

**Introduction:**

An Art and Craft Center is a dedicated facility or institution that focuses on the preservation, promotion, and advancement of various forms of visual arts and crafts. These centers serve as hubs where artists, artisans, and enthusiasts come together to engage in creative pursuits, skill development, and cultural preservation in the heart of Chhattisgarh. This project celebrates the cultural heritage of Chhattisgarh.

**Aim:**

To design a socio-cultural and art center which bridges diverse culture of the society through art forms which will promote the sense of culture and community in a society that is rapidly urbanizing and to provide a platform to various artist to showcase their talent.

**Objective:**

- Preservation of Cultural Heritage
- Skill Development & Training
- Economic Empowerment
- Community Integration

**Scope:**

- Art and Craft Categories
- Geographical Focus
- Training Programs
- Market Linkages

**Arts And Crafts of Chhattisgarh**

**PERFORMING ARTS: FOLK DANCE**

<p><b>Khado Nacha</b> Performed during the festival of Navratri. Men and women dance in a circle while holding sticks.</p>	<p><b>Naxhi</b> Gentle gesture and synchronized steps are used to narrate stories related to religion and folk legends.</p>	<p><b>Karma</b> Performed during important celebrations by women, aimed at seeking blessings from village deities.</p>	<p><b>Soko (with Bathav song)</b> The dance is performed during important marriage events by the bride and her friends.</p>	<p><b>Pandavani</b> Stories, drama &amp; songs. Narrates folk tales and legends from the Indian epic Mahabharata through expressive dance movements, melody instruments and lyrics.</p>
<p><b>Chercheri</b> Folk Chercheri song. The festival is celebrated to mark the end of the harvest season and to express gratitude for the</p>	<p><b>Bauti Nacha</b> Bauti (folk song). They wear decorative masks and perform a series of rhythmic dances.</p>	<p><b>Gendi</b> Songs narrate experience of human life with strong spiritual message with prime focus on empowerment education.</p>	<p><b>Kakhar</b> Folk dance song. Celebrated in the monsoon season to invoke the blessings of the rain god, Kakan.</p>	<p><b>Suvi</b> Group dance or ensemble. Great scope showing graying of white, protection from animals, making and other</p>

**PERFORMING ARTS: FOLK SONG**

<p><b>Sohar</b> These songs narrate the tales with their lyrical melody and express a feeling of heartfelt pleasure to the groom of the</p>	<p><b>Gouru</b> Gouru songs are traditional offerings for the dance performance of the region, particularly to Lord Shiva and his consort, Goddess Durga.</p>	<p><b>Bhagol</b> Devites accompanied one another during the festival in the form of street readings, and the most treasured songs of the end of the festival as</p>	<p><b>Dando (with Gando Nahti)</b> Represents the vibrant and dynamic cultural life of the indigenous local residents.</p>	<p><b>Dhankul</b> Dhankul represents the rich artistic skills and creative imagination of the local inhabitants of the region.</p>
<p><b>Sua</b> The Festival of Lights, Dussh, is made even brighter by the presence of these mesmerizing performances.</p>	<p><b>Fag-</b> The fag song sung during spring season on atmosphere of general gaiety and merriment that serves as a bond for a brand new year full of harvest new ventures.</p>	<p><b>Khuswa</b> The Khuswa songs of Bhadrali depicts the arduous life of the parent towards their children.</p>	<p><b>Pathoni</b> Perform song is sung during ground occasion that sets value to a helpless wife</p>	<p><b>Dhankul</b> Dhankul represents the rich artistic skills and creative imagination of the local inhabitants of the region.</p>

**FINE ARTS**

<p><b>Pattachitra Art</b> Known for their intricate details and vibrant colors, and they often depict scenes from Hindu mythology.</p>	<p><b>Bhiti Chitra</b> The sculpted and painted clay water figures with heads of goats and gushkites, birds, animals.</p>	<p><b>Gadna Art</b> Ladies paint traditional motifs on textiles as well as various their bodies with cream.</p>	<p><b>Pithora Painting</b> These paintings are done on the walls of houses and are believed to bring good luck and ward off evil spirits.</p>
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**METHODOLOGY**

