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MITHILA ARTS AND CULTURE CENTER

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BY:

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ABSTRACT

Ethnicity of the people is determined by the culture of the region. Nepal is a small country with a diverse geography, society and culture. Maithili is an ethnic minority with rich culture, arts, language and architecture style. Architecture is the relationship between settlement pattern, house shape, size and orientation, material and technology which responds to the climatic, geographical, cultural and social norms of society. The Mithila Art and Culture Center is proposed for Janakpur to conserve and advance art, culture, and tradition. It focuses on the Mithila of Dhanushadham, which is rapidly vanishing due to the spread of contemporary concepts and amenities. The project will offer performances, craft demonstrations, product sales, exhibition halls, galleries, libraries, auditoriums, outdoor theaters, areas for product presentation and sales, cafeterias, lodging buildings, museums, and art studios. The primary goal is to develop a variety of collections, such as intriguing places, to satisfy its diverse requirements and establish it as the district's first center.

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CHAPTER 1- INTRODUCTION TO PROJECT

1. INTRODUCTION

Mithila culture is famous for its unique art which is Mithila art. Mithila art is one of the most ancient folk and indigenous art of Maithili people. It is said that Mithila art was originated about three thousand years back when great Aryans started a settled life in this region and had started making pictures on the walls for making decoration. The art gives stress upon the cultural background of Maithili people and captures the everyday life, the moments of rituals, festivals, social life etc. of Maithili people. These arts depict not only the everyday lives and activities of Maithili people but also express their religious figures in symbolic ways. This unique, highly traditional art can be seen on most of Maithili household work in the Mithila region, Southern Terai of Nepal. Traditionally Women are involved in it but men are also found to be involved nowadays. Mithila art are made on handmade Lokta papers and handmade cotton clothes, and these days these arts are done by modern brushes and acrylic colors.

Different types of crafts are made by Maithili people which vary according to the materials. Mithila crafts include Bamboo crafts, Taw (*sikki*) crafts**,** cloth making, Utensils making, Clay-modelling and potteries and Terracotta's, wood work, art of making garland, Matting, Tattooing, Doll making, Art of making color.

By today's date this art and crafts has been exposed to the whole world and its market value has been increasing day by day and most of the women artists of Mithila are able to earn decent income from this art. But more works has to be done for promotion of this art world wide. Mithila culture is not only limited to historical stories, beliefs, Mithila arts and crafts but also depicts a different life style with its unique features, rites and cultures which is expressed by all the big and small activities performed everyday by the people of Mithila. Not only daily activities but whole life process of a person also expresses the rituals and culture of Mithila and describes how Mithila community functions.

People are forgetting these things with the modern lifestyle. It is very necessary to preserve Mithila art from disappearing as it is an indigenous art of Maithili people and carries cultural background of Maithili people. Mithila arts has been exposed to some extent due to commercial interest of people. Mithila women with the interest in Mithila art are able to earn decent income by commercializing it. But still is not able to achieve the position popularity in front of whole world. Maybe it is due to the lack of any institution and organization in Mithila society from ancient period which gives any formal training about it. So, establishment of such institution

is also necessary and an art and craft gallery for exhibition and promotion of Mithila art is required.

Mithila culture is one of them which is in the verge of extinction so, nothing can play the better role than an art and culture center to protect and promote Mithila culture. In one hand the culture is in the state of extinction while in other hand some of the projects are being held for its conservation and development and discussing about Mithila culture and art. This project in the context of the developing stage of Mithila art and culture is very relevant as an artist needs an arena to expose his works. As in Mithila region there is hardly any such place and none of the buildings are truly designed for the sole purpose of training, exhibition and promotion of art and cultural activities. Even though Maithili women are known for their traditional art, especially their paintings on pottery, walls and courtyards and also these paintings are famous internationally but still there is need of such place where both learning and interacting goes side by side. In the modern days interaction and entertainment also plays big role in value and life of that place. An art and culture center can provide such platform for demonstration of significant act where public are entertained.

The art and culture center are an organization, building or complexes that promote the handmade arts, crafts and culture. It can be neighborhood community arts organizations or government organizations where funding is sponsored by government itself, or any private bodies, NGO's. INGO's organizations. The development of Mithila art and craft helps the conservation of Mithila heritage, religion and culture which in return contributes to appease poverty by creating the job opportunities for the artist and crafts men.

1.1. BACKGROUND

Mithila is an ancient cultural region lying between the lower ranges of the Himalayans and the Ganges River. It extends into the eastern Terai of Nepal. Mithila is a mosaic of various ethnic groups.("Mithila (Region)," 2023)

The different ethnic groups are famous for their different features. Mithila culture is famous for its unique art which is Mithila art. Mithila art is one of the ancient folk arts of the world and indigenous art of Maithili people. It is said that Mithila art was originated about three thousand years back when great Aryans started a settled life in this region and had started making decoration. The art gives stress upon the cultural background of Maithili people. These arts depict not only the everyday lives and activities of Maithili people but also express their religious figures in symbolic ways. This unique highly traditional art can be seen on most of

Maithili household work in the Mithila region, southern Terai of Nepal. Traditionally women are involved in it but men are also found to be involved nowadays.

Another interesting fact about it is that no particular formal training is given for this art, it is passing on form one generation to another (from mother to daughter) in every family in Maithili society. Mithila arts are made on handmade lokta papers and handmade cotton clothes and these days, these arts are done by modern brushes and acrylic colors.

The impact of faster change in every field and modernization has also affected Mithila arts. Mithila painters are not applying their indigenous knowledge only in their household works and rituals; they also want to expose their artistic talent all over the world like other contemporary folk arts. Today this art has been exposed to the whole world. Its market value has been increasing day to day and most of the woman artists of Mithila are able to earn decent income from this art. But more works has to be done for training and production of arts and crafts.

2. PROBLEM STATEMENT

There are no such centers in Nepal that has the space for the production, promotion and education of such cultures and arts in our country. The Center is not as influential as it once was, and has become a cause for concern about the future of Mithila art and artists. The pandemic has made working conditions worse in the last two years. The spaces in the center are not spacious enough to accommodate production of the arts and craft in the large scale as it should have been. The demand of the arts and crafts has increased but the production is being limited as well the space. The architecture of Mithila is not in the practice. The spaces and planning of the neighborhood is in the verge of extinction as everyone are more focused to modern style.

3. JUSTIFICATION

As Nepal is rich in art and architecture, has various forms of art that has traditional, religious and cultural values, Mithila culture is one of them which is in the verge of extinction. So, Mithila art and culture center can help in the protection and promotion of Mithila culture. As the culture is in the state of extinction, some projects are being held for its conservation and development and discussing about Mithila arts and crafts. This project in the context of developing stage of Mithila arts and culture is very relevant as artist needs and arena to expose his works. As in Mithila region there is hardly any such place and none of the buildings are truly designed for the sole purpose of exhibition, promotion and training of arts, crafts and

cultural activities. Various exhibitions will help to showcase the art as a product as well as the process both in national and international market.

As per the information from "Tourism in Nepal" in Wikipedia I came to know around 1,197,191 tourist visited Nepal in year 2019 ("Tourism in Nepal," 2023). As per the article" Tourists come to Janakpur in droves, but stay only for day" in The Kathmandu Post I came to know every day twenty tourist buses arrive in Gopal Dharmashala, the oldest Dharmashala in the area. Most of the tourists are from the Indian states of Bihar, Uttar Pradesh, Haryana, Delhi, Madhya Pradesh and Maharashtra. Each bus has at least 60 passengers, including the driver and bus conductor. So, tourist count become 1200 per day (Tourists Come to Janakpur in Droves, but Stay Only for a Day, n.d.).

Assuming minimum of 100 local visitors visiting the center each day then expected visitors will be 350 per day in craft gallery and exhibition space.

TABLE 1 : CALCULATING THE VISITORS NUMBER IN CULTURE CENTER

	Description	Number
1.	Nepal Receiving foreign tourist in 2019	1,197,191
2.	Tourists visit Nepal per day	3280
3.	Assume 20% tourist visit Janakpur per day	656
4.	Indian Tourist visit to Janakpur per day	1200
5.	Assume Local visitors per day	Min 100
6.	Total Tourist visit Janakpur per day	1956
7.	Taking, 18% tourist visit to the Mithila Art and Culture center per day	350

So, this exhibition center would help to assist this business and can bring the opportunity for flourishing the Mithila art and culture throughout the world and help it to get an identity in the society and nation.

Besides from its glorious ancient history, Mithila has gained prominence over the last few decades for its folk art. This art is traditionally drawn on the floor or on the walls of houses to set the scene for religious ceremonies. Western scholars sparked immense interest in spreading its importance in the world market. After 1965 Mithila painting entered the commercial market via mediums of paper and canvas as suitable source of income to the native artists. They,

especially women artists had been primarily engaged in their art. They through handicraft have produced traditional Mithila folk art on handmade lokta Nepali paper. They have no basic art education but have learnt the craft at their houses in traditional way by their elders (Rakesh, 2005) .Today this art has been exposed to the whole world. Its market value has been increasing day by day and also been modernized due to the concept of globalization. The women painters are not applying their indigenous knowledge only in the four walls of their houses but they exposed to the outside world. Now-a-days Mithila paintings are depicted on handmade papers and clothes by modern brushes and acrylic colors. Painters are also very sentimental towards their daily life activities, fairs and festivals, rites and rituals (Rakesh, 2005). Most of the women artists of Mithila are more or less self-independent. They are earning their livelihood by themselves (Rakesh, 2005).

4. IMPORTANCE OF RESEARCH PROJECT

This research will be beneficial for the future reference to those who research about the Mithila arts and culture. This study will also be useful for the architecture community to understand about the Mithila architecture, spatial requirements for different programs along with the supporting spaces for these programs. Also, this study will be useful to understand the orientation, functions and planning and their relations with each other's. This study will also be useful for the locals and the authorities to understand the importance of such projects.

5. OBJECTIVES

The main objectives of this research are as follows:

- To revive Mithila art and crafts among people through various built and open space for various activities including trainings.
- To provide better built environment and facilities to incorporate all the processes of education, production and exhibition.
- To provide interaction and social ground for the artisans, visitors, students and enthusiasts.

6. RESEARCH METHODOLOGY

A successful execution of any research follows certain methodologies that becomes the backbone of the whole project. First of all, the prevailing problems in the society or the country are identified. The problems identified are such that they are solvable through architectural solutions. According to the problem identified, the topic for the thesis is selected. After the

determination of the thesis topic, the objectives and the scope of the study are determined, on the basis of which, the study is conducted.The following process shall be adopted:

1. **Theoretical Understanding and data collection:**
The required information for the project is gathered through the literature review of books, reports, articles, research works, surveys and other related documents regarding the data for the project. In the process of information collection required data are also revealed and analyzed. If needed survey work is also done for data collection.

2. **Literature Review:**
The part will comprise guidelines to be considered while designing any built forms. Thus, necessary national and international standards related architectural books of standards to be consulted. Further, to understand the different aspects and the value of the project book, articles, project works, documents etc. related to the project is studied carefully. From the study we understand what to know more from the case studies and what is required for the project.

3. **Case Study:**

The collection of first-hand data is accomplished with studies of various national and international projects. The case studies in the different aspect of the project help to solve the problems in the project. The following probable case studies will be conducted in order to formulate the program and incur necessary facts and figures enough to conceptualize the design.

a. Primary Case Study:
   - Janakpur Women Development Center, Janakpur
   - Pottery Square Bhaktapur
   - Russian Culture Center

b. Secondary Case Study:
   - Ruthin Craft Center
   - Avadh Shilpgram
   - Jawahar Kala Kendra
   - Jean-Marie Tjibaou Cultural Center

Cases of different natures and functions were selected to understand the overall working of the project. Cases like local art and craft studios, industrial estate, training centers, craft

museums, culture center were studied. National and international cases were studied to understand the educational and promotional aspect of the project.

On the basis of the literature review and case study and prevailing conditions, site for the project was selected. Multiple site options were considered at the beginning. Basic features and conditions of those site were analyzed and the most suitable site was selected. Detailed analysis of the site was done through site visits, maps, websites, and documents and so on. The documentation of the information is done in terms of photographs, graphics and sketches. During the site analysis, physical, climatic, socio-cultural, economic conditions, accessibility and services available in the site were studied.

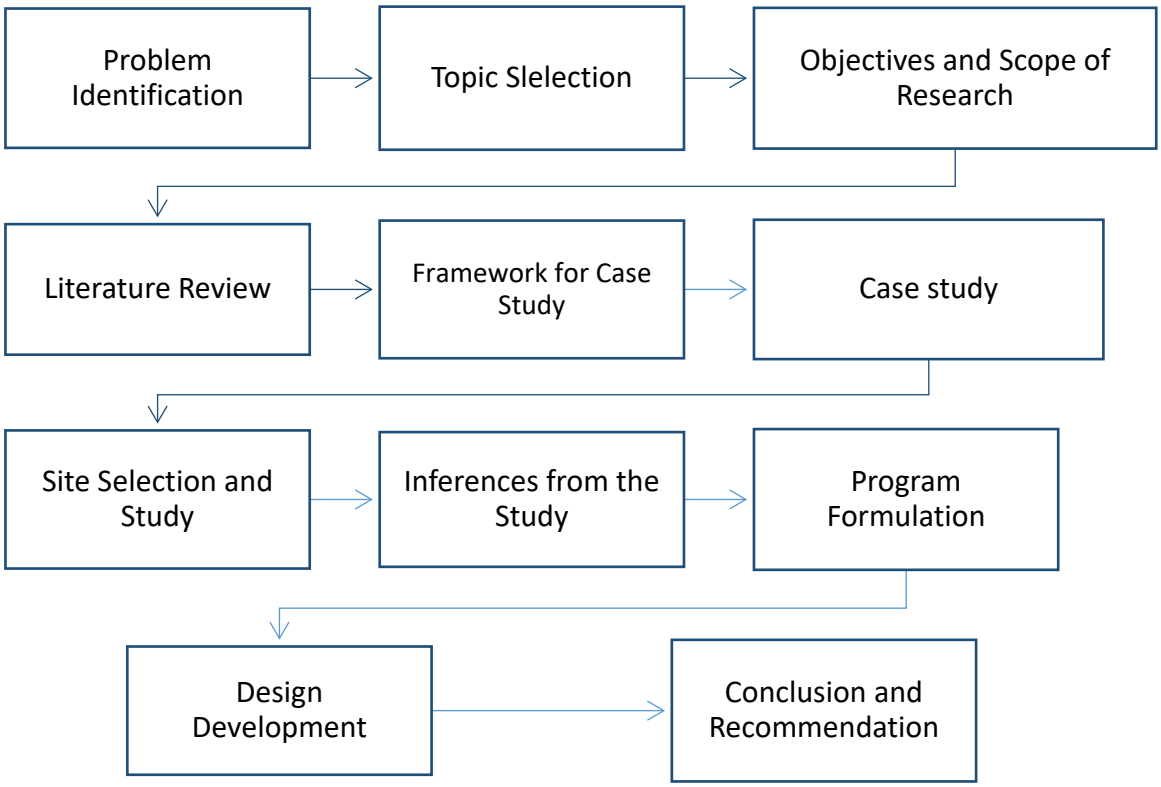


FIGURE 1 METHODOLOGY

7. EXPECTED OUTCOME

The final design solution is expected to be based on findings of researches and analysis. The project after completion will help to develop fine understanding about architecture and its relation with the context, issues and functions to be held. The project is expected to have proper planning with efficient functioning spaces and having proper connection with its users.

CHAPTER 2: LITERATURE REVIEW

1. ART

1.1. INTRODUCTION

"From paintings on the walls of caves by early man, art has been used to express the beliefs and represent the cultures of different societies throughout human civilization." ***Christine Serva***.

Art is any object or image that is so defined by its maker. Art can also be an object or an image not explicitly identified as such, but which strikes the observer as expressive or aesthetically pleasing.

Art has a unique possibility to capture winds of change, simultaneously as it impacts the formation and development of societies and the people living there. It has a potential to perform and convey messages, ideas, expressions where words fall short. It can connect directly to people´s heart and body, sometimes more than to the mind, which enables art to shift mindsets in a more profound way than other forms of communication (Art as a Representation of Culture - Video & Lesson Transcript, n.d.).

Artistic expressions come from a variety of different practices. Traditionally, **crafts** are items that are created that serve a function in society, such as pottery or clothing, though they may also be visually appealing or carry cultural meanings. **Fine arts,** on the other hand, are not typically created for their functional value but are created for their aesthetic beauty and meaning and also often require practice to develop skills. The fine arts include painting, sculpture, and photography, among others (Art as a Representation of Culture - Video & Lesson Transcript, n.d.).

2. CULTURE

2.1. INTRODUCTION

A culture is a way of life of a group of people--the behaviors, beliefs, values, and symbols that they accept, generally without thinking about them, and that are passed along by communication and imitation from one generation to the next. Culture in its broadest sense is cultivated behavior; that is the

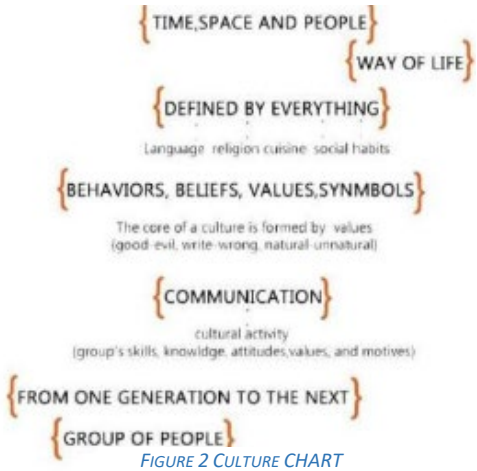


FIGURE 2 CULTURE CHART

Source: https://www.tamu.edu/faculty/choudhury/culture.htmlhttps://www.tamu.edu/faculty/choudhury/culture.html

totality of a person's learned, accumulated experience which is socially transmitted, or more briefly, behavior through social learning (Muhasin, n.d.).

Culture is symbolic communication. Some of its symbols include a group's skills, knowledge, attitudes, values, and motives. The meanings of the symbols are learned and deliberately perpetuated in a society through its institutions. It is the sum of total of the learned behavior of a group of people that are generally considered to be the tradition of that people and are transmitted from generation to generation (Muhasin, n.d.).

3. CULTURE CENTER

A cultural center is an organization, building or complex that promotes culture and arts. Cultural centers can be neighborhood community arts organizations, private facilities, government-sponsored, or activist-run. It is a space to produce, create, experiment, and innovate, a space to rehearse, perform, exhibit, and preserve space to interpret, learn, engage and share and so forth (Muhasin, n.d.).

3.1. HISTORY OF CULTURE CENTER

The Cultural Centre is a new building and institution typology developed during the post-war European welfare state governance, where culture was seen as a social instrument with the same standing as sanitation or education. With the intention to provide cultural opportunity to a wide spectrum of the population, the building of cultural centers proliferated in many European cities. Through different cases, the concept of the Culture Centre as an institution and an architectural type was evolved (YIU, 2021).

Cultural activities from performance or art viewing were largely private in pre-modern times, but sponsorship of art for the public started in the 18th century. The idea of cultural provision as state responsibility emerged in the 19th century, discussing its utility and its "civilizing effect" to the working class, which could benefit industrial productivity and social stability (YIU, 2021).

The Arts Council of Great Britain was established in 1946 as a semi-governmental agency to administer state-patronage of arts, setting the tone for cultural services in post-war UK welfare policy (YIU, 2021).

The French government established the Cultural Ministry in 1957 to make art accessible to all and promote a sense of pride in national cultural heritage. This is exemplified by the building

of Maison de la Culture (House of Culture) across the country to bring culture to the provinces (YIU, 2021).

Post-war cultural policy in the UK and France sought to rebuild national confidence and solidarity through an egalitarian approach, aiming to diminish the elitist status of "high-art" through state patronage. Access to culture was the central theme, manifested through the architecture and institution of the Cultural Centre typology (YIU, 2021).

3.1.1. TYPOLOGY OF CULTURE CENTER

There are two main typologies for culture center:

1. Art for all (an institutional concept)

The Cultural Centre as an institution to provide art for all has a socialist precedent in the "House of People" (or People's Palace). In the late 19th century and early 20th century, civic organizations such as the worker's union or urban political groups needed a dedicated location for their activities. The first such building was the Maison du Peuple in Brussel designed by Victor Horta in 1893. The House of People has a selective membership by default, but is an institution of solidarity for all those with a similar purpose. Through nominal social activities from adult education to performances and exhibition, bonding is created among people and social or political messages are dissimilated. Through the modern to contemporary time, the House of People continues to proliferate in the socialist and communist states on both sides of the iron curtain (YIU, 2021).

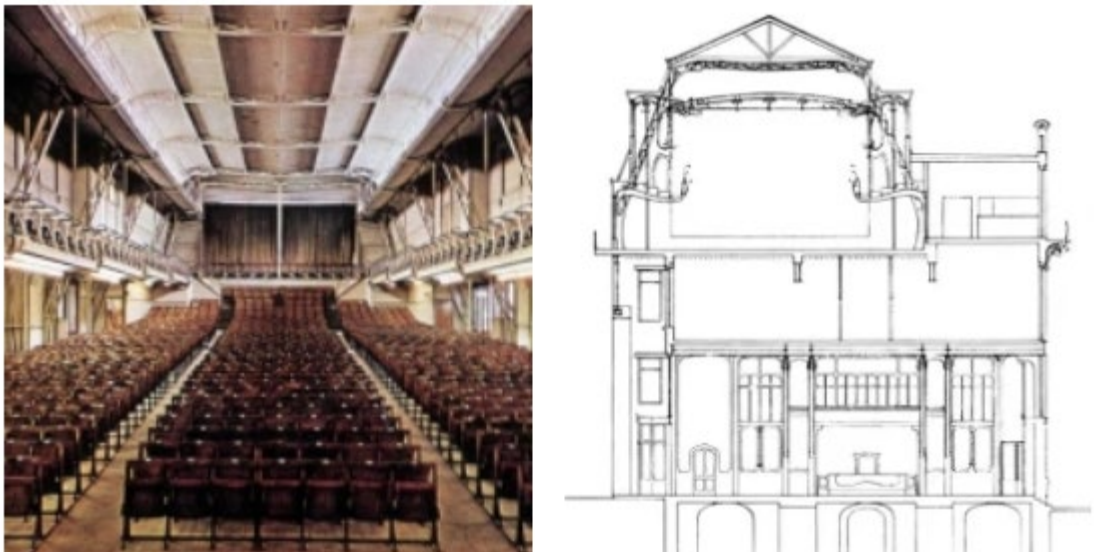


FIGURE 3 MAISON DU PEUPLE, BRUSSEL. DESIGNED BY: VICTOR HORTA. 1895

2. Space for all (an architectural concept)

The Arts Council of Great Britain proposed the building of Arts Centers in towns with 15000-30000 population, with three main components: a 600-seat auditorium, an exhibition gallery and a 200-seat restaurant. The gallery space conceived as an extended foyer reflects the purpose to be open and accessible, while the restaurant space is used for social gathering and festive events. This pragmatic proposal became the typology adopted in many cultural architectures in the following decades (YIU, 2021).

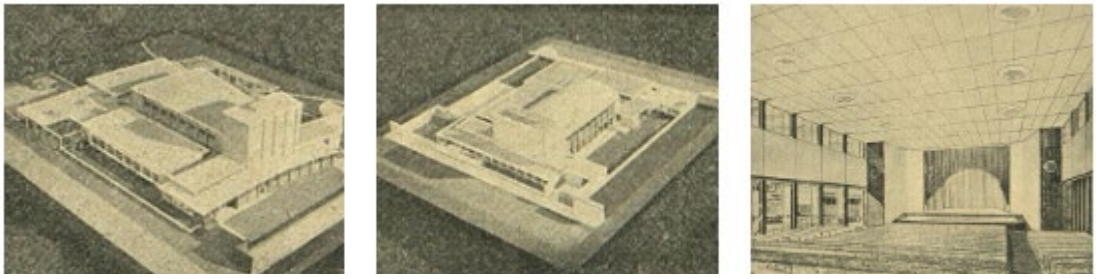


FIGURE 4 PLANS FOR AN ARTS CENTRE, 1945

3.1.2. TYPES OF CULTURE CENTER

Based on the nature of participation, cultural centers are identified as different typologies and they are:

- The one-(wo)man center
- The artist/activist group center
- The neighborhood centers
- The new creative city/regional hub

3.2. CONCERNING THE PROMOTION OF ARTS AND CULTURE

Concerning the promotion of Arts and Artistic culture, following categories are enumerated as the object of promotion:

- Arts: Literature, music, dance, photography, fine arts, theatre and others.
- Media art: Movies, Animation, comics, and other computer-generated arts.
- Traditional performing arts: Different festival-oriented arts, Jatra, Street play, Circus.
- Entertainment: Play, music, show, concert etc.
- Life culture and others: Different cultural and religious festivals and Village festivals.

3.3. SIGNIFICANCE OF CULTURE CENTER

Cultural centers are significant in bringing together the urban and social fabric together with the cultural fabric of the urban populous. Cultural centers in all groups of people and with any kind of outlook has always been one of the most importance issues for designer. When we use the traditional culture in ordinary daily conversation, we often think of culture as an equivalent to the higher things of the mind-art, literature, music and painting and helping a community begin to understand its historic economic, and social context is an essential foundation for developing and building sense of place (Muhasin, n.d.).

Traditional culture has a particular position among arts and other media due to being multi-dimensional and enjoying facilities regarding to arts. With respect to the shortage of cultural entertaining and particularly cultural center admirable, the art advancement in the country, necessity of matter is obviously dear. So, it is necessary to design cultural center in particular place.

This thesis aimed at designing a cultural center with the best features of architecture in Janakpur by helping the public opinion and studying the effective factors on cultural center design and associating these factors with designing matters.

3.4. THE ROLE OF CULTURAL CENTER FROM TODAY'S PERSPECTIVE

- To create an urban space to celebrate the cultural festivals.
- To preserve the culture and creating an opportunity for people to know about it through exhibitions and performances.
- To encourage people about art, dance, film, music and different creative field.
- To facilitate cultural activities.
- To provide public amenities and represent our culture worldwide.
- Organize traditional festival and international fair at same place.

3.5. EVOLUTION OF THE SPACE FOR ARTS AND CULTURE

In ancient times there were no dedicated profession since items were produced as per the necessity of day-to-day life i.e., they were strictly utilitarian. So, there were no dedicated place to produced art and crafts. People produced arts wherever and whenever it was necessary. Slowly with time, the arts transformed from utilitarian to decorative purpose. With this, the dedicated space and profession started to emerge. In last 30 years ago, arts were mostly produced in households and public spaces like chowks depending on the scale and nature of the craft. Till this date similar patterns can be seen where small-scale arts and crafts are still

produced in households and chowks and other forms of open spaces are still used. Besides from these, few industries, and workshops to practice and produce arts can be seen these days. But mostly the arts and made in their homes only.

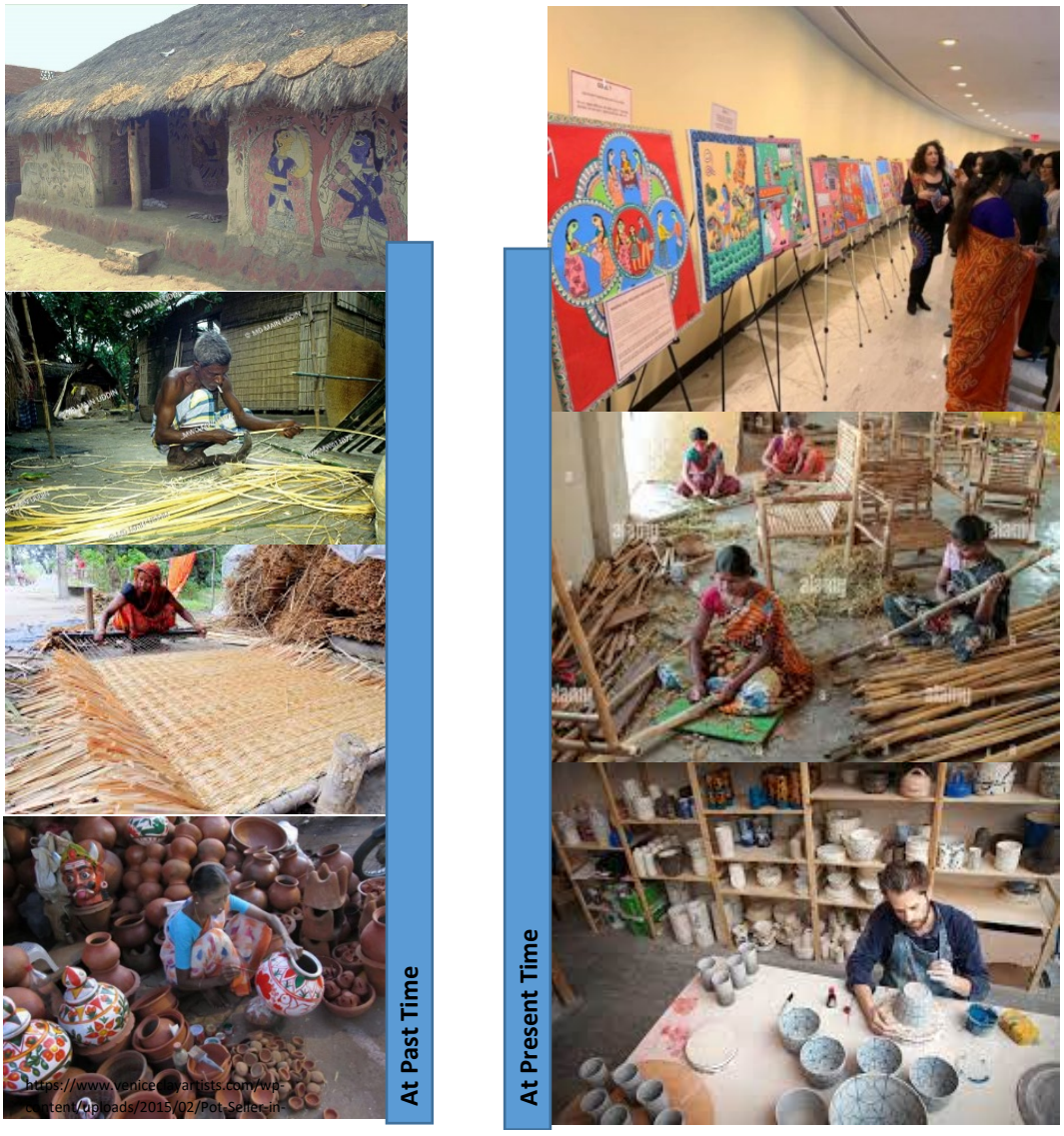


FIGURE 5 EVOLUTION OF ART SPACES

In ancient time public space within the villages were the spaces used to perform various festivals, ceremonies of their culture. Public spaces like aangan, chowks, bazars, ghats, maidan were used to perform the cultural activities within Mithila region. Till this date, we can see various activities are performed in different spaces like in the auditorium, hall, etc.

Public spaces accept diversity as a norm. They act as cultural and social transformation of the society as they serve mix segment of people. Public spaces should be inclusive for everybody. They should function as urban hub that physically and mentally connects different part of the city.

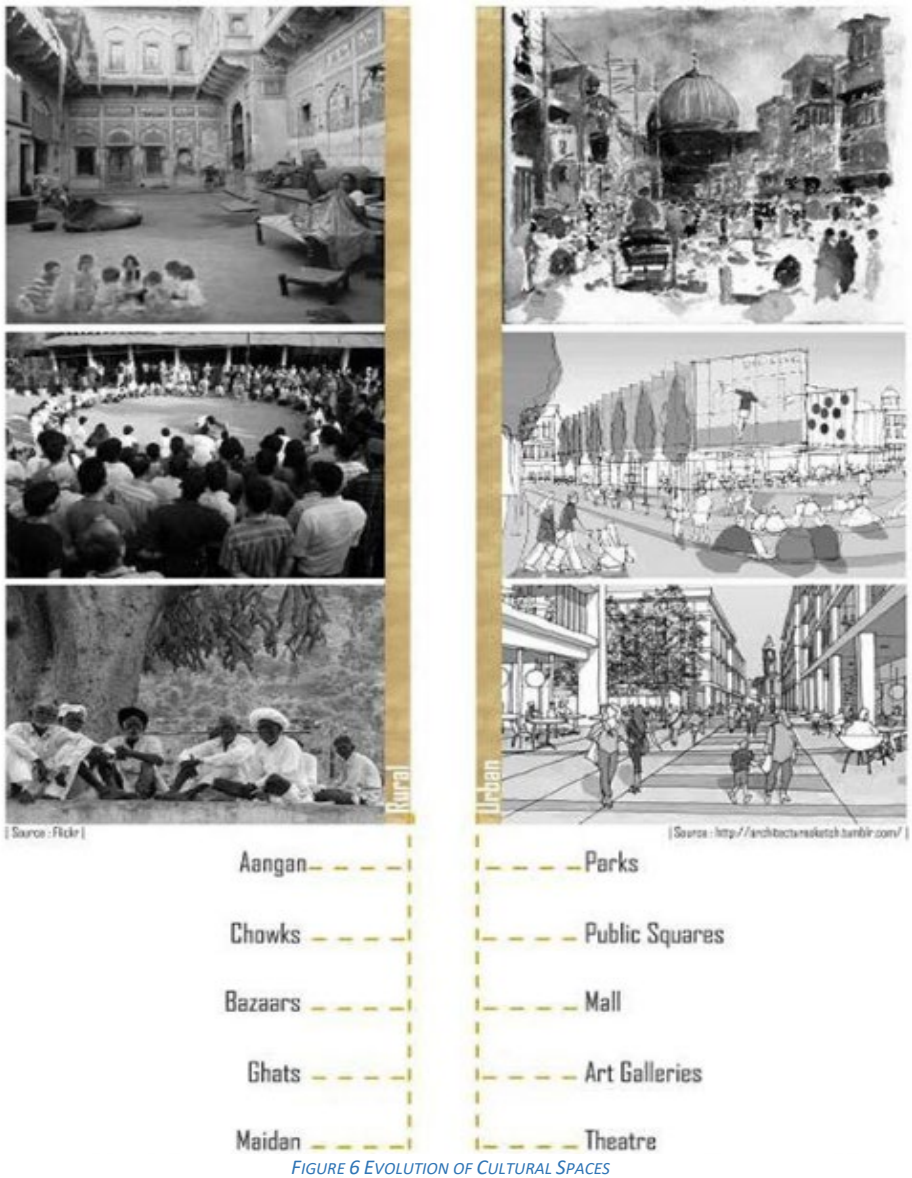


FIGURE 6 EVOLUTION OF CULTURAL SPACES

4. MITHILA ART

'Painting is in our culture – my mother used to paint, and I started painting with her' – Shashikala Devi

Mithila, also known as Videha or Tirhut, refers to a broader cultural region than a distinct geographic entity. However, in the present times, it includes the districts of Darbhanga, Madhubani, Bhagalpur, Saharsa and Purnea in North Bihar and some districts in the Terai region of Nepal. From very ancient times, women of the region practiced their own rites and rituals and had developed a tradition of making floor and wall paintings known locally as **aipanas** and **bhittichitras** respectively (Neel, 2010).

Mithila art reflects the human values, tradition, culture, and religion. The art symbolically represents the relations between human life and the world. Some of the arts reflects the stories of mythology, folk dances and folklore. Along with the development of civilization, Mithila art is ageless. It is very ancient. These art works found their places in the walls, floors and in the temples (Rakesh, 2005).

Folk art and crafts are the essential part of life in Mithila. It is the art of women who draw the historical, social, cultural, and religious aspects of the surrounding, society and the whole country. This type of art is immortal, alive, and active and it is handed down from one generation to another. It depicts the emotions, sentiments, and indigenous ideas through traditional techniques. It expresses the ethnic, ritualistic, cultural, and historical aspects of rural society. Mithila folk art is mainly ceremonial and traditional art ((Rakesh, Mithila Folk Art, 2016).

As stated by D.K. Ching "Art: The conscience use of skill craft and creative imagination in the production of what is beautiful appealing or of more than ordinary significance."

4.1. MITHILA PAINTINGS

Mithila paintings are folk paintings made by rural women folk of Mithila to beautify and sanctify ground, courtyard, and threshold. They depict mythological, stories, figures, and images on auspicious occasions for marriage ceremony and other festivals. The wall paintings are popular in almost all areas of Mithila and are drawn on the walls of the room in which newly married bride and the bridegroom live during marriage ceremony. This painting is meant to increase sexual fertility in bride and bridegroom. Maithili women paint Kadamda tree, tank, sun, flowers, moon, Rahu, Navgrah, palanquin, tortoise, fish, and peacocks (Rakesh, 2005).

This famous wall painting is made and drawn by the illiterate Folk of Mithila in three places: Gosainghar (special room for family god), Kohbarghar (honeymoon room) and Kohbar-Gharak Koniya (corridor of outside). It depicts the love scene of lord Krishna with Gopinis and his constant companion Radha. The outer walls of the Kohabar are decorated with paintings of rural life such as palanquin with its carriers, shady fruit trees-mango, banana and Kadamba and Ashoka. There are also symbols of fertility and prosperity and peace, such as elephant, fish, parrot, turtles, sun, moon, bamboo and lotus (Rakesh, 2005).

4.2. BRIEF HISTORY OF THE EVOLUTION OF MITHILA PAINTING

For centuries, women from the region of Mithila have been making ritualistic paintings and expressing their own social world around them through the medium of paintings. W.G. Archer, the local British Collector in Madhubani District, "discovered" the ancient wall painting tradition when the Bihar earthquake tumbled down the exterior walls of local domestic compounds. He made an extensive survey of the floor and wall paintings made in various parts of Mithila in his later postings. The project became successful and women artists soon acquired national attention (Szanton, n.d.).

