ECO-TOURISM HUB, DHAMWARI VILLAGE, HIMACHAL PRADESH, INDIA

Thesis submitted in partial fulfilment of the requirements for

The award of the degree of

BACHELOR OF ARCHITECTURE

Submitted by

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10th SEMESTER

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DEPARTMENT OF ARCHITECTURE

SCHOOL OF PLANNING AND ARCHITECTURE

BHOPAL

Declaration

I **Ankita Singh**, Scholar No. **2017BARC044** hereby declare that, the thesis titled **Eco-Tourism Hub, Dhamwari village, Himachal Pradesh, India**, submitted by me in partial fulfilment for the award of degree of Bachelor of Architecture at School of Planning and Architecture, Bhopal, India, is a record of bonafide work carried out by me. The design work presented and submitted herewith is my original work and I take sole responsibility for its authenticity. The matter/result embodied in this thesis has not been submitted to any other University or Institute for the award of any degree or diploma.

Ankita
Date: 06-06-2022

Certificate

This is to certify that the student Ms. Ankita Singh No. 2017BARC044 has worked under my guidance in preparing this thesis titled **Eco-Tourism Hub, Dhamvari village, Himachal Pradesh, India**.

RECOMMENDED

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Dr. Ajay Vinodia

ACCEPTED

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Prof. Piyush Hajela
Head, Department of Architecture

June, 2022, Bhopal

Acknowledgement

I take this opportunity to express my profound gratitude to all the people who have supported and helped me throughout this journey of completing my thesis.
I am deeply grateful to my guide, Dr. Ajay Kumar Vinodia for his exemplary guidance, monitoring and constant encouragement throughout the course of this thesis. Without his support and guidance this journey wouldn't be the same.

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I am thankful to H.O.D. of Architecture Prof. Piyush Hajela and thesis coordinators for their help and guidance.

Abstract

This thesis primarily focuses on the eco-tourism aspects of the architecture. Its essence lies in the development of a tourism hub in terms of all impacting factor. The selection of village, its development factors and funding to the project is justified by Himachal Pradesh Tourism, India.

The project comes in consideration of development of Chansal(highest peak of Shimla) as an International skiing destination, in vision of making it accessible through ropeway, where Dhamwari village act as a base station for the same. While this village lies in Pabbar valley know as commerce hub of Shimla famous for its apple orchard, trout fish farms, waterfalls, it's kath kuni architecture, it's wooden carving Predominantly, Dhamwari is known for its trout fish farms with most of its population engaged in apple farming or some other jobs. The village lies in the vicinity of Pabbar river with splendid views of Chansal and other mountain ranges. The projects aims to provide facilities for visitors and travellers such that it create minimal impacts to the site and it's surrounding.

The aim of this thesis is to develop Dhamwari village, on the lines of Eco-tourism, in order to give the tourist an outlook of their culture and also to promote it, and to withstand the future aspects of the places by providing them amenities with respect to the village, climate and its architecture.

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1.1.Background

1.1.1. Himachal Pradesh as a tourism destination

Himachal Pradesh, also referred to as "Dev Bhoomi" (meaning Abode of Gods), is abundantly bestowed with natural beauty, ranging from vast tracts of high altitude transHimalayan desert to dense green deodar forests, from apple orchards to cultivated terraces from snow-capped high Himalayan mountain ranges to snow-fed lakes and gushing rivers. Inhabited by a populace that firmly believes in 'Atithi Devo Bhava' (the Guest is a God), Himachal's rich traditions and culture, fairs and festivities, dance and music, cuisines and handicrafts make the State a truly wonderful getaway. With such a diverse palette to offer, the State envisions positioning itself as a leading global sustainable tourism destination for inclusive growth. Forthis, the State plans to develop and promote tourism around ten broad themes:

a) Eco-tourism
b) Agro/Organic Tourism
c) Snow Tourism
d) Lake Tourism
e) Adventure Tourism
f) Pilgrimage Tourism
g) Culture & Heritage Tourism
h) Health & Wellness Tourism
i) Film Tourism
j) MICE Tourism

Figure 1 Chansal Peak

1.1.2. Chansal Pass

Chanshal is located at a height of 4,250 m in Rohru and is the highest peak in Shimla district. The Chanshal Pass, or Chanshal Valley, links twin villages Dodra Kwar of and Rohru (Chirgaon) in the Shimla district, Himachal Pradesh. The range ascends above the pabbar valley.

The pass remains open from May to november and is covered with snow for the rest of the year. It is one of the less explored places known for its serenic panaromic views, ice skiing, camping, trekking.It provide wide scope for tourism developement in the nearby region

As the existing road infrastructure (from Tikri village to the Pass) cannot sustain increased tourist traffic making it difficult to be used during whole season.

Figure 2 Skiing on Chansal peak

Figure 3 Trek enroute to Chansal Peak

(Source : Internet)

1.1.3. History of Chanshal Pass

The Chanshal Pass and connecting villages Dodra Kwar was devoid of a motor able road till 2009 in the era of road revolution. The reason for the same was – Locals' tribes were against constructing road; as their local Deity didn't permit them for road building. The Deity finally agreed to the proposal in 2006 and the 92-kilo-meter-long road was laid down between Rohru – Chanshal Pass – Dodra-Kwar region in 2009. The road construction took 3 years because of the inhospitable terrain, high amount of rain and snow.

Figure 4 Camping on Chansal Peak

Figure 5 Dodra-Kwar Village *(Source : Internet)*

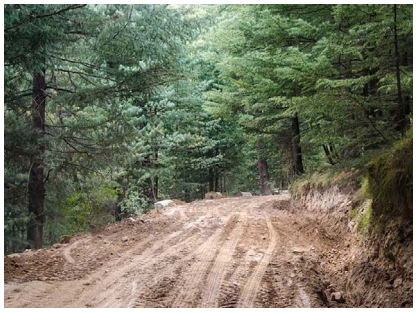


Figure 6 Existing Road to Chansal Pass *(Source : Internet)*

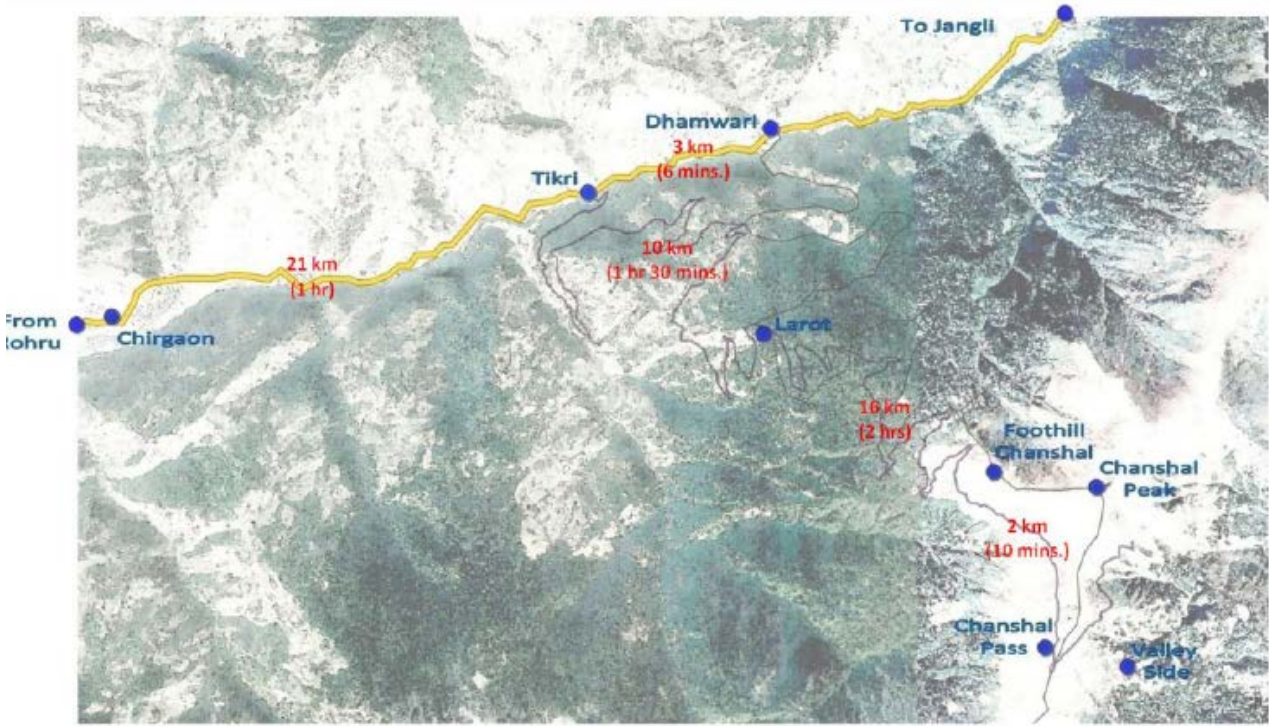


Figure 7 Accessibility map of Chanshal (via road from Rohru side) *(Source : Internet)*

1.2. PROJECT BRIEF

Under state tourism policy and under scheme of Nai Raahein Nai Manzile, propsal to promote Chanshal as a world class location for snow, ski & adventure tourism destination in the state of Himachal Pradesh. The objective of the proposal is to successfully develop a commercially viable, performance-based tourist destination. As hill ecosystems are generally fragile, they are ideally suitable for “high-value low-volume” tourism for long-term sustainability.

The objective of the assignment is to successfully develop a commercially viable, performance based tourist destination comprising of camping site, Ski Resort, Ski Slopes and Passenger Ropeway in Chanshal area, Distt. Shimla, Himachal Pradesh by utilising efficiency of private partner under PPP Mode. Following components are prposed by government

1. Resort at Base Station, Khalti
2. Ropeway from Khalti to Chanshal
3. Developing Ski Slopes for Beginners and Independent Skiers
4. Cultural Village-Centre for local craftsmanship
5. Maintain Biking Trails
6. Chaircar from Chanshal Valley to Chanshal Peak

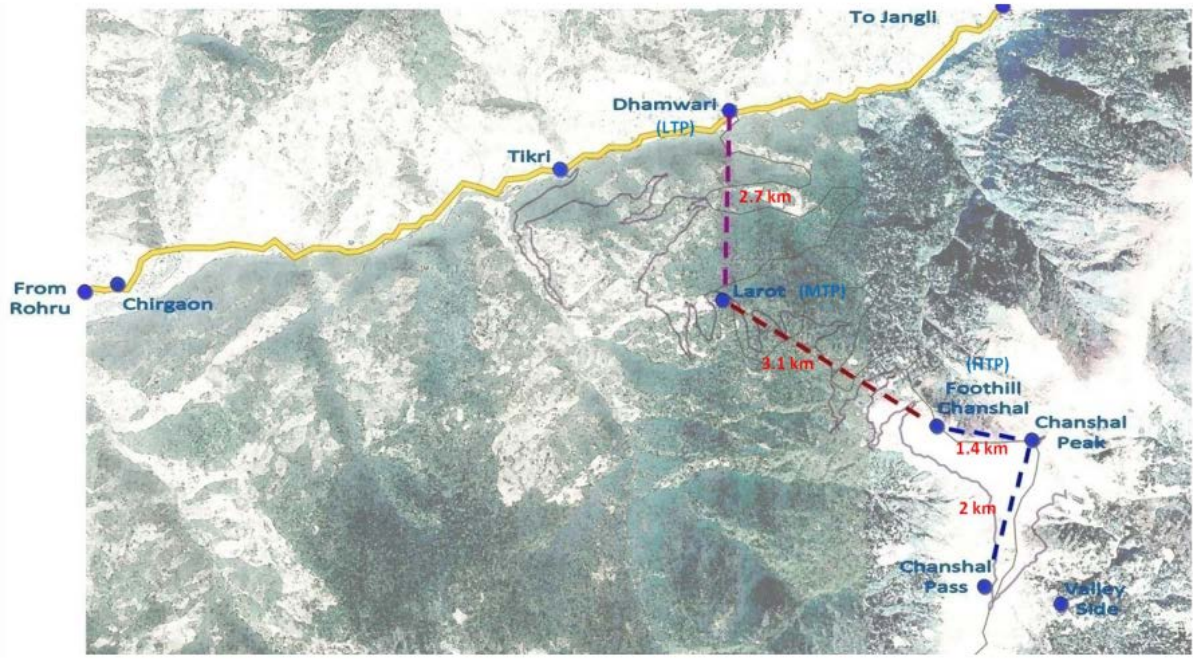


Figure 8 Proposed alignment of hiking, ropeway and cable car

State Tourism Department, has proposed to stretch out the planned developments across different locations.

Chanshal Peak, a 360° viewing deck and chair-car lift terminal station with basic amenities.

Chanshal Foothill, Winter Olympics Training Centre, an indoor activity centre (that shall offer snow-sports activities even in summers) and an ice palace.

Khalti (near Village Larot), a bird aviary, butterfly biome, adventure activities (like hiking, zip-lining, snow-scooters, zorbing, etc.), viewing deck, camp site.

Dhamwari Village Accordingly, tourist amenities, like, parking, plaza, toilets, restaurants, cafes, gaming zone, home-stay/hotel, child-play areas, information centre, etc.

To develop Dhamwari as the base station or the welcome station of the project. Tourists (heading towards Chanshal) would be encouraged to undertake ropeway journey uphill from here, instead of the daunting road travel. The village is going to act as one of the major activity zone. The overall aim is to develope by incorporating local architecture with innovation using local material and to create economic opportunity for the local population.

Policies and Guidelines

Since, majority of locations fall under forest land, the proposal has been developed keeping in mind the following policies and guidelines of the Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India. A brief about each guideline, as relevant to us, has also been highlighted below.

Policy for Eco-tourism In Forest & Wildlife Areas, 2018

- Infrastructure for eco-tourism should merge with ambient environment.
- Eco-friendly activities; Utilise local resources; Avoid use of cement concrete as far as possible.
- Construction works, like permanent buildings for camps, camping complexes with lodging/ boarding facilities, helipads, new roads, tourist bungalows, commercial lodges, etc Shall not be allowed without clearance under FCA.
- Homestead-based hospitality enterprises will be encouraged to improve local livelihood

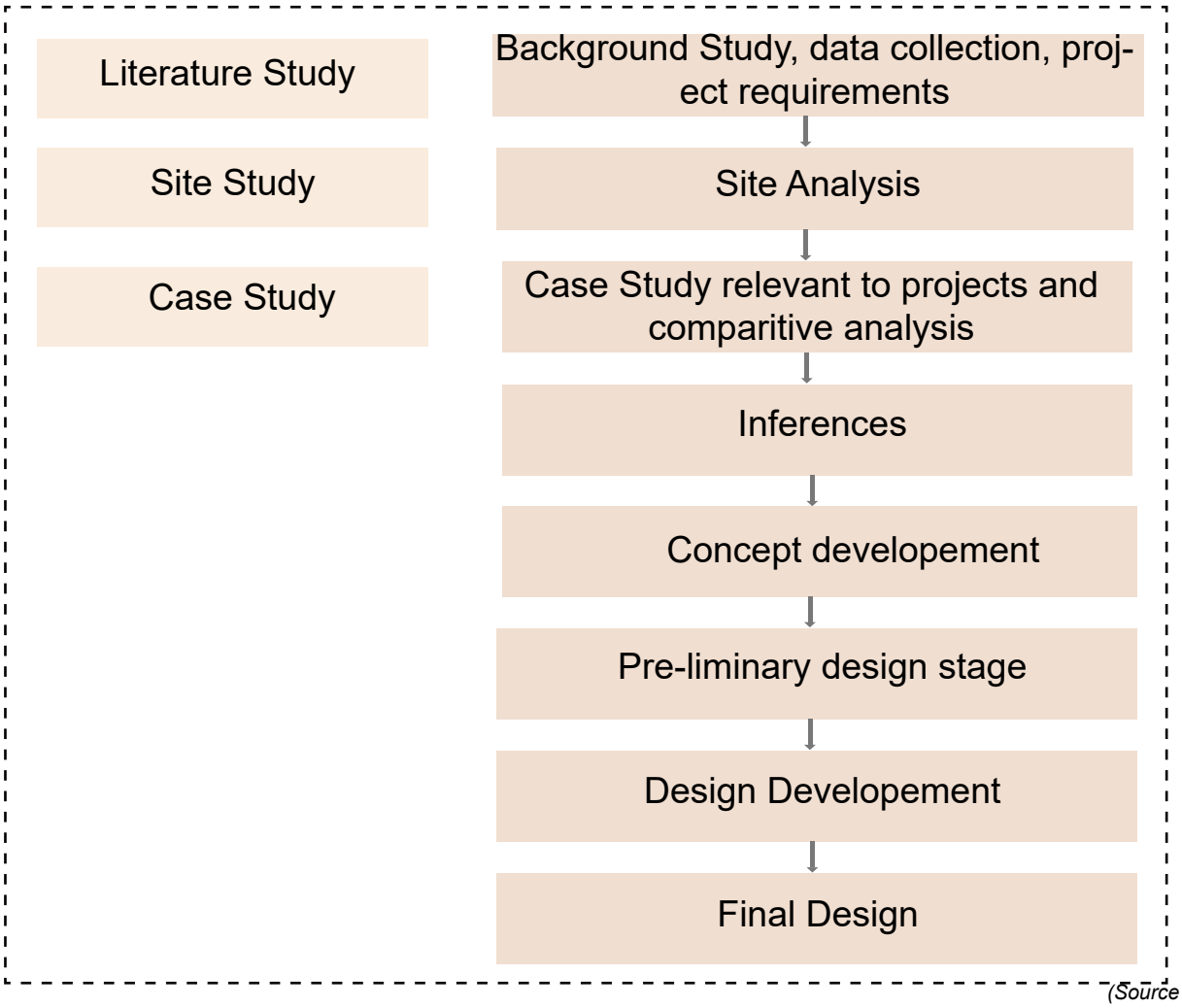
1.1. AIM

The main aim of the project is to design an Eco-toursim hub to provide facilities for the people enrouting to Chansal Peak through ropeway.

1.1. OBJECTIVE

- To understand eco-tourism and its elements
- To study and analyse the different components of an eco-tourism hub
- To understand the local architecture of the Himachal Pradesh,
- To design an eco tourism hub working on its principle and provide unique experience to the people.
- To design landscape and outdoor activities to engae people with nature, locals and making them aware about the same.

1.1. METHODOLOGY



(Source : Author)

2. LITERATURE STUDY

2.1. ECOTOURISM

Ecotourism is a form of tourism involving visiting fragile, pristine, and relatively undisturbed natural areas, intended as a low-impact and often small-scale
alternative to standard mass tourism. It means responsible travel to natural areas, conserving the environment, and improving the well-being of the local people.Tourism that centers around awareness of the environment and the local community.
Ecotourism is a sub-component of the field of sustainable tourism. Ecotourism's perceived potential as an effective tool for sustainable development is the main reason why developing countries are now embracing it and including it in their economic development and conservation strategies.

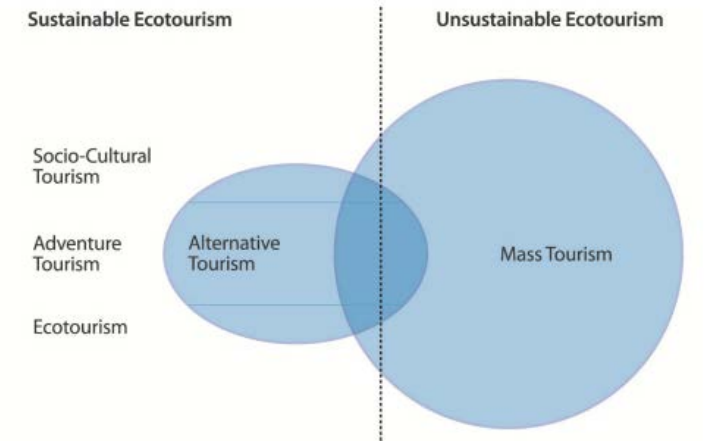


Figure 9 Ecotourism

2.2. ROLE OF ECOTOURISM IN SUSTAINABLE DEVELOPEMENT

The perceived promise of ecotourism as a viable instrument for long-term development is the primary reason why poor nations are increasingly embracing it and incorporating it into their economic growth and conservation policies.
Ecotourism is a type of alternative tourism that involves visiting natural areas in order to learn, study, or participate in environmentally beneficial activities, i.e., tourism based on the natural experience that helps local communities flourish economically and socially. Its main focus is on experiencing and learning about nature, including the topography, flora, and ecosystems, as well as local cultural objects.

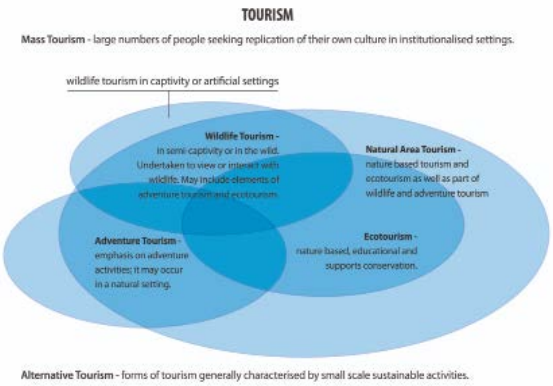


Figure 10 Alternative Tourism

Adventure tourism is defined as: "an outdoor leisure activity that takes place in an unusual, exotic, remote or wilderness destination, involves some form of unconventional means of transportation, and tends to be associated with low or high levels of activity" (Fennel ft Dowlina, 2003)

According to this definition of adventure tourism and to that of ecotourism as previously stated, it seems that there are many overlapping concepts.

Ecotourism is a component of sustainable tourism. In many ways, sustainable tourism

2.3.PRINCIPLE OF ECOTOURISM

Ecotourism is about uniting conservation, communities, and sustainable travel. This means hat those who implment, participate in and market ecotourism activities should adopt the following ecotourism principles:

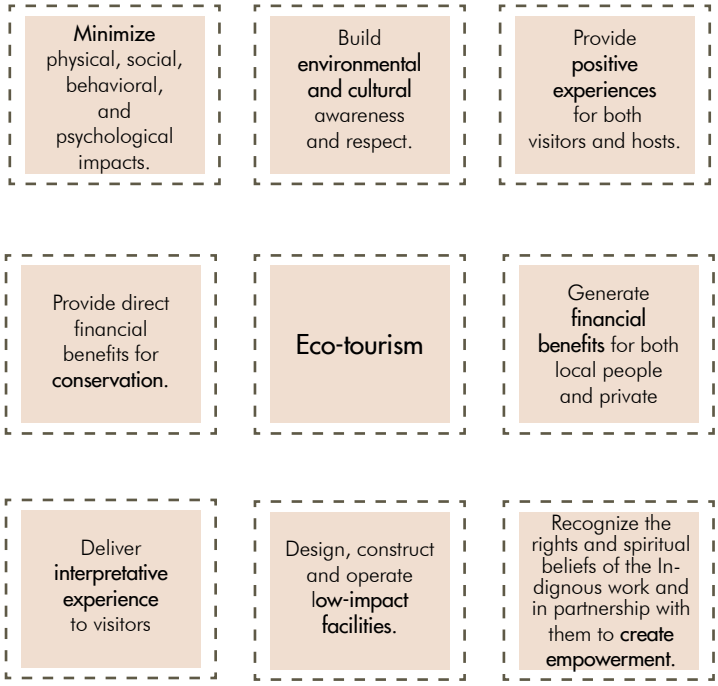


Figure 11 Principle of Ecotourism

Figure 12 Ecotourism Goals

2.4. SUSTAINABLE TOURISM OBJECTIVE

Sustainable tourism wil focus on three areas:

Quality - valuable experience for visitors and increased life quality for host communities through cultural identity, poverty reduction and environmental quality.

Continuity - exploitation is nade at the optimum level that allows the preservation and regeneration of the natural resources.

Balance - between the needs of tourism industry, environmental protection, and local communities by an equitable distribution of benefits among stakeholders.

Figure 13 Sustainable Tourism Objective

2.5. ECOTOURISM IMPACT

Ecotourism environmental, social, and economic impacts

Ecotourism Promotes Economic Stability

Commercial tourist attractions may be located in a certain region, but it does not guarantee that they will benefit the local community. Instead, major businesses prefer to alter the way of life of certain indigenous in order to maximise profits. Locals are often forced to migrate and are devastated on both a physical and emotional level as a result of the stress of relocation. Many indigenous civilizations have been deceived or eliminated entirely in order to make space for tourists, but this does not have to be the case. Traveling to local sites provides fascinating experiences, and the money you provide to these establishments is distributed throughout the community, resulting in additional jobs and a boost to the local economy.

Environmental impacts

Ecotourism is built on the qualities of natural and cultural landscapes. Geographical location, microclimatic conditions, water availability, natural beauties, natural vegetation, wildlife, surface features, geomorphologic structure, local food, festivals and pageants, traditional agricultural structure, local handicrafts, regional dress culture, historical events and people, heritage appeals, architectural variety, traditional music and folk dance, artistic activities, and so on are examples of these values. Ecotourism is commonly thought to protect natural areas and hence help to biodiversity conservation.

Social and Local Communities Impact

Ecotourism has the potential to have a significant influence on local communities, owing to ecotourists' higher interest in the culture and nature of the places they visit than mass visitors. Ecotourism destinations are always environmentally conscious because ecotourism activities such as bird watching, trekking, mountaineering, horseback riding, and elephant riding within the forest wilderness trail, staying in natural caves, studying flora and fauna, simple bush walking, fishing, animal behaviour studies, and ecological studies directly involve various environmental phenomena.

2.6 VISION FOR ECOTOURISM IN HIMACHAL PRADESH

Promoting Environmental Education - raising awareness and appreciation in the people, both within the state and in the visitors from outside, for the diverse biodiversity, culture and unique ecological values; to care for natural heritage and alongside to create an income base for the community-an incentive for the future protection of natural assets.

Decentralized and equitable nature-based tourism, avoiding bottlenecks and over development of individual areas, and dispersing the distribution of benefit to the local community. Biodiversity is to be enhanced as also natural asset maintenance and improvement is to be ensured; alongside the conservation areas are protected.

Factoring in participation and partnerships-interdepartmental, public-private, non-governmental organizations/community-basedorganizations, Panchayati raj institutions to help generate income through sustainable tourism.

Environmentally benign tourism to be fostered - through recognized standards for rural accommodation provision, minimizing of waste, reduction of pollution and minimizing environmental depleting fuel consumption.

Livelihood opportunities for rural households from home-stays/homesteads provision of employment opportunities and livelihood enhancement from service provision, whether as entrepreneurs, guides, porters, cooks, etc.

2.7. PRINCIPLES OF ECOTOURISM BY HIMACHAL PRADESH ECOTOURISM POLICY 2017

- Provide a positive experience for both visitors and host.
- Build environmental and cultural awareness.
- Minimize physical Im social, behavioral impacts.
- Provide direct benefits for conservation and livelihood to local communities.
- Deliver memorable interpretive experience to visitors.
- Recognize the rights and spiritual beliefs of the local.

2.7.1. Important Stakeholders and their functions:

Visitors: Responsible travel to natural areas and making available financial contribution for conservation of natural heritage and empowerment of local people.

Local Communities: Provide positive experience for the visitors.

HP ECOSOS (Special Purpose Vehicle): Practice andpromote ecotourism according to the principals of ecotourism; Capacity building of Stakeholders; key interface for ensuring FCA clearance and PPP partners.

Division/Circle level Societies: Managing all operations for responsible ecotourism at ground level.

Government Departments (Forests, Tourism, PWD, &PH, Rural Development, Revenue): Provide positive experience for the visitors, minimize impact, Build environmental, cultural awareness and respect. By implementing and educating others about ecotourism; contribute to the positive and more sustainable development of the tourism industry.

Concerned Panchayat, BDC and Zila Parishad: Provide positive experience for the visitors. Partners managing site: Practice and promote ecotourism according to the principles of ecotourism

2.7.2.NEAT(Nature, Eco and Adventure Toursim) is a product sector. NEAT products do not necessarily incorporate best-practice environmental management, nor an educational component or a contribution to conservation. Some do, some do not. Those that do, may or may not be considered ecotourism, depending on definitions, but by any definition, ecotourism is a part of NEAT sector. (Buckley, 2009)

Ecotourism is a subsidiary segment defined by it management criteria. With its minimal impact management, environmental education contribution to conservation, ecotourism make a small portion of the NEAT sector but is capable of catalyzing change.

Definition of Travel & Tourism or Entertainment Project

1. Eco Tourism activities as per Central/ State Govt. guidelines
2. Hotel & Restaurant
3. Resorts
4. Heritage or Historical Monuments
5. Museum & Galleries
6. Lodging & Catering
7. Transport
8. Tour Operator
9. Travel agents
10. Information & Guiding
12. Wildlife Attraction
13. Castles
14. Leisure parks

15 . Sports Comple Event Management

16. Multiplex Shopping malls & Festival
19. Banquets
20. Cinema & Film

21 Theatre

2.8. ECOTOURISM IN DHAMWARI AND NEARBY REGION

Figure 14 Ecotourism In Dhamwari Village

The village has many ecotourism aspects which needs to be

2.9. VERNACULAR BUILT OF HIMACHAL PRADESH

2.9.1. Kath Kuni Construction Technique

Kath-Kuni construction is an infill masonry building system within layered horizontal wooden beams. Its a repetitive system in which whe walls are made with alternate coursesof dry stone masonry and without any mortar. This building practice system embraces nonrigid joints within a component-based system using the locally available materials wood and stone.

Figure 15 Wooden Carving

Figure 16 Ornamented Wooden Structural Members

Figure 17 Laying of loose infill stone and wooden members.

This vernacular technique and craft practice, which has been tasted over time, represents sustainable eco-system, High level of seismic design and also caries the cultural values of region. The techniques evolved around most appropriate uses of local materials and a pragmatic response to environmental conditions and natural disasters.

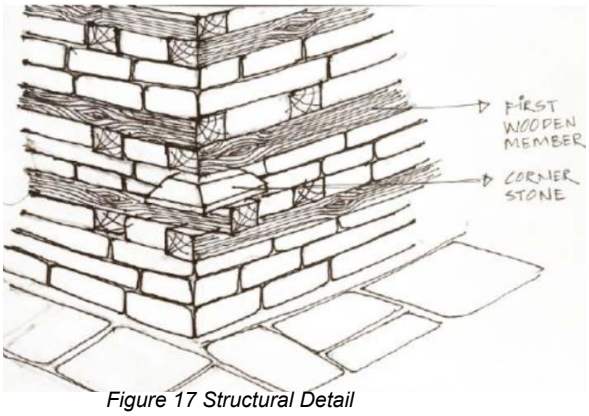


Figure 17 Structural Detail

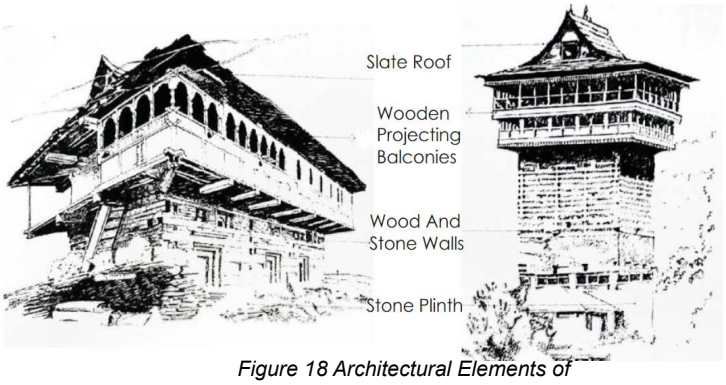


Figure 18 Architectural Elements of typical kathkuni building.

The buildings are planned in such a way that they are symmetric in plan with equal division of mass all along the structure in order to make it more sesmic resistant design vernacular technique and craft practice, which has been tasted over time, represents.

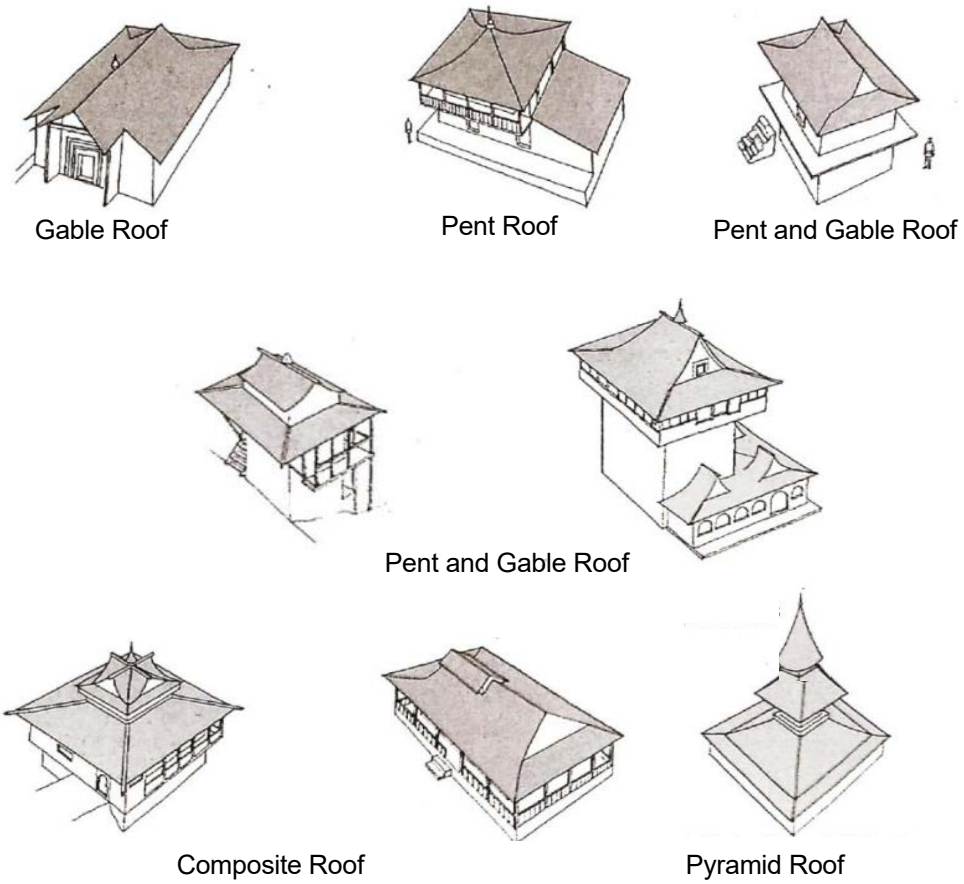


Figure 19 Types of Roofs associated with Kath-Kuni Architecture

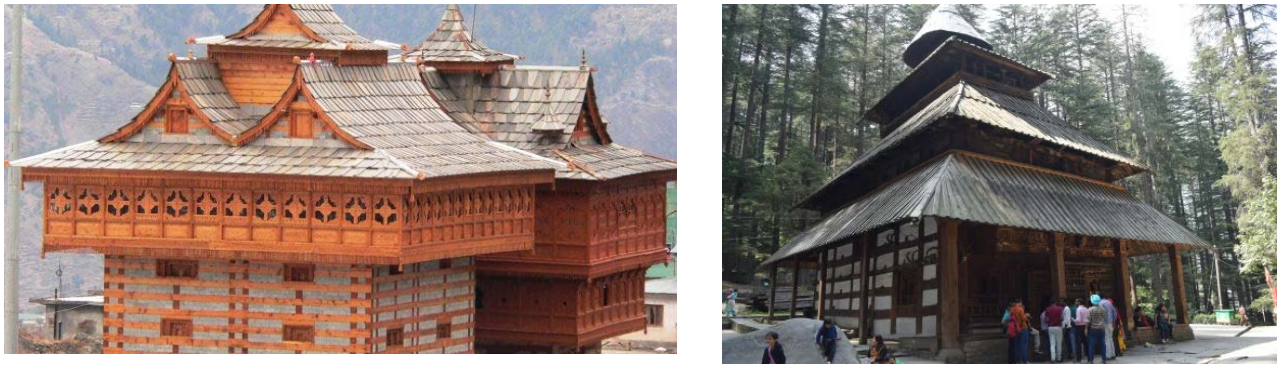


Figure 20 Different Roof Types

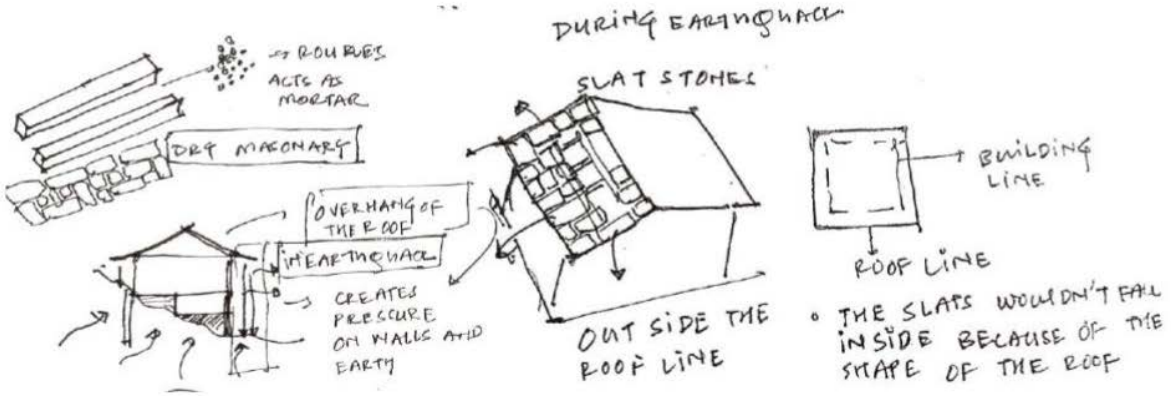


Figure 21 Construction of Roof

Wooden Cantilivered Balconies

Addition of balconies on the first and even on the second floors, constructed with wooden railing around the whole building. They are supported by cantilevering wooden logs or brackets of flooring system.
Transitional space between the insid and outside acting as the middle zone.
For Domestic Activities Like laundry, Storage Spaces, Washing Rooms.

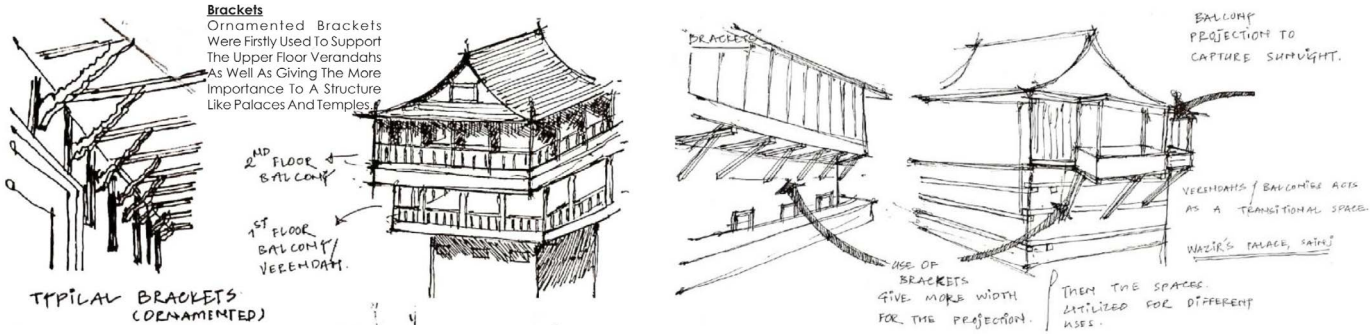


Figure 22 Cantilevered Balconies

Raised Platform or Plinth

Generally, the buildings rest upon a raised and elaborated stone-filled platform out of dry-stone masonry which is the continuation of the foundation trench made of field and rubble stones. The height of the platform varies between 2 and 4 m above the ground. Plinth creates ambience of welcoming and divides space from public to private.