**EMPIRICAL LITERATURE**

Research (Shilpakar, Lakshmi, Hiranandani, Gupta, Shrivastava, Mishra, Singh, Bhatnagar, Kulkarni, Living Learning/Design/Art, Kulkarni)

**AIM**

The project aims to design a Center for Art and Crafts to help revive traditional Chhattisgarh. The center is dedicated to preserving and promoting the rich cultural heritage of local communities, and to focus on skill development, economic empowerment, and community integration.

**CONCEPTUAL LITERATURE**

- Focus on Arts and its process
- Study of Anthropometry
- Chhattisgarh Travel Anthology
- Human Factor Development and its Use
- Climate Study

To create a sustainable, culturally sensitive center that contributes to the local well-being and development of local communities.

To address the requirement according to the need of the purpose involved in the art forms.

To design considering the context and based on the existing of site.

**FORM**

Study of Chhattisgarh architecture to understand the existing opening, climatic response and nature of spaces.

**FUNCTIONAL CIRCULATION, ADVANCES**

Workshop of complex level level study to understand flow of services.

Study to create design and infrastructure needs.

**STRUCTURE**

Structural system is identified and components of the structure system are analyzed and materiality is assessed.

**SERVICES**

Space with management strategy.

Electrical and plumbing layout.

Fire Fighting system.

**CLIMATE RESPONSE**

Detailed analysis of heat & wind exposure.

Material selection based on local availability.

Passive, light ventilation and natural analysis.

**OPEN SPACE DESIGN**

Integration of open and semi-open spaces.

Study of courtyard architecture.

Understanding of various open spaces and their use.

**PROJECT ARGUMENT**

Represent the flow of use and circulation and building or other arts and crafts production centers of Chhattisgarh.

**CONTEXTUAL RESPONSE**

Analysis of cultural context, art & its use in modernity.

**DESIGN PROCESS**

Literature Study

Case Study

Site Analysis

Context Analysis

Concept Evolution

Site Plan

Detail Drawings

Service Plans

**CRAFTS**

<p><b>Dhokra or Bell Metal</b> Dhokra is made by casting molten metal into a hollow mold. This is done in an air-tight container to prevent the metal from oxidizing.</p>	<p><b>Wood Craft</b> Involves wood carving and often uses local tools, including hand planes and chisels.</p>
<p><b>Terra-cotta</b> Terra-cotta pottery represents the most common and recognizable craft products. The clay and glazes are fired at high temperatures.</p>	<p><b>Wrought Iron</b> Mainly made of recycled scrap iron, used in various forms like tools, furniture and building structure.</p>
<p><b>Stone Carving</b> The final stage of stone carving is the finishing stage, which involves polishing and smoothing the surface.</p>	<p><b>Kosa Silk</b> This one made of fine thread which is made from a kind of worm found in the forest. Hand woven and produced in India.</p>
<p><b>Tumba Art</b> Tumba means Tumbak (Copper) and Tumbak (Copper) and Tumbak (Copper) to make a solid container. This is done in a traditional way.</p>	<p><b>Bamboo Craft</b> The uses of the bamboo craft are in various forms like furniture, toys and decorative items.</p>
<p><b>Sisal Fibre</b> Traditionally, the sisal fiber is used to make various types of ropes, mats, and other decorative items.</p>	<p><b>Folk Ornaments</b> Women from the tribal areas of Chhattisgarh make a variety of ornaments. These are made of gold, silver, bone or metal.</p>
<p><b>Cowrie Craft</b> Cowrie shells are used to create various types of jewelry and decorative items.</p>	<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #f08080; border: 1px solid black;"></span> Full access</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #d3d3d3; border: 1px solid black;"></span> Semi access</li> </ul>