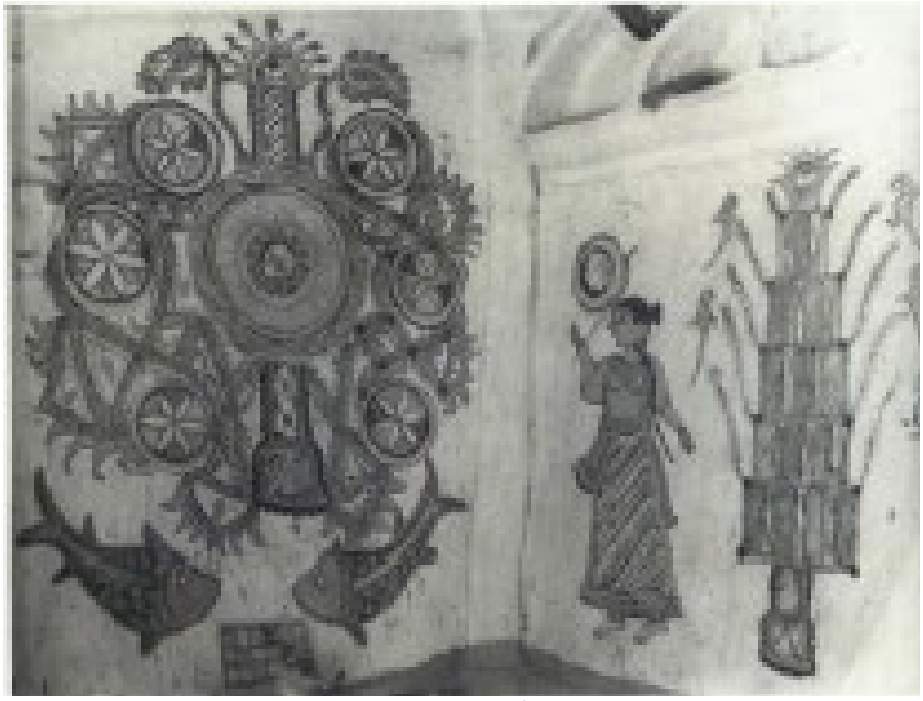


FIGURE 7WG ARCHER 1937. KOHBAR (LOTUS POND/FEMALE), MAID, & BAMBOO (MALE)

The newly emerging middle class, art enthusiasts and art gallery owners responded to this vibrant tradition, leading to a growing private trade. Commissions for hotels, participation in cultural fairs and private commissions gradually brought about prosperity and international attention to these artists. Exhibitions of Maithil art were organized in western countries such as France, Germany, and the US. Promotion through national and state awards gave artists celebrity status, and they responded to their new experiences by painting on those themes. Their experiences helped them to evolve a new vocabulary of Mithila art (Neel, 2010)

FIGURE 8 WG ARCHER 1940.FLOATING IMAGE OF VISHNU, LAKSHMI, BRAHMA, KRISHNA, GANESHA

The national projection of Mithila painting on paper has brought it to the forefront of national cultural landscape and presented it as an expression of its Vedic cultural heritage. Sita, the heroine of the Hindu epic Ramayana, was an important part of this new projection and the antiquity of this art was pushed back to thousands of years. Two important developments at this stage brought about distinct changes in the art: the arrival of western scholars in Mithila and the international travel of artists. Influenced by the advice of scholar activists, the artists began to incorporate changes in traditional ritualistic imagery and introduced themes such as day-to-day village life, popular episodes from epics and local legends. In the past few years, artists have further expanded the scope of this art by evolving new ways of telling classical stories and epics. They have introduced secular themes in the ritualistic vocabulary of Mithila

art, such as social activism, feminism, environment pollution, national and international events, and are redefining the ways in which Mithila painting is understood today.

4.3. PATTERNS AND GRAMMAR

Mithila paintings remain consistently two dimensional; there is no horizon line or effort at perspective; figures are flat and "float" across the image; would-be empty spaces are filled with flowers and foliage; deities are usually full face, humans in profile; paintings begin with a painted frame mimicking the wooden beams that framed the wall paintings, etc. However, in sharp contrast to the relatively constant stylistics, the subject matter of the paintings has vastly expanded, fomenting intense political debates among scholars, critics, the general public. The paintings are always side views and top views. The paintings of human being always have the sharp elongated nose and broad eyes. It is said that the Mithila people have the sharp nose and broad eyes. Thus, the painting depicts the same.

4.4. THEME FOR PAINTING

The main Theme of Mithila paintings is nature. It is the permanent and perennial source of inspiration. The women folk of Mithila get inspiration from the several objects of nature. They all have symbolic significance in the Mithila art. The elephant, horse and palanquin symbolize royalty and richness. The sun and moon are the symbols of long-life. The goose and peacock symbolize welfare and peace. Betel leaf and lotus are the symbols of purity and innocence (Rakesh, Janakpur: The Sacred Jewel of Nepal, 2005)

In the present context, themes are based on the day-to-day activities happening in the society. Like themes related to social activism, feminism, environment pollution, national and international events.

4.5. TYPES OF MITHILA PAINTINGS

4.5.1. BHITTICHITRA

These are the paintings mainly done on the mud walls of a house. These paintings have specific name according to their style, places they are drawn, ceremonies and symbols they use. Some of them are described below:

4.5.1.1. KOHBAR GHAR

A photograph from 1934 of a brightly colored wall painting of the lotus pond, symbolizing female beauty and fecundity, and the "invincible" goddess. Durga astride her Lion killing the powerful demon, Mahish. Images of the other major deities, Krishna, Vishnu, Shiva, Lakshmi, Ganesh, etc. were also common. Similar – though generally more modest - wall paintings continue today.

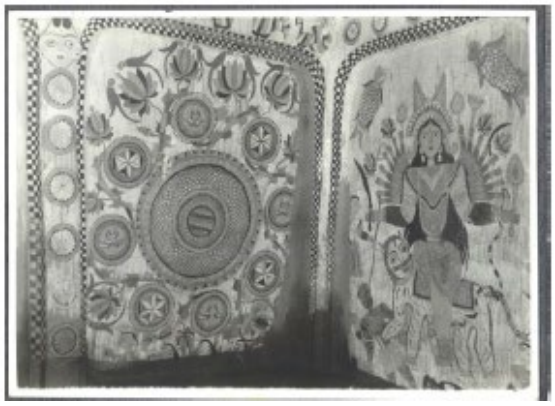


FIGURE 9 WG ARCHER, 1929. LOTUS POND AND DURGA ON TIGER

A separate room is set and decorated with several arts during the celebrations and wedding ceremony. This painting is done in the inner as well as outer walls of Kohabar Ghar.

4.5.1.2. DASHAVATAAR

It is used for packing vermillion in it. The painting contains ten avatars of Lord Vishnu: Matsya, Kurma, Varaha, Narasimha, Vamana, Parashuram, Ram, Balram, Krishna, Buddha, Kalki.

FIGURE 10 DASHAVATAR

4.5.1.3. BAANS:

Baans (Bamboo) painting is one of the traditional elements in Mithila painting. It is the symbol of growth and creativity. It is considered auspicious during one of the rituals kumharan in marriage ceremony. It is drawn in walls of verandah and the painting contains a bamboo tree with birds and animals around it.

4.5.2. ARIPAN PAINTING

FIGURE 11 ARIPANA IN COURTYARD

These are the paintings which are mainly done on the floors. On the auspicious occasion of Dipawali, Bhaitika, Chaurchan and many other festivals womens of Mithila draw beautiful drawing on the ground with paste of rice. The purpose of doing so is to attract gods and goddesses. The floral design of drawing is based on circular and curvy drawings. It is also called mandala. It is depicted for purification and beautification of a piece of ground. Generally painted on the main entrance and courtyards.

The designs or the motifs used in Aripana fall into the following five categories:

- Images of human beings, birds and animals
- Images of flower (lotus), leaves, trees and fruits
- Tantrik symbols, like yantras, bindu (dots), etc.
- Images of Gods and Goddesses
- Other objects like lamp, swastika, mountain, rivers, etc (Dulal et al., 2023).

FIGURE 12 ARIPAN

4.6. MITHILA PAINTING AS LANGUAGE

Language is essential for human life, but it is not enough to express all aspects of human experience. In the past few years, artists have expanded the scope of Mithila painting by introducing secular themes such as social activism, feminism, environment pollution, and national and international events. These changes in traditional ritualistic imagery are redefining the ways in which Mithila painting is understood today. People have also developed other forms of expression, such as music, dance, architecture, sculpture and painting, to capture and covey some of the subtleties, complexities, ambiguities, pains and beauties of human experience and perception (Mandal, 2011).

Mithila painting is one such language. At one level, it might seem obvious, even hardly worth stating that Mithila painting is a living language with its own distinctive rules, grammar, meaningful images, icons, and motifs. Some examples of Mithila paintings and its meaning they express through their symbols and colors:

FIGURE 13 MITHILA WOMEN DOING HOUSEHOLD WORK (SOURCE: GOOGLE)

This art expresses the household work done by this woman of Mithila. They use Jata for grinding grains like paddy, wheat, and daal. It also expresses the living style of Maithili women and their appearance.

FIGURE 14 MITHILA PEOPLE WORKING IN FIELD (SOURCE: GOOGLE)

This painting expresses the field work of people Terai. Men wear kamij, Dhoti and pagadi while ploughing. During work their wives take food for them from house to field to feed their husband. They also carry water in Ghaila on their head and foot in hand. The picture depicts their daily lifestyle of Mithila people.

Figure 16 Figure 12: Tree of Life with Peacocks (Source: Mithila Cosmos: Circumambulating the Tree of Life (2014).

The above piece depicts the much-valued kadam tree (bur flower) in Mithila which provides a serene, cool shelter to the travelers battered by heat apart from providing plenty of food to monkeys and birds

Figure 15 Abortion CLINIC (Source: http://peterzirnis.com/post/58303202722/rani-jha-feministperspectives-in-mithila-art)

Painting also expresses the social issues prevailing in the society. One of the most serious drawbacks eating into the vitals of the Maithili society is female feticide through abortion. This piece criticizes the society for gender discrimination where preference of male child appears huge in comparison to female ones, most of whom are killed in fetus-stage.

Figure 17 Painting of Krishna and Radha (Source: GOOGLE)

This painting express love story of Krishna and Radha. Here he is with his constant consort Radha who is listening to his flute. Peacocks are also seen here because they are also lovers of melodious tone of flute. He is an evergreen charmer of Radha and her friends Gopinis (Rakesh, Mithila Folk Art, 2016)

Traditionally, Mithila art depicts daily life, religious rituals, and cultural heritage, but JWDC artisans also address contemporary social issues, such as life during the pandemic. Their recent paintings tell stories of illness, mass testing, and social isolation, where faces are now covered with masks. The pandemic has had an impact in dimensions stretching beyond health.

FIGURE 18 LIFE DURING PANDEMIC

4.7. COLORS USED IN MITHILA PAINTINGS

The women artists of Mithila use different local colors in their paintings to make them attractive and lasting. They use bright red, yellow and black colors, which are natural such as black from the soot, red from the local clay and yellow from petals of flowers. They also sometimes use watercolor mixed with rice powder and vermilion. They use bamboo splint and use their fingers while drawing these paintings for several years. They mix local colors extracted from goat milk or the juice of the bean plants. They prepare their brushes by wrapping cotton around the end of the twig or matchstick (Rakesh, Janakpur: The Sacred Jewel of Nepal, 2005).

Natural color:

- Red: Beetroot juice is extracted, dried and mixed with glue.
- Green: Hibiscus flowers dried, boiled with lemon juice before adding glue.
- Black: Rusted iron is kept in jiggery for 10 days and boiled thereafter and lampblack

• Yellow: Turmeric is used with water.
• Golden: Alum and pomegranate skin are boiled to get the color.
• Reddish Brown: Ochre.

Nowadays they use different acrylic, fabric, and Asian colors, and brushes for paintings. The paper they used are the lokta paper.

5. MITHILA CRAFTS:

Different types of crafts are made by Maithili people which vary according to the materials:

5.1. BAMBOO CRAFTS:

This art is great in making house, boat, basket, bookshelves, ladder, machan and fighting and storing things. It is sacred tree. It is very pretty and popular motif in traditional Nepalese paintings of sparrows or tiger in bamboo groves. Many wind instruments are also made of bamboo.

FIGURE 19 SIKKI BASKET

5.2. STAW (SIKKI) CRAFTS:

The rural women of Mithila prepare articles of golden colours out of sikki grass. Sikki is a typical grass of the Mithila region. It is found in abundance during the monsoon. When it is dried, it is used in making many varieties of trays and baskets. These are called sikki ash tray, sikki paint, sikki pen-stand, sikki mauni, sikki mujela etc.

FIGURE 20 MITHILA SIKKI BASKETS

5.3. CLOTH MAKING:

Weaving of cloth has been the oldest occupation of the Mithila people. The yarn with charkha is very popular in rural areas. The Brahmin and Kayastha women prepare sacred threads for sacred thread ceremony with the help of it. They also make pillow covers, paga (head dress), bed-sheet, turban, purse, turban purse, sari border and skirts and bags etc.

5.4. UTENSILS MAKING:

People of Mithila make many types of utensils which are used in day-to-day life. They are generally made of soil and iron. They are made of all metal and are very durable. Their handles are generally made of wood. They engrave images of birds, gods and goddesses out of religious feelings.

5.5. CLAY-MODELLING AND POTTERIES AND TERRACOTTAS:

This art of pottery making goes back in the age of the epic Ramayana. The village potters of Mithila make the clay toys for children and pots of daily use. Purhara and Patila are the most pious pots made for puja purposes. They are painted tastefully in different colours and are also decorated with the images of different gods and goddesses.

FIGURE 21 MITHILA POTTERY

5.6. WOOD WORK:

Wood works are done by carpenters of Mithila region. Carpenters carve very beautiful designs on doors, windows and ventilations. They are useful for all houses.

5.7. ART OF MAKING GARLANDS:

It is famous for various varieties of flowers. Flowers are found in abundance in all village of Mithila. Male's expert in making garlands of flowers. The main flowers are used of marigold, bhalsari, madhuri, malti, rajnigandha, beli, chameli and rose. Garlands of various flowers are made on various auspicious occasions.

5.8. ART OF MAKING LAC BANGLES:

Bangles are of many types such as Lahti (simple bangles), Tishiphol (bangles of marriage) and Kangan.

FIGURE 22 ART OF MAKING LAC BANGLES

5.9. MATTING:

People of Mithila use mats of mostly mothi and patera grass. There are many types of mats such as: sitalpati, patiya, chattai etc. Sometimes they have yellowish natural colour and red, green and yellow. They are mainly used for sleeping and sitting purpose.

5.10. TATTOOING:

This folk art is done for decorating the human body, especially the skin. People of Mithila have fascination for skin fashion. Women folk are fond of this.

FIGURE 23 MITHILA TATTOOING

5.11. DOLL MAKING (FOLK ART)

In village of Mithila the folk women usually make dolls for both the sexes. Kaniya- Putra (the name of doll specially made for children in Mithila) have special charm among children. The torn and bhushi (husk) are used making dolls. Black thread is used in making dolls. It is the source of entertainment for children.

FIGURE 24 DOLL MAKING

6. MITHILA CULTURE

Mithila culture is found in the eastern terai region of Nepal such as the Janakpur region and also found all the way up to the Northern Bihar state of India. It is rich with its own language known as Maithili, and with its own traditions, customs, arts, and music. Maithili sounds sweet and soft to outsiders, and people respect their parents, believe in peaceful life, and worship the goddess of Power Durga. Hindu festivals are widely celebrated, and folk stories are called grandmother stories in Mithila. Documentary films such as "The Cultural Heritage of Mithila" and "Mithila Paintings" showcase the past, present and emerging forms of the Mithila Paintings.

6.1. TANGIBLE ASPECT

Tangible aspect of culture deals with physical object, resources and spaces that people use to define their culture.

6.1.1. JANAKI TEMPLE

At the heart of Janakpur lies the marble Janaki Mandir, one of the grander pieces of architecture in Nepal, and the city's must-see sight. Built in extravagant baroque Mughal style, the temple is dedicated to Sita, the wife of Rama and heroine of the Ramayana. It's believed to stand on the spot where King Janak found the infant Sita lying in the furrow of a ploughed field.

FIGURE 25 JANAKI TEMPLE

6.1.2. RAM TEMPLE

Ram Mandir is one of the oldest temples in Janakpur built in the late 1700s by Amar Singh Thapa, a Gorkhali General. The architecture of the temple is traditional pagoda-style like the other shrines in the region. The modestly quaint temple is flocked by pilgrims during the occasion of Ram Navami and Dashain which are sacred and important annual festivals dedicated to Lord Rama. The opulent temple is a perfect attraction for those interested in exploring ancient cultures and experiencing its divine vibe. Opposite the entrance are a series of ghats leading down into largest ceremonial tank, Dhanush Sagar.

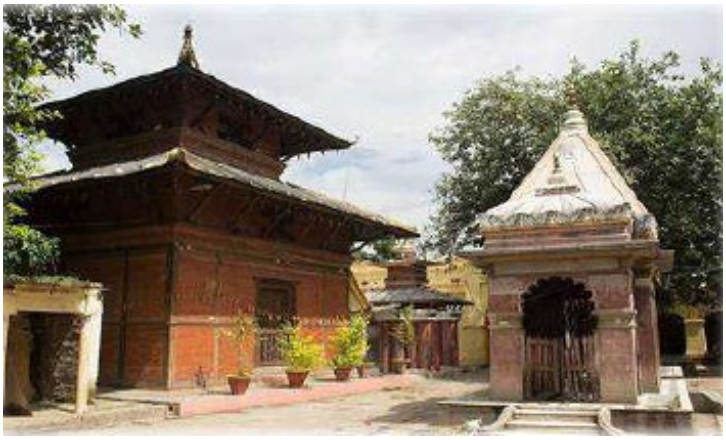


FIGURE 26 RAM TEMPLE (SOURCE: HOLIDIFY (2020), RAM MANDIR, JANAKPUR

6.1.3. VIVAH MANDAP

The place where Ram and Sita got married, Ram Janaki Vivah Mandap is visited by thousands of pilgrims to pay homage to Sita at the time of Vivah Panchami. The marriage day of Sita and Ram usually celebrated on the fifth day of the Shukla Paksha or waxing p hase of moon in November/December. The mandap is a gorgeous structure made of marble located in the southwest region of the Janaki Mandir. It resembles a part of a palace with sturdy pillars, elegant arches and stunning domes.

FIGURE 27 VIVAH MANDAP (SOURCE: HOLIDIFY (2020), RAM MANDIR, JANAKPUR)

6.1.4. SACRED PONDS

There are several ponds around the city. Among the ponds Ganga sagar and Dhanush sagar are located at the heart of the city near to Janaki and Ram temples.

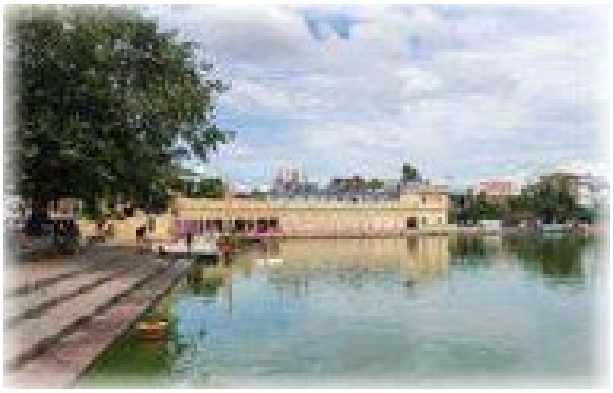


FIGURE 29 GANGA SAGAR

FIGURE 28 DHANUSH SAGAR

Image source : Holidify (2020),

6.2. INTANGIBLE ASPECT

6.2.1. FESTIVALS

6.2.1.1. CHHATH

Chhat is a folk festival of undying faith celebrated in Mithila after Dashain and Dipawali. It is dedicated to the Sun God to thank him for bestowing bounties and fulfilling wishes. It is celebrated on the banks of a river or pond to purify the body.

FIGURE 30 CHHATH (SOURCE: WWW.IMNEPAL.COM)

6.2.1.2. VIVAH PANCHAMI

The bow-breaking ceremony was performed on the auspicious occasion of Vivah Panchmi to mark the marriage of Lord Ram and Sita, and King Janak proposed a test of strength for the suitors to string the great bow of Lord Shiva.

FIGURE 31 VIVAH PANCHAMI (SOURCE: DISCOVER NEPAL (2019))

6.2.1.3. BASANTA PANCHAMI

This festival falls on the fifth day of bright moon fortnight of the Magh (February) every year. It is willingly celebrated in honor of Saraswati, the Goddess of learning, wisdom and the fine arts.

6.2.1.4. JUDE SHEETAL

This festival remarks the arrival of summer season. It is somewhat similar to baisakhi of punjab. On this occasion in Mithila people consume badi – bhaat prepared a day before. In this Maithili festival people donate earthen pitcher containing water to Maithili brahmins.

FIGURE 32 JUDE SHEETAL (SOURCE: THE MAITHILS, 2020)

6.2.1.5. SAMA-CHAKEWA

A play performed by the rural women of Mithilanchal for a fortnight, starting on Chhath in the month of Kartik and lasting till the full moon. Women express their affection to their brothers. Every evening, women leave their homes with dolls in a bamboo basket, in the middle of which they place a burning lamp. They gather at a certain crossing and sit in a circle, singing till midnight. On the final night, they burn the moustache of 'Chugla', the evil doll.

FIGURE 33 SAMA CHAKEWA (SOURCE: TRAVEL WHISTLE(2020)

6.2.2. FOLK DANCE

6.2.2.1. JHINJIYA DANCE

Performed by a group of women every year in the month of Ashwin during the Dashain festival. Some women place pitchers, with a burning lamp inside, on their heads. The singing and dancing go on for hours, with groups of women taking turns to carry the pitchers. Dance is said to be influenced by tantrik cult and performed mainly to protect people from evil spirits.

FIGURE 34 JHINJIYA DANCE (SOURCE: ARJUNVAJU(2020), JHIJHIYA DANCE)

6.2.2.2. JAT-JATIN

FIGURE 35 JAT-JATIN (SOURCE: FLICKR.COM (2020))

This dance is performed at night by a group of rural women in the month of Bhadra. In small pitchers filled with a mixture of water and cow dung, catched frogs are put by women. Two groups – one masquerading as the male, which is called 'Jata', and the other as the female and is called 'Jatin'. Around the village, singing a song in question-answer form. At the end, they throw the pitchers into the courtyard of a person assumed to be evil-minded, and then disperse. The cultural dance is performed with the hope that there will be rain.

7. MITHILA ARCHITECTURE

7.1. MITHILA VILLAGE

FIGURE 36 BINDHI, VDC, DHANUSHA (SOURCE: RAJ BHANDARI BHAKTA, SPACE MAGAZINE)

Bindhi, a Mithila settlement besides Janakpur-Jaleshwor highway holds a typical rural character despite being few miles away from city core of Janakpurdham. The spatial form of the settlement is clustered and nucleated unlike dispersed settlement we observe in the hill area. (Mithila art and architecture, VAASTU)

The Mithila village is a mix caste community and its nucleated settlement reflects a higher differentiation of class of people within the society. The prosperous landlords occupy the central or prominent position, and the lower labor class of people is shifted towards the peripheral areas away from the landlords. This spatial uneven distribution of settlement indicates a division of labor and feudal social system. The houses in clusters create a sense of strong neighborhood feeling and are molded around the way of life of people and their cultural traits. The houses have mud relief and painting, which is associated with the use of space either

as completely private, semi-private or public space. The ponds are the prominent landscape features of the villages, and the people take daily bath before lunch.

7.2. TYPICAL MITHILA HOUSE AND ITS LAYOUT

The Mithila house form has been planned to suit the socio-cultural requirements of its people. The houses are aligned along the side of Main Street and mostly they face east. Maithili people have the strong notion about Vaastu, and they rarely face their house to south except in unavoidable. Cases when the street guides the house form. Houses are built in clusters around an open court in piecemeal with the increasing space requirement of the owner. (Mithila art and architecture, VAASTU)

The buildings are proportioned to the scale of the people. One can view through the small openings from inside without the notice of anyone from outside. The size of openings of varies and those having bamboo lattice work are called jafadi. (Mithila art and architecture, VAASTU)

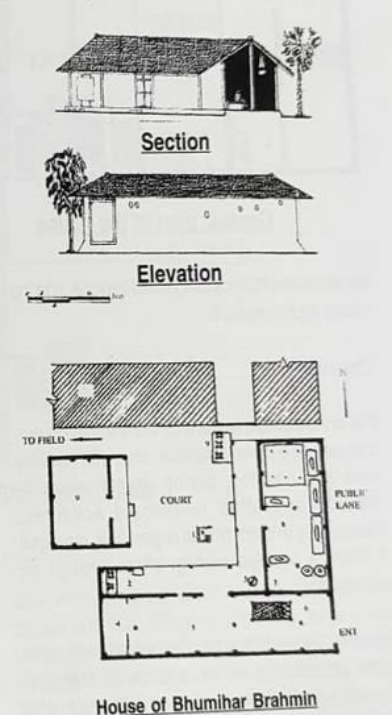


FIGURE 37 HOUSE OF BHUMIHAR BRAHMIN (SOURCE: RAJ BHANDARI BHAKTA, SPACE MAGAZINE)

7.3. ARCHITECTURAL DISCIPLINES OF HOUSES

In a house one enters through the front door, intentionally placed off center on the main facade. Then moves along an axis to arrive at the courtyard which is the central focus bringing the wonderful bounce of light and ventilation to the rooms that surround it. (Mithila art and architecture, VAASTU)

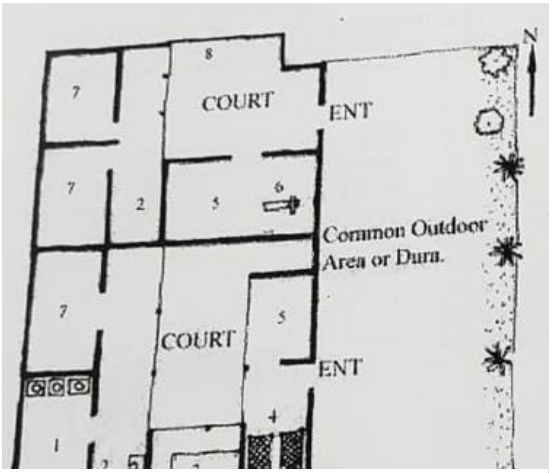


FIGURE 38 GENERAL PLAN OF THE HOUSE

7.4. MATERIALS AND TECHNOLOGY

Ancient Mithila houses are mainly made up of bamboo with mud plaster, decorated with colorful paintings on wall. Mainly they have only one floor and in case of two floors, wooden structure is used for upper floor.

- Foundation: It is a thick layer of compressed mud.
- Posts: Wooden logs are used as vertical and horizontal posts. In some cases, they are plastered with mud.
- Wall: Thin bamboo layers are spin to make inner structure for wall (taat) and the plastered with mud in exterior. Walls are decorated with attractive paintings called as Mithila painting in some cases mud bricks (Kachha brick) are also used for strength and durability.
- Roof: In roof spinned bamboo layer is placed inside and covered with straw (rari, laar) from above. In some cases, Khapada (sun dried mud)

FIGURE 39 TYPICAL MITHILA HOUSE

As Mithila houses are made up of "wattle" and "daub", so to give the Mithila impression to the center, wattle and daub is used as a construction material.

7.4.1. BAMBOO

Bamboo is a versatile, strong, renewable and environmentally friendly material. It's the fastest growing woody plant producing a mature fiber for use within three years. However, bamboo is subject to attack by fungi and insects and untreated bamboo have a few expectancy of not more than five years. The basic and general physical properties of the bamboo are 'summarized below (Bamboo as a Building Material, n.d.)

7.4.1.1. General Properties of Bamboo

- Tensile strength: Bamboo fibers have a high tensile strength, but it is not possible to construct connections to transfer these strengths.
- 'Shrinking Bamboo shrinks more than wood when it loses water. The canes can tear apart at the nodes. Bamboo shrinks in the cross section ca. 10-16 %, in the wall thickness ca. 15-17%
- Fire resistance: The fire resistance is very good because of the high content of silicate acid Filled up with water, it can stand a temperature of 400° C while the water cooks inside.
- Elasticity: The enormous elasticity of bamboo makes It to a very good building material for earth-quake endangered areas.

7.4.1.2. Pre Processing of Bamboo

Pre-processing of bamboo is the preparation of bamboo for further utilizations. It is the phase between the bamboo paint and the bamboo material, and the difference of the utilizations of bamboos determines the Processing of bamboo and also changes from one to another. There are three phases of pre-processing: harvest, transport and preservation (Yu, 2007).

7.4.1.3. Harvesting of Bamboo

The harvest of bamboo is different depending on the purpose and age of the bamboo. For sprouts, the best time is in the early spring, while for building materials or tools, the 4-5 years old is the best age. The time for harvest should be in the dry season to keep the moisture content low and reduce transport costs. The cut of bamboo culms should be no more than 25% of the total culms and the cutting position should be 30 cm above the ground to not destroy the rhizome and cause the plant to rot.

7.4.1.4. Preservation of Bamboo

The preservation of bamboo after the harvest is so important that it decides the quality of bamboo material in later utilizations. Similar to wood the bamboo is easily attacked by insects, fungi. According to Janssen (1958) the untreated bamboo culms can have a maximum of 10-15 years of Lifetime if they are kept under cover and in a not very humid climate. In direct contact with atmosphere they can only last 1-3 years.

Bamboo is difficult to treat due to its anatomical structure, which is mostly axial and isolated by parenchyma. The outer and inner wall are covered with dense wax, preventing water loss. Preservatives can only get through the culms in axial direction. (Liese 1985).

Traditional Methods of Bamboo Treatment

- Clump-curing
- Smoking
- Soaking

Chemical Methods of Bamboo Treatment

- Open Tank
- Boucherie Method

7.4.1.5. CHEMICAL METHODS OF BAMBOO TREATMENT

In the chemical methods chemical preservatives like CCA (copper-chrome-arsenic composition) or cheaper ones like boric acid and borax are used to keep bamboo culms from being attacked by Insects. For treatment of Bamboo total chemical should be used at 5% of total dissolve chemical. Example: For 14 Litre capacity of pump chemical 10 be used 700 Grams. For Structural Bamboo for pole, beam etc. Boric acid, Copper sulphate and sodium or potassium dichromate to be used in proportion of 1.5:3:4 Le. For 14 liter of tank

For Non Structural member like, wall lattice, Spits Boric acid and Borex 10 be used in 111.5 Proportion. Le. For 14 Liter of tank (Foundation, 2013).

- **Open Tank**
  Bamboo culms will be soaked in a tank filled with chemical preservative for about one week then the culms are left to dry for one week in a vertical position, protected from sunshine.

- **Boucherie Method**
  One side of the bamboo culms is enclosed with tubes which are connected to a drum with preservatives that is put on an about 10 meters high tower. Then the preservatives are pressed into the bamboo culms by the height pressure of the preservatives. We should fill up the pump cylinder up to ¾ with Borax/Boric Acid solution using funnel. Then we should make fresh cut on the bamboo with then Hardwood back saw about 10cm away from the node.

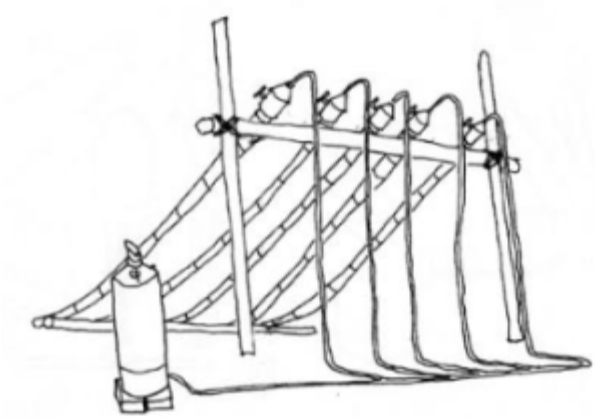


FIGURE 40 BOUCHERIE TREATMENT

7.4.1.6. BAMBOO JOINERY AND CONNECTION

1. Friction tight rope

One of the simplest ways of connecting bamboo pieces tight-rope connection. The following terminologies will describe the rope type joinery.

- Lashing: Lashing is used for joining two or more poles together with tying material
- Wrap: A wrap is a turn around two or more poles.
- Frap: A frap is turn made between two poles to pull the wrap together.
- Dowel: Dowel is a pin (wood or bamboo with fibers in longitudinal direction) of 10mm. Diameter inserted right through the pole.
- Clove Hitch: Clove hitch lashing is used for joining two or more poles together with tying, material.
- Square Lashing: Square lashing shall begin and end in a clove hitch. It shall be used in a condition where there is no tendency for poles to spring apart.

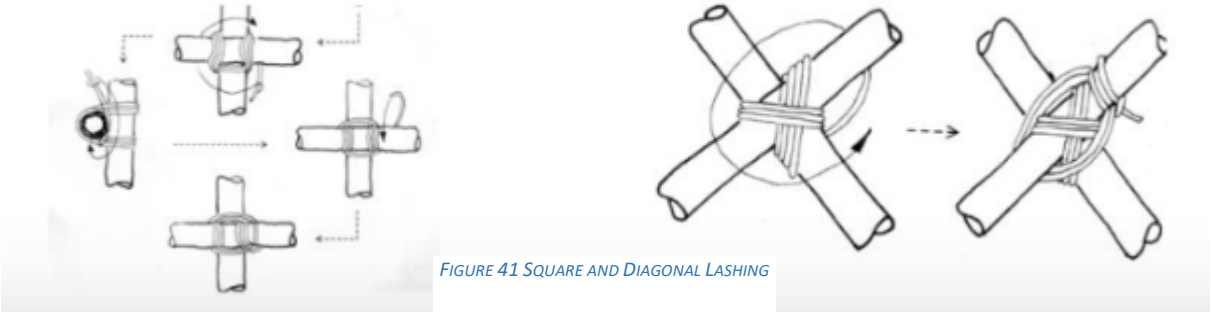


FIGURE 41 SQUARE AND DIAGONAL LASHING

- Diagonal Lashing: The square lashing shall begin and end in a clove hitch. It shall be used in condition where there i s tendency for poles to spring apart.

- Shear Lashing: A shear lashing shall begin end with a clove hitch. Two or more poles shall be first wrapped and then frapped to tighten the poles together.

FIGURE 42 SHEAR LASHING

2. Wedge Connection

Drive a wedge at the connection of two bamboo members is a simple way of connecting bamboo. The horizontal member end needs to be rounded in order to fit and not move around at the connection. On the opposite end of the vertical member a wedge (possibly mad of wood) is driven through and ends on the other side, inside the horizontal member. Due to the possibility of the wedge shrinking, additional structural supports are needed with lashing or bolts.

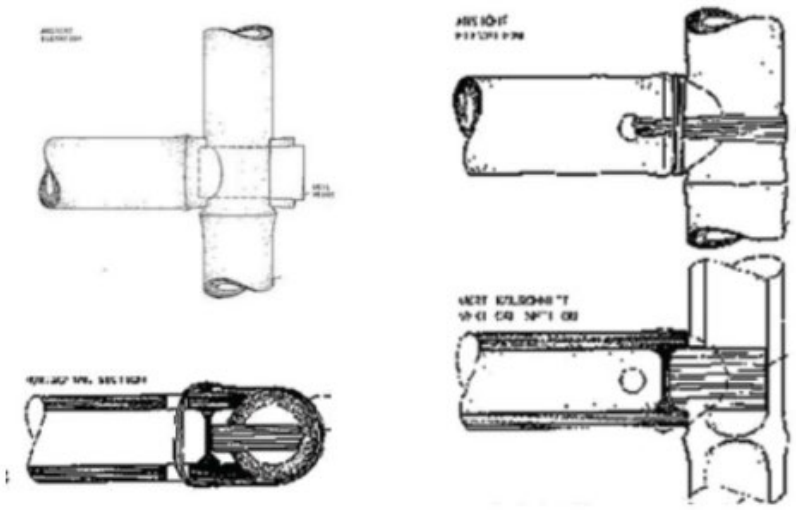


FIGURE 43 WEDGE CONNECTION

3. Inner Plug Connection

Like the wedge connection, the bamboo pieces are appropriately cut and between the two pieces are plug (possibly a wood block). Additional connections is required with the fastening of a rope which will prevent unplugging and also the plug helps the beam from slipping.

4. **Plugin/Bolt Connection**

   Plugin connections are similar in connections in wood with mortise and Tenon, and are considered seldom used in bamboo structures. It used with rope connection sometimes as well. To be installed not too close to edge of bamboo, due to chances of the plug breaking out and the bamboo splitting.

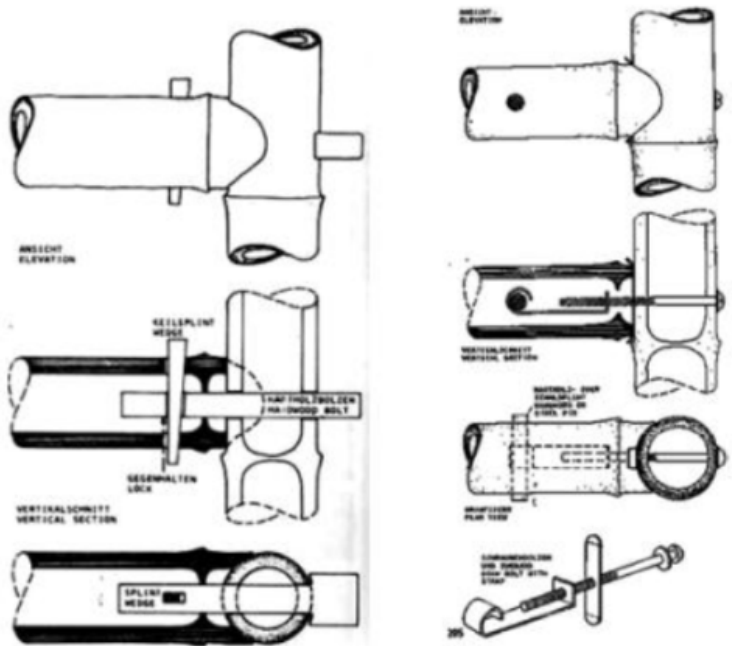


FIGURE 44 BOLT CONNECTION

7.4.2. COMPACT STABILIZED EARTH BLOCK

The soil, raw or stabilized, or a compressed earth block (CEB) is slightly moistened, poured into a steel press (with or without stabilser) and then compressed either with a manual or motorized press. The input of soil stabilization has made it possible to build higher with thinner walls, which have a much better compressive strength and water resistance. Compressed stabilized earth building blocks are usually larger in size than traditional burnt bricks.

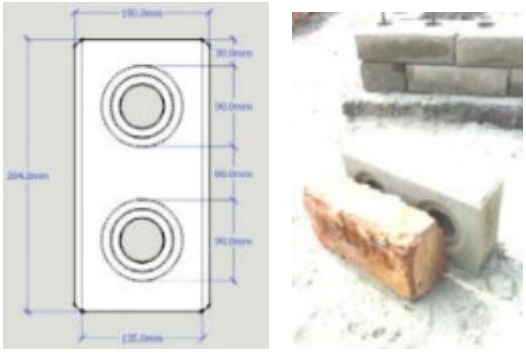


FIGURE 45 CSEB BRICKS

A typical block size of CSEB is 240 x 140 x 90mm with cement stabilization, the blocks must be cured for four weeks after manufacturing. After this period of time, they can dry freely and be used like common bricks with a soil cement stabilized mortar. The major advantage of CSEB are as follows:

- A local material
- A bio-degradable material
- Limiting deforestation
- Social acceptance
- Reducing imports
- A job creation opportunity A transferable technology
- Energy efficiency and eco friendliness
- Cost efficiency

Energy effectiveness

The production of earth-based materials consumes much less energy and pollutes much less than fired bricks. The pollution emission by CSEB is 2 4 times less than the wire cut brick, 7.9 times less than the country fired bricks. The energy consumption by CSEB is 49 times less than the wire cut brick and 15.1 times less than country fire brick.

Cost Effectiveness

CSEB are most the time cheaper than fired bricks. This will vary from place to place and specially according to the cement cost. The cost break up of a 5% stabilised block would depend on the local context CSEB masonry is always cheaper than fired bricks: 19.4% less than country fired bricks and 47.2 % less than wire cut brick.

