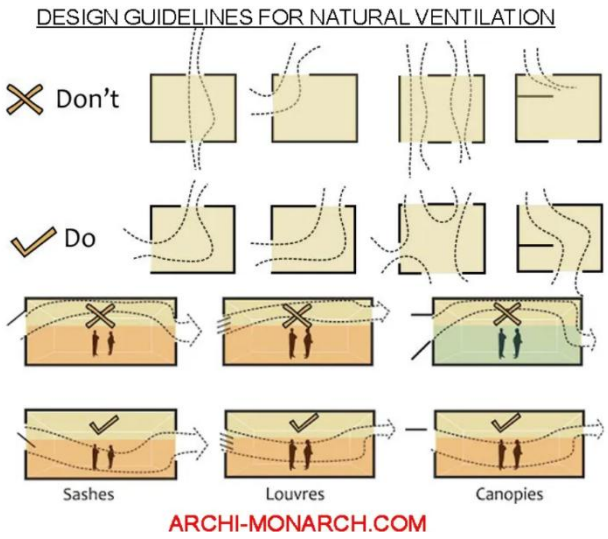


Figure 18 Guidelines for natural ventilation

3.2.4 Passive solar heating and cooling

Passive solar heating involves the use of the sun's energy to heat the building naturally, reducing the need for mechanical heating. Passive solar heating can be achieved through strategies such as direct gain, indirect gain, and isolated gain.

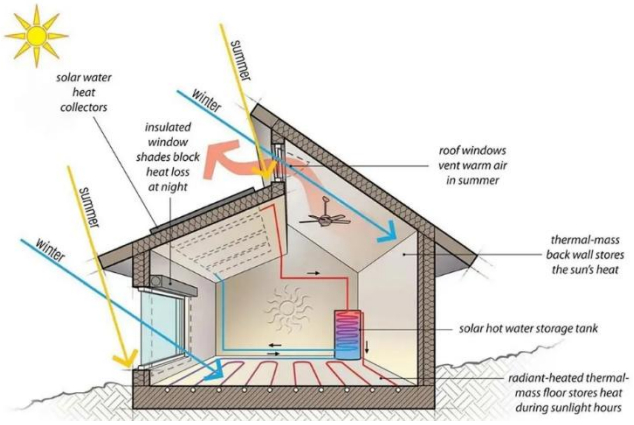


Figure 19 Passive solar heating

Passive cooling techniques cool both the house and the people in it, using elements such as air movement, evaporative cooling and thermal mass.

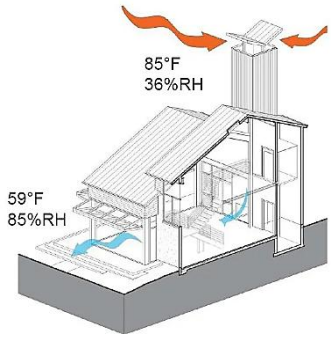


Figure 20 Passive solar cooling

3.2.5 Water Efficiency

3.2.5.1 Water conservation strategies

Water conservation is a critical aspect of Passive Design. The design must also consider the use of alternative water sources, such as rainwater harvesting and greywater reuse.

3.2.5.2 Rain water harvesting

Rainwater harvesting means collecting and storing rainwater so it can be used later instead of letting it go to waste. This water is usually collected from rooftops or even from rivers, fog, or dew using special tools. The collected rainwater can be used for watering plants, feeding animals, cleaning, or even for drinking and home use if it's properly treated.

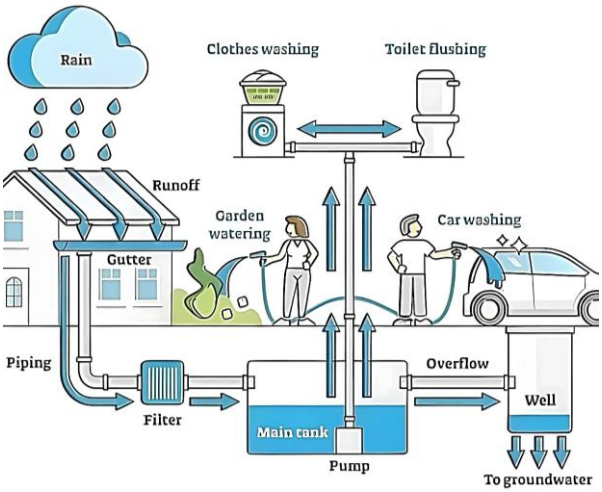


Figure 21Uses of rain water harvesting (Source: Pinterest)

At the start of a rainfall, the first 10–15 minutes of water is usually not collected because it may be dirty. After that, cleaner water is stored in tanks or allowed to soak into the ground to refill underground water.

3.2.5.3 Grey water recycling

Grey water is all household wastewater except from toilets (called night soil). It comes from bathroom sinks, showers, baths, laundry, and sometimes kitchen sinks, though there's no full agreement on including kitchen water. It's called grey water because it looks cloudy and is not completely clean like drinking water, but not as dirty as sewage. Grey water can be reused for things like flushing toilets or watering plants, helping save water. If the water has a lot of food waste or strong chemicals, it's called "dark grey" or dirty water.

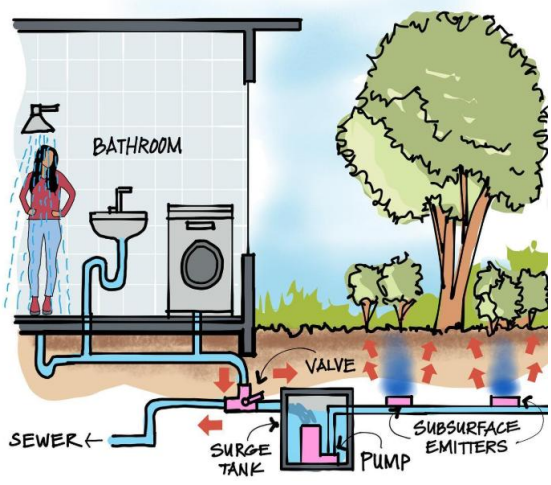


Figure 22 Mechanism of greywater reuse

CHAPTER 4: MATERIALS

4.1 Rammed earth

Rammed earth is of of the sustainable building technique where walls are constructed by compacting a mixture of soil, aggregates, and sometimes stabilizers, between a formwork.

The standard thickness of rammed earth walls is generally 300mm. In instances where niches and recesses are required for fireplaces, heater boxes etc. walls can be constructed to alternative thickness as required by the project.

Table 9 Thickness of rammed earth wall

Width	Structural (Load Bearing)	Insulated	R Rating
200mm	X	X	R < 0.5
300mm	✓	X	R 0.7
400mm	✓	✓	R 2.5
450mm	✓	✓	R 3.5

Construction details:

The foundation of the structure would be composed of stone masonry with cement and sand mortar. The particular design details would be site specific with regards to the availability of the local materials. The bond beam which sits on top of the stone foundation would be of reinforced cement concrete. From the bond beam, as per the design, the vertical reinforcements would be installed for the masonry walls which will provide stability and strength for the whole structure.

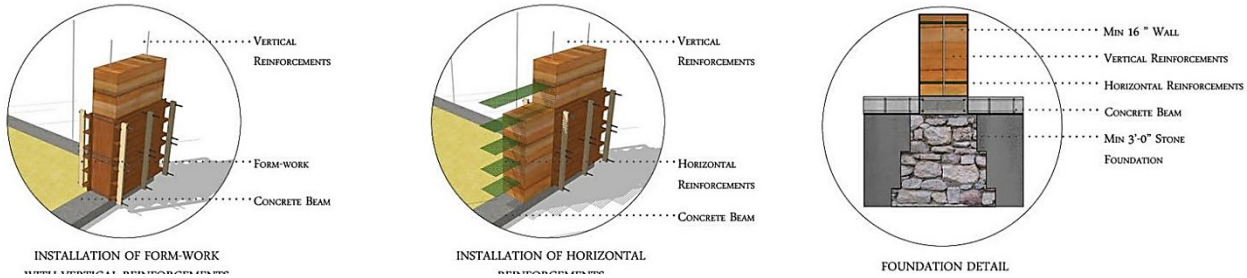


Figure 23 Installation details of the rammed earth construction (Source: Abari.earth)

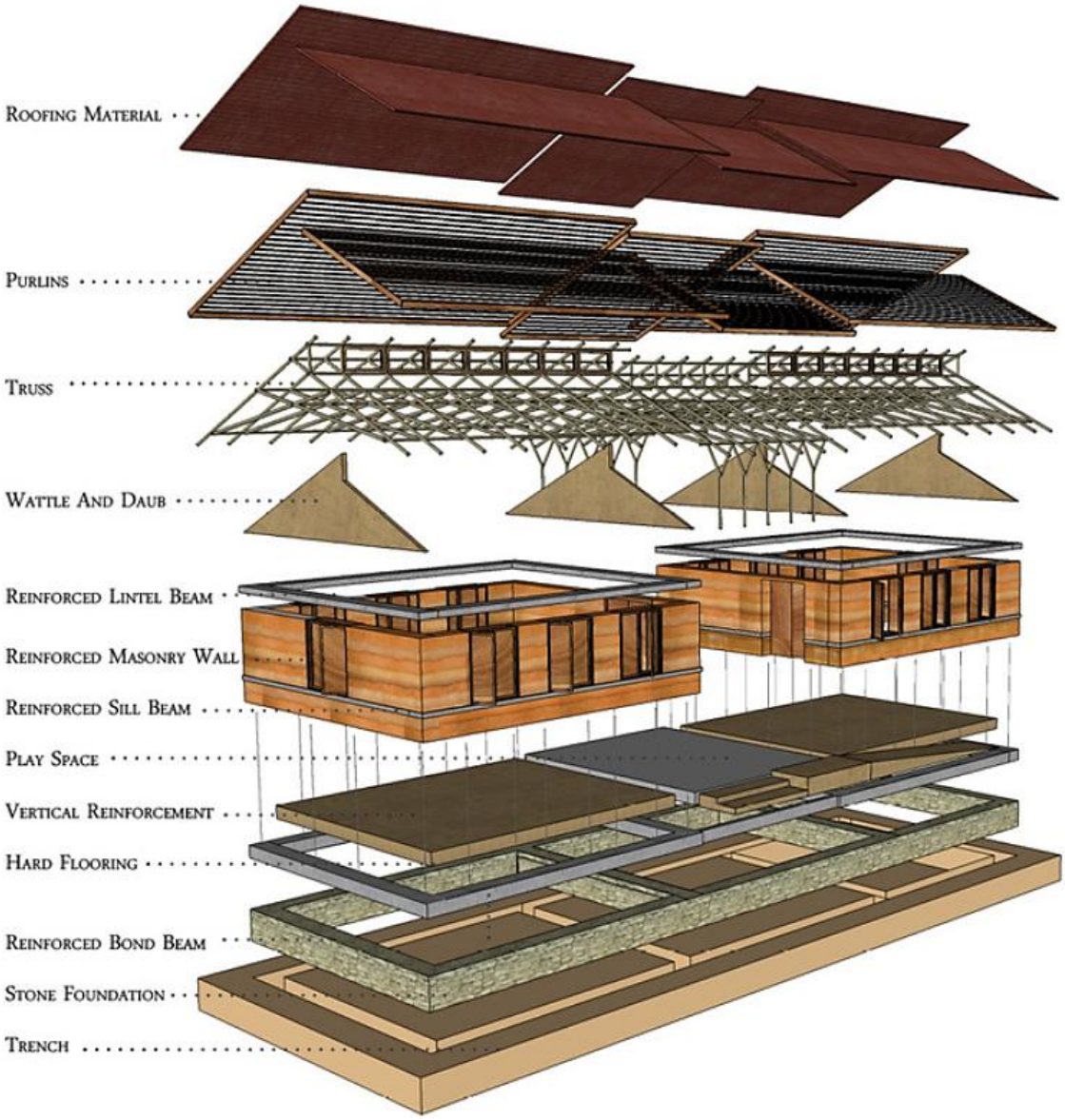


Figure 24 Construction details of the rammed earth (Source: Abari.earth)

4.2 Stone and Natural Aggregates

Locally sourced stone is a durable and aesthetically appealing material used for walls, flooring, and landscaping. Porous stones allow for better drainage, reducing surface runoff. Recycled aggregates, made from crushed concrete and masonry waste, provide a sustainable alternative to virgin aggregates in construction.

Figure 25 Stone masonry

Environmental Benefits:

- Reduces the need for quarrying, preserving natural landscapes.
- Lowers carbon emissions by minimizing transportation distances.
- Enhances water permeability, preventing soil erosion and urban flooding
- Better performance
- Enhanced cohesion workability/consistency
- Reduced shrinkage and creep
- Durability-better service life of concrete
- Reduced carbon foot print
- No increase in cost
- LEED certification

4.3 Timber

Timber is a natural building material obtained from trees and is widely used in construction for its strength, flexibility, and aesthetic appeal. It is lightweight, easy to work with, and suitable for both structural and decorative purposes.

Environmental benefits:

- It is a renewable resource when sourced sustainably.
- Timber stores carbon, helping reduce greenhouse gases in the atmosphere.
- Its production has a lower carbon footprint compared to steel or concrete.
- Timber is biodegradable and produces less construction waste.
- It supports energy-efficient buildings by providing natural insulation.

(Source: researchgate)

CHAPTER 5: CASE STUDIES

5.1 National case studies

Figure 26 Isometric view of Himalayan pavilion resort

5.1.1 The Himalayan Pavillion - The Farm

Location: Pokhara

Gross Built Up area: 3000 Sq. M

Design started year: 2013

Completed Year: 2016

Architect: Ar. Alex Shrestha, Wonaw & Associates

Targeted group: Travelers and Tourists

Introduction

The Himalayan Pavilion is a unique eco-friendly resort designed to blend modern sustainability with traditional architecture. Located in a serene natural setting, this pavilion is known for its environmentally conscious design, making it a model for sustainable tourism.

The resort has been conceptualised to be a part of the village and eco-friendly in every sense possible with minimal footprint to the environment from its early design stage to its construction and actual finishing. The use of local materials, workforce, indigenous technology and local architecture blended with the eco-friendly technologies and practices have been the guiding principles for the design.

Here are a few of its salient features:

- Surrounded by farmland, forested hills, and a mountain-fed stream, the 14 luxurious eco-friendly villas form the natural landscape.
- Spread over organic farmland, the resort respects the natural elements, showcasing village life in Nepal.
- Conceptualized to be a part of the village and eco-friendly in every sense possible with a minimal footprint on the environment from its early design stage to its construction and actual finishing.
- Use of local materials, workforce, indigenous technology, and local architecture blended with eco-friendly technologies and practices have been the guiding principles for the design.

Highlights of resort:

- Overwhelming views of mountain landscape
- Yoga and meditation
- Diverse opportunities to relax, go trekking or joining Safaris into Himalayan regions
- Luxurious amenities, showcasing authentic Nepalese life
- Nepalese and international cuisine
- Pool and outdoor whirlpool
- Spa area with sauna

Architectural Features

The Himalayan Pavilion – The Farm mixes traditional Nepali style with modern design, creating a space that feels both local and comfortable. The buildings use natural materials like stone, wood, and mud, with sloped roofs and wooden beams to give a cozy, authentic feel. The layout is like a village, with paths, low walls, and open spaces that bring people together.

Figure 27 Façade of Pavillion Himalayan resort

Site Planning

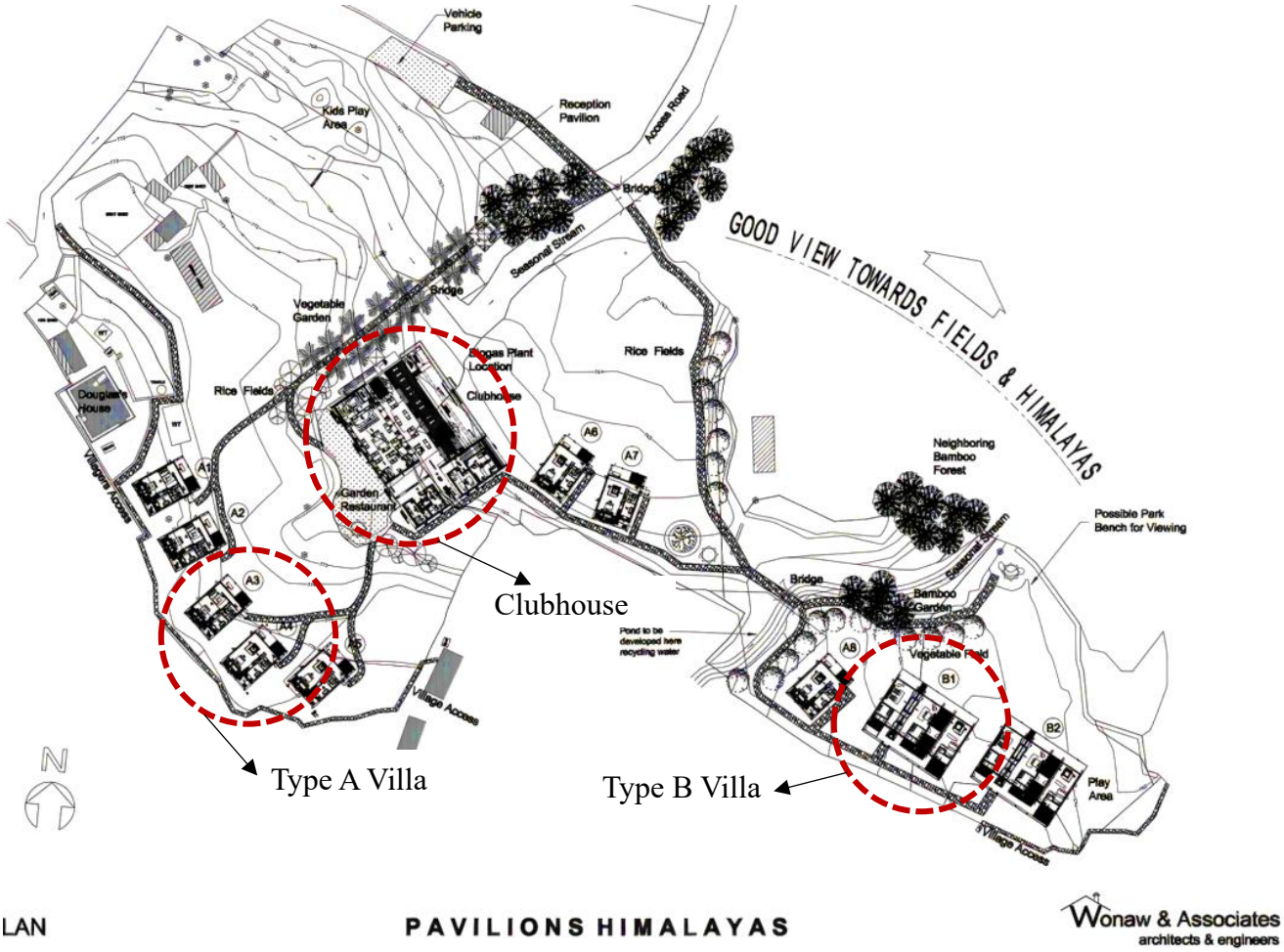


Figure 28 Master plan of The Himalayan Pavilion Farm House

- The site is part of a small village and lies at the base of a hill, and spread over 2 hectares of gradually gradient farmland. To its South are steep hills with a dense forest, to its north are open farmlands which overlook the Himalayas.
- .
- The villas and clubhouse are positioned close to the southern perimeter, facing north to maximize valley and Himalayan views, while being strategically placed to avoid disturbing the best farmland areas.
- The five villas (A1 to A5) are positioned at the highest point of the site, with A1 to A3 designed as split-level structures to follow the natural land contour. The Clubhouse, located at the mid-level, is placed centrally for easy access. Nearby, villas A6 and A7 are positioned beside the Clubhouse. On the eastern side, a seasonal stream divides the property, where

villa A8 and the family units B1 and B2 are situated, creating a well-balanced and naturally integrated layout.

- The landscape is designed for easy access to different structures while maintaining privacy. Instead of high walls, the resort has low stone walls, creating a traditional mountain village feel and keeping the design open and welcoming.

Types of Accommodations

- **VILLAS: Type A**

This villa has been designed in a single level and split-level configuration to suit the natural topography. A private portico leads into a pantry/bar where guests are greeted with strategically placed floor lights controlled automatically by motion sensor. This follows onto a spacious living room that has a large double-glazed window in the front which opens into a private deck overlooking the fields and Himalayas, to its rear is a king size bed with a traditional back drop.

Figure 29 Split level villa elevation

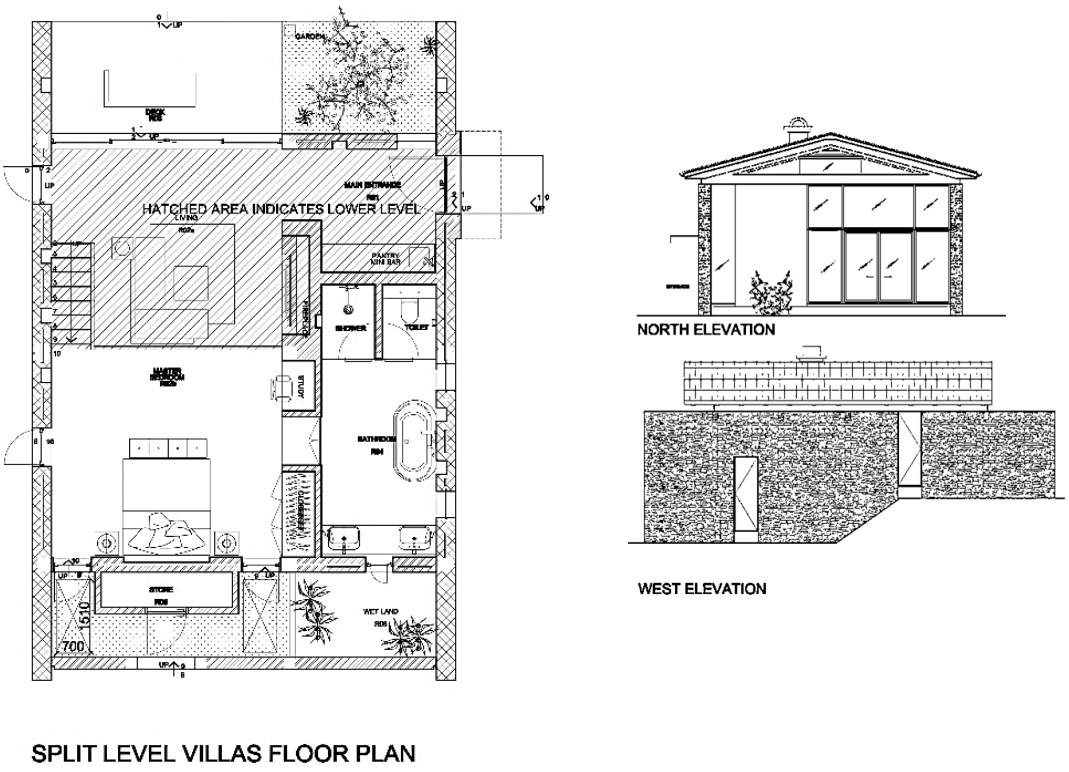


Figure 30 Split level villa plan and elevation (Source: Wonaw and Associates)

Figure 31 Interior of Type A villa

Interior features natural stone walls, dark wooden flooring, and black wooden railings, creating a warm and earthy ambiance. The mustard-yellow pillows add a cozy touch, while the small red-framed wall niches bring a nice pop of colour. The mix of wood, stone, and soft colours makes the space feel both comfortable and stylish.

- **VILLAS: Type B**

This villa is designed as a multifunctional unit with three interconnected rooms to accommodate a large family or as separate rooms. A rear garden path lined by rainwater filtration systems and a lush wetland for greywater leads to the individual rooms.

Figure 32 Type B villa

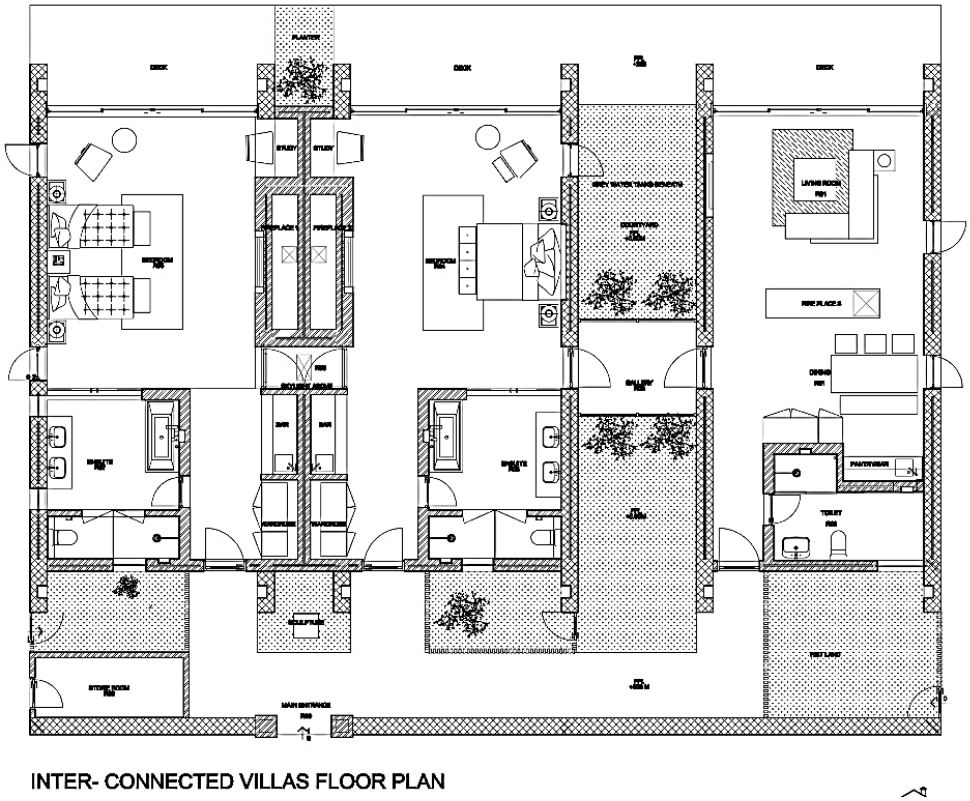
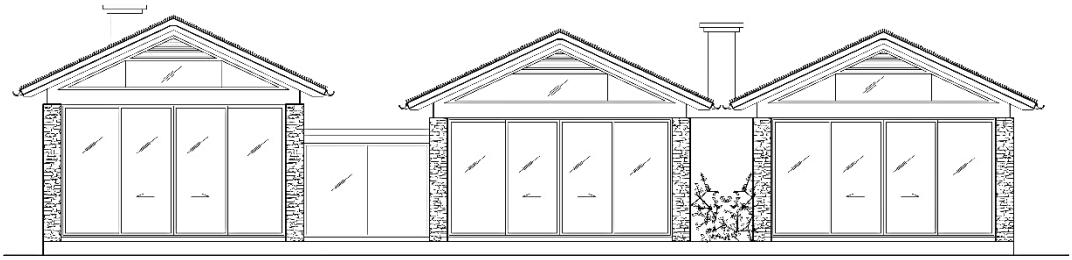


Figure 33 Plan of type B villa

(Source: Wonaw and Associates)

The first two rooms are identical in layout; however, the third room is designed slightly different with a higher roof line to be playful and also depict the surrounding hills. This room also serves as a living space for the family with their own kitchenette, a dining table and an open fireplace.

Each room also has a lavish bathroom with a tub, double countertop sinks, separate toilet and shower glass cubicles, a bar, living room and bedroom with fireplace and a private exterior deck.



INTER-CONNECTED VILLAS NORTH ELEVATION

(Source: Wonaw and Associates)

Figure 34 Elevation of type B villa

- **Clubhouse**

The clubhouse is designed in a split-level configuration to suit the natural topography, and is broken down into 3 segments for seismic considerations. The upper level has guest related functions and the lower level has spaces to support operations.

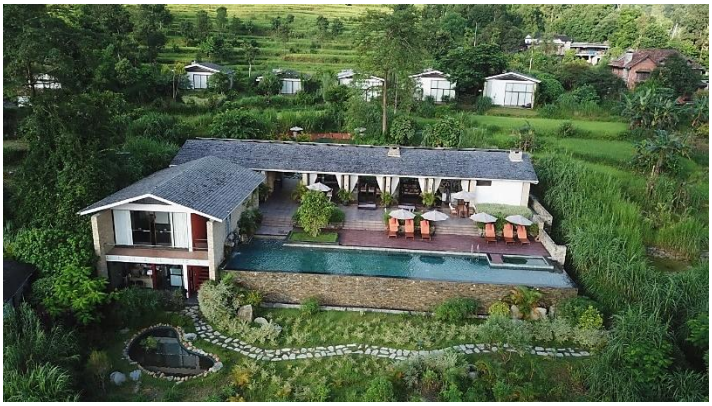
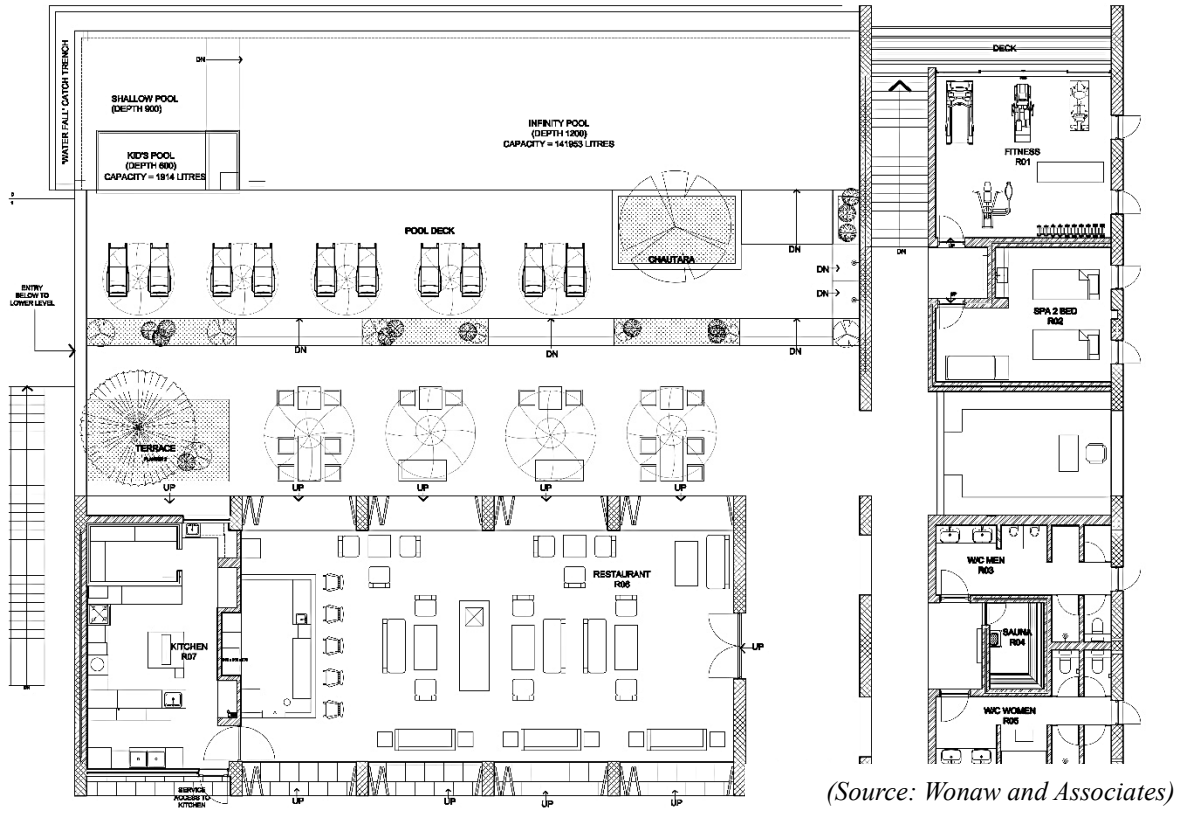


Figure 35 Clubhouse

Figure 36 Interior of Clubhouse

The restaurant has a variety of seating arrangement ranging from swinging chairs, to easy loungers and tables. A large central open fireplace segregates the two spaces and gives privacy. Large folding windows have been placed on either side to let in the natural environment and for natural ventilation. Outdoor seatings with umbrellas have been placed adjacent to the restaurant for guest to dine in the open. The upper level also has a male/female changing room, a sauna, a boutique, luxurious SPA, gym and kitchen.

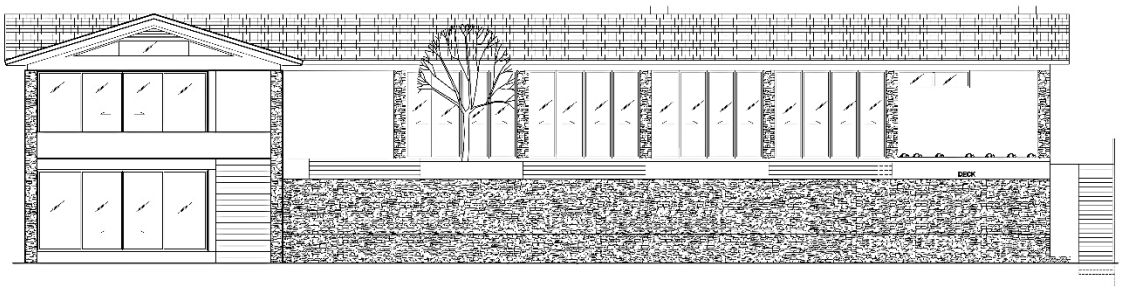


(Source: Wonaw and Associates)

CLUBHOUSE FLOOR PLAN

PAVILIONS HIMALAYAS

Wonaw & Associates
architects & engineers



CLUBHOUSE NORTH ELEVATION

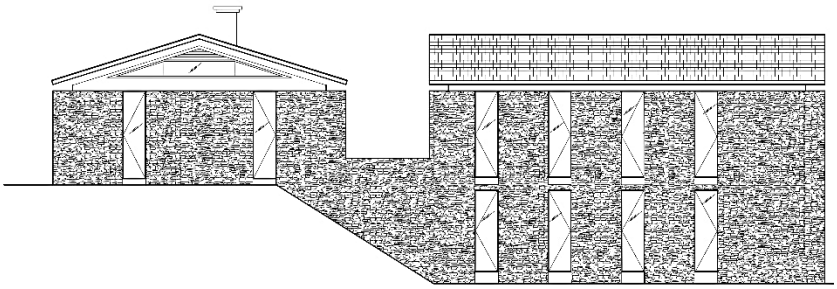


Figure 37 Plan and elevation of Clubhouse

Sustainable practices used in resort

The structures are built on single and split-level configurations, using the natural topography to minimize the disturbances to the flow of the land. Latest construction technology along with traditional architecture and local craftsmen also make the buildings safe, energy-efficient, and coherent to the local surroundings.

Ceiling

XPS insulation has been laid on top of the roof slab and clad with natural stone slates inconformity to the local architecture. The interior side also has a gypsum board ceiling with air cavity which keep the interior space comfortable during all seasons.

Figure 38 Insulation laying process on ceiling

Walls

XPS insulation was used in between the external cavity walls; this provides excellent thermal insulation and increases the energy efficiency of the villas. Natural stone have been used for the external walls to depict the local architecture and give a rustic look.

Figure 39 Insulation laying process on wall

Floor

Natural hard and soft wood has been laid on top of XPS insulation, which again provides excellent thermal insulation and increases the energy efficiency of the villas. This saves as much as 15% of the heat in a room.

Figure 40 Insulation laying process on floor

Windows

Large double-glazed windows have been placed strategically to allow natural air flow into the rooms as well as to provide a clear and open view into the surrounding natural landscape. The insulated windows also help minimising noise and maintain a comfortable temperature inside the room through all seasons without compromising the comfort.

Electricity

The resort is run by solar electricity produced within the resort. Efficient LED bulbs have an exceptionally long lifetime and give significant energy savings while enhancing the interior space, they are also controlled by infrared motion sensor switches which turn on the lights only when needed thus saving energy.

Figure 41 Solar panel laid on roof

Heating and Cooling

The resort does not use Air conditioners to heat or cool the rooms. The extensive use of insulation throughout the building, natural cross ventilation through windows and louvres and passive solar design helps keep the rooms temperature at around a comfortable 23 degrees centigrade throughout the year. Electric fans and a fireplace which burns natural briquettes are available if necessary.

Water

All the structures have large roofs which collect rain water, and are channelled by gutters to large underground tanks in every villa. This is filtered naturally and reused for all the guests needs, in the showers, tubs and sinks. This undoubtedly saves a lot of water.

Rainwater harvesting provides over 50 per cent of the resorts water needs. This not only saves water, but saves money and reduces our impact on the environment.

Hot Water

Each villa has two efficient flatbed solar panels to heat water for the majority of the year. This is a cost-effective way to generate hot water for and the fuel sunshine, is free. If for any reason, the water is not hot enough, the centralised heat pumps automatically start to transfer the heat in the air to heat the water.

Figure 42 Wastewater being used in transquil koi pond

Waste Water

The soapy 'grey water' produced from the shower, sinks and bath tubs are also treated using natural methods by bio sand filters and plants, and then reused for flushing the toilets and landscaping purpose reusing precious water. Excess grey water is used for fishponds and farming, thereby reducing the chance that it will pollute local water bodies.

Black Water

The sewage from the villas flows into a centralised bio gas plant, and along with the cattle manure from the farm, methane gas is produced. This gas flows into the main kitchen and is used as fuel to cook food for the resort. Currently 6-7 gas cylinders worth of cooking gas are produced from the waste.

Food

Fresh organic food, staple crops, fruits, vegetables, milk and meat are farmed within the resort for the guests throughout the year. The residue manure produced from the biogas plant is used as fertilisers in the fields to grow food.

Swimming Pool

Rain water is integrated into the pool and regular salt along with a salt chlorinator is used to clean the pool water.

Chlorine generators eliminate the need for most swimming pool chemical maintenance, lowering maintenance costs.

Figure 43 Top view of clubhouse

Analysis

Path- space relationship

The resort features a network of winding stone pathways that seamlessly connect villas, the clubhouse, and communal areas. The paths follow the natural contours of the site, enhancing accessibility while preserving the surrounding greenery.

Main Entry

The central clubhouse and pool area serve as the focal point, welcoming guests upon arrival. The entry pathways are defined by low stone walls and lush greenery, creating a harmonious transition from farmland to the built environment.

Linkage

The resort is divided into two major zones separated by a seasonal stream. The main clubhouse and pool area sit in the heart of the site, while private villas are positioned across different levels. A small footbridge over the stream connects both sides, allowing for fluid movement while preserving the natural water flow.

Path configuration

Figure 44 Circulation of resort

The paths are strategically curved to blend with the terraced fields and rolling terrain, ensuring an organic and immersive experience as guests walk through the property.

Views

Since there is no mountain or river view, guests can enjoy the beauty of the agricultural landscape and watch the daily life of the locals. The open spaces, large windows, and terraces help guests feel connected to nature and experience the peaceful rural environment. This creates a unique and calming atmosphere, different from typical mountain or riverside resorts.

Figure 45 Isometric view of Om Adhyay resort

5.1.2 Om Adhyay Retreat Resort

Location: Tistung, Makwanpur

Total area: 22 Ropani

Completed Year: 2016

Targeted group: National as well international tourists

Introduction

Om Adhyay Retreat Resort is a serene escape nestled in Tistung, Makwanpur, surrounded by breathtaking natural beauty. Situated just 65 kilometres from Kathmandu, the resort offers a peaceful retreat where guests can relax, reconnect with nature, and enjoy a range of outdoor and indoor activities. The resort is thoughtfully designed to blend harmoniously with its environment, creating a space that is both comfortable and refreshing. Its spacious accommodations, stunning views, and modern amenities make it an ideal destination for families, couples, and corporate groups looking for a tranquil getaway.

The silent features of the resort are;

- The resort includes a big swimming pool, sports courts, and a library for guests to enjoy both relaxation and activities.

- The spa and wellness centre are designed for calm and relaxation, with natural materials that create a soothing atmosphere.

Highlights of the resort

- Tranquil location offering beautiful natural views.
- A variety of rooms and villas.
- Outdoor dining and bars.
- Recreational activities like swimming, horse riding, table tennis, and volleyball.
- Play area for kids.
- Wellness and spa area for relaxation and rejuvenation.
- Close proximity to Kulekhani Dam, Daman, and Chitlang for outdoor exploration.
- A conference hall suitable for corporate retreats and events.

Architectural Features

Om Adhyay Retreat Resort beautifully blends elegance with nature through its thoughtful architectural design. Grand gazebos with classic pillars and sloped roofs offer a royal yet peaceful vibe, perfectly placed to take in the stunning hillside views.

Charming pathways with patterned tiles wind through lush gardens filled with neatly arranged potted plants. A small water feature near the seating area adds a calming touch, while white benches and curved sitting spots invite guests to relax in comfort.

The resort's structures combine traditional and modern styles, with soft pastel walls, decorative railings, statues, and planters adding character. Set against the backdrop of green hills and open skies, the entire place feels serene and picture-perfect.

Figure 46 Overall view of Om adhyay resort

Site Planning

- Om Adhyay Retreat Resort is beautifully planned to give guests a peaceful and enjoyable stay while staying connected with nature. A parking area is located near the entrance for convenience. The Welcome Pavilion is positioned nearby, providing an initial stop for check-ins and guidance.
- At the heart of the resort is the main block, which consists of essential services such as reception, administration, and rooms. Next to it is the Staff Quarter, ensuring easy maintenance and service operations.
- The resort offers different kinds of accommodations, including rooms and villas, which are spread out across the property. Some rooms are built on split levels with terraces, allowing guests to enjoy beautiful views of the surrounding landscape.
- For dining, the resort has a restaurant with an outdoor seating area, making mealtimes more enjoyable with fresh air and scenic views.

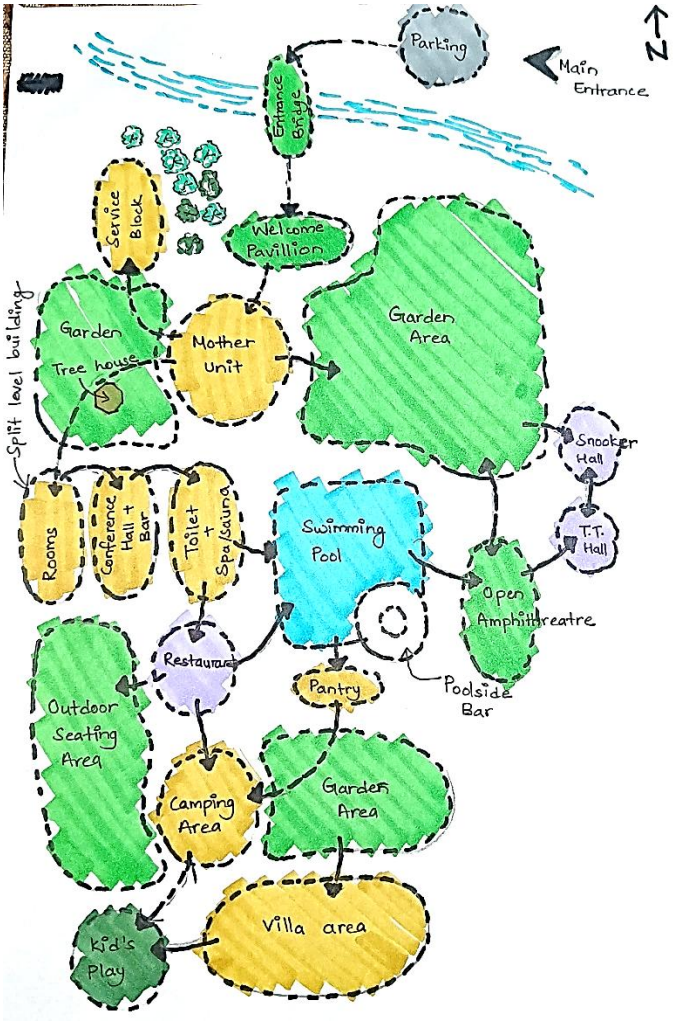


Figure 47 Bubble diagram of Om adhyay resort

- A conference hall and bar are conveniently located nearby, providing an ideal setting for hosting events, meetings, and celebrations.
- The resort also focuses on wellness, providing a spa with sauna and steam rooms for relaxation. A Swimming Pool with a Poolside Bar is centrally located, promoting relaxation. A Locker Area is provided for pool users. A Spa with sauna and steam facilities ensures a rejuvenating stay for guests.

- Recreation is a big part of the resort's experience. The area includes a swimming bool with bar, kids play area, TT hall and Snooker Hall.
- The master plan balances-built structures with natural landscapes, ensuring open spaces, and connectivity. Functional zoning ensures privacy for accommodations, vibrant public spaces for dining and entertainment, and seamless movement across different resort areas.

Mother unit

The Main Block of this building is a stunning blend of traditional architecture and modern hospitality. As guests enter, they are welcomed by a spacious hall that serves as both the reception area and a large waiting space for guests. The interior is beautifully designed with brick walls, wooden staircases, and elegant furniture, giving it a warm and inviting feel.

Figure 48 Façade of mother unit

Additionally, the main block houses 12 Deluxe Rooms, offering a cozy and comfortable stay for guests. These rooms are well-equipped with all necessary amenities, ensuring a pleasant experience. The overall ambiance of the main block reflects a perfect mix of cultural heritage and modern comfort, making it a unique and welcoming space for visitors.

Split- level block

This multi-level resort block offers a balanced mix of relaxation and functionality. The top-level features two super deluxe rooms with stunning views of the surrounding greenery, providing a peaceful and luxurious stay.

The middle level includes a 100-person conference hall, perfect for events and meetings, along with a bar and terrace seating area for guests to unwind and enjoy the outdoors.

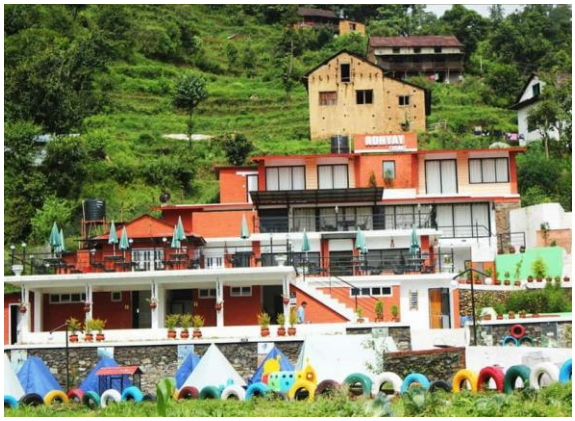


Figure 49 Façade of Split level block

The bottom level focuses on wellness, featuring a spa, sauna, and separate male and female toilets. Overall, the design ensures a comfortable, scenic, and memorable experience for all visitors.

Villas

This charming villa resort is designed in a courtyard style, with all 28 colourful rooms facing a central open seating area. It includes 4 villas with two connected rooms, ideal for small families or groups, and 5 larger villas with four attached rooms for added space and comfort.

Figure 50 Façade of Villa

The courtyard features varied landscaping, creating a peaceful and refreshing atmosphere. Cozy seating with colourful cushions and round stools adds warmth, making it a perfect spot for guests to relax and enjoy the outdoors.

Camping

The camping area at Om Adhyay Retreat Resort in Tistung offers a peaceful outdoor experience surrounded by nature. Each camping tent can comfortably accommodate 2 to 4 people at a time and is equipped with mattresses for added comfort. The area features a fire pit for campfires, garden spaces, and picnic spots, making it ideal for groups or families looking to unwind in a natural setting.

Figure 51 Camping area in Adhyay resort

Recreational Areas

The recreational area of the resort is designed for fun, relaxation, and entertainment for all age groups. It features a refreshing swimming pool where guests can unwind, along with a dedicated table tennis and snooker hall for indoor game lovers.

Swimming pool

The swimming pool is designed to give a fun and relaxing experience, especially for youngsters who love to enjoy both swimming and drinks. At the side of the pool, there is a circular pool bar, where people can grab their favourite drinks while staying in the water. The bar has comfortable seating, so swimmers can take a break, sip a refreshing drink, and continue enjoying their time in the pool.

Figure 52 Swimming pool area in Adhyay resort

Open Amphitheatre

The open amphitheatre near the swimming pool is a perfect spot for entertainment and relaxation. It is designed for live performances, concerts, and events, where guests can enjoy music, dance, or other shows in a beautiful outdoor setting.

Figure 53 Amphitheatre in Adhyay resort

Guests have two amazing options to watch the performances—they can either sit comfortably in the amphitheatre area or enjoy the show while relaxing in the pool! The stage is beautifully decorated, with hanging lanterns and artistic elements, creating a warm and inviting atmosphere.

Play area

The play area is designed for both kids and adults, making it a fun spot for everyone. The kids' play zone is full of colourful slides, swings, and other exciting games where children can run, jump, and have fun in a safe and playful environment. The entrance is decorated with a bright rainbow and cheerful cartoon characters, making it look even more inviting.

Figure 54 Play area in Adhyay resort

For adults, there are indoor game areas like a TT (Table Tennis) hall and a Snooker Hall, where they can relax, play, and enjoy friendly matches.

Garden area

The garden area is designed to be a peaceful and beautiful spot where guests can relax and enjoy nature. The space is thoughtfully decorated with elegant gazebos, cozy benches, and a variety of plants that create a refreshing atmosphere. The presence of water-based landscapes, such as a small pond, adds to the charm of the garden, making it even more serene.

Figure 55 Garden area in Adhyay resort

Every corner of this place is made photogenic, ensuring that visitors have plenty of picture-perfect spots to capture their memories. The use of potted plants, curved pathways, and classical pillars enhances the aesthetic appeal, making it a perfect blend of nature and architecture.

Types of Rooms

The room of the resort has a cozy and rustic feel, with warm brick walls and a wooden ceiling that gives it a natural charm. The beds are neatly made with white linens, accented by blue and green runners and matching pillows. A wall-mounted lamp casts a gentle glow, creating a relaxing atmosphere. The window has a combination of sheer and heavy curtains, allowing natural light while maintaining privacy. The air conditioner on the wall ensures comfort, making the room a pleasant place to unwind.

The room has variance of sizes like 10’x12’, 15’x15’ or 20’x24’. The types of rooms of the resort are;

Type 1: Deluxe Room

The Deluxe Room is a comfortable space perfect for a couple or a solo traveler. It includes a cozy living area, a toilet, and a master bed, making it ideal for a relaxing stay. The room is designed to provide a balance of comfort and convenience, giving guests a peaceful environment to unwind after a long day.

Type 2: Deluxe Quad Room

The Deluxe Quad Room is best for a group of four adults. It features two double beds, offering enough space for a comfortable stay. This room is great for friends or small families who want to stay together while enjoying a spacious and well-equipped setting. It ensures both relaxation and practicality for a group stay.

Type 3: Deluxe Large Family Room

The Deluxe Large Family Room is perfect for a big group of up to eight adults. The room includes four double beds and two attached bathrooms, making it ideal for families or friends who want plenty of space while enjoying their stay.

Figure 56 Interiors in Adhyay resort

Type 4: Super Deluxe Room

The Super Deluxe Room is designed for families who want extra luxury and comfort. It features a master bed and a single bed, making it suitable for parents with a child or a small group. The room also includes an attached bathroom, a cozy living room, and a balcony with seating space, allowing guests to relax and enjoy the view. This room is perfect for those who want a spacious and premium stay.

Figure 57 Interiors in Adhyay resort

Type 5: Villa Triple Room

The Villa Triple Room is ideal for three adults looking for a cozy and comfortable stay. It comes with three single beds, making sure each guest has their own space to relax. The room also includes an attached bathroom, providing convenience and privacy. This setup is great for small groups of friends or colleagues traveling together.

Type 6: Villa Quad Room

The Villa Quad Room is a great choice for four adults who want to stay together. It features two double beds, offering a spacious and comfortable sleeping arrangement. With an attached bathroom, guests can enjoy privacy and convenience. This room is perfect for families or friends who want a relaxing and enjoyable stay.

Analysis

Path-Space Relationship

The resort follows an organic path-space relationship, where built structures are carefully placed within open spaces to create a natural and free-flowing movement. The main circulation paths connect different zones like the entrance, main block, villas, and recreational spaces in a smooth manner. Green areas and open spaces are integrated between the paths, maintaining a sense of openness. The arrangement of spaces ensures a balance between public, semi-private, and private areas, allowing guests to experience both social and quiet moments within the resort.

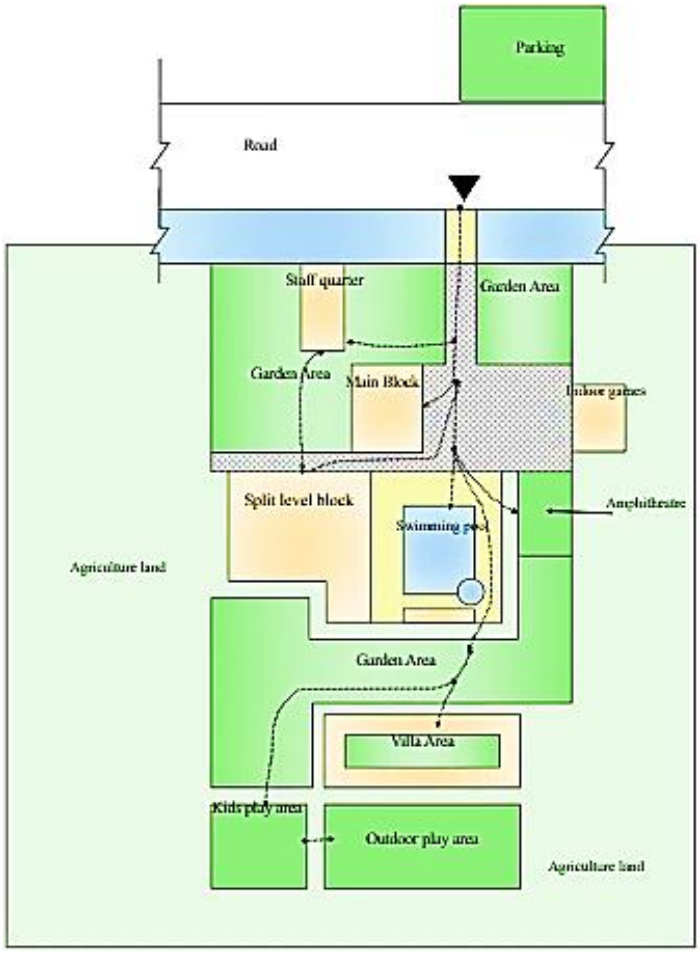


Figure 58 Circulation in Adhyay resort

Main Entry

The main entry to the resort is through an entrance bridge, creating a grand arrival experience. This bridge helps in establishing a sense of transition from the outside world to the retreat. As guests cross it, they are welcomed by the welcome pavilion, which serves as a receiving space for check-ins and inquiries. The entry is designed to give a first impression of serenity and exclusivity, making guests feel like they are entering a special getaway.

Linkage

The resort's layout ensures strong connectivity between different zones, with well-planned pedestrian paths and open spaces. The main block acts as the central node, linking the accommodation, dining, and recreational areas efficiently. The rooms and villas are placed in a way that allows privacy while still being accessible from the common areas. The restaurant, amphitheatre, and garden spaces are linked smoothly, encouraging interaction and movement without disrupting the resort's calm environment.

Path Configuration

The paths in the resort follow a curved and natural layout, rather than a rigid or linear design. This allows the movement to feel relaxed and exploratory, encouraging guests to stroll through different spaces at a comfortable pace. The pathways are designed to blend with the terrain, using a combination of paved walkways, bridges, and landscaped trails. Some areas, like the treehouse and split-level rooms, are connected through elevated paths, enhancing the overall experience of movement through different levels.

Views

The resort takes full advantage of its scenic surroundings by carefully positioning structures to maximize views. The split-level rooms with terraces offer panoramic views of the landscape, while the restaurant's outdoor seating area allows guests to dine while enjoying nature. The swimming pool and open amphitheatre are placed in areas with open vistas, creating a visually pleasing atmosphere. The architecture integrates natural elements, ensuring that guests always have a visual connection with greenery, hills, and open skies.

5.2 International Case study

Figure 59 Yun House Boutique Eco-Resort

5.2.1 Yun House Boutique Eco-Resort

Location: Xingping Scenic Area, Yangshuo, Guilin, Guangxi, China

Architects: Ares Partners. Atelier Liu Yuyang Architects

Category: Adaptive Reuse

Area: 3000.0 sqm

Master Plan: Atelier Liu Yuyang Architects

Introduction

Yun House is a boutique eco-resort nestled within a village at north eastern part of Yangshuo which situated along the dramatic landscape of the Li River. The site consists of nine renovated old farm houses and one new addition which functions as an all-day dining restaurant for hotel guests. Taking on a sensitive approach to the local culture with villagers still living nearby, the overall planning and landscape design blends into the original village structure without creating new boundary conditions to the villagers.

Here are the silent features of the resort;

- The rammed earthed buildings were retrofitted to accommodate refreshing and uncompromisingly contemporary living, while the new restaurant addition adopts an

understated presence with the use of steel frame, glass pivot doors and windows, in contrast with the locally sourced rough-cut stone blocks, charcoal treated wooden louvers and terra-cotta roof tiles to provide a rich tactile experience.

- The spatial dialogue and sense of continuity between the old and the new buildings maintain an order of symbiosis between the foreign (hotel) and the local (village).
- The typical layout of the vernacular house here is a three-bay structure with a double height volume in the middle bay.
- Bamboo, wood, galvanized steel, concrete finishes and pebble washed stones are main materials being used in interior spaces.
- Most of wood beams and existing wooden doors are being refurbished and reused on the project.

Highlights of the resort

- Guided Nature Walks
- Organic Farming Experience
- Sustainable Cooking Classes
- Eco-Friendly Cycling Tours
- Spa and Wellness Treatments

Architectural features

Figure 60 Yun House resort architecture

The architectural features of Yun House Boutique Eco Resort are designed to harmonize with nature and promote sustainability. The buildings are made using natural materials like wood and stone, blending seamlessly into the landscape. Large windows and open spaces invite plenty of natural light and ventilation, creating a bright and airy atmosphere. The resort uses solar panels and other energy-efficient technologies to minimize its carbon footprint. The structures are built with a focus on eco-friendly practices, including rainwater harvesting systems for irrigation and low-energy lighting to save electricity. The design also incorporates traditional local elements, giving

a warm and inviting feel, while maintaining a modern, minimalistic aesthetic that keeps everything simple and in tune with the environment.

Site Planning

Figure 61 Master plan of the resort *(Source: archi-daily)*

- The resort is carefully designed to blend with the natural surroundings, keeping the original village feel alive. Instead of building completely new structures, the existing farmhouses were restored and repurposed to maintain the local charm.
- The layout is open and inviting, with buildings placed around courtyards, gardens, and open spaces. This creates a peaceful and relaxing environment where guests can connect with nature while still having their own space.
- The guest rooms are spread across multiple buildings, ensuring privacy and a quiet stay. Instead of having all the rooms in one large building, the resort follows a more natural village-style layout, making it feel like a cozy community rather than a typical hotel.

- The restaurant and reception are located near the entrance, making them easy to access for both arriving guests and those looking for a meal. This thoughtful placement ensures a smooth flow from arrival to check-in and dining.
- The pathways connecting different areas of the resort are designed to be natural and easy to navigate. They allow guests to walk freely between their rooms, the restaurant, outdoor spaces, and other facilities without feeling disconnected from the surroundings.
- Outdoor seating areas, gardens, and shaded spaces are spread throughout the site, encouraging guests to spend time outside, breathe fresh air, and enjoy the natural beauty of the place.
- While the resort keeps the traditional look of the village, it also provides modern comforts, ensuring guests have a relaxing and enjoyable stay. The mix of old and newly creates a unique experience where people can enjoy the beauty of heritage while still feeling comfortable and cared for.

Figure 62 Second floor plan of resort

(Source: archi-daily)

The rammed earthed buildings were retrofitted to accommodate refreshing and uncompromisingly contemporary living, while the new restaurant addition adopts an understated presence with the use of steel frame, glass pivot doors and windows, in contrast with the locally sourced rough-cut stone blocks, charcoal treated wooden louvers and terra-cotta roof tiles to provide a rich tactile experience.

Restaurants and Outdoor bar

The restaurant at Yun House Boutique Eco Resort is thoughtfully designed to feel both warm and connected to nature. Its long, glass-enclosed layout offers stunning mountain views, letting guests dine with a strong sense of place and tranquility.

Figure 63 Yun House resort's restaurant

Figure 64 : Yun House resort's interior

Inside, the use of wood, stone, and soft lighting creates a cozy, rustic charm. The open-plan seating adds to the relaxed, welcoming feel, making it a perfect spot to unwind and enjoy a meal.

Reception

The reception of the Yun House Boutique Eco Resort features a traditional rustic aesthetic with modern touches. The space, is divided into two sections: a welcoming reception area with a curved desk and seating, and a cozy lounge space. The architecture blends natural materials like rammed earth walls and wooden elements, harmonizing with the serene mountain surroundings.

Figure 65 Yun House resort's reception

Guest Rooms

Yun House Boutique Eco-Resort features guest accommodations thoughtfully integrated into nine renovated traditional farmhouses, each maintaining the original three-bay structure with a central double-height volume. Each farmhouse comprises four guest rooms surrounding a shared central living and lounge area, fostering a communal and intimate atmosphere.

Figure 66 Yun House resort elevation

The interior design emphasizes tranquillity and harmony with nature, utilizing materials such as bamboo, wood, galvanized steel, concrete finishes, and pebble-washed stones. Many original wooden beams and doors have been refurbished and reused, preserving the rustic charm while providing modern comforts.