**CRAFTS ANTHROPOMETRY**

<p><b>DHOKRA / BELL METAL</b></p> <p><b>Clay Moulding (20%)</b></p> <p><b>Mix strips making (20%)</b></p> <p><b>Mould making (20%)</b></p> <p><b>Spinning (20%)</b></p> <p><b>Final Product</b></p> <p>No. of samples: 20 Time: 7 days Cost of Product: Rs. 300 - 2000</p>	<p><b>KOSA SILK</b></p> <p><b>Handspinning (20%)</b></p> <p><b>Final Product</b></p> <p>No. of samples: 20 Time: 7 days Cost of Product: Rs. 500 - 2000</p>
<p><b>TERRACOTTA</b></p> <p><b>Clay Moulding (20%)</b></p> <p><b>Final Product</b></p> <p>No. of samples: 20 Time: 7 days Cost of Product: Rs. 500 - 2000</p>	<p><b>WOOD CRAFT</b></p> <p><b>Carving (20%)</b></p> <p><b>Final Product</b></p> <p>No. of samples: 20 Time: 7 days Cost of Product: Rs. 500 - 2000</p>
<p><b>STONE CARVING</b></p> <p><b>Final Product</b></p> <p>No. of samples: 20 Time: 7 days Cost of Product: Rs. 500 - 2000</p>	<p><b>BARBOO CRAFT</b></p> <p><b>Final Product</b></p> <p>No. of samples: 20 Time: 7 days Cost of Product: Rs. 500 - 2000</p>
<p><b>TUMBA CRAFT</b></p> <p><b>Final Product</b></p> <p>No. of samples: 20 Time: 7 days Cost of Product: Rs. 500 - 2000</p>	<p><b>COWRIE CRAFT</b></p> <p><b>Final Product</b></p> <p>No. of samples: 20 Time: 7 days Cost of Product: Rs. 500 - 2000</p>
<p><b>SISAL FIBRE</b></p> <p><b>Final Product</b></p> <p>No. of samples: 20 Time: 7 days Cost of Product: Rs. 500 - 2000</p>	<p><b>FOLK ORNAMENTS</b></p> <p><b>Final Product</b></p> <p>No. of samples: 20 Time: 7 days Cost of Product: Rs. 500 - 2000</p>

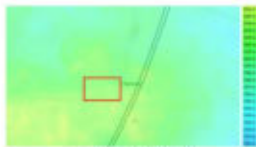


**SITE ANALYSIS**



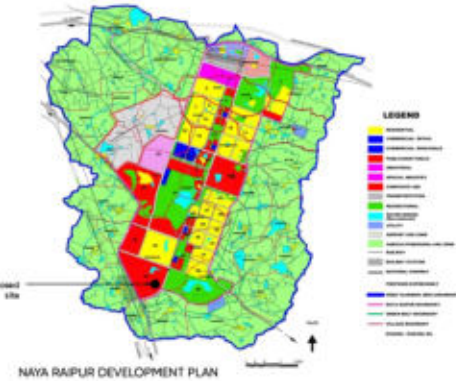
**LOCATION :** Sector 40, Uppawata, Aard Nagar - Naya Raipur, Raipur, Chhattisgarh, INDIA  
**LATITUDE :** 21° 22' 34" N  
**LONGITUDE :** 81° 47' 26.70" E  
**LANDMARK :** Indraprastha National Lake University  
**ELEVATION :** 225m above sea level  
**CLIMATE :** Dry and Warm

**Surrounding :** Surrounded by empty plots from 3 sides and one side by the north side.  
**Access :** Site is connected to 2 lanes road.  
**Soil :** The main soil types found on the site are Yellow soil. Red soil and laterite soil are also found in some areas.  
**Drainage Pattern :** Natural drains towards North East.  
**Hydrogeology :** Ground Water availability ranges from 3 to 10m below ground level.



**TOPOGRAPHY MAP**

The site is situated at 225m elevation from sea level.  
The site has flat terrain with occasional rising towards North-East direction.



**NAYA RAIPUR DEVELOPMENT PLAN**

**WHY ATAL VIHAR (NAYA RAIPUR)?**

**Introduction :**  
- Naya Raipur, officially known as Atal Nagar, is a planned, modern, for each sector - family city in Indian state of Chhattisgarh formed on 15 Nov, 2023.  
- The New Capital was established to serve as the administrative capital of the state and also cater to the infrastructure needs of industry and trade in the region.  
- Population: 5.5 million  
- Area: 65.67 sq km

Infrastructure	Current Plan	Proposed Plan
Water	Water Treatment Plant	Water Treatment Plant
Power	Power Plant	Power Plant
Transport	Transportation	Transportation
Health	Health	Health
Education	Education	Education
Recreation	Recreation	Recreation
Waste Management	Waste Management	Waste Management



**BY LAWS :**

**Landuse :**  
The area shall be developed with the following sub-divisions and development controls:  
1) Residential (General) (60% of the total land area)  
Maximum ground coverage: 20%  
Maximum Floor Area Ratio: 80%  
Maximum height: 30m  
2) Residential (High Density) (30% of the total land area)  
This shall be developed at a gross residential density of 250 units. Other development controls shall be as per that of residential area.  
3) Open and cultural activities (10% of the total area)  
Maximum ground coverage: 20%  
Maximum Floor Area Ratio: 10%  
4) Parks and landscape (10% of the total land area), suitable landscape plan to be prepared for this area.  
**Parking :**  
Layout Plan for circulation and access to area and vehicular area shall be prepared with 10% area for vehicular parking and 30% of the area reserved for roads, paths, parking and other road stopping. Minimum road width shall be 15m.  
**Table 04: Parking Standards for different use**

Use	Area	Requirement for open area (%)
1. Residential (General)	100	10
2. Residential (High Density)	100	15

For the purpose of the Parking spaces, the gross residential density shall be as per the open parking - 250 per sq. meter of open area.  
For the ground floor covered parking - 100 per sq. meter of open area.  
For the basement parking - 200 per sq. meter of open area.

**Setback :**  
The provision of minimum setbacks of the building is as per the table below for different use of plot for all categories of use. As per the following table.

**Table 05: Setback Standards for different plot use**

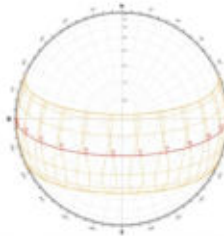
Use	Plot Area (sq. m)	Front	Side	Back	Height
1. Residential (General)	100	3	3	3	3
2. Residential (High Density)	100	3	3	3	3
3. Open and cultural activities	100	3	3	3	3
4. Parks and landscape	100	3	3	3	3
5. Commercial	100	3	3	3	3
6. Industrial	100	3	3	3	3
7. Public Use	100	3	3	3	3
8. Institutional	100	3	3	3	3
9. Government	100	3	3	3	3
10. Other	100	3	3	3	3

**Table 06: FAR Standards for different use**

Use	Area	Requirement for open area (%)
1. Residential (General)	100	10
2. Residential (High Density)	100	15

**CLIMATE :**

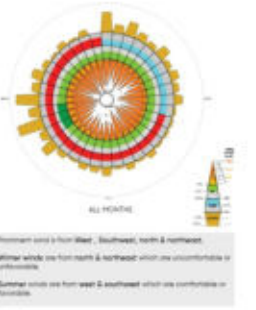
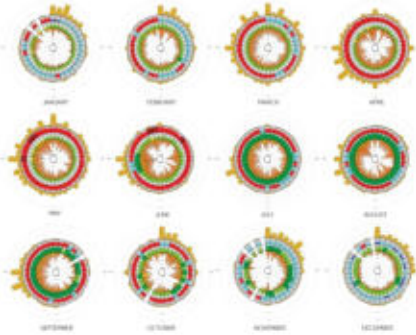
**SUNPATH DIAGRAM**