7.4.3. WATTLE AND DAUB

They are a composite building material used for making walls, in which a woven lattice of wooden strips or bamboo called wattle is daubed with a sticky material usually made of some combination of wet soil, clay, sand, animal dung and straw. The technique is becoming popular again in more developed areas as a low-impact sustainable building technique.

FIGURE 46 WATTLE AND DAUB WALL

8. CULTURAL ESSENCE- PUBLIC LIFE

8.1. PUBLIC SPACE: DEFINITION, DIMENSION AND KEY ELEMENTS

In defining public space, it is essential to consider the meaning of the term "public".

(Chitrakar, 2015) suggests that "the word public originates from the Latin and refers to people, indicating a relationship to both society and the state". This suggests that "public" may be any entity, regardless of whether tangible or not, that relates to people and is shared by and open to them in a community as a whole. The concern here is space as the physical entity that is linked to the term "public". This provides a basic understanding of public space as the space that concerns people and may be interpreted "as [the space] open to people as a whole" (Chitrakar, 2015).

8.2. DIMENSIONS OF PUBLIC SPACE

The main dimension of public space are physical, social and psychological dimensions.

The physical and social dimensions of public space provide a setting for social interaction, while the psychological dimension is the perception of the space and how it helps develop a sense of community or place (Chitrakar, 2015). Community is built through social interaction and the use of public space. Design and development of public space should create a physical environment that encourages social interaction (Chitrakar, 2015)Public space is a key design feature that can foster a sense of community, as it invites people and encourages use and participation

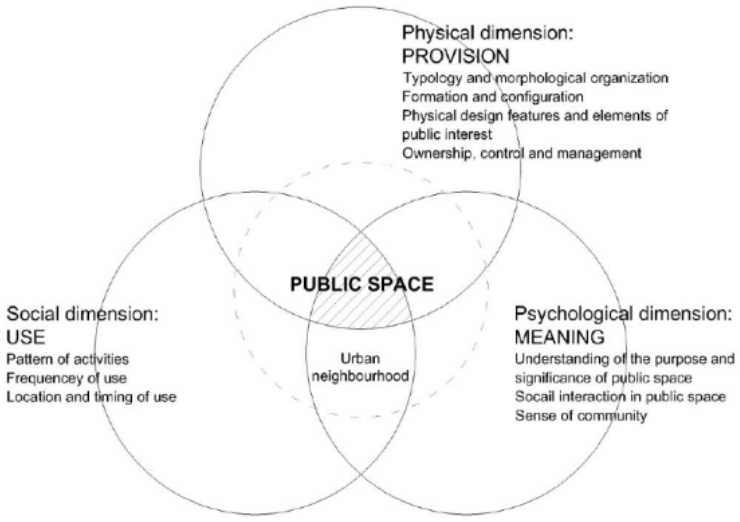


FIGURE 47 DIMENSION OF PUBLIC SPACE

8.3. KEY ELEMENTS OF PUBLIC SPACE

Successful public spaces are designed and developed in such a way that they are accessible and can attract a range of use and activities, providing an opportunity for socialization among the users. The four key elements of successful public space are:

1. Access and Linkage:
2. Sociability
3. User and Activities
4. Comfort and image

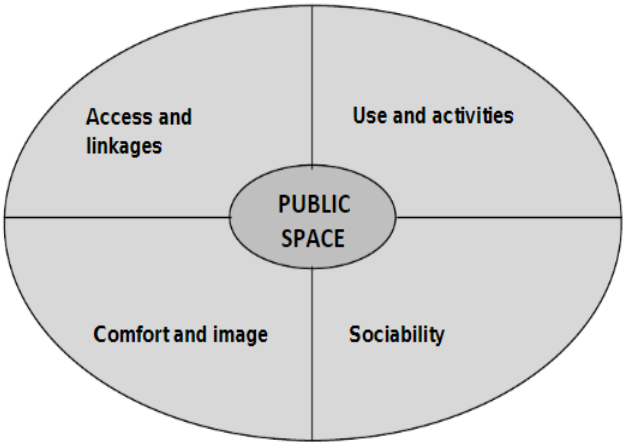


FIGURE 48 KEY ELEMENTS

8.4. PUBLIC SPACE IN THE TRADITIONAL MITHILA VILLAGE

8.4.1. COURTYARD

It is an important feature of the Maithili house, it serves as a private outdoor area with multiple uses like cooking, drying grains, washing utensils and other household activities. Climatically in a hot humid region like Janakpur it offers a passive cooling effect through air circulation.

Houses face towards the courtyard with minimum opening on the outer peripheral wall. A colonnaded verandah surrounds the courtyard. (Mithila art and architecture, VAASTU)

8.4.2. VERANDAH

They are used as resting place away from the sun. Here the member of family assembles and discuss about their personal experiences. (Mithila art and architecture, VAASTU)

8.4.3. DALAN

It is a living unit of the house where guests are received and is only accessible for male members of the family. It reflects that the male member is carrying the authority of the house and females are bound to be limited in kitchen only. (Mithila art and architecture, VAASTU)

8.4.4. DURA

An open space in front of the house is a common public space where one meets guests and interacts with the villagers. In the neighborhood place with public amenities like well one becomes part of the community, People of the village also share a large open space called Kaliyan for multiple uses as wedding party and agricultural activities. (Mithila art and architecture, VAASTU)

FIGURE 51 VERANDAH

FIGURE 49 DURA

FIGURE 50 CHOWKS

9. SPACES IN ART AND CULTURE CENTER

9.1. WORKSHOPS

Workshops are spaces designated for the production and repairing of manufactured goods and are common among residences for supporting art and craft hobbies and small businesses. Common workshop layouts include woodworking shops, model-building shops, cabinet shops, machine shops, and metal shops. Safety is the most important factor to consider when planning a workshop layout, with lighting, ventilation, and space work in combination to increase the safety. Typical workshop equipment includes storage areas, a workbench, and stationary machines. Tools themselves take up and require an amount of space, and this square footage increases when considering the operating space surrounding them (Lufkin, 2019).

A workspace includes three basic units of accommodation:

- Workspace area
- Storage for tools, raw materials, finished products, equipment, worker's belongings, etc.
- Services and amenities such as staff room, washroom, utility room, etc.

Generally, a workspace required to be designed is calculated as per place area. The calculation is based on common combination of fields of study. Per place workspace calculation for any field of activity will have to take an account on:

- Individual workspace area plus circulation about the area.
- The areas for common activities plus the associated circulation areas
- An area for tools, store and utility plus the circulation (Lufkin, 2019).

The general idea behind the production of craft related items is the production, display, sales. Thus, related studies were undertaken to understand these aspects. Various layouts and working environment were studied thereafter to get knowledge about craft related works.

Following studies were done to understand and review basic design space and consideration for specific purposes.

1. General Considerations
2. Design of Multi-field workspace

9.1.1. General Consideration

The following gives guidelines to designing and maintain relation with other activities:

1. **Freedom and Flexibility of Space:** Large ventilated rooms, with high ceiling and transitional areas, should be appreciated for ideal working conditions.

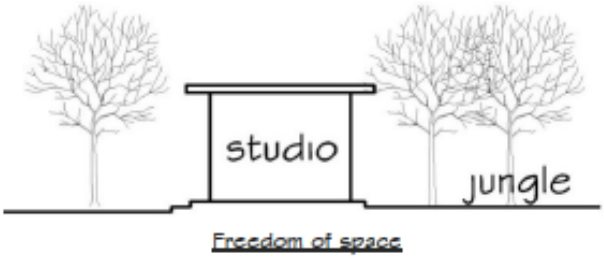


Figure 52 Freedom of Space

2. **Visual Environment:**

High-quality natural daylight, roof lighting, and daylight control are essential for successful studios

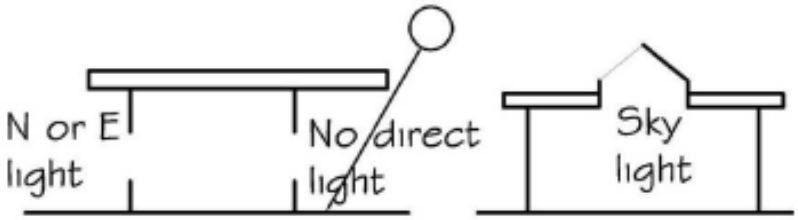


Figure 53 Natural Lighting

3. **Buffer zones:**

It is possible that noise producing workspace can affect the other. So, buffers can be created by additions of walls or vegetation.

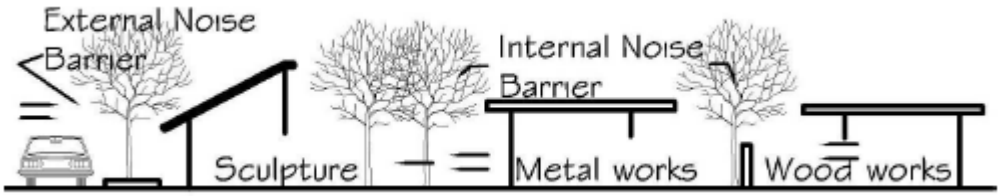


Figure 54 BUFFER ZONE

4. **Locating Space with respective to activities:**

Spaces should be provided according to functional requirement. Work which requires huge machinery or supply of materials should be placed on the ground floor.

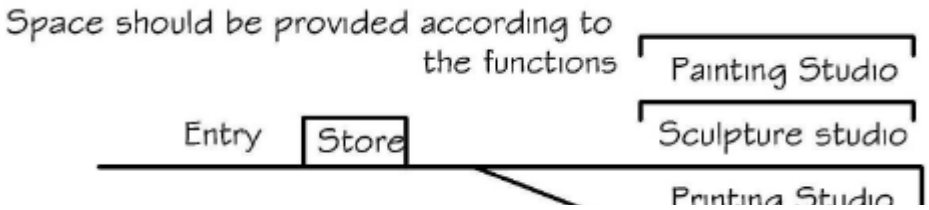


FIGURE 55 SPACES IN WORKSHOPS

5. Safety Measures:

Fire hazardous activities should be separated and isolated from other activities.

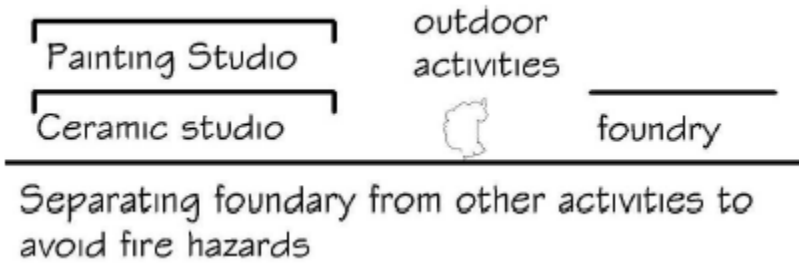


FIGURE 56 SEPARATING BOUNDARY FROM OTHER ACTIVITIES TO AVOID FREE HAZARDS

6. Thermal Comfort:

Thermal comfort in a workspace can be achieved through passive techniques such as proper ventilation, growing vegetation, and double glazing. Spaces created should be inter-related-studios, gallery, café, outdoor space should be interesting and inter-related. One cannot sit alone or isolated for longer time, it needs communication and transition of space.

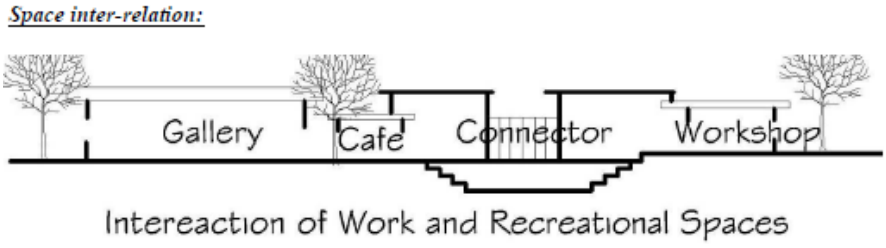


FIGURE 57 SPACES INTER CONNECTION

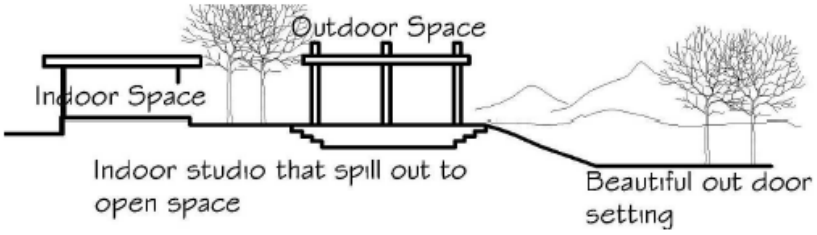


FIGURE 58 INTERACTION OF WORK AND RECREATIONAL SPACES

9.1.2. MULTI-FIELD WORKSPACE STUDIO INCLUDES:

A multi-field workspace includes three basic units of accommodation:

- Workspace area which includes various workspace such as machine room, planning and designing
- Storage area for raw material, finished work, storage space for tools and small, moveable equipment's, worker's belonging
- Services & amenities such as staff room, locker room, washroom

It is very important to learn about the final product that comes out from the studio. The character of each studio depends on the final process involved in the studio works. Each step and process involved in the studio work demand separate consideration while planning the studio. The planning depends on furniture required for studio work, materials, tools and also equipment's used during the process. Space planning is very much dependent on these requirements. It gives the idea of the studio area and storage area.

Users' studies: target and behavior:

- Artist: working hand of the workshop, working on all workshop and products.
- Staff: responsible for managing and organizing the whole facilities.
- Tourist: can be local people or overseas that want to learn and understand the culture.
- Youth: a generation that will ensure continuous cultural and traditional arts and craft from lost through understand and learn from it. Most of them will be the young people of same community.

Workspace for individual and group work:

General considerations should be: -

- Peaceful environment
- Feeling of freedom
- Outdoor setting
- Space arrangement
- Protective equipment / measure
- Locating workspace with respect to activities
- Buffer zone between workspace
- Lighting

Generally, a work space required to be designed is calculated as per place area. The calculation is based on common combination of fields of study. Per place work space calculation for any field of activity will have to take an account on:

- Individual workspace area plus circulation about the area
- The areas for common activities plus the associated circulation areas
- An area near one of the individual or other work spaces for tools and temporary work store and an area for work space.

9.1.3. POTTERY STUDIO

Pottery is made by forming a ceramic (often clay) body into objects of a desired shape and heating them to high temperatures (1000-1600 °C) in a kiln and induces reactions that lead to permanent changes including increasing the strength and solidity of the object's shape. Much pottery is purely utilitarian, but much can also be regarded as ceramic art. A clay body can be decorated before or after firing ("Pottery," 2023)

Electric wheel *Traditional wheel* *Crafting elephants by hand*

FIGURE 59 POTTERY STUDIO EQUIPMENT'S

The traditional items of the pottery industries in Nepal are made using locally available raw materials and using traditional technology. Clay is used to make these products and red clay is used to color them. Cartwheel or different keys are used to make the items and firing process is used to produce final products. Pala (a small bowl-shaped clay pot), gagri, surahi and ghyampo (clay pot for collecting and storing water), flowering pot, makal, heater, handi, khutrukke used for collection of money, and other gift items are produced by traditional pottery industry in Nepal. Ceramic products are the modern products of pottery industry, with different chemicals or glaze used (Shrestha, 2018)

The following were the technique used in traditional ceramic:

- Pottery is made on traditional wooden wheel.
- Coloring is done.
- Pots are dried out on the sunny day.
- Preparation for firing the pots with straw arranged in many layers.
    -

Materials, Furniture, Tools, and Equipment Requirements:

- Basic raw materials for pottery: Clay, Water, Colors, glazes etc.
- Types of furniture required: Portable clay cabinets, Damp proof drying cabinets, working tables, Spray booth, Kneading table, Sinks.
- Tools and Equipment: Wedging boards, Kiln carts, Gas ceramic Kiln, Electric Kiln, and Enamel Kilns (Shrestha, 2018)

Ergonomics in a Pottery Studio

Incorporate a minimum height range of 27.6 inches and a maximum height of 56.2 inches for workstations/worktables, palletized pieces, shelving units, and items on carts to eliminate overhead reaching and bending.

- Store materials at waist height and use pallets to raise cart surfaces.
- Use scissor lift tables, pallet carousels, and collapsible carousels to access loads from various angles.
- Eliminate lifting and carrying heavy items, use carts for long distances.
- Provide a faucet hose extension to eliminate lifting buckets into and out of the sink.
- Personalize pottery wheels and stools to reduce back pain and discomfort.
- Do not perform repetitive activities (wedging, throwing, and trimming) in long sessions.

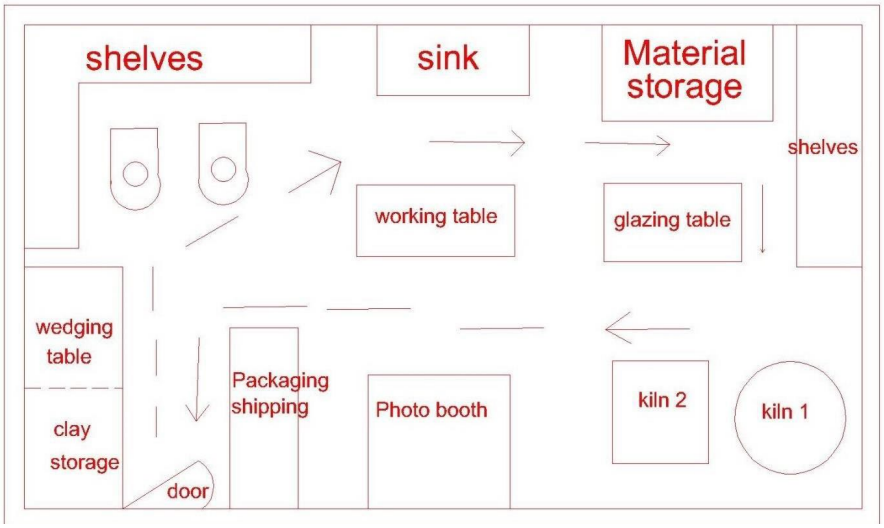


FIGURE 60 LAYOUT OF POTTERY STUDIO

9.1.4. PAINTING STUDIO:

Drawing is the basic tool, with the help of which an artist can make a design or image, using line or tone on any suitable surface. The design or image itself is called drawing.

Design requirement for drawing studio

- Drawings can be carried out in general studio space. No special machinery is required.
- As a rule, dust proof cubicle and store are required with a spray room about 30sq.m.
- Area of 120 sq.m.is sufficient for 20 students. Benches should be 4‘6" length & 2‘8"width per student
- Natural north and east light are preferred for drawing activities. If daylight is not enough, artificial light should be provided in preferred way.
- Display boards should be provided on the walls. Moreover, studio area should not be obstructed by any kind of structural member like pillar (Shrestha, 2018).

Design requirement for drafting studio:

- Design requirement is similar to drawing studio except for the furniture. The layout of the room should be such that each student can work on his own drawing table
- Display boards are required for teaching
- Storage area for papers, drawing is required
- Natural north and east light are preferred for drawing activities. If daylight is not enough, artificial light should be provided in much preferred way (Shrestha, 2018)

9.1.5. BAMBOO BASKETRY STUDIO

The production of bamboo-based products is a traditional technology that has been practiced for more than a thousand years and is widely distributed. Manufacturing bamboo-based products combines traditional weaving skills with modern technology. The majority of the bamboo-based industries are grouped as cottage and small-scale enterprise.

Bamboo is a natural resource that plays a major role in the livelihood of rural people and in rural industry. It is used for weaving products such as sofa, dining tables, baskets, trays, jars, boxes, cases, vases, folding screen, models of animals and figures, building, furniture, lamps and lanterns, bags, toys, fans and mats. Bamboo woven articles are made with various widths, thicknesses, lengths and sizes of bamboo splits made from bamboo culms, based on the design of the products. There are two kinds of bamboo splits used for weaving: bamboo threads and bamboo strips. Manual crosscutting, splitting and slivering of bamboo culms is normally done by men with various tools like knives. More experience and higher levels of skill are required to weave superior quality handicrafts, and these can only be learnt from master craftsmen and women (CHAPTER IV BAMBOO BASED INDUSTRY: AN OVERVIEW , n.d.).

Bamboo Treatment: For construction use, mature bamboo between 3–5 years old is selected. It shrinks less when dry and its starch and sugar contents are low so there is less chance of insect infestation. Upon arrival at CLC, the bamboo is separated according to usage.

FIGURE 61 BAMBOO BASKETRY CRAFTS

Procurement of raw materials:

- Drying
- Chemical treatment
- Shaping the bamboo pieces
- Sharping and smoothing
- Weaving
- Assembling
- Polishing and brushing

Materials, Furniture, Tools and Equipment Requirements:

The tools required for weaving bamboos are strip knives, saws, striking planks, sharp knives, shaving knives and hand drills. These tools can easily be purchased from any tool supplier or can be made by the weavers themselves.

Although cross – cutting, splitting of bamboo culms and making strips and threads can be done manually, machines are normally used to increase productivity, reduce wastage of raw materials, increase the yield of bamboo strips and remove drudgery in the primary processing of the culms. The main machines are crosscutting machine, sliver-making machine, splitting machine and width sizing machine.

Design requirement for Bamboo basketry studio:

- Total area required for bamboo workshop = 47.2 m²
- Processing station =47.2 m²
- Manufacturing station
- Basket weaving and handicrafts = 24 m²
  (1 person per station and 3 station for handicrafts and 3 station for basket weaving)
- Circulation space = 19.2 m²

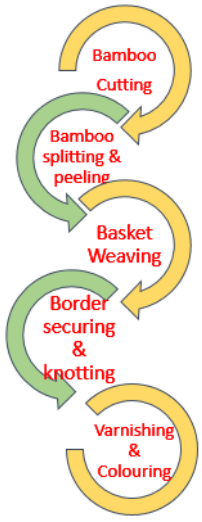


FIGURE 62 PROCESS FOR BAMBOO BASKETRY MAKING

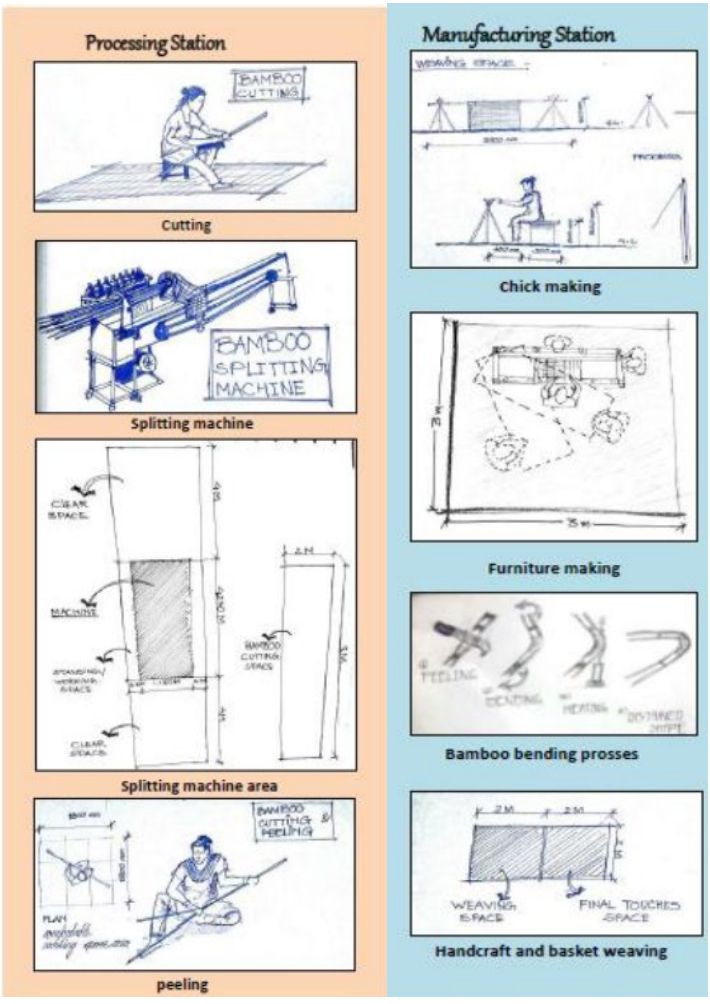


FIGURE 63 PROCESSING SECTION, MANUFACTURING SECTION

9.1.6. SEWING SPACE:

It is one of the vocational trainings where people are taught sewing and they develop themselves by learning and creating materials.

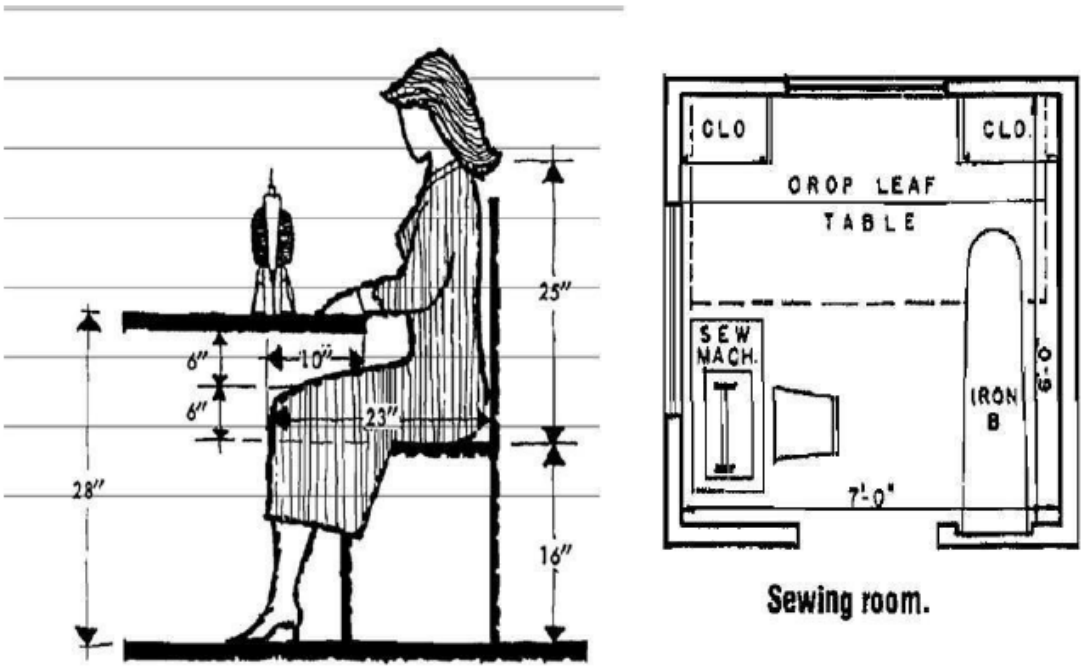


Fig. 13 Mean heights and clearances for sewing machine use.

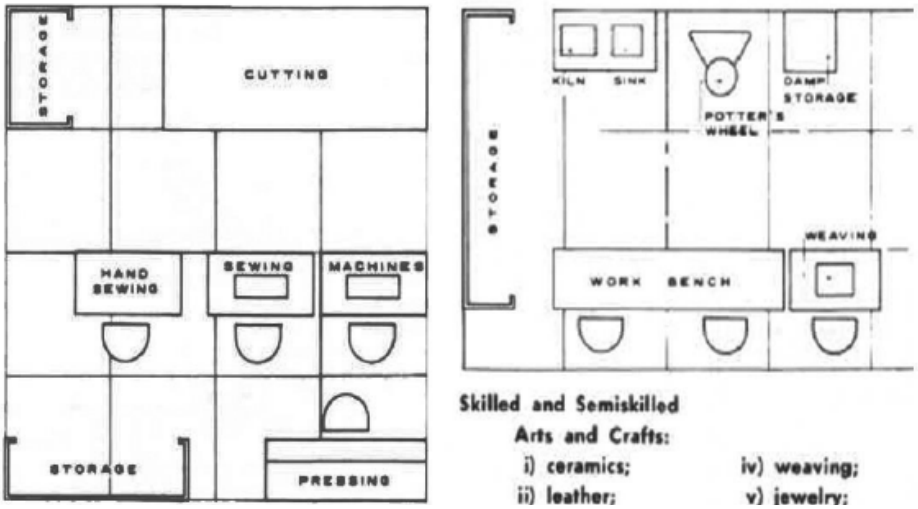


FIGURE 64 SEWING DIMENSION

Skilled and Semiskilled

9.2. TRAINING FACILITY

Training facility means the place or places in which the training program is conducted. A training facility for art and craft must have flexible learning environments that are safe, healthy, comfortable, aesthetically pleasing, and accessible. It must be able to accommodate the specific space and equipment needs of the training program and curriculum. For a facility like art and craft center the concept of learning by doing and work integrated learning must be applied in order to make the training procedure much more efficient and effective (NIBS, 2017).

The training spaces for art and craft center can be of various types depending on the nature of the course and the needs of the students.

9.2.1. CLASSROOMS

- **Practical Class (basic/ advanced):**

Multipurpose space accommodation as per the requirement of the space.

Design standards:

a) Paper and clay work: 32m² for 25 people
b) Wood and metal work: 82m² for 25 people
c) Drawing room: 90m² for 25 people

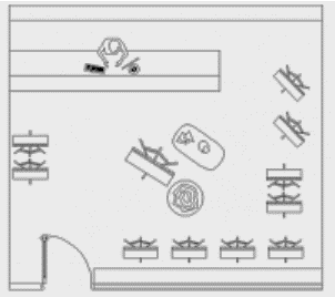
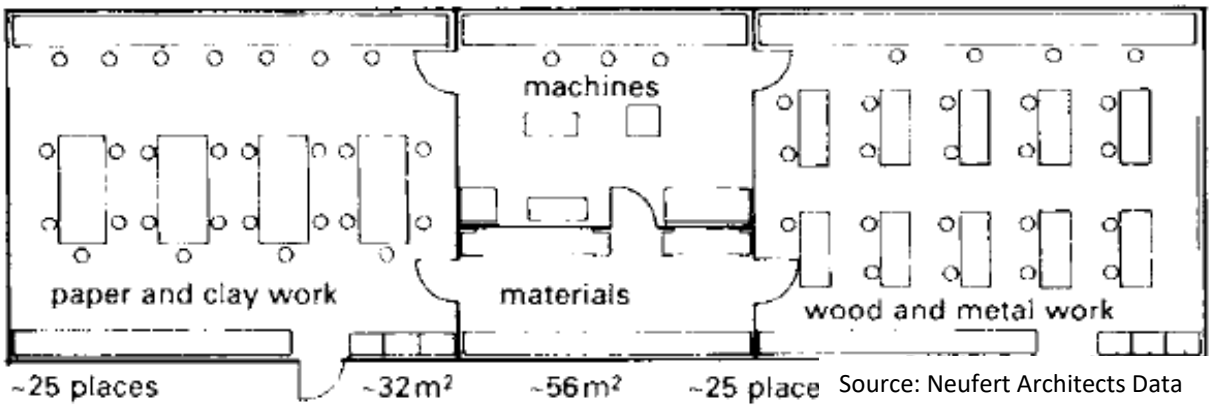


FIGURE 65 DRAWING ROOM



Source: Neufert Architects Data

FIGURE 66 MULTIPURPOSE SPACE

- **Theory Class (basic/ advanced)**
  - 3'-6" space between seats centers laterally.
  - 4'-6" gap between end seat center and side wall.
  - 10' between front seat center and chalkboard.

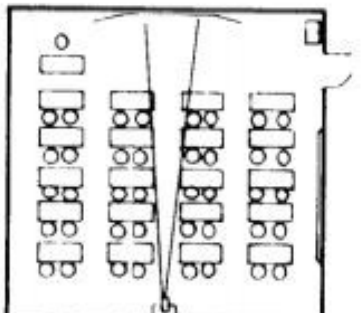


FIGURE 67 CLASSROOM LAYOUT

9.2.2. SEMINAR HALL

Multiple-purpose, small- medium size instruction rooms, usually used to accommodate a small number of people.

- Standard size for a rectangular seminar room: 0.2 – 0.25 m2/ seat
- Standard size for a trapezoidal seminar room: 0.15 – 0.18 m2/ seat
- Auxiliary spaces are; space for storage, service room

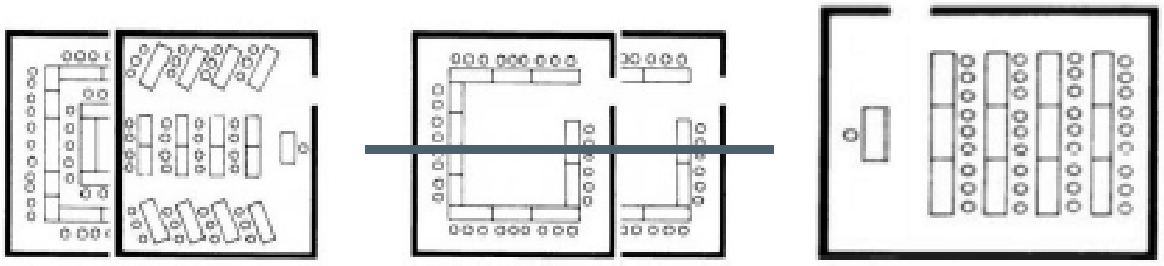


FIGURE 68 PROCESS FOR BAMBOO BASKETRY MAKING

9.3. LIBRARY AND RESEARCH ROOM

Library is a place to access information through different media which is used by different age groups, literacy levels and interests. It is a collection of information resources in variety of forms that is organized and made accessible to all members of the community. The libraries may range in size from one-room facilities in sparsely populated rural areas to large multi-branch systems that serve millions of people in urban areas

Libraries are of three basic types:

- Lending libraries with minimal or no reader areas
- Reference libraries with large reader areas and few or no lending facilities
- Libraries with reference/ study areas plus lending facilities.

Access:

- Libraries strive to keep their collections and services open to all members of the community, regardless of age, citizenship, occupation, economic status, educational level, ethnicity, or background. There are two forms of library in relation to book storage: public and private.
- Closed access, where the general users have to ask for the material they need.
- Open access, where some or most of the material is on open shelves on which the users may browse. Even in this type of library, however, some closed storage will be required for valuable stock and for obsolescent material.

9.3.1. BASIC PRINCIPLES WHEN PLANNING FOR LIBRARY INCLUDES:

- Simplicity of design concept (collections, seating for readers, and staff require adjacencies to each other that are clear to the user)
- Ease of supervision by library staff.
- Comfortable reading space.

9.3.2. SPACE REQUIREMENTS:

- Space for books: 15 books per sq ft.
- Space for staffs: 100 sq ft per staff member. Reading rooms 20-35 sq.ft per user
- Space for group meetings: this space can be used for conference, audiovisual equipment's: 7 to 10 sq ft per seat.
- Space for readers: min. 30 sq ft per adult and min. 20 sq ft per child.
- For Art Library (excluding oversize)
- Volumes per foot: 7
- Volumes per single: 147

9.3.3. SEATING SPACES:

- Seating includes small group study table, large group study table, single reader study table, lounge seating, more preferable for periodical reading.

- A table for four occupies 4'x 6' (footprint), 3' behind each chair and 2' on both ends of the table for a total assignable square footage of 100 square feet (10'x 10'). At least, 5' space between two tables.

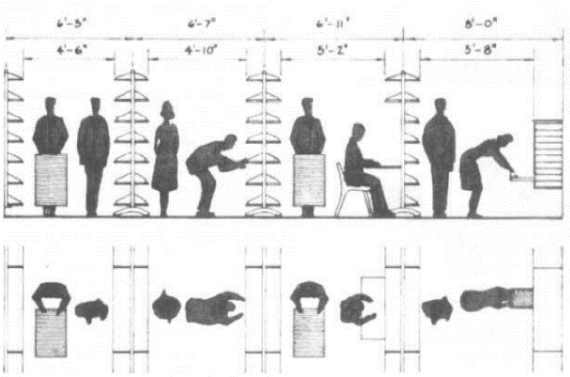


FIGURE 69 STACK AREA STANDARDS

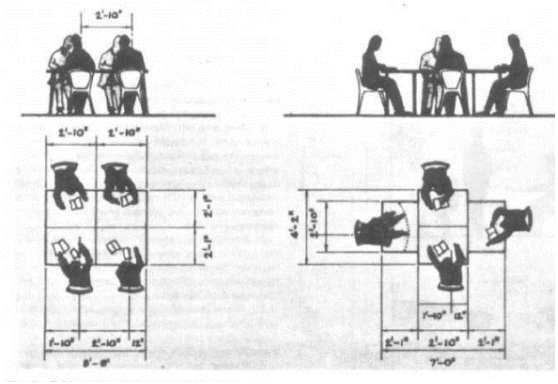


FIGURE 70 TABLE SPACE STANDARDS

Source: Time Saver Standard

9.3.4. LIGHTING IN LIBRARY

Lighting should be appropriate to the use to which the area is put. Lighting is also an area with some of the greatest potential for cost savings in energy usage. Maximum utilization of natural light and efficient artificial lighting not only saves extra energy used for lighting, but also reduces cooling load in a building. Library is a sensitive space for light where every part has to be proved with appropriate lighting intensities. Bookshelves should be protected from daylight.

9.4. DISPLAY SPACE

Generally, display refers to show or attract attention. Displaying spaces are a source of communication. Craft made and displayed are made commutable through these displays' spaces. Exhibit and display area are important in art and craft centers. Display spaces can be in form of Museum, Gallery, Showroom, shops and so on. The project includes two types of display spaces.

- **Showroom/Souvenir shop**- A showroom is a large space used to display products for sale
- **Gallery/ Exhibition hall**- Gallery is a formal space for displaying various items of art and craft. Spaces provided can be for permanent, semi-permanent o special exhibits that are held from time to time. Care should be taken while fixing devices and furniture

in walls, floors and ceilings so that maximum space is left vacant (Neufert Architects' Data Third Edition).

For planning and designing of an exhibition hall, following considerations have to be made:

- A clear idea of what would be exhibited.
- Number of exhibits planned per year
- Change in the kind of exhibits
- Number of pieces in view in case of permanent exhibits
- Scale of displays
- 3d objects to be displayed in cases or pedestal (Neufert Architects' Data Third Edition).

9.4.1. SHOWROOM/SOUVENIR SHOP

The Souvenir Shop has a gross floor area of 300m² and a visitor capacity of 150. The aim of the Shop is to sell souvenirs to visitors. The Tenant may fit out or redecorate the Shop during the term of the tenancy at its own cost and in accordance with the design parameters set out herein.

A gift shop or souvenir gift shop is a store primarily selling souvenirs relating to a particular topic or theme. Items sold include coffee mugs, stuffed animals, t-shirts, postcards, handmade collections and other souvenirs. Shop layout guides product placement, directs customer flow, and defines the overall look and feel of store. Floor plan choice is important, as it affects the size and shape of sales floor, the types of products to sell, and the customers to attract. These stores are sometimes a source of financial support.