Figure 67 Yun House resort's interior

Multi-function Room

The multifunction room in the Yun House Boutique Eco Resort is a spacious and versatile area designed for different activities. It has an open layout with multiple seating arrangements, making it ideal for meetings, social gatherings, or small events. The room features large doors that allow natural light and fresh air to flow in, creating a cozy and welcoming atmosphere. It serves as a flexible space where guests can relax, work, or connect with others while enjoying the peaceful surroundings of the resort.

Sustainable Practices in the resort

Yun House Boutique Eco-Resort incorporates several sustainable practices that reflect its commitment to environmental responsibility and cultural preservation:

- **Adaptive Reuse of Traditional Structures**

The resort revitalized nine traditional rammed-earth farmhouses, transforming them into guest accommodations. This approach preserves cultural heritage and reduces the environmental impact associated with new construction.

- **Integration with Local Culture**

By maintaining the original village structure and avoiding new boundaries, the resort ensures harmony with the existing community, reflecting a deep respect for local traditions and lifestyles.

- **Use of Local Materials**

The new restaurant addition features locally sourced rough-cut stone blocks, charcoal-treated wooden louvers, and terracotta roof tiles, minimizing transportation emissions and supporting the local economy.

- **Sustainable Interior Design**

The interiors utilize materials such as bamboo, wood, galvanized steel, and pebble-washed stones. Many existing wooden beams and doors were refurbished and reused, reducing the need for new resources.

Analysis

Path-Space Relationship

The resort follows an organic path-space relationship, where pathways naturally guide visitors through different zones while maintaining a strong connection with the surrounding landscape. The circulation is designed to provide a smooth transition between public, semi-private, and private spaces. Open courtyards and green pockets are integrated along the paths, enhancing the experience of movement within the resort.

Main Entry

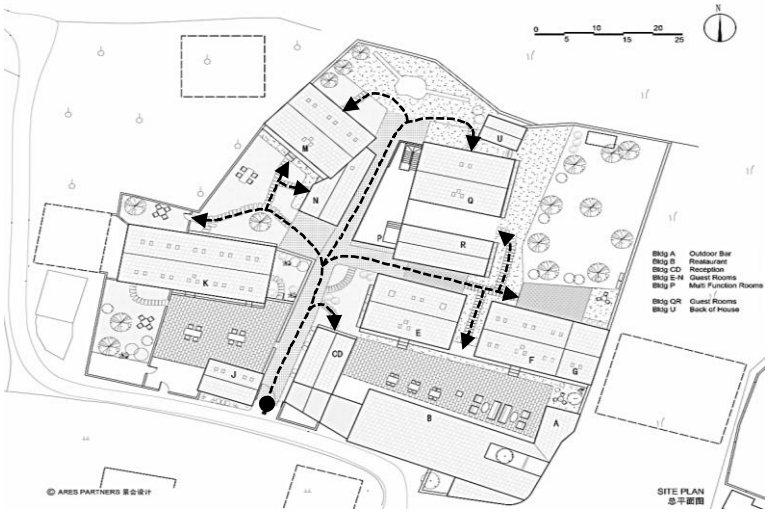
The main entry of Yun House is designed to create a welcoming and immersive experience. The entrance is subtle yet inviting, blending with the local village setting. It leads visitors into an intimate courtyard that sets the tone for the entire resort. The use of local materials such as stone and wood at the entry establishes a strong connection with the regional architectural identity, ensuring a sense of warmth and familiarity.

Linkage

The resort's layout ensures strong connectivity between different functional spaces. The pathways link guest rooms, public areas, and outdoor courtyards, maintaining a seamless flow. The restaurant, communal areas, and outdoor spaces are well-connected through covered walkways and glass-enclosed corridors, allowing guests to experience the changing natural scenery while moving between spaces. The integration of courtyards and green spaces further strengthens the spatial linkage within the resort.

Path Configuration

The resort follows an organic and intuitive path configuration rather than a rigid grid layout. The pathways meander gently, following the natural topography and leading guests through a series of open, semi-open, and enclosed spaces. The narrow alleys and stone-paved walkways reflect the traditional village setting, enhancing the experience of exploration while maintaining a harmonious balance between built structures and nature.



(Source: archi-daily)

Figure 68 Yun House resort circulation

Figure 69 Six senses Punakha

5.2.2 Six Sense Punakha

Location: Punakha valley, Bhutan

Designers: Six senses creative department

Completed date: 2020

Total Area: 4-hectare

Built up area: 2500 sq. m.

Introduction

Six Senses Punakha, affectionately known as the "**Flying Farmhouse**," nestled in the serene Punakha Valley of Bhutan, offers a perfect blend of luxury and nature. Surrounded by lush rice fields and breathtaking mountains, this tranquil lodge is designed like a traditional farmhouse, creating a warm and inviting atmosphere. Whether enjoying panoramic views, indulging in farm-to-table dining, or exploring the rich heritage of Punakha, guests experience a deep connection with nature and mindfulness.

Here are its silent features;

- The resort is designed to resemble a traditional Bhutanese farmhouse, blending cultural authenticity with modern comfort to create a warm and inviting atmosphere.
- The property features an infinity pool that offers breathtaking views of the valley, providing guests with a serene place to relax.
- Six Senses Punakha prioritizes sustainability, incorporating eco-friendly architecture and operations to minimize its environmental impact.
- The resort is conveniently located near cultural landmarks like the Punakha Dzong, allowing guests to explore the rich history and heritage of Bhutan.

Highlights of the resort

- Yoga and Meditation
- Wellness and Spa Treatments
- Rafting on the Pho Chhu River
- Explores nearby monasteries
- Visits to Punakha Dzong and other cultural landmarks
- Cooking classes and tastings focused on organic and local ingredients.

The Backstory

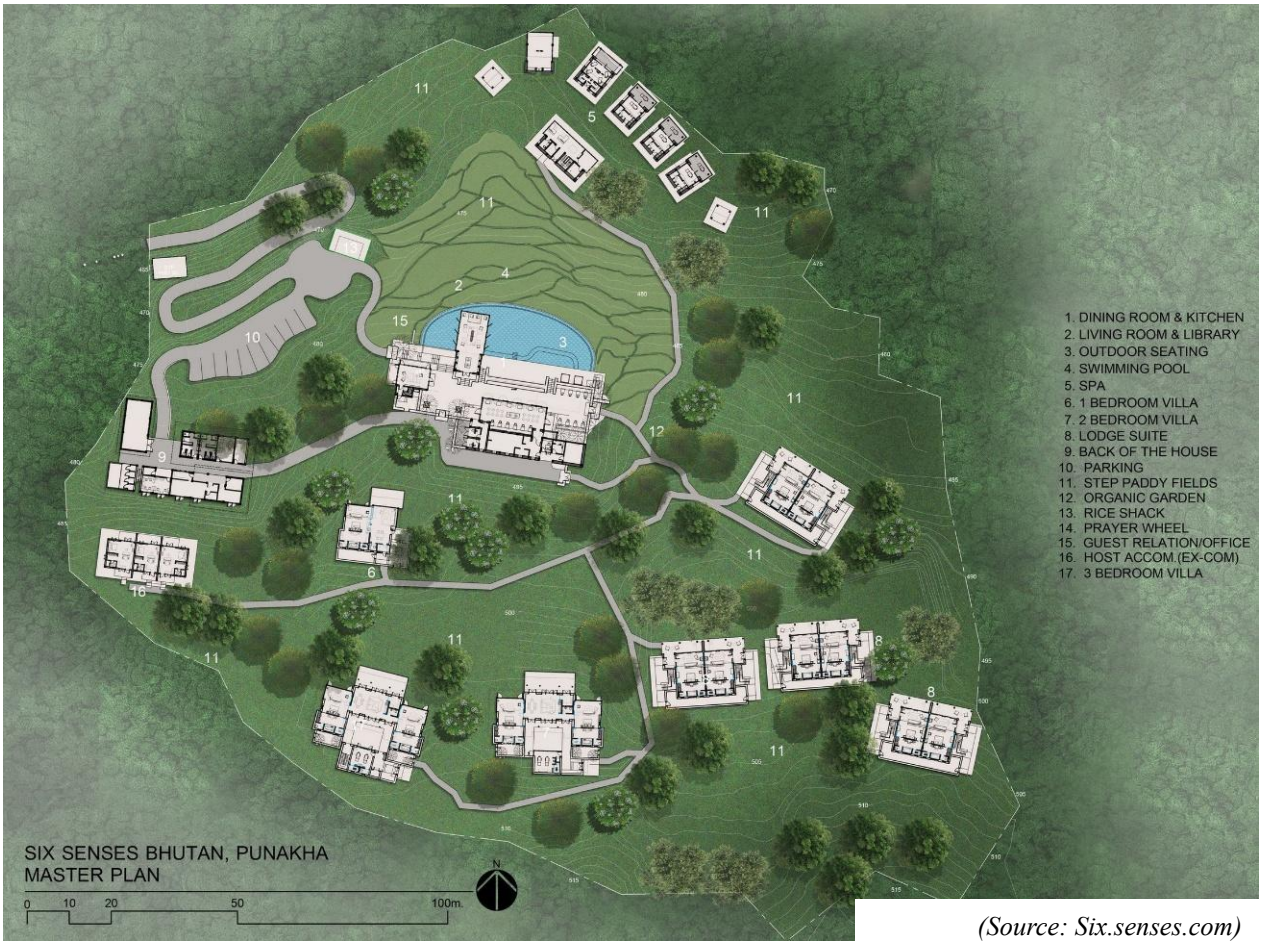
Although Six Senses wasn't the first high-end hotel group to arrive in Bhutan (Aman and Como beat them to it), it was a huge deal when it opened in 2019, creating five lodges in Thimphu, Punakha, Paro, Gangtey, and Bumthang for travelers wanting to explore the central and western valleys. Bangkok-based Habita Architects collaborated with the in-house design team on the look of each lodge and, from breaking ground, the project took 5.5 years to complete. As a brand renowned for wellness, it feels like a natural fit in a country with a Gross National Happiness Index and where spiritual Buddhist teachings are embedded in everyday life.

Architectural Features

Six Senses Punakha harmoniously blends traditional Bhutanese architecture with modern comforts, creating a serene and luxurious retreat. The lodge's design draws inspiration from local farmhouses, incorporating natural materials such as timber and stone. Its open-plan suites feature floor-to-ceiling windows, offering panoramic views of the verdant Punakha Valley and terraced rice fields. The minimalist interiors are complemented by locally woven fabrics and traditional

wood-burning stoves, known as bukharis, adding warmth and authenticity to the ambiance. An infinity pool extends over the valley, providing a tranquil spot to appreciate the breathtaking surroundings. This thoughtful architecture ensures that guests experience the rich cultural heritage of Bhutan while enjoying modern luxury and comfort.

Site Planning



(Source: Six.senses.com)

Figure 70 Master plan of six senses Punakha

- The resort is carefully planned on a gentle slope, allowing it to blend naturally with the surrounding rice terraces without disturbing the landscape. This also helps in maintaining the traditional stepped terrain of Punakha.
- The villas and suites are spread out across the site, ensuring privacy for each guest while maximizing open views of the valley and lush greenery. Their placement follows the contours of the land to minimize construction impact.

- The main amenities, including the dining area, spa, library, and swimming pool, are positioned in a central location for easy accessibility. This ensures that guests can conveniently reach key spaces without long walks.
- The master plan incorporates gardens, rice fields, and green open spaces, ensuring that the resort maintains its connection with nature. The organic garden provides fresh produce, supporting sustainable and farm-to-table dining.
- The parking and service areas are placed near the entrance to minimize disturbance to guests. This helps keep the resort's atmosphere peaceful while ensuring smooth operations.
- The reception building is inspired by local Bhutanese architecture, featuring a rectangular form with long balconies extending into the water. This design creates a calming first impression and immerses guests in the natural beauty of the surroundings upon arrival.

Main Block

The main block of Six Senses Punakha beautifully blends traditional Bhutanese architecture with modern luxury. Elevated above an infinity pool, it appears to float above the landscape, offering stunning views of the valley. With wooden structures, sloped roofs, and large windows, the design feels both grand and grounded in nature.

Figure 71 Six senses Punakha exterior

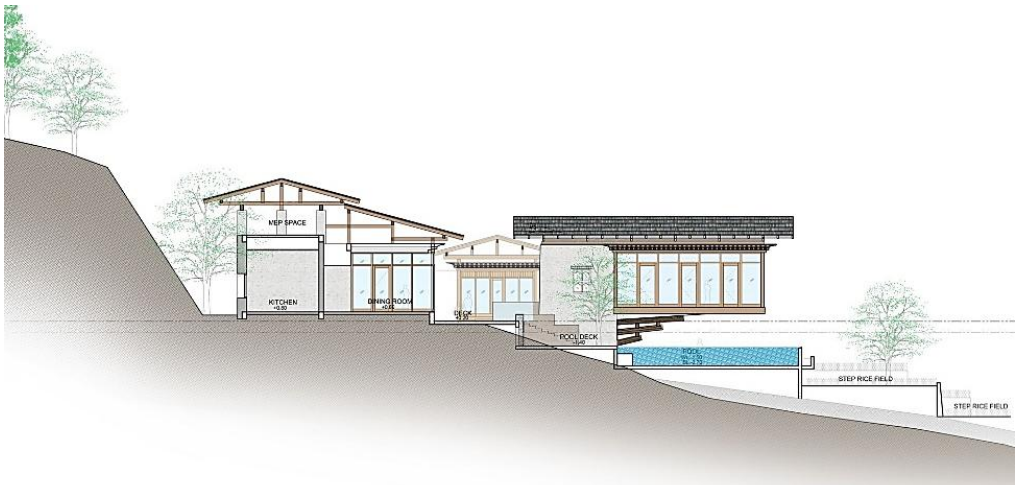


Figure 72 Section of main block of six senses resort

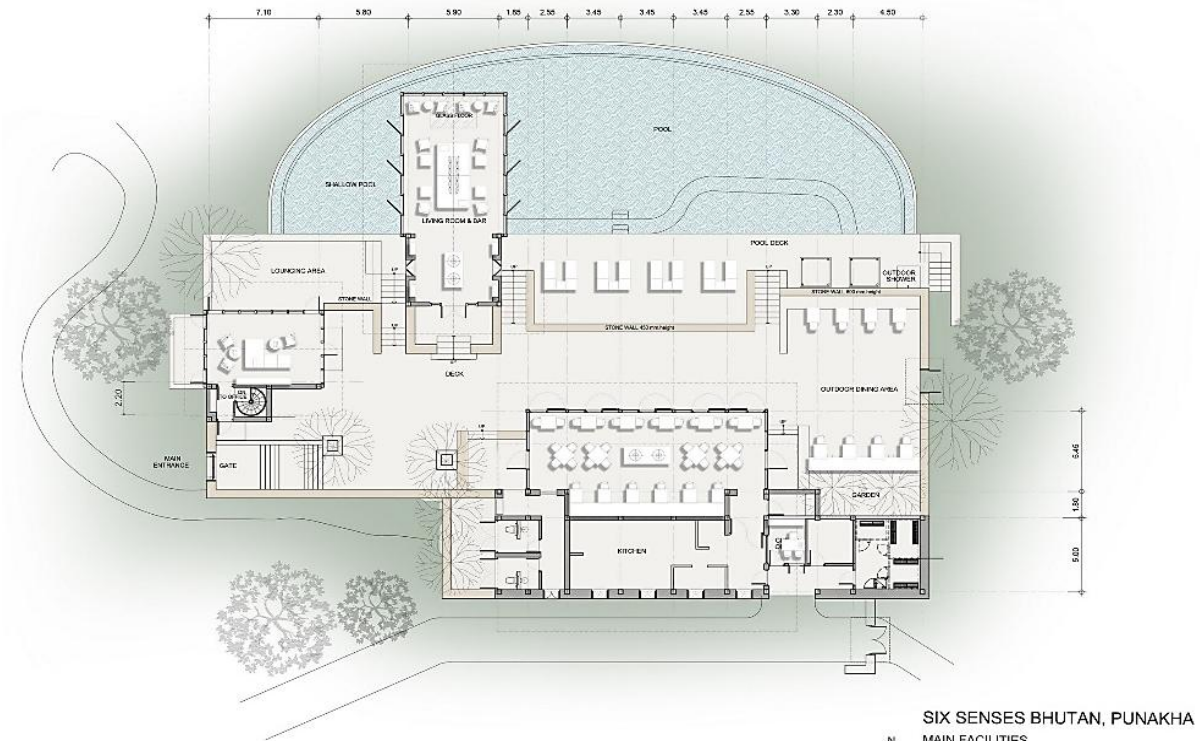


Figure 73 Six senses Punakha main block plan

(Source: Six.senses.com)

Spa Area

The spa features four treatment rooms, a fitness centre, an outdoor pool, two meditation salas, an herbal garden, and The Alchemy Bar. Signature treatments include the Sleep Well Journey, designed to improve sleep quality, and Shirodhara, an Ayurvedic therapy where warm oil is gently poured over the forehead to soothe the nervous system. Guests can also participate in Yoga Nidra sessions, a guided meditation practice promoting deep relaxation and inner peace.

Figure 74 Six senses Punakha spa block

(Source: Six.senses.com)

Accommodation

- **1 Bedroom Villa**

The one-bedroom villa can accommodate up to four guests, and there is also the option for private dining for up to six people. Interiors cover 1,312 square feet and outdoor space is 344 square feet. Amenities include luxury bedding, traditional wood-burning bukhari stove, private wine fridge, espresso machine, 49-inch television with cable service, IDD telephone, yoga mat, Bose Bluetooth speaker, bathtub, rain shower, as well as pantry and powder room areas.

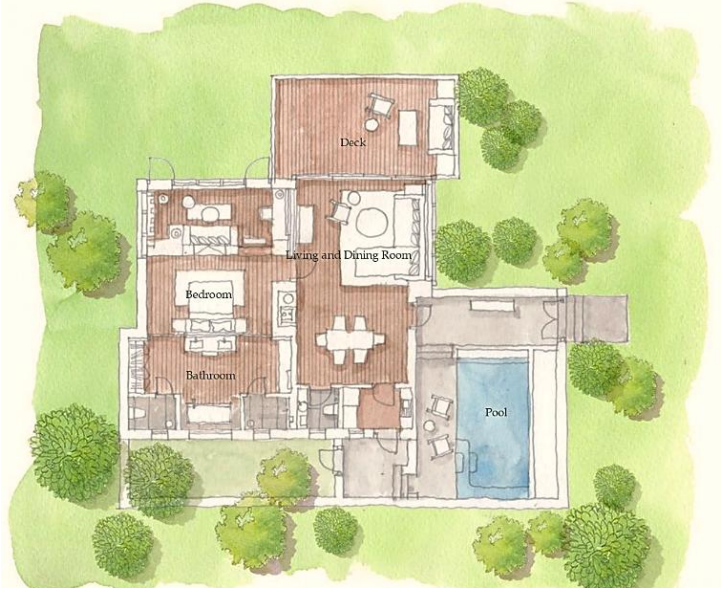


Figure 75 Six senses Punakha 1 bedroom villa plan

(Source: Habita architects)

- **2 Bedroom Villa**

This two-bedroom villa can accommodate up to eight guests, and there is also the option for private dining for up to eight people. Interiors cover 2,454 square feet and outdoor space is 969 square feet. Amenities include luxury bedding, traditional wood-burning bukhari stove, private wine fridge, espresso machine, 49-inch television with cable service, IDD telephone, yoga mat, Bose Bluetooth speaker, bathtub, rain shower, as well as a pantry area and spa treatment rooms.

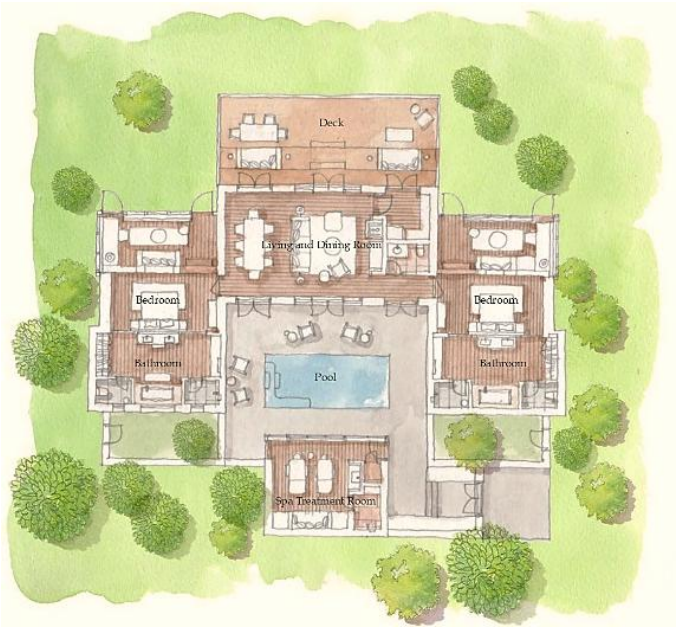


Figure 76 Six senses Punakha 2 bedroom villa plan

- **3 Bedroom Villa**

Offering superlative relaxation and privacy, this three-bedroom villa can accommodate up to 12 guests, and there is also the option for private dining experiences. Interiors cover 2,949 square feet and outdoor space is 969 square feet. Amenities include luxury bedding, traditional wood-burning bukhari stove, private wine fridge, espresso machine, 49-inch television with cable service, IDD telephone, yoga mat, Bose Bluetooth speaker, bathtub, rain shower, as well as a pantry area and double spa treatment rooms.

Figure 77 Six senses Punakha 3 bedroom villa plan

(Source: Habita architects)

- **Lodge Suite**

This one-bedroom suite can accommodate a maximum of three guests. Interiors cover 721 square feet and exterior space is 398 square feet. Amenities include luxury bedding, traditional wood-burning bukhari stove, writing desk, private wine fridge, espresso machine, 43-inch television with cable service, IDD telephone, yoga mat, Bose Bluetooth speaker, bathtub, and rain shower.

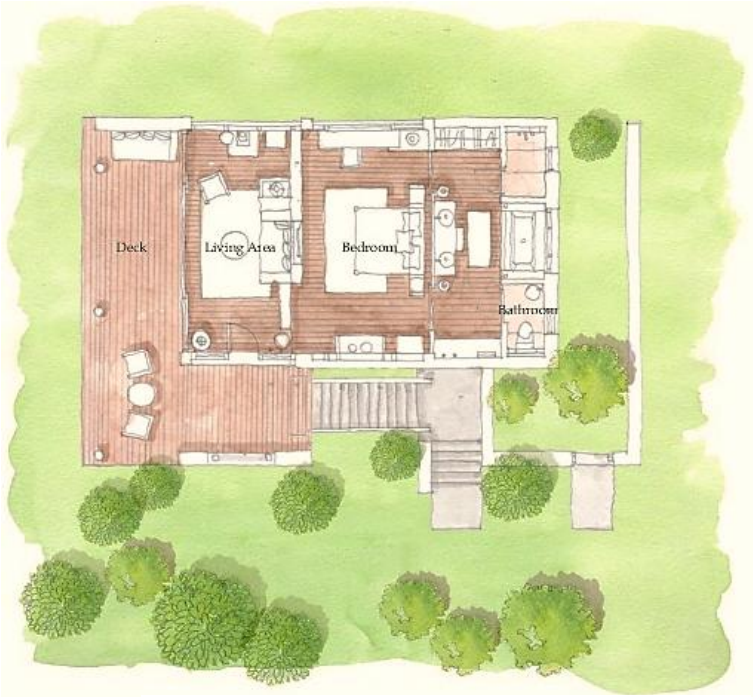


Figure 78 Six senses Punakha lodge suite plan

(Source: Habita architects)

Back of the House

The backhouse of the resort serves as the operational hub for essential services. It includes staff areas, storage rooms, and utility spaces to ensure the smooth functioning of the resort. Positioned strategically away from guest areas, it helps maintain a seamless and luxurious experience while efficiently managing daily operations.

Eco effort

- **Renewable Energy Use**

The resort runs entirely on clean hydropower, reducing its dependence on fossil fuels and lowering its carbon footprint.

- **Plastic-Free Initiative**

A reverse-osmosis filtration system provides clean drinking water, eliminating the need for single-use plastic bottles.

- **Organic Farming**

Fresh fruits, vegetables, and herbs are grown in the resort's organic garden, promoting sustainable food practices and reducing food miles.

- **Community Support and Conservation**

The resort works closely with local communities to support environmental conservation and eco-friendly tourism initiatives.

- **Sustainable Architecture**

Traditional Bhutanese materials and design techniques are used to ensure harmony with the natural surroundings and minimize environmental impact.

Analysis

Path-Space Relationship

The resort follows a well-planned and organic path-space relationship, ensuring smooth circulation and a seamless connection between different spaces. The design integrates pathways that flow naturally with the contours of the site, allowing guests to transition effortlessly between indoor

and outdoor spaces. The movement within the resort is guided by covered walkways, courtyards, and open terraces, creating a balanced experience of enclosure and openness.

Main Entry

The main entrance is designed to provide a welcoming and immersive experience, reflecting Bhutanese architectural traditions. Guests enter through a modest yet elegant gateway, which leads to a courtyard-like space that slowly reveals the surrounding landscape. The entry sequence is designed to create a sense of anticipation, with carefully framed views of the valley unfolding as guests move through the space.

Linkage

The resort buildings are strategically placed to create a strong sense of connection between different functional zones, such as the dining, spa, lounge, and accommodation areas. The layout emphasizes walkability, with stone-paved paths, wooden decks, and bridges linking various structures while maintaining privacy between different guest areas. The architectural linkage is further enhanced by visual connections through large openings and glass facades that allow guests to feel continuously engaged with the surrounding environment.

Path Configuration

The path configuration follows a combination of linear and organic layouts, adapting to the sloping terrain of the site. The circulation paths lead visitors through a journey of discovery, with changes in levels, framed views, and resting spaces along the way. The use of meandering pathways enhances the experiential quality, making movement through the resort feel natural and immersive rather than rigid or repetitive.

Views

One of the strongest architectural features of Six Senses Punakha is its emphasis on breathtaking views of the surrounding valley, rice terraces, and mountain landscapes. The resort's elevated position allows for unobstructed panoramas, which are maximized through large glass windows, cantilevered decks, and open-air seating areas. The infinity pool is positioned to blend visually with the horizon, creating a seamless connection between built and natural environments. The design ensures that every guest space, whether private or communal, is oriented to take advantage of the stunning scenery.

CHAPTER 6: SITE ANALYSIS

6.1 Site Information

The proposed site for the eco-resort is located in the Chitlang, ward no. 9, Makwanpur district. Surrounded by green hills and forests, Chitlang is known for its natural beauty and fresh air. The Chitlang village has farms, old temples, and stone-paved paths. People grow vegetables, fruits, and keep animals. In the past, it was an important stop for traders traveling to Kathmandu. Today, Chitlang is popular for hiking, camping, and learning about village life. It offers a peaceful mix of nature, history, and tradition.

General information

Location: Chitlang-9, Makwanpur

Geographical location: 27°39'07.6"N 85°10'10.1"E

Elevation: 1,500 meters (4,920 feet) above sea level

Area: 70 Ropani

Accessibility: 15 km from Chandragiri

7 km from Kulekhani reservoir

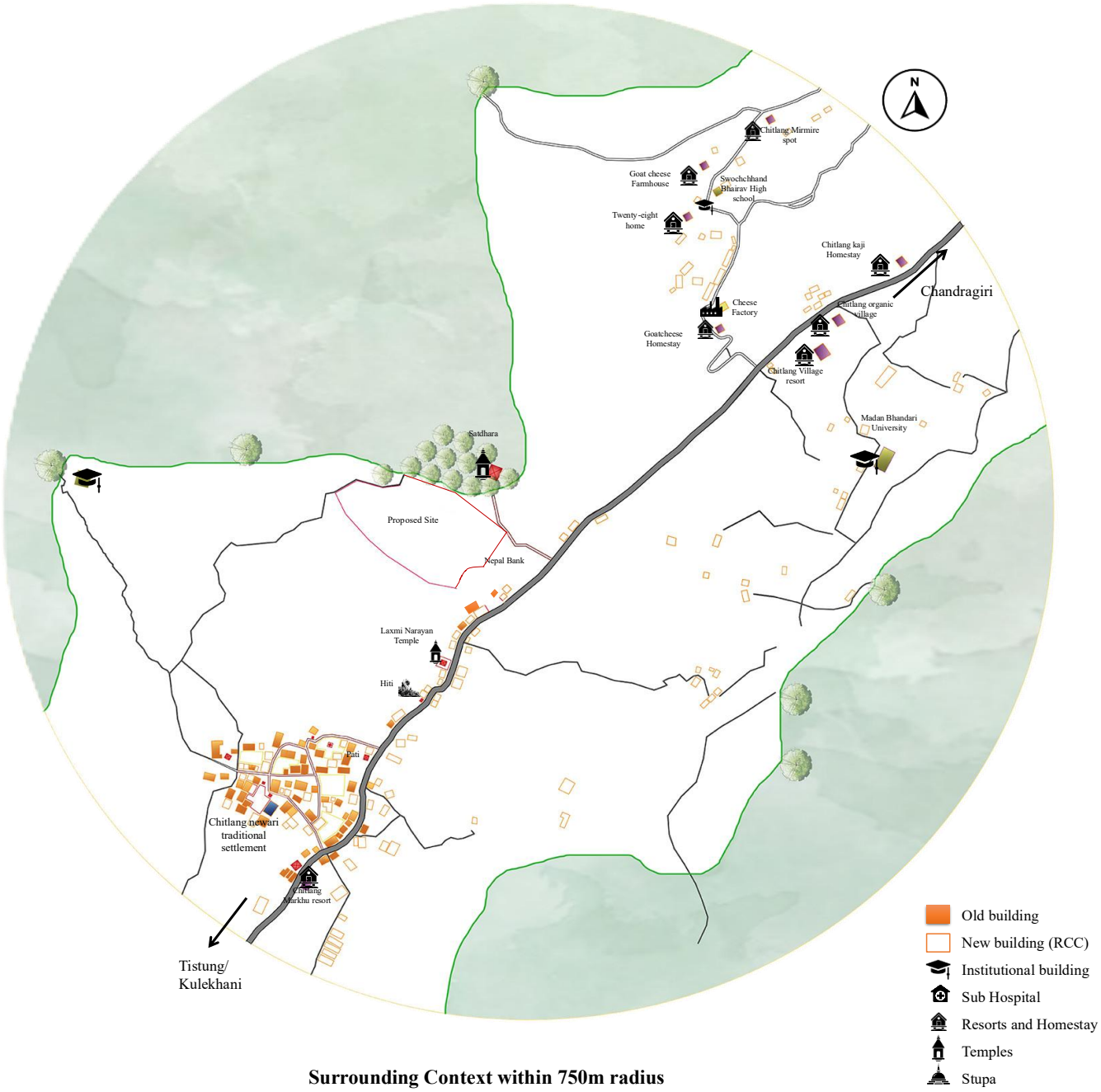
25 km from Pharping bazar

Site Surrounding

Historical place: Chitlang traditional Newari settlement, ancient stupas and temples, traditional stone water taps such as Satdhara, and old trade route landmarks.

Resorts and Homestays: 3 homestays, 2 hotels, and 3 resorts within 750 m radius.