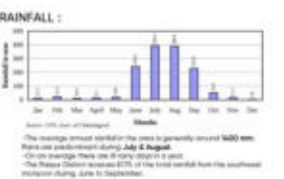
India is located near to the equator. It has the higher altitude angle due to which it experiences high sun altitude.  
Summer Solstice - altitude - 90° azimuth - 074°  
Autumn Equinox - altitude - 41.27° azimuth - 45.8°  
Winter Solstice - altitude - 17.6° azimuth - 344.8°  
Maximum day sun temperature - 43°C  
Maximum relative humidity - 95%  
Minimum rainfall - 70 mm (2.75")  
Minimum wind speed - 140 km/h (87 mph)  
Minimum humidity - 32% (at 100%)



**WIND ANALYSIS**



**TEMPERATURE AND HUMIDITY**



**TEMPERATURE :**

Month	Mean monthly max Temp (°C)	Mean monthly min Temp (°C)	Absolutum of monthly max (°C)
Jan	24.5	12.5	37.0
Feb	26.5	14.5	41.0
Mar	29.5	17.5	47.0
Apr	33.5	21.5	55.0
May	37.5	25.5	63.0
Jun	40.5	28.5	69.0
Jul	38.5	26.5	65.0
Aug	34.5	22.5	57.0
Sep	30.5	18.5	49.0
Oct	27.5	15.5	43.0
Nov	24.5	12.5	37.0
Dec	22.5	10.5	33.0

**RELATIVE HUMIDITY :**

Month	Mean	Max	Min
Jan	75	85	65
Feb	70	80	60
Mar	65	75	55
Apr	60	70	50
May	55	65	45
Jun	50	60	40
Jul	45	55	35
Aug	40	50	30
Sep	45	55	35
Oct	50	60	40
Nov	55	65	45
Dec	60	70	50

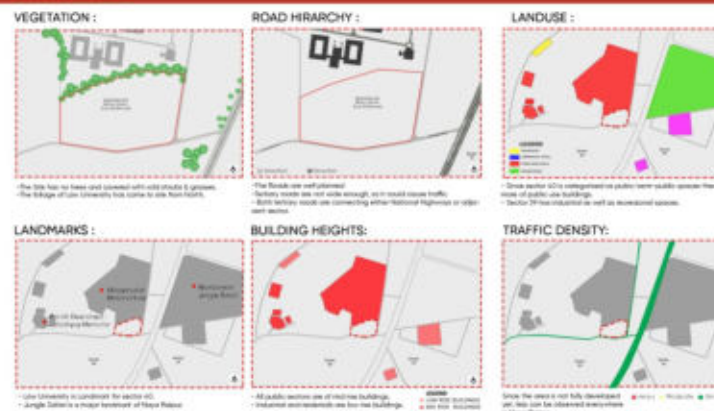
**PSYCHROMETRIC CHART**



**PSYCHROMETRIC CHART**



**SITE CONTEXT :**



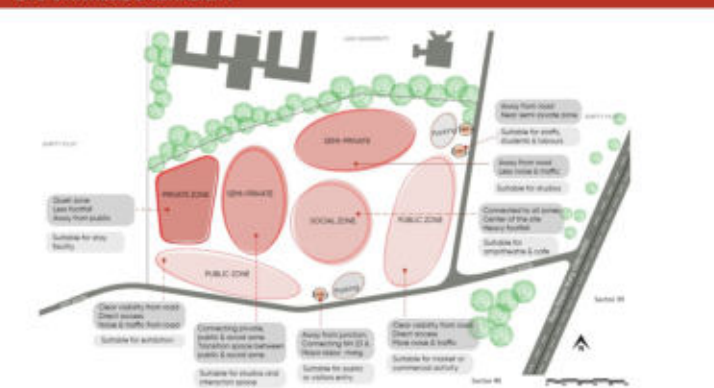
**MICRO CLIMATE :**



**SITE PICTURES**



**SITE SYNTHESIS & SUITABILITY**



### Symbolism of Tribal culture

**Architecture**

- Self planned and unrepresented houses formed from clusters.
- Simple Planning, readily available or commonly growing materials, common with very less or no steel reinforcement.
- Use of earthy or sustainable materials for construction.

**Connection With Nature**

- Thinks have strong connection with nature, with traditional beliefs and practices that require around forest and animals.
- Use sustainable materials for living.

**Traditional & Modern**

Merging cultural and traditional architectural beliefs and methods with existing Modern style of Naya Raipur.

**Communal Living**

- Focus a recreation gathering space.
- Love to spend time together.
- Live in close knit communities.

### Design Strategies

**SITE LEVEL STRATEGIES**

- Planting:** Maximize greenery and use native plants for low maintenance and shade.
- Courtyards:** Create open-air courtyards for ventilation and social interaction.
- Landscaping:** Use trees and shrubs for shade and windbreak.

**BUILDING LEVEL STRATEGIES**

- Passive Solar Strategies:** Optimize window placement for natural light and heat gain.
- Building Orientation:** Align buildings to maximize natural light and ventilation.
- Natural Ventilation & openings:** Use cross-ventilation and operable windows.
- Building Form:** Use simple, rectangular forms for efficient space use.
- Shading Device:** Incorporate overhangs and louvers for sun protection.
- Daylighting:** Maximize natural light through strategic window placement.
- Materials:** Use locally sourced, sustainable materials like brick and stone.

### ZONING

Staff & Students quarters  
Visitors courtyard  
Exhibition gallery exhibition  
Public Spaces  
Social Spaces  
Sports ground  
Private Spaces

Setting spaces are grouped together towards north side of site for privacy from street as well as easily accessible from service entry.

Amphitheatre is connected off the spine to create a place open to everyone.

Hotel moves further to central portion.

Public spaces are centrally placed from entry which is sitting to a point of attraction.

Open spaces are centrally placed for all.

Hotel moves further to central portion.

Public spaces are centrally placed from entry which is sitting to a point of attraction.

Open spaces are centrally placed for all.

### VOLUMETRIC ANALYSIS

Open space for residential building is placed made to get sunlight.

Residential spaces are at the back of the site.

Roofed outdoor space between to provide them of the shade so that they can use it properly.

Volume of space increasing while getting inside the cluster to give them privacy while maintaining low density as well.

Clear view is faced towards north to create the open space.

Volume of space increasing while getting inside the cluster to give them privacy as well as welcoming area.

Longer facade towards north and south for good amount sun light.

Public Spaces are placed together side open space to increase connecting them as well as welcoming nature.

Open spaces are centrally placed from entry which is sitting to a point of attraction.

Open spaces are centrally placed for all.

### AREA PROGRAM

**WORKSHOPS OR TRAININGS**

- Workshop 1: Cultural Heritage
- Workshop 2: Skill Development & Training
- Workshop 3: Community Engagement

**MARKET PLACE**

- Market 1: Local Products
- Market 2: Handicrafts

**INTERACTION SPACES**

- Amphitheatre
- Conference Hall
- Meeting Room

**ADMINISTRATION**

- Office
- Reception
- Storage

### MASSING INSPIRATION (CHHATTISGARHI VERNACULAR ARCHITECTURE)

**SHADED COURTYARD**

Roof is made up of red brick clay tiles supported by timber frame. This roof form spans in between which helps in ventilation.

Opening between roof and wall leaves a proper light & ventilation.

**LIGHT AND VENTILATION**

Roof is made up of red brick clay tiles supported by timber frame. This roof form spans in between which helps in ventilation.

Opening between roof and wall leaves a proper light & ventilation.

### CLIMATE ANALYSIS

#### SHADOW ANALYSIS

SPRING EQUINOX - 9 AM (100%)  
SPRING EQUINOX - 12 PM (100%)  
SPRING EQUINOX - 3 PM (100%)

SUMMER EQUINOX - 9 AM (100%)  
SUMMER EQUINOX - 12 PM (100%)  
SUMMER EQUINOX - 3 PM (100%)

AUTUMN EQUINOX - 9 AM (100%)  
AUTUMN EQUINOX - 12 PM (100%)  
AUTUMN EQUINOX - 3 PM (100%)

WINTER EQUINOX - 9 AM (100%)  
WINTER EQUINOX - 12 PM (100%)  
WINTER EQUINOX - 3 PM (100%)

Shade will be highest outside during summer thus we receive very less shade. Design strategies like trees and shading devices can be used for shade.