Design Parameters

- The Shop space is designed to provide a well-designed, high-quality environment for purchasing gifts and souvenirs.
- The Shop space should have a large entrance (at least 1600mm in width), but not a "pinch point" to distract from the atrium.
- The space should be orderly and minimal, with a focus on flow of customers.
- The space should have a partially translucent façade and be set back 500mm from the façade to maintain translucency.
- Materials and finished used must be natural materials from a sustainable source and match exact quality, finish and shade.
- Planning and design of the shop should meet:

➢ Theme of the Shop
➢ Interior design layout plan
➢ Particular specifications of decorations and materials used

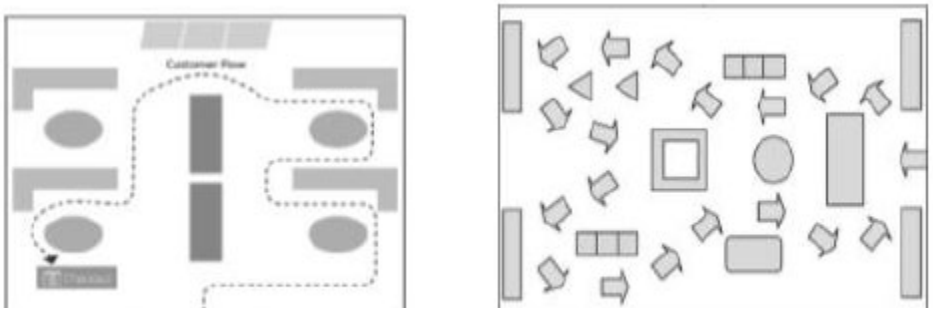


FIGURE 71 GENERAL FLOW DIAGRAM OF THE SHOP

9.4.2. ART GALLERY & EXHIBITION SPACE

The basic objective of the gallery/ exhibition space is to collect, preserve, study and exhibit significant objects of arts and culture and provide related educational services in order to increase public knowledge and stimulate creative activity. There must be sufficient diversification of spaces to allow each function to be undertaken separately while at the same time combining certain activities in a single area as required.

SPACE LAYOUT

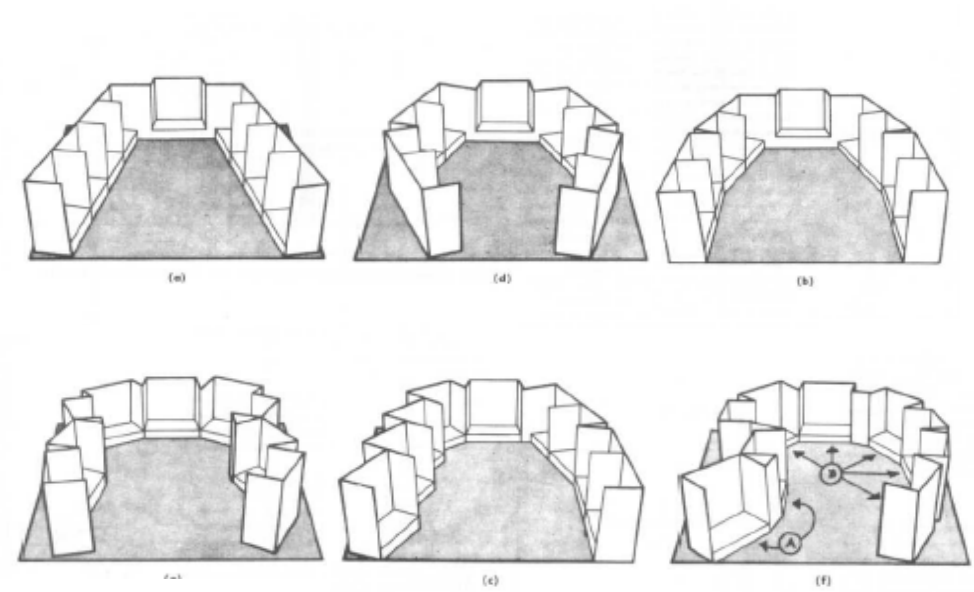


FIGURE 72 POSSIBLE SPACE LAYOUT

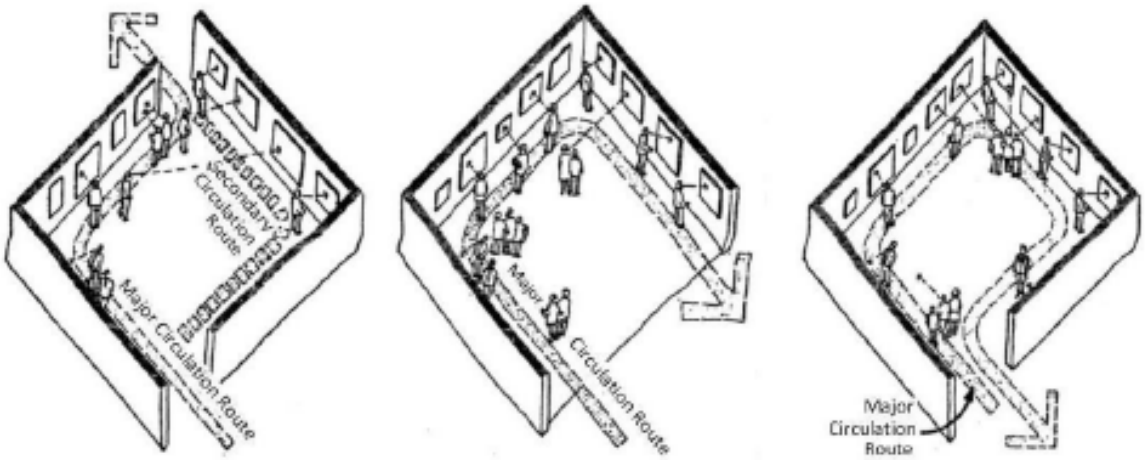
Source: Time Saver Standard

CIRCULATION

The museum should have clear circulation and organized spaces, self-evident and direct, reinforced by well-designed signage, and allow flexibility and choice for visitors to explore.

There must be only one public entrance, placed quite separately from the others. This should lead into a vestibule where certain essential services will be located-sale of tickets, information service, and sale of catalogs and postcards.

The entrance hall should be attractive and provide an easy introduction to the gallery, with two doors to the exhibition rooms. They should be far enough apart to prevent delay and placed in such a way that both can be easily watched at the same time



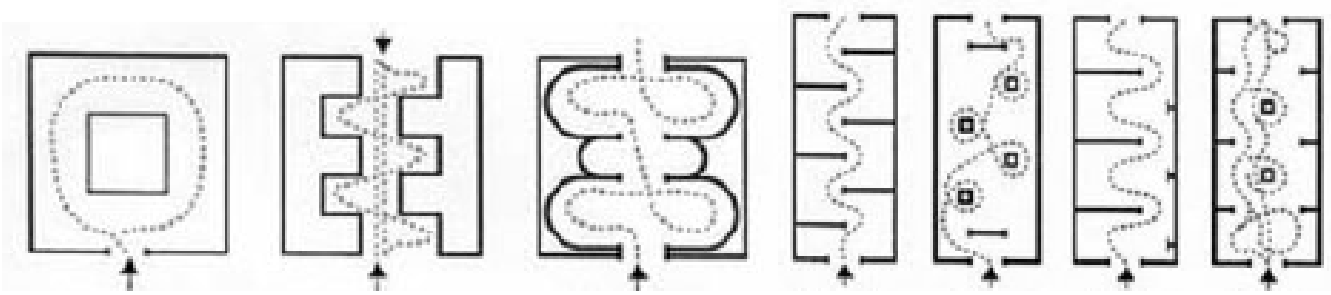


FIGURE 73 DIFFERENT CIRCULATION PATTERNS

Source: Time Saver Standard

Gallery is one of such space which needs to take care of universal design. The passage in the gallery should be such that it allows free movement of one wheelchair and a person walking side by side.

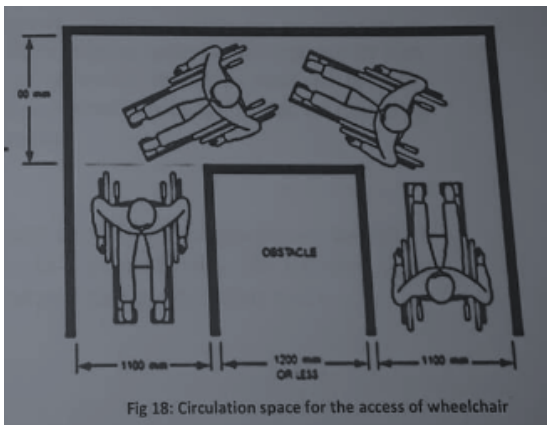


FIGURE 75 CIRCULATION SPACE FOR THE ACCESS OF WHEELCHAIR

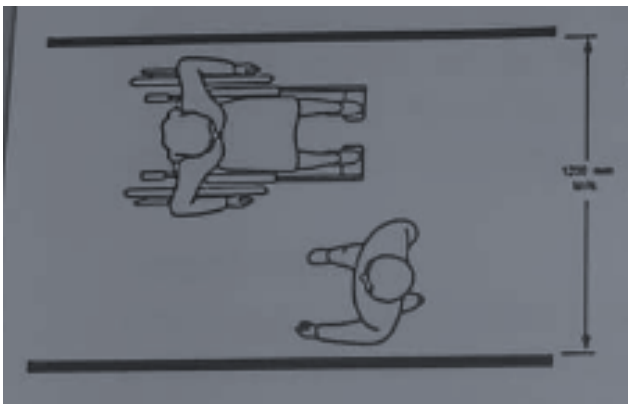


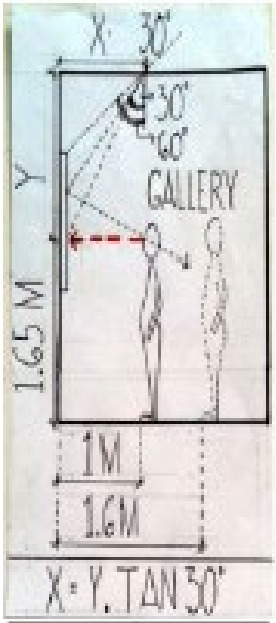
FIGURE 74 WIDTH FOR CIRCULATION PASSAGE

VIEWS

- Exhibits should be displayed in a way that allows the public to easily recognize objects within an elliptical cone at eye level. The mean adult eye level height is about 5"-21/4".

- The adult visitor must observe an area only a little over 1 foot above their own eye level to 3 feet below it at an average viewing distance of 24-48 inches. Arranging objects and labels above and below these limits places a strain on seldom used muscles and can lead to aching backs, tired feet, burning eyes and stiff necks. Large objects such as totem poles must be allowed space to comprehend them without becoming a case for an orthopedic specialist.

- Visitors will find the room more attractive if the cases are arranged with gently curved lines, creating a sense of mystery and a desire to peek around corners. (Neufert, 3rd edition)



ROOM HT.	X
2.7 m	0.6m
3.3m	0.95m
4.0m	1.35m

FIGURE 76 MEASURING VIEWING ANGLE

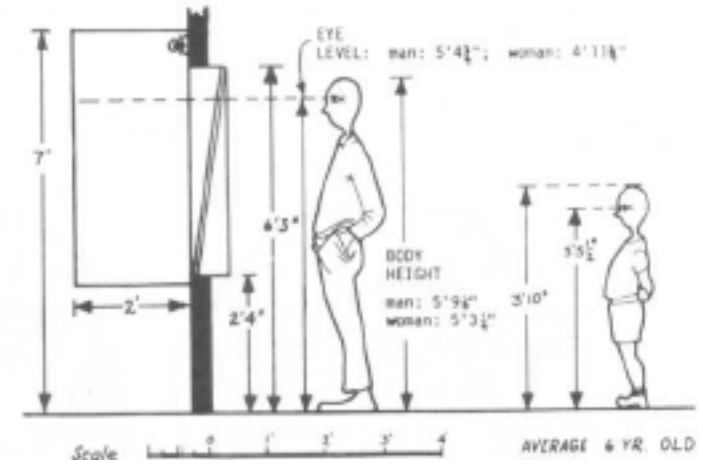


FIGURE 77 MEASUREMENT OF ADULT AND SIX – YEAR OLD VISITORS IN RELATION TO CASES

LIGHTING

Light is the main source of visual perception. It is important to every living creature on earth. So, lighting any space or area is very necessary. Lighting can be of two types

- Natural and
- Artificial Lighting

NATURAL LIGHTING:

Natural lighting is one of the important factors in the museum design. The use of artificial light is considered to be more adaptable to give the required effect but this will increase the running expense of the museum. So, the use of natural lighting is in museum design has to be explored.

Different methods of Natural lighting

In natural lighting the usual means of letting the natural light and air inside the building is through the windows.

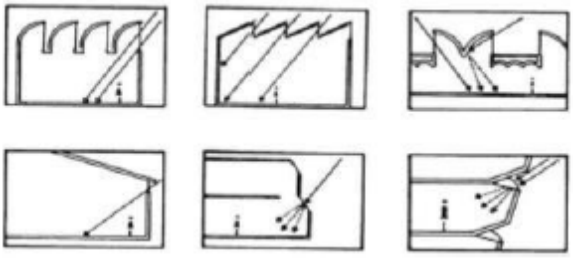


FIGURE 78 NATURAL LIGHTING

- Lateral lighting
- Ribbon windows
- Side lighting at high level

Use of Natural light

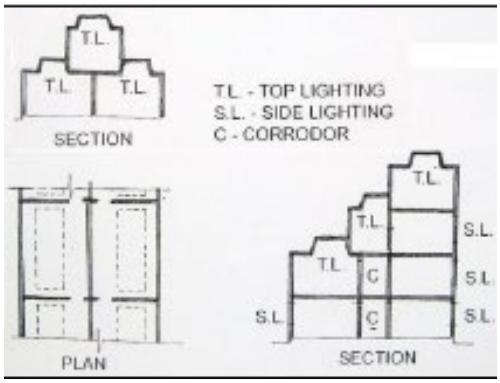


FIGURE 80 GALLERY SIDE LIGHTING

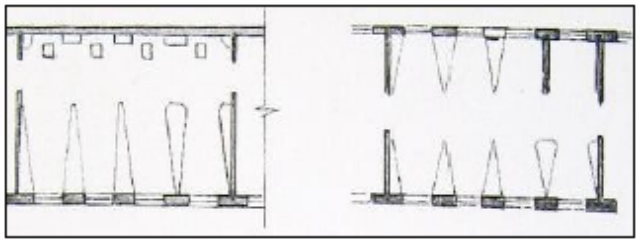


FIGURE 79 GALLERY TOP LIGHTING

ARTIFICIAL LIGHTING:

Artificial light has the advantage of reaching the most inner places; it is easy to install and control. Artificial lighting is flexible can be molded in any situation to provide the required outcome. Artificial lighting is divided into two parts: Direct artificial lighting is mostly used for lighting objects. This type of lighting is following types,

- Recessed in ceiling or wall
- Surface mounted ceiling wall
- Suspended from ceiling
- Portable lamps

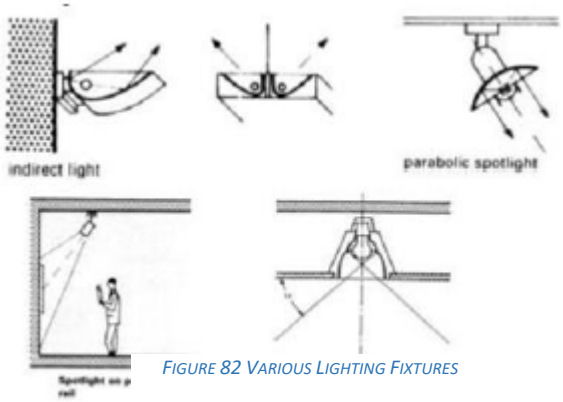


FIGURE 82 VARIOUS LIGHTING FIXTURES

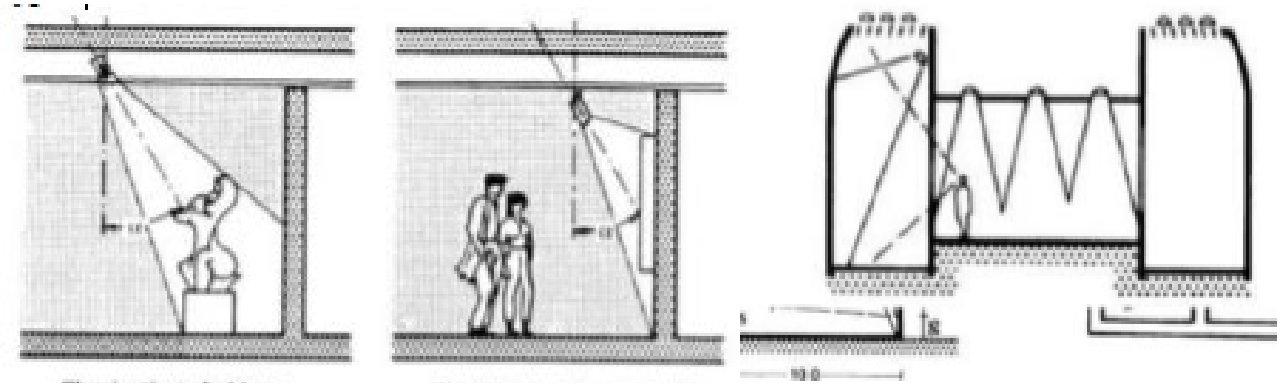


FIGURE 81 TYPICAL CROSS-SECTION OF MUSEUM

Use of Artificial light

To accommodate changing displays, the lighting design should be flexible. This can be achieved with track-mounted lights which can be easily adjusted. The quality of light must be suitable for all objects displayed. Displays can be flat, two-dimensional objects on vertical surfaces, three dimensional objects or display cases.

Two-dimensional lighting

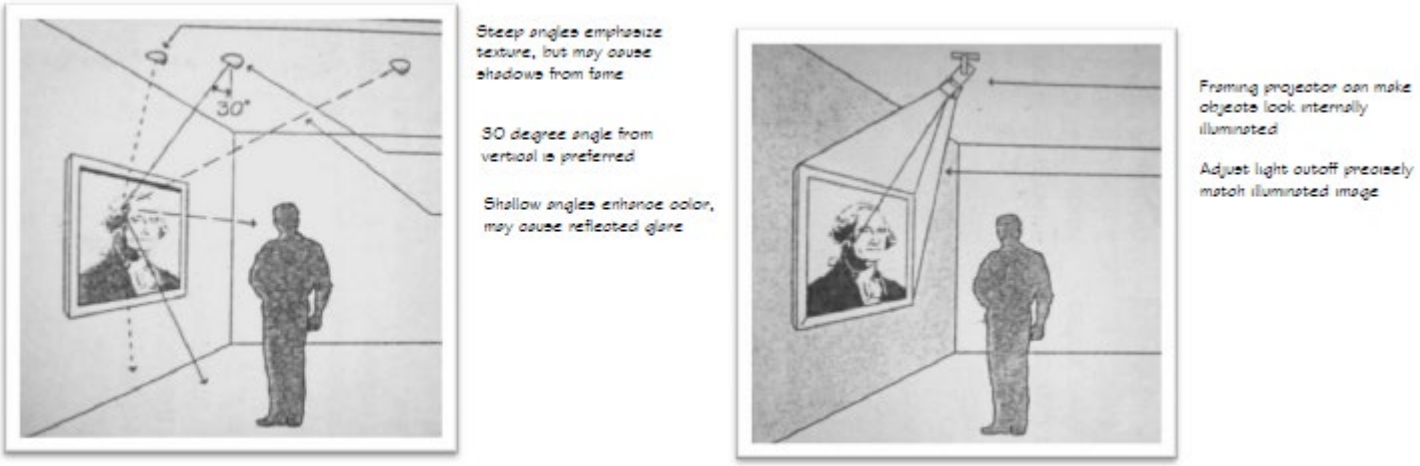


FIGURE 83 TWO-DIMENSIONAL LIGHTING

Three-Dimensional Lighting:

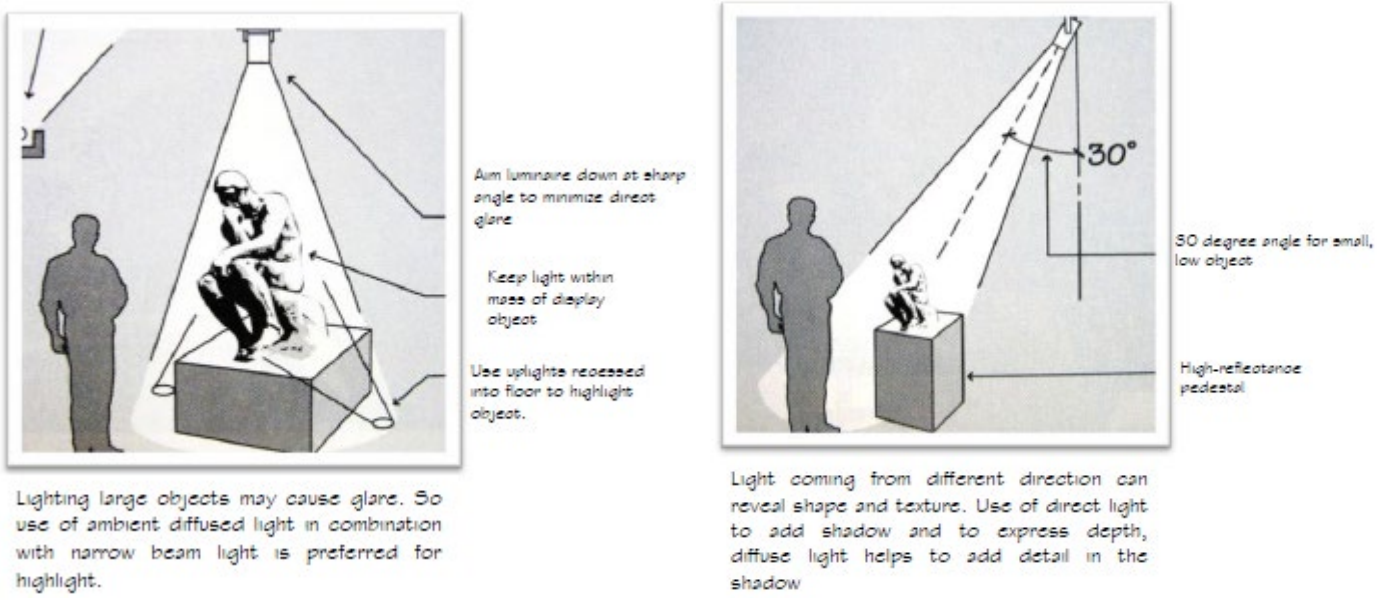


FIGURE 84 THREE-DIMENSIONAL LIGHTING

TECHNIQUES FOR ARTIFICIAL LIGHTING

The angle measured from a point at the wall are 5'4" above the floor should be between 45 and 75° rooms horizontal to the lamp position in the light fixture.

Depending upon the types of spaces in the museum the requirement of level of illumination varies from place to place. Thus, the general lighting level preferred at different spaces are

TABLE 2 DIFFERENT SPACES ILLUMINATION

S.No	SPACES	ILLUMINATION
1.	Classroom & lecture room(desk)	300 LUX
2.	Laboratories	400 LUX
3.	Art room	600 LUX
4.	Work shops	600 LUX
5.	Libraries	400 LUX
6.	Offices	450 LUX
7.	Staff room	250 LUX
8.	Staircases	100 LUX

TABLE 3 THUMB RULE FOR VIEWING DIMENSION

S.No	Ceiling Height	Approx Distance
1.	8'	22"
2.	9'	24"
3.	10'	30"
4.	11'	36"

PLANNING AND SPACE ORGANIZATION

The area in the museum building can be divided into two broad categories:

I. Public area
II. Service area

Public area will include the galleries, an auditorium for meeting, lectures, film shows and library, while the service area is needed for offices of administration and technical staff, store rooms, workshops, air-conditioning plants and electrical plants as well as preservation laboratory.

In addition to these, there must be provision for toilets, and cloak rooms for public and staff separately and water-rooms for public and staff separately and water-rooms for drinking water which are very essential as well as enough corridors and staircases for circulation.

Planning of galleries is mainly dependent on the type of collection and the lighting needed for the same. The size of the rooms and the height of the ceilings will be determined by the nature and the dimensions of the objects. For ethnographic and folk museums, big hall with high ceilings is needed. As full-size dummies are used to display costumes in showcases, artificially lighted galleries are more suitable for this type of museum.

9.5. PERFORMING SPACES

In traditional Mithila settlement, Dura, aangan, and chowks were the public performing spaces.

Types of Performance- Audience Arrangements

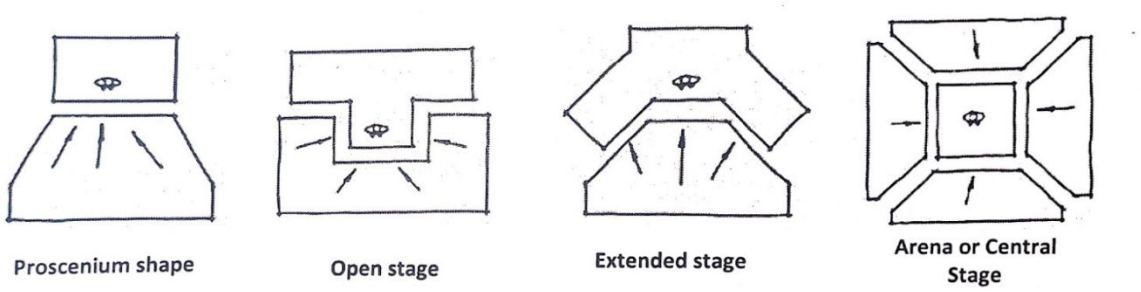


FIGURE 85 BASIC FORMS OF SEATING

In Proscenium shape, audiences are arranged in only one direction; in Open Stage, the audience surround from three sides. In Extended stage, multiple scenes may carry on at a time in side stages and in central stage. In Open Stage, stage is surrounded by seating in all four sides. Proscenium shape is the most widely recommended in design.

9.6. ADMINISTRATION SPACES

Plan of business where professional or clerical duties are performed. The term general office applies to space used primarily by secretaries, data entry personnel, clerks, and the like.

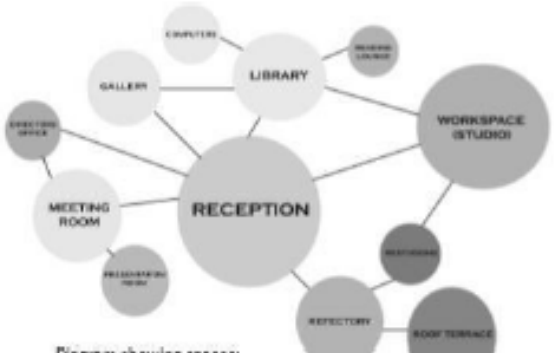


FIGURE 86 ZONING OF ADMINISTRATION BLOCK

9.6.1. GENERAL REQUIREMENTS

- Space per person: 8m2 to 13m2 (optimum 10m2)
- Area per floor: 450m2 to 54m2 (no need of doubling the no. of lifts, escape routes and lavatories)
- Most commonly used column spacing: 25ft; min.20ft
- Floor to floor height: 12ft. (11ft. to 14ft.)
- Finished ceiling height: 8ft. to 8.5ft.
- Minimum width of elevator lobbies: 6 to 9ft.

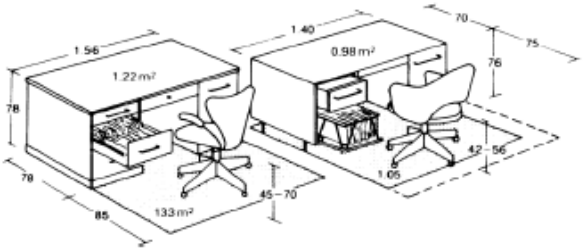


FIGURE 87 OFFICE FURNITURE DIMENSIONS

- General corridor widths: 5 to 6 ft.
- Maximum distance from the employee desk to nearest exit: 150ft.
- Maximum distance from desk to rest rooms and drinking fountains: 150ft.
- Lighting requirements:
  - Corridors: 200lux
  - Conference and reception: 300 to 400 lux.
  - General office: 400 to 600 lux (Neufert Architects' Data Third Edition).

9.6.2. CIRCULATION SPACE

- Aisles leading to main Exit from areas which carry substantial Traffic (main aisle) should be 60”
- For moderate amount of Traffic Should be 48” wide
- Aisles between rows of desk should be 36” wide

9.7. RESTAURANT AND FOOD COURT

There is no doubt that students, trainers, employee and shoppers demand facilities for rest and refreshment. Providing dining facilities through judicious placement of restaurants and food- courts can be a medium to attract people in the training center.

Spatial layout and functions

- Entry
- Dining Space - It is the main room of a restaurant and facilities should correspond with the type of operation. A number of additional tables and chairs should be available for flexible table groupings.
- Waiters' station - It is the space from where waiters perform their duties, from where they are distributed, they look after customers and from where they provide service to customers.
- Counter
- Bar
- Kitchen
- Store - cold store/dry store
- Administration (manager’s office, meeting room, staff's room, changing room etc.)
- Service entry
- Other spaces (meeting hall, conference room, children's play area etc.)

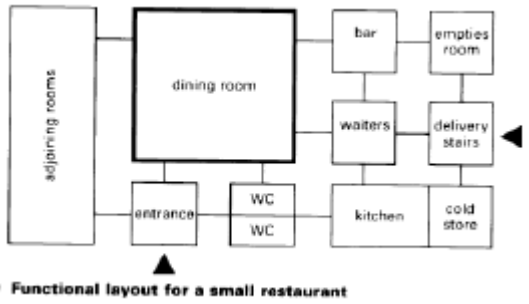


FIGURE 88 FUNCTIONAL LAYOUT FOR A SMALL RESTAURANT

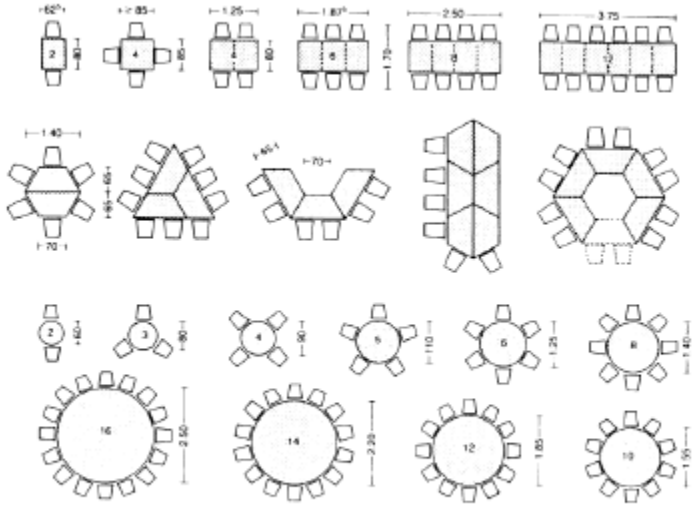


FIGURE 89 TABLE SEATING LAYOUT

9.7.1. RESTAURANT: DESIGN CONSIDERATION

a. Types of Restaurants

We may classify restaurants into many different types based on its service scale, way of service, theme of foods served, setup theme, target people etc. Restaurants range from unpretentious lunching or dining places catering to people working nearby, with simple food served in simple settings at low prices, to expensive establishments serving refined food and wines in formal setting.

Restaurants often specialize in certain types of food or present a certain unifying, and often entertaining theme. For example, seafood restaurants, vegetarian restaurants or ethnic restaurants.

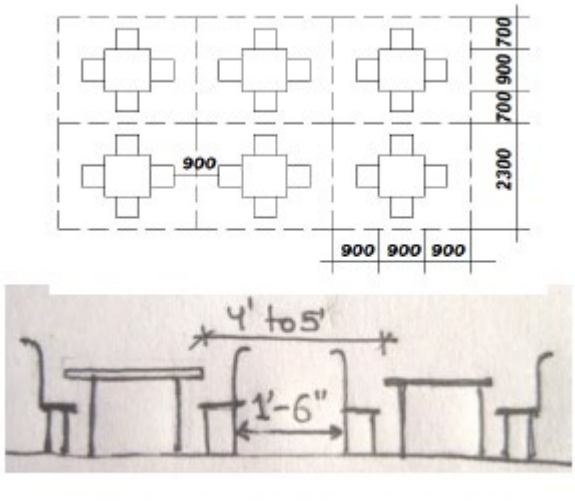
- **Traditional restaurants** – Specialty restaurants - space requirements vary widely. Display cooking, a grill, a dance floor and special decorative effects may be required. Separate bar might also be needed.
- **Ethnic restaurants** - specialized in serving food of certain ethnic group
- **Drive in restaurants** - supply food and drinks direct to customers in their cars, allowing visitors to eat without leaving their vehicles if they wish. One waiter can serve up to six cars.

b. Restaurant types and space allowance

- Traditional restaurant: 1.3 – 1.9m2 / person
- Specialty restaurant: 2.0m2 / person
- Snack bar service: 1.5 – 2.2m2 / person
- Café service: 0.83 – 1.5m2 / person
- Coffee bars: 1.2 – 1.4m2 / person
- Kitchen, cooking, storage, preparation, etc. 40% total area, 20% storage, employee
- 15%
- Aisle space between tables and chairs should be calculated to include passage area and that occupied by the person seated at the table. A minimum passage area is 18 in. between chairs and, including chair area; tables should be spaced 4 to 5 ft apart.
- Traffic aisle
    - min 30” (without difficulties)
    - min 42 inch: combined work (one person to pass & another person at the work place)

c. Different types of Seating

As far as layouts are concerned, there are modules for square table arranged in Rectangular and diagonal pattern which can be seen in figure below:



dining floor area	walkway width
up to 100 m²	≥ 1.10 m
up to 250 m²	≥ 1.30 m
up to 500 m²	≥ 1.65 m
up to 1000 m²	≥ 1.80 m
over 1000 m²	≥ 2.10 m

(8) **Walkway widths**

customer places	toilets men	toilets women	urinal bowls	urinals (m)
50	1	1	2	2
50–200	2	2	3	3
200–400	3	4	6	4
400	– determine in individual case –			

(9) **Toilet facilities**

The minimum width of escape routes is 1.0 m per 150 people. General walkways should be at least 1.10 m → (8), with clearance heights ≥ 2.10 m. The window area should be ≥ 1/10 of the room area of the restaurant.

type	chair occupancy per meal	kitchen area required (m²/cover)	dining area required (m²/seat)
exclusive restaurant	1	0.7	1.8–2.0
restaurant with high seat turnover	2–3	0.5–0.6	1.4–1.6
normal restaurant	1.5	0.4–0.5	1.6–1.8
inn/ guesthouse	1	0.3–0.4	1.6–1.8

approx. 80% supplement is added for storage rooms, personnel rooms etc.
cover = seat × no. of seat changeovers

tables	seats	waiter service (m²/seat)	self service (m²/seat)
square	4	1.25	1.25
rectangular	4	1.10	1.20
rectangular	6	1.05	1.10
rectangular	8	1.05	1.05

(11) **Total space requirements for dining rooms: 1.4–1.6 m²/place**

main aisles	min 2.00 m wide
intermediate aisles	min 0.90 m wide
side aisles	min 1.20 m wide

FIGURE 90 RESTAURANT SEATING SPACE REQUIREMENTS

9.7.2. FOOD-COURT: DESIGN CONSIDERATION

Food- court consists of a seating area around which is grouped a number of kiosks selling different types of economical price foods.

It must be in a prime location, fed off a main pedestrian flow with a positive, striking and identifying entrance.

- Location and kiosks size to be determined in relation to seating capacity.
- A reasonable number of kiosks are needed to provide adequate choice and variety, e.g., hot, cold, health related, ethnic etc.
- A rough guide to areas may be to allow between 20-40m2 per kiosks and 1.2m2 per seat.
- Kiosks will be equipped by the management for the kiosk's operators, which include various catering equipment, including refrigerator, cooker, display counters, etc.
- Noisy or unsightly catering operations should be concealed from public view, but interesting activities should be visible and will promote sales (Neufert Architects' Data Third Edition).

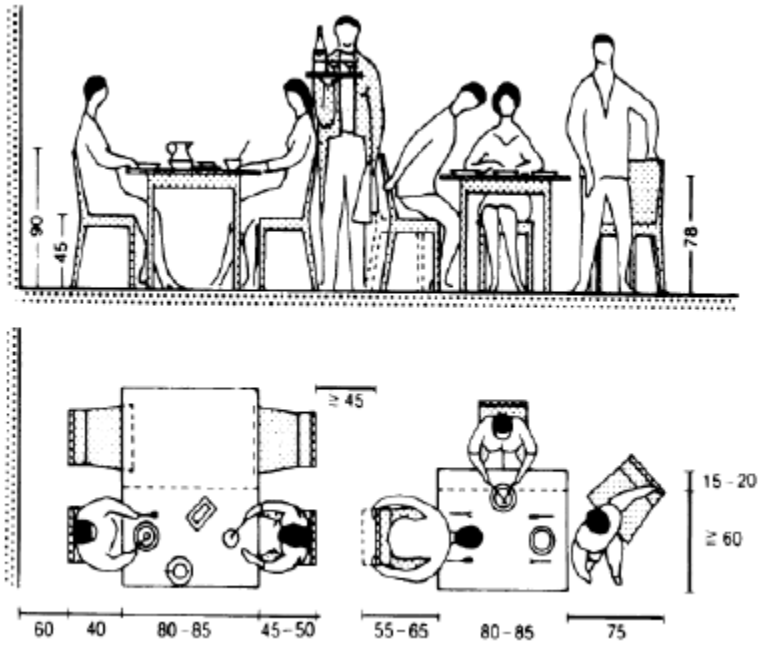


FIGURE 91 SPACE REQUIRE FOR SERVE AND DINNER

9.7.3. KITCHEN AND STORAGE

Kitchen should be positioned in such a way that it won't distract visually from overall setting and views. The housekeeping and store should be kept.

Standard requirement of Kitchen:

- Rectangular shape and be located near receiving area, stock rooms and serving area.
- It should have good service access.
- It should have natural ventilation within kitchen.
- The size of air changes per hour with low-speed fans is recommended.
- All working area should be well lighted.
- Flooring in kitchen must be done of non-slippery tiles.

Approximate space planning for kitchen space is:

- Main restaurant kitchen area: 1.4m² per cover
- Banquet space and service area: 0.2m² per cover
- Coffee shop kitchen: 0.3m² per cover

Storage area for kitchen: Allow 50% extra for other facilities: changing room, staff facilities, toilets etc.

- Dry food storage: 30%
- Refrigerated food storage: 25%
- Frozen food storage: 10%
- Beverage storage: 15%
- Refrigerated beverage: 5%
- Non-food storage (paper, silvered): 15%

9.8. SERVICES

9.8.1. WASHROOMS

Legal Minimum of Water closets for men

Number of Men	Number of Water Closets	Number of Urinals
1-15	1	
16-20	1	1
21-30	2	1
31-45	2	2
46-60	3	2
61-75	3	3
76-90	4	3
91-100	4	4
Over 100	4	4 plus 1 closet for every 25 people (or fraction of 25) in excess of 100. Every fourth additional closet may be replaced by urinal

Table 5 Men's WC Number

(Shakya, 2011)

Legal Minimum of water closet for women

Number of Women	Number of Water closets
1-15	1
16-30	2
31-50	3
51-75	4
76-100	5
Over 100	5 Plus, on additional closet for every 25 people in excess of 100

Table 4 Women's WC Number

Source: (Shakya, 2011)

Washroom for differently abled

- In any public rest room, at least one compartment for each sex should be accessible to an ambulant disabled person.
- In any public rest room at least one unisex compartment should be accessible to a wheelchair user.
- Accessible rest rooms should be marked with the international symbol of accessibility. No indication is needed if all rest rooms are accessible.