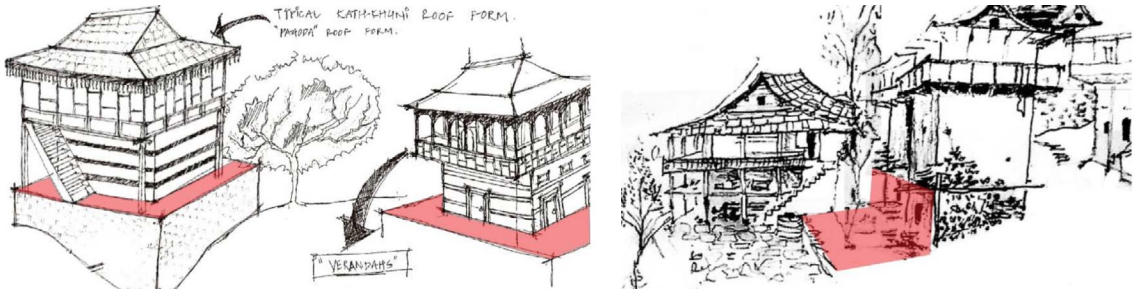
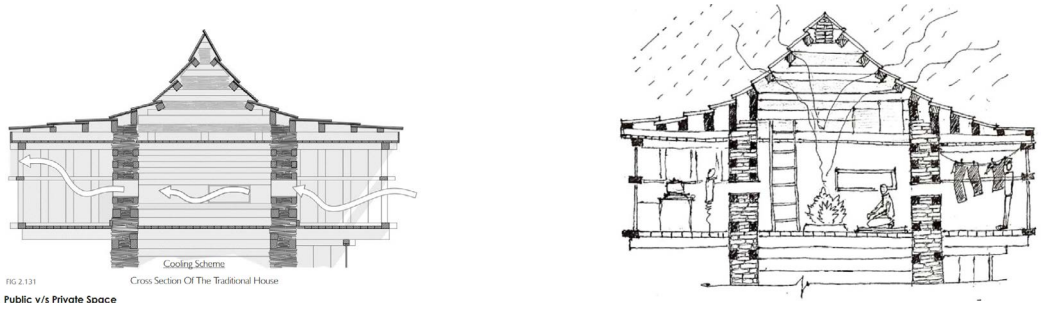


Figure 23 Plinth around the buildings



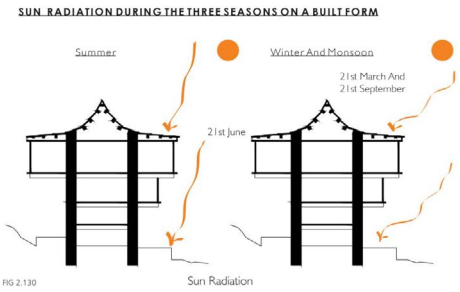


Figure 24 Climatic Consideration

3. SITE ANALYSIS

3.1. SITE LOCATION

Dhamwari village lies in Southern Himalayan Region of Himachal Pradesh. It is at a distance of 160 km from Shimla. Its is located in Pabbar Valley and located around 3km from Tikri and 7km from Chirgaon offers a direct view of the Chansal area. It is surrounded by himalyan ranges. The village sets on the edge of gently sloping grazing land. The village rests on the bank of river Pabbar and also boasts of a beautiful waterfall in its vicinity. The site in village lies at the latitude 31 ° 25' N and 77 ° 95' E longitude.

Figure 25 Site Location

PABBAR VALLEY

Pabbar Valley, the enchanting valley of the Pabbar River is located just 100 kilometers away from Shimla. The landscape is seen flourishing in abundance here. Located in close proximity to the Uttarakhand – Himachal Pradesh border, the valley, though untouched, gets some of its fame due to the nearby Chanshal Pass. The Pabbar River is stunning and cuts through the Chanshal Mountain Range, apple orchards, majestic mountains, lush green meadows, dense oak & deodar forests.

The valley in itself is quite an attraction for adventure seekers. The densely covered slopes of the mountains provide for exciting trails waiting to be explored.
The valley is know as the commercial hub of the Himachal Pradesh

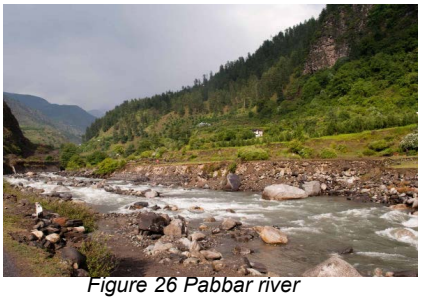


Figure 26 Pabbar river

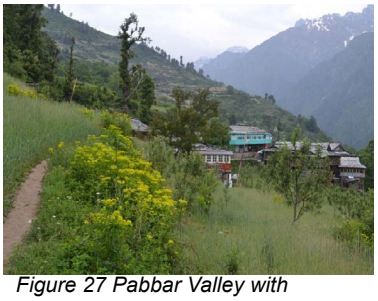


Figure 27 Pabbar Valley with Apple Orchards

3.2. SITE CONNECTIVITY

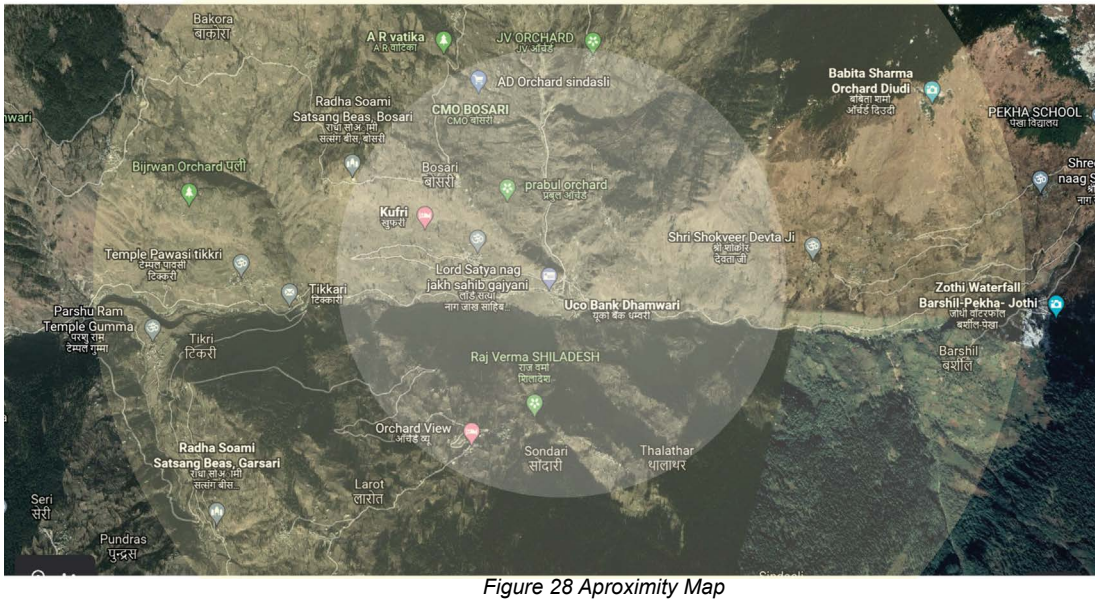


Figure 28 Aproximity Map

Nearest Railway Staion - Shimla 132 km
Nearest Airport - Shimla Airport, Jubbarhatti, 152 km
Nearest Bus Stop - Chirgao
Nearest Post Office - Tikkari Post Office 2.4km

3.3. CONTEXT AND SITE CHARACTER

3.3.1. Site Surroundings and major landmarks

The site is surrounded with certain waterfalls, temples build in vernacular kathkuni construction which act as one of a main spaces for celebrations in village, apple orchards, chansal pass, chansal peak. Site is surrounded by certain amount of mixed use buildings showcasing adoption of modernmaterials and technique in construction in regards to availability of material.

Figure Waterfall enrouting

Figure Shree Dulling naag Sabh

Figure Zothi Waterfall

Figure Sat Narayan Temple Gokswari

Figure Chansal Pass

Figure Lord Satya Nag Jakh

Figure Sandar Bharedi Naag Devta Mandir

Figure 29 Major Landmarks

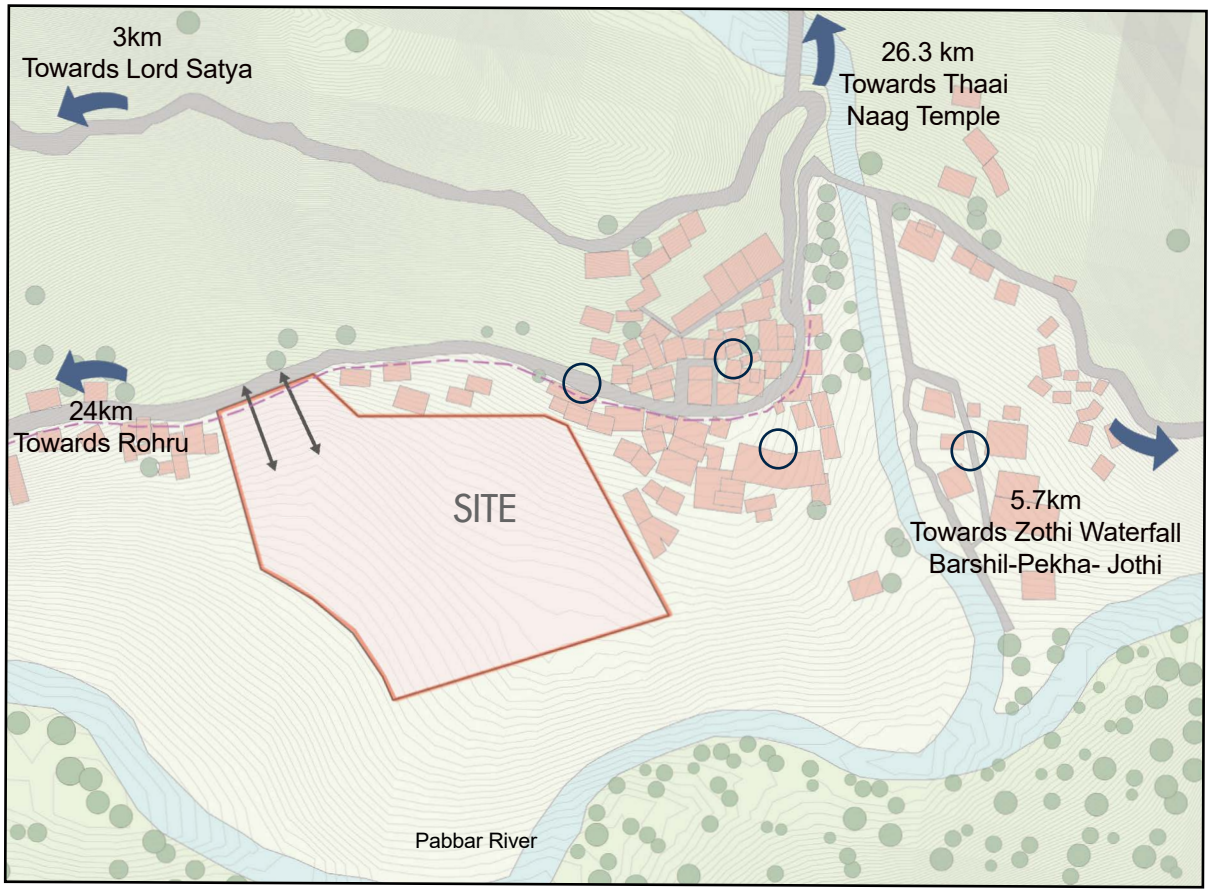


Figure 30 Site Plan

The site is surrounded with certain waterfalls, temples build in vernacular kathkuni construction which act as one of a main spaces for celebrations in village, apple orchards, chansal pass, chansal peak.
Site is surrounded by certain amount of mixed use buildings showcasing adoption of modern
materials and technique in construction in regards to availability of material.

Waterbody
Green belt
Road
Grazing land
Buildings
Electrical Line

Market Area

Trout Fish Farm

Road towards the site

School Building

Figure 31 Neighourhood Context

3.3.2. Seismology and Geology

Slope

The site is surrounded by moderate steep slope of mountain range with forest land, apple orchards while site is sets on well developed stepped terraces. Major part of the village settlement sets on the terraces, while some of its the steep mountain slopes.

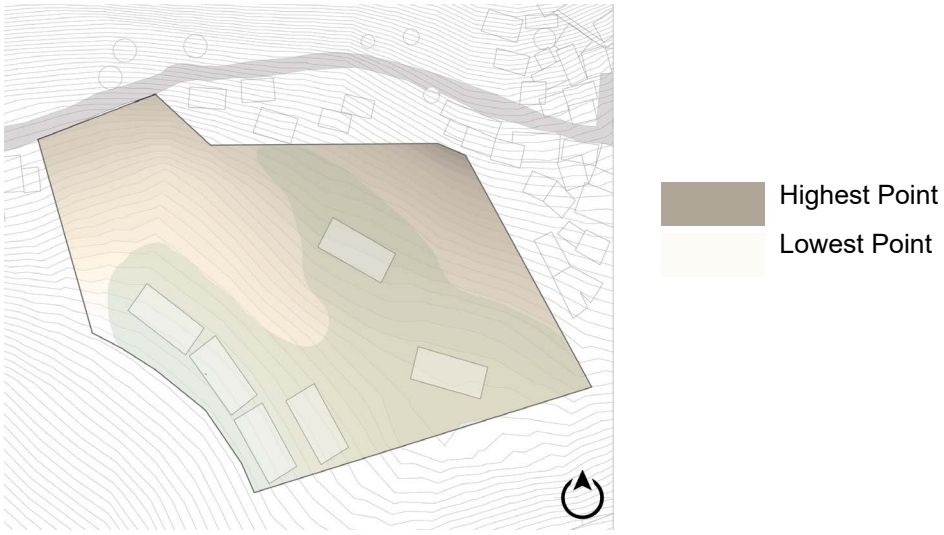


Figure 32 Slope Analysis

Drainage

The site is drained by typical mountainious pattern

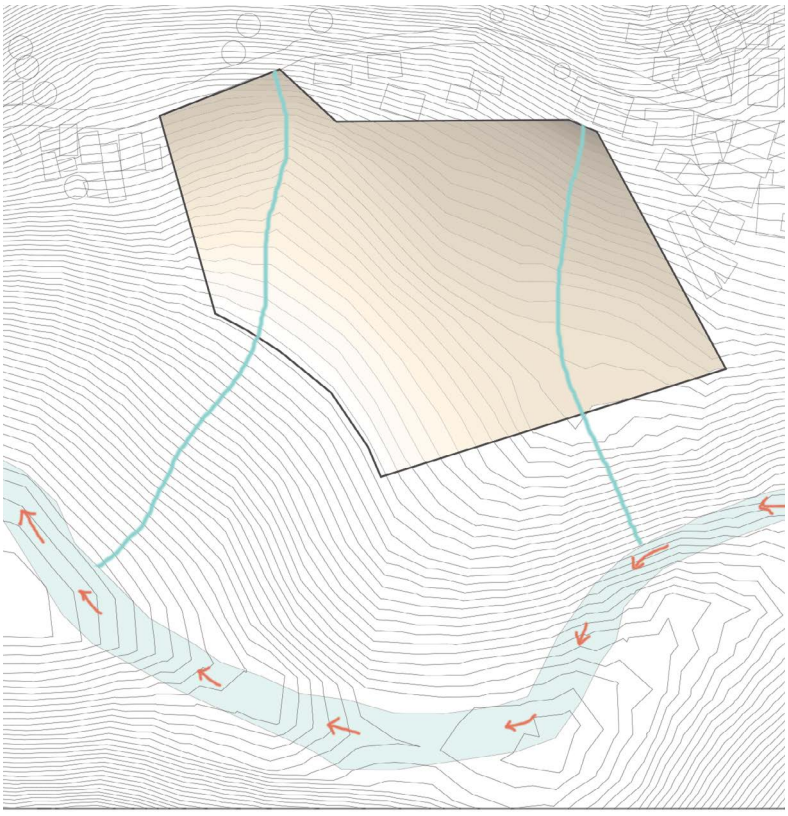


Figure 33 Drainage Pattern

Seismology
The site comes under Zone 4 of Sesmic zone map.

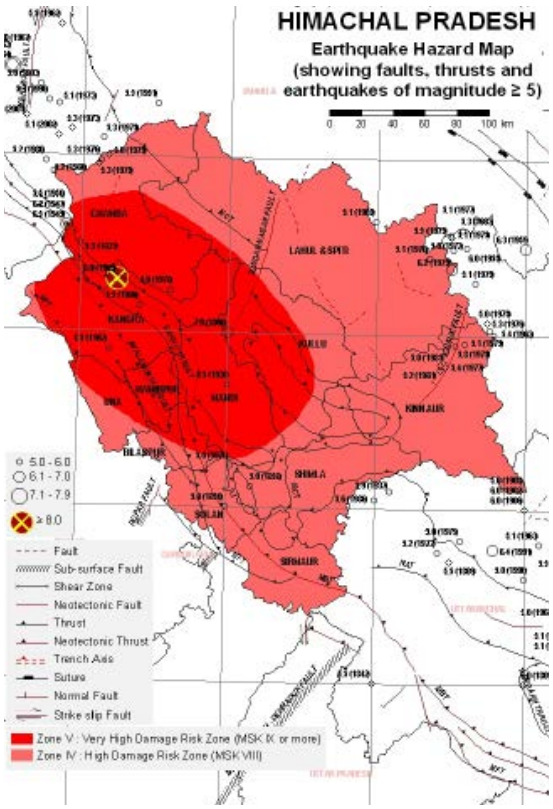


Figure 34 Seismic Zone Map

3.3.3. Soil Typology

The site consist of mixture of sandy loamy and loamy soil on terraces. Sandy loam soils have a high concentration of sand that gives them a gritty feel. It is capable of quickly draining excess water but can not hold significant amounts of water or nutrients.
Vegetation grown in this type of soil will require more frequent irrigation and fertilization than soils with a higher concentration of clay and sediment.
Soil bearing capacity of sandy loamy soil with(40-70%) sand is 80-160 KN/m3

3.3.4. Landlside Control Techniques

Retaining wall
A retaining wall is provided to the downside of the road. They are used to support artificial cutting or slopes. They are constructed on the valley side of the road.

Breast wall
Breast walls are constructed on the hillside and retaining alls are constructed on the valley side of the road.Breast walls are designed to keep in view surcharge loading. Breast walls are made to retain the natural slope.
Timber crib and dry stone masonry walls may be provided for hill slope angle less than 30 degrees and, height less than 4m in low volume roads. These are not suitable for terrace development because of their short life.
Cement masonry, RCC walls, and Gabion walls shall be considered for high volume roads, high cut slopes and terraces. These are also suitable for hill slope angles from 30 degrees to 60 degrees, where higher walls are needed.

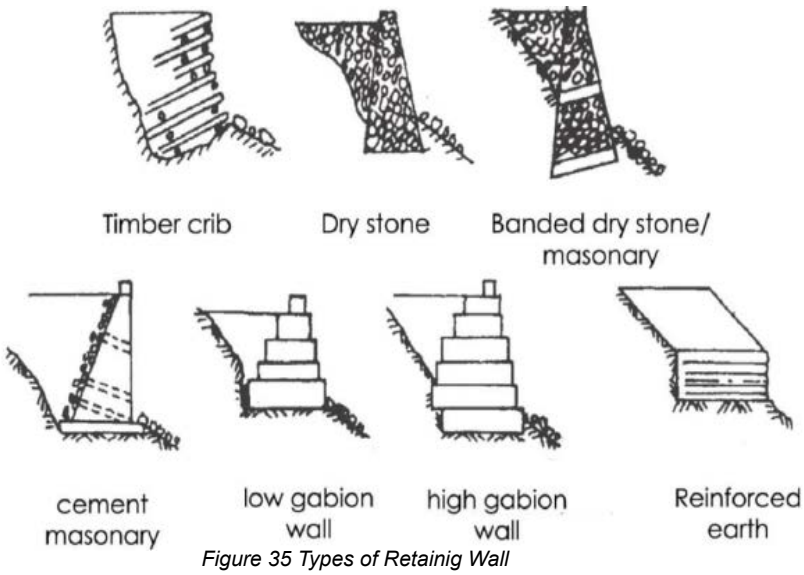


Figure 35 Types of Retainig Wall

Benching of slope

This method involves straight slopes separated by the near horizontal bench. Benching increases the stability of slopes by dividing the long slope into segments or smaller slopes connected by benches, the proper width of the bench shall be estimated by analysis of the stability of slopes for a given soil.

Surface Drainage

Control of surface water consists of two main parts.

a. The collection of run-offs at the uphill boundary of any unstable area.

b. Maximizing run-off from the unstable area and controlling and collecting the run-off.

Catch water or interceptor drains, side drains and cross-drains constitute some of the important types of drains used in a system of surface drainage.

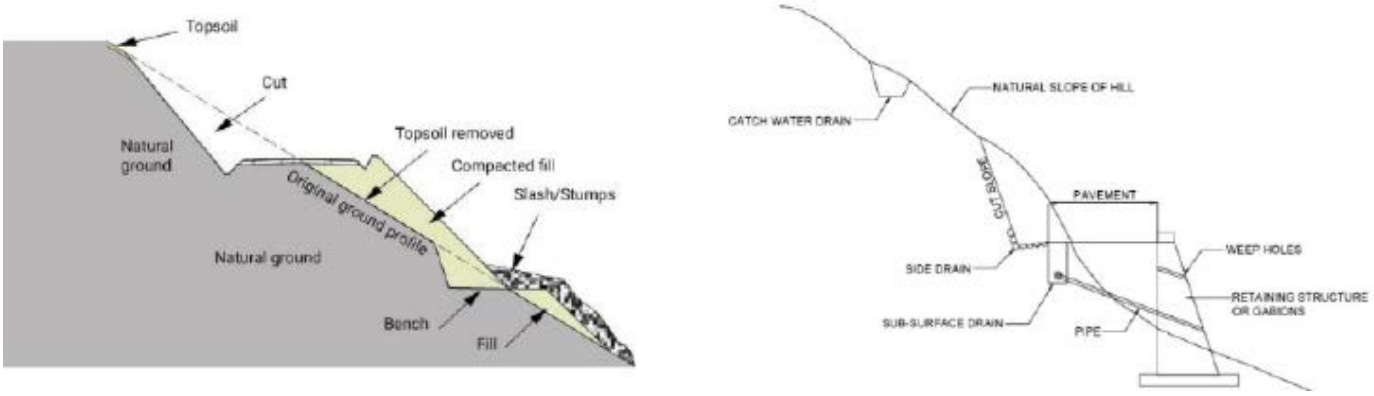


Figure 36 Benching of Slope and Drainage

3.3.5. Sensory Analysis

The site sets within the village settlement and its main access is from main access road, it is prone to high traffic noises. It is surrounded by montain range and have beautiful views towards the downslope of site facing the river.

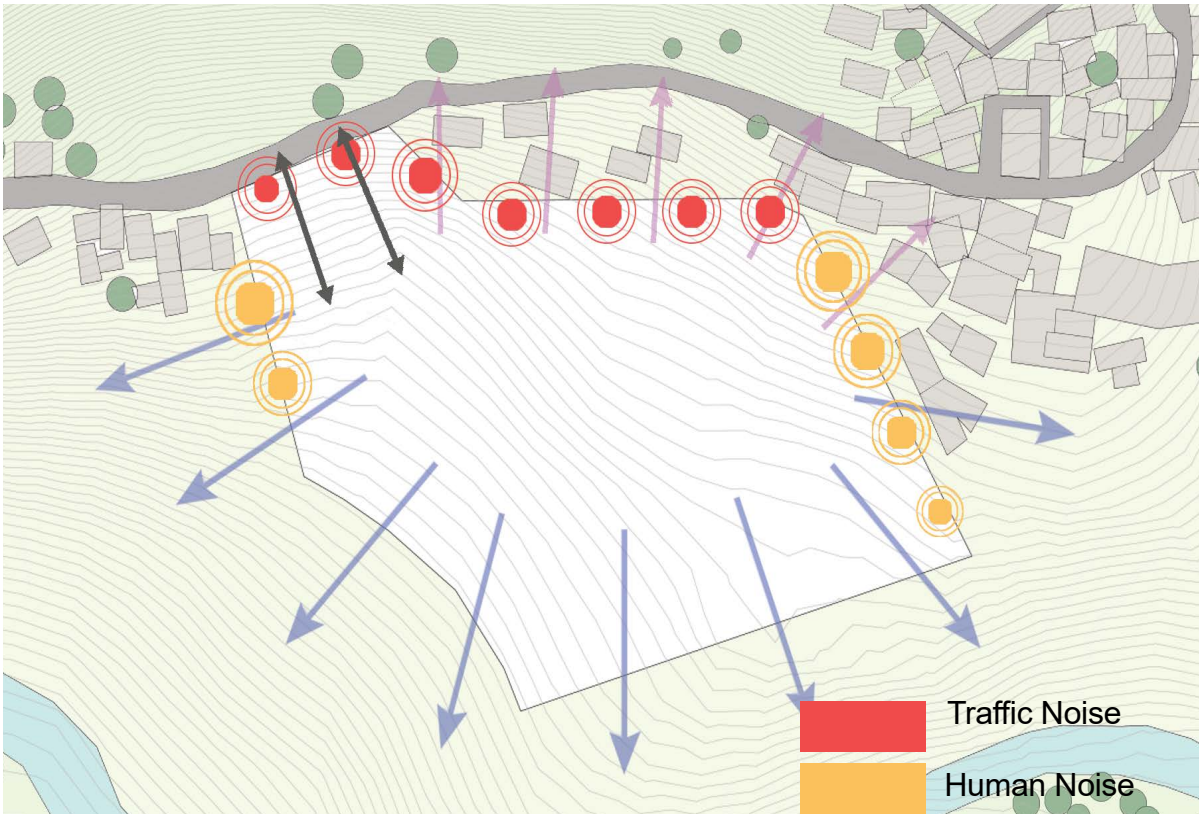


Figure 37 Sensory Analysis

3.3.6. Building Bye-Laws

Total Site Area - 28,000 Sq.m - 2.8Hectare

FAR-1.5

Maximum Floor Height - 12m

Maximum Ground Coverage - 40% - 11,200Sq.m

Setback
Front(7.5) Left(5) Right(5) Rear (4)

Maximum acceptable slope for development - 45 degrees.

Maximum height of plinth level - 2.00 Meters.

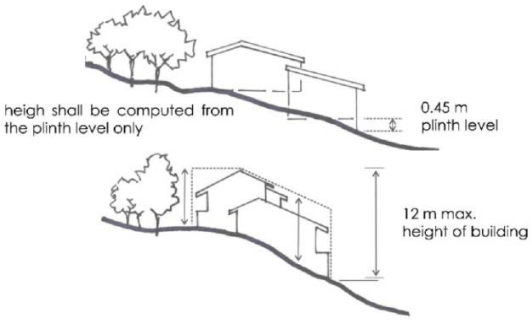


Figure 38 Building Regulation

- Sloping roof shall be mandatory in hill areas (As per the URDPFI Guidelines, 2014 and National Building Code, 2005 hilly areas is any area above 600 m in height from mean sea level, or any area with average slope of 30°)which may be CGI, GI sheet or slate roof with facia.
- Maximum hill cut of 3.50 Metre height shall be permissible.
- Minimum area for open/green space for the scheme - 10 %
- Minimum area for soak pit etc.- 5% of the scheme area

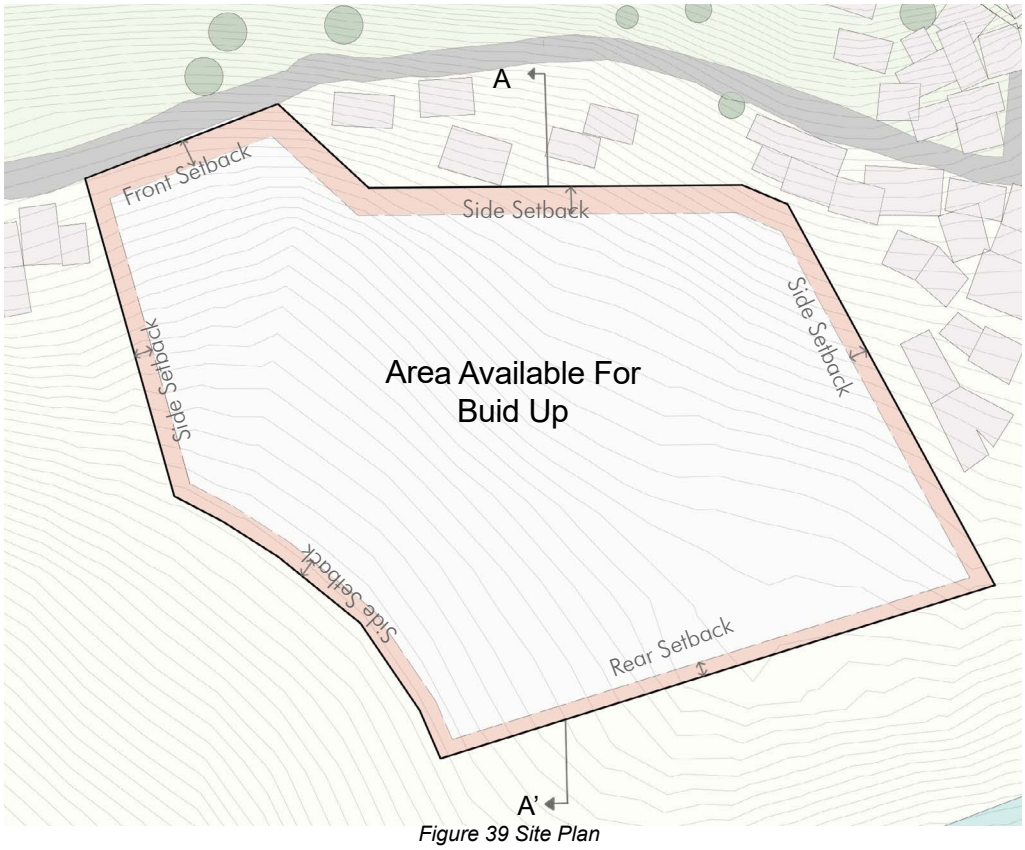


Figure 39 Site Plan

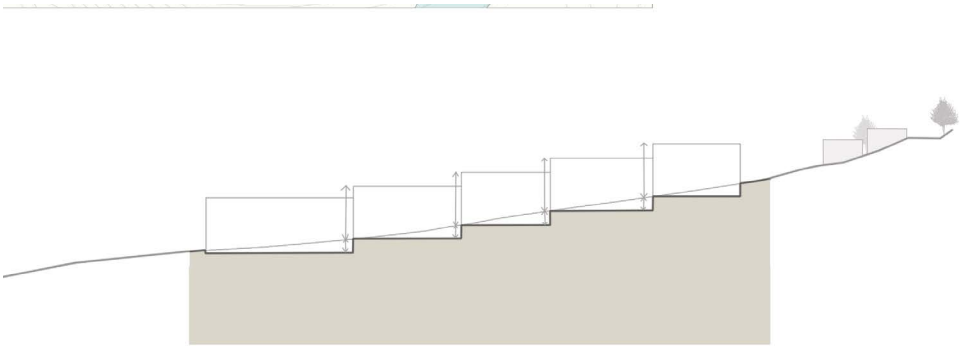


Figure 40 Site Section AA'

3.3.7. Existing Vegetation

The site is used as a grazing land and does not have any trees as such.Very few trees can be located near the site proximity. Most of the trees are located along the river in the opposite side, being the part of forest area.

Low lever Blue Pine

Birch Rhododendron

Deodar Tree

Silver Fir

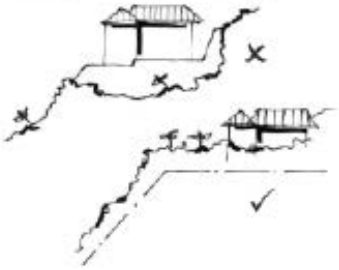
Spruce Tree

Figure 41 Vegetation

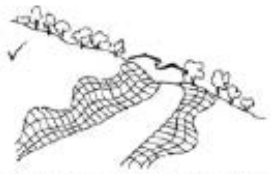
3.3.8. Design Consideration on Slope

Building profiles should not visually break the ridge line of the slope, especially when seen from important vantage points and buildings should not be built on the crest of slopes. The hillside should act as a backdrop to the buildings.

restricting new building to within this area will prot views of units at a higher level.

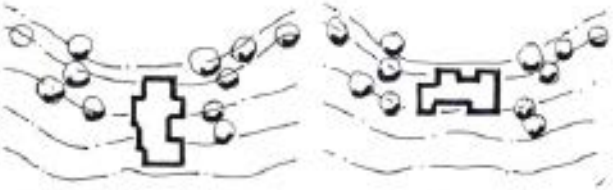


Buildings and structures should be set back far enough from ridges and cliff edges so that the structure does not appear to be perched on the edge

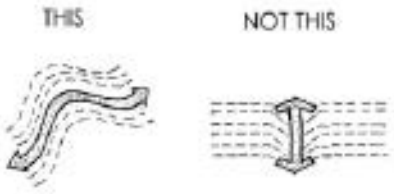


Slope changes should appear as natural as possible

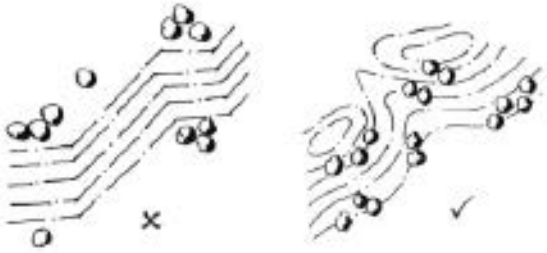
Retaining walls and structures should be planned in a curvilinear manner that reflects the natural contours of the landscape, and materials and finishes should harmonise both with the terrain and the buildings on



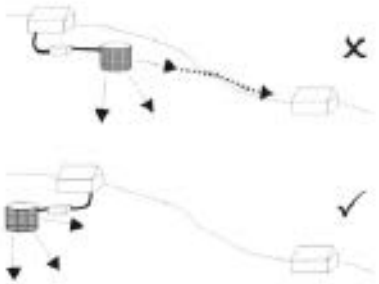
Building should not be perpendicular to contours. Building should be parallel with the contours



reduce grading by aligning roads along natural grades



Sharp angles and uniform slope banks appear unnatural and disturbs the natural dranage patterns. Use varied natural slopes and berms



the water tank should be located at the highest point and the Sewage treatmet plant should be loacted at the lowest point

3.4. CLIMATE ANALYSIS

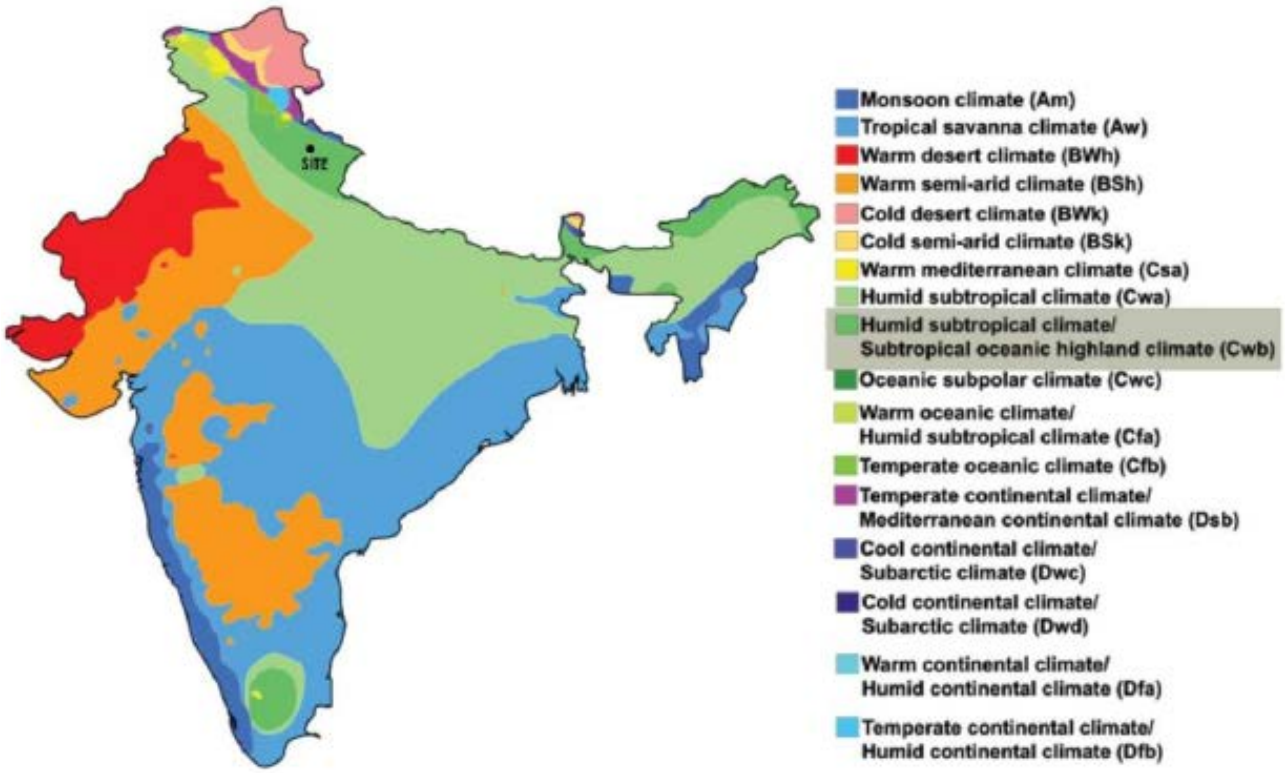


Figure 42 Koppen Classification Map of India

Figure Koppen Classification Map of India - Humid Sub Tropical

C: Temperature of warmest month greater than or equal to 10 C, and temperature of coldest month less than 18 C but greater than -3 .C
w: Precipitation in driest month of the winter half of the year less than one-tenth of the amount in the wettest month of the summer half
b: temperature of each of four warmest months 10 .C or above but warmest month less than 22

3.4.1.Average Temperature and Precipitation

Coldest Month
November (Min. -1, Max.17)
December (Min. -3, Max. 14)
January (Min. -4, Max. 12)
Febuary (Min. -3, Max. 13)

Warmest Month
May (Min. 8, Max.26)
June (Min. 12, Max.27)
July (Min. 14, Max. 24)
August (Min. 13, Max. 23)

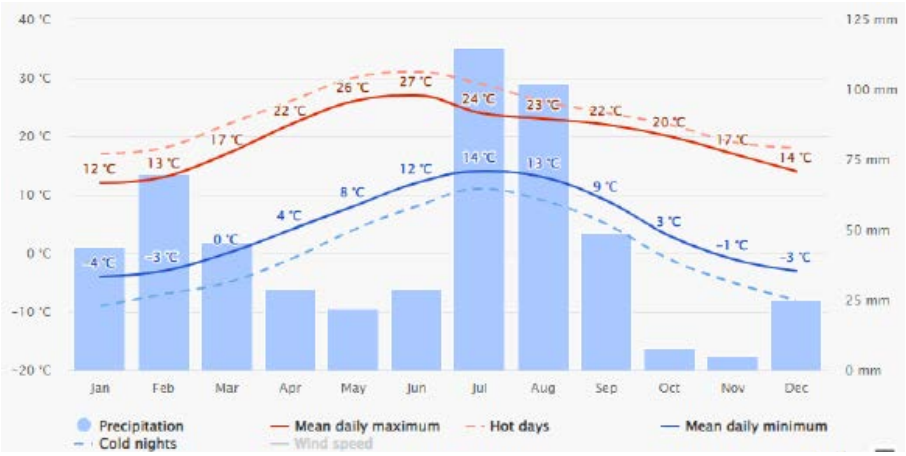


Figure 43 Temperature and Precipitation

Precipiation Maximum - 115mm - July
Precipiation Minimum - 5mm - November

3.4.2. Sun Path Diagram

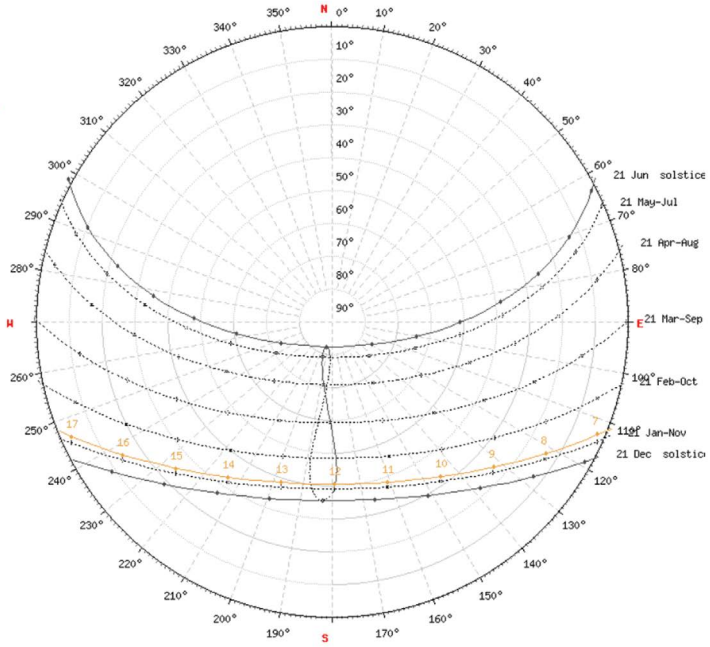


Figure 44 Sun path diagram of Shimla

Implications

- The northern side barely gets any sunlight while southern side is most exposed to the sunlight.
- Building needs to be oriented east west for for maximum sunlight
- More surface area to face south west to increase heat gains.
- Living spaces and rooms to be oriented south and west for more heat.
- Darker color spaces for more heat gain absorption and emission.

3.4.3. Sun hour and Days

Minimun amount of sunlight recieved in month of July, August due to monsoon, sky covered with clouds. And in January and February due to winters.

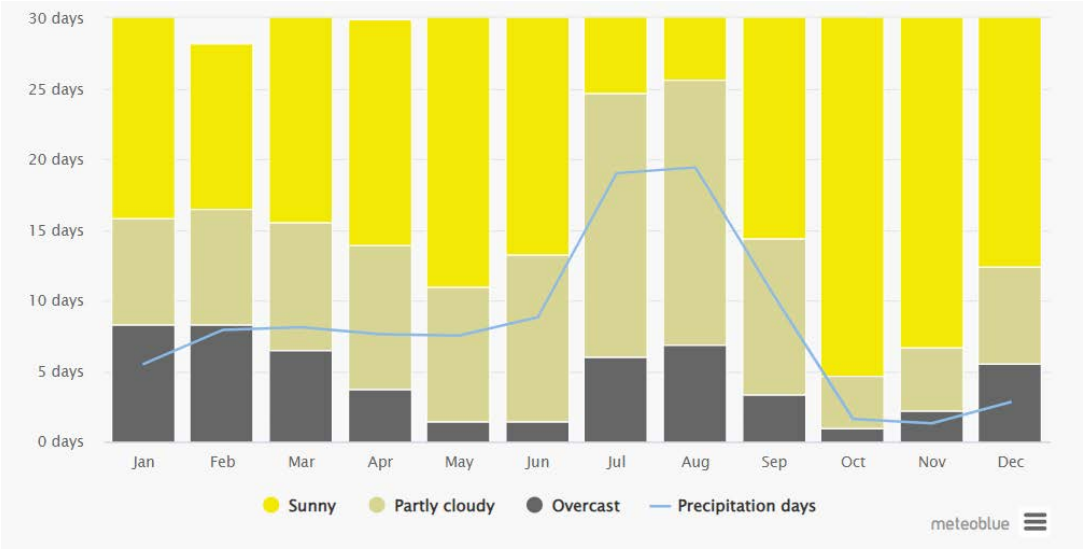


Figure 45 Sun hour days

3.4.4. Wind Direction

Prominent wind direction is from North East to South West

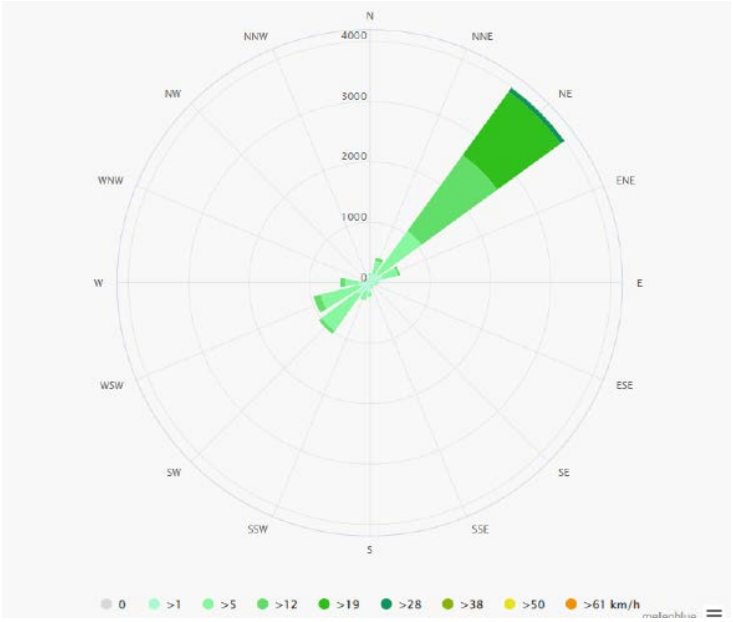


Figure 46 Wind wheel

Implications

- Exposure to the cold winds may be minimized by locating the building on the leeward side of the site.
- Need for wind barriers in SW and NW direction to avoid excess cold and humidity.
- Transitional Spaces with the short time usage in day time can be oriented to these sides.
- Fenestration on southern and western side could use double glazed non openable panels to only sunlight while blocking the wind.

3.4.5. Inferences and Design Strategies

Location: In cold weather, warmth of building is mandatory. building block should be located on the south facing slope of a hill to have natural and direct sunlight throughout the day.

Open spaces and built forms: Building blocks in cold weather conditions should be clustered together to minimize exposure to cold winds. Building can be located on the leeward site of site which will naturally acts as wind break.

Windows facing the south sun to allow maximum heat gain from south sun and to maintain comfort level of the user. Also, the north side can be insulated to prevent the heat loss. Living areas which are used actively should be located on the south or southwest side whereas the service areas or the store can be located on the other side or back side. Air-lock lobbies at entry of the building reduce heat loss and maintain the comfort level. The heat generated in kitchen can be used to heat up the room during winter season or chimneys could be provided.

Low on a south-facing slope to increase solar radiation, low enough to give wind protection but high enough to avoid cold air collection at the bottom of the valley, Valley winds blows uphill during the day. At night the wind blows down the valley. Surface perpendicular to the sun rays receives most radiations per unit surface area. Steeper slope generally receives more sun than flat surfaces.

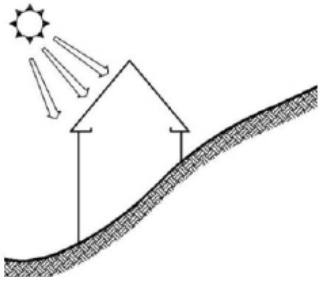


Figure 47 South facing Slope

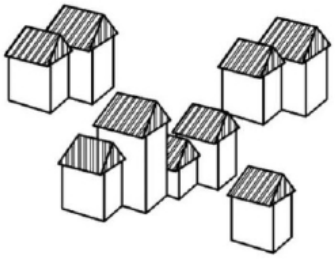


Figure 48 Clustered Design

Open space should be designed such that they allow the huge amount of sun rays into the buildings. They can be treated with a hard and reflective surface so that they reflect solar radiation onto the building

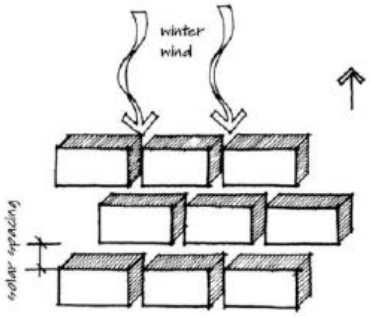


Figure 49 Sun Spaces

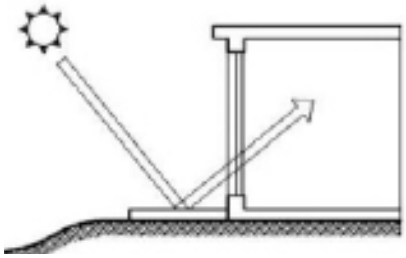


Figure 50 Reflective Surfaces

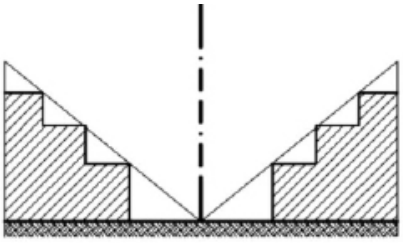


Figure 51 Reflective Surfaces

Figure 52 Comapact Form

Street width and orientation: the orientation of lanes should be east-west to permit maximum amount of sun into the building. The street should be designed wide enough so that the building does not shade each other by maintaining a proper solar spacing between built blocks.

Compact form can reduce exposure to cold. The building should be designed such that the form is compact having small opening to prevent heat loss during

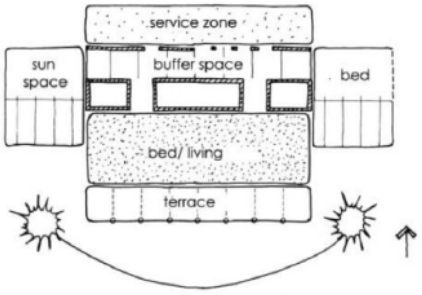


Figure 53 South Facing Living Area

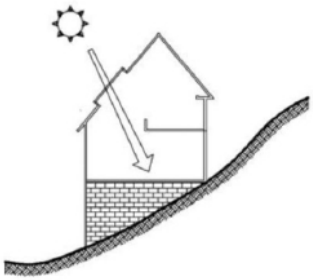


Figure 54 Skylight

3.4.6. Building Facade

Roof
False ceilings are a regular roof feature of houses in cold climates. One can also use internal insulation such as polyurethane foam (PUF), thermocol, wood wool, etc. An aluminium foil is generally used between the insulation layer and the roof to reduce heat loss to the exterior. A sufficiently sloping roof enables quick drainage of rain water and snow. A solar air collector can be incorporated on the south facing slope of the roof and hot air from it can be used for space heating purposes. Skylights on the roofs admit heat as well as light in winters. The skylights can be provided with shutters to avoid over heating in summers.

Walls
Walls should be of low U-value to resist heat loss. The south-facing walls (exposed to solar radiation) could be of high thermal capacity (such as Trombe wall) to store day time heat for later use. The walls should also be insulated. The insulation should have sufficient vapor barrier (such as two coats of bitumen, 300 to 600gauge polyethylene sheet or aluminium foil) on the warm side to avoid condensation. Hollow and lightweight concrete blocks are also quite suitable. On the windward or north side, a cavity wall type of construction may be adopted.

Fenestration:
Maximum window area on the southern side of the building to facilitate direct heat gain. They should be sealed and preferably double glazed. Double glazing helps to avoid heat losses during winter nights. However, care should be taken to prevent condensation in the air space between the panes. Movable shades should be provided to prevent overheating in summers.

Colour and texture:

4. CASE STUDIES

4.1. VANVASA ECO RESORT, UTTRAKHAND

4.1.1. Location

The project is located at the edge of the Jim Corbett National Park on the foothills of the Himalayas in Uttatrakhand, India. It is located at Amghari, 25 km from Ramnagar and can be accessed by forest road from near the crossing of the kosi barrage on Ramnagar-Haldwani Road.
The surrounding area is dominated by Sal and teak trees along with mango, bamboo and rosewood. Also there is a layer of shorter trees and evergreen shrubs.

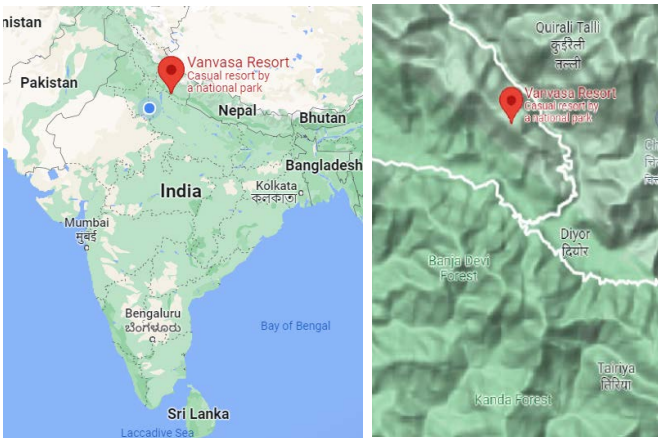


Figure 55 Location on Map

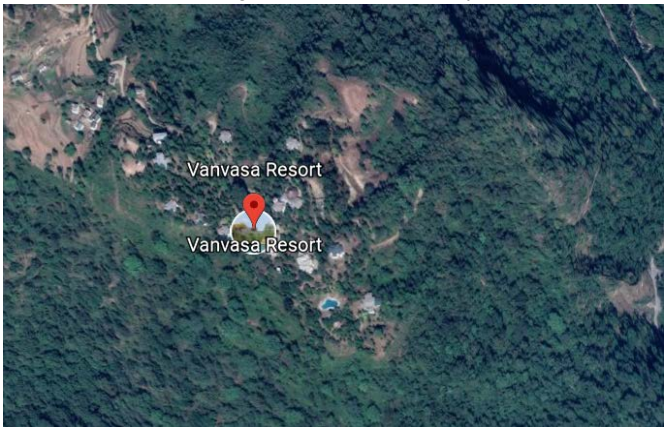


Figure 56 Site Location

4.1.2. Climate

- Subtropical highland climate
- Dry during winter and very wet during summer

4.1.3. Site Specifications

Site Area- 5.8 Acre
Total Built-up Area - 6000 Sq.m
Visitors Parking-21
Staff Parking-06

4.1.4. Objective of the Case Study

- To understand the planning and layout of resort on contour.
- To undertsand the building design responding to the climate and site conditions.
- To understand the use of local material and architectural style.

4.1.5. Project Overview

The project seeks to preserve the sense of place, local culture and be environmentally sensitive. The project seeks to attain a high environmental rating using the IGBC's Green Homes Rating System Their design strategy has been reconfiguring the existing agricultural terraces on site to slow down the rainwater run-off, reduce the erosion of the top soil and regenerate the local vegetation. This has influenced an open design of the individual residential units as well.

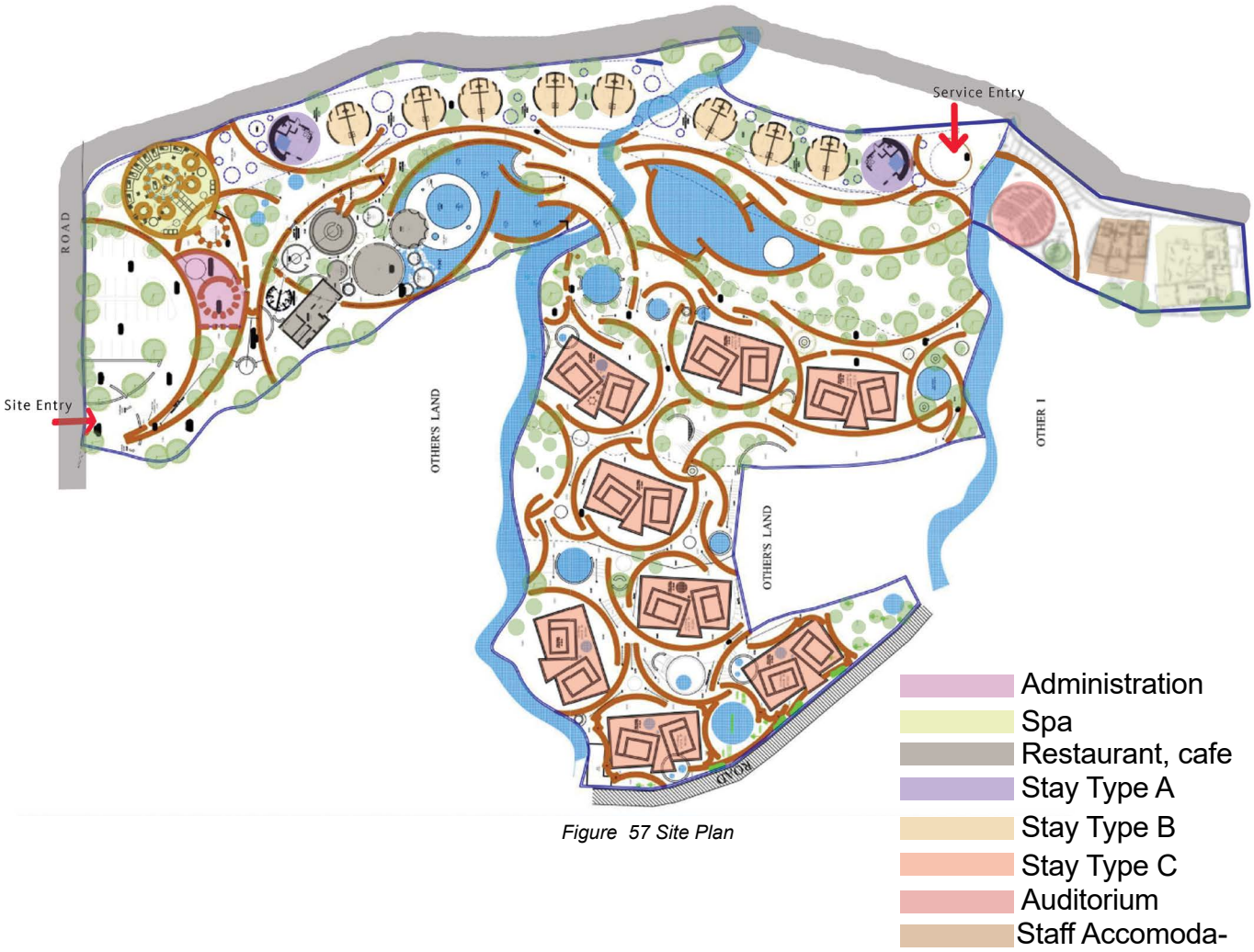


Figure 57 Site Plan

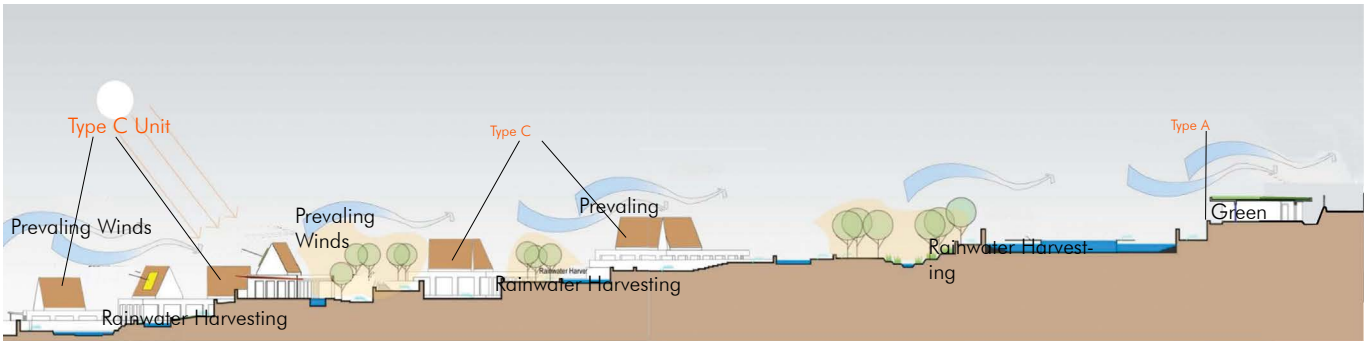


Figure 58 Site Section

4.1.6. Zoning and Connectivity

It has sense of openness in terms of layout planning connected through steps and trails built along the contours of the site.
Stay units are located in 2 parts, one located along the periphery of the site boundary.
Second one is located in the lower part of the site.

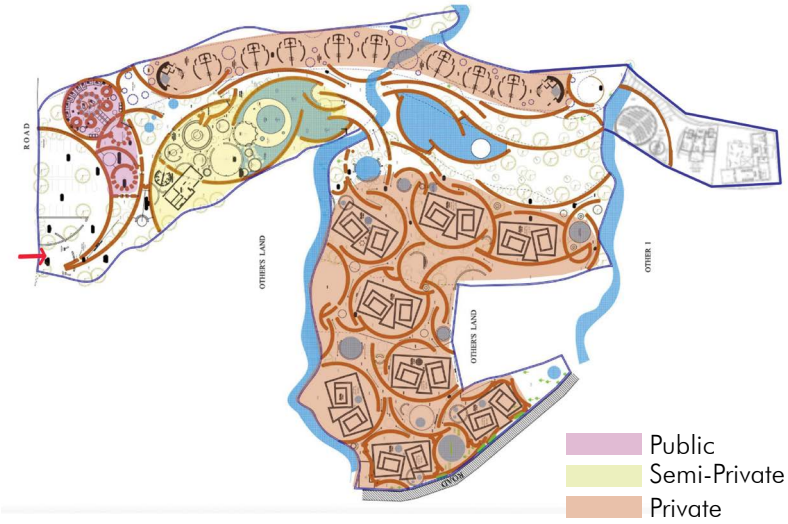


Figure Site Plan Zoning

4.1.7. Circulation

The circulation is intgrated well with the contours in form of steps, brigdes and trails.

Figure Visitors Center Entry

Figure Site Plan Circulation

4.1.8. Design

The units are clustered to derive a common open spaces for the users.

The units are designed on the basic idea of creating perosnal envelops which not only provide private space but also a sense of security.

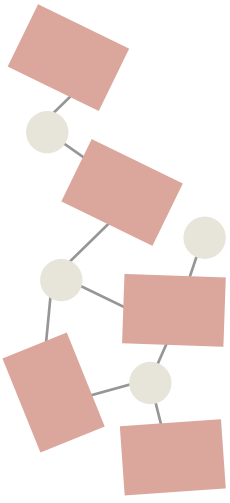


Figure Unit Cluster Design

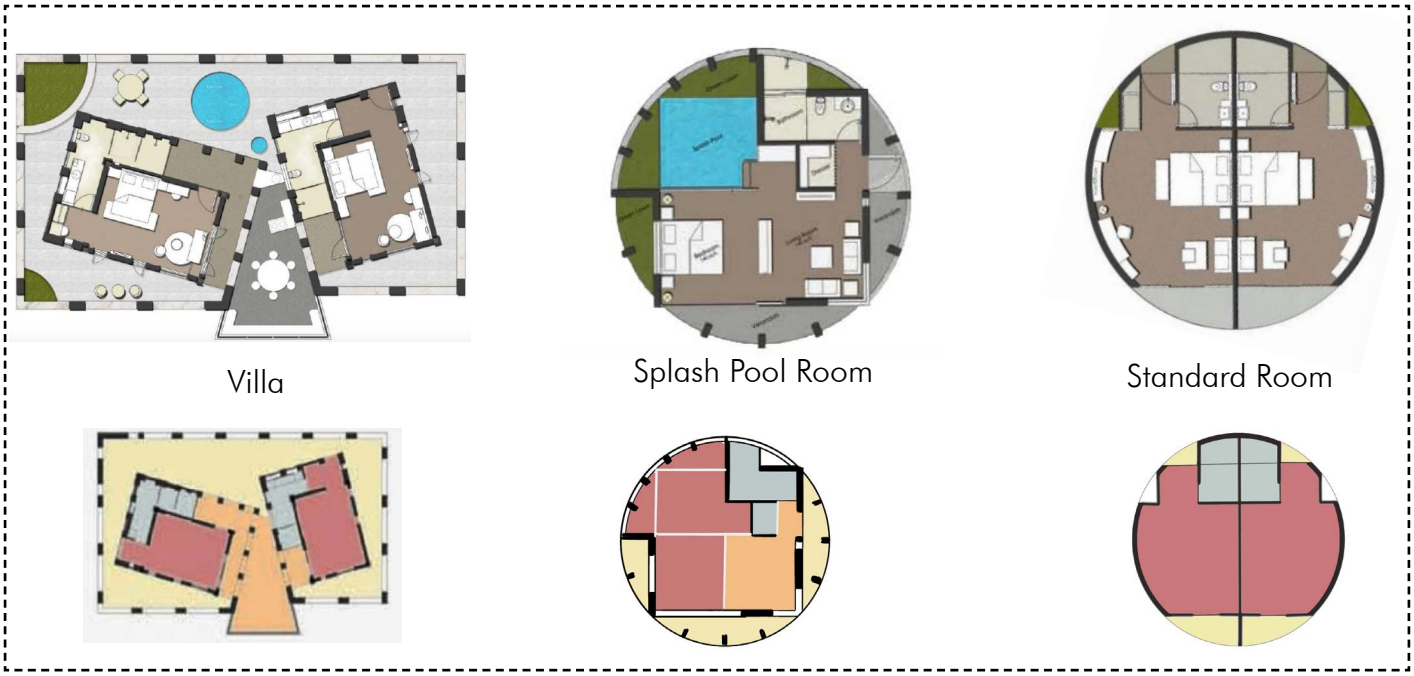
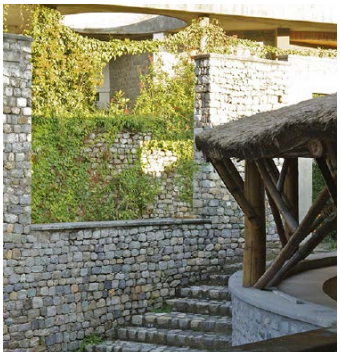


Figure Unit Design Plan

4.1.9. Construction Details and Materials

The extensive use of local bamboo and excavated stone re-use reinforces the ecological essence of the design



Bamboo used in semi-open, semi-private structures as a structural element. Thatch is used for the

The use of third class course rubble masonry is there for walls, column, plinth construction.

The use of concrete is there in slabs, lintel and pergolas.

Figure Material Study

4.1.10. Orientation

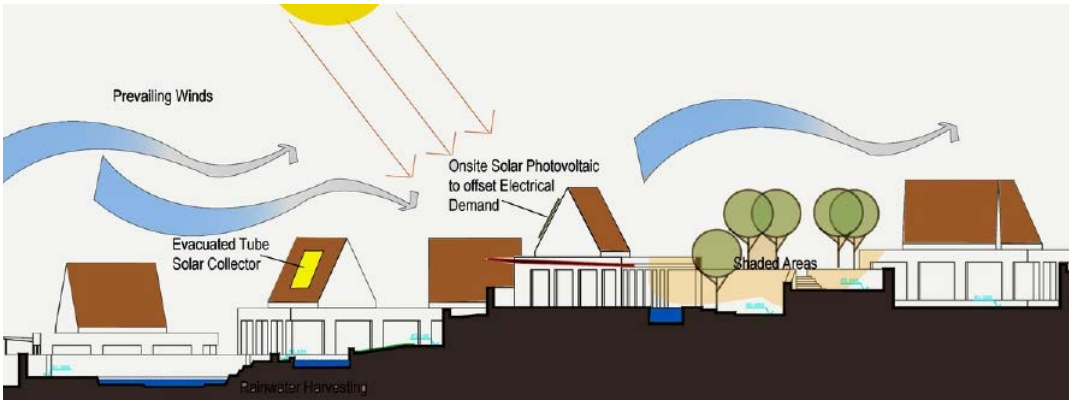
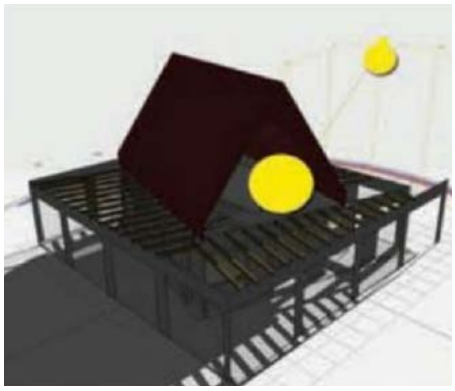
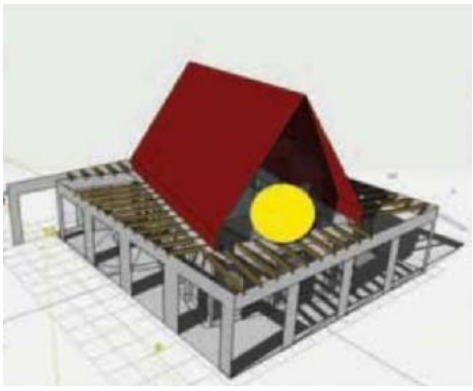


Figure Sec-

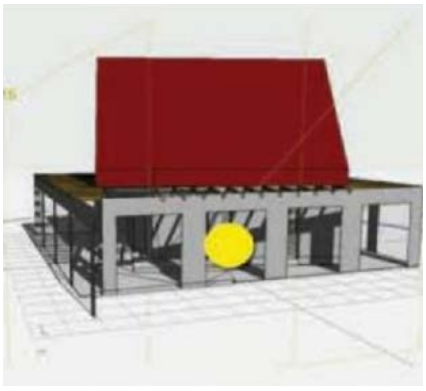
They are oriented intelligently so as to allow the pleasant morning and evening sun to enter the units while blocking the harsh afternoon sun.



The south-west afcing win-dow recieves direct sunlight during the morning until every afternoon throughout the year.



The north west facing window recieves direct sunlight during the morning hours mainly dur-ing the summer time.



The south-west facing win-dows are shaded by the pergola during the morning hours but partially exposed during the aftrenoon.

Figure Unit Design

4.1.11. Inferences

- Multiple routes of passage allow free-flow between exterior-interior and high-low elevation.
- Creating micro climate within cluster of accomodation units.
- The interactive common spaces provided for interacation.
- Inter-realtionship between built form and natural aspects of site are

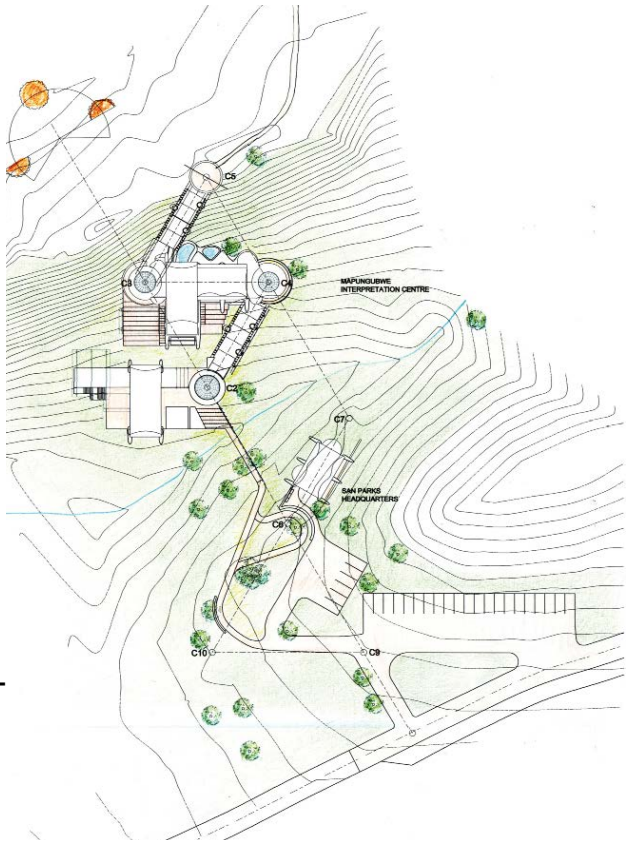
4.2. MAPUNGUBWE INTERPRETATION CENTRE, SOUTH AFRICA

4.2.1 Location

The Mapungubwe Interpretation Centre is the physical and symbolic entrance to the Mapungubwe National Park located in north-east South Africa near the borders with Zimbabwe and Botswana at the confluence of the Shashi and Limpopo rivers. In past centuries a major trading hub and cultural melting pot on the vast, undulating savannah, the site is a unique archaeological, cultural and natural location.
It is home to immensly rich flora and fauna including Baobab tree. The modulated architecture of the Mapungubwe Interpretation Centre reflects this long history while asserting its contemporary relevance.

4.2.1 Connectiv-

Nearest Airpot - Limpoo Valley Airport 38km
Nearest Railway Staion - Messina 73km



4.2.3. Site Specifications

Site Area - Area of National Park
Ground Floor Area - 1130 Sq.m
Total Floor Area - 2750 Sq.m

Visitors Parking-21
Staff Parking-06

4.2.4. Objective of the Case Study

- To understand the planning and layout on contour.
- To undertsand the distribution of spaces in scattered manner.
- To understand the connectivity of spaces through open and semi-open spaces.

4.2.5. Project Overview

Concept and Objective of the Architect

- The rocky landscape was both the inspiration for the design and the source of materilas for the constructio, resulting in a composition of structures that are authenticlly rooted to their location.
- The Mapungubwe Interpretive Center was realized using latest developments in structural geometry along with an ancient construction technique, in order to implement a contemporary design, meant to house hundreds of years old artifacts.
- Preserve and promote an ancient heritage
- Create spaces deeply rooted in the physical and cultural setting
- Support the local ecology

-Create a place of respect and celebration

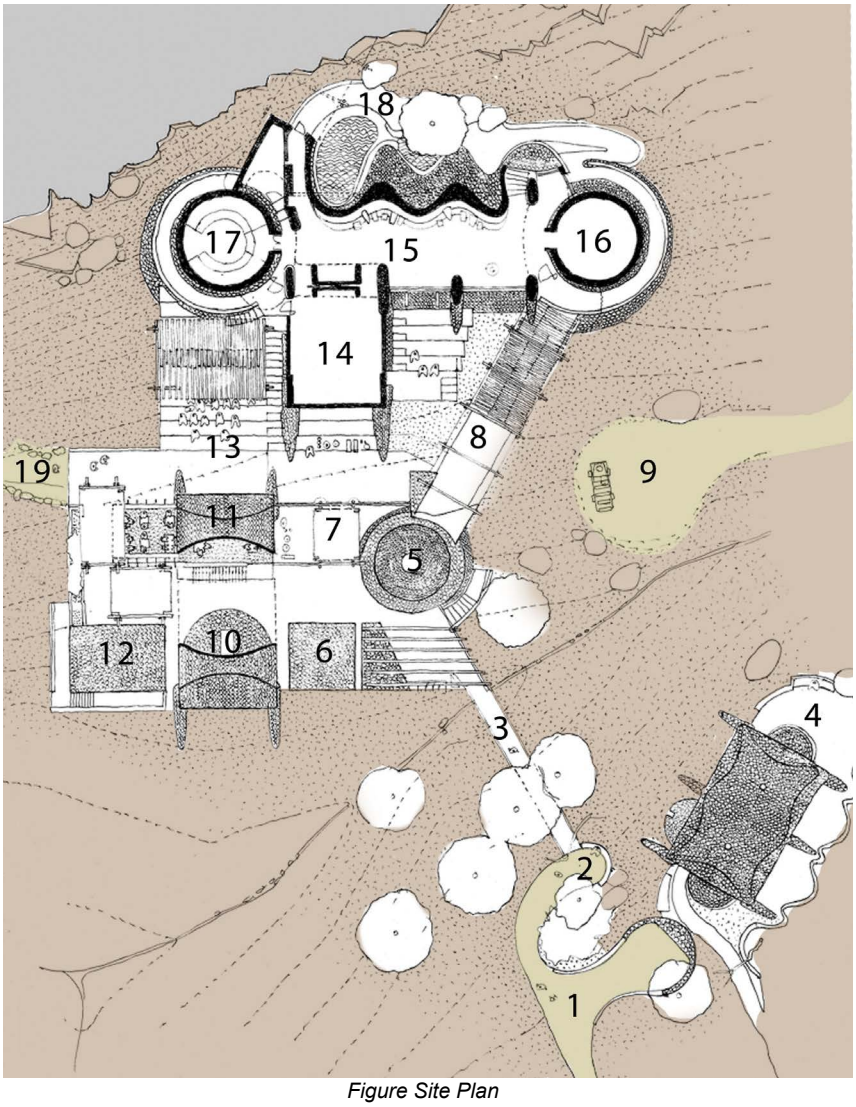


Figure Site Plan

1. Pedestrian Arival/Departure
2. Arrival Landing
3. Bridge
4. National Park Headquarter
5. Reception Cairn
6. Outdoor Court
7. Craft Shop
8. Floating Walkway
9. Game drive-drop off
10. Washrooms
11. Restauarnt
12. Kitchen
13. Open Air Amphitheater
14. Learning Center
15. Main Vaulted Exibition Space
16. West (Afternoon) Cairn
17. East (Morning) Cairn
18. Messa Walkway Excess
19. Return Route
20. Storage

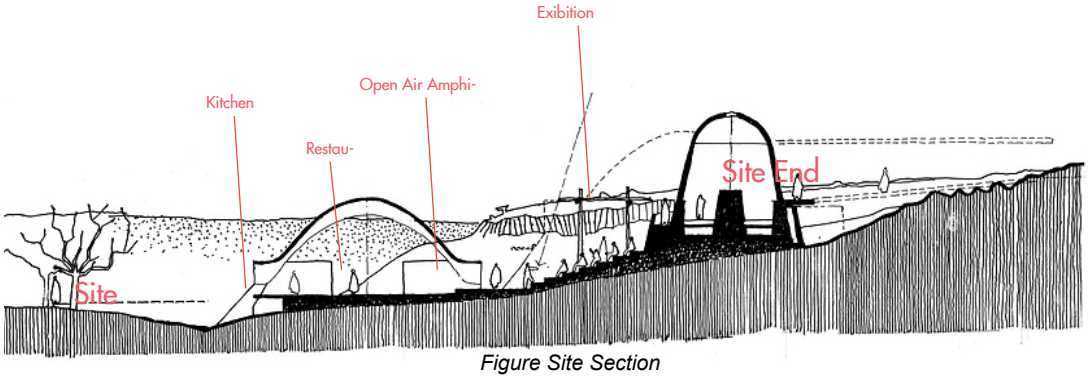


Figure Site Section

4.2.6. Zoning and Connectivity

- It has sense of openness in terms of layout planning connected through bridges, steps and trails built along the contours of the site.
- The spaces are well integrated with perfect spactial coordiantion and segregation into 3 zones.
- First one is common spaces for all visitors which is considered as a noisy zone. All the services are placed up here.
- Second one is interactive zone located in between for teaching and learning for visitors, staff and local people.
- Third one is silent spaces, located at the end capturing the views of the national park.

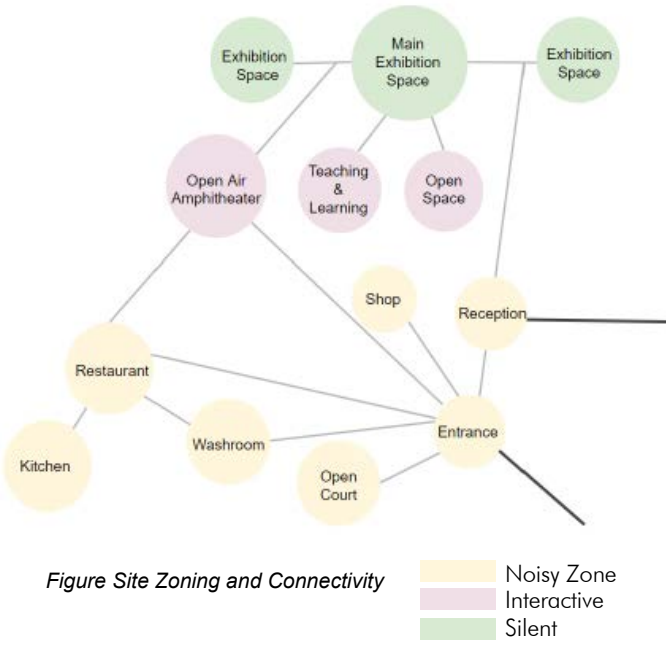


Figure Site Zoning and Connectivity

4.2.7. Circulation

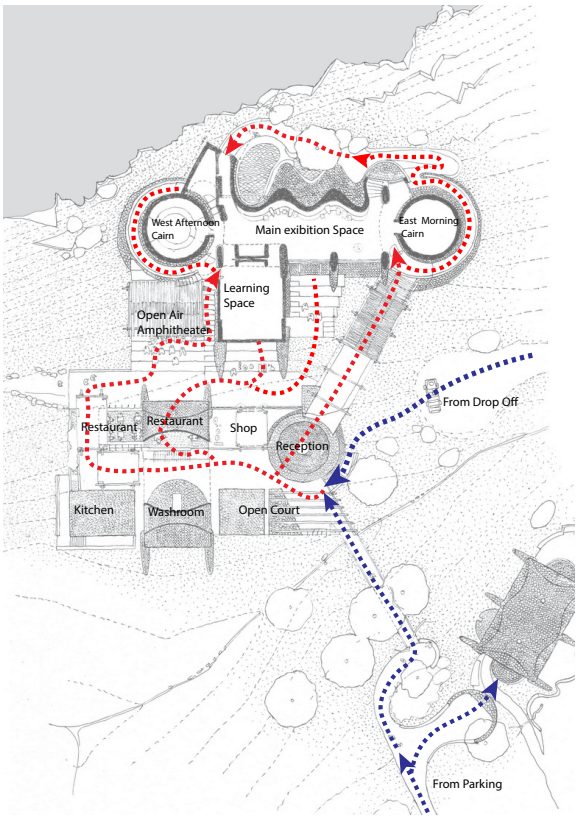


Figure Site Circulation

The site has one common entry for staff and visitors, further divinding into two pedestrian access to the building.The one pedestrain access from is from the parking and other after the drop off point. Ramped walkways zigzag through the complex, creating a formal counterpoint to the large masses. Ramps, stairs, interior circulation, exterior circulation, elevated views. Routes provided multiple, engaging experiences, speaks on the many tribes of the area.

Figure Site Entry

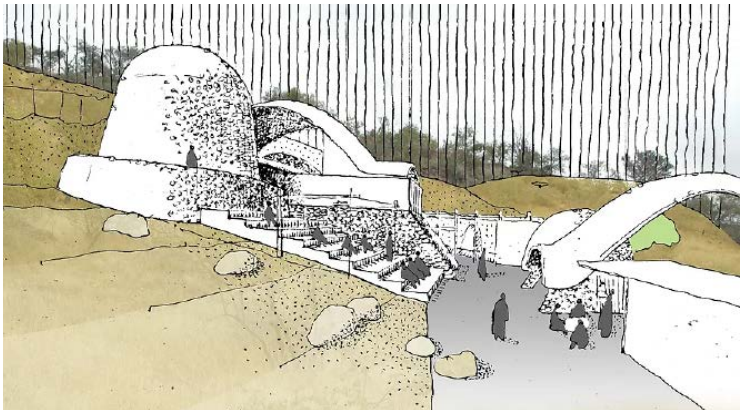


Figure Site View

4.2.8. Construction Details and Materials

Structural members

- Concrete structure and slabs, Sandstone walls, Stabilised-earth bricks,
- Diverse recycled materials (metal poles, etc.)
- Main structural system is timbrel vaulting, a system of cross-layering bricks for structural support incredibly

The vaults resemble a system of caves, which is culturally significant. The vault system was made of several layers of thin earth tiles assembled with mortar gypsum. Stones were used as a covering layer of that structure.The global conductivity of this layer is very low and very efficient in terms of controlling heattransfer towards the interior.

The openings are protected from glare by polycarbonate sheeting and eucalyptus stalks, and from baboons with iron grilles based on the pattern of kanniedood plants growing in the courtyards below.

Figure Roof Construction

Figure Construction

Figure Use of differenet Materials for construction

4.2.9. Area Distribution of spaces

Reception - 80 Sq.m
Learning Area - 105 Sq.m
Open Air Theater - 125 Sq.m
Exibition Space - 450 Sq.m
Shop - 45 Sq.m
Restaurant - 72 Sq.m
Washroom - 60 Sq.m
Kitchen - 45 Sq.m

Figure Large areas cut out of the vaults admit a soft, almost sacred half-light to the exhibition areas inside.

Figure Play of light and shadows with the use of materials.

Figure Semi-open design element on the roof for natural light.

Figure Polycarbonated sheets on the window.

Figure Site Circulation

4.2.10. Inferences

- Multiple routes of passage allow free-flow between exterior-interior and high-low elevation.
- Use of natural elements(sun, air, water, earth) forms the basis of experience.
- The structure satisfy the sustainable structure aspects
- Play with the volumes, open, semi open and closed spaces, gives user a dynamic experience.
- The building form follows the context.
- Integration of terrain in the design, as building structure flows along the site contours.
- Use of traditional construction method in contemporary way.

4.3. BHARAT BHAVAN, BHOPAL

4.3.1. Location

Built into a hillside which slopes down toward a lake, a series of terraces and courtyards comprise the complex. It is located in Shyamla hills (near upper lake Bhopal).
It was built to celebtrate the culture output of Madhya Pradesh.

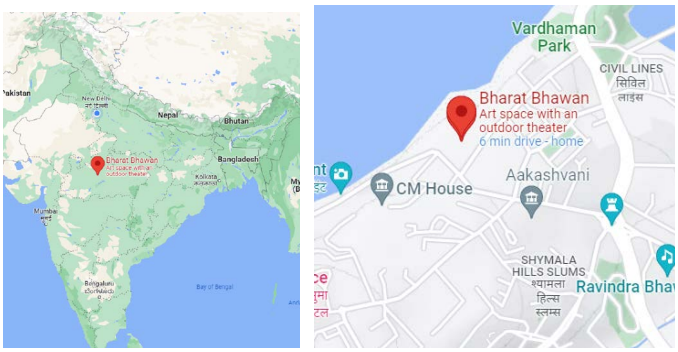


Figure Location on Map

4.3.2. Connectivity

Nearest Airpot - Raja Bhoj Airport 12km
Nearest Railway Staion - Habibganj Railway Staion 08km

4.3.3. Climate

Humid Sub-tropical
Hot Summer, Mild and dry winter and humid monsoon

Figure Site Location

4.3.4. Site Specifications

Site Area - 2.4 Acre
Visitors Parking-21
Staff Parking-06

4.3.5. Obejctive of the case study

- To understand the planning, division and layout of museum.
- To undertsand the relation of built form with site contours.
- To undertsand the distribution of areas in socio-cultural spaces at site level.
- To understand the connectivity of spaces through open and semi-open spaces.

4.3.6. Project Overview

Bharat Bhawan is an autonomous multi-arts complex and museum with site gently sloping hill overlooking the lake in Bhopal. The natural contours of the site have been used to create a series of terraced gardens and sunken courtyards off which are located a number of culturalte facilities, including a museum of Tribal Art.

The Campus was designed to create a space for interaction between people involved in the field of different forms of arts,having performance spaces with collaborative natural spaces.

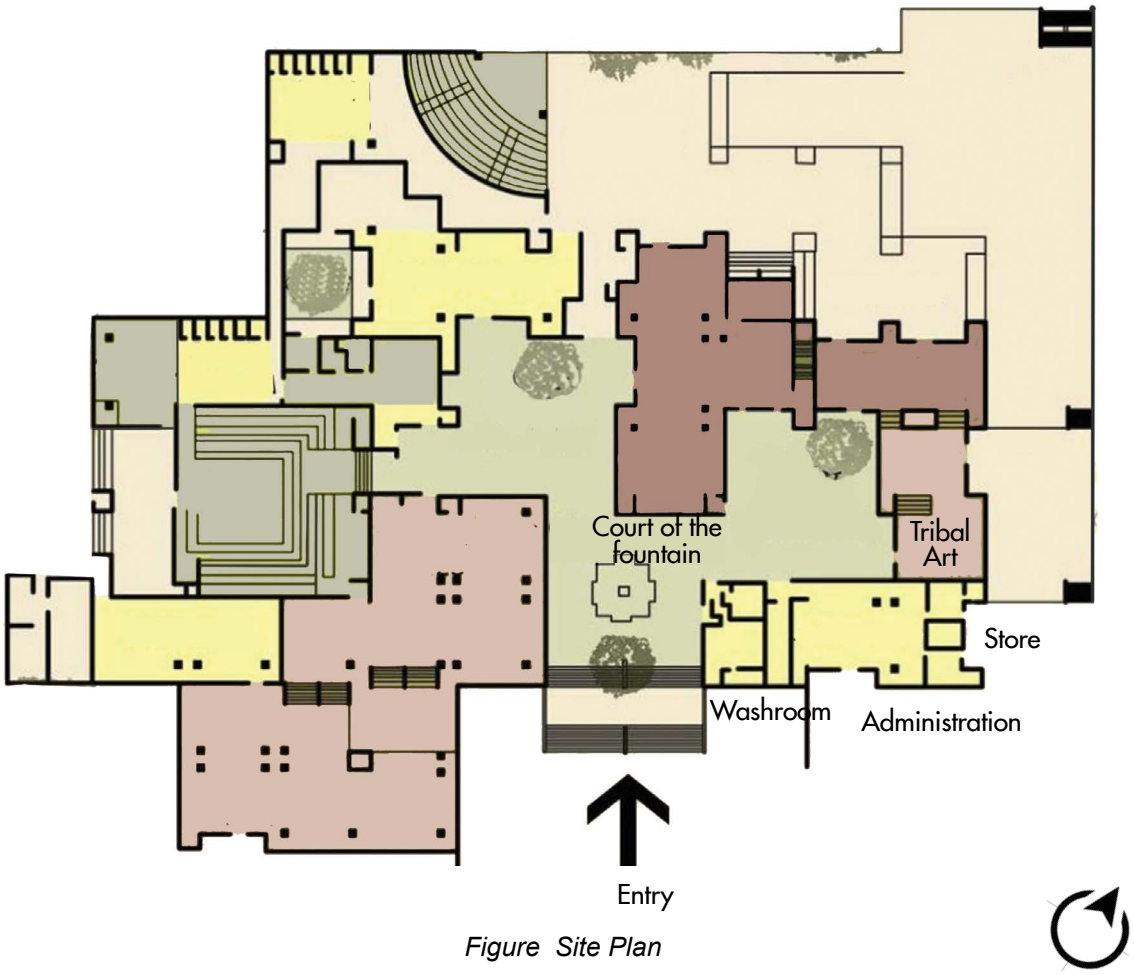


Figure Site Plan

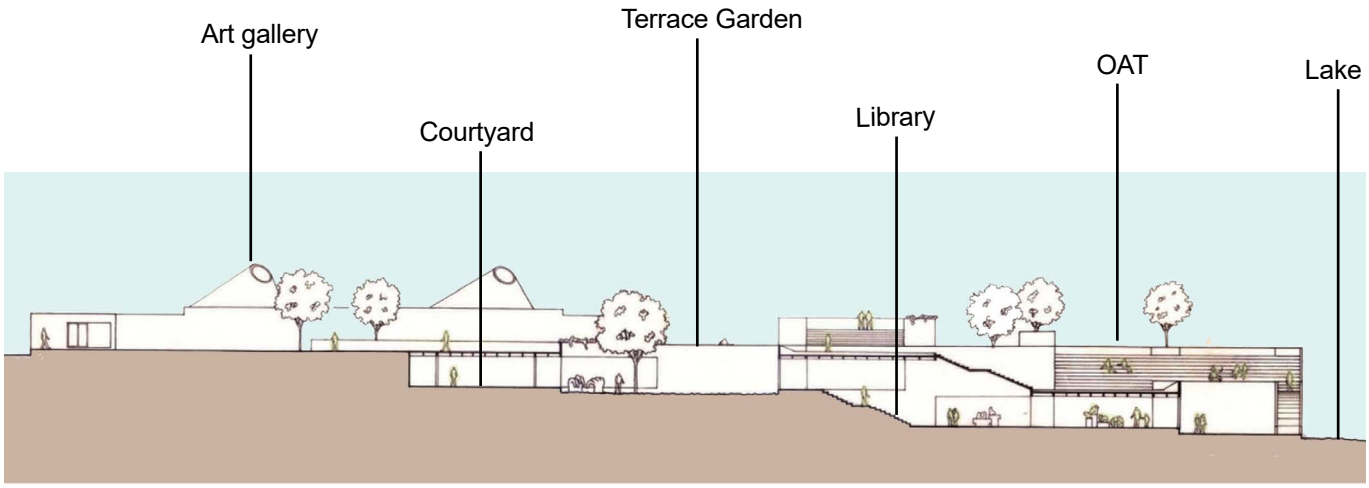
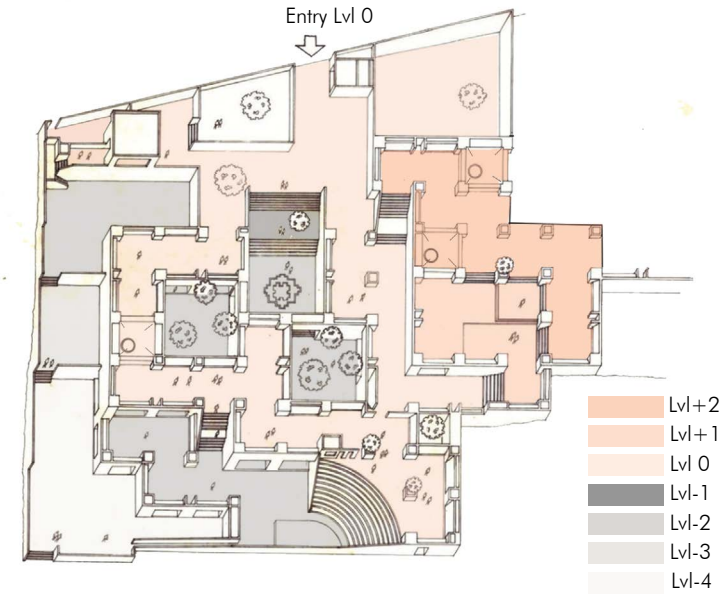


Figure Section showing the bullding built on the natural topography of the site sloping towards the lake.

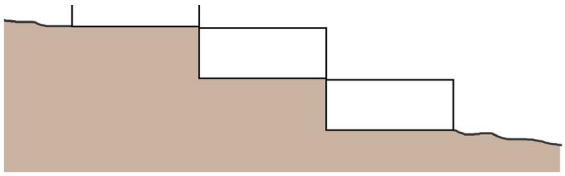
Built into a hillside which slopes down toward a lake, a series of terraces and courtyards comprise the complex. Upon entering, the visitor has the choice of following the path of terraces cascading down to the lake, or descending to the three courtyards, which provide access to the majority of the cultural facilities. These include contemporary art galleries, a museum, of tribal art, an auditorium, a library of Indian poetry, a print shop, and a studio for an artist-in-residence.

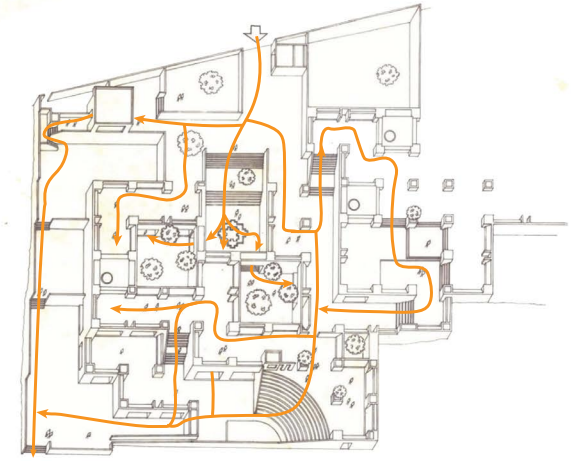


4.3.7. Circulation

Play of levels : The hierarchy in the organisation of spaces , allows for the transition courtyards to develop an informality and openness which gives this space its character.

The built spaces areall clustered together and flows easily into one another.





4.3.8. Spatial Characteristics

Figure View of

Figure Bridges connecting the

Figure Transition spaces as nodes

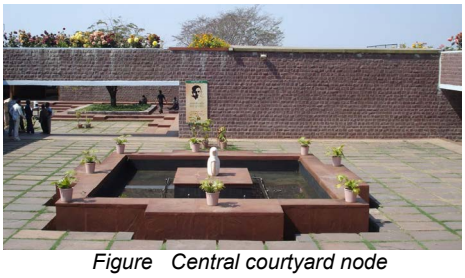


Figure Central courtyard node

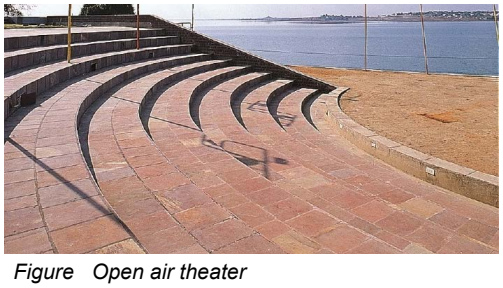
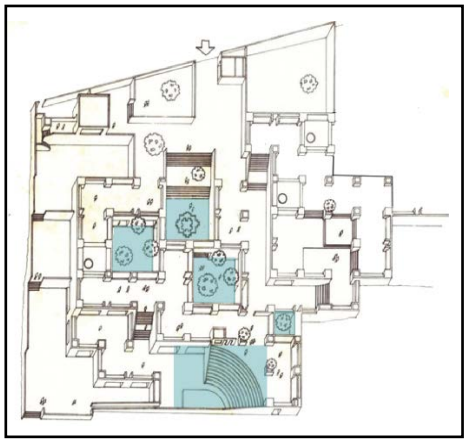


Figure Open air theater

Figure Gallery space

Nodes & Interaction Points

Having common intersection area or nodes helps the people to locate themselves in the building which in turn acts as a landmark to the whole building and act as flexible spaces for various activities.



Courtyard and open terraces

Open-to-sky spaces & court-yards provide natural lighting and ‘ventilation to the surround-ing areasnand also creates so-cio-human interaction between the visitors. The courtyards also serve as anplace to sit and relax.

4.3.9. Inferences

- The Potential of interconnected courtyards as transitional spaces and areas for informal public activities.
- Vertical Separation of functions can produce more secure complexes and ensure privacy.
- Success of Centre based on when the spaces become a part of people’s everyday lives.
- Limiting Vehicular movements to periphery to create more pedestrian friendly complexes.
- The multi-functional potential of landscaping elements such as OAT’s both as spaces for per-forming arts and public interaction.
- Enhancing the relationship between human and nature.
- Vertical Segregation
- The built volume expresses dominance of horizontal plane due to large space requirements and does not allow high rise development.
- Clearly segregated and unhindered vehicular and pedestrian circulation Is required for easy movement within site.
- The site lacks to achieve universal access.
- Spill out space with every indoor space creates conducive atmosphere for cultural activities
- The transition of spaces from one to the other is interesting as there is an element of curiosity at every level
- Vast expanse of open hard surfaces could have been greener.

4.4. AAMOD ECO-RESORT, SHOGI, SHIMLA

4.4.1. Location

Aamod at Shogi, Shimla is an ecotourism resort in pristine virgin forest on a land provided by Himachal Pradesh Forest Department under its new eco-tourism policy.

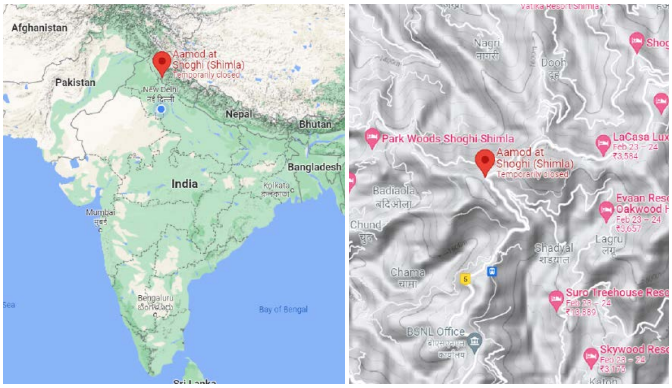


Figure Location on Map

4.4.2. Climate

Subtropical highland climate

4.4.3. Connectivity

Nearest Airpot - Jubbarhatti Airport 26km

Figure Site Location

4.4.4 Site Specifications

Site Area - 2.4 Acre
Buid Area - 1Acre
No. of Parking - 40

4.4.5. Obejctive of the case study

- To understand the design aspects in cold climate.
- To undertsand the construction and material responsing to the climate.
- To undertsand the distribution of spaces in natural setting and their connec-

4.4.6. Project Overview

Aamod perfectly blends in with nature. The cottages are all pre-fabricated structures in-line with the strict norms of Ecotourism so as to retain the original character and ruggedness of the forest

4.4.7. Key features

- Sustainable Approach on Eco-Design of Resort.
- Use of local materials for the construction process.
- The cottages are placed in clusters spread throughout the site.
- All the spaces are connected through natural trails running along the site.
- Pre-fabricated Cottages.

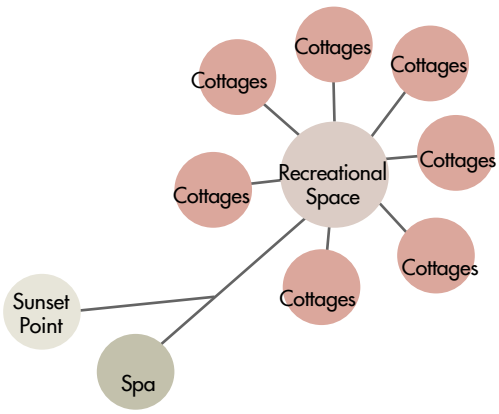


Figure Layout of cottage cluster

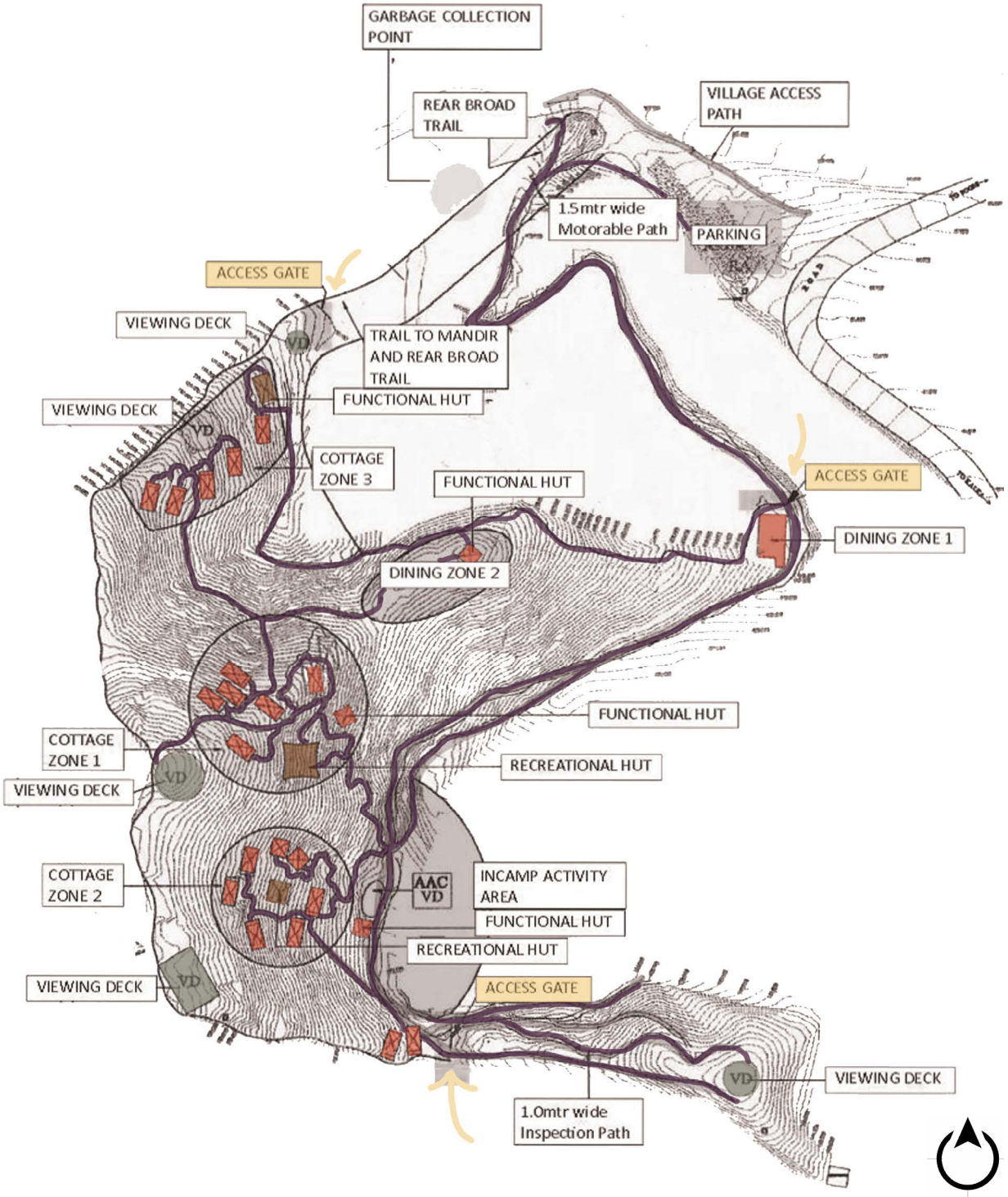


Figure Site Plan

4.4.8. Activities

Meeting room provided for multiple funtions to carry out.

The adventure activities are carefully carried out in the adjacent forest area.

The dining hall with seating and live kitchen.

Figure A lounge deck made of wooden posts and thatched roof is provided for the users to

Figure A spa with two massage rooms, jacuzzi and shower is placed at the end of the sit near th sunset point.

Figure Sunset point adjacent to the spa, natural trails left undisturbed.

Figure This outdoor cafe invites the users who intend to stay at the resort as well as who stop for a quick break.

Figure Closed Recreational gaming room provided with each cluster

Figure Accomodation of tourist and vistors

4.4.9. Unit Design

Deluxe Cottage
The 11 pre-fabricated Deluxe mud-finished cottages
Area - 280-350 sq ft,including a large private sit-out and en-suite.

Figure Deluxe Cottage

Super Deluxe Pine Cottage
6 Super Deluxe Pine Cottages.
Area - 350 sq ft , including a large private sit-out and en-suite.

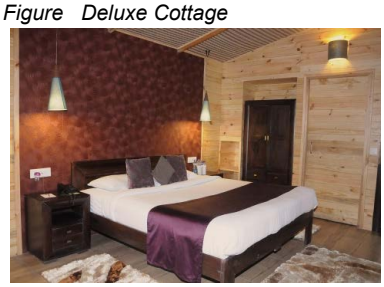


Figure Super Deluxe Pine Cottage

Family Cottages
2 mud finished Family cottages.
Area - 550 sq ft, including 2 large private sit-outs each and en-suites) each a combination of two bedrooms with an interconnecting door in between, where each room has sepa-

Figure Family Cottages

Family Deluxe Cottage
1 Family Deluxe Cottage
Area - 900 sq ft, including a 150 sq ft private sit-out deck and en-suites) comprising of two large bedrooms with separate en-suite facilities and a living room in between.

Figure Family Deluxe Cottages

4.4.10. Material and Structure

The resort comprises of two types of cottages on the basis of their construction. The pre-cut system of construction is been used.

Porta Cabins with wooden interiors
Porta sheets are cemented sheets with cement on both sides with thermacol insulation in the middle with mud cladding on the exterior. These sheets are later on bolted with prebaricated aluminium doors and windows to make the whole cabin. The sloping roofs are either covered with artificial grass or thatch to provide insulation and acoustic barrier from rain.

Figure Sloping roof covered with artificial grass.

Figure Sloping roof covered with thatch.

Local Pine Wood construction
The red colour of tin roofs of the pine wood cottages is to make them stand out in the surrounding greenery.
For interiors plastic sheet material (lightweight) has been placed with the help of a glue. It is more durable than tiles
Wallpapers have been pasted for luxurious feels

Figure Pine Wood Cottages

Figure Wooden truss for roof and further supported by steel sections in conference room

Figure Jute Sheets used for insulation inside cottages, temperature remains the same during snowfall

Figure Supporting members provide additional strength to the structure and prevent any mishaps incase a rotten wooden member needs to

Figure The structures are made on stilts which are wooden but also have steel C sections.

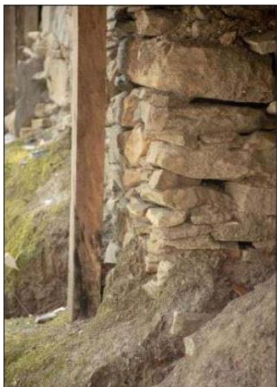


Figure 1-1.5-foot-deep random rubble masonary foundations to enable less soil erosion.

Figure Use of bamboo and wood in Spa.

Figure Use of local(kutch stone) for pathways

Figure Waste water and grey water from spa goes in Effluent Treatment Plant which purifies water and is used for irrigation.

Figure GI pipes run through the contours and trenches to aid sewer management.

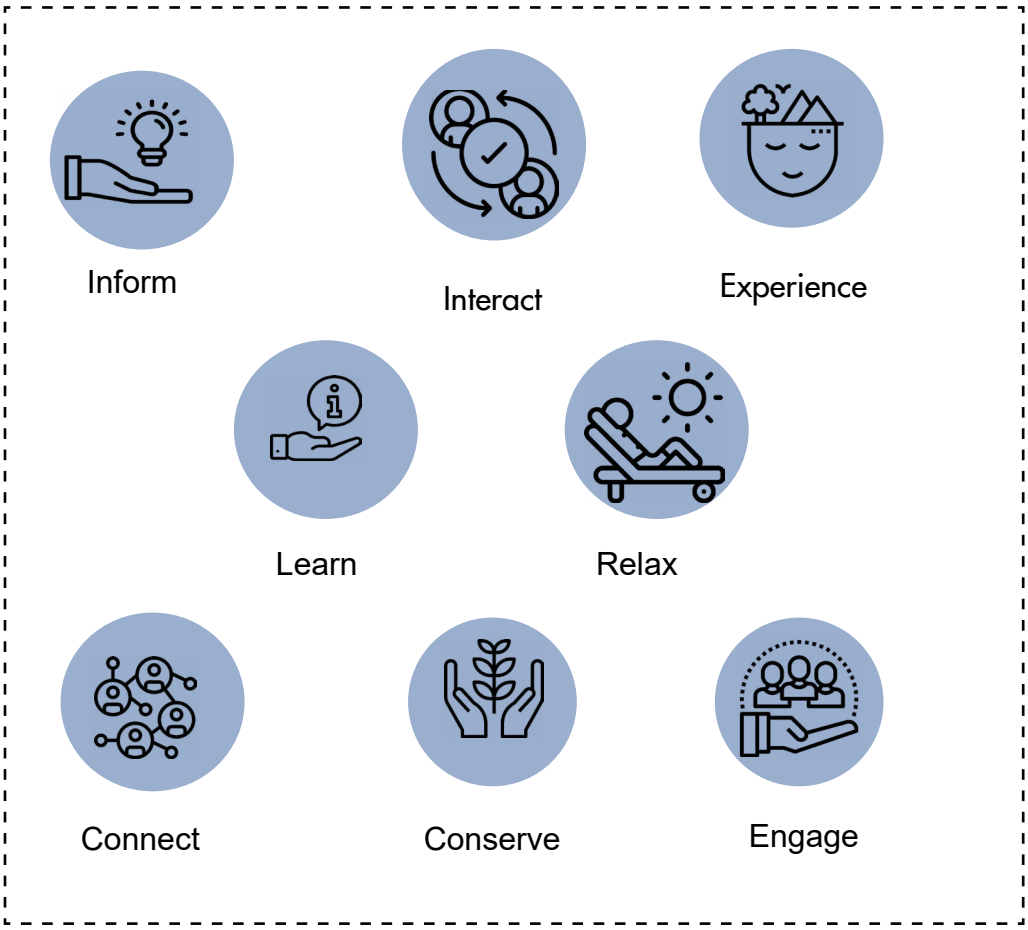
Figure The water from these tankers is pumped to storage tanks and the highest contour level of the site and is then distributed throughout the site through pipes.

4.4.10 Inferences

- Combination of non-conventional materials such as mud, timber, bamboo and conventional material such steel, aluminium, tinplate for construction.
- Pre fab and pre cut system works as an energy efficient element of the design and easy to maintain.
- Parking is planned outside the site to ensure minimum pollution in site.
- Use of biodegradable and Renewal building material.
- Use of mud and wood give building blocks a earthy feeling.
- Cottages are located on the south slope of the hill for better access to solar radiation.
- Exposure to cold wind is minimized by locating the building on leeward side compact planning in order to reduce heat loss.
- Sufficient sloping roofs are implemented to enable quick drainage.

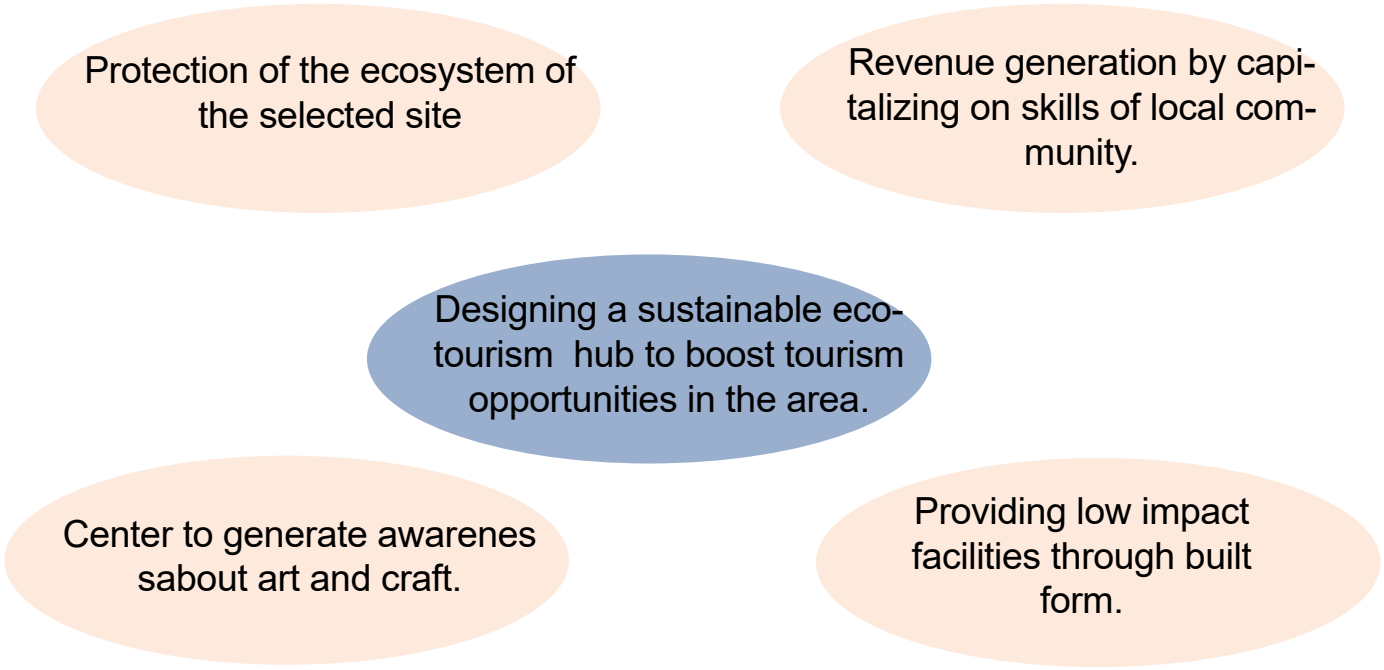
5. CONCEPT DEVELOPEMENT

Intent of the project



Intent of the project in relation to Ecotoursim

The projects aims to create a cohesive environment for the visitors as well as the local people without disturbing the eco-system of the village and its nearby area. It also aims to develop the the site considering the ecosystem principles and its design strategies. It strategies to maximise the positive interaction of visitors and local inhabitants. It tries to create a spaces with flexibility in its usage in terms of intearction and
activities.
The main idea of the project is to promote tourism in such a way it leads to positive impact through design and strategies instead of negative through excessive commercialization of the place. It should not only serve facilities while it work comprehensively with people, built form,



Elements of Design

With the idea of minimal impact on the site through built form, no cut and fill has been done on the site, which will try to retain the character of the whole site.

Stepped terrace of the site is retained through minimal ideation or hardscape on the whole site for landscaping.

Since views is one of the main design factor, every building is placed such that it captures the maximum views with proper distancing at every level.

Symmetric Design in terms of plan and equal massing for Earthquake resistance.

Use of local materials such as stone and wood with minimum usage of concrete.

Using steps and further developing them as interaction spaces.

Creating little nodes as viewing points and decks and trails with landscaping elements with interconnected steps.

Play with levels.

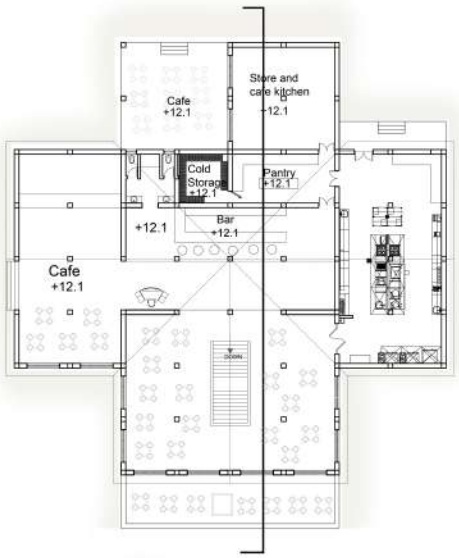
4.4.9. Site synthesis - Site Zoning

The site is divide into 3 zones, with hiearchy of spaces within the site staring from public zone, semi-public zone and further private zone.

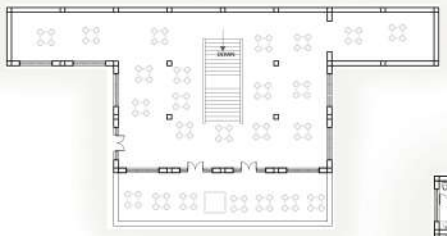
The site is divided through central spine with plaza and different pulic spaces running from top the site till the bottom which consist of decks, OAT, market area, seating spaces, play area, spa and meditation area with changing levels. It is further designed with every level change and the degree of privacy involved in it.

While the area adjacent to village building is left wihout any construction and only temporary structures in such that it does not block any sunlight for the residents and it act as buffer zone for them. Certain function such as market area is designed in the public zone which includes equal inteaction of vistors and local inhabitants.

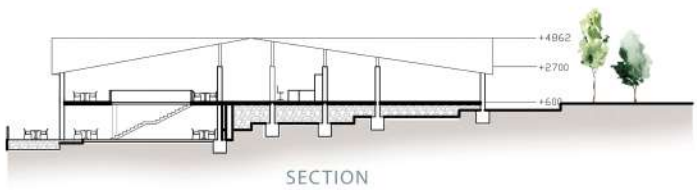
Central plaza divides the space into 2 parts one with visitors center, admin exibition area while other have restaurant, staff accomodation and services for the stay, all the building are designed with symmetrical plan and division of equal massing.



GROUND FLOOR PLAN

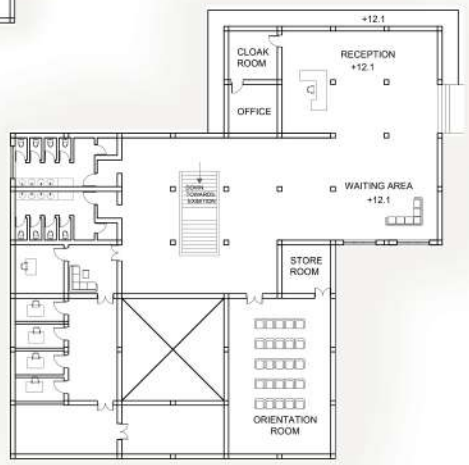


FIRST FLOOR PLAN



SECTION

RESTAURANT BLOCK



GROUND FLOOR PLAN

VISTOR AND EXHIBITION CENTRE

02. PLANS, SECTIONS AND ELEVATIONS

SCALE-1:400

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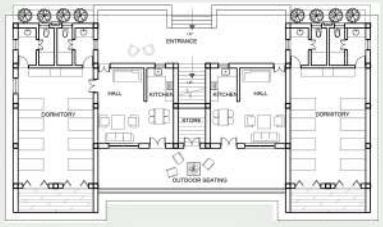
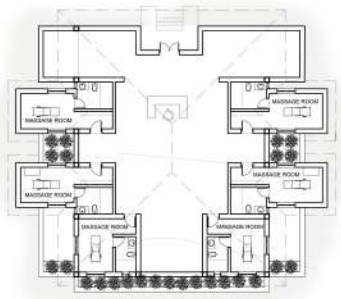
GROUND FLOOR PLAN

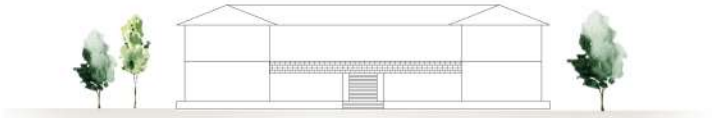


FIRST FLOOR PLAN

ELEVATION



GROUND FLOOR PLAN



SECTION

DORMITORY BLOCK

SECTION

ELEVATION

SPA CENTRE

03 PLANS, SECTIONS AND ELEVATIONS

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PLAN

SECTION

1. Main Entry/ Exit
2. Central Plaza
3. Visitors Center & Exibition Area
4. Restaurant
5. Market Area
6. OAT
7. Spa and Meditation Center
8. Lodging unit 1
9. Lodging unit 2
10. Lodging unit 2
11. Lodging unit 2
12. Viewing deck
13. Staff Accomodation and Services

01. SITE PLAN

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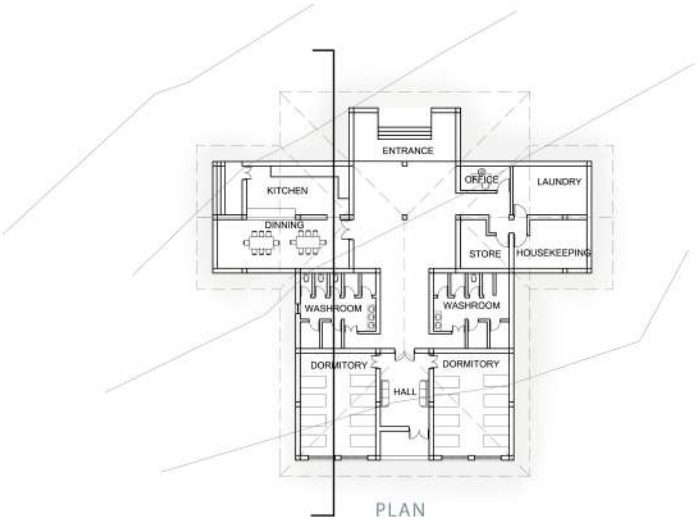
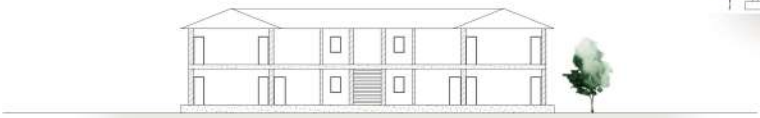
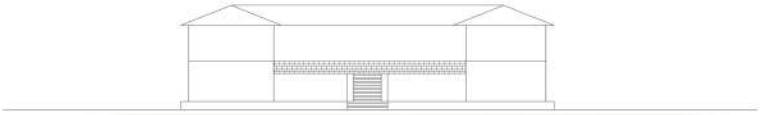


PLAN

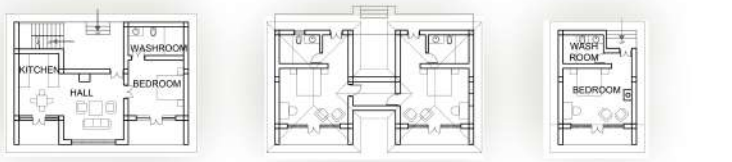


SECTION



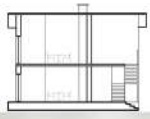
ELEVATION

STAFF ACCOMODATION BLOCK



PLANS

ELEVATIONS



SECTION

LODGING UNIT BLOCKS

04. PLANS, SECTIONS AND ELEVATIONS

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