During Summer & Spring, windable and some portions of courtyard can be shaded.

Shade will be on site outside during winter we receive good amount of shade.

#### SHADING DEVICE CALCULATION

Summer: 10° Winter: 40°

VSA 100% (40deg) VSA 100%

Summer VSA = 10° Winter VSA = 40°

Overhang Depth = Height of window / Tan (VSA) = 1.80 / Tan (10) = 10.27m

Effect is rather substantially, but mutually dependent.

Using multiple shading devices on different levels.

Shade is covering window Demand: Not dependent.

Using window located in window wall will not harm site.

High: Low shading South, East, West, North, Southwest, Northwest.

### CLIMATE ANALYSIS (EDGE)

**ENERGY MEASURES**

- Energy is saved heat when building is oriented towards north.
- High energy savings with 20% WSW.
- Roof insulation of 100mm saves 20.25 energy.
- Glass with 20 (W) and 2.42 (SW) saves 4.5%.
- Natural Ventilation to 20% Heat-Coefficient saves 23.8%.
- Living Green Home saves 3.8%.
- Energy Saving Lights - External spaces saves 54%.
- Occupancy Sensor in Bathrooms, Closets saves 1.8%.
- Using of energy intensive with maximum efficiency PV panels will help to save 100% of energy with 12P year as payback duration.

**WATER MEASURES**

- Recycling system saves 46.6% of water compared to traditional flushing system.
- 23.08% of water savings are possible by using water efficient fixtures.

**MATERIAL MEASURES**

- Evity Concrete with + 20% PFA increases the inherent embodied energy saving to 38.5%.
- Strength 100% Compressed Bricks saves 10.2%.

### CLIMATE ANALYSIS (IGBC)

Achieving 42 credit points by using all these interventions (below) measures on

#### SUSTAINABLE TRANSPORTATION

IGBC Mandatory Requirement 1: Green Buildings within the Context

- Site Area = 10000 sq. m
- Roof Area = 5000 sq. m
- Site up-keep = 25%
- Area to greenery = 25000 sq. m

#### WATER CONSERVATION

IGBC Mandatory Requirement 1: Rainwater Harvesting

- Roof Area = 5000 sq. m
- Roof Slope = 5%
- Roof Catchment Area = 25000 sq. m
- Roof Slope = 5%
- Roof Catchment Area = 25000 sq. m

#### WASTE MANAGEMENT

IGBC Mandatory Requirement 1: Segregation of Waste, Post-consumption

- Waste Segregation = 40%
- Waste Recycling = 10%
- Waste Disposal = 50%



PLANTATION

- Pongamia
- Pinnata
- Mahua
- Flumenia Rubra (Chempal)
- Mango Tree
- Tisham Tree
- Terminalia
- Rain Tree

HARDSCAPES

- Favement
- Cobblestone with grass
- Basketweave Brick Pattern
- Stone setts



MASTER PLAN AND LANDSCAPE PLAN SCALE 1:300





Section AA



GROUND FLOOR MASTER PLAN

SCALE 1:300



FIRST FLOOR MASTER PLAN

SCALE 1:300



Bird Eye View (South)



Site View (East)



Site View (North)



Staff & Students Entry View



Visitors Entry View



Market Bird Eye View



Market View

# CLUSTER DETAILS



Dr. Bharuben Nanavati College of Architecture  
Rashi Agrawal  
Guide by - Prof. Anjali Verma  
ADP 2023-2024

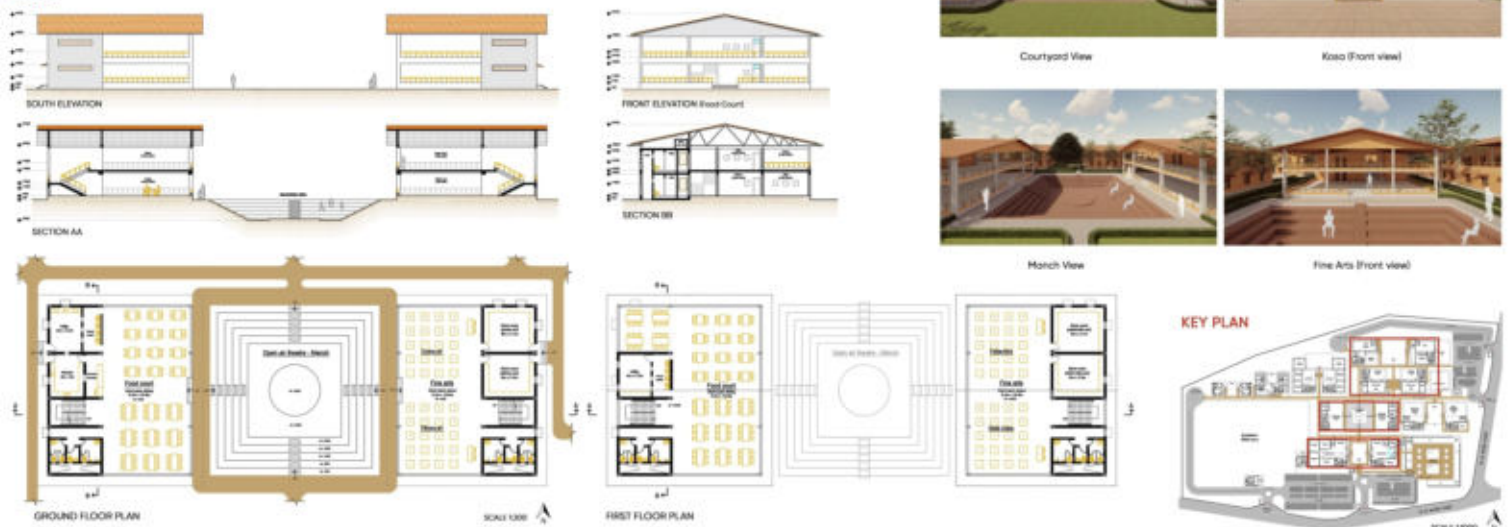
## ENTRANCE CHOWK



## VANAANGAN



## MANCH



DHATU AANGAN



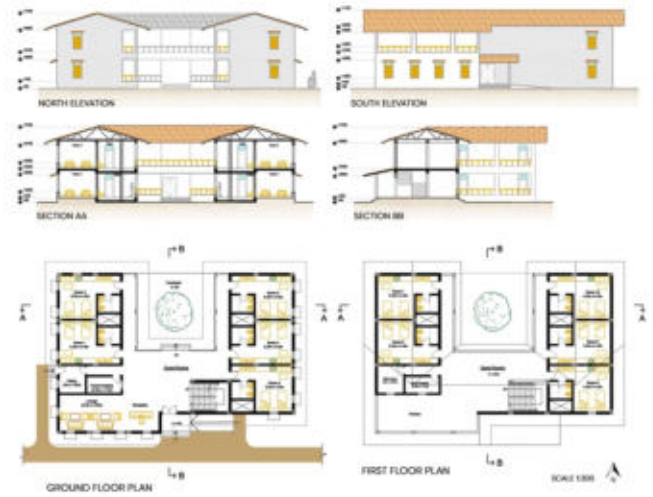
VILLA



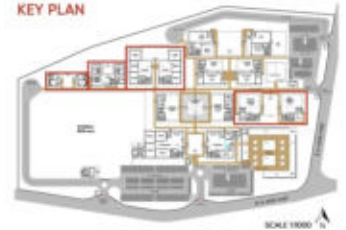
PERFORMING ARTS



GUEST HOUSE



KEY PLAN



SERVICE LAYOUTS