- Pivoted doors should open outward unless sufficient space is provided within the toilet stall(*Accessibility Design Manual : 2-Architechture : 10-Rest Rooms*, n.d.)

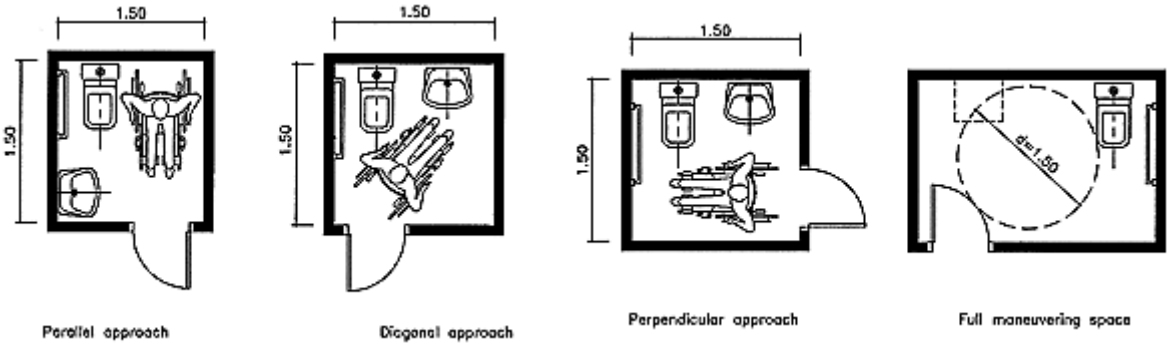


FIGURE 92 DIFFERENTLY ABLED WC

9.8.2. RAMPS

- Minimum width is 1.7m and flight length should not exceed 6.
- Maximum angle of ramp is 6 degrees

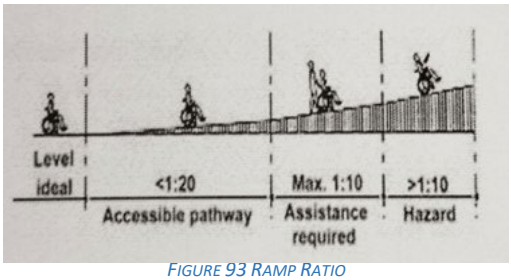


FIGURE 93 RAMP RATIO

9.8.3. CORRIDOR

Carets should be securely fastened and floor surface should be non-slippery and even for wheelchair users, equipment users, and high traffic areas.

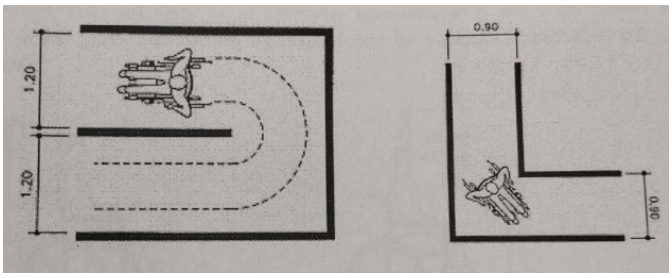


FIGURE 94 CORRIDOR DESIGN FOR DIFFERENTLY ABLE PEOPLE

9.8.4. STAIRS

For the comfort of impaired individuals, level differences should be as much as possible lighted or minimized. Circular stairs and stepped landings should not be used; instead, a comparable ramped route, elevator, or lift should be used. It is not advised to use open risers.

9.8.5. PARKING

The type, size and shape of a turning and parking place in a road depend on the road use in that particular area and the size of the vehicles. Separation of moving and stationary traffic is necessary due to the growth of the transportation.

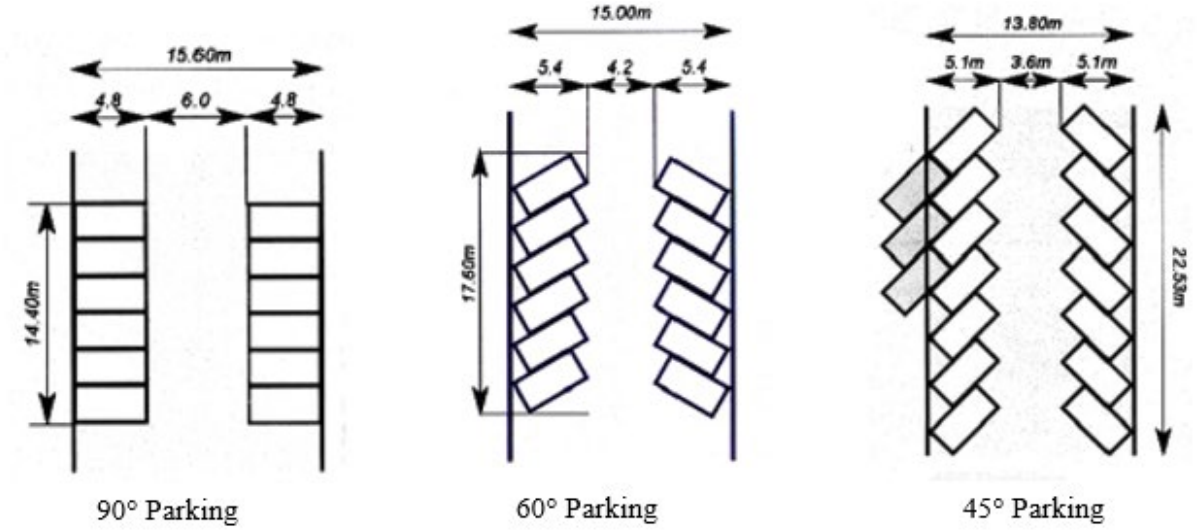


FIGURE 95 TYPICAL PARKING LAYOUT

Space Requirements

- 90° parking = approx. 20 m2
- 45° /60° parking = approx. 23m2
- 45° /60° oblique spaces, easy entry/exit to parking Space, for one way traffic 90° entry/exit to parking. Space, for two-way traffic Parking space needs small parking.

Table 6 Turning Radius

Types of Vehicles	Length(m)	Width(m)	Height(m)	Turning circle radius(m)
Motor Cycle	2.20	0.70	1.00	1.00
Car	4.70	1.75	1.50	5.00
Bus	11.40	2.50	3.30	6.50

9.9. OTHERS ASPECTS CONSIDERATIONS

9.9.1. CLIMATIC INFLUENCES

Building design must be responsive to regional variations in climate, with covered areas calculated as one-half of the gross square foot area of indoor areas (Army, 1976).

- Severe climate dictates compact building forms.
- Temperate climate permits the use of natural ventilation and light.
- Warm climate permits maximum use of covered exterior work areas in addition to indoor space.

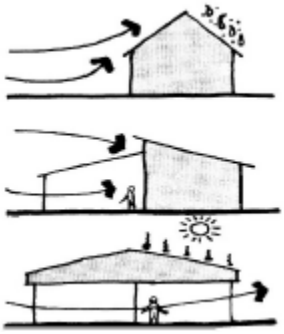


FIGURE 96 BUILDING ORIENTATION FACTORS

9.9.2. SITTING

Art and Culture Centers are popular places for creative activities, but must be chosen carefully to avoid disturbing neighbors. They can be part of a larger social/recreational complex, offering leisure activities such as libraries, theaters, and recreation.

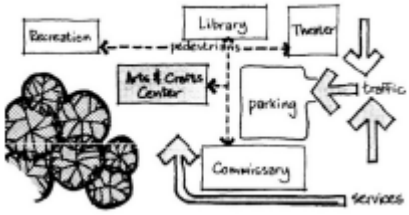


FIGURE 97: SITE CONSIDERATIONS FOR CRAFT CENTER (SOURCE: US ARMY)

9.9.3. LANDSCAPE

Landscape is an integral part of buildings and can be designed to support outdoor works, direct traffic, muffle noise and dirt, screen objectionable views, control sun, wind and rain, reduce glare and conserve energy.

FIGURE 98: LANDSCAPE FUNCTIONS (SOURCE: US ARMY)

9.9.4. ARCHITECTURAL CHARACTER

Art and Culture Centers should reflect good design and functional planning, be unpretentious and humane, be inviting, and harmonize with local characteristics and construction practices. Materials should be chosen to generate visual interest (Army, 1976).

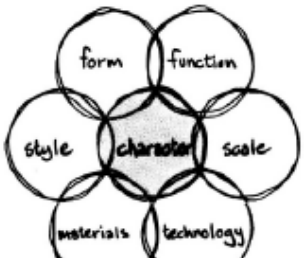


FIGURE 99 ARCHITECTURAL CHARACTERS IN CRAFT CENTER (SOURCE: US ARMY)

9.9.5. Interior Design

Colors and textures should be used to stimulate physical and emotional reactions, while glare, flamboyant colors and brightness should be avoided. Materials should be chosen based on low maintenance, life cycle cost, and fire and safety requirements (Army, 1976).

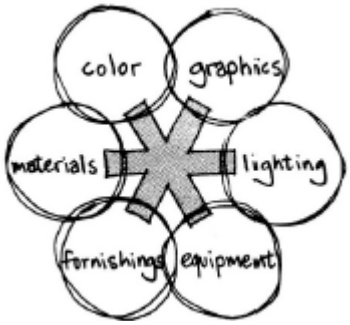


Figure 100 Interior Design Elements (Source: US Army)

9.9.6. Energy Conservation

Energy conservation can be achieved by understanding local climate conditions, topography, trees, solar exposure, and other natural features, as well as building orientation, compact building shapes, and wall shading. Additionally, reducing the requirements for cooling, lighting, and mechanical equipment can result in savings. (Army, 1976).

Figure 101 I) typical annual energy consumption and ii) possible savings in annual energy consumption (source: US Army)

9.9.7. Minimizing Maintenance

Culture Center will experience heavy wear during its lifetime, so it is important to consider materials with higher durability and cleanliness to reduce maintenance costs and increase the building's lifetime (Army, 1976)

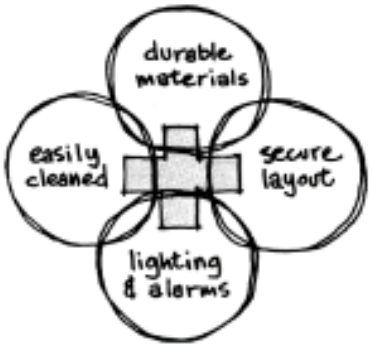


Figure 102: Upkeep Factors (Source: US Army)

9.9.8. Participants

The Art and Culture Center must be accessible to all, including those with different physical conditions (Army, 1976).

Also, the design must be suitable to accommodate the professional and beginner artisans of various communities and physical conditions.

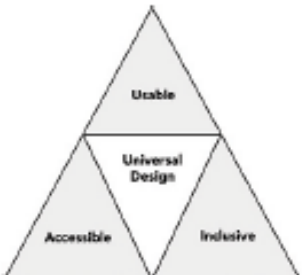


Figure 103 Universal Design (Source: US Army)

9.9.9. SPACE INTER-RELATION

Inter-related spaces should be important for communication and transition of space (Army, 1976).

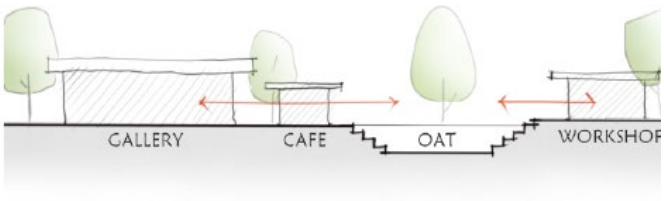


FIGURE 104 INTERRELATION OF SPACES (SOURCE: US ARMY)

9.10. INFERENCE FROM THE LITERATURE REVIEW

The study aimed to understand the current trend of Mithila arts, crafts and culture in the Janakpur, its history, evolution and theories related to it. It also explored the roles, significance and impacts of arts and culture in our society, identity, lifestyle, culture and economy. The inference drawn from the study of the literature related to the arts and culture center are tabulated below:

TABLE 7 INFERENCES FROM LITERATURE REVIEW

SN	Attributes	Remarks
1.	Planning	• Flexibility • Connections (physical, spiritual, temporal) • Efficiency • Free movement
2.	Design	• Inclusive • Sustainability • Durability • Organic design principles
3.	Symbolism	• Local values, traditions and cultures • Vernacular design principles • Representation of people, society, skills
4.	Experience	• Excitement • Refreshment • Sensory experience • Humane and unpretentious
5.	Learning	• Learning by doing • Hand – Mind – Soul • Social interaction • Intellectual development & self-reliance

CHAPTER 3- CASE STUDIES

3.1. JANAKPUR WOMEN'S DEVELOPMENT CENTER, JANAKPUR:

Selection criteria

- To study planning and requirements of arts and crafts center
- To study the traditional architecture of Terai.
- To study socio-economy and socio-cultural relations of societies.

FIGURE 105 JANAKPUR WOMEN DEVELOPMENT CENTER

3.1.1. INTRODUCTION

- Location: Kuwa, Janakpur
- Architect: Robert Powell
- Constructed: 1994 A.D. with support from Australian government, royal Danish embassy, save the children Japan, the government of federal republic of Germany and the government of Japan
- Total site area: 8 Katha
- Design style: traditional style of Terai architecture
- Type: Mithila painting and craft center

3.1.2. Building Analysis

3.1.2.1. Surrounding context

- The building is located at the southern part of the city Janakpur.
- It is easily accessible and free from hustle and bustle of the city.

3.1.2.2. Design style

- The building is constructed in traditional style with brick, mud, wood and khapda and the façade of the building is treated with the Mithila art and the pillar of the verandah is richly design in traditional style.
- The building is purposely built.

3.1.2.3. Building Materials

- The dwellings are walled with mud and for roofing clay tiles are used.
- Mud is used for decorative purpose, murals on the wall surface of buildings.

Figure 106 JWDC

3.1.2.4. General planning

- The space is arranged around the courtyard.
- Buildings are one storey.

Figure 107 Courtyard View

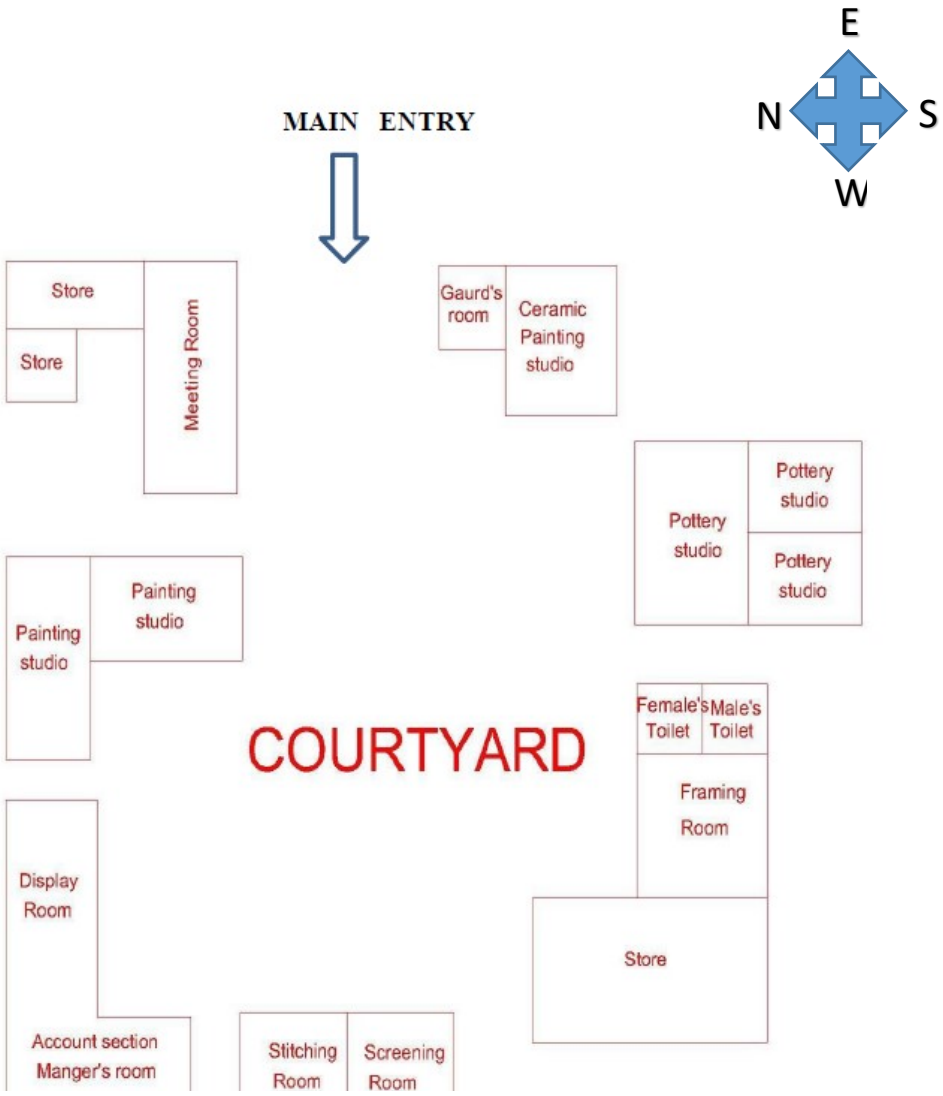


FIGURE 108 GENERAL LAYOUT OF JWDC

3.1.2.5. FUNCTIONAL STUDY

- Every room has entry from outside and verandah is provided In front of each room.
- Adequate amount of light is provided to the studio of painting through skylight.
- Thermal environment: As traditional houses are thermally comfortable.

FIGURE 109 NATURAL LIGHTING IN THE SPACES

3.1.2.6. DIFFERENT SECTION

In Women Development Center, we have five different sections for the art production. They are:

- Painting Section

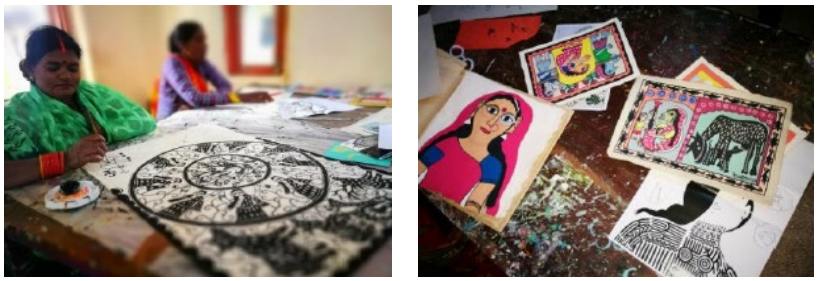


FIGURE 110 PAINTING SECTION

- Ceramic Section

FIGURE 111 CERAMIC SECTION

- Sewing Section

FIGURE 112 SEWING SECTION

- Screen Painting

FIGURE 113 SCREEN PRINTING SECTION

- Storeroom

FIGURE 114 STOREROOM

3.1.3. STUDY OF VARIOUS SPACES

Function	No	Area m2
Painting studio	2	46.63
Store	3	38
Meeting Room	1	43
Pottery studio	3	55.14
Pottery Painting studio	1	35.12
Screening room	1	16.72
Stitching room	1	25.08
Framing room	1	20.90
Office room	1	25.08
Display room	1	31.04
Toilet	1	11.14
Guard room	1	13.45
Total	17	361.3

Anthropometry Study of Art Studios

The women artist at JWDC are more friendly in working in the environment where they do the painting by either placing the paper on the floors or on the low-rise table of 1'6". They are comfortable doing paintings by sitting on the floors instead of working in the drawing studios siting furniture's.

3.1.4. INFERENCES

- There is proper natural lighting in every room.
- Parking area is not defined.
- Lack of proper administration block and reception desks is not available.
- Plantation is done in courtyard area.
- Working environment is calm and peaceful.

3.2. POTTERY SQUARE, BHAKTAPUR

Selection Criteria

- To study the machines and tools used.
- To study planning of various spaces.

3.2.1. INTRODUCTION

- Location: Bhaktapur, Pottery Square.
- Specialization: Pots, Utensils, Decorative, etc.

3.2.2. BUILDING ANALYSIS

3.2.2.1. SURROUNDING CONTEXT

The Pottery Square of Bhaktapur is a conserved traditional village, where the whole community is based on pottery making. Pottery is the way of their livelihood. One can see almost all the houses making pottery every day. The potters are called Kuma", a caste for potters. The whole family of Kuma is engaged in the workshop. The tradition is- the trade is handed down from father to son generation.

3.2.2.2. GENERAL PLANNING

• Most of the houses are 3 bay types.

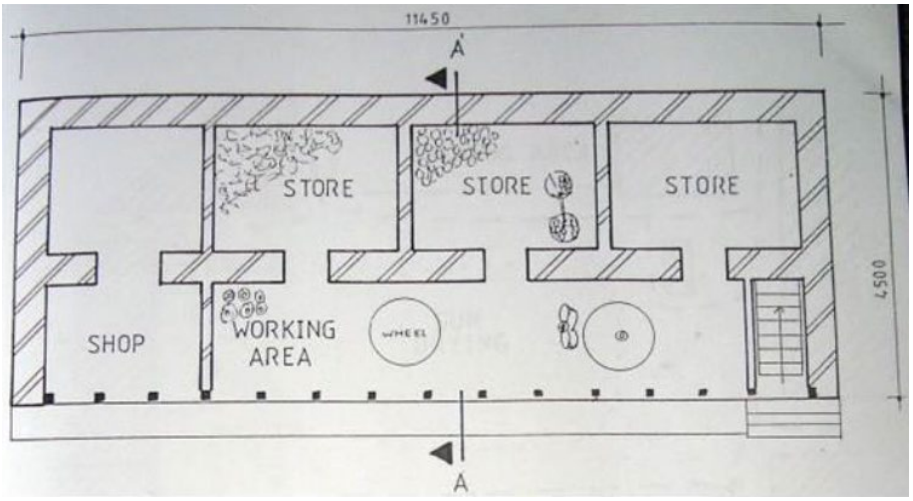
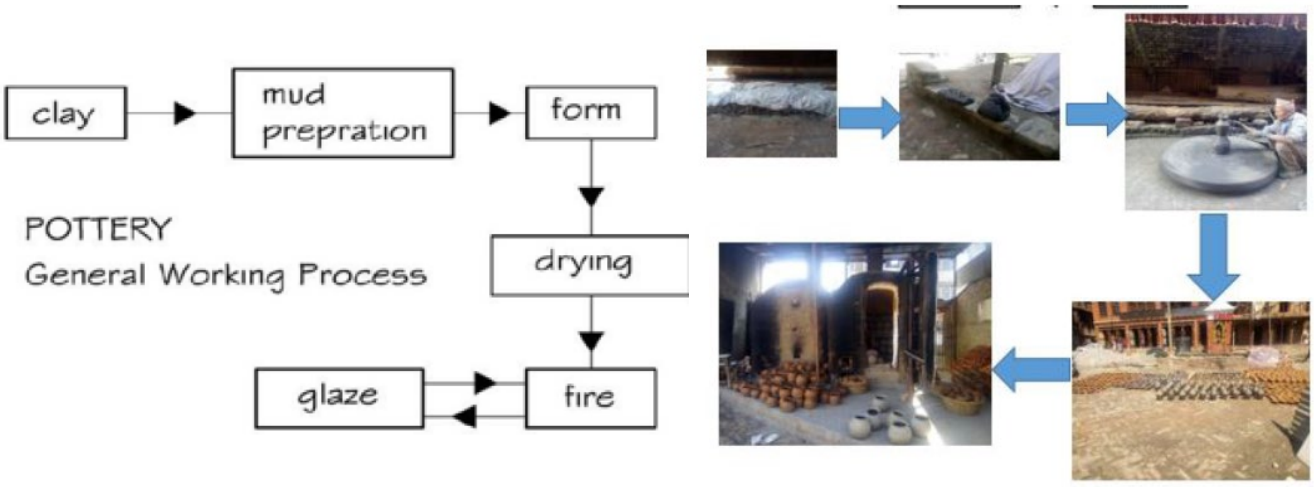


FIGURE 115 GENERAL PLAN OF POTTERY STUDIO BHAKTAPUR

3.2.2.3. FUNCTIONAL STUDY

- Most of the houses are 3 bay types, in ground floor-the front part is used for Potter ‘s wheel, the second part is used for storing and the third part is used for staircase. The staircase is placed in front in case there is lack of space.
- Wall is made from mud mortar and brick exposed façade.
- Courtyards or separate room on the ground floor are used for kiln.
- Work is done in ground floor which opens to a courtyard or community gathering area. The upper portion of the house is used for residential purpose by the potters. Raw materials are stored on the ground floor, as it is damp and dark, which is good for storage. The squares are used for sun drying of pottery items. The crafts are either sold on the local souvenir shop or are taken to market.



3.2.2.4. WORKING ENVIRONMENT

Lighting and Ventilation:

- Workspace on ground floor, lights are through door openings thus found inadequate.
- Ventilation inadequate.

3.2.2.5. THERMAL ENVIRONMENT

- As traditional houses are thermally comfortable, extreme temperature does not affect the workers.
- The kiln area produces smoke and dust which may affect the dwellers.
- Safety: In case the kiln is located inside the house, it can be dangerous if any fire breakout. Otherwise, kiln is isolated and made separate.

3.2.2.6. MACHINES AND TOOLS USED

- Potter ‘s Wheel & Turntables
- Shaping Tools (paddles, anvils, ribs)
- Rolling tools (roulettes, slab rollers, rolling pins)
- Cutting/piercing tools (knives, fluting tools, wires)
- Finish Tools (Burnishing stones, rasps, chamois)

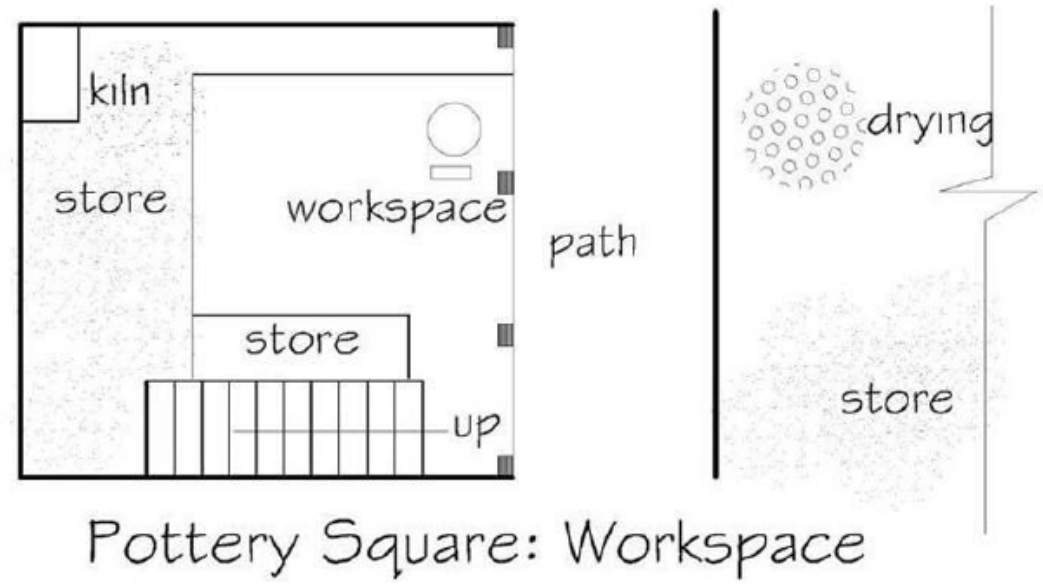


FIGURE 116 GENERAL LAYOUT POTTERY SQUARE WORKSPACE

3.2.3. INFERENCES

- Congested workspace, work done in private space at the ground floor
- Natural light not sufficient in workspace, have to depend on artificial light
- Storage and workspace not separate have to depend on single room.
- Whole community is based on pottery, court spaces are shared.

3.3. RUSSIAN CULTURE CENTER

Selection Criteria

The study aims for understanding the functioning of venue for cultural exchange, functions performed here and formal spaces procured to contain the various events.

FIGURE 117 RUSSIAN CULTURE CENTER

3.3.1. INTRODUCTION

- History: Established in 1979 as a library, 1991- shift to current location
- Location: Kamal Pokhari, Kathmandu
- Site context: Mixed use, residential and commercial
- Ownership: Russian Embassy
- Objective: Cultural exchange between Nepal and Russia

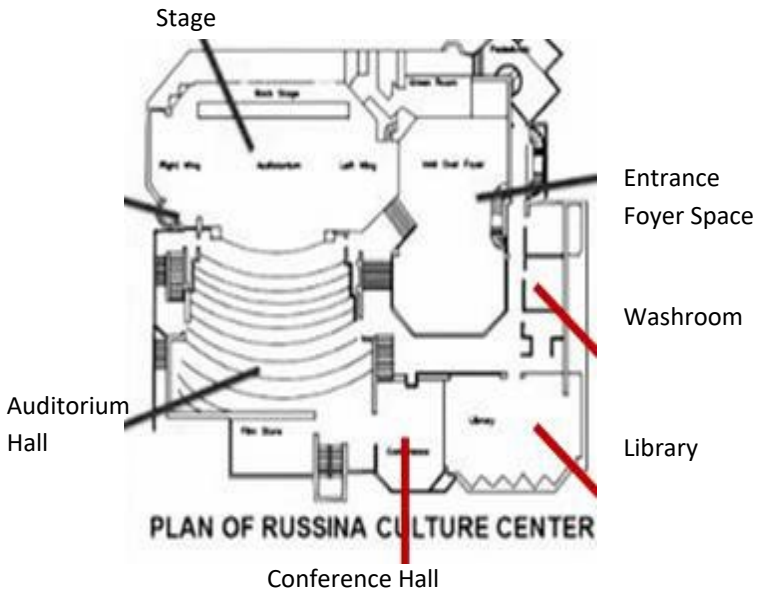
- Activities: Diplomatic meetings, exhibitions, cultural programs, film festivals, workshops, language classes etc.
- Facilities: Membership to Library, Workshops, Language classes etc.

3.3.2. AREA STUDIED

Space organization, spatial requirements, and circulation pattern

3.3.3. SPACE STUDIED

- Central entrance foyer
- Conference Hall
- Auditorium Hall
- Library



3.3.4. BUILDING ANALYSIS

Planning and Function

- Various functions like auditorium, offices, library, and conference hall distributed around central entrance foyer cum exhibition space.
- Different entrance to different functional areas, maintaining privacy and control, though no visual restriction sometimes.
- Corridor around foyer (levelled below) for accessing office spaces.
- Wide corridor in first floor used for display and circulation.
- Interplay in level of spaces.

Central Entrance Foyer

The entrance hall is a double height sky lit foyer which serves as a foyer, exhibition space and spill out area for the auditorium. The central circular skylight and the other source of

natural lighting punctures in the roof create an interesting and vibrating interior environment. All the functional spaces are arranged around this central foyer space.

Exhibition Space

The central entrance foyer and the wide corridor on the first floor are used as an exhibition space. The admittance of sufficient natural lighting and the feeling of openness make the exhibition space lively.

Conference Hall

The conference hall of Russian Culture is a 50 seated audio-visual hall. The total area of this hall is 84sq.m (10.5m X 8m). The area has the capacity of 1.68 m2/person. The conference hall is double height with proper acoustical treatment on wall floor and ceiling. There are also a good provision of fire exits and AC system.

Auditorium Hall

The auditorium is a small one with 191 seating capacity. It is fan shaped and arranged in a slightly curvilinear pattern. It has a good fire escape and fire hydrants, and an AC system is used for mechanical ventilation. There are ten rows of seats, with a width of 3'-6" and height of 1'-2". The distance from the stage to the gangway is 7'-10". There are wide wings and backstage alley with green rooms and store, and an efficient circulation pattern with multiple entry and exits.

FIGURE 118 AUDITORIUM

Library

- Double height room hence though small but seems spacious
- Windows towards east provide natural lighting in the room
- Different sections accommodated in a single room of area 115 m2

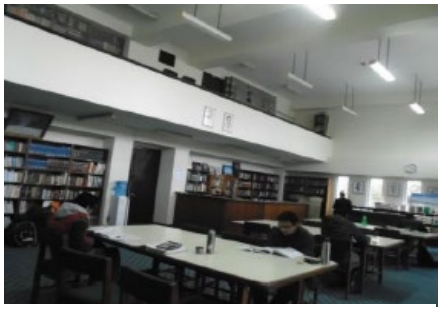


FIGURE 119 LIBRARY

- Back stacks provided along the periphery of room so no obstruction to the reading spaces
- Effective library layout with pockets for individual reading area provided by offsets in plan and also there is space for group reading

3.3.5. CIRCULATION

There is an efficient circulation pattern with multiple entry and exits. Multiple entry to different functions, main entry leading to entrance foyer, side entry to classrooms and also back entry to office spaces. There is a common entrance foyer i.e., no separate foyer for the auditorium.

FIGURE 120 LOBBY

3.3.6. LIGHTING

- Innovative and efficient use of natural light, indirect light, skylights
- Circular skylight and other day lights in entrance foyer creating interesting and large interior space

3.3.7. INFERENCES

- Multiple entrances to different functional spaces help minimize the problems of congestion during programs and also avoid disturbance to one function by the other
- Efficient play of natural light in the spaces can create pleasing interiors cape and inviting interior environment for the users.
- Through the functional segregation of the spaces, the problems of confusion in movement can be reduced
- The arrangement of functional spaces around a multifunctional foyer seems to be more effective in planning and also in space relationship.

3.4. RUTHIN CRAFT CENTER, DENBIGHSHIRE, UK

Selection Criteria

- To study the built environment of craft center.
- To study planning of various spaces.
- To study the passive techniques that is applied in the center.

FIGURE 121 RUTHIN CRAFT CENTER

3.4.1. INTRODUCTION

- Location: Ruthin, Denbighshire
- Established: 1970 A.D.
- Total built up area: 1566m2
- Building completed:2008
- Design style: contemporary
- The new building provides an updated facility which replaced an existing craft center.

3.4.2. BUILDING ANALYSIS

A. Design Style

- Contemporary
- Responds to distant landscape.
- Design concept aims to enhance essential characteristics of former building, its courtyard typology and its relation with surrounding landscape.

B. General planning

- Courtyard is a principle communal space.
- It creates protected environment and is important transitional space between interior and the surrounding town.

C. Circulation

- The restaurant, education room, workshops and entrance hall open directly into landscape courtyard with external seating covered areas.
- Three gallery spaces are arranged to allow variety of routes and sequence of spaces depending on the requirements of changing exhibitions.
- Shop is located adjacent of principal entrance with large windows making it visible from outside.
- Restaurant on north side of the courtyard has south facing terrace.
- Adjacent to the restaurant are 6 workshop studios arranged in a row with service entrance on north and shop front entrance on the courtyard side.
- The education room, two studios for artists in residence, tourist information center and administration area are located on southern side with entry and views to the courtyard ("Ruthin Craft Centre," 2022)

D. Functional Study

- Different functions of the center have a close physical relationship with the daily activities visible adding life and activity but retaining of autonomy.

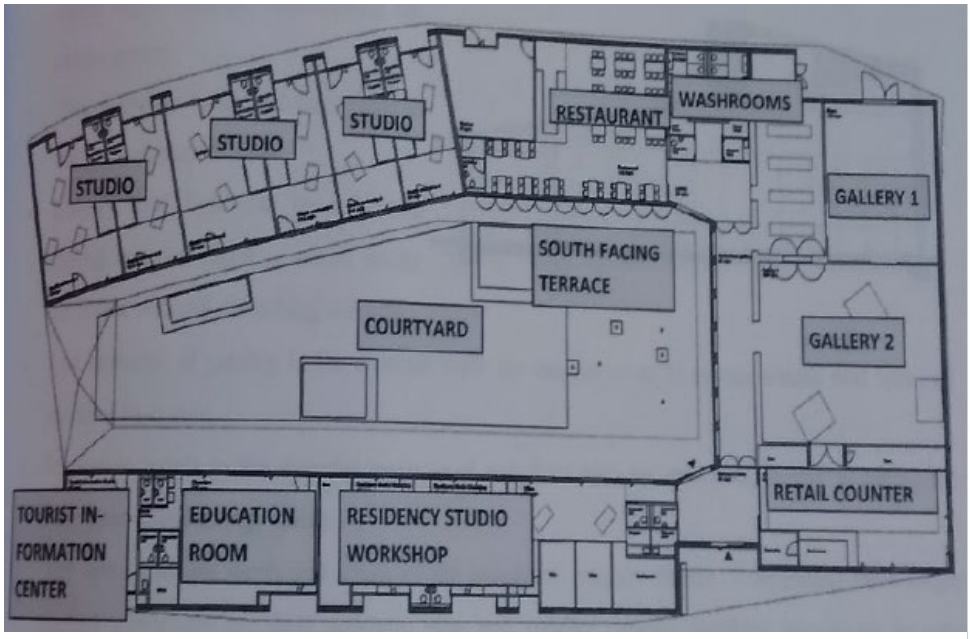


FIGURE 122 FLOOR PLAN

E. Sustainability Credentials

The design is based on passive elements on the building envelope, providing maximum natural light and ventilation. Objects require specific temperature and humidity control, and heavy weight walls and floor act as the thermal mass. Glazing in the external walls is modest, and insulation levels are generous. The spaces to the north and south of the courtyard have lager elevations on their southern side and smaller northern elevations to take maximum benefit from useful winter sun. Roof overhangs on the southern sides are small to improve solar access. The main issue in these spaces is to prevent overheating.

3.4.3. Study of Various Spaces

Table 8 Area Occupied by Different Spaces

SN.	Spaces	Area(m²)	%
1.	Studio I	72	4.93
2.	Studio II	50.5	3.46
3.	Studio III	70	4.79
4.	Studio IV	50.5	3.46
5.	Studio V	50.5	3.46
6.	Studio VI	50	3.42
7.	Studio VII	45	3.08
8.	Residency studio workshop I	45	3.08
9.	Residency studio workshop II	433.5	29.68
10.	Total studio area	433.5	29.68
11.	Kitchen	47	3.22
12.	Restaurant	130	8.9
13.	Lobby	16	1.92
14.	Toilet	41	2.81
15.	Total service area	234	16.85
16.	Gallery I	180	12.32
17.	Gallery II	60	4.11
18.	Retail Gallery	95	6.5
19.	Corridor Gallery	48	3.29
20.	Total gallery space	38.3	26.22
21.	Entrance lobby	30	2.05
22.	Office	100	6.85
23.	Education	121	8.28
24.	Tourist Information Center	47	3.22
25.	Store	100	6.81
	Total	**1460.5**	**100**

3.4.4. EVALUATION

The design of the Centre is a focal point of cultural life and a civic facility with the potential to extend its influence beyond its walls. It is an enclosed, welcoming open-air space for public events and gatherings, with a formal reference to local culture in terms of materials, known forms and the surrounding landscape. Ultimately, the design engages with its context and becomes a focus for the community, while providing an inspirational setting for the center's curatorial policy and high international profile.

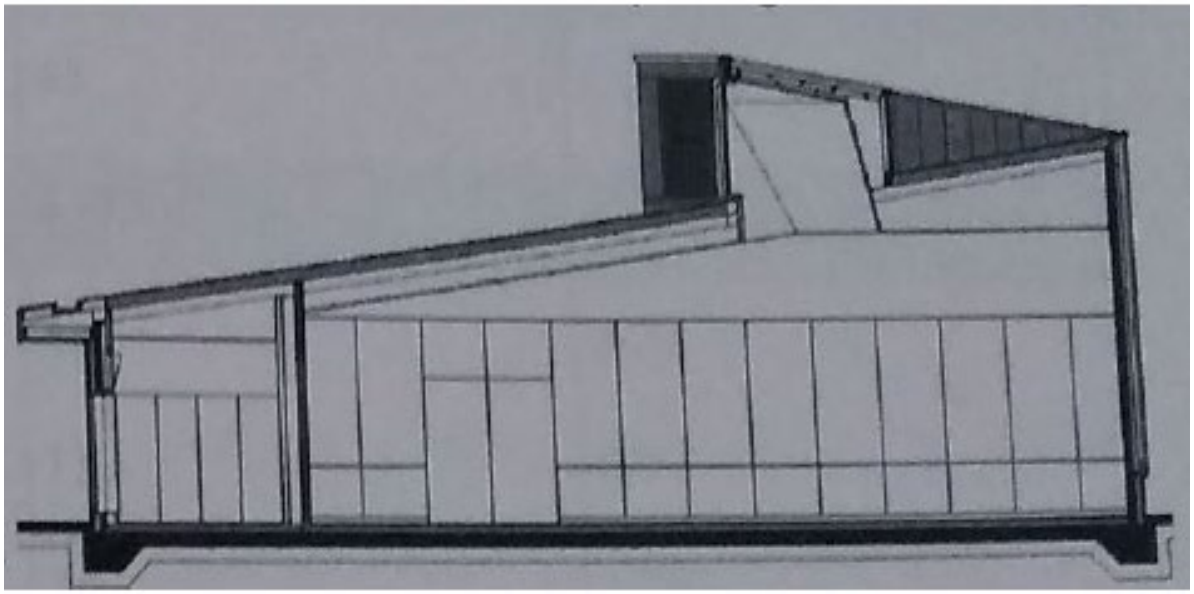


FIGURE 123 RUTHIN BUILDINGSECTION

3.4.5. INFERENCES

- Local materials are sustainable and can create interesting forms.
- Idea about building's response to site and surrounding.
- Parking is not defined

3.5. AVADH SHILPGRAM

Selection Criteria

- To study the planning according to site context.
- To study movement of visitors and circulation pattern.
- To study the architectural expression of the place.

FIGURE 124 AVADH SHILPGRAM

3.5.1. INTRODUCTION

- Location: Lucknow, India
- Designed by: Archohm Architectural Firm
- Completed: 2016 AD.
- Area: 30000 square meters
- Aim: The center aims to promote handicrafts and provide spaces and facilities for sharing ideas, teaching, learning, interacting and selling

3.5.2. BUILDING ANALYSIS

A. Planning and Features

- The planning of the center is done in an elliptical form that allows smooth and corner free circulation.
- The inspiration in the planning is derived from the local Lucknavi streets that narrows down as we progress.

- The planning is done according to the movement of the visitors and is done in such a way that every part of the center such as shops, courtyards, workshops, exhibition hall and food court is covered by the visitors.
- The very first space that a visitor goes to is the entrance courtyard. From the entrance court, the visitor goes through the spiraling shops which leads to the open plaza.
- The plaza is connected to the workshop courtyard where the visitors can experience the community like space shared by various artisans.
- From the workshops, the visitors move through the second courtyard which consist the exhibition hall, food court and open space for annual Lucknow Mahotsav.
- The center consists of 200 spiraling and smooth cornered shopping arcade which provides platform and direct exposure for independent artisans without the problems of the brokers.
- The shopping arcade is distributed in two storey and is accessible to all through the staircase, lift and the ramp.
- The center also consists of cluster of 23 workshops which are designed in a sustainable way by using natural materials like stone walls and green roofs.
- These workshops provide demonstration areas where artisans can conduct workshops observed by groups, seated on benches incorporated into the inner walls of the workshop.
- The central courtyard, consist of an amphitheater with planter beds and is designed to be used as a space for casual interactions.
- At the end of the center food court is placed that serves different cuisines from different parts of the country.
- Additionally, the center consists of auditorium, dormitory hostel. All in all, the complex is an integrated building that functions as a campus.

FIGURE 125 ARCH LINED PATHWAYS, WORKSHOP COURT, OAT OF AVADH SHILPGRAM (SOURCE: ARCHELLO.COM)

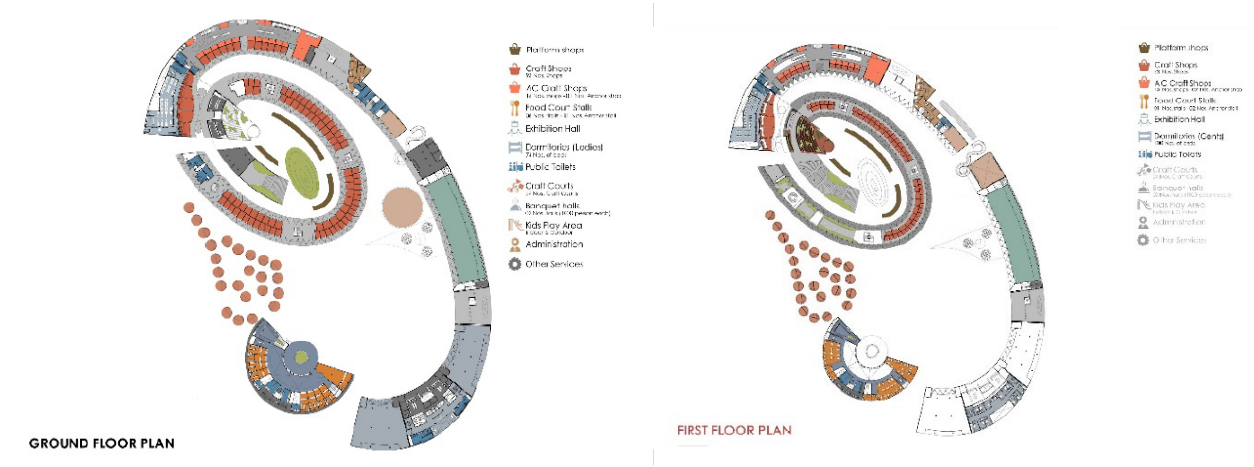


FIGURE 127 FLOOR PLAN OF AVADH SHILPGRAM (SOURCE: ARCHELLO.COM)

FIGURE 126 SECTIONAL VIEW OF WORKSHOP AND SHOPPING ARCADE (SOURCE:ARCHELLO.COM)

B. Architectural Expression

The Avadh Shilpgram is an architectural expression inspired by traditional Lucknavi architectural characters and Mughal architecture. The density, vibrancy and chaotic nature of the Lucknavi streets and bazaars are expressed through the collage of form, scale and materials. The red Agra sandstone, arched lined colonnades and perforated stone jail screens show the inspiration of local Mughal architectural characters. The double height volumes provide an aura of grandeur and richness, while the arches and jalis distract from the sheer volume of the building. The center has a contemporary vocabulary yet it is rooted to the traditional elements, values, characters of Lucknow.

3.6. JEAN-MARIE TJIBAOU CULTURAL CENTER

Selection Criteria

- To study the blend of history and tradition accurately presented within Architectural innovation.
- To study about the climatic responsive design

FIGURE 128 JEAN-MARIE TJIBAOU CULTURAL CENTER

3.6.1. INTRODUCTION

- Location: Noumia, New Caledonia
- Designed: 1991A.D.
- Built: 1998 A.D.
- Architect: Renzo Piano
- Objective: Built to honor Kanak leader Jean-Maria Tjibaou and also for Kanak people
- Site: A strip of land surrounded by the ocean and lush vegetation

The Cultural Center Jean-Marie Tjibaou is a blend of history and tradition in Noumea, capital of New Caledonia, built inside a nature reserve surrounded by lakes and mangroves. The building's ten wooden cases reflect traditional Kanak huts as well as the surrounding vegetation, and its highly articulated environmental system allows for natural ventilation. It is documented as a green building.

3.6.2. DESIGN CONCEPT

Piano used contextual resources to translate history, geography, geology and climate into architectural innovation, creating a visual link between the village cluster and the ribbed huts from pacific culture.

- It is an example of sustainable cultural center.
- Inspired by native architecture: modeled after traditional Kanak village. But they are not built exactly like the traditional architecture. Village pays homage to the tradition of the culture without falling into a parody of it.

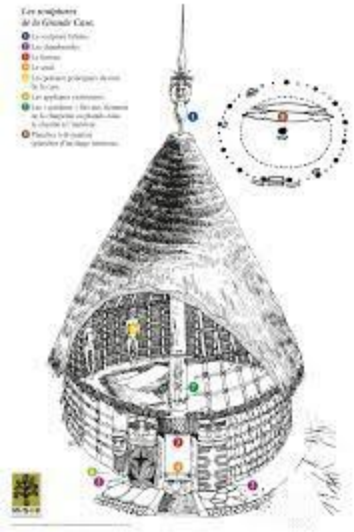


FIGURE 129 TRADITIONAL KANAK HAT (SOURCE: WWW.INEXHIBIT.COM)

3.6.3. DESIGN FEATURES

- The design consisted of 10 pavilions of various sizes ranging from 9 m to 24 m high situated asymmetrically along the main path.
- Cultural center composed of three 'villages' made up of ten 'great houses" of varying sizes and functions
- Studios for activities like music, dance, painting and sculpture
- Space allocation:
  - Villa 1- Permanent and temporary exhibitions: an auditorium and an amphitheater
  - Villa 2- Administration, research library and a conference room
  - Villa 3- Cabins for music, dance, painting, sculpture
- Facilities include pavilion, auditorium, amphitheater, administrative department, research area, conference room and library.
- The sunken amphitheater and open courtyard at the end of the building allow for future change and evolution.

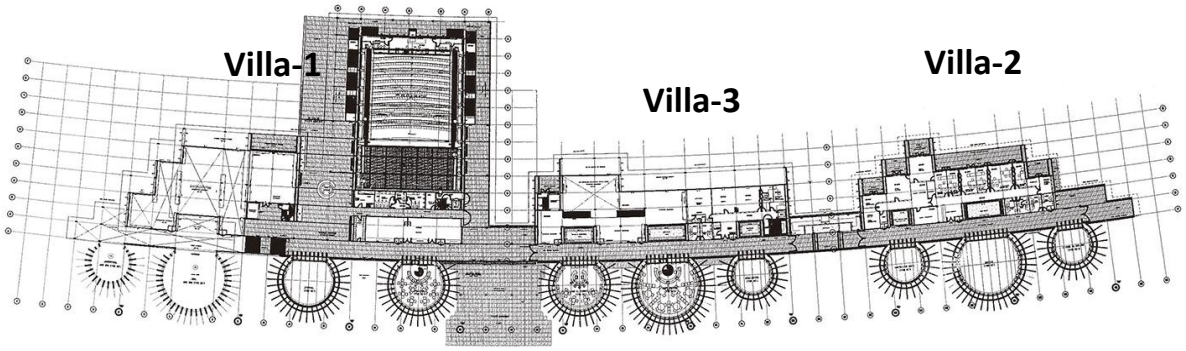


FIGURE 130 PLAN OF TJIBAOU CULTURAL CENTER (SOURCE: WWW.INEXHIBIT.COM)

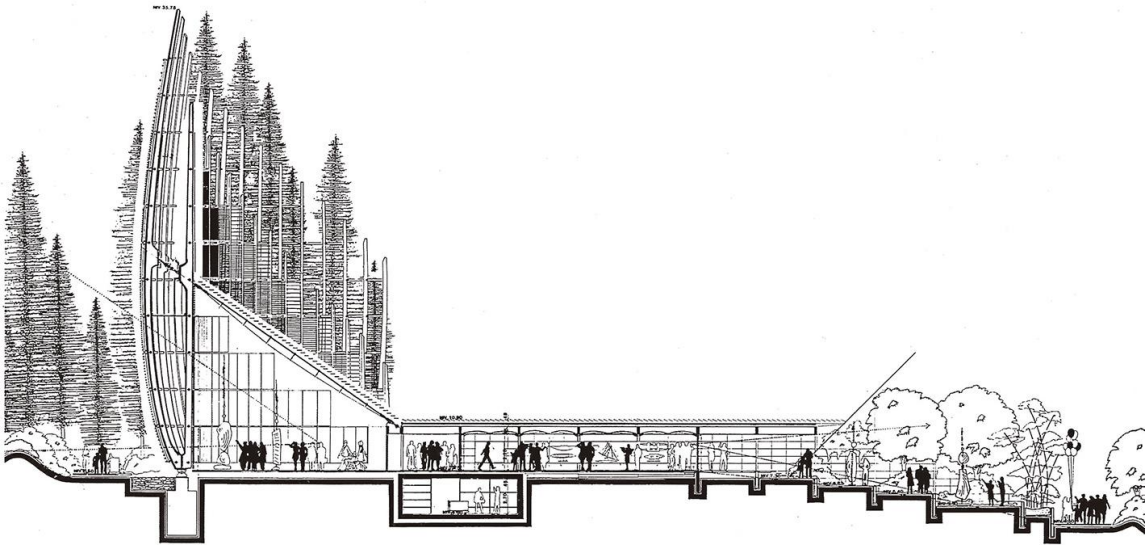
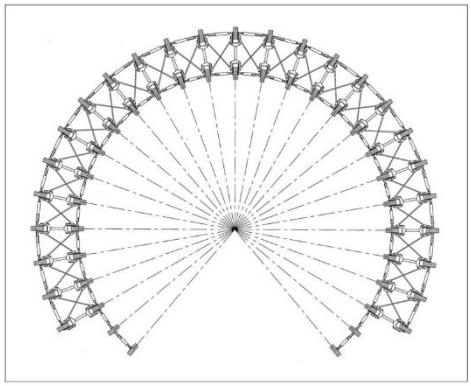


FIGURE 131 OVERALL SECTION OF TJIBAOU CULTURAL CENTER (SOURCE: WWW.INEXHIBIT.COM)

3.6.4. STRUCTURE

The cabins Caledonia are a structure shaped peineta iroko, reminiscent of the huts and crafts of Kanak. The union has made structural tube horizontal and diagonal bracing rods of stainless steel, reminiscent of traditional mainstays such as the spine of the fish. Renzo Piano describes the structures as curved like huts, built with wooden beams and nerves, but equipped with modern technology.

FIGURE 133 STEEL SUPPORT IT THE STRUCTURE



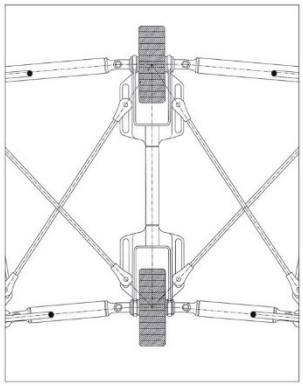


FIGURE 132 SUPPORT AND JOINERY TO

SOURCE: WWW.INEXHIBIT.COM

3.6.5. MATERIALS

- Traditional material iroko wood along with glass, steel and bamboo
- Respect to traditional construction: sophisticated engineering study

3.6.6. CLIMATIC CONDITION AND MEASURES

- Oceanic tropical: warm and humid
- The building utilizes natural ventilation through stacked ventilation and ventilation due to wind force.
- Operable roof skylight & laminated wood: Natural Ventilation
- Bamboo wall filter light in interior

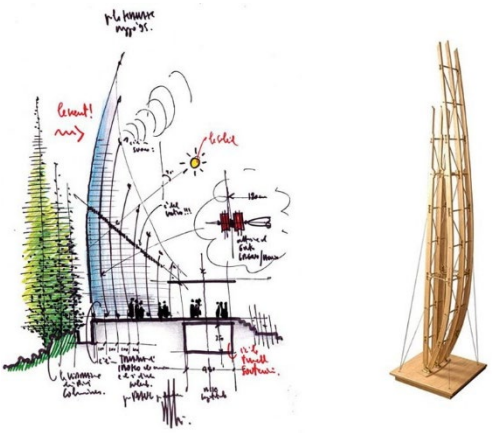


FIGURE 134 SUSTAINABLE APPROACH

3.6.7. INFERENCES

- Respect to the traditional material with blend of modern technology
- Unfinished appearance of structure: reminder of culture still in the process of evolution
- As a tribute to Kanak Culture and to honor to the effort for their independence

3.7. JAWAHAR KALA KENDRA, JAIPUR

Selection Criteria

- To study the about concept based on city planning
- To study the relation of open and built spaces
- To study about the light and mass in a building

FIGURE 135 JAWAHAR KALA KENDRA (SOURCE: ISSUU)

3.7.1. INTRODUCTION

- Location: Jaipur, Rajasthan
- Established: 1986 AD by Charles Correa
- Objective: Built to provide space to the cultural and spiritual values of India and display rich Cultural heritage
- Approach: Road connecting site is the main road connecting to Jaipur Airport and industrial area
- Parking: Approximate 20-4 Wheelers, 30-35 2 wheelers. Additional area being provided
- Purpose: Nehru's vision was to re-discover India's past and open doors to a new future

3.7.2. CONCEPT

The plan of Jawahar Kala Kendra is the reflection of the original city plan of Jaipur, which is based on the concept of Nine Mandalas or Navagraha placed in the grid pattern with one block displaced to accommodate the main entrance. Representation of these nine blocks as the nine planets. For instance, library in Jupiter section which represent the wisdom and knowledge. The Mars section representative of power has the administrative block. The astrological symbol of each planet is directly expressed in a cut-out opening in its external wall.

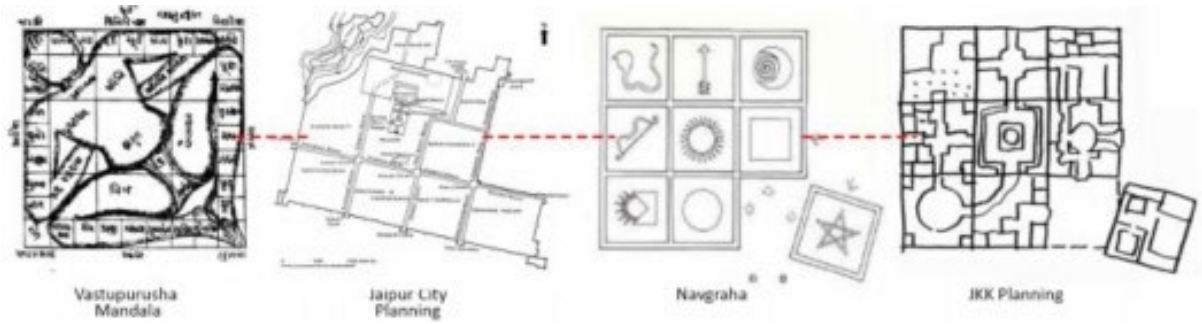


FIGURE 136 CONCEPT OF NAVAGRAHA (SOURCE: ISSUU)

3.7.3. FORM, PLANNING PRINCIPLE AND PRACTICES

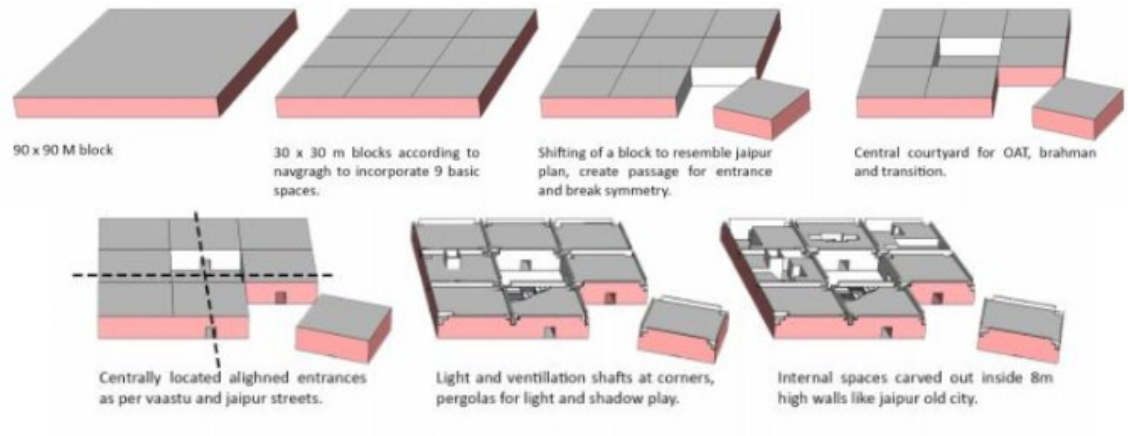


FIGURE 137 FORM DEVELOPMENT (SOURCE: ISSUU)

Planet	Colour		Quality	Function	Users
Venus	White		Art	Drama/ Theatre	Theatre Artists/ Viewers
Jupiter	Lemon Yellow		Knowledge	Library	Students/Library members
Rahu	Iridescent		Restorer	Documentation	Admin and staff
Saturn	Earth red		Knowledge	Museum II	Staff, Visitor
Ketu	Brown/ Black		Anger	Museum I	Staff, Visitor
Mercury	Golden Yellow		Education	Lok Kala Kendra	Exhibitor, Visitor
Moon	Milky White		Heart	Cafeteria	Visitors, Admin/staff
Mars	Red		Power	Administration	Admin/staff
Bhraman				Madhyavrati	Performers, Visitors

FIGURE 138 MASTER PLAN OF KALA KENDRA (SOURCE : ISSUU)

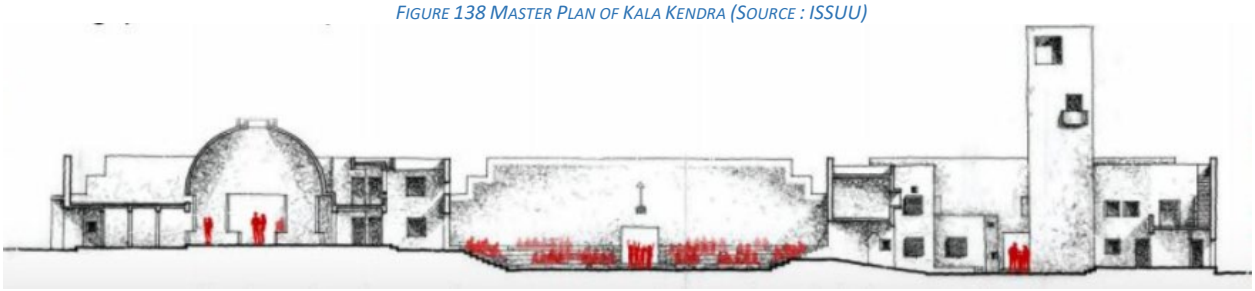


FIGURE 139 SECTION SHOWING VARIOUS SPACES (SOURCE: ISSUU)

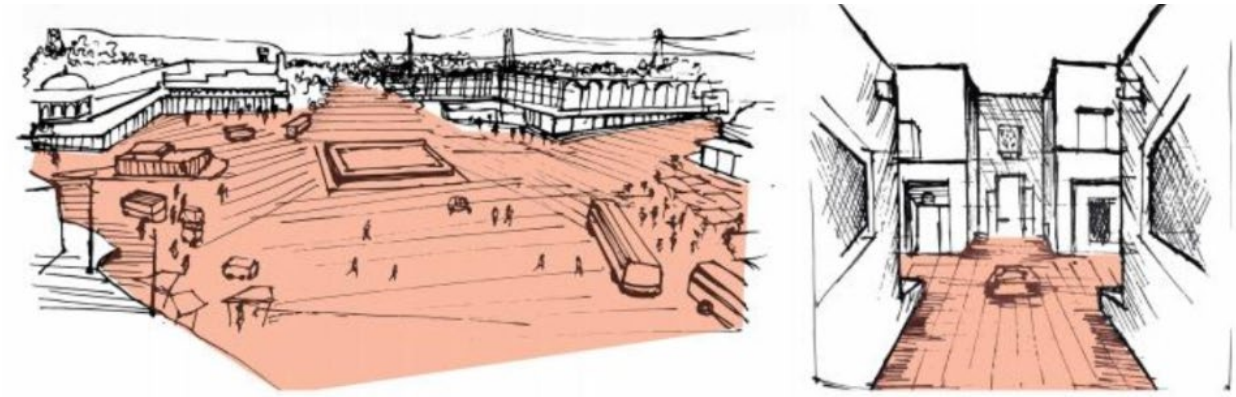
Section showing variation in built volumes as well as open vs closed spaces to create a spatial experience that allows time to reflect upon various learnings and thoughts through brahman.

Open vs Bulit Space

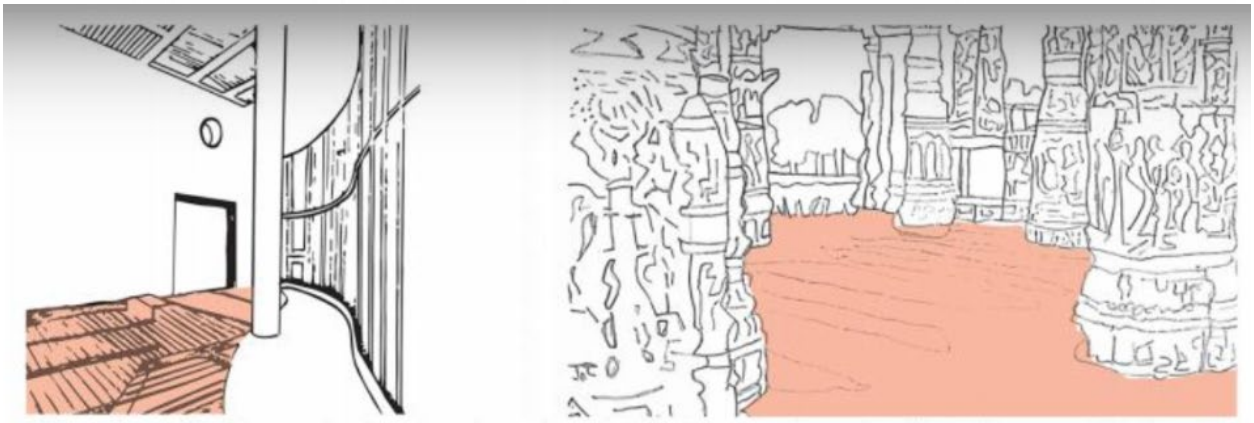
- The journey through the building, the movement through its celestial divisions is marked by a diversity of spatial densities, open and built spaces
- Provision of a courtyard as a transition space rather than long corridor, provides time to reflect upon the arts and knowledge from different galleries.
- Patches of green and open spaces alongside built spaces can provide breathing spaces and provide natural light.

FIGURE 140 OPEN AND BUILT SPACES (SOURCE: ISSUU)

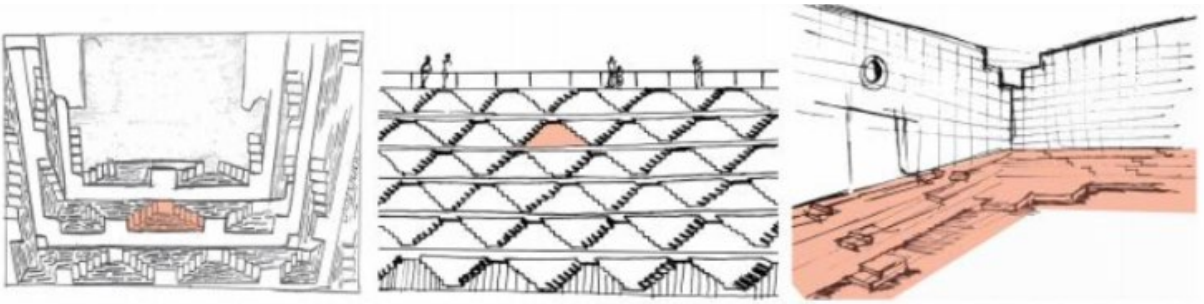
3.7.4. ELEMENTS AND EMBELLISHMENTS



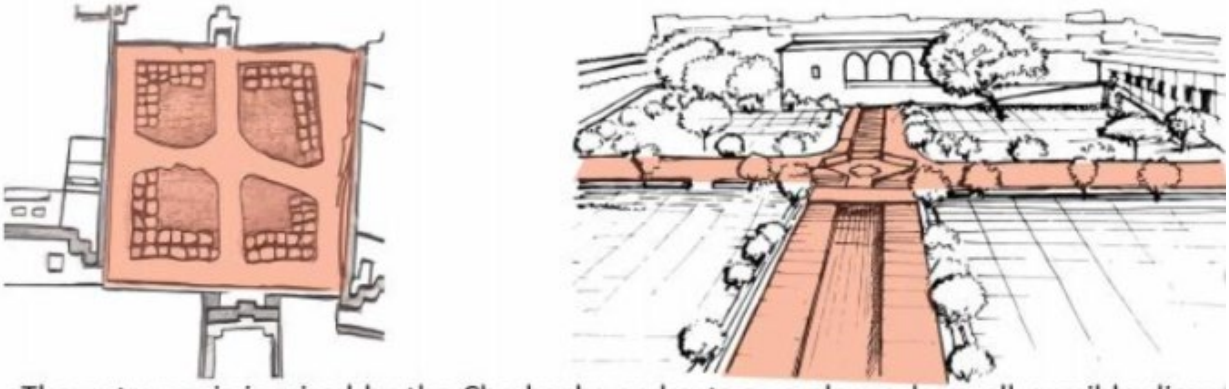
•The area with the art galleries have resemblence with the chopads. The place of goods exchange and directional traffic movements have been reinterpreted as a place where exchange of artistic ideas and novel concepts takes place.



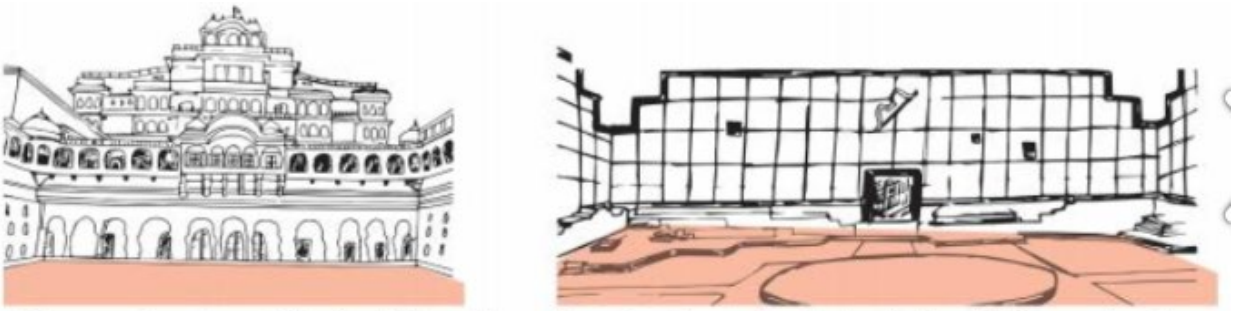
•The play of light ans shadow has been inspired by the sun temple of Modhera which is quite evident in the backcourt of library.



•Central courtyard is inspired from ancient stepwells (baori) which were meeting and conversation places. This has been reinterpreted in an OAT where gatherings and conversations will be triggered by performances and events.

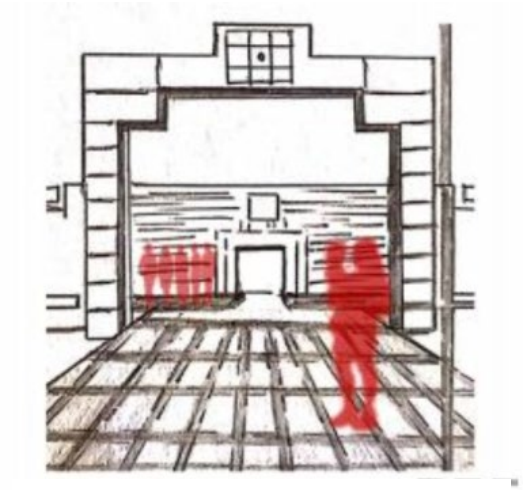


•The entrance is inspired by the Charbaghs and acts as a plaza where all possible directional movements are indicated and are places of group conversations.

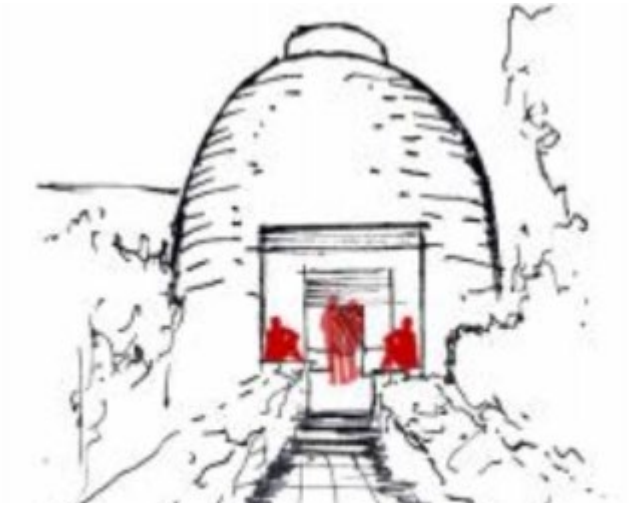


•The courtyard as of the traditional havelis and palaces, is a hub of all activities and gatherings. Not just a transition space but also a place that orients the disoriented of the adjacent spaces *(Bhraman)*.

3.7.5. RESPONSE TO USER DIVERSITY, FORMAL INFORMAL SPACES

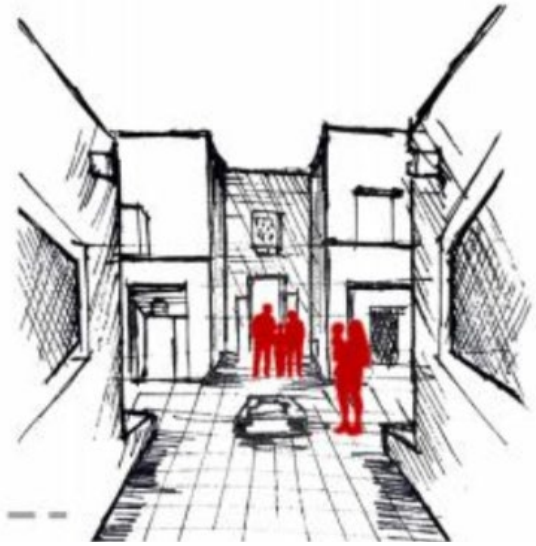


Small groups gather in the Charbagh inspired entrance area due its prominent location between library and auditoriums



The administration dome depicts ancient cosmic paintings and is strategically placed at the entrance surrounded by green. Thus, it invites small informal gatherings in transition.
The private niches and furniture placement in the cafeteria makes it the hub of informal gatherings and discussions.

Framed views of central courtyard space, makes it highly noticeable therefor unfit for informal discussion



Due to intersection of linear pathways, chowpad like nodes are formed that invite small groups for informal discussion after visiting exhibitions

3.7.6. RESPONSE TO ENVIRONMENT

- Light through oculus at admin area
- Light wells and courtyards to provide natural light
- Courtyard is used to maintain the temperature of the building.

FIGURE 142 VIEW OF OPEN-AIR THEATRE

FIGURE 145 VIEW OF GALLERY

FIGURE 141 INTERIOR VIEW OF LIBRARY

FIGURE 143 VIEW OF THEATRE

FIGURE 144 VIEW OF LANDSCAPING FROM CAFE

3.7.7. INFERENCES

- Play of light, shadow, color, evoking emotions in the user making him move around
- OAT is covered by high rise wall which intercepts the air circulation of the space.

3.8. PANI COMMUNITY CENTER

Selection Criteria

- To study the about bamboo structure
- To study about locally available materials and weather conditions.

FIGURE 146 PANI COMMUNITY CENTER, BANGLADESH, AND SOURCE: ARCH DAILY)

3.8.1. INTRODUCTION

- Architects: SchilderScholte architects
- Area: 910m ²
- Year of Construction: 2014
- Country: Bangladesh

3.8.2. BUILDING MATERIALS

During the design process attention was mainly focused on locally available materials and weather conditions. The starting point was to realize a building using materials and skills from within a 15 miles radius around the site. Bamboo, hand-shaped brick, Mango wood, reused

steel, local mortar and wafer-thin recycled corrugated panels are the main materials used in the building.

3.8.3. SUSTAINABLE FEATURES

From a bioclimatic point of view the orientation of the building allows to emphasize the natural cross ventilation, which prevents costs with electric fans. The roof of the building is suspended to both sides (East and west) providing shade, protecting the biggest openings against rain and collecting rainwater into the courtyard. The concept is to combine and optimize local techniques with local materials. For this the strategy is to participate in the evolution and modernization of the local construction processes without a rupture in the ‘’know how’’ of the population.

FIGURE 147 GROUND FLOOR PLAN

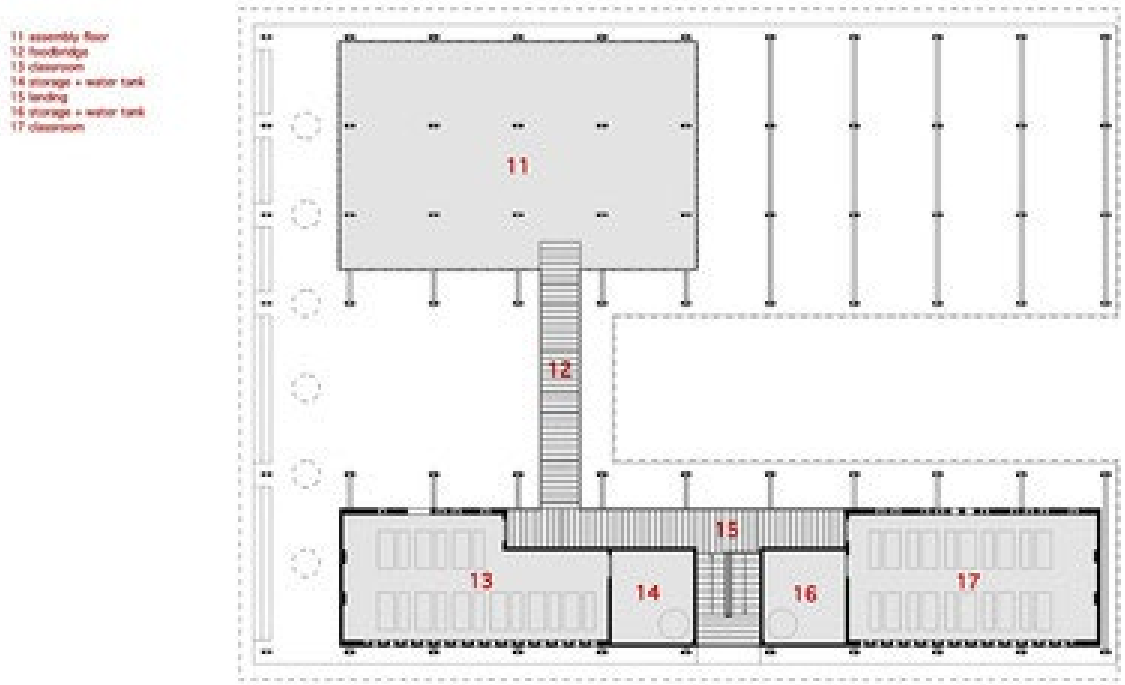


FIGURE 148 UPPER FLOOR PLAN

FIGURE 149 SECTION

The dimensions are chosen with great care, in such a way that direct sunlight into the classrooms is minimized still providing in optimal daylight illumination. Also the use of nearby ponds for natural draft to cool the classrooms was taken into account in the design. The techniques use for this project are also very easy to learn and diffused by the main contractor, which will contribute to the local construction modernization. This application of local bricks is less expensive and reduces the use of construction wood by combining bamboo

with thin concrete floors. This minimizes the shortage of wood in Bangladesh as well future maintenance costs.

3.9. INFERENCES FROM THE CASE STUDY

Case studies done in this research are of different nature and done to serve completely different purposes. The outcomes/ inference drawn from the cases are tabulated below:

TABLE 9 INFERENCES FROM CASE STUDIES

SN	CASE STUDIES	INFERENCES
1.	Janakpur Women Development Center, Janakpur	• Authentic craft and painting • Production • Play Natural lighting • Real Requirement of the artisan • Traditional Mithila Planning and architecture • Design with climate response
2.	Pottery Square, Bhaktapur	• Community working environment • Advantage and limitation of pottery space • Current scenario
3.	Russian Culture Center, Kamalpokari, Kathmandu	• Play with Natural lighting • Spatial planning • Space and functional requirement • Flexible entry to each required space • Effectiveness • Architectural identity
4.	Ruthin Craft Center, Ruthin, Denbighshire	• Exhibition space • Local materials sustainable and can create interesting forms. • Building's response to site and surrounding.
5.	Avadh Shipgram, Lucknow	• Education through demonstration and interaction • Direct exposure to the market without broker • Space planning and functional connections • contemporary interpretation of vernacular elements & characters • Sustainability • Climate responsive design
6.	Jean- Marie Tjibaou Cultural Center, New Caledonia	• Blend of traditional material with modern technology • Space planning and functional connections • Sustainability • Climate responsive design

7.	Jawahar Kala Kendra, Jaipur	• Architecture as craft • City Planning • Place identity reflected in design • Traditional way of displaying exhibits • Local values, tradition and craftsmanship in architecture • Planning and spatial relations • Local identity through modern solutions
8	PANI Community Center	• Use of Locally available materials • Sustainable approach • Bamboo structure

CHAPTER 5: SITE ANALYSIS

FIGURE 150 SITE LOCATION

Since the thesis is dedicated to art and culture of Janakpur, I have chosen the site in Janakpur, which is named after the legendary King Janak, a city in Nepal's eastern terai; a Hindu pilgrimage site with an ancient heritage. Each year thousands of Hindu pilgrims come to Janakpur to celebrate one of the most famous festivals 'Ram Navami'; the festival marks the birth day of Lord Rama, and also to celebrate 'Vivah Panchami', the marriage of Sita and Rama from the famous Indian epic Ramayana is said to have taken place at this very place.

Tourists and pilgrims from all over the world visit Janakpur's to see Janaki Temple, a mughal-style religious architect dedicated to Sita; the Rama Sita Vivaha Mandir, a temple built over the spot where Rama and Sita wedding is said to have taken place; Rama Mandir, a temple in honor of Lord Rama; and the holy pond Dhanush Sagar and Ganga Sagar. Janakpur was once the capital of an ancient kingdom called Mithila, whose territory extended into the present day North Indian state of Bihar. Today Janakpur still remains the center of Maithili culture in Nepal.

FIGURE 151 SITE PHOTOS

4.1. SITE INTRODUCTION

- Province −2, Janakpur Municipality, near 12 Bighha
- Geographically: 26°43'52.85"North 85°55'14.53"EEast
- Zone−Janakpur, District−Dhanusha
- Highway: Janak Highway (Janakpur−Jaleshwor Road)

4.2. PHYSICAL AND ENVIRONMENTAL ASPECTS

- **Approaches and Access (Roads):** The site can be accessed from northern, southern and western side. The proposed site is located 15 minutes away from the airport
- **Topography**: The Site is Flat
- **Shape and Size**: The site is irregular in shape. The total area of the site is 20,616 sq.m. (40 ropanies)
- **Land and Land Use:** the site has both government and private ownership. Presently it is used for residential purpose and has some barren land

4.3. SITE PROXIMITY

- Janaki Temple: 500m away
- 5-star Hotels are all around and near to temple and site premises
- Airport: 4km away, 15min from vehicle

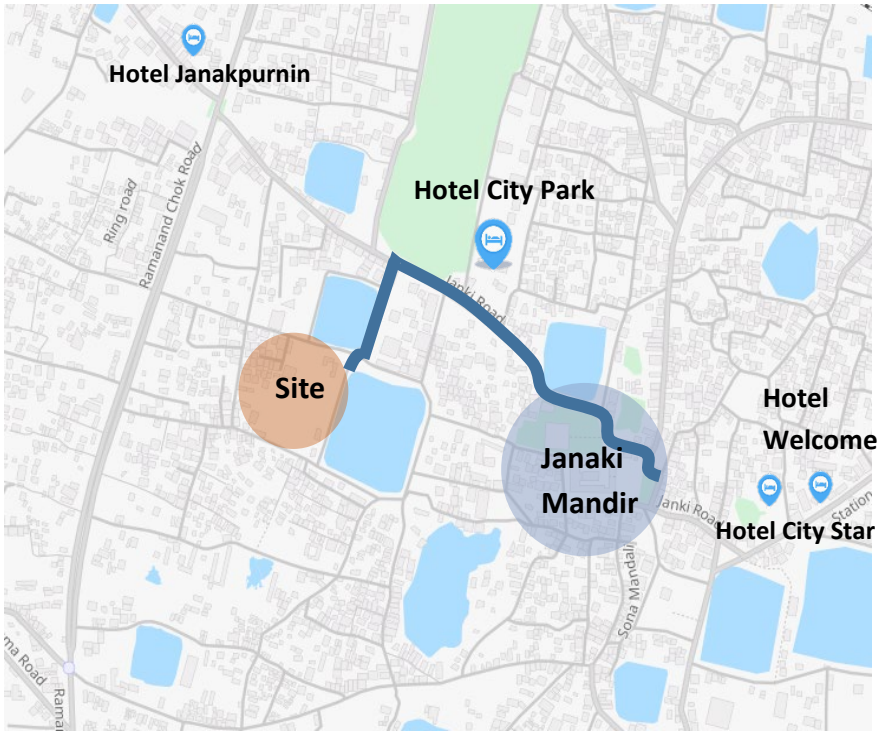


FIGURE 152 PROPOSED SITE

4.4. SITE SELECTION CRITERIA

- Physical Characteristics
- Existing condition, boundaries and infrastructure
- Surrounding environment and Views
- Access
- Historical Significance of the site
- Climatic analysis
- Vernacular Response
- Land use

4.5. SITE JUSTIFICATION

- The site hence has the potential to carter any growth in future. North orientation which is good for hot climate.
- Not very far from Janaki temple which is known as heart of Janakpur and is easily accessible.
- Pond in the bank of site holds historical importance.
- Water body at the side of site can contribute in creating recreational area around the culture center

4.6. PHYSICAL FEATURES

1. **Drinking water supply**: Sufficient water supply and supplied through community taps and from under-ground source
2. **Electricity and telephone**: Electricity overhead system. Electricity line is taken from the nearest electric pole in front of the road supplied by NEA.
   Telephone line passes below the high-tension wires in the poles along with the electricity lines.
3. **Sewerage and sanitation:** Open drainage system and the sewerage and drainage system is available alongside the road along the site.
4. **Socio-Cultural Aspects:** The site has cultural and historical importance through its neighborhood heritage.

4.7. CLIMATIC STUDY OF SITE

Source: Weatherspark.com

- Temperature:
- At hot Season (25 march- 6 July)
  - Average Temperature: 33°C
  - Maximum Temperature: 35°C
  - Minimum Temperature: 27°C
- At cool season (11 December – 7 February)
  - Average Temperature: 26°C
  - Minimum Temperature: 10°C
- Rainfall: maximum annual rainfall is 1320mm
- Humidity: Relative humidity high in morning and lower in the evening
- Wind direction from east to west

4.8. BYE-LAWS

- FAR: 2.0
- GCR: 40%
- SET BACK:
  - 3 m from Road
  - 1.5 m from boundary
- Light plane: 63.5 light plane

4.9. SWOT ANALYSIS

- **Strength**
  - The site holds religious and cultural values through its surrounding religious and cultural heritage.
  - The site is relatively less polluted owing to the absence of industries.
  - The site is easily accessible.
  - Orientation towards north which is good for the hot climate.

- **Weakness**
  - The link road to the site has only gravel top.
  - Currently used as low dumping site.
  - Provision from waste management is not sustainable.

- **Opportunity**
  - The surrounding religious and cultural heritage site can attract large volume of tourists at this art and culture center.
  - The site is at distance 500m away from Janaki Mandir, which will add to it a cultural and economic value.
  - The site can be accessed by three sides connecting roads.

- **Threat**
  - During Festival season there is chance of noise pollution and unmanageable rush
  - Traffic Congestion

CHAPTER 6: PROGRAM FORMULATION

The Mithila Art and Culture center will accommodate a small artisan community with about 50-60 people. The artisans will have their workshop, accommodation and interaction space in this facility. The workshop and interaction space will be also used by the public for learning and live demonstrations. The center will also have a training facility where it will provide academic courses of different arts and crafts (pottery, bamboo basketry and embroidery) of Mithila. The center will have 6 months course plan where each section will have 20 students. So, the training facility will be designed to accommodate 80 students and the center will include 15-20 teachers. To support the academic and production works, the center will also have library and research center. For efficiently functioning and sustainability of the center, it will also accommodate performing space, exhibition/ gallery space with the maximum capacity of 350 visitors and other amenities required in the public facility.

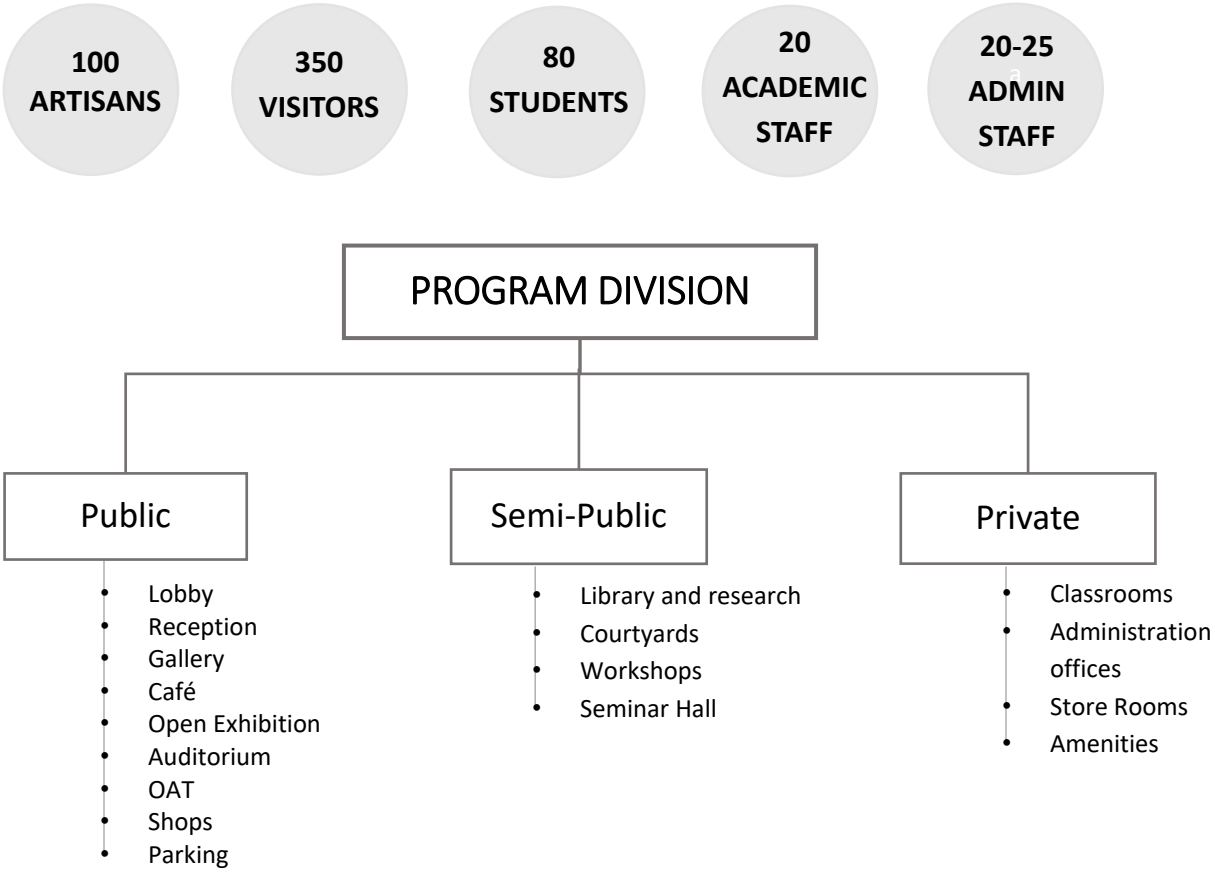


TABLE 10 VISITOR COUNT

Description	Number
1. Nepal Receiving foreign tourist in 2019	1197191
2. Tourists visit Nepal per day	3280
3. Assume 20% tourist visit Janakpur per day	656
4. Indian Tourist visit to Janakpur per day	1200
5. Assume Local visitors per day	Min 100
6. Total Tourist visit Janakpur per day	1956
7. Taking, 18% tourist visit to the Mithila Art and Culture center per day	350

TABLE 11 PARKING AREA CALCULATION

SN	SPACES	NUMBER	MINIMUM STANDARDS	AREA(M^2)
1	Bikes+ Bicycle	100	2.5m^2/Bike	250
2	Cars	40	12.5 m^2/Car	500
3	Buses/Trucks	4	48m^2/Bus	350
	Sub-Total			1100
	Circulation			450(40%)
	Total			**1550**

TABLE 12 ADMINISTRATION AREA CALCULATION

SN	SPACES	NUMBER of Unit	Area/Unit	Number of Person	Area/Person	AREA(M^2)
1	Lobby	1		40	0.5 m^2	20
2	Reception	1	25			25
3	Pantry	1	25			25
4	Waiting Room	1		30	0.5 m^2	15
5	Director Room	1	30			30
6	Accountant Room	1	20			20
8	Administrative Department for Staff	1		20	4 m^2/person	80
9	Meeting Room (25 person)	1		25	2 m^2/person	50

10	Program Manager	1	35			35
11	Store	1	25			25
12	Toilets					
	Male	1	6.5			6.5
	Female	1	6.5			6.5
	Disabled	1	2.25			2.25
	Sub-Total					340.25
	Circulation					136(40%)
	Total					**480**

TABLE 13 PRODUCTION UNIT AREA CALCULATION

SN	SPACES	NUMBER of Unit	Area/Unit	Number of Person	Area/Person	AREA(M^2)
1	**Painting Section**					
	Manager's Room	1	10			10
	Drafting Section	3		8	(2-6) m^2/person	144
	Coloring Section	2		8	(2-3) m^2/person	48
	Storeroom along with framing section	2	30%			120
	Demonstration	2	20			40
	Toilet	3	6.5			19.5
	Total					**382**
2	**Pottery Section**					
	Manager's Room	1	10			10
	Wedging/Kneading Room	2		5	(0.9-2) m^2/person	40
	Molding Room	2		5	(1.5-3) m^2/person	30
	Outdoor Drying Area	1	80			80
	Firing room	1	80			80
	Store room	2	30%			72
	Demonstration	2	20			40
	Toilet	3	6.5			19.5
	Total					**372**
3	**Bamboo Basketry Section**					
	Manager's Room	1	10			10
	Bamboo Cutting and peeling Room (By Hand)	1		5	(3-6) m^2/person	30

	Bamboo Weaving and Knotting Room	1		5	(2-6) m²/person	30
	Varnishing and Coloring Room	2		5	(2.5-4) m²/person	40
	Store Room	1	30%			42
	Demonstration	1	20			20
	Toilet	3	6.5			19.5
	Total					**182**
S N	SPACES	NUMBER of Unit	Area/Unit	Number of Person	Area/Person	AREA(M²)
4	**Sewing Section**					
	Manager's Room	1	10			10
	Cutting Room	2		5	(2-2.5) m²/person	25
	Machine Room	2		5	1.5 m²/person+ 1m² clearance on both side	25
	Embroidery Section	2		5	2m²/person	20
	Store Room	1	30%			50
	Demonstration	1	20			20
	Toilet	3	6.5			19.5
	Total					**170**
	Sub Total					1106
	Circulation					442(40%)
	Total					**1550**

TABLE 14 TRAINING SPACE AREA CALCULATION

S N	SPACES	NUMBER of Unit	Area/Unit	Number of Person	Area/Person	AREA(M²)
1	Staff Room	1				20
2	Theory Class	4		20	(2-2.5) m²/person	160
3	Practical Studio					
a.	Drawing Room	2		10	4 m²/person	80
b.	Pottery Room	2		10	2.5 m²/person	50
c.	Bamboo Basketry	2		10	2.5 m²/person	50
d.	Embroidery Room	1		10	2m²/person	20
4	Doll Making	1		10	2m²/person	20
5	Computer Room	2		20	1.5m²/person	60
6	Amenities	1	35			35

	Locker Room	4		30	2	240
	Store Room	1	20			20
	Toilet	6	6.5			40
	Sub Total					795
	Circulation	1				318(40%)
	Total					**1113**

TABLE 15 ART GALLERY AND EXHIBITION SPACE AREA CALCULATION

SN	SPACES	NUMBER of Unit	Area/Unit	Number of Person	Area/Person	AREA(M^2)
1	Exhibition			350		
	Permanent Collection					500
	Exhibit Space					300
	Store					100
	Toilet	6	6.5			40
	Sub Total					940
	Circulation	1	2.25			376(40%)
	Total					**1316**

TABLE 16 MULTIPURPOSE HALL AREA CALCULATION

SN	SPACES	NUMBER of Unit	Area/Unit	Number of Person	Area/Person	AREA(M^2)
1	Lobby	1		200	0.5m^2/person	100
2	Foyer	1		200	0.5m^2/person	100
3	Seating Area	1		200	1m^2/person	200
4	Store	1			25% of Seating Area	20
5	Green room(male)	1	25			25
6	Green room(female)	1	25			25
7	Stage	1	60			60
8	Toilets					
	Male	1	12			12
	Female	1	15			15
	Disabled	1	2.25			2.25
	Sub Total					560
	Circulation					224(40%)
	Total					**784**

TABLE 17 OTHER SPACES AREA CALCULATION

SN	SPACES	NUMBER of Unit	Area/Unit	Number of Person	Area/Person	AREA(M^2)
1	**Souvenir Shops**					
	Shops	8	20			160
	Cash Counter	1				5
	Store	1	35			35
	Total					**200**
2.	**Library + Research**	1		50	5 m^2/person	250
3.	**Restaurant**	1		150	2 m^2/person	300
4.	Others					
	Guard House	2	16			32
	Utility & Store	2	40			80
	Total					**112**
5.	Sub Total					862
6.	Circulation					345(40%)
	Total					**1207**

Total Coverage: 6450 sq.m.
5% Contingencies: 324 sq.m.
10% Infill Walls: 645 sq.m
Total Built UP area: 7419 sq.m.

CHAPTER 7: CONCEPT AND DESIGN DEVELOPMENT

7.1. CONCEPT

The major goal of this project is to provide a public area that offers a comprehensive understanding of the country's long-standing art and craft traditions. The main goals are to create art and crafts in a genuine manner, provide a space for formal and informal art and craft instruction, and promote Mithila art and craft in general. The center's goal is to create a gathering place where people may experience and view the creation of priceless arts and crafts as well as the artisans that make them.

Therefore, the core idea of the project is to protect and promote the Mithila art and culture which is slowly losing its value.

7.2. CONCEPT STATEMENT: PORTRAYING A VILLAGE OF MITHILA

The master design depicts a first-century village living with some type of architectural innovation in construction techniques and function without sacrificing the residents' deep spirituality. The overall aesthetic aims to capture the spirit of village life and the elements that make it up. The following are some of the approaches for creating a village feeling:

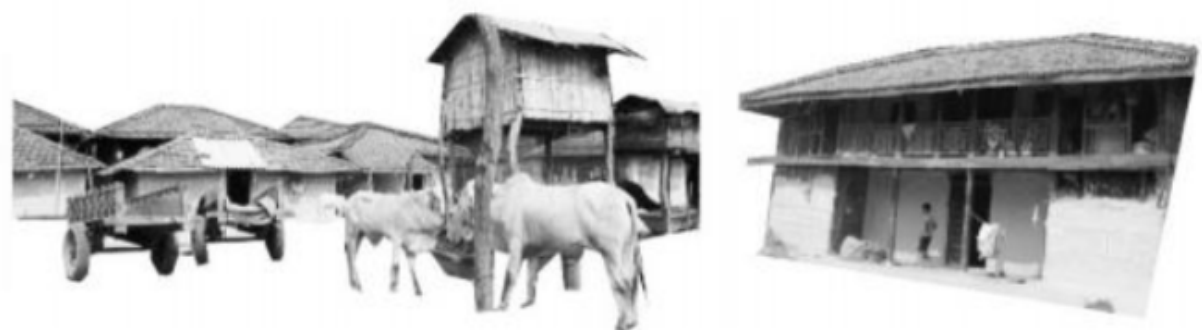


FIGURE 153 VILLAGE OF MITHILA (SOURCE: ISSUU, SHIRSHAK BANIYA)

7.2.1. APPROACH 1: PLANNING ACCORDING THE SETTLEMENT OF VILLAGE

Using Bindhi VDC in Janakpur as an example. This village's settlement, architectural styles, courtyard layout, and interior spaces are investigated. I used that location's settlement pattern as a guide while designing my art and cultural center. We can observe a small cluster of courtyard areas from that hamlet, which depicts the way of life of the residents for everyday social and community purposes. The feature of a courtyard is that it is an open area under the sky where hot air is drawn into the cold air. The courtyard is used for a variety of purposes, including cooking, drying, relaxing, gathering, and meetings. Each home benefits from the cooling breeze that comes from the large outdoor courtyard that surrounds the streets and

fields. Via a lattice window and door, the building receives this chilly air. Primitive nature of village.

In the concept derivation of these building typologies, a courtyard has been included to the design between the building's exterior and interior to induce an architectural function necessary for an art and cultural center.

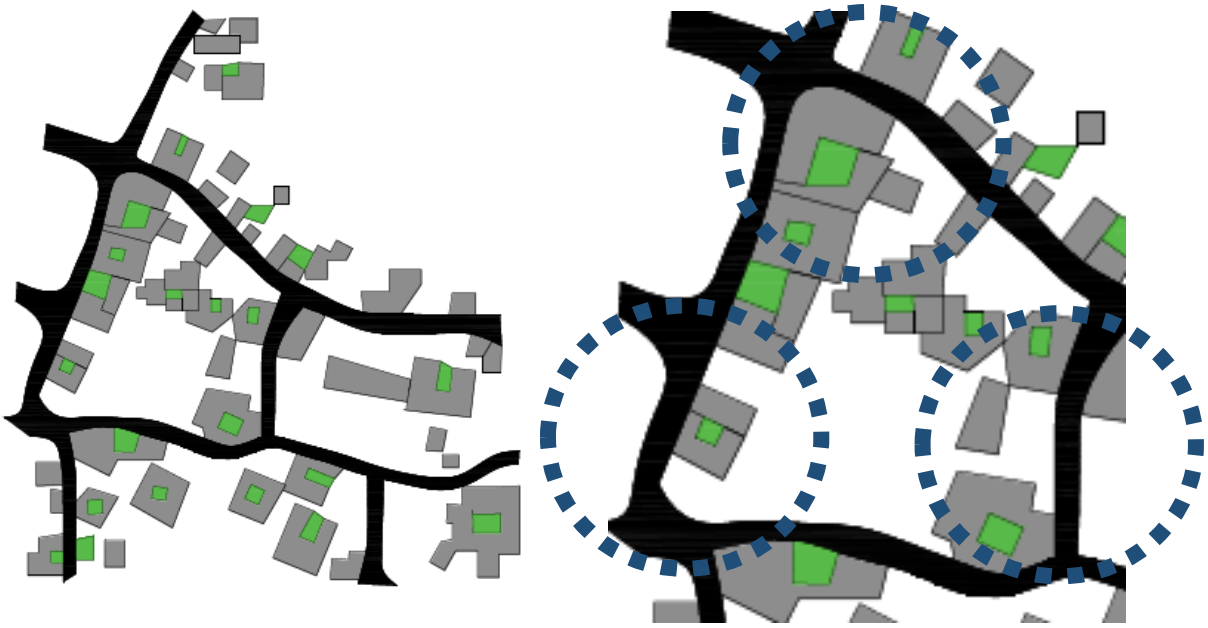
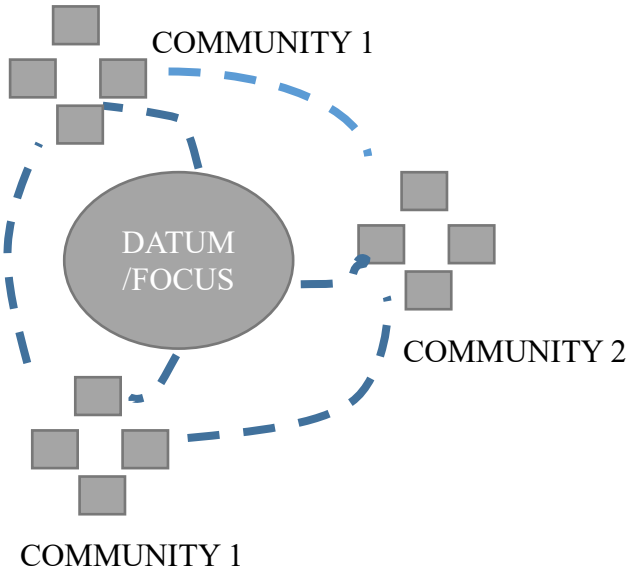


FIGURE 154 BINDHI VDC, JANAKPUR



7.2.2. Approach 2: Bringing the Essence of Pokhari into Design

There are many ponds present since the ground water table at these low-lying areas of the Terai region is relatively high. Every community in the Terai area includes a pond, or "pokhari," which serves as the primary supply of water for a variety of purposes. These ponds have historically been utilized for irrigation and fish aquaculture. At the "chath" festival, they worship the sun as their primary deity at the same pond. These ponds serve as water storage during the rainy season, and as a result, they serve as a habitat for numerous birds and avian insects. Daily activities include things like swimming, washing clothing, irrigation, and giving animals a bath.

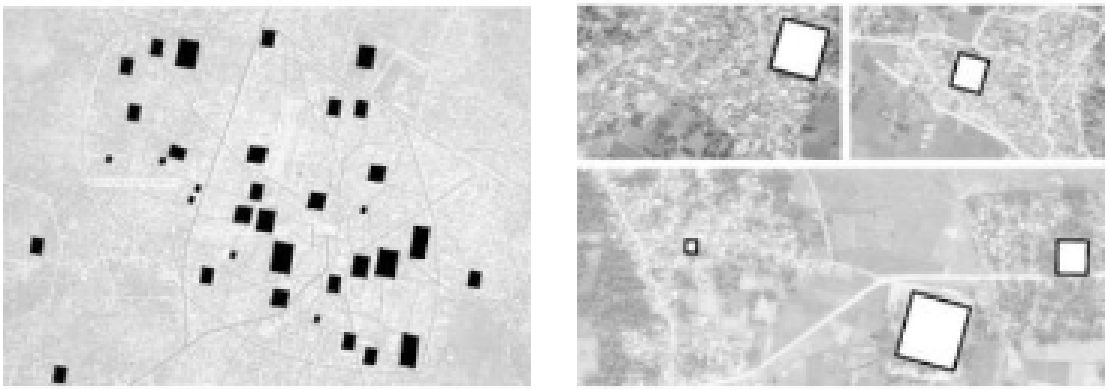


Figure 155 Mapping of Pond at Janakpur City

This essence of pond architecture is induced in the concept phase for this thesis to attain the following function:

- To create micro climate to cool air and breeze for cooling effect.
- To act as a source of reservoir for firefighting during fire hazard.
- To provide artificial habitat for birds, avian insects and reptiles to create rich within the site for ecological demonstration.
- To store rain water and flooded water during monsoon season which will solve water logging problem

7.2.3. Approach 3: Identity in Architecture (Essence of Village)

Building Elevation

The vertical strokes are dominated by village houses. This is a result of the existence of a sturdy frame construction constructed of precast RCC pillars, bamboo, or wooden posts. Three factors

essentially define the elevation of the home. Roof level, first floor, and bottom floor. Solid lines are used to distinguish these three layers visually. The elevation of the home to protect it from rain and flash flooding also includes a high level plinth. The ground level of the home is primarily unfinished and used for parking and storage. As seen in the illustration, the vertical lattice network of bamboo strips is visible on the window and door, giving the structure a little more manly appearance. Hence, the idea of exposing the vertical structure member is incorporated into the thesis concept to reflect the essence of the village house.

FIGURE 156 BUILDING ELEVATION (SOURCE : ISSUU, LIFE SCHOOL CENTER, SHIRSHAK BANIYA)

FIGURE 157 TYPICAL VILLAGE HOUSE (SOURCE: CONTEXT, SANTAL CULTURAL COMPLEX)

Building Section

People in Terai have faced significant hardships due to the climate. This is caused by how close the low land is to the equator. Summertime temperatures can occasionally approach 40 degrees Celsius, which makes it quite difficult to live comfortably. When we examine the sectional local vernacular architecture of the home, the stack effect phenomenon—in which hot air is circulated by cross ventilation—is well confirmed. Cross windows in the building layout provide efficient air regulation, creating a cool environment in the summer. The analysis of residential and public buildings inside the Dhanusha district site grounds reveals the existence of a cross ventilation system to regulate air quality for comfort level.

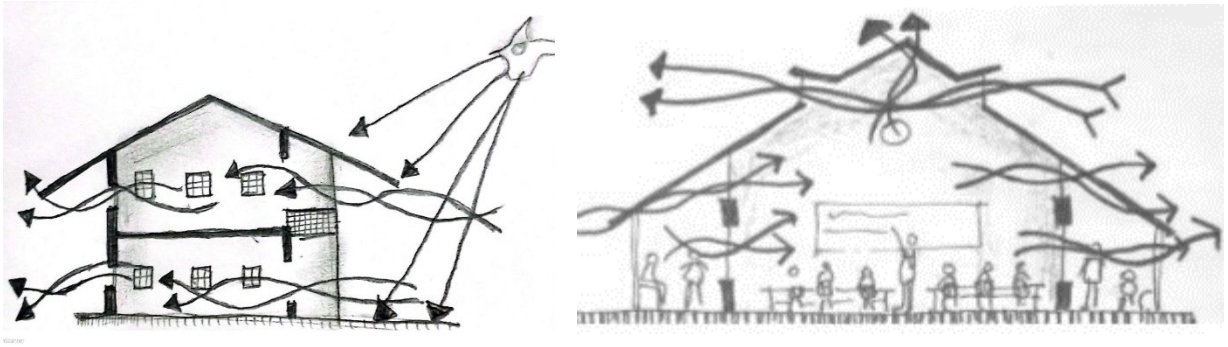


FIGURE 158 SECTION OF TYPICAL VILLAGE HOUSE

Basic Elements seen in the building of Mithila:

- Wattle and Daub Walls
- Slope Roof
- Overhangs(Chhajjas) for sun rays and rain protection
- Small Ventilations
- Bamboo as structural element
- Courtyards (aangan)
- High Plinths

7.2.4. APPROACH 4: OPEN SPACE CONNECTING THE PUBLIC

Back then, concepts like learning by doing, learning by seeing, and learning by interacting were used to teach and transfer the valuable skills where learning was the part of working. Using these concepts, interactive workspaces with live demonstration and participation and facilities like homestay services are provided for the hands on experience of the craft making as well as the craft culture to the visitors.

- **Use or Activity Occurring Space**
  Courtyard areas to be utilized for carrying out a variety of continuous activities in the room.

  The patio there may be used for those activities, just like they are in the workshop room.

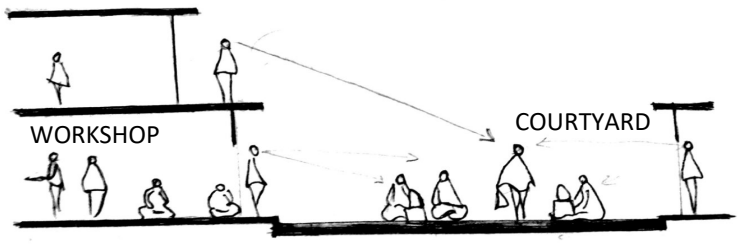


FIGURE 159 WORKSHOP SPACE

- **Giving Meaning To Space:**

  Space like Verandah and Dura are used for carrying out the live demonstration activities for interacting people with place and space.

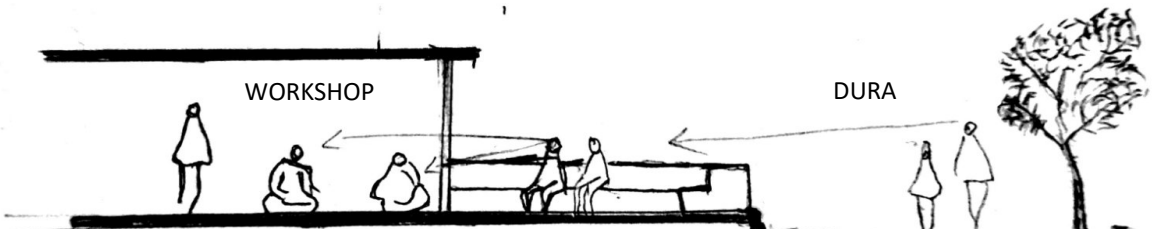


FIGURE 160 LIVE DEMONSTRATION AREA

- Setting for Social Interaction

  The central space for carrying out the activities like open exhibition, carrying out cultural performance also for village meeting and gatherings.

FIGURE 161 CULTURAL PERFORMANCE

FIGURE 162 EXHIBITION

FIGURE 163 VILLAGE MEETING

7.3. ZONING AND PLANNING

Production, promotion, education and cultural central space are the main functions of this art and culture center. The production facility includes the heavy production and smaller workshops, educational facility includes training center as well as the production workshops and the promotional part includes galleries both permanent and temporary, demonstration, exhibition plaza and the craft workshops. As per the concept, all these facilities are spread around the central cultural social and cultural space. To make sure that all necessary connections are established between the functions of the art and

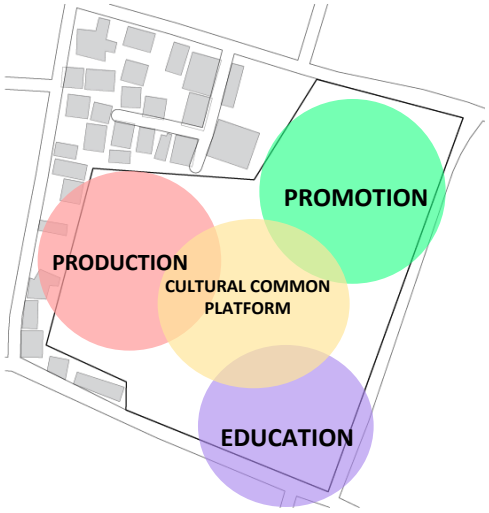


FIGURE 164 ZONING OF MAJOR FUNCTIONS

culture center, a functional connection diagram was also prepared and the functional placement was done accordingly.

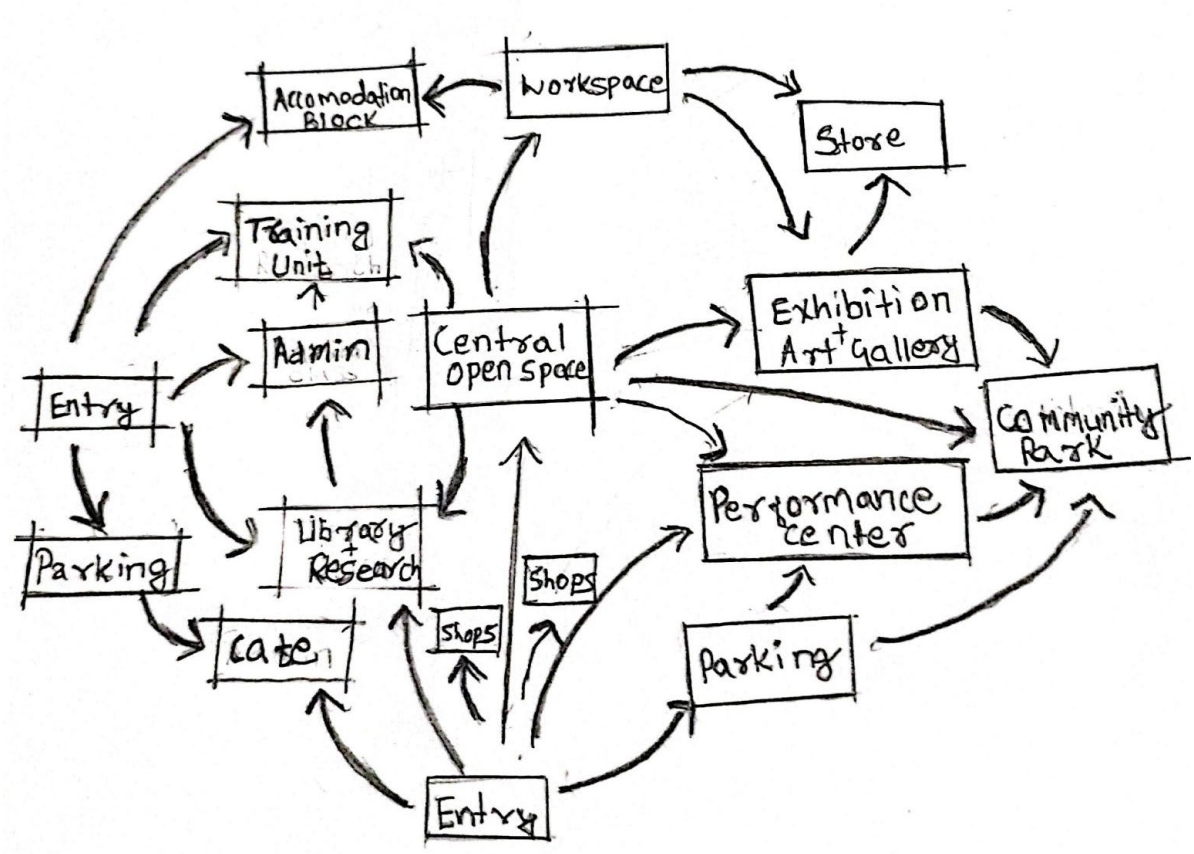


FIGURE 165 FUNCTIONAL CONNECTION OF ALL THE FUNCTIONS OF CULTURE CENTER

The art and culture center has a centrally located central cultural open space around which other functions like production facilities, exhibition hall, gallery, restaurant, library, recreational facility, training center, shops, multipurpose hall, administration, parking and accommodation are placed. Public functions like shops, restaurant, central square and multipurpose are placed adjacent to the road where there is more public movement and the semi-public and private functions like accommodation, exhibition gallery and training center, workshops are place at the inward portion of the site to maintain the degree of privacy and to avoid the disturbance from the road.

Planning begins with the creation of a central, flexible area that can be visible from both the main and side access roads to the center. The main entrance is for the public and the other two entry is for the community people and service entry.

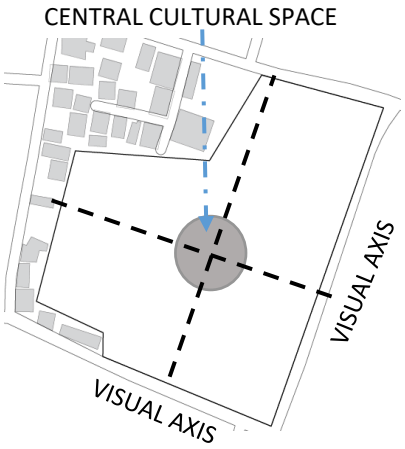


FIGURE 166 VISUAL AXIS TO THE CENTRAL SPACE

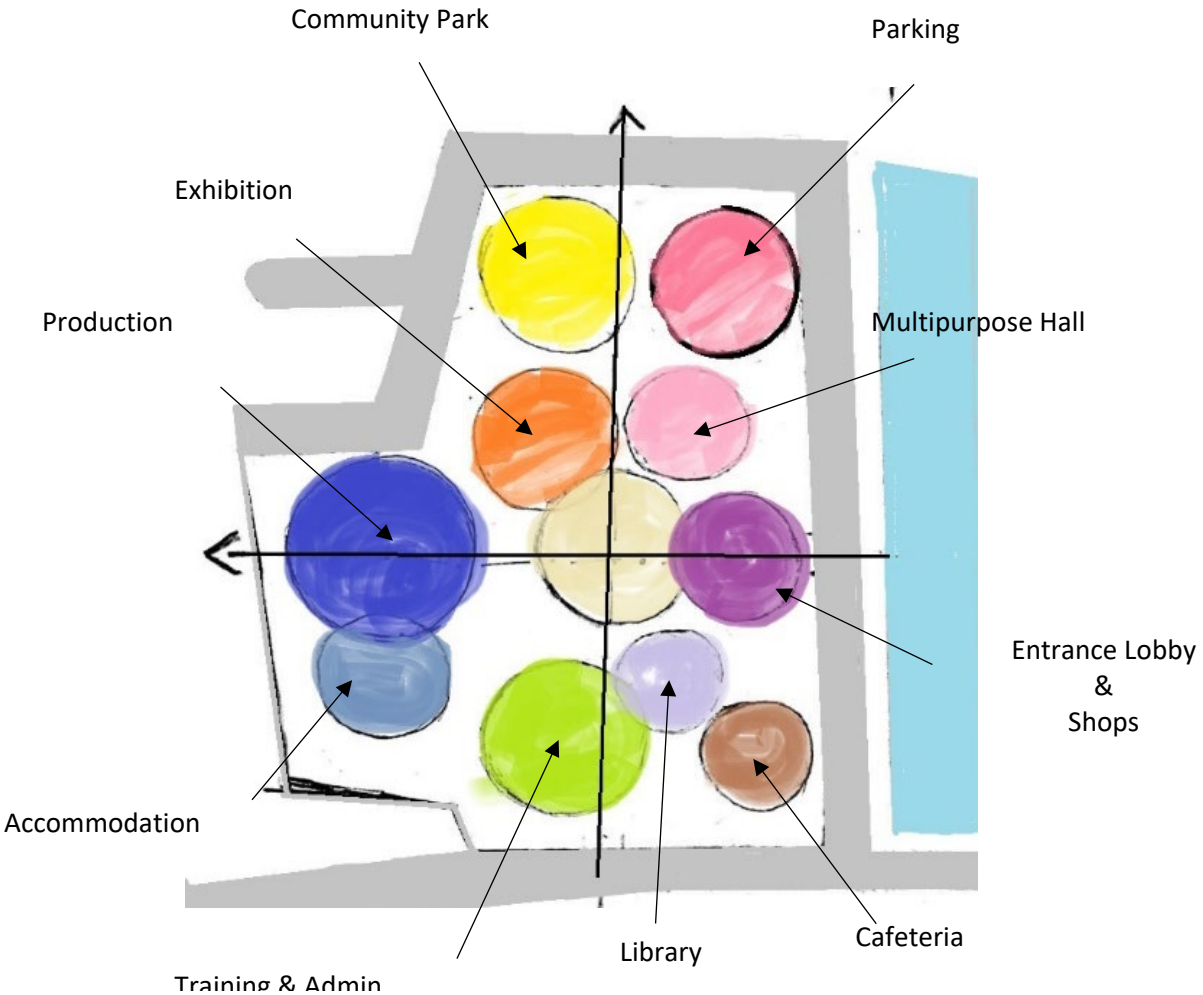


FIGURE 167 BASIC ZONING OF FUNCTIONS

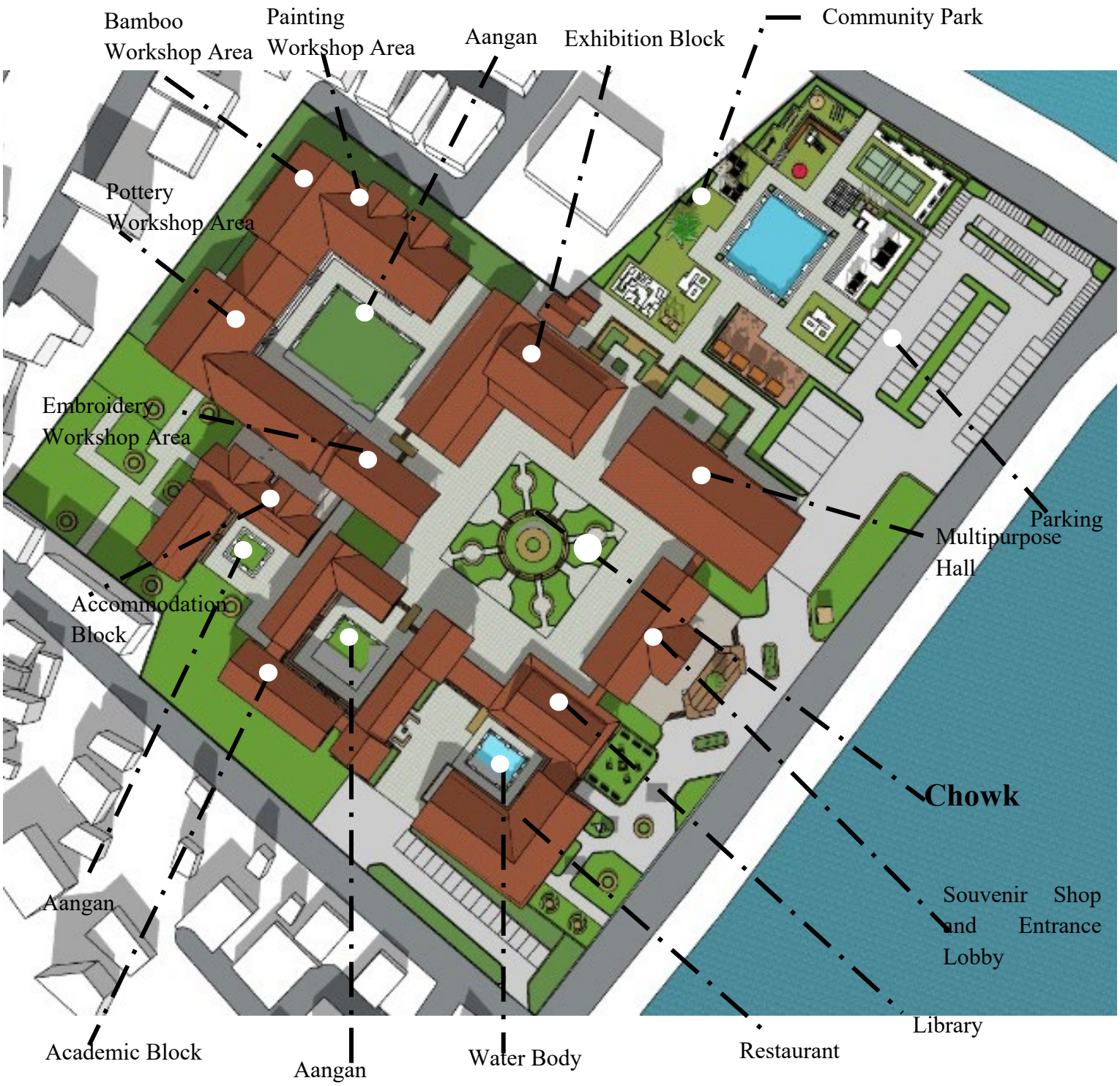


FIGURE 168 MASTER PLAN

7.4. DESIGN

7.4.1. CIRCULATION

The Center is designed as a public space accessible to all. The center purposed is a community like space where people can come, roam around, observe, gather, meet people, learn, recreate and so on. To let more people inside, the design is made porous and universal.

People from main entry come to central communal space and then from that specific area people get to the different block accordingly.

FIGURE 171 PEDESTRIAN CIRCULATION

FIGURE 170 VEHICULAR CIRCULATION

7.4.2. FUNCTION

7.4.2.1. ACCESS

A – Main entry to the Mithila Art and Culture Center especially for visitors.

B- Secondary entry for servicing in restaurant, and entry for the staffs of admin, training and workshop block.

C- Entry for the community people in the community park

D- Service entry for the workshop block for loading unloading goods like mud, bamboo, etc.

FIGURE 172 ACCESS TO THE CENTER

7.4.2.2. ENTRY AND SOUVENIR SHOP

The main entry is located at the east facing of the site. The reason for placement of entrance in east facing is to face is towards water body and also for proper flow of wind direction as wind flow east to west.

Adjacent to the major entrance lobby, there is souvenir shop which encompasses different handmade Mithila painting and crafts like pots, bamboo basket, dolls, sukul weaved etc. The souvenir shop placement is done in such a way that it is visible from the road as well. People visiting the center will see the shops at their entry point and during exit as well. (Refer Annex AR-05)

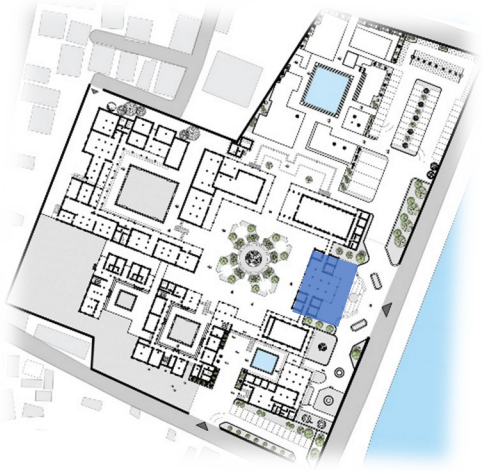


FIGURE 173 KEY PLAN WITH HIGHLIGHTED ENTRY AND SOUVENIR SHOP

FIGURE 174 ENTRANCE VIEW FROM ROAD

7.4.2.3. MULTIPURPOSE HALL

A multipurpose hall of capacity 200 people is provided adjacent of main entrance and parking area for easy access of visitors to the hall. The hall is provided for carrying out the performance of cultural activities like carrying out Mithila folk song and dances on special occasion. The hall is provided with four emergency exit which is open to verandah space and lead to open space in park and central chowk. (Refer Annex AR-06)

FIGURE 175 KEY PLAN WITH MULTIPURPOSE

FIGURE 176 MULTIPURPOSE HALL ELEVATION AND LOBBY SPACE

FIGURE 177 INTERIOR OF HALL

FIGURE 178 MURAL OF MITHILA ART IN WALL

7.4.2.4. EXHIBITION BLOCK

Exhibition Block placed in north east corner facing toward the central communal space. Exhibition block has reception along with display space inside it requires ticket for the entry. Entry to the complex is directed to the foyer by beautiful designed mud wall, decorated with elephants on its walls. The block is provided with verandah from where the whole complex is visible to visitors. (Refer Annex AR-06)

FIGURE 179 KEY PLAN WITH EXHIBITION BLOCK

FIGURE 181 3D OF EXHIBITION BLOCK

FIGURE 180 INTERIOR OF EXHIBITION

7.4.2.5. PRODUCTION BLOCK

Production Block is placed in western part which has hidden approach from the entrance so that it does not affect its inside activities. It is facing towards east which is also good according to Vaastu. Secondary entrance is provided from north for workshop so that the activities of other block may not get disturbed by workshop as it involves workers full day and it needs good service facility for materials. Transportation of Raw materials, dispatch of goods is done by alongside road of production block which is connected to service entry road in North direction from secondary access road.

FIGURE 182 KEY PLAN WITH HIGHLIGHTED PRODUCTION BLOCK

Planning is made according to typical Mithila house with houses in cluster around the central courtyard. Verandah is also provided in front of rooms for doing activities. Here courtyard as well as verandah can be used for workshop activities and also as gathering spaces for relaxation and refreshment. Wall is treated with Mithila art for aesthetic purpose.

Division of Space inside industrial block is done for Pottery section, painting section, sewing section and bamboo basket weaving. Sufficient windows and ventilations are provided for good lighting inside workshop block. (Refer Annex AR-09)

FIGURE 183 VIEW OF WORKSHOP AREA AND ITS COURTYARD

7.4.2.6. ACCOMMODATION BLOCK

The accommodation units are located in the south west side the community space. It has 20 accommodation units. As the accommodation unit is on southern side so maximum greenery and tall trees are grown on the southern part to provide warmness and shade. This accommodation block have their own private courtyard where they carry out their household activities which will provide the homely environment to the homestay people over there and also have the direct access from the training block. (Refer Annex AR-08).

FIGURE 184 KEY PLAN WITH HIGHLIGHTED ACCOMMODATION BLOCK

FIGURE 185 VIEW OF ACCOMMODATION BLOCK

7.4.2.7. TRAINING BLOCK AND ADMINISTRATION

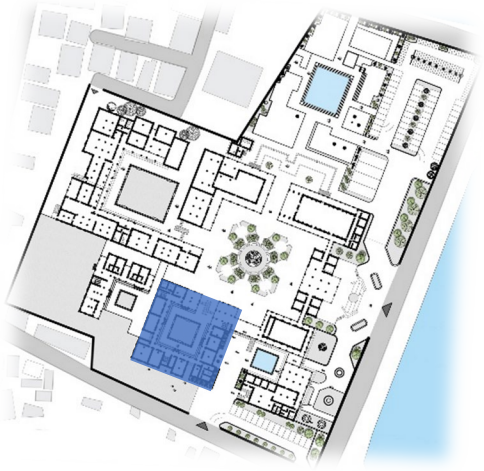


FIGURE 186 KEY PLAN WITH HIGHLIGHTED TRAINING AND ADMINISTRATION

Training Block placed in southern part of site with a connecting space in along with secondary entry and library. The training block consist of four theory classroom, one music classroom, dance classroom, store and staff room in ground floor and admin and practical classes at upper floor with the planning according to typical Mithila house with houses in cluster around the central courtyard. Verandah is also provided in front of rooms for doing activities. Here courtyard as well as verandah can be used for workshop activities and also as gathering spaces for relaxation and refreshment.

The secondary entrance beside the training block and cafeteria area for entry of staff of admin and staff of workshop area. (Refer Annex AR-07).

FIGURE 187 VIEW OF TRAINING BLOCK

7.4.2.8. LIBRARY AND RESEARCH AREA

Library and research area placed facing towards east with the view of water bodies at the east providing the silent pleasing surrounding. Library is provided with store area which is accessible from the secondary entry. Library at front has the space with outdoor sitting area and view of pokhari at the east. (Refer Annex AR-05).

FIGURE 188 KEY PLAN WITH HIGHLIGHTED LIBRARY

7.4.2.9. RESTAURANT

Restaurant is also provided in east south part along with road side for the good service facility of transport of goods. The service of goods in the cafeteria happens from the secondary entry. It is located nearby entry so that people can easily access to the restaurant without disturbing the other activities happening in the center. Outside dinning space with slope roof is provided in front side of cafeteria so that visitors can have the view of ponds. Inner planning also has dinning space for visitors and staffs. Also sitting space along with pond is provided in backward of cafeteria for refreshment.

Walls decorated with Mithila paintings and arts are used for the aesthetic purpose. (Refer Annex AR-05)

FIGURE 189 KEY PLAN WITH HIGHLIGHTED RESTAURANT

FIGURE 190 VIEW OF LIBRARY AND RESTAURANT

7.4.2.10. CHOWK

The central chowk like communal space is provided in the central part of the art and culture center to carry out the village meetings or carry out discussion and for panchayati. The space is provided with the maximum trees shade so that space can be used at any time during a day as well. The Chautara is placed at the center like in the village with the big peepal tree.

FIGURE 191 KEY PLAN WITH HIGHLIGHTED CHOWK, CENTRAL SPACE

FIGURE 192 VIEW OF CHOWK

7.4.2.11. COMMUNITY PARK

The open space is designed with Community Park besides the parking and in front of multipurpose hall and exhibition hall so that visitors from the hall can also come to the open space for the refreshment. Also this space is for the community people of that place. The park is designed with children play area, water body, kiosk and playing area and chautari like sitting spaces that provide shade to the people. (Refer Annex AR-09)

FIGURE 193 KEY PLAN WITH HIGHLIGHTED COMMUNITY PARK

7.4.2.12. PARKING

The two parking spaces is allocated one for the public and other for the staff of the center. The parking space is 15% of the total site area with 60 cars, 5 buses and 91 bike parking.

FIGURE 194 KEY PLAN WITH HIGHLIGHTED PARKING AREA

7.4.2.13. CONNECTING SPACE

FIGURE 195 CONNECTING SPACE

FIGURE 196 VIEW OF CONNECTING SPACE

8. PASSIVE COOLING TECHNIQUE

The strategies of opening windows, when using cross ventilation or single sided ventilation used to release heat gain inside buildings. The natural ventilation for summer supply of fresh air helps to reduce overheating, while in winter, ventilation is normally reduced to levels sufficient to remove excess moisture and pollutants.

The project is design of every indoor and outdoor space such as courtyards, shading walls and enclosed spaces (rooms in different directions), to give a good choice for residents to change the living space for special hours of the day and night of cold or hot seasons in harmony with the region.

Traditional architecture exhibits a variety of building design and construction that are suited to the respective climatic conditions. Hence, the structures are made of predominantly local materials such as the mud that can maintain fairly steady inside temperatures of that region.

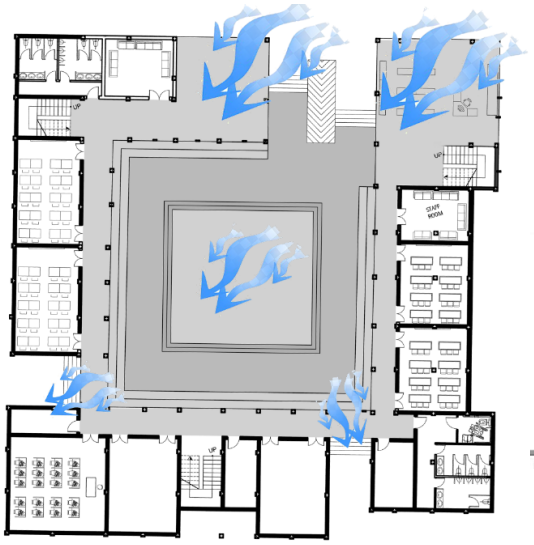


FIGURE 198 WIND FLOW DIAGRAM IN THE ACADEMIC BLOCK

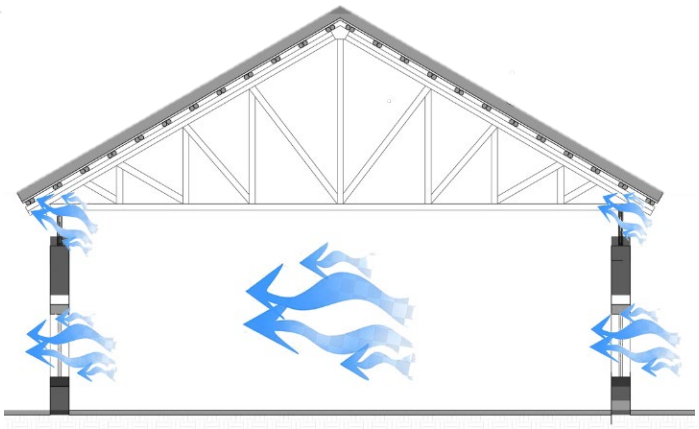


FIGURE 197 SECTION WITH WIND FLOW

(Fresh air comes through ventilation walls in the coverage streets that assist to cool the air down through pass over shadows areas to the main entrance , then warm air rising-up through convection).

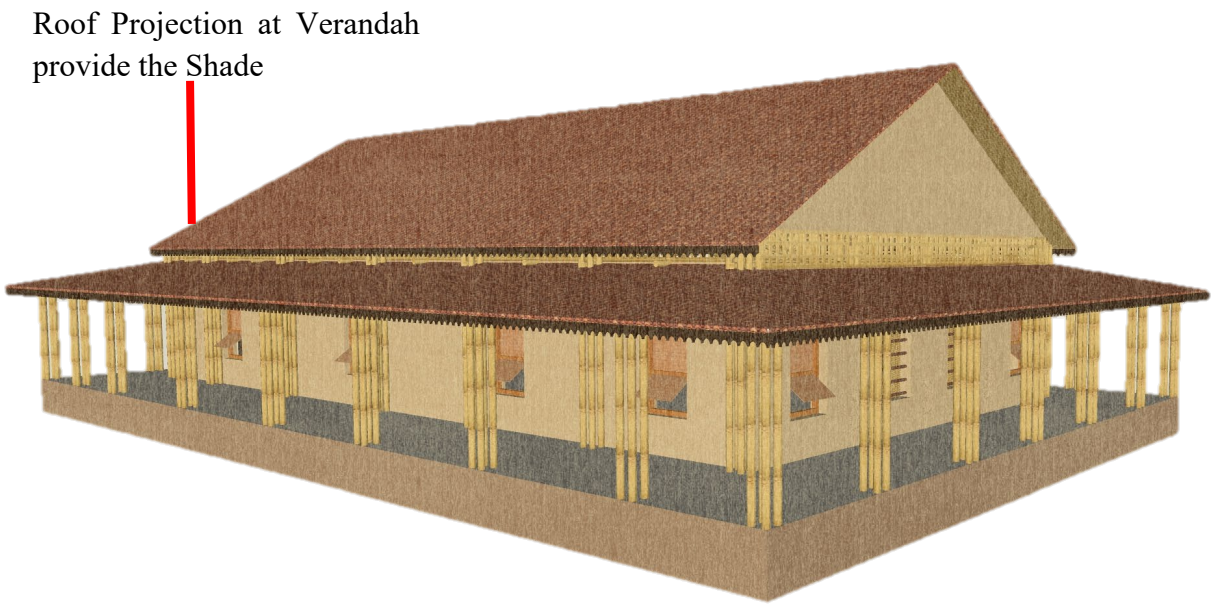


FIGURE 200 BLOCK WITH ROOF PROJECTION IN VERANDAH FOR SHADE

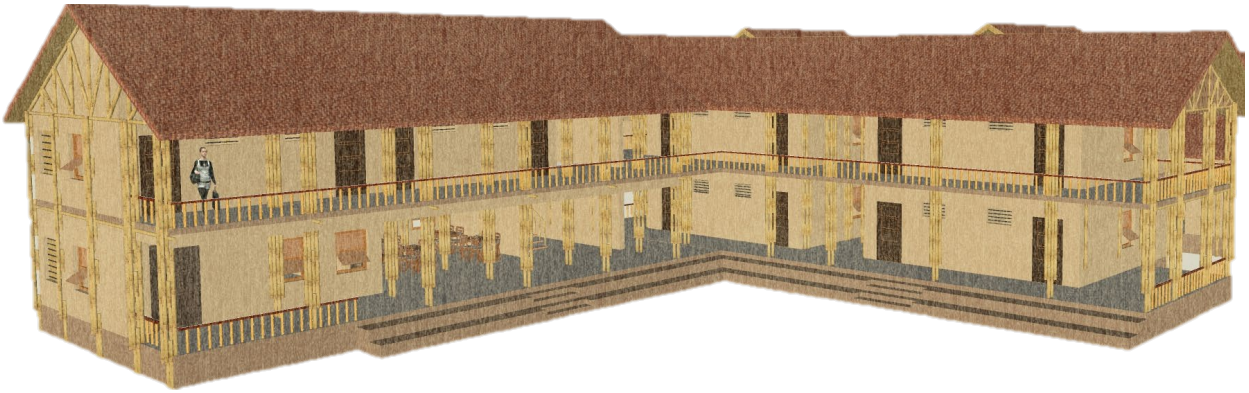


FIGURE 199 OPEN TO COURTYARD VERANDAH SPACE

9. SERVICES AND UTILITIES

9.1. WATER SERVICES

Source

The sources of water for site is boring. Total volume of water required is stored from source in underground water tank. Water obtained through boring is aerate before sending to the raw water tank. The water to be used in the building is then pumped to treatment plant and then into the treated water tank. Water from treated water tank is pumped to specific service area through pressure pump.

The water required for firefighting is pumped directly into firefighting water store tank from underground water tank.

TABLE 18 WATER DEMAND CALCULATION

SN	Building	Minimum requirement per head per day(l)	No of person	Total capacity(l)
1	Administration	45	25	1125
2	Accommodation	100	25	2500
3	Restaurant	50	150	7500
4	Training Unit	15	100	1500
5	Library	15	50	750
6	Workshop	30	100	3000
8	Public Toilet(Display, multipurpose, Exhibition	15	350	5250
		270		21625

Calculation of Water Tank

- Total Water Consumption per day: 21625 L = 21.6 cu.m. approx...
- Size water tank= 21.6 * 3 (Safety factor) = 64.8 cu.m =65 approx.
- Size of underground water tank = 4 x 5 x 3 cu.m (L x B x H)
- Firefighting requirement (NBC) = 50 cu.m
- Size of underground water tank = 4 x 5 x2.5 cu.m

9.2. SANITATION

TABLE 19 SEPTIC TANK CALCULATION

No of Users			
Primary Users		Secondary Users	
Administration	25	Restaurant	150
Accommodation	25	Multipurpose	210
Training Unit	100	Exhibition	200
Workshop	100	Library	50
Total	250	Total	610
		30% of Total= 183	

Calculation for Septic Tank and Soak Pit

- Total number of users = 433

- Volume of Septic tank required = No. of users x 3 cu.ft
    - = 433 x 3 cu.ft
    - = 1299 cu.ft
    - = 36.78 cu.m
- Hence,No. of Septic tank = 1
- Volume of septic tank = 36.78
- Assuming the height of septic tank = 3m
- L x B x H = 36.78
- 3B x B x 3 = 36.78
- B = 2.02m, L = 3 x 2.02 = 6.06m
- Septic tank size = 6.06m x 2.02m x 3m
- Size of soak pit = 6 x sp.6 (sp.6 = Dia. 5m and depth 2.75) from standard

Drainage

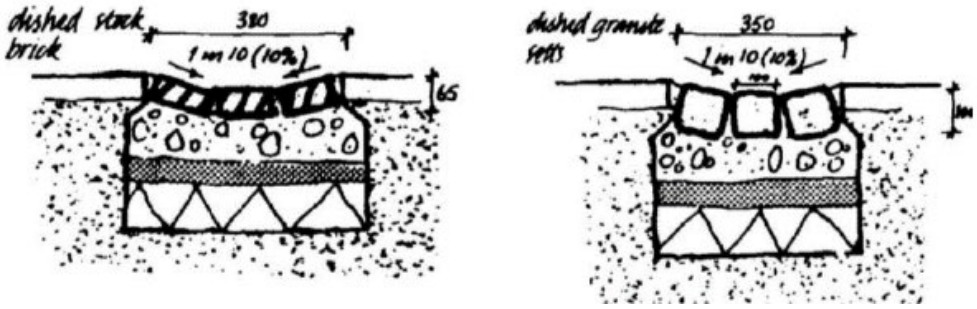


FIGURE 201 TYPICAL DRAINAGE CHANNELS AND KERBS. (SOURCE: FAO)

- Dished shaped drains for surface water drainage is used because :
    - It is easy to clean and less damage when vehicles inadvertently enter them.
    - Alignments and gradient are designed so that velocity of water creates self-cleansing
- Drains, i.e. min depth at the start of drain run, drain bottom at same level as pavement.

9.3. FIRE-FIGHTING SYSTEM

Provision of series of above ground fire hydrants spaced approximately at 30 meters intervals in loop systems encircling the main building and around the site periphery is made. Similarly, provision for 1 fire extinguisher per 600 m2 of floor area is considered. Provision of fire escape stairs for the amenities building.

10. STRUCTURE ANALYSIS

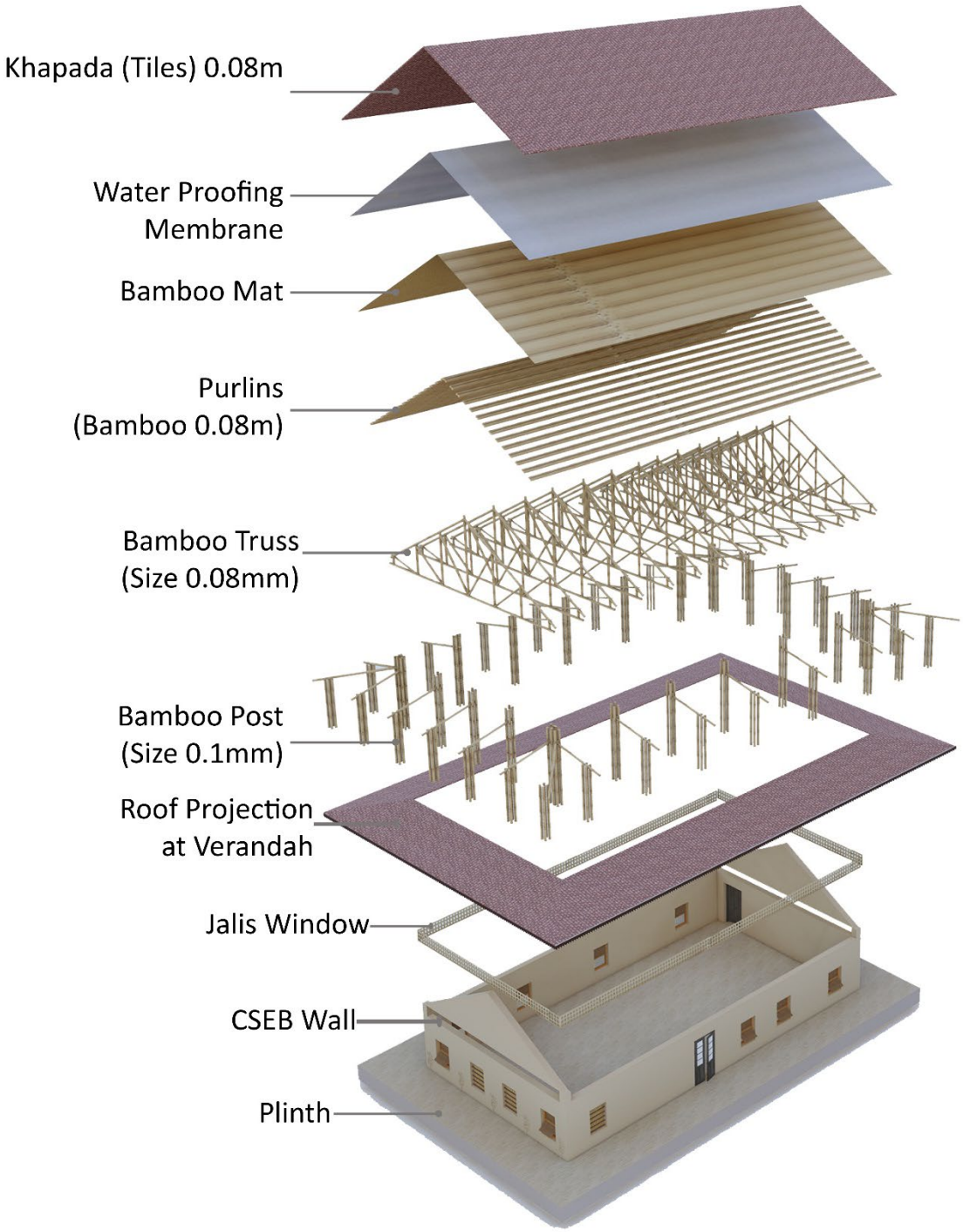


FIGURE 202 AXONOMETRIC VIEW

This project especially use vegetal steel “bamboo” , mud blocks and earth to create contemporary and neo vernacular expressions which will strongly promote minimal environmental impact of the entire building process. The bamboo framework are at first assembled on site and roofs made of clay are weaved at first to create a shaded structure against harsh hot sun and later on compact stabilized earth blocks are used for creating wall.

Fire burnt brick are used in foundation. Metal joints are used in bamboo connection. . The CSEB walls are rendered with minimum mud mixed cement stabilized plaster to protect from rain water.

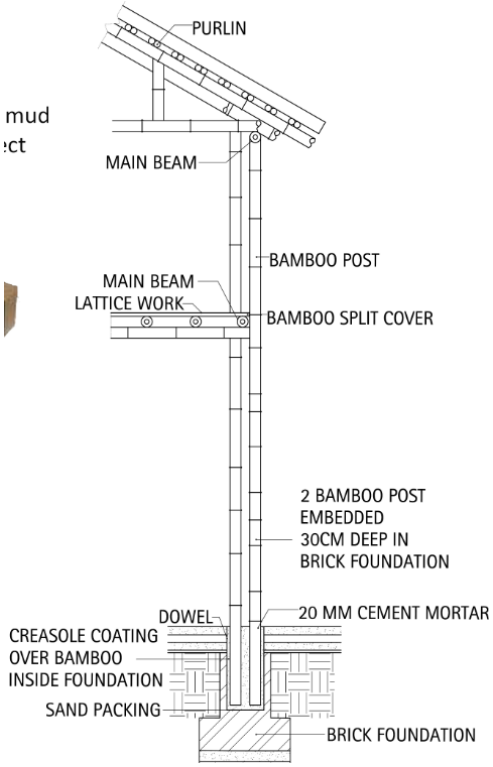


FIGURE 203 BAMBOO POST AND ROOF DETAILS

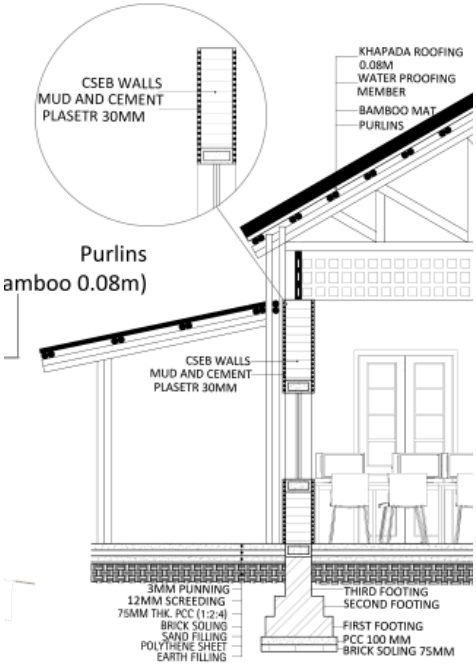


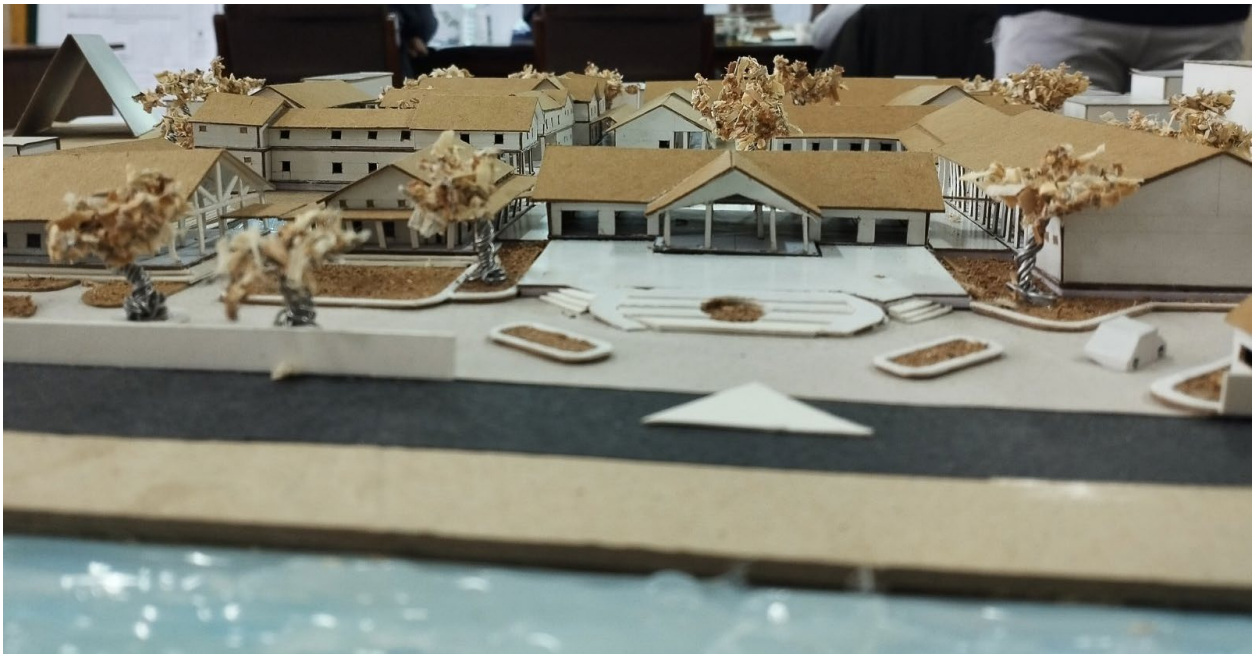
FIGURE 204 WALL SECTION

CONCLUSION

Mithila identity, legacy, and sociocultural well-being are all on the verge of extinction as a result of fast globalization and shifting social needs. Mithila art and culture are intimately linked to these factors. Facilities like the Mithila Art and Culture Center will not only support Mithila culture but also provide for tourists visiting Janakpur, who have an increasing need to preserve their important culture, skills, and identity.

This center will be designed to depart from the conventional method of preservation and offer a comprehensive experience of the art, painting, craft making, artisans, and its full culture. While preserving the integrity of the art and culture, the facility offers social grounds to the artists, students, and tourists. Without sacrificing the center's aesthetics, the design of these centers may be made ubiquitous, practical, and economically viable.

PHYSICAL MODEL



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ANNEX DRAWING