Activities: Hiking from Chandragiri to the Chitlang and to the Bheda farm, camping, farming experience, boating in the Kulekhani reservoir, local cultural experience, and organic food tasting.



Surrounding Context within 750m radius

Figure 79 Surrounding context

6.2 Site selection criteria

1. **Popular Destination**

Chitlang is already a well-known destination for local and international tourists. People visit for its natural beauty, hiking trails, and peaceful environment. It is a common weekend getaway for people from Kathmandu and nearby cities. The popularity of the area shows that there is already interest in tourism, which makes it a good location for an eco-resort.

2. **Connectivity and Reachability**

Chitlang is located close to Kathmandu, just around 27 kilometres away. It takes about 1.5 to 2 hours to reach by road, making it an easy and quick trip. The site is also on the way to Hetauda, so travellers going there can stop and rest at this peaceful location. Many popular places like Pharping and Kulekhani are nearby. Kulekhani is known for exciting adventure activities like boating, zip-lining, hiking, and more. There are also beautiful waterfalls like Mohini Jharana and Markhu Jharana that guests can visit. Because of its location, visitors can enjoy nature and adventure during the day and easily return to Kathmandu the next morning.

3. **Vernacular Architecture Aesthetics**

The traditional village near the site still has some beautiful Newari-style architecture, though many houses are being modernized. These local building styles use materials like stone, wood, and mud, and reflect the cultural identity of the place. By choosing this site, the design can blend with and help preserve the traditional aesthetics. The resort can take inspiration from the village's historic look and bring it back in a meaningful way. This also gives visitors a deeper cultural experience.

Figure 80 Vernacular architecture aesthetics

4. **Scenic Landscape**

The site is surrounded by hills, forests, and terraced farmland. It offers wide views of the natural landscape, creating a very calm and pleasant atmosphere. The changing colours of the fields and forests throughout the year add to the beauty. This scenic charm makes the site attractive for eco-tourism, photography, and peaceful stays. The natural landform also supports walking paths and picnic areas within the resort.

Figure 81 Scenic landscape from the site

6.3 Topography

Contour interval: 2 m

Highest elevation: 1958 m (NW)

Lowest elevation: 1940 m (SE)

Orientation: From NW to SE

Soil type: Predominantly loamy, which is ideal for agriculture

Visual characteristics:

- The site offers scenic views of surrounding hills and forests.
- Clear sunrise and sunset views are visible from different parts of the site.
- The nearby Newari settlement adds cultural and architectural interest.
- Natural vegetation and tree cover provide a green and peaceful environment.
- Elevated parts of the site offer panoramic views of the landscape.

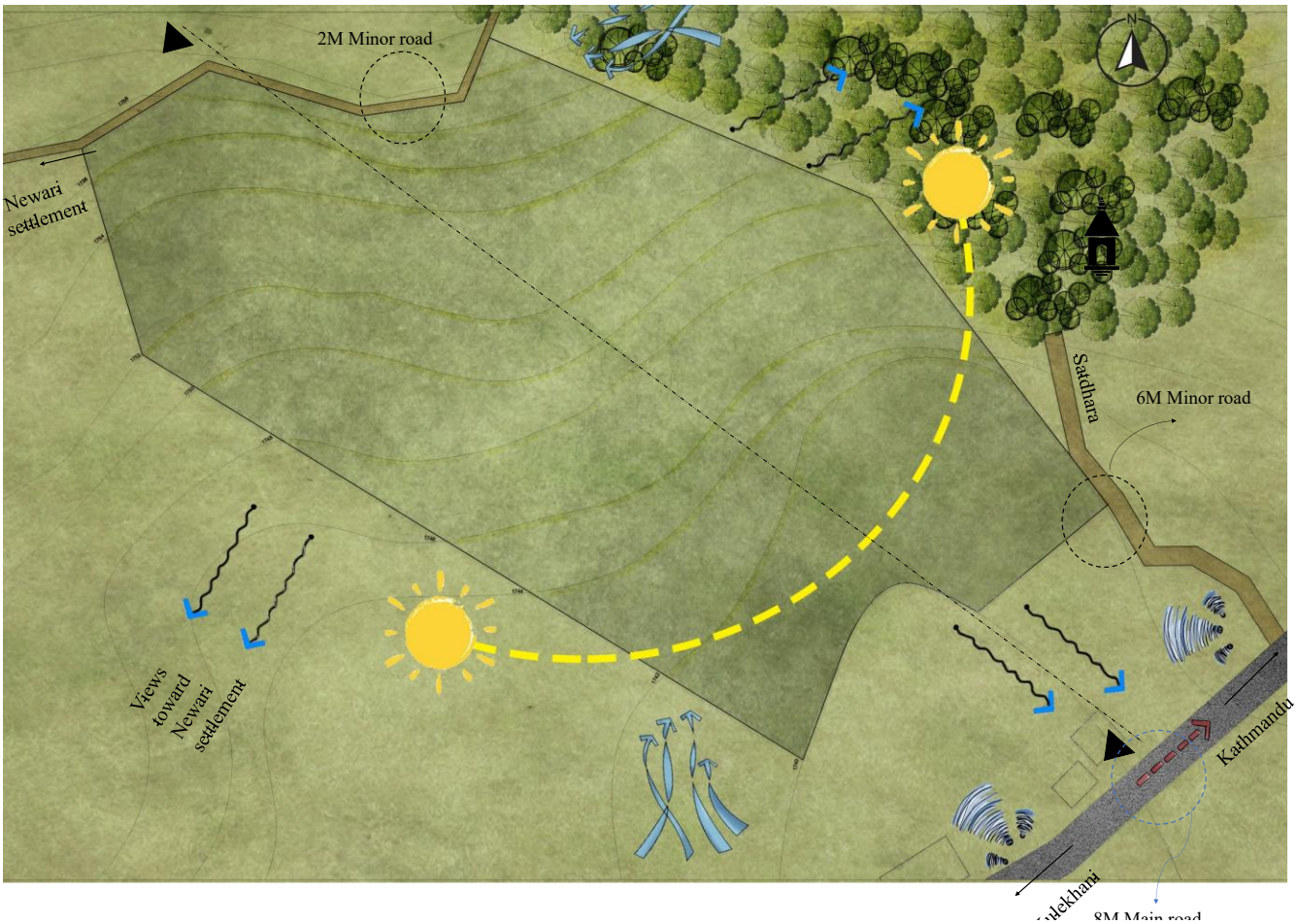


Figure 82 Topographical map of site

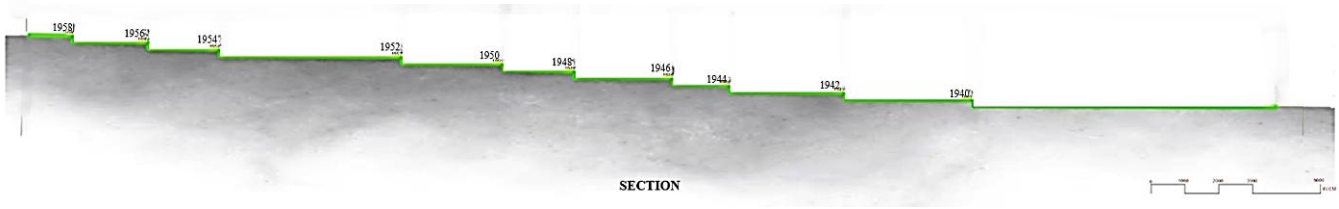


Figure 83 Site section

6.4 Climatic Data

The climate of Chitlang is temperate with distinct seasonal variations. It experiences warm summers, mild spring and autumn seasons, and cool winters. The area enjoys moderate temperatures year-round, ranging from around 10°C in winter to 24°C in summer, making it suitable for eco-tourism and outdoor activities during most parts of the year.

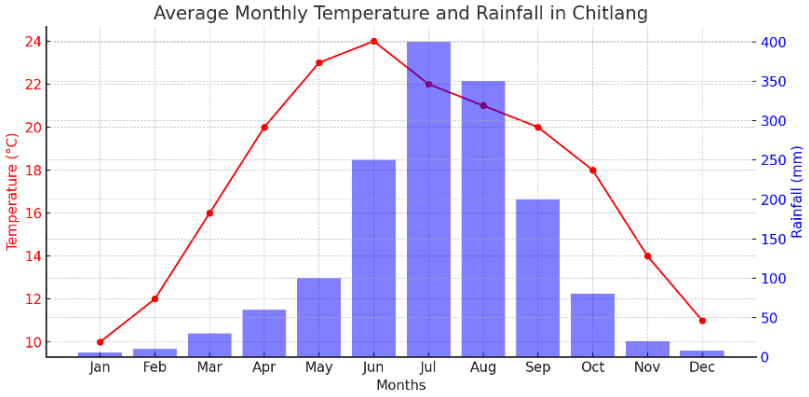


Figure 84 Climatic data

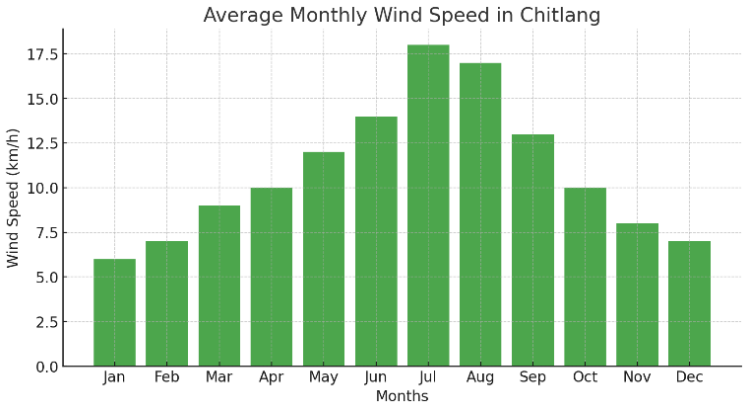
Hottest Month: June (average temperature around 24°C)

Coldest Months: December and January (average temperature around 11°C)

Wettest Month: July (rainfall over 400 mm)

Best Time to Visit: Spring (March–May) and Autumn (October–November) due to pleasant temperatures and less rainfall

- Highest wind speeds during June to August (up to 17.5 km/h in July)
- Lowest wind speeds in winter months (January and December)



(Source: Climate-data.org)

6.4.1 Climatic Analysis and Design Implications

The climatic data plays a big role in shaping the design decisions for the eco resort. The following are ways the design can be planned to match the weather conditions:

Orientation and Ventilation:

- The resort buildings should be oriented to catch the cool breezes during summer (especially from the west or south-west) to improve natural ventilation.
- Large openings, courtyards, and cross-ventilation techniques should be used to cool indoor spaces naturally during hot months.

Protection from Rain:

- Since July and August bring heavy rainfall, sloped roofs and good drainage systems should be considered.

Insulation for Winter Comfort:

- As temperatures drop in December and January, buildings should have insulation in walls and roofs, and sun-facing windows (preferably south-facing) to trap heat during the day.
- Thermal mass materials like stone or adobe should be used that can store heat during the day and release it at night.

Utility

Electricity

- The area has access to electricity through local electric poles.

Water Supply

- Water is available from Satdhara, a traditional water source located nearby.
- Local households rely on this source for daily water needs and few houses have access to piped water systems.

Sanitation

- There is no proper sewage or drainage system in the area.

Mobile Network

- Mobile phone signal is available in the area.

Internet Access

- Internet service is limited.
- Some people use mobile data, but high-speed internet is not widely available.

6.5 Cultural and Historical Factors

Ancient Heritage:

Chitlang is one of the oldest settlements in Nepal, dating back to the Lichchhavi period. It was once an important stop on the historic trade route that connected the Kathmandu Valley to the southern plains. This historical background adds a strong cultural identity to the area, which can be felt in the village's layout and structures.

Newar community and Architecture:

The village is traditionally inhabited by the Newar community, known for their unique culture, festivals, and craftsmanship. Remnants of traditional Newari architecture—such as carved wooden windows, stone pathways, and falchas (resting places)—can still be found, though many have been replaced or modified with modern materials. These elements reflect the original character of the village.

Religious and Cultural significance:

Chitlang is home to historical and religious landmarks like the Swachhanda Bhairab Temple and Saatdhara (the Seven Water Spouts), which are still used by locals during cultural and religious festivals such as Basant Panchami. These sites remain an active part of local life and reflect the spiritual and communal values of the area.

Cultural Decline and Modernization:

In recent years, many young residents have migrated to cities or abroad, leaving traditional homes empty. Modern RCC structures have gradually replaced many of the old buildings, leading to a loss of traditional character. However, some original cultural elements are still visible and can inspire sensitive architectural design that helps revive and preserve the local heritage.

6.6 Study of vernacular architecture

In Chitlang, the vernacular architecture reflects the Newari culture, utilizing locally available materials and adapting to the local climate and topography.

Building Materials:

Traditional houses in Chitlang are primarily constructed using locally sourced materials such as stone, mud, and timber. The walls are often made of stone masonry, while wooden beams support the roofs and floors.

Figure 85 Chitlang house

Roofing:

The roofs in traditional Chitlang houses are generally sloped to quickly drain rainwater during the monsoon season. Traditionally, roofing materials included locally made clay tiles or thatch. However, with time and resource availability, many people have started using tin sheets for roofing as well. In some cases, old tin containers are cut and flattened to be reused as roofing material. This shows how local people adapt and reuse materials creatively based on availability. These roofs are supported by wooden beams and rafters, and the sloped design helps protect the structure from heavy rainfall, which is common in the area.

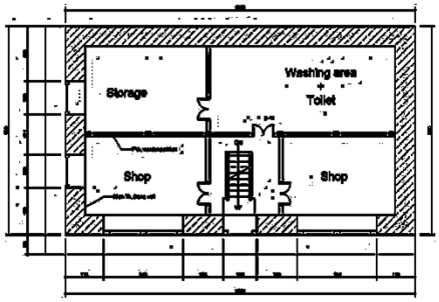
Layout and Spatial Organization:

The settlement has a clustered layout, where houses are built close to each other along narrow pedestrian paths. This compact design helps people interact more easily with their neighbours and creates a strong sense of community. Many houses share walls, which helps keep them warm in winter and cool in summer by reducing heat loss. Some houses are built around small courtyards, creating inward-facing open spaces that are used by families for daily activities.

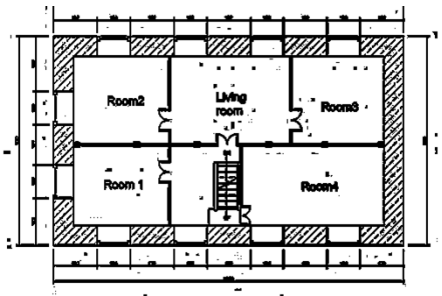
Hierarchy of Spaces (Vertical Zoning):

The typical house follows a multi-storey structure of generally 3 storeys. I studied a typical house from the Chitlang Newari settlement, which reflects the rich architectural heritage of the Newar community. This house shows a good example of how local people design spaces in a practical and efficient way. The plan shows a three-floor layout:

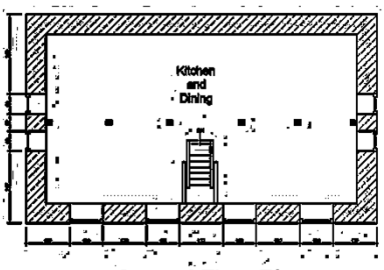
- **Ground Floor**: This floor is mainly used for shops, storage, and basic services like a toilet and washing area. The use of thick stone walls and wooden partitions shows the use of available local materials.
- **First Floor**: This level is for living. It has multiple rooms and a central living room, showing a layout meant for family life and gatherings.
- **Second Floor**: This is the kitchen and dining area. Traditionally, the kitchen is placed at the top to avoid smoke and to make use of warmth rising from below.



Ground Floor Plan



First Floor Plan



Second Floor Plan

From studying this house, we learn how traditional designs can still be very functional and sustainable. For my resort design, This makes navigation easy and gives a calm feeling. A similar clear layout in the resort can help guests feel relaxed and oriented.

Façade Architecture:

The facade of the houses reflects a simple yet elegant style. The façade is usually symmetrical, with small wooden windows placed in a regular pattern. Some of the windows often have beautifully carved wooden frames, a special feature of Newari architecture. The ground floor usually has fewer and smaller openings, while the upper floors have larger windows for better light and air. Walls are mostly made of exposed stone or brick, giving a natural look.

Figure 86 Plan and elevation of a house of Chitlang

Figure 87 Vernacular architecture of chitlang

Street Network and Circulation:

The roads in the settlement are narrow and follow an organic pattern, shaped by the natural landform. There is one main road that provides access to the village, and from it, several smaller internal paths lead into the residential areas. These narrow lanes make it easy for people to walk around and connect with neighbours. This kind of layout is good for walkability and also helps to protect the natural shape of the land, as it avoids too much cutting or filling of the terrain.

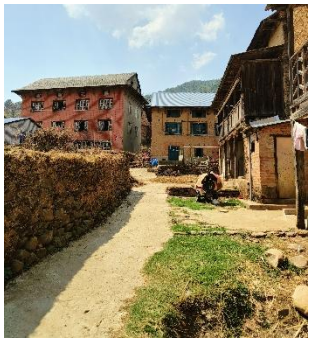


Figure 88 Streets of Chitlang settlement

Open Spaces, and Courtyards:

In the Chitlang settlement, open spaces and courtyards are shared by nearby houses and are used for daily chores and social activities. These spaces help with light, air, and create a friendly environment for the community. They are connected through small paths, allowing easy movement around the village. Public and religious places like temples are also found near these spaces, where people gather for worship and festivals. Together, these open areas support both everyday life and cultural traditions.

Figure 89 Courtyards of the settlement

6.7 Building-by-laws

- **Ground coverage: Max. 30%**
- **Building height limit:** 10m (considering traditional aesthetics and landscape integration)
- **Right of way:** 15m from the center of the main road
- **Setback:** Up to 10m height → 1.5m setback from the property boundary.

  10m - 17m height → 3m setback for public buildings.
- **FAR:** 1.5

6.8 SWOT Analysis

Strength:

- Scenic landscape
- Rich cultural heritage
- Good connectivity
- Favourable orientation

Weakness:

- Seasonal tourism
- Limited infrastructure

Opportunities:

- Growing eco-tourism
- University collaboration scope
- Nearby Satdhara connection
- Forest landscape potential
- Connection with locals

Threads:

- Modernization impact

CHAPTER 7: PROGRAM FORMULATION

Approximate number of visitors in resort

- Number of people visiting the site per year: 52,000 people (as per the information by The Kathmandu Post).
- Number of people visiting in nearby homestay and resort: 3200 people per year (as per information by the nearby resort).
- Number of visitors at old Chitlang Village settlements per year: 2500 people (as per the information by local source).

So, Assuming Total no. of visitors: 11000 people per year (Including hikers and camping)

1. **Accommodation unit**

Types	Capacity (People)	Area per unit (Sq. m.)	No. of Units	Total Area (Sq. m.)
1, Glamping Tents	6	25	9	225
2, Two-level twin Cottage	4	95	16	1520
3, Family villa	2 or 4	290	5	1450

Total Accommodation area: 3195 sq. m.

Total no. of units: 30

Total guest capacity: 140 people

2. **Wellness and Recreational space**

Category	Space	Area (sq.m.)
Wellness Facilities	1.Sauna	48
	2.Spa	80
	3.Fitness room	115

Recreation and Outdoor Activities	1.Swimming pool and bar	1930
Cultural and community interaction	1.Multipurpose block	940
	2.Open Amphitheatre	430

Total area: 3545 sq. m.

3. Office block

Space	Capacity (People)	Area (Sq. m.)	Purpose
1, Reception		25	Check-in, lobby, guest services
2, Waiting area	10	40	Relaxation space for guests awaiting services
3, Manager office		22	Workspace for managerial oversight
4, CEO office		25	Executive workspace
5, Storage room		15	Storage for supplies, and records
6, Medical room		17	Basic first-aid and emergency medical response
7, Staff room	30	115	Control center for building infrastructure and automation
8, Meeting room	12	30	Space for meetings, and collaborative discussions

- Total office area: 290Sq. m.

4. Restaurant block

Spaces	Capacity	Area (sq. m.)
1. Dining area	240	470
2. Kitchen		27

3. Pantry		10
4. Store room		30
5. Bar area	25	80

- Total Restaurant area: 617 Sq. m.

5. Service block

Spaces	Area (Sq. m.)	Purpose
1. Laundry room	20	Washing, drying, ironing, and storage.
2. Staff room	30 (For 14 staff)	Private space for employee to rest
3. Store room	10	Stores Laundry supplies
4. Electrical and server room	32	Contains electrical panels, switchgear, and backup systems.
5. Management room	23	Controls plumbing systems, water supply/distribution and Oversees waste collection

- Total Service Block area: 115 Sq. m.

6. Eco- friendly and sustainable features

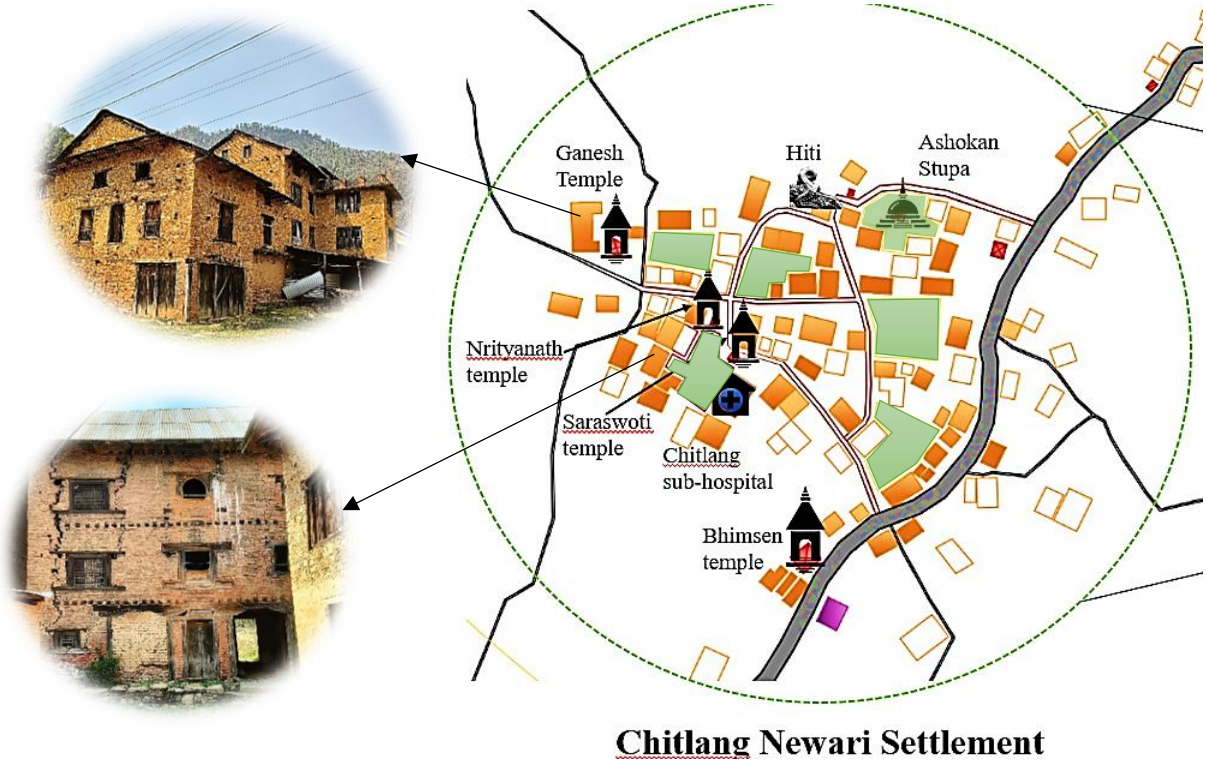
Category	Space	Remarks
Energy Efficiency	Solar Power System	Calculation: Estimated daily load = ~150 kWh/day. Avg. sunlight hours in Chitlang ≈ 4.5 h/day. Required capacity = 150 ÷ 4.5 ≈ 33 kWp.
Water Conservation	Rainwater Harvesting System	Calculation: Roof catchment = 7,160 m² × 1.5 m rainfall × 0.8 ≈ 8,592,000 L/year (~23,500 L/day).
	Greywater Recycling	Reuses shower and sink water for landscaping and flushing.
Waste Management	Organic Waste Management	Converts food & organic waste into compost fertilizer.
Organic Farms	Farm Land	Grows fresh vegetables, herbs, and fruits for restaurant use.

CHAPTER 8: CONCEPT

"The core concept of the eco-resort is to revive and reflect the essence of the nearby traditional settlement by adopting its organic layout, architectural language, and sustainable practices, creating a harmonious blend of culture, nature, and ecology."

Design Inspiration from Traditional Settlement

The nearby Chitlang village is a rich source of inspiration, featuring clustered homes, narrow alleyways, and organic layout patterns. These traditional forms are not only functional but also socially and environmentally responsive.



Chitlang Newari Settlement

Reflecting the rhythm of the village, every step reveals a place to pause.

The design of the eco-resort follows the calm and natural flow of a traditional village. The pathway, leading visitors through open spaces, gardens, and clusters of buildings, just like walking through Chitlang's old streets.

Rather than rushing from one destination to another, guests are invited to move slowly, taking in the layers of nature, culture, and architecture. The resort becomes a journey where every turn holds a space to rest, reflect, and connect- mirroring the quiet rhythm of village life.

Integration of Architecture and Landscape

Like the traditional settlement, the resort blends built and natural elements. Buildings are arranged in clusters, similar to village toles, and are oriented to preserve views of the surrounding hills and agricultural land. Courtyards, verandas, and planted open spaces create transitions between indoor and outdoor areas, reflecting the spatial experience of traditional Newar homes.

Material and Form Language

The architecture reuses the language of the local settlement—sloped slate roofs, exposed timber beams, and earth-toned walls—creating continuity between old and new.


Stone


Slate


Wood

Zoning

The zoning plan of the eco resort has been developed based on functional requirements, privacy gradients, site responsiveness, and passive design principles. It is divided into three primary zones: Private, Semi-Public, and Public, each carefully located to enhance user experience, environmental performance, and contextual integration.

Private Zone

The private zone is located in the west-southwest (WSW) part of the site, oriented to take advantage of framed views toward the nearby traditional settlement, offering guests a culturally rich visual connection. This area is designated for:

- Guest accommodations
- Service unit

Semi-Public Zone

This zone is situated at the center of the site, this zone acts as a transitional buffer between private and public functions. It accommodates shared guest facilities such as:

- Reception and lounge,
- Dining and kitchen area,
- Multipurpose hall

Public Zone

The public zone is located in the southeastern corner near the main access road, this zone is designed for visitor interaction and community engagement, including:

- Welcome area,
- Open air amphitheatre,
- Lawns.

Activity mapping of the resort

Building Planning

The eco resort is planned by respecting the natural features of the site. The land is mostly agricultural and flat with hills around, so the design avoids unnecessary cutting and filling.

Office Block

The office block is placed close to the main entrance so that visitors and staff can reach it easily without disturbing the resort's private areas. It is divided into two parts: the reception block in one side and the admin block on another. These two blocks are connected through a colonnaded pavilion in the middle, which works as a transition space. By separating the reception from the working spaces, the design ensures that guest interaction is limited to the reception zone while the office area remains private and undisturbed. The pavilion not only connects the two blocks but also provides a shaded semi-open space that reflects traditional architectural character and encourages visual openness while maintaining functional separation.

Mother Unit

The mother unit is the central hub of the resort that connects different guest experiences and activities. It is divided into three main parts: the kitchen and bar on one side, the restaurant in the middle, and the changing rooms with wellness facilities (spa, sauna, and fitness area) on the other side. These three parts are tied together through a colonnaded pavilion, which acts as both a circulation spine and a cultural element. The restaurant is highlighted with carved wooden colonnaded posts and a tiki jhya inspired balcony railing, giving it the distinct character of traditional Newari architecture. This design choice not only reflects the heritage of Chitlang but also creates a unique atmosphere for dining. The mother unit therefore functions as both the social centre where guests gather, eat, and interact—and the service core—where food preparation, wellness, and supporting facilities are efficiently managed. The blend of traditional aesthetics with modern amenities makes this block the heart of the eco resort.

Multipurpose Block

The multipurpose block is placed near the entrance to host events without affecting the privacy of the main resort areas. It includes rooms of different sizes that can be used for seminars, workshops, yoga, or cultural programs, making it suitable for groups and universities. Its location ensures flexibility for community use while keeping the inner resort spaces peaceful for guests.

Accommodation unit

Type A: Two level twin cottages

Type A is a two-level cottage designed as a two-level unit for comfort and privacy. Each unit includes a spacious bedroom, attached bathroom, and a private balcony or veranda that opens to the best landscape views. The openings are oriented toward nature to avoid exposure to pathways. A water canal is placed in front of the unit, recalling the traditional canals once found in Chitlang houses, reviving a cultural element that has been disappearing in modern RCC buildings. This blend of comfort and heritage gives Type A a unique character in the resort.

Type B: Family villa

The Type B villa is thoughtfully designed for groups or families seeking comfort and togetherness. This villa includes two spacious bedrooms complemented by a welcoming living room that serves as a common gathering space. A wide veranda extends outward, offering guests the perfect spot to relax while enjoying panoramic views of the traditional settlement and the surrounding hills.

Type C: Camping tents

The camping units are situated close to the forest, creating an immersive natural experience. Since many youngsters today are increasingly drawn to camping and outdoor adventures, these units are strategically placed in the heart of the forest. This setting allows guests to connect deeply with nature, enjoy the serene environment, and experience the thrill of staying amidst the trees.

Eco-Friendly Design Approaches

Site-Responsive Planning

The resort is planned according to the natural slope of the site. Buildings are placed along the land levels from 0 to 18 meters, which helps to avoid unnecessary cutting and filling of the soil. This keeps the land natural and prevents damage to the environment.

Passive Design Strategies

The buildings are designed to get enough sunlight and natural wind, which keeps the rooms bright and cool without using too many lights or fans. Thick walls and sloped roofs, inspired by traditional Chitlang houses, help maintain a comfortable temperature inside. Open courtyards allow fresh air to flow easily, reducing the need for air conditioners or coolers.

Local and Natural Materials

Traditional and natural materials like rammed earth, bamboo, local stone, and slate roofs are used for construction. These materials are easily available in Chitlang, which reduces the need to bring materials from far away and supports local labour and crafts.

Water Management

The resort uses smart ways to save and reuse water. Rainwater is collected from roofs and open areas through a Rainwater Harvesting System and stored for later use in gardening and cleaning. A beautiful pond with a pavilion and a special hydro-botanic pond help clean used water naturally using plants. Water from the nearby Satdhara source is also used carefully with eco-tanks and water-saving taps and fixtures to reduce waste and make the best use of available water.

Waste Management

The resort manages waste in an eco-friendly way. Organic waste from the restaurant and kitchen is turned into compost and used in the gardens. In every part of the resort, dry and wet waste is separated to make recycling easier. A special service area is included for collecting and processing waste properly.

Services and Utilities

1. Calculation of solar power system

Let us assume the daily power requirement of the resort be:

Zone	Load Estimate (kW)	Duration (hrs/day)	Energy (kWh/day)
Reception + Admin	1.0	5	5.0
Restaurant + Kitchen + Bar	5.0	5	25.0
Multipurpose Block	1.0	5	5.0
Laundry Room	2.0	4	8.0
Staff Rooms (Service Block)	1.0	5	5.0
Cottages (16 × 0.3 kW)	0.3 × 16 = 4.8	5	**24.0**
Family Villas (5 × 1 kW)	1.0 × 5 = 5.0	5	**25.0**
Camping Area (lights)	0.5	10	5.0
Pathway & Outdoor Lighting	1.0	10	10.0
Water Filter + Pump	2.0	5	10.0
Total Estimated Energy Need			**122 + 16 = 138.0** kWh/day

Solar Panel Requirement

Let's assume:

- Each solar panel produces ~1.5 kWh/day (typical for a 330 W panel)
- Some losses (inverter, battery, temperature) are considered.

Number of panels needed = Total energy required ÷ Energy per panel

i.e., 92 panels.

2. Calculation of rainwater harvesting

Annual rainfall: 2500 mm/year

Pitched roof run off value: 0.75

Net roof area: 2,560 m²

Rain water production = net roof area x annual rainfall x run off value

i.e, 4,800,000 L/year

Water requirement

For gardening:
Garden area = 10,650 sq.m
Annual garden watering = 50 L/sq.m/year
Rainwater requirement = Garden area × usage per year (L/sq.m)
= 532,500 L/year

For users:
No. of users = 85 people
Daily water use = 150 L/day/person
Annual water use = 85 × 365 × 150 = 4,653,750 L/year

Total water requirement = Gardening + Users
= 5,186,250 L/year

Factor g = 7.44% deficit (≈ 92.56% met by rainwater)

Storage requirement:
Storage requirement = Rainwater production × g
= 356,000 L (to balance shortfall periods)

Recommendation:

- Gardening tank: ~75,000 L
- Users tank: ~250,000 L distributed among cottages/villas/service areas
- Cleaning/service tank: ~30,000 L

Conclusion

The proposed eco-resort in Chitlang has been envisioned as a retreat that balances tradition, sustainability, and modern comfort. The design approach emphasizes the use of natural materials, traditional sloped slate roofing, and organic planning that follows the natural contours of the land. By minimizing unnecessary cutting and filling, the project ensures harmony with the existing landscape while maintaining ecological balance.

In addition to its architectural value, the resort promotes sustainable practices such as water conservation, rainwater harvesting, waste management, and the integration of farming within the site. These features not only reduce environmental impact but also strengthen the self-sufficiency of the resort.

Beyond its physical design, the project seeks to revive the cultural essence of Chitlang. By drawing inspiration from the settlement's traditional architecture and providing opportunities for the local community, the eco-resort becomes more than just a hospitality space—it becomes a bridge between heritage and modern sustainable living.

In conclusion, the eco-resort is a step toward responsible tourism that respects nature, uplift the local identity, and provides visitors with a meaningful experience rooted in heritage and sustained by nature.

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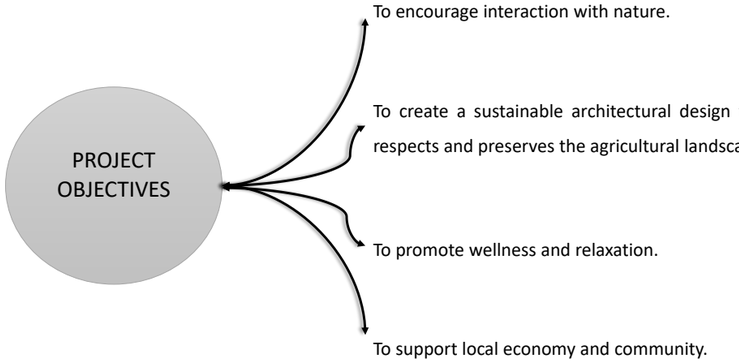
ANNEX

CHITLANG ECO RESORT: Rooted in heritage, Sustained by nature

INTRODUCTION

Tourism in Nepal is growing, and travelers today are looking for eco-friendly and sustainable places to stay. My thesis project focuses on designing an Eco-resort that blends with nature. An eco-resort is like a nature-friendly vacation spot where you can relax, have fun, and enjoy modern comforts while being kind to the environment. It offers cozy stays, fresh local food, and fun activities, designed for people who love nature but also want comfort.

This resort will provide visitors with a peaceful getaway in the hills, where they can experience fresh farm-to-table meals, stay in nature-friendly cottages, and enjoy outdoor activities. The design will incorporate sustainable construction techniques, renewable energy, water conservation, and waste management to create a zero-waste environment.



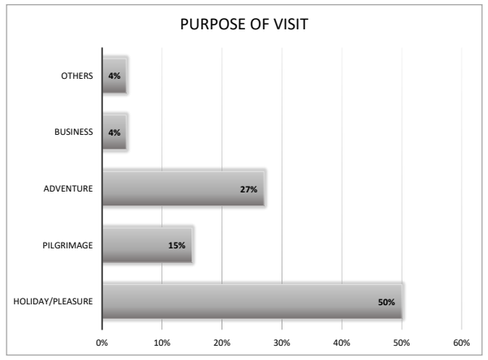
WHY ECO-RESORT??

Agriculture plays a significant role in Nepal's economy, with most of the rural population depending on it for their livelihood. Also, Tourism is Nepal's largest industry and a key source of foreign income. Kathmandu, recently ranked as the number one tourist destination globally, highlights Nepal's immense appeal to visitors. The country's breathtaking natural beauty attracts people from around the world, and combining this with agricultural experiences can make it even more appealing.

S.N.	Year	Tourist arrivals
1.	2019	1,197,191
2.	2020	230,085
3.	2021	150,962
4.	2022	614,869
5.	2023	1,014,885

https://en.wikipedia.org/wiki/Tourism_in_Nepal

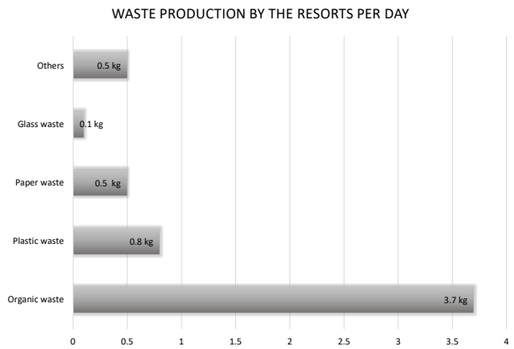
Tourism in Nepal dropped in 2020 and 2021 due to COVID-19 but has been recovering since 2022, reaching over a million visitors in 2023. This means more people are traveling again, and many are looking for peaceful and nature-friendly stays. The increasing tourist flow creates a great opportunity for an eco-resort, where visitors can enjoy a sustainable and relaxing escape in nature.



Nepal Tourism Statistics 2022

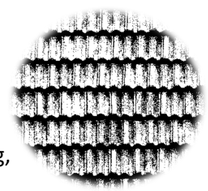
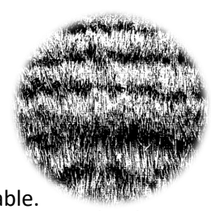
This data shows that travelers mainly seek leisure, nature, and unique experiences. An eco-resort can attract these tourists by offering a peaceful getaway, adventure opportunities, and a nature-friendly environment, making it an ideal destination for visitors looking for relaxation and excitement in one place.

Tourism brings joy and adventure, but it also creates waste that affects the environment. Resorts generate different types of waste daily, and managing them properly is important to keep nature clean. Designing an eco-resort with waste reduction can help protect the environment while providing a beautiful and responsible travel experience.



Solid Waste Management: A Case Study of Kathmandu Valley

The data shows that food waste is the biggest problem in a resort and needs to be managed efficiently. Thus, an eco-resort can tackle this by composting food waste, reducing plastic use, and promoting recycling, ensuring a cleaner and greener environment for visitors.

Sustainability Benefits	Sustainable Materials
High strength-to-weight ratio, carbon sequestration, reduces reliance on timber.	 Bamboo
Low carbon footprint, biodegradable, excellent thermal insulation.	 Mud Bricks
Reduces need for energy-intensive materials like cement.	 Stone
Renewable, naturally insulating, durable when treated properly.	 Timber
Natural, durable, aesthetically appealing, and recyclable.	 Clay Tiles
Natural insulation, renewable, biodegradable.	 Thatch

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LIBALI, BHAKTAPUR

DESIGN STUDIO X
THESIS PROPOSAL DEFENCE

NAME: ESHA MUSYAKHO
ROLL NO.: 760114
DATE: 2081/10/23

ECO RESORT

The destination with lodging, dining, and environment where the guests experience the local culture, and landscape where the facilities are intended to have minimal impact on the local environment.

Introduction

In context of Nepal, the tourism and hospitality have become important parts of the economy. The main challenge is to protect natural and cultural sites while making them easy to visit and supporting local people's culture and income.

As cities grow and life gets busier, people want a break and a change of place. The hospitality industry offers this escape. This resort will give people a peaceful and relaxing break from their busy daily lives which will help them feel refreshed in a calm and natural environment.

Planning of Resort

The planning of the resort is carried out by dividing the whole area. Resorts are basically divided into two components:

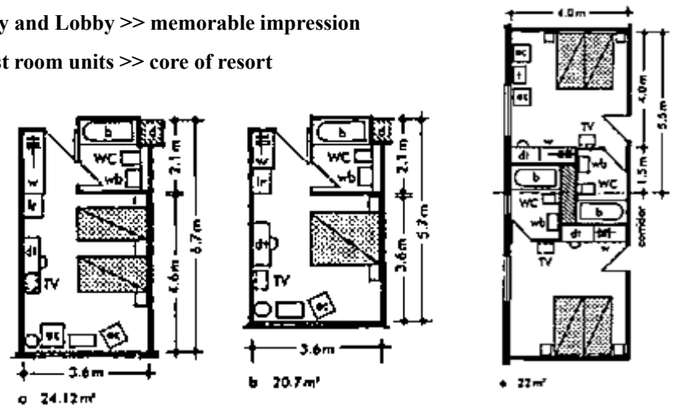
1, Front of the House: The front house includes reception area and public rooms or the area where guests gather to dine or socialize.

2, Back of the house: The back of the house where food is prepared and the guest services amenities are taken care of.

Architectural Design Consideration

i. **Entry and Lobby >> memorable impression**

ii. **Guest room units >> core of resort**



iii. Bathroom

The bathroom size range from 1.5- 1.8 m in width and 2.4-3 m in length.

iv. Kitchen

Kitchen may be designed with open plan arrangement or with separate room or bays for different types of separation.

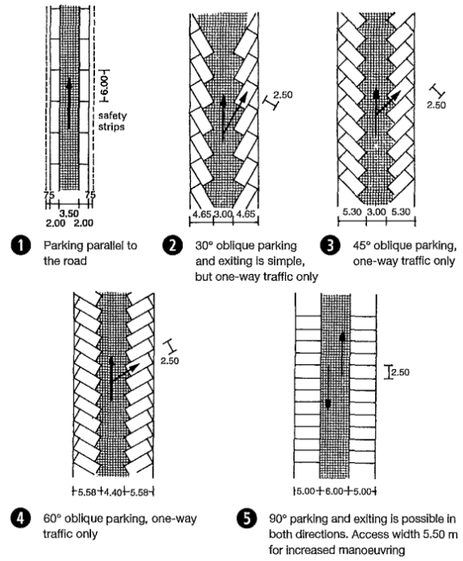
Space distribution should be as:

Food Storage: 20%	Traffic storage: 16%
Preparation: 14%	Trash Storage: 5%
Cooking: 8%	Employee: 15%
Baking: 10%	Miscellaneous: 2%
Ware Washing: 5%	

v. Restaurant, Dining and Bar

- Dining room- 60% of total area Kitchen.
- Cooking, storage, preparation - 40% of total area
- Storage ancillary - 1.5- 2 times the kitchen
- Net kitchen area - 15- 20%
- Per seat area - 1.3 - 2.15 sq. m.
- Walkway width - min. 1.1 m
- Height - min. 2.1 m
- Window area - 1/10th of restaurant area
- Distance between including chair - 1.75 m
- Passage between chairs - 18 inches

vi. Parking

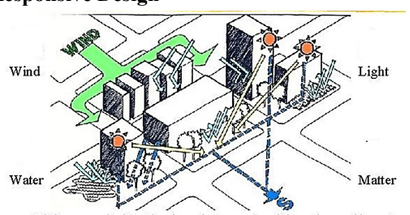


1. Parking parallel to the road
2. 30° oblique parking and exiting is simple, but one-way traffic only
3. 45° oblique parking, one-way traffic only
4. 60° oblique parking, one-way traffic only
5. 90° parking and exiting is possible in both directions. Access width 5.50 m for increased manoeuvring

Study of Eco- Sensitive Architecture

Eco-sensitive architecture means designing buildings in a way that protects nature, uses less energy, and fits well with the environment.

i. Site Responsive Design



Siting and site design interact with microclimate

ii. Passive Design

Rain water harvesting

- Rainwater harvesting is the process of collecting and storing rainwater for later use, such as watering plants, cleaning, or drinking after purification.

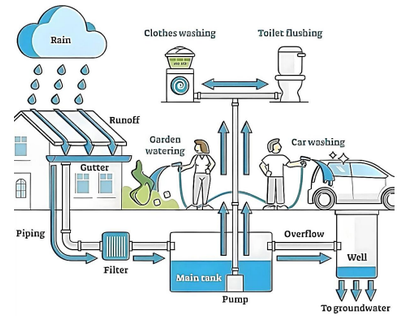


Fig: Rain water harvesting

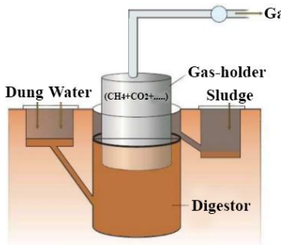


Fig: Bio gas

Bio gas

- Biogas is a renewable fuel made from organic waste, like food scraps and animal manure, that can be used for cooking, heating, and generating electricity.

Grey water recycling

Grey water recycling is the process of reusing wastewater from sinks, showers, and washing machines for non-drinking purposes.

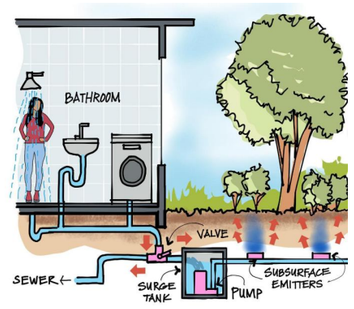


Fig: Grey water recycling

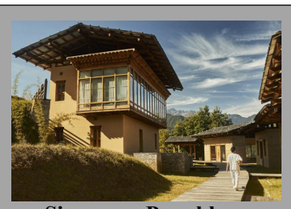
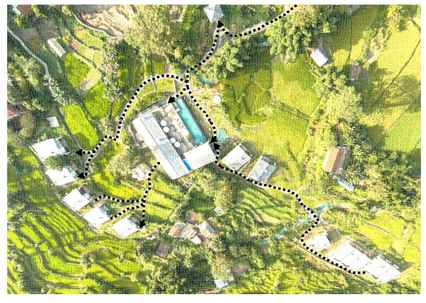
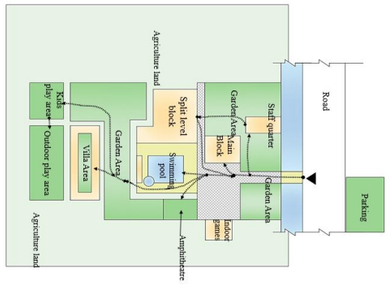
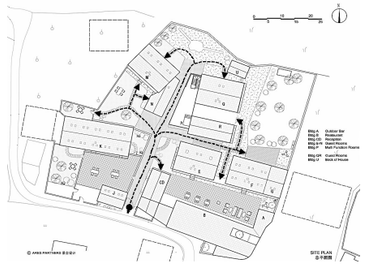
Sustainable Construction Materials

Stone and Natural aggregates

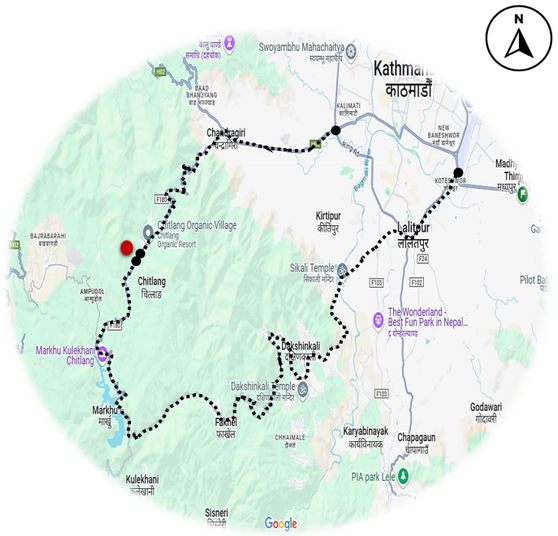
Stones help to conserve the environment by being abundant, long-lasting, and reusable, reducing the need for manufactured materials that require more energy to produce.

Satbilized Rammed Earth (SRE)

- Stabilized rammed earth is a building method where natural soil is mixed with a small amount of cement or lime and then tightly packed into molds to form strong walls.
- The thick walls keep buildings cool in summer and warm in winter, so less energy is needed.

Features	 **The Himalayan Pavillion- The Farm**	 **Om Adhyay Retreat Resort**	 **Yun House Boutique Eco- resort**	 **Six senses Punakha**
Location	Pokhara, Nepal	Tistung, Makwanpur, Nepal	Yangshuo, China	Punakha Valley, Bhutan
Area	2 hectares (40 ropani)	11,350 sq.m. (22 ropani)	3000 sq. m. (5 ropani)	4 hectares (78 ropani)
Architectural style	Traditional Nepali style blends with modern sustainable design	Blend of modern and traditional resort aesthetics	Adaptive reuse of traditional Chinese farm houses	Bhutanese farmhouse inspired by luxury design
Building Materials	RCC structure cladded with eco friendly materials like stone, wood, etc.	RCC structure	Galvanized steel and eco friendly materials like rammed earth, bamboo, wood, etc.	Eco friendly materials like timber, stone, and other local Bhutanese materials
Site Planning	Has village-like layout where villas are spread for privacy and views.	Has courtyard-like layout with scattered villas.	Maintains original layout with restored farm houses.	Layout blends with rice terrace and structure placed along contours.
Sustainable Practices	Solar electricity, rainwater harvesting, biogas plant, passive cooling	Natural lighting, integration with surroundings	Adaptive reuse, solar panels, rainwater harvesting	Hydropower, plastic-free initiative, organic farming
Accommodation Types	Villas (Type A & B), Clubhouse	Deluxe rooms, family suites, villas	Renovated farmhouses with shared spaces	Lodge suites, private villas (1-3 bedrooms)
Number of Accommodations	14 villas	56 guestrooms	23 rooms	19 accommodations (16 suites, 3 villas)
Capacity of guests	Around 30 guests	Around 200 guests	Around 60 guests	Around 50 guests
Spatial Experience	 Natural paths, low stone walls, open community spaces	 Courtyards, amphitheatre, interconnected spaces	 Centred layout, organic paths	 Linear & organic paths with framed views, bridges, terraces
Energy Efficiency	Passive design, natural ventilation, XPS insulation	Large windows for ventilation, efficient lighting	Solar energy, natural lighting, low-energy appliances	Hydropower, insulated wooden structures
Water Management	Rainwater collection, greywater reuse, biogas filtration	-	Rainwater harvesting, permeable surfaces	Organic gardens for water retention, filtration systems
Notable Features	Infinity pool, Ayurveda spa, local craftsmanship in design	Swimming pool with bar, conference hall, outdoor amphitheater	Eco-friendly construction, communal courtyard areas	Infinity pool over valley, Flying pavilion, local wood-burning heaters

Site Location



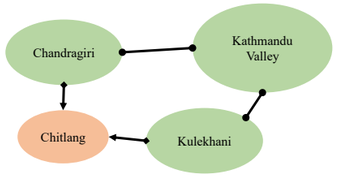
Location: Chitlang-9, Makwanpur
Area: 70 ropani
Topography: Contour land
Current land use: Agricultural land

The site is known for its scenic setting between agricultural fields near Old Chitlang Village, with stunning views of lush farmlands and rolling hills.

Site selection criteria

High inflow of Tourists

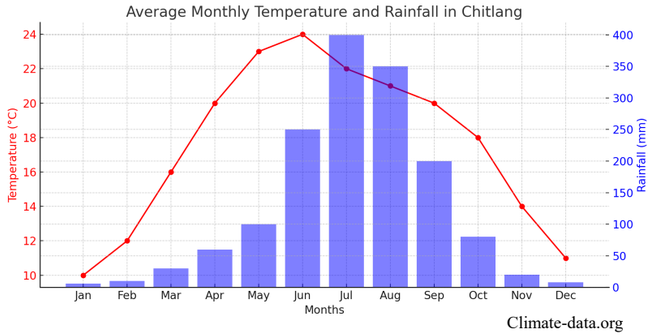
Vernacular Architecture aesthetics



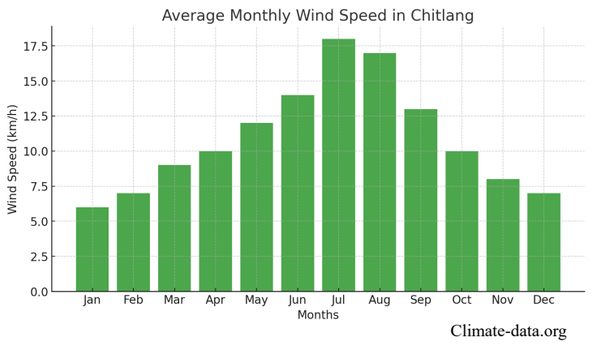
Connectivity and Reachability

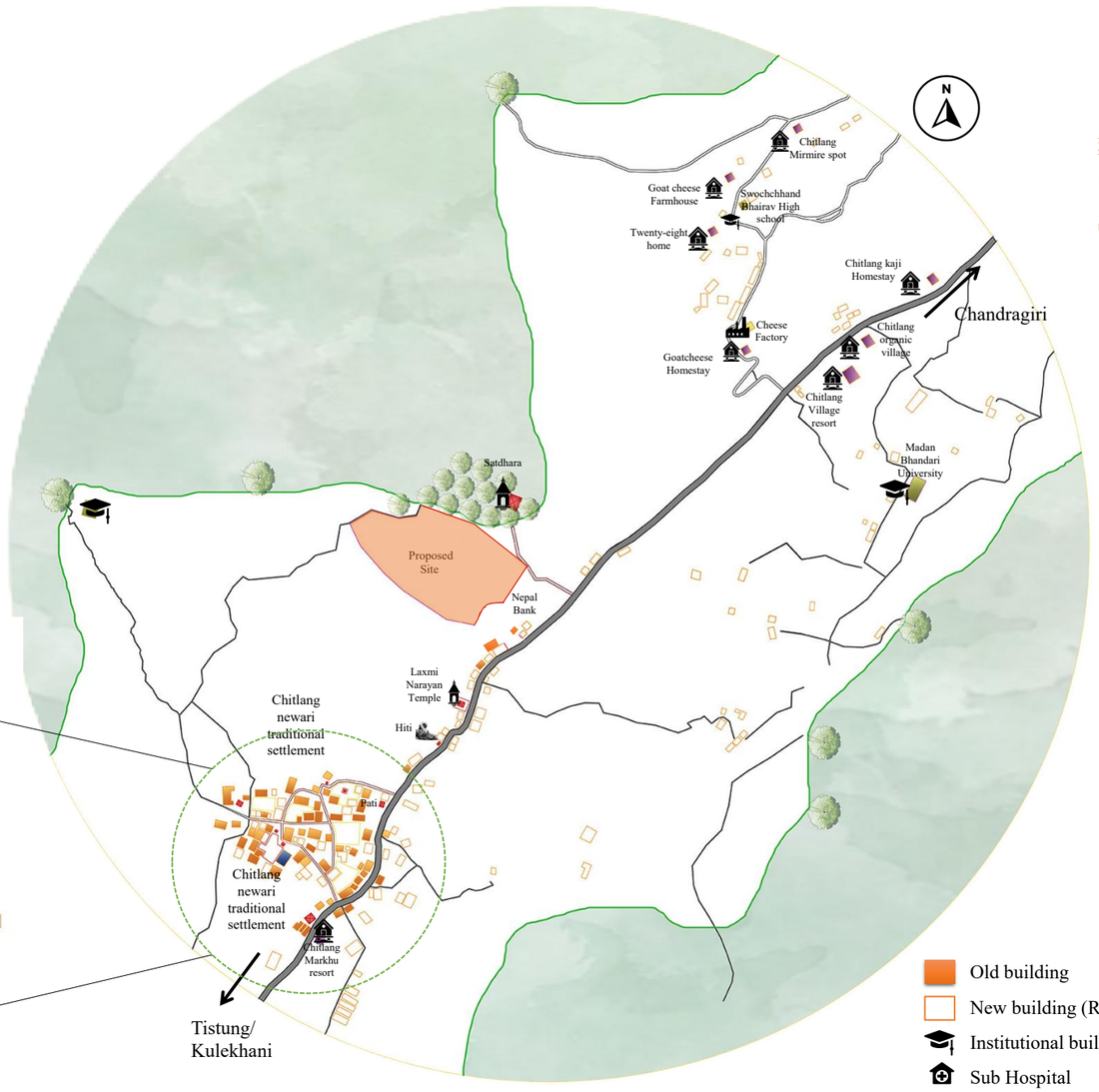
Scenic Landscape

Climatic data

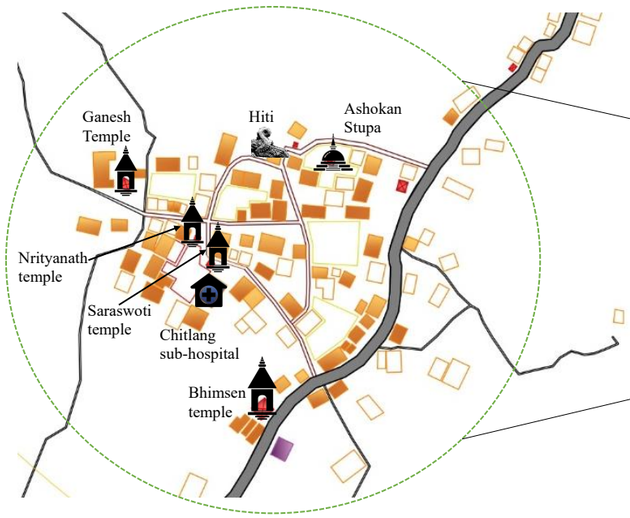


- Hottest month: June
- Coldest month: Dec-Jan
- Most rainfall: July
- Best time to visit: Spring (Mar-May) and autumn (Oct-Nov) for pleasant weather.





Surrounding Context within 750m radius



Chitlang Newari Settlement

- Old building
- New building (RCC)
- Institutional building
- Sub Hospital
- Resorts and Homestay
- Temples
- Stupa

Analysis:

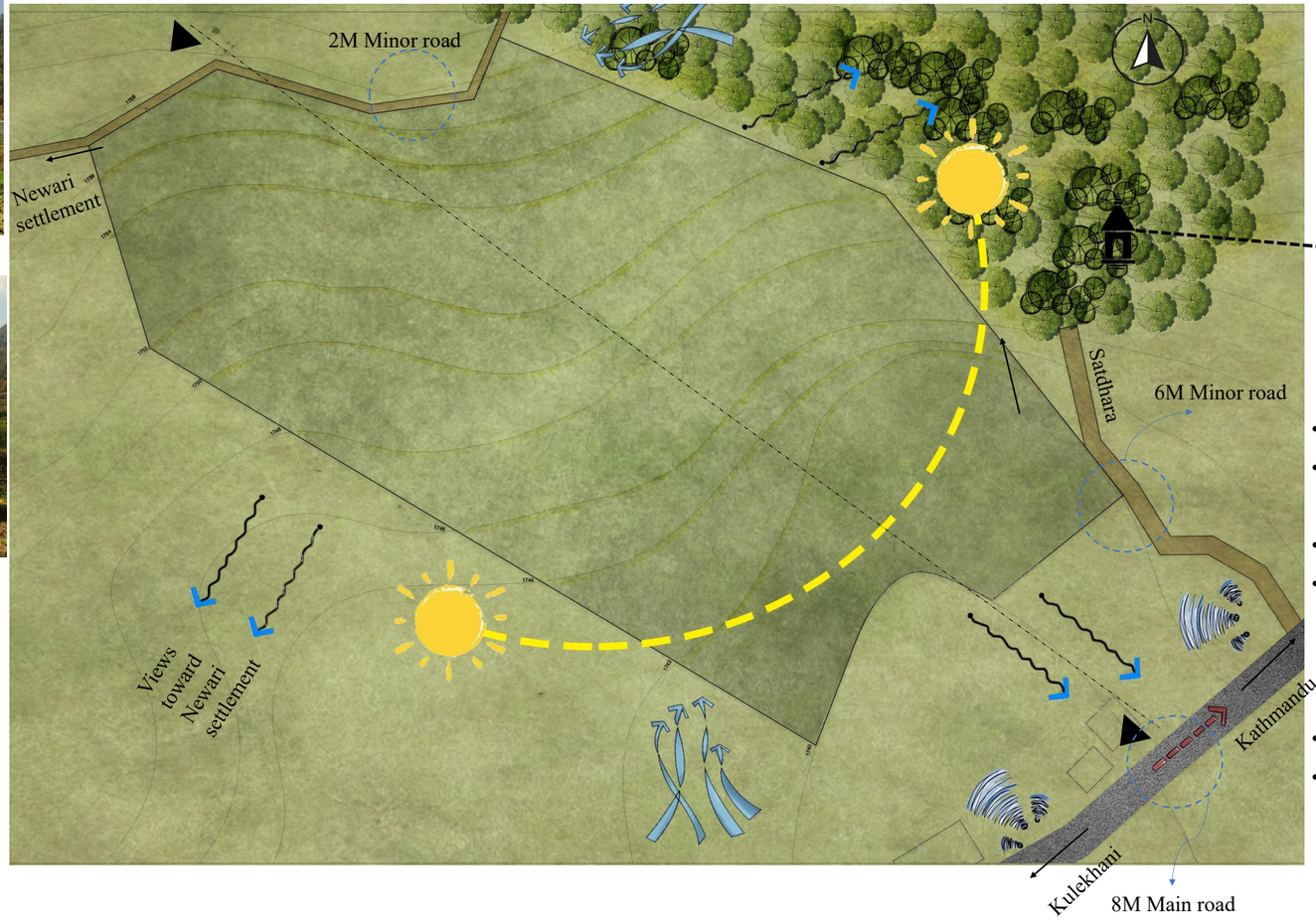
- **Orientation:** North-South for optimal natural lighting.
- **Ventilation:** Windows placed in Southwest and Northwest directions to utilize prevailing winds.
- **Roof Design:** Sloped roofs preferred for efficient rainwater drainage, with potential for rainwater harvesting.

Views in the North

Views in the South- West

Views in the south

SITE PLAN



Satdhara

Buildings-By laws

- **Ground coverage: 60%** (plot more than 250 sq. m.)
- **Building height limit:** 10m (considering traditional aesthetics and landscape integration)
- **Right of way:** 15m from the center of the main road
- **Setback:** Up to 10m height → 1.5m setback from the property boundary.
  10m - 17m height → 3m setback for public buildings.
- **FAR:** 1.5
- **Parking:** 15% of total site area

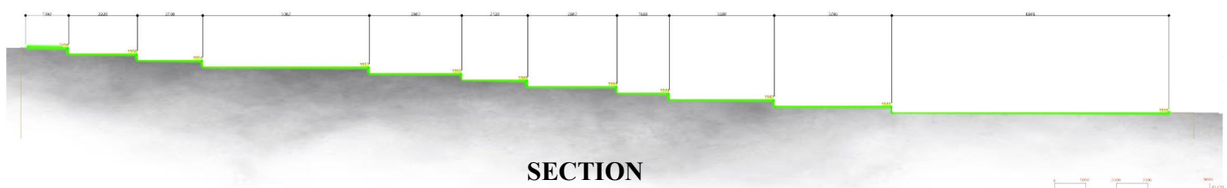
SWOT analysis

S
- Scenic landscape
- Rich cultural heritage
- Good connectivity
- Favourable orientation

W
- Seasonal tourism
- Limited infrastructure

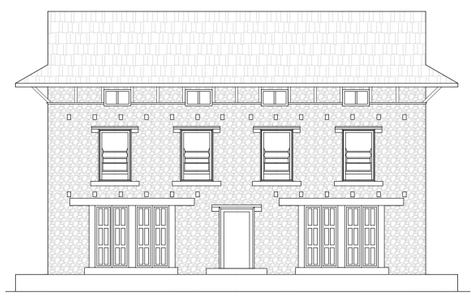
O
- Growing eco-tourism
- University collaboration scope
- Nearby Satdhara connection
- Forest landscape potential
- Connection with locals

T
- Modernization impact



SECTION

Study of vernacular architecture



Elevation

Vernacular Features

- Traditional houses are built with stone, mud, and timber, featuring carved wooden windows and doors.
- Houses are closely packed with shared open spaces and religious structures like stupas.
- Sloped metal, slate and tile roofs are designed for monsoon protection, blending with the natural landscape.

PROGRAM FORMULATION

Approximate number of visitors in resort

- Number of people visiting the site per year: 52,000 people (as per the information by The Kathmandu Post).
- Number of people visiting in nearby homestay and resort: 3200 people per year (as per information by the nearby resort).
- Number of visitors at old Chitlang Village settlements per year: 2500 people (as per the information by local source).

So, Assuming Total no. of visitors: 11000 people per year (Including hikers and camping)

1. Accommodation units

Types	Capacity (People)	Area per unit (Sq. m.)	No. of Units	Total Area (Sq. m.)
1, Glamping Tents	6	25	9	225
2, Private Cottage	4	95	16	1520
3, Family suite	2 or 4	290	5	1450

- Total Accommodation area: 3195 sq. m.
- Total no. of units: 30
- Total guest capacity: 140 people

2. Wellness and Recreational spaces

Category	Space	Area (Sq. m.)
• **Wellness Facilities**	1. Sauna	48
	2. Spa	80
	3. Fitness room	115
• **Recreation & Outdoor Activities**	1. Swimming Pool & Bar	1930
• **Community & Cultural Interaction**	1. Multipurpose block	940
	2. Open Amphitheater	430

- Total Wellness and Recreational space area: 3545 Sq. m.

3.Office block

Space	Capacity (People)	Area (Sq. m.)	Purpose
1, Reception		25	Check-in, lobby, guest services
2, Waiting area	10	40	Relaxation space for guests awaiting services
3, Manager office		22	Workspace for managerial oversight
4, CEO office		25	Executive workspace
5, Storage room		15	Storage for supplies, and records
6, Medical room		17	Basic first-aid and emergency medical response
7, Staff room	30	115	Control center for building infrastructure and automation
8, Meeting room	12	30	Space for meetings, and collaborative discussions

- Total office area: 290Sq. m.

4. Service Block

Spaces	Area (Sq. m.)	Purpose
1. Laundry room	20	Washing, drying, ironing, and storage.
2. Staff room	30 (For 14 staff)	Private space for employee to rest
3. Store room	10	Stores Laundry supplies
4. Electrical and server room	32	Contains electrical panels, switchgear, and backup systems.
5. Management room	23	Controls plumbing systems, water supply/distribution and Oversees waste collection

- Total Service Block area: 115 Sq. m.

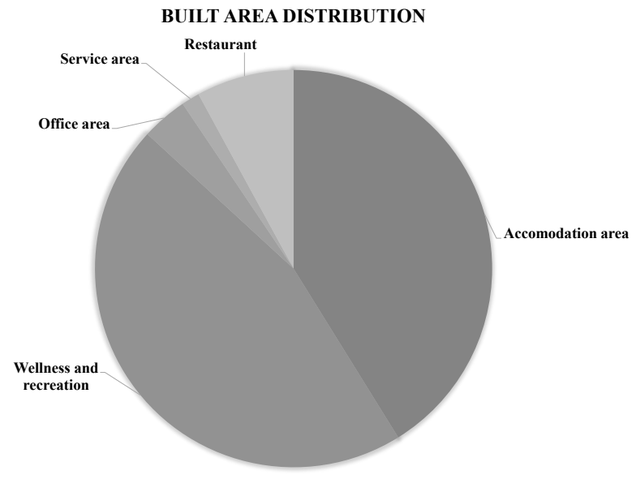
5. Restaurant

Spaces	Capacity	Area (sq. m.)
1. Dining area	240	470
2. Kitchen		27
3. Pantry		10
4. Store room		30
5. Bar area	25	80

- Total Restaurant area: 617 Sq. m.

6. Eco-Friendly & Sustainable Features

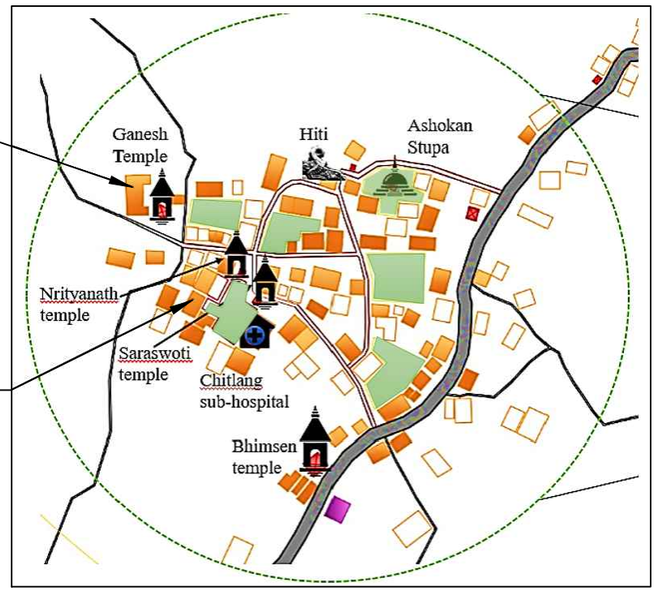
Category	Space	Remarks
Energy Efficiency	Solar Power System	Calculation: Estimated daily load = ~150 kWh/day. Avg. sunlight hours in Chitlang ≈ 4.5 h/day. Required capacity = 150 ÷ 4.5 ≈ 33 kWp.
Water Conservation	Rainwater Harvesting System	Calculation: Roof catchment = 7,160 m² × 1.5 m rainfall × 0.8 ≈ 8,592,000 L/year (~23,500 L/day).
	Greywater Recycling	Reuses shower and sink water for landscaping and flushing.
Waste Management	Organic Waste Management	Converts food & organic waste into compost fertilizer.
Organic Farms	Farm Land	Grows fresh vegetables, herbs, and fruits for restaurant use.

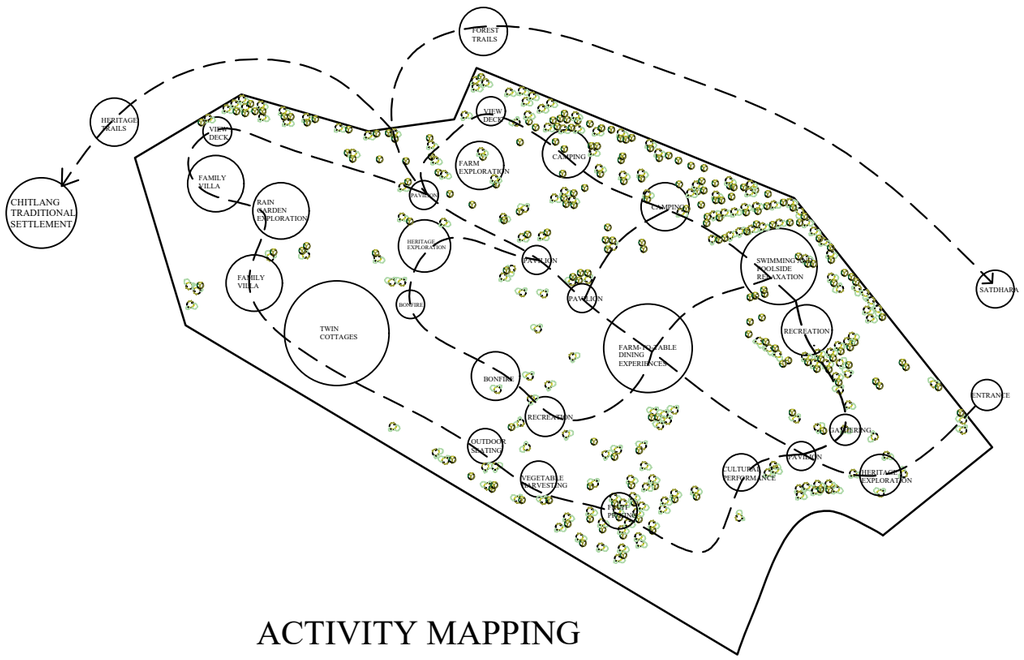


CONCEPT

The core concept of the eco-resort is to revive and reflect the essence of the nearby traditional settlement by adopting its organic layout, architectural language, and sustainable practices, creating a harmonious blend of culture, nature, and ecology.

Vernacular aesthetics





ACTIVITY MAPPING

Reflecting the rhythm of the village, every step reveals a place to pause.

The design of the eco-resort follows the calm and natural flow of a traditional village. The pathway, leading visitors through open spaces, gardens, and clusters of buildings, just like walking through Chitlang's old streets.

The architecture reuses the language of the local settlement--sloped slate roofs, exposed timber beams, and earth-toned walls--creating continuity between old and new.

Stone

Slate roof

Timber

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KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

FINAL PRESENTATION

B. ARCH THESIS

NAME: ESHA MUSYAKHO
ROLL NO.: 760114
DATE: 2082/04/27

ZONING

The resort layout is organized in zones to balance privacy, accessibility, and guest experience. Public functions are located near the entrance for ease of access, while private accommodations enjoy scenic views and tranquility on the upper zones.

Located away from the entry for privacy and tranquility. This zone also has the beautiful views of the Chitlang traditional settlement along with the hills.

Acts as a buffer between public and private zone.

Positioned close to entrance for easy access and minimizes disturbance to private area

BUBBLE DIAGRAM

AFFILIATED TO PURBANCHAL UNIVERSITY
KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

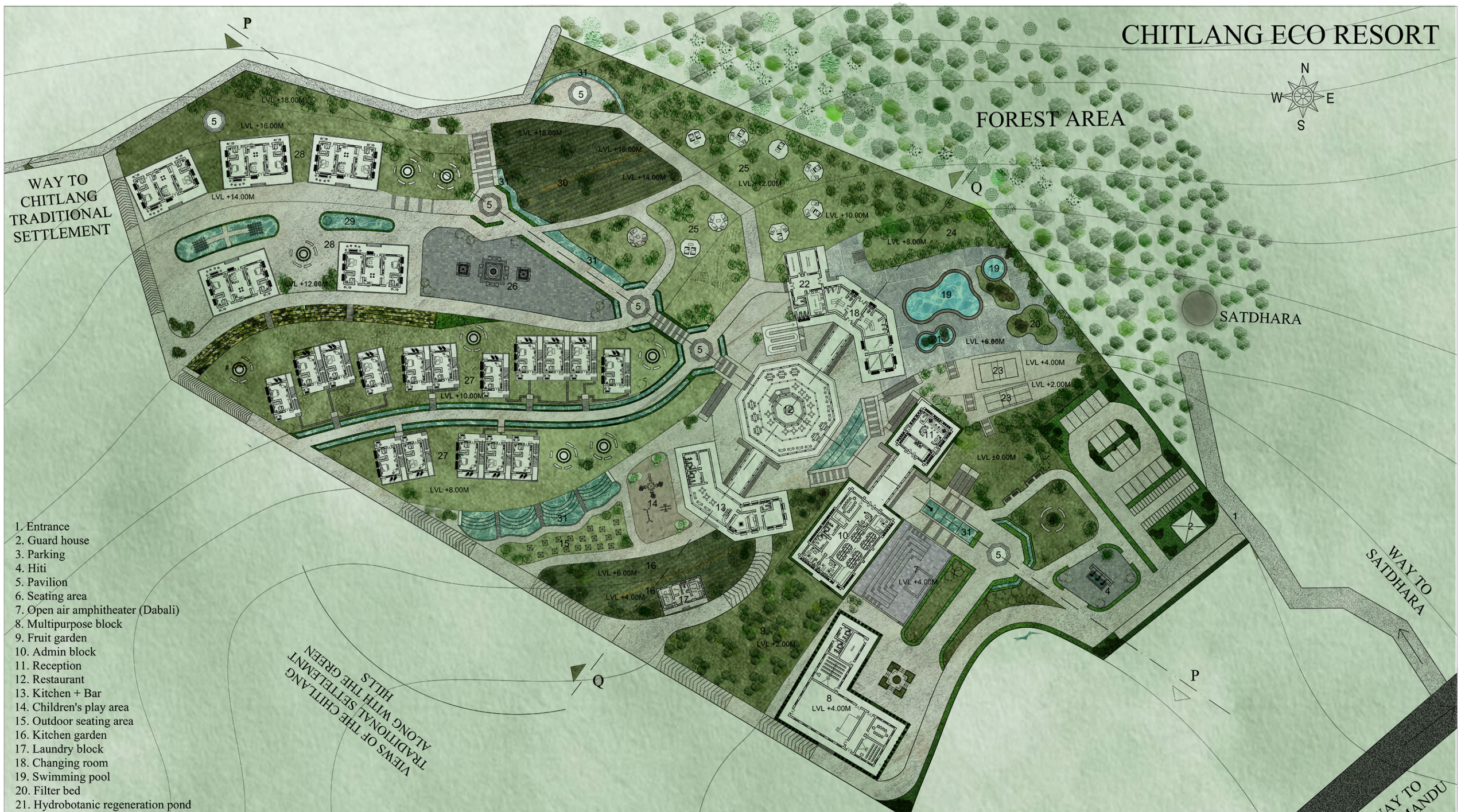
THESIS ON: ECO- RESORT

ZONING

NAME: ESHA MUSYAKHO
ROLL NO.: 760114

DATE: 2082/03/25

CHITLANG ECO RESORT



1. Entrance
2. Guard house
3. Parking
4. Hiti
5. Pavilion
6. Seating area
7. Open air amphitheater (Dabali)
8. Multipurpose block
9. Fruit garden
10. Admin block
11. Reception
12. Restaurant
13. Kitchen + Bar
14. Children's play area
15. Outdoor seating area
16. Kitchen garden
17. Laundry block
18. Changing room
19. Swimming pool
20. Filter bed
21. Hydrobotanic regeneration pond
22. Service block
23. Play area
24. Service area
25. Camping area
26. Chaitya
27. Cottage area
28. Family villa
29. Rain Garden
30. Permaculture garden
31. RWH catchment

MASTER PLAN

SITE AREA: 35,800 SQ. M.(70-5-3-3)
BUILT UP AREA: 7,250 SQ. M.
GROUND COVERAGE: 20.25%

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KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

FINAL PRESENTATION

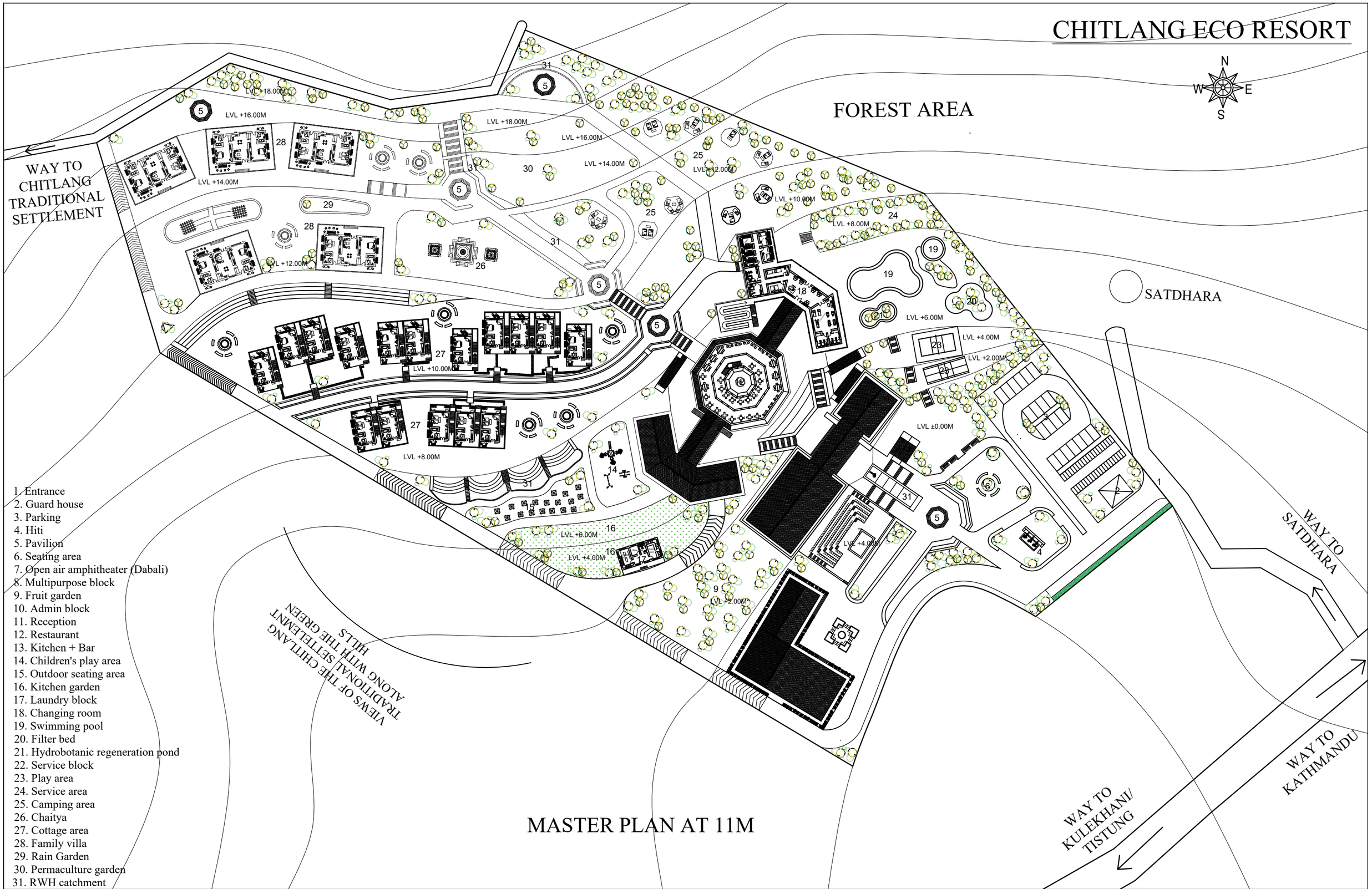
B. ARCH THESIS

NAME: ESHA MUSYAKHO
ROLL NO.: 760114

DATE: 2082/04/27

SCALE- 1:300

CHITLANG ECO RESORT



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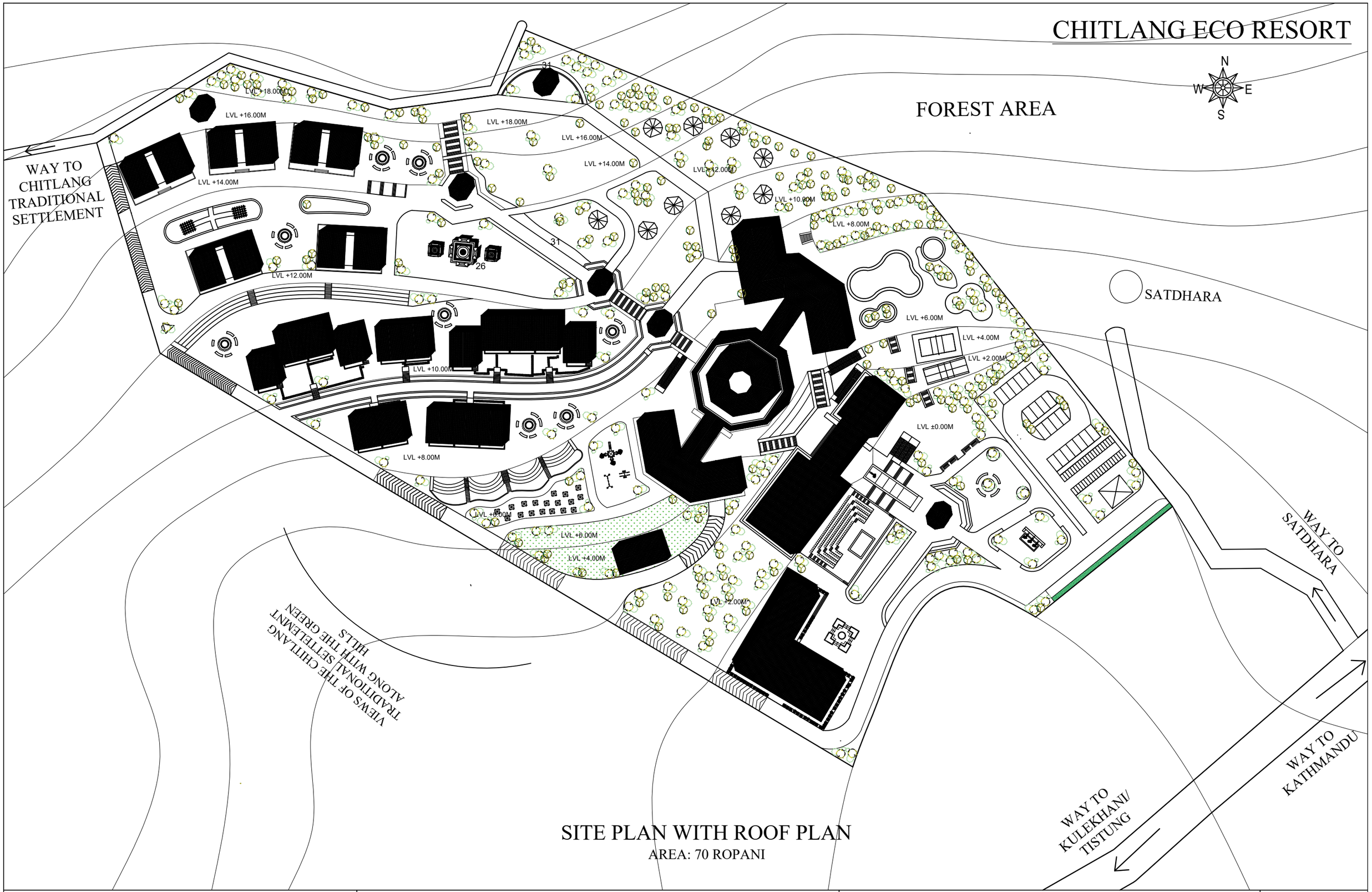
27. Cottage area
28. Family villa
29. Rain Garden
30. Permaculture garden
31. RWH catchment

MASTER PLAN AT 11M

AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27 SCALE- 1:600

CHITLANG ECO RESORT



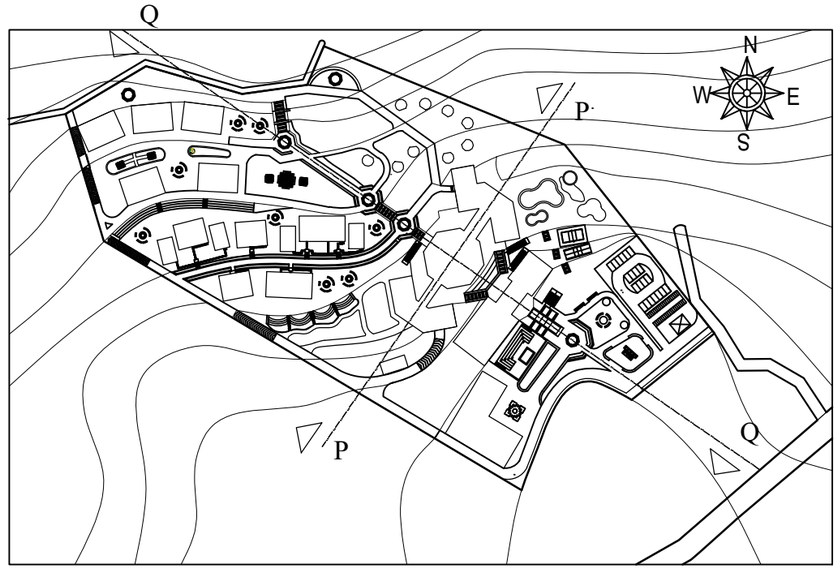
SITE PLAN WITH ROOF PLAN

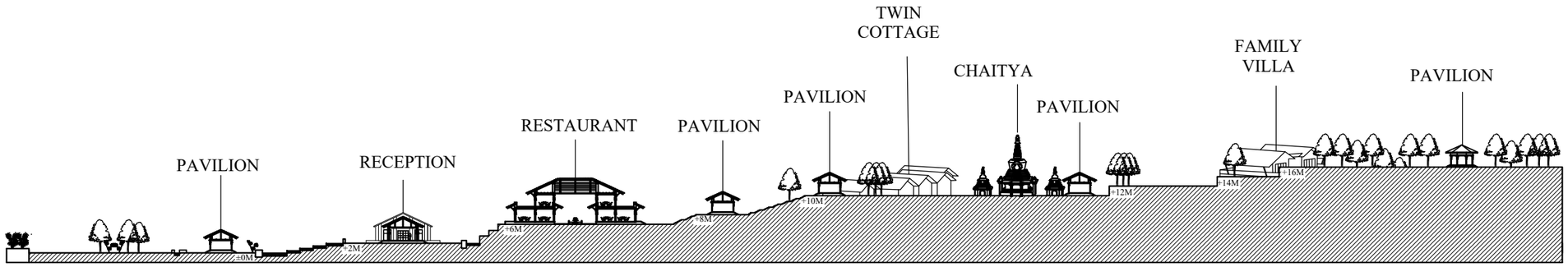
AREA: 70 ROPANI

AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27 SCALE- 1:600

CHITLANG ECO RESORT

PROFILE SECTION AT P-P





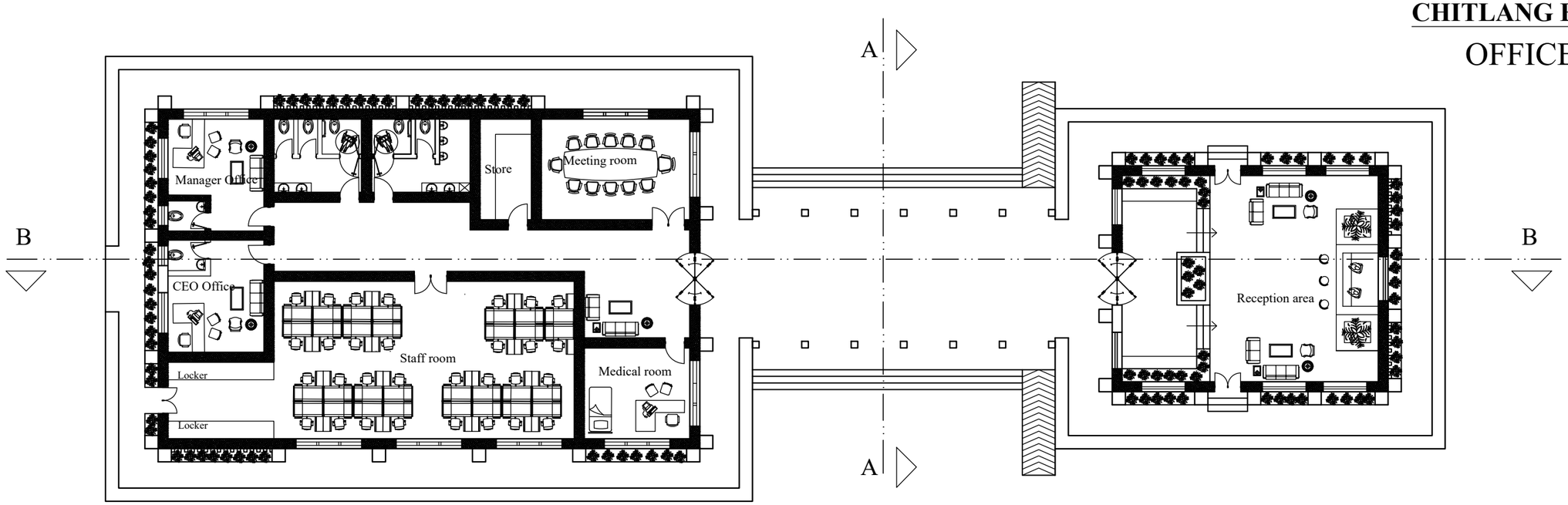
PROFILE SECTION AT Q-Q

SOUTH-WEST ELEVATION

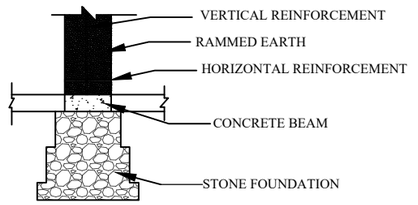
AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27	SCALE- 1:600

CHITLANG ECO RESORT

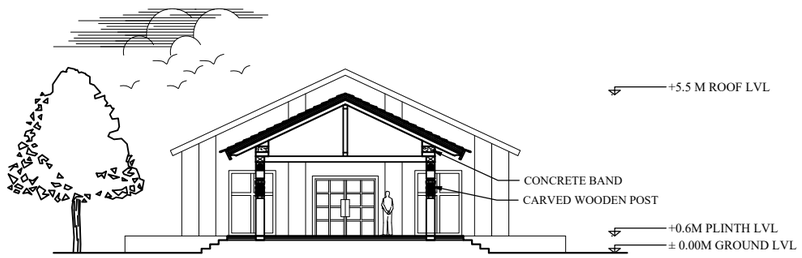
OFFICE BLOCK



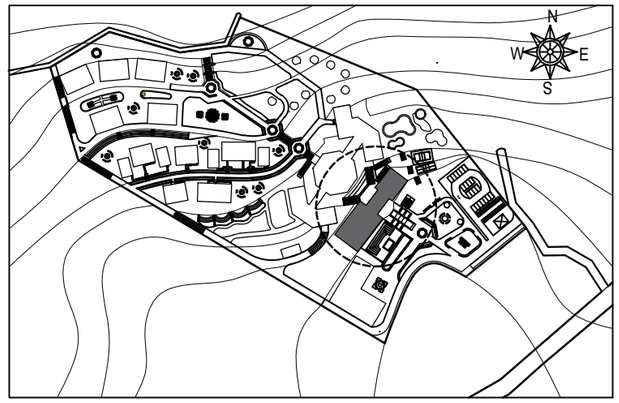
OFFICE BLOCK
FLOOR PLAN
(AREA:960 SQ.M.)



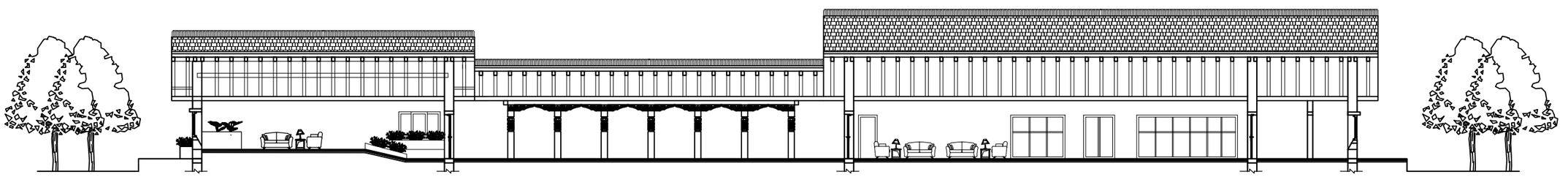
FOUNDATION DETAIL



SECTION AT A-A



KEY MAP
Scale- 1:2000

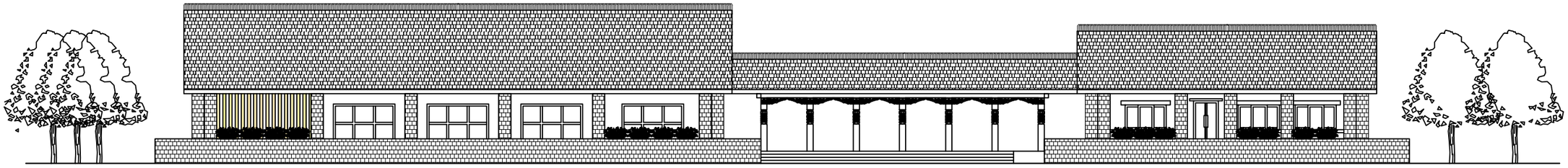


SECTION AT B-B

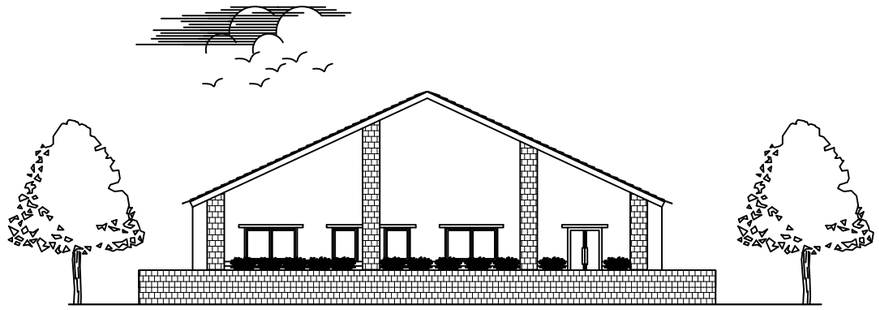
AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27 SCALE- 1:200

CHITLANG ECO RESORT

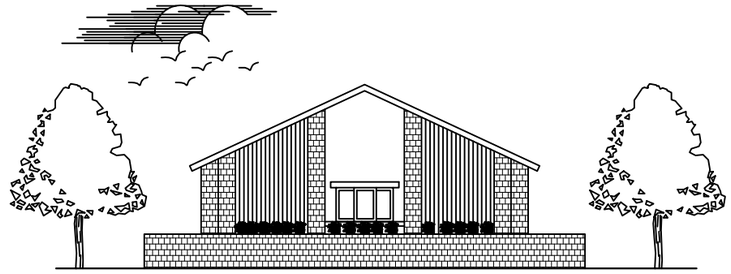
OFFICE BLOCK



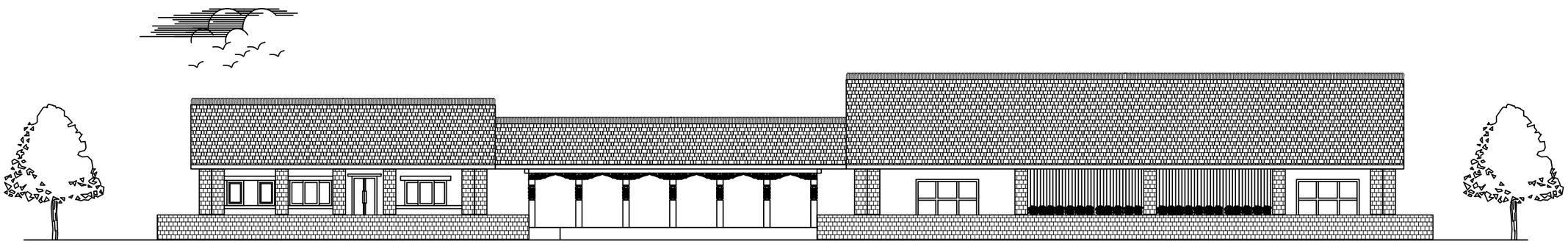
SOUTH-WEST ELEVATION (FRONT)



SOUTH-WEST ELEVATION (SIDE)



NORTH-EAST ELEVATION (SIDE)

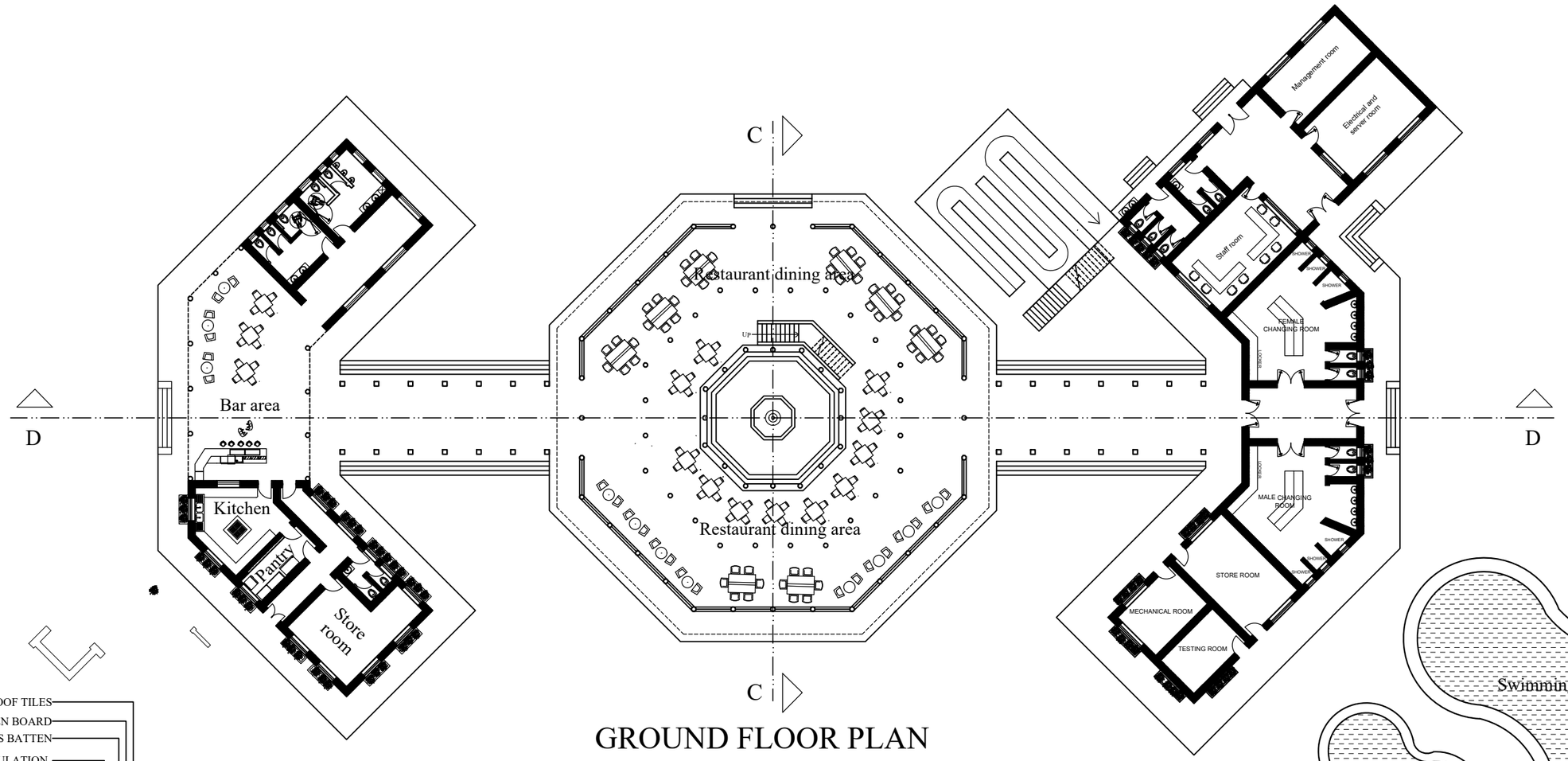


NORTH-WEST ELEVATION (BACK)

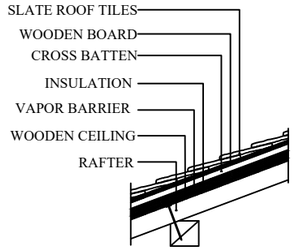
AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27	SCALE- 1:200

CHITLANG ECO RESORT

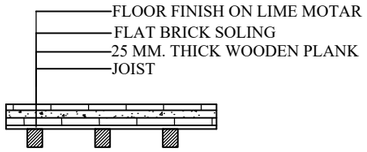
MOTHER UNIT



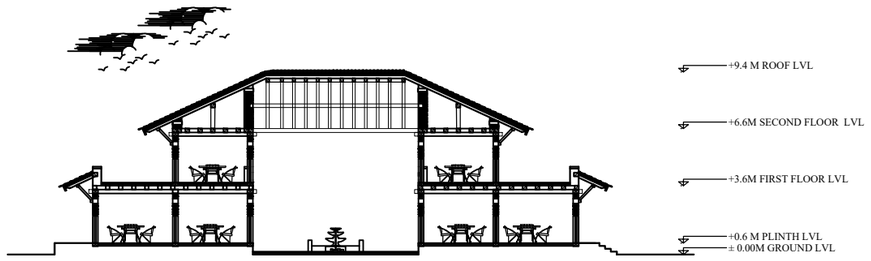
GROUND FLOOR PLAN
(AREA:2022 SQ.M.)



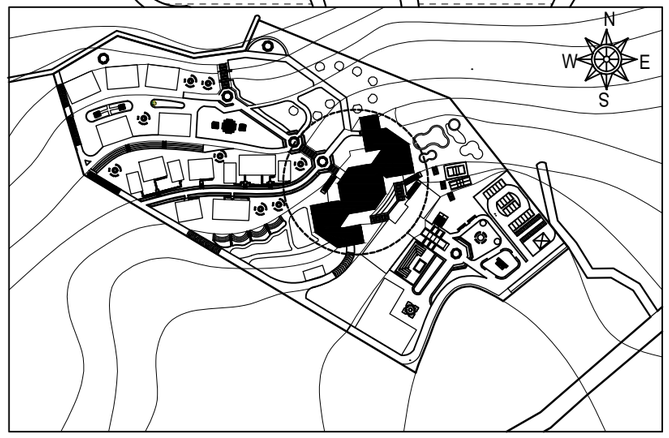
ROOF DETAIL



FLOOR DETAIL



SECTION AT C-C

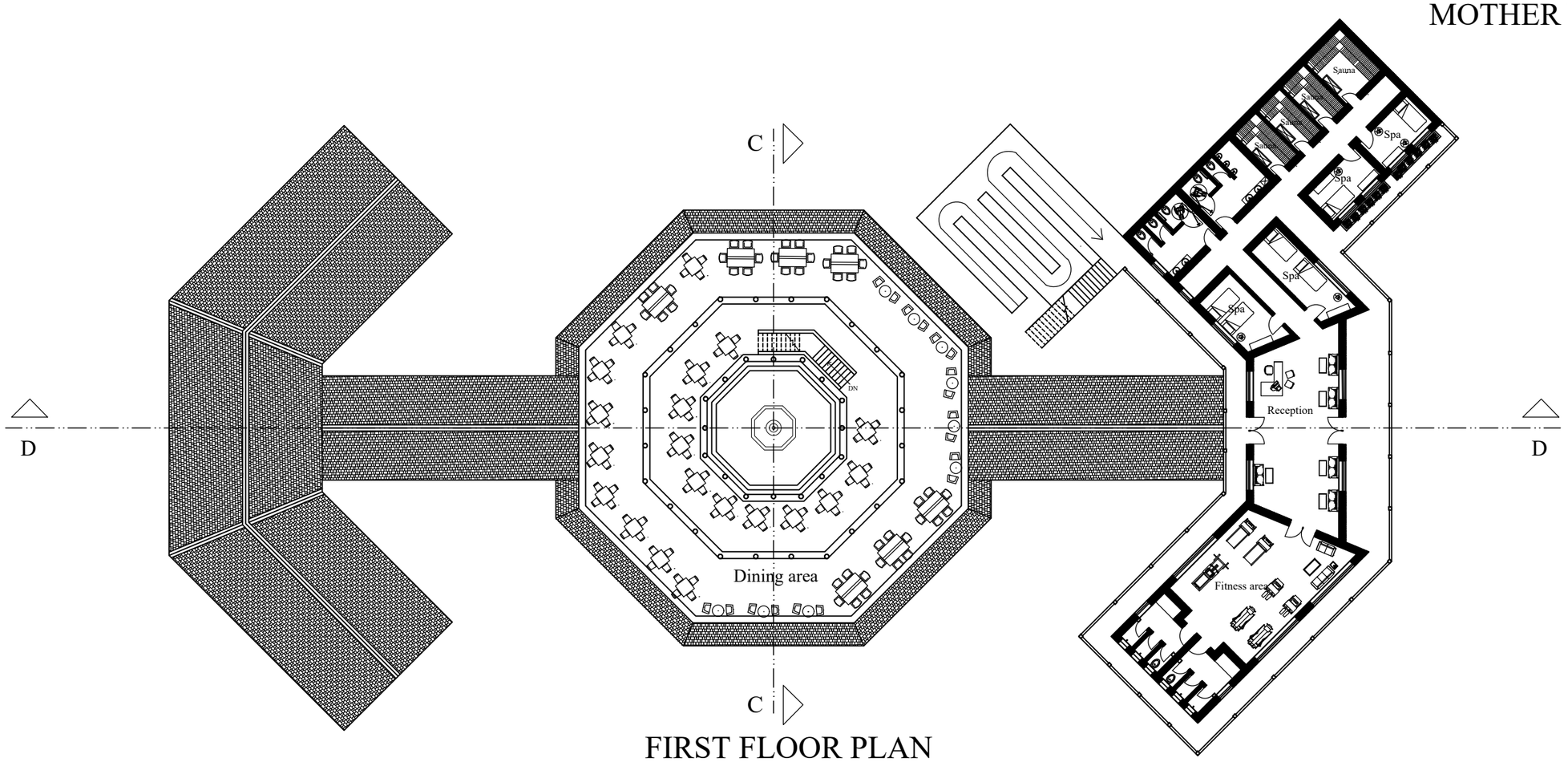


KEY MAP

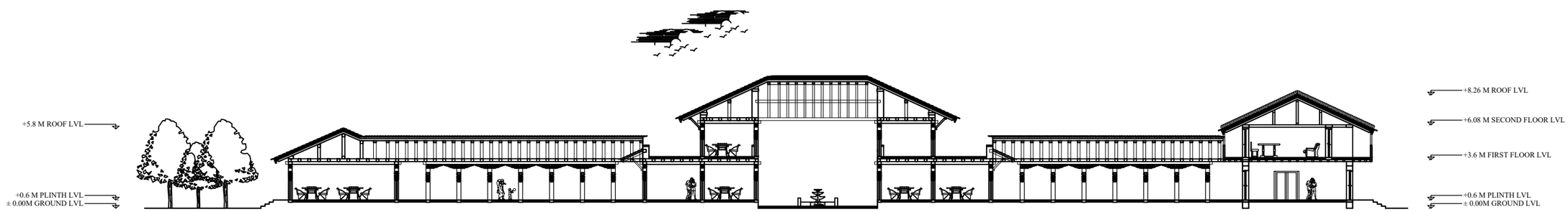
AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27 SCALE- 1:300

CHITLANG ECO RESORT

MOTHER UNIT



FIRST FLOOR PLAN

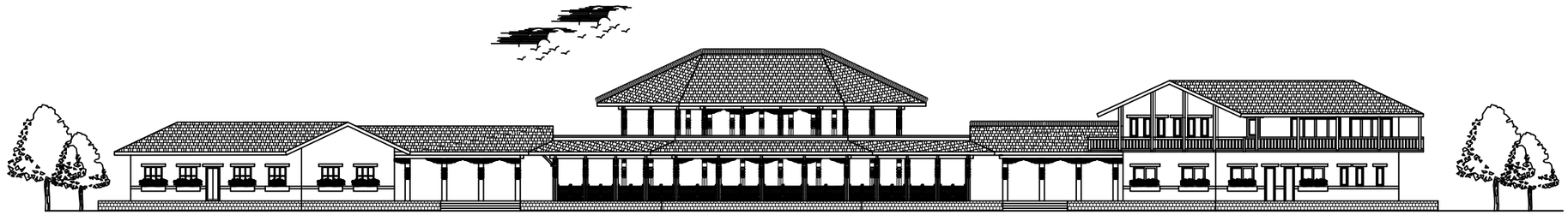


SECTION AT D-D

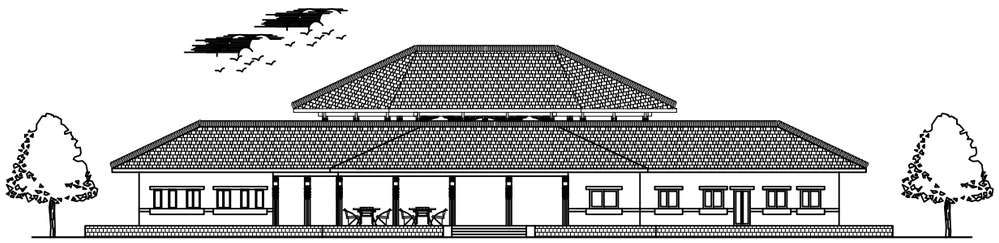
AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27 SCALE- 1:300

CHITLANG ECO RESORT

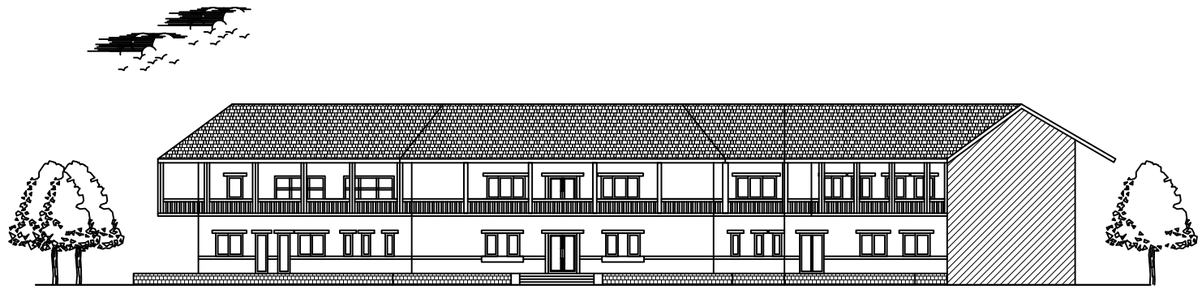
MOTHER UNIT



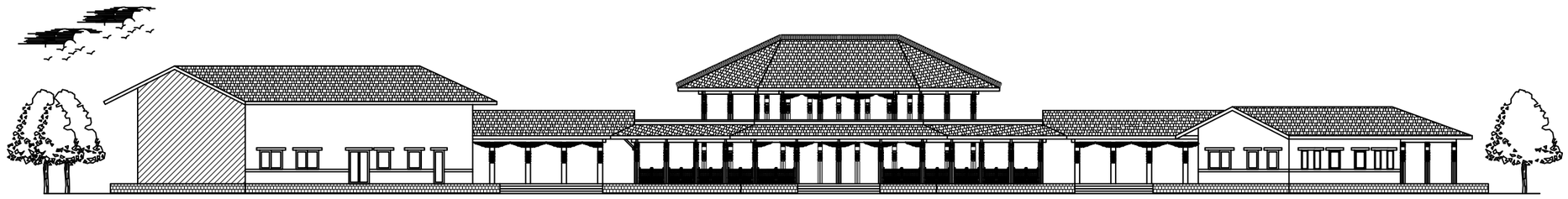
SOUTH-EAST ELEVATION
(FRONT)



SOUTH-WEST ELEVATION
(SIDE)



NORTH-EAST ELEVATION
(SIDE)

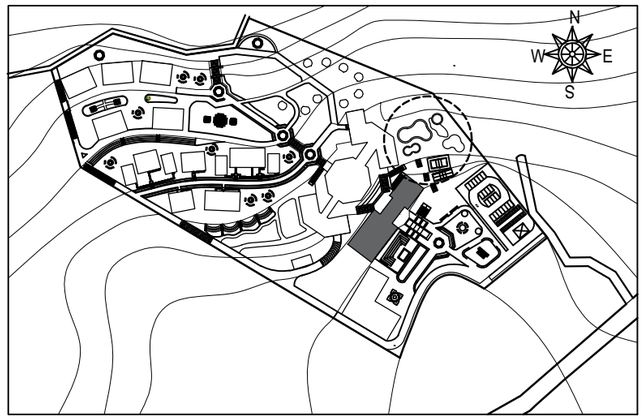


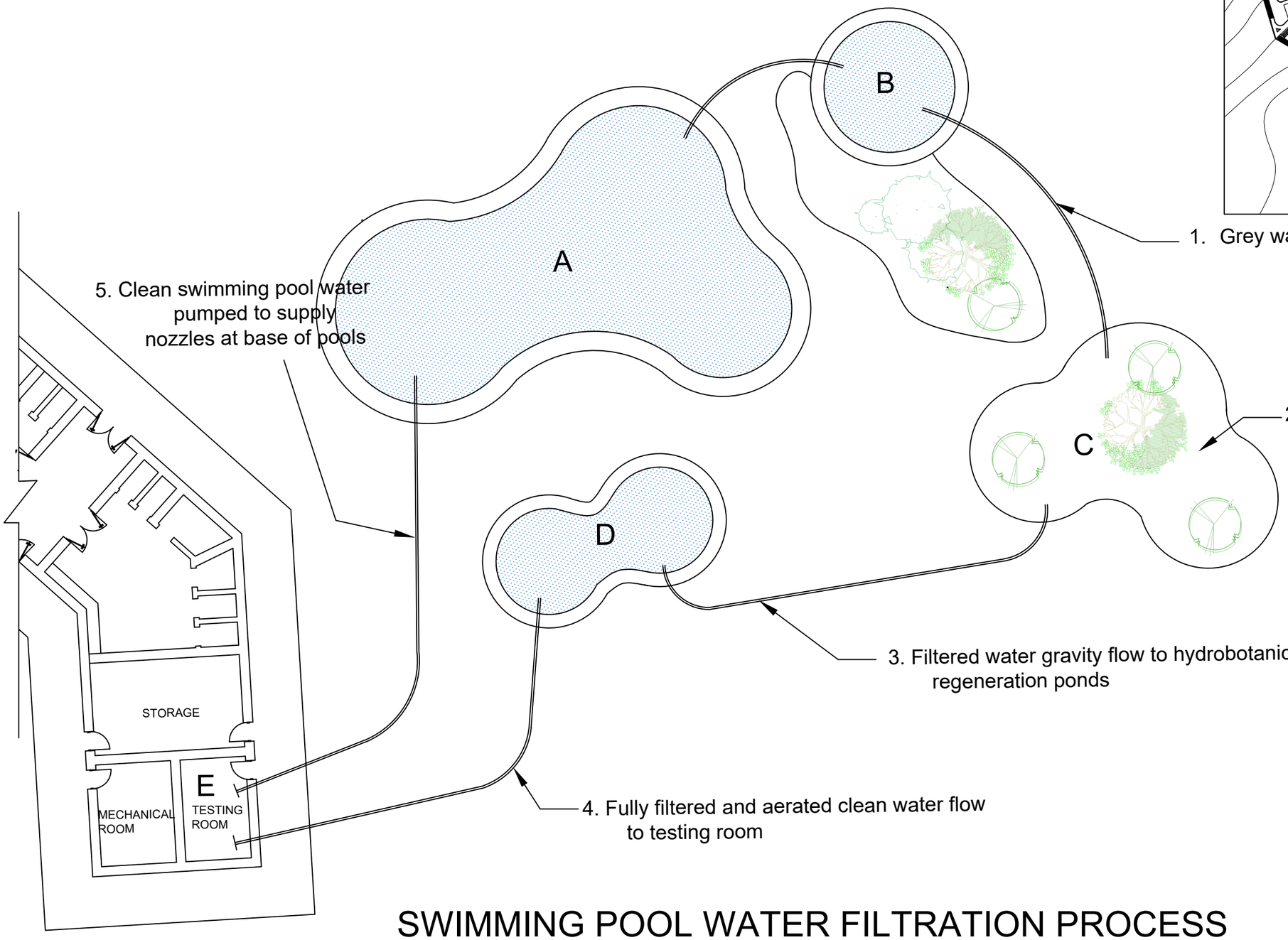
NORTH-WEST ELEVATION
(BACK)

AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27 SCALE- 1:300

CHITLANG ECO RESORT

POOL AREA





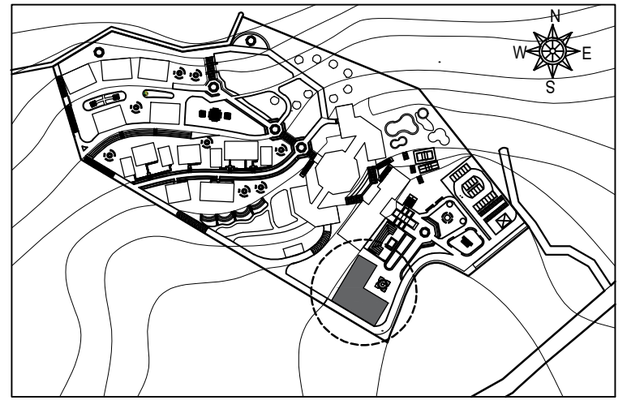
A. Swimming pool
B.Kid's pool
C.Gravel filter bed
D.Hydrobotanic regeneration pond
E.Pumps/ Testing room

SWIMMING POOL WATER FILTRATION PROCESS

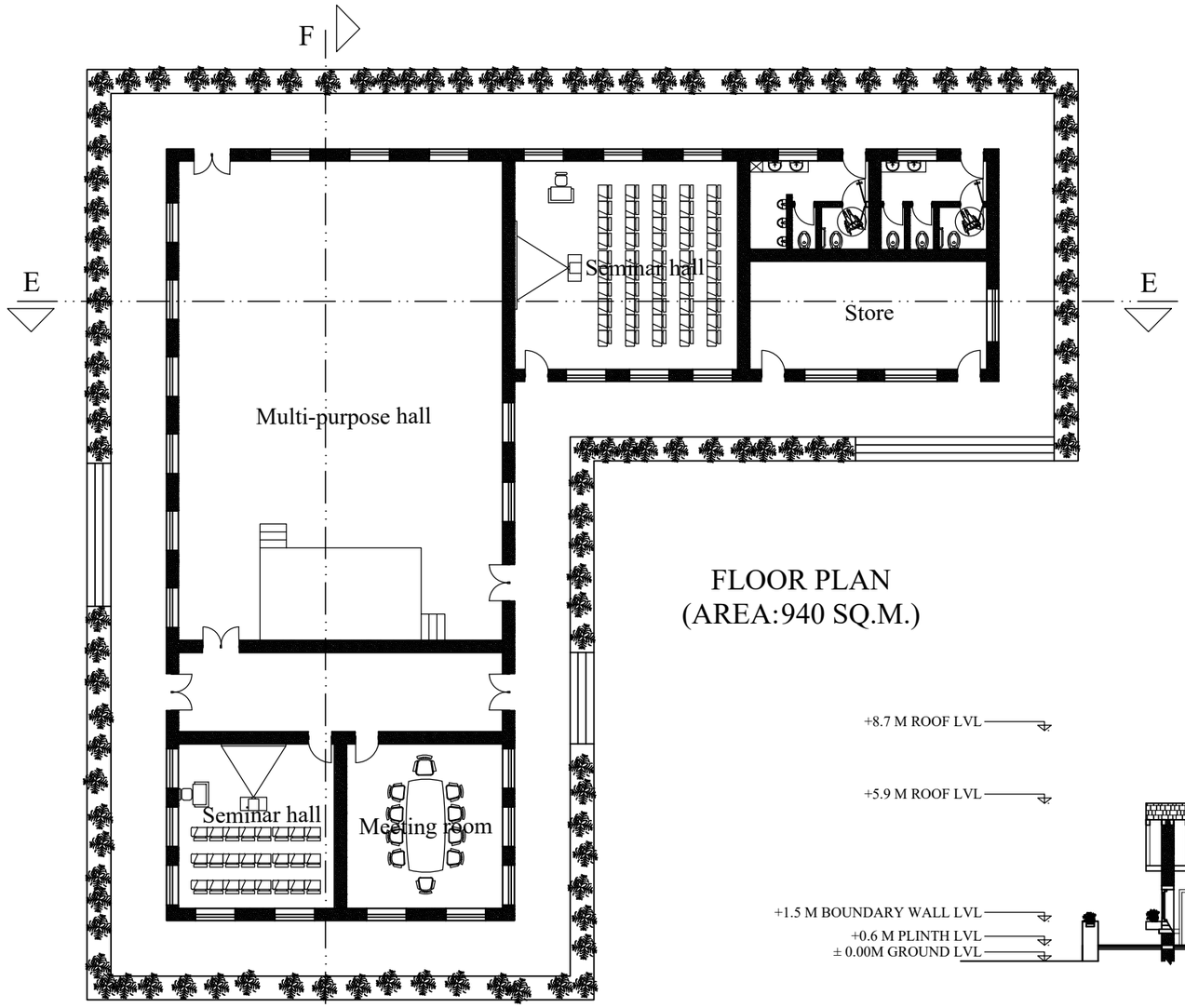
AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27 SCALE- 1:200	

CHITLANG ECO RESORT

MULTI-PURPOSE BLOCK

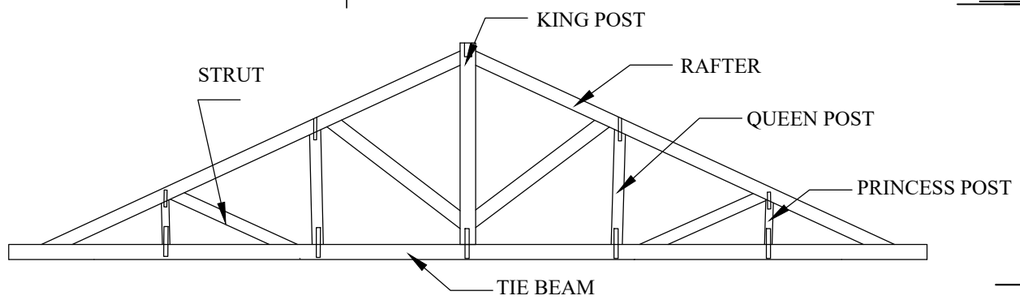


KEY MAP
Scale- 1:2000

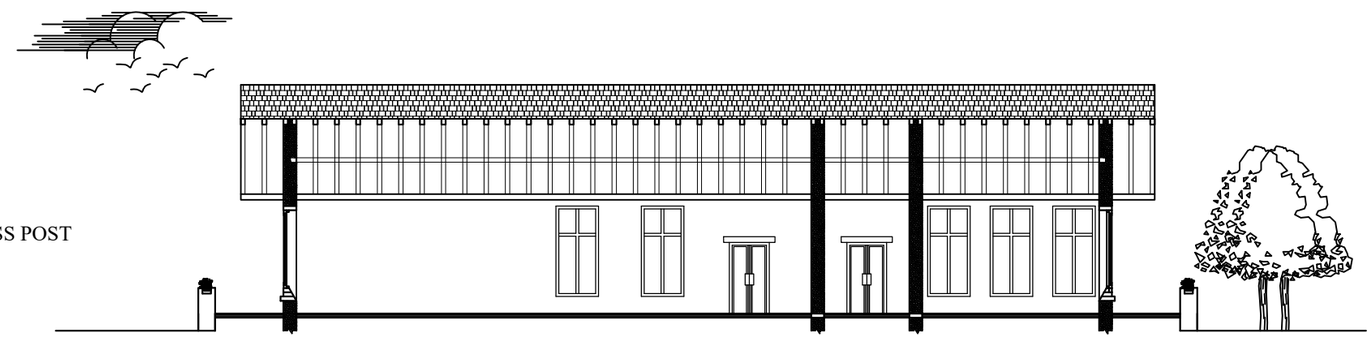


FLOOR PLAN
(AREA:940 SQ.M.)

SECTION AT E-E



TRUSS DETAIL

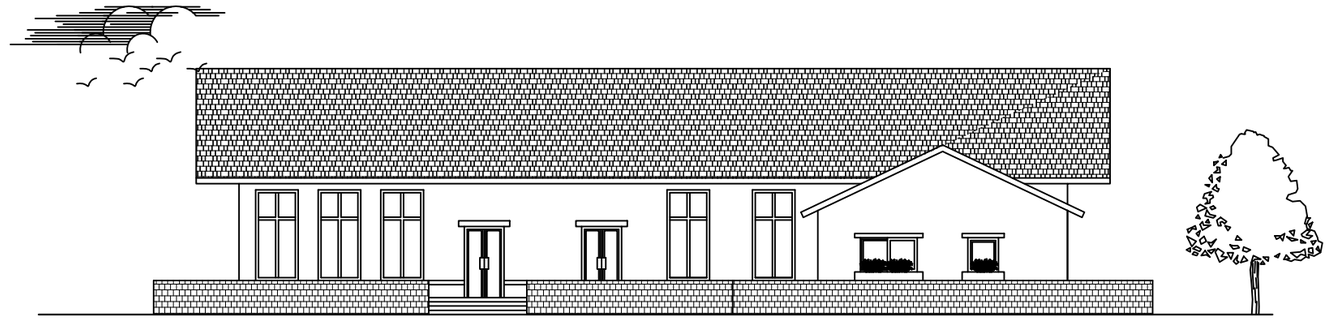


SECTION AT F-F

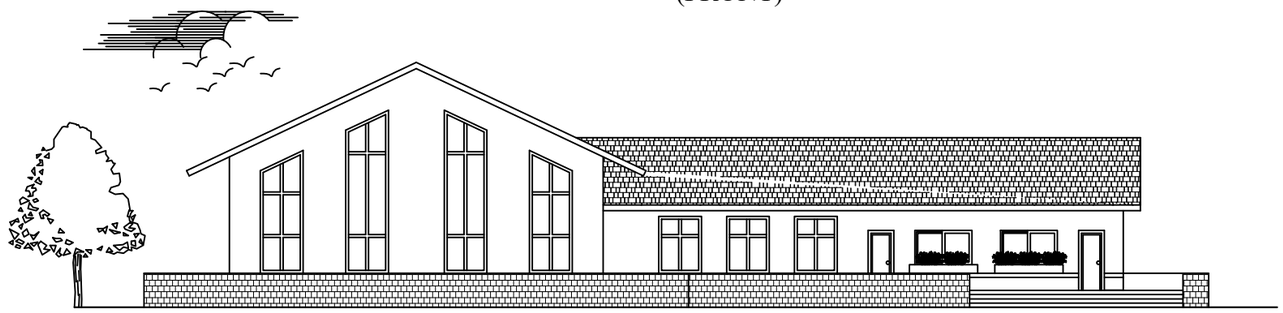
AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27 SCALE- 1:200

CHITLANG ECO RESORT

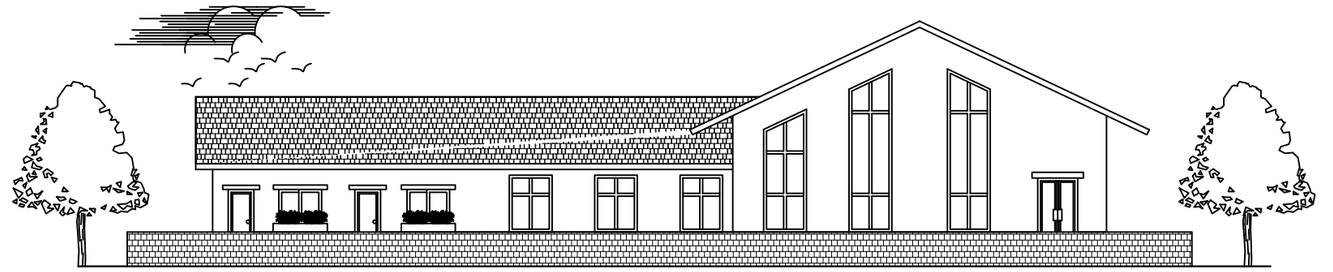
MULTI-PURPOSE BLOCK



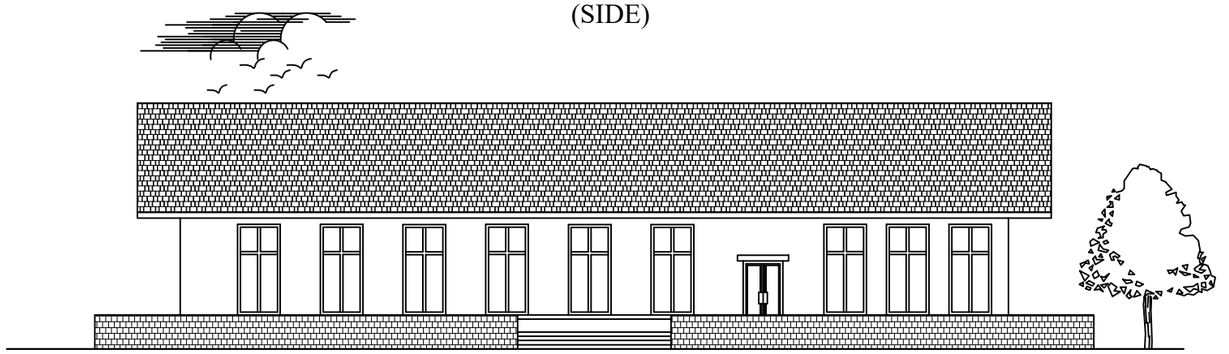
NORTH-EAST ELEVATION
(FRONT)



SOUTH-EAST ELEVATION
(SIDE)



NORTH-WEST ELEVATION
(SIDE)



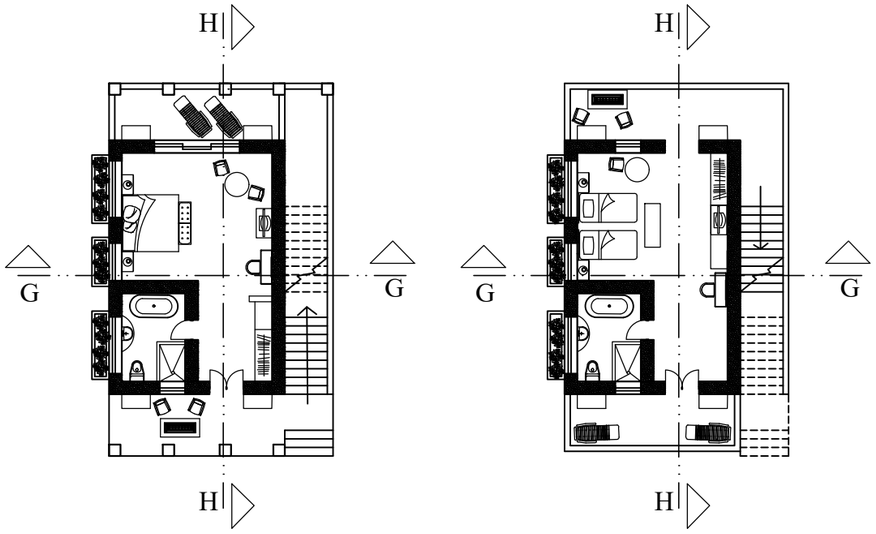
SOUTH-WEST ELEVATION
(BACK)

AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27 SCALE- 1:200	

CHITLANG ECO RESORT

TYPE A: TWO-LEVEL TWIN COTTAGE

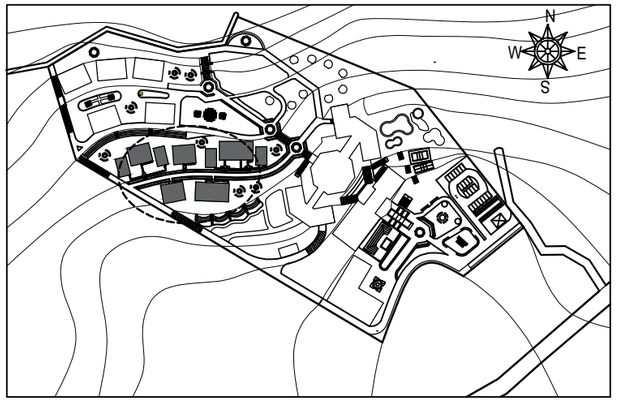
ACCOMMODATION UNIT



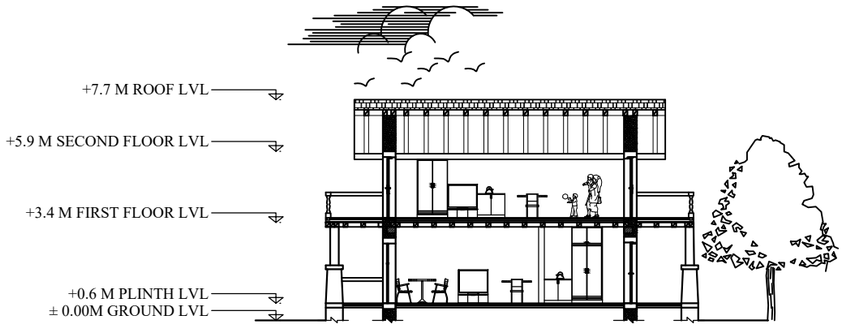
GROUND FLOOR PLAN
(AREA:95 SQ.M.)

FIRST FLOOR PLAN

SOUTH-EAST ELEVATION
(FRONT)

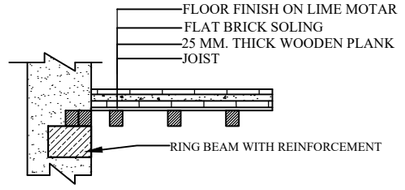


KEY MAP
Scale- 1:2000

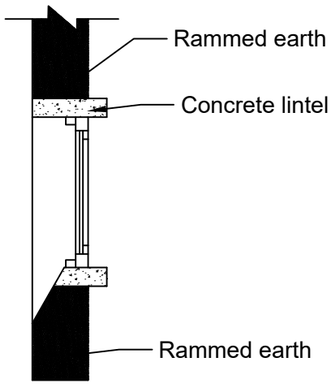


SECTION AT G-G

NORTH-WEST ELEVATION
(BACK)



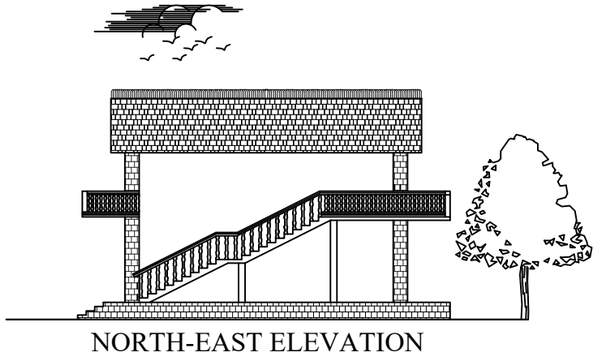
FLOOR DETAIL



WINDOW DETAIL

SECTION AT H-H

SOUTH-WEST ELEVATION
(SIDE)



NORTH-EAST ELEVATION
(SIDE)

AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27 SCALE- 1:200

CHITLANG ECO RESORT

OUTDOOR SEATING

FLOWER GARDEN IN BETWEEN TWO DIFFERENT LEVEL

INTERIOR OF ROOMS

WATER CANAL IN FRONT OF COTTAGES

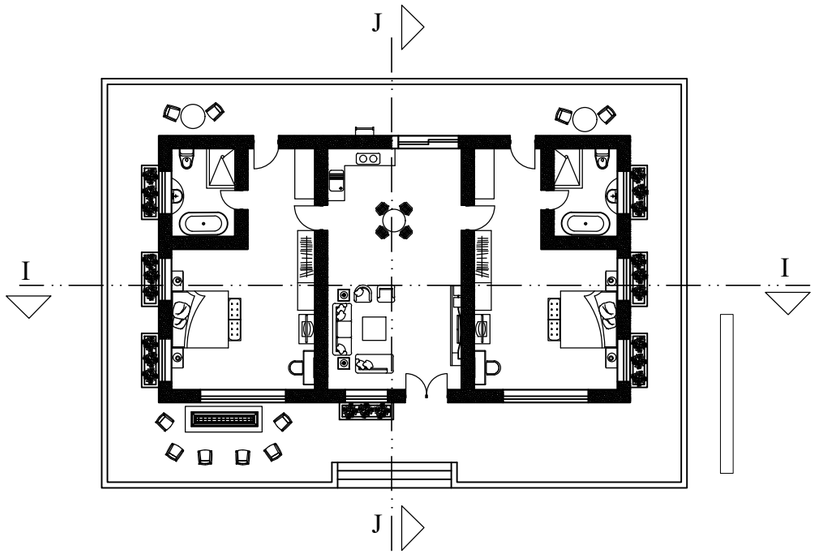
FAMILY VILLA

AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27

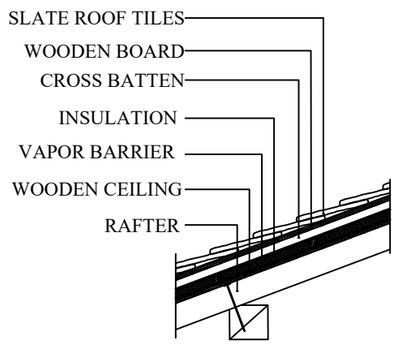
TYPE B: FAMILY VILLA

CHITLANG ECO RESORT

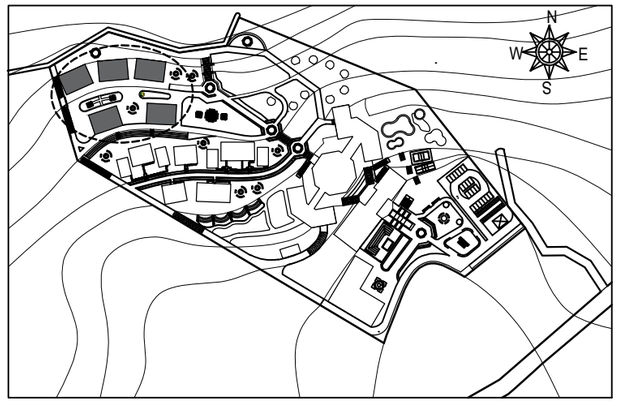
ACCOMMODATION UNIT



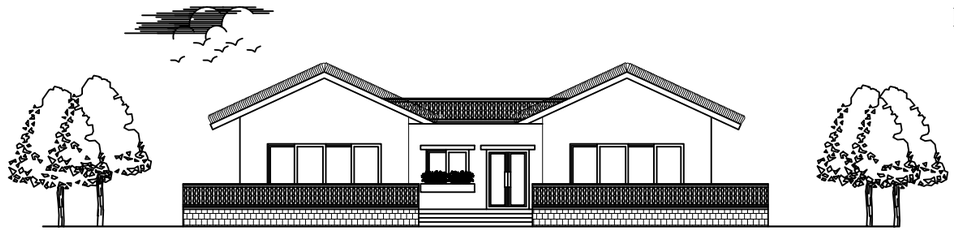
FLOOR PLAN
(AREA:290 SQ.M.)



ROOF DETAIL

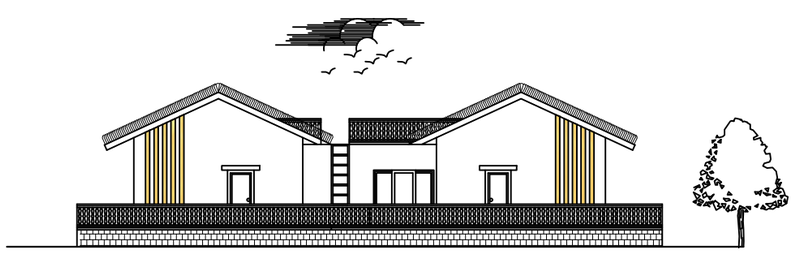


KEY MAP
Scale- 1:2000

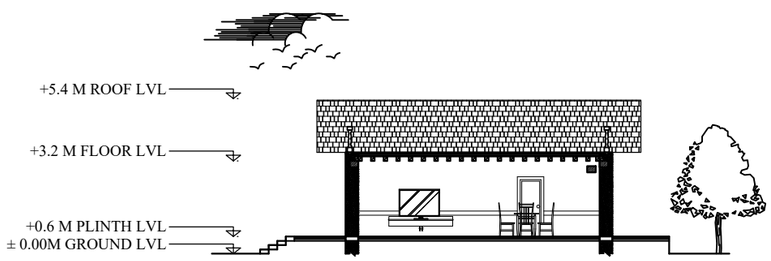


SOUTH ELEVATION (FRONT)

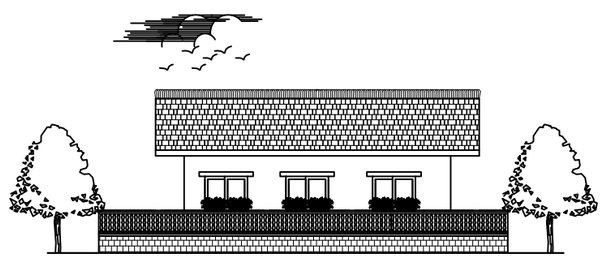
SECTION AT I-I



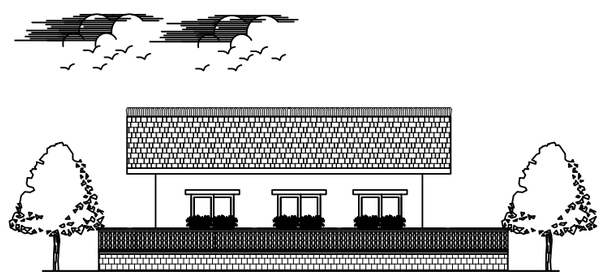
NORTH ELEVATION (BACK)



SECTION AT J-J



EAST ELEVATION (SIDE)



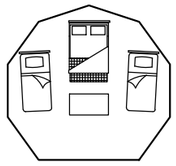
WEST ELEVATION (SIDE)

AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27 SCALE- 1:200

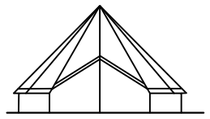
CHITLANG ECO RESORT

ACCOMMODATION UNIT

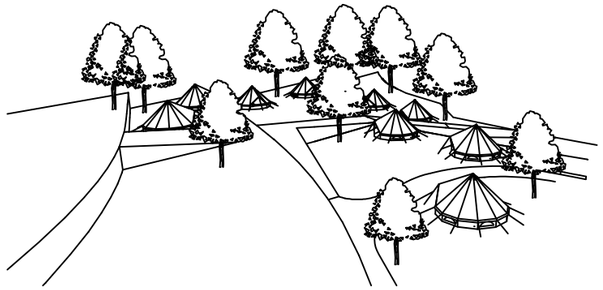
TYPE C: CAMPING TENTS



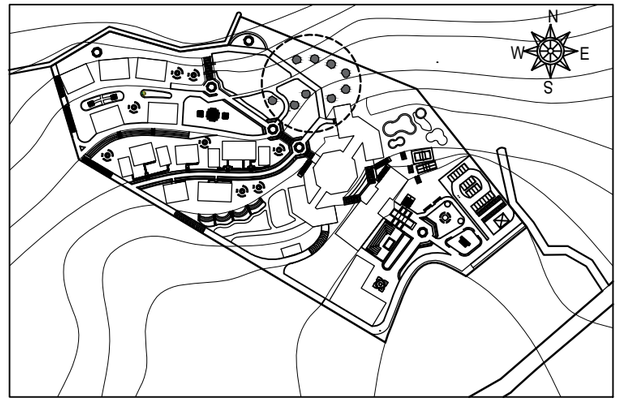
TENT PLAN
(AREA:25 SQ.M.)



FRONT ELEVATION

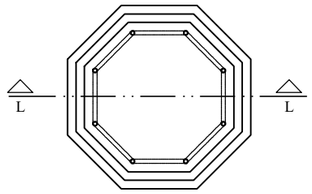


CAMPING AREA

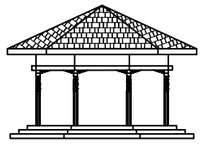


KEY MAP
Scale- 1:2000

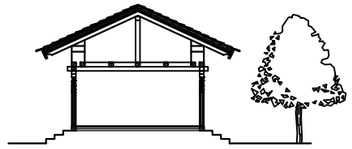
PAVILION



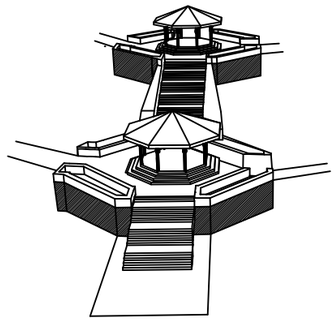
PAVILION PLAN
(AREA:32 SQ.M.)



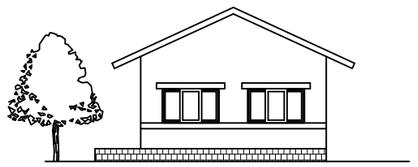
ELEVATION



SECTION AT L-L

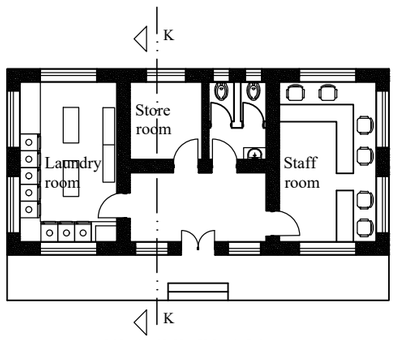


ALIGNMENT OF PAVILION

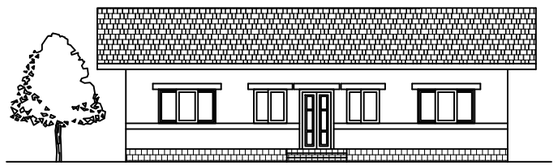


EAST ELEVATION (SIDE)

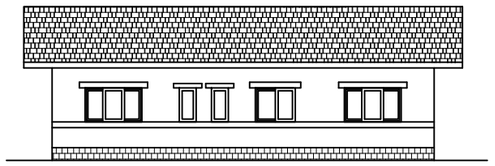
LAUNDRY BLOCK



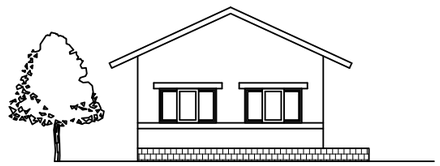
FLOOR PLAN
(AREA:95 SQ.M.)



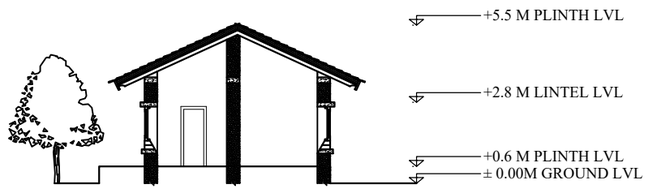
SOUTH ELEVATION (FRONT)



NORTH ELEVATION (BACK)



WEST ELEVATION (SIDE)



SECTION AT K-K

AFFILIATED TO PURBANCHAL UNIVERSITY
KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

FINAL PRESENTATION
B. ARCH THESIS

NAME: ESHA MUSYAKHO
ROLL NO.: 760114
DATE: 2082/04/27

SCALE- 1:200

CHITLANG ECO RESORT

MULTIPURPOSE BLOCK

POOL AREA

FRONT VIEW OF RESORT

RESTAURANT

CAMPING AREA

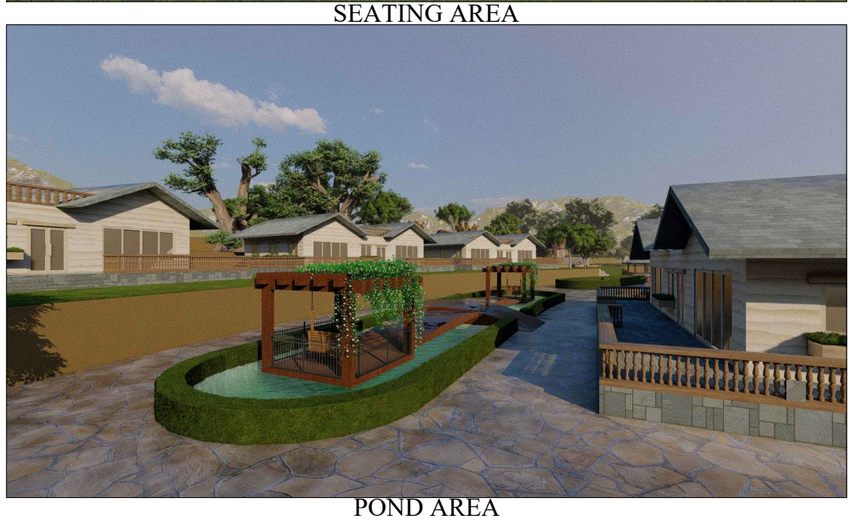
AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27

CHITLANG ECO RESORT

DABALI AREA

CHAITYA AREA

SEATING AREA

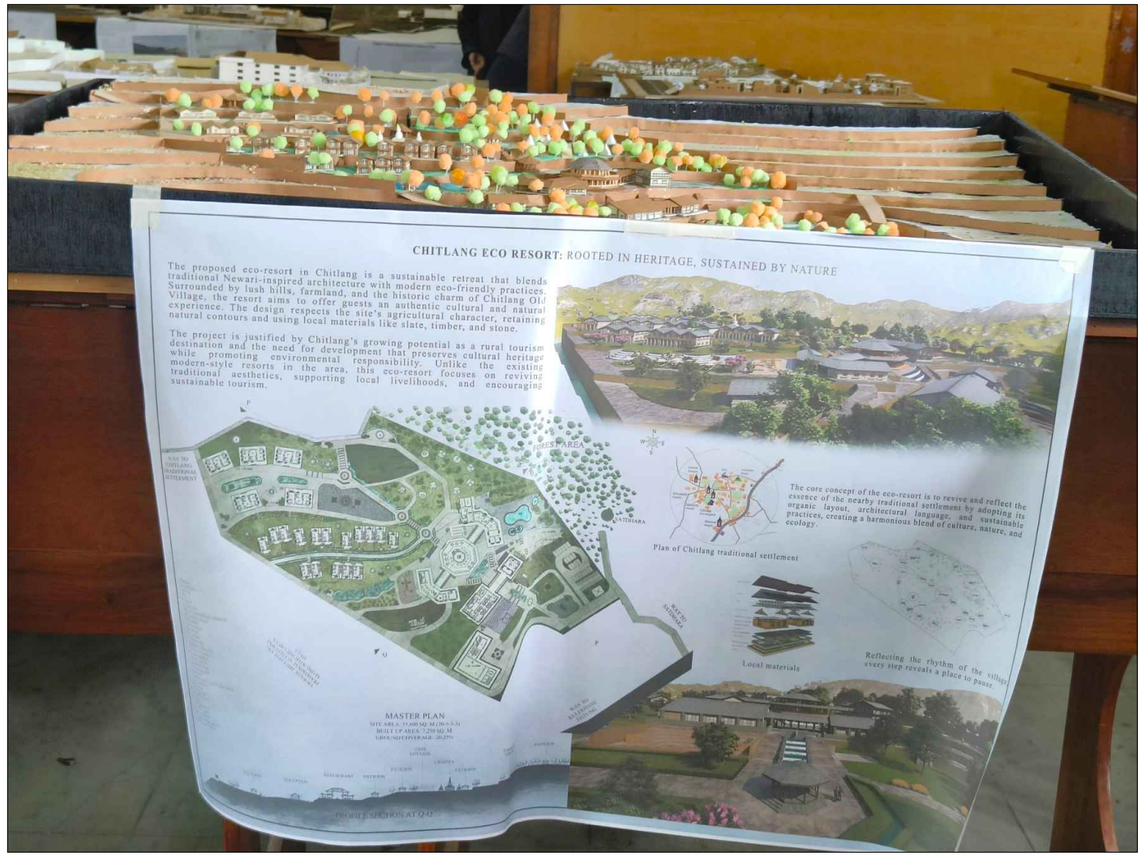


POND AREA

DHUNGE-DHARA

AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27

CHITLANG ECO RESORT



AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: ESHA MUSYAKHO ROLL NO.: 760114 DATE: 2082/04/27