



BHUTANESE CONTEMPORARY ART INSTITUTE

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BHUTANESE CONTEