Design of Eco-Art Resort at Pali, off Mumbai Pune Expressway. Sem2 2011 - 2013

ECO ART RESORT

An eco resort is a resort that uses nature friendly resources for everything from construction to cleaning products. These resorts also refuse many of their items and try to maximize their ecological impact as much as possible.

Comparison between Resort and Ecovillage

<table>
<thead>
<tr>
<th>Resort</th>
<th>Ecovillage</th>
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</thead>
<tbody>
<tr>
<td>1. A resort is a place used for relaxation</td>
<td>Ecovillages are intentional communities</td>
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<tr>
<td>or recreation, attracting visitors for</td>
<td>with the goal of becoming more socially,</td>
</tr>
<tr>
<td>holidays or vacations. Resorts are places,</td>
<td>economically and ecologically sustainable.</td>
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<tr>
<td>towns or sometimes commercial establishment</td>
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<tr>
<td>operated by a single company.</td>
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<tr>
<td>2. A place that is a popular destination</td>
<td>They are not government sponsored</td>
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<tr>
<td>for vacations or recreation, or which is</td>
<td>projects, but grassroots initiatives.</td>
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<tr>
<td>frequented for a particular purpose.</td>
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<td></td>
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<tr>
<td>3. A resort can be an expensive vacation</td>
<td>Ecovillages are urban or rural communities</td>
</tr>
<tr>
<td>and often hosts many visitor activities</td>
<td>of people, who strive to integrate a</td>
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<tr>
<td>and attractions such as golf, water sports,</td>
<td>supportive social environment with a low-</td>
</tr>
<tr>
<td>spa and beauty facilities, skiing, natural</td>
<td>impact way of life. To achieve this, they</td>
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<tr>
<td>ecology and tranquility.</td>
<td>integrate various aspects of ecological</td>
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<tr>
<td></td>
<td>design, ecological building, green</td>
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<tr>
<td></td>
<td>production, alternative energy, community</td>
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<tr>
<td></td>
<td>building practices, and much more.</td>
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<td></td>
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<tr>
<td>4. The term &quot;resort&quot; is now also used for</td>
<td>Their residents have a strong sense of</td>
</tr>
<tr>
<td>a self-contained commercial establishment</td>
<td>shared values, often characterized in</td>
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<tr>
<td>which attempts to provide for most of a</td>
<td>spiritual terms.</td>
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<tr>
<td>vacationer's wants while remaining on the</td>
<td></td>
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<tr>
<td>premises, such as food, drink, lodging,</td>
<td></td>
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<tr>
<td>sports, entertainment, and shopping.</td>
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<td></td>
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<tr>
<td>5. The term may be used to identify a</td>
<td>They often serve as research and</td>
</tr>
<tr>
<td>hotel property that provides an array of</td>
<td>demonstration sites, offering educational</td>
</tr>
<tr>
<td>amenities and typically includes</td>
<td>experiences for others.</td>
</tr>
<tr>
<td>entertainment and recreational activities.</td>
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<td></td>
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<tr>
<td>6.</td>
<td>Ecovillages are green communities on the cutting</td>
</tr>
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<td></td>
<td>edge of sustainable human development.</td>
</tr>
</tbody>
</table>

CLIMATE

Average Rainfall : 2500-3000MM
Minimum Temperature : 16.1 Degree Celsius
Maximum Temperature : 40.4 Degree Celsius
Relative humidity : 41 - 97%

Climate and site

The site has slope towards SE orientation and hence the predominant wind from will flow from rocky mounds to the slopes downslopes. The wind with maximum will carry dusty winds with high temperatures will be obstructed by existing vegetation. Hence cooler and clean breezes will flow through the site.

Also, wind will be slow down as it will pass through the mounds towards the slope. The secondary wind will flow from SE orientation, i.e from water body will also

EXISTING SITE CONDITION

The above image showing the existing site with closely spaced contours at a slope of 1:10 slope. The site has existing vegetation in pockets in western and southern orientation. A small water body is existing on the lower most slopes at east orientation. The site has a rocky mounds on the west orientation.

Wind direction and velocity

In summers, the predominant wind flow is from W and NW orientation. The wind is flowing with velocity of 35 km/h. Whereas secondary wind direction is SE and wind velocity is around 25 km/h.

Humidity

In morning times, the relative humidity is varying from 40-70% whereas in it is ranging from 75-90% in the evening times. In rainy season, the humidity is highest in morning as well as in the evening times.

PROPOSED ECO ART RESORT AT PALI, RAIGAD

PROPOSED ECO ART RESORT AT PALI, RAIGAD

M. ARCH. IN ENVIRONMENTAL ARCHITECTURE
MONICA K. VIBHUTI N. GITESH S. SACHIN W.

SEM XII GROUP - D AD STUDIO II

RACHANA SANSAD'S INSTITUTE OF ENVIRONMENTAL ARCHITECTURE
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BRIEF

CLIENT'S BRIEF
- RESORT AREA = 9.26 ACRES
- PHASE WISE DEVELOPMENT - PHASE 1 & 2 - 12 COTTAGE TYPE UNIT EACH [500-800 SQ. FT]
- LANDSCAPING PERTAINING THE SITE ECOLOGY USING INDIGENOUS SPECIES
- PLANTATION OF FOREST AREA TREES AT 6 METER SPACING, SHRUBS AT 3 METER SPACING
- PLANTATION OF WATER MARGIN ON TWO SIDES OF THE LAKE TREE PLANTATION.
- STREAM SIDE PLANTATION: BANKS OF THE STREAM AREA TO BE PLANTED WITH THE SHRUBS AND CREEPERS.
- OPEN AREA: AREAS RAISED AFTER THE EXCAVATION OF THE LAKE AREA TO BE PLANTED WITH SMALL TREES AND SHRUBS AT 3 METER SPACING AS PER THE SPECIES LIST.
- RESORT AREA TO BE PLANTED IN STAGES POST CONSTRUCTION
- ISSUES TO BE DEALT WITH: GRADIENT, DEPTH, BUND, ACCESS WALKWAY, SOIL EROSION, LINED PONDS, CULVERTS, PERCOLATION PONDS.

DESIGN BRIEF

WITH A UNIQUE VISION TO BUILD ECO-ART RESORT THIS PROJECT WOULD NOT ONLY SUCCUMB TO ACCOMMODATE PEOPLE WITH LOVE TOWARDS NATURE BUT ALSO OPEN UP A VISION FOR COMMON MAN TOWARDS SUSTAINABLE LIVING.

THE COTTAGES/VILLAS SO DESIGNED WOULD USE THE VARIOUS PASSIVE TECHNIQUES AND SUSTAINABLE METHODOLOGIES AND ALSO PROMOTE A LUXURIOUS SUSTAINABLE LIFESTYLE BY IMPOSING VARIOUS STAGE WISE ACTIVITIES FOR THE END USER TO FOLLOW AND GROW WITH AS HE RELISHES HIS STAY HERE.

THE FINAL PRODUCT OF THE DESIGN PHASES WOULD BE AN ECO-HOUSING CLUM OF 'STIMULATION-HOUSING' WHERE IN THE USER LEARNS AND BREEDS SUSTAINABILITY AND ENHANCES HIS SENSES TOWARDS THE SAME BY HIS EXPERIENCE STAYING WITHIN.

AS PER CLIENT'S PERSPECTIVE FOR THE DEVELOPMENT OF THE ARTIST RESORT AT PALLI SITE, THE DESIGN BRIEF IDENTIFIES A NUMBER OF CENTRAL THEMES FOR THE INTEGRATION OF SUSTAINABLE DEVELOPMENT PRINCIPLES AND PRACTICES: VIZ:
- LAND USE
- TRANSPORT
- ENERGY
- IMPACT OF BUILDINGS/BUILDING ORIENTATION
- BUILDING MATERIALS
- LANDSCAPE
- ECOLOGY
- SOCIAL WELLBEING
- PROCUREMENT

GOAL

DEVELOPMENT OF AN 'ECO-RESORT' BY ENHANCING BIO-DIVERSITY AND REFRAINING SOIL-EROSION

OBJECTIVES
- EFFICIENT UTILIZATION OF AVAILABLE RESOURCES
- MITIGATION OF MICRO-CLIMATIC CONDITIONS
- MINIMIZE BUILDING FOOTPRINT
- RETAINING AND OPTIMIZING GREEN BELTS
- MAINTAINING HABITAT VALUE
- ARRESTING AND CHANNELIZING SURFACE WATER
- DIRECTING SOIL MOVEMENT
- MINIMIZE THE DISTURBANCE OF NATURAL CONTOUR

SOIL STUDY

FACTORs DETERMINED BASED ON SOIL CONDITIONS:
- LANDSCAPES
- AGRICULTURE
- FOUNDATIONS / CONSTRUCTION METHODOLOGY

VARIABLES FOR SOIL AND GEOLOGY ANALYSIS
- TEXTURE
- STRUCTURE
- DENSITY
- POROSITY
- CONSISTENCY
- TEMPERATURE
- COLOR
- RESISTIVITY

SOIL TYPE

TYPES
- SOFT MURRUM
- HARD MURRUM
- CLAY SOIL
- SANDY CLAY
- BLACK BANDS
- RED BANDS
- SLAG MOUND
- TYN

CHARACTERISTICS
- The soil is susceptible to erosion.
- Heavy rains coupled with steep slopes are attributed to accelerated soil loss from the region.
- Shallow depths of foundations.
- Organic farming can be done.
- Organic farming can be done. High moisture hence deep foundations can be proposed.
- Soil has a good water holding capacity and is well suited for deep rooted crops.
- The black soil in wet condition is compact and sticky.
- Soil is broken by Apartheses of soil brought down by the water channels / rivers.
- It is rich in hydrated oxides of iron and is very fertile.
- The black cotton soil has a good water holding capacity.
- Basalt is lava that has cooled rapidly above the surface or underwater, causing it to be fine-grained.
- It is usually grey or black and contains crystals.
- Hard in nature.

INTERPRETATION
- GROWING MEDIUM (CLAY)
- SOFT MURRUM
- HARD MURRUM
- HARD STRATA

PROPOSED ECO ART RESORT AT PALLI, RAIGAD

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SLOPE ANALYSIS

LEAST SUITABLE FOR CONSTRUCTION

EXISTING SOIL AND GEOLOGY

GRID METHOD FOR LAND SUITABILITY

WATERSHED ANALYSIS

LEAST SUITABLE FOR CONSTRUCTION

LAND SUITABILITY FOR CONSTRUCTION

EXISTING VEGETATION PLAN

LEAST SUITABLE FOR CONSTRUCTION

MANUAL LSA FOR CONSTRUCTION

LAND SUITABILITY FOR SOIL EROSION

PROPOSED ECO ART RESORT AT PALLI, RAIGAD

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CONCEPTUAL MASTER PLAN

BIO-DIVERSITY – VARIATION OF LIFE FORMS IN A SINGLE BIOME OR ECO-SYSTEM

WATER CALCULATIONS

SOIL EROSION CONTROL MEASURES

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Proposed Eco Art Resort at Pali, Raigad

Model Views

South Side View

North Side View

South-East Side View

Cluster - 1BHK & 2 BHK

1 BHK

2 BHK

Interaction Spaces

2 BHK - Ground Floor Plan

2 BHK - First Floor Plan

Total Area: 980 Sq.M.

Rachana Sansad’s Institute of Environmental Architecture
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PROPOSED ECO ART RESORT AT PALLI, RAIGAD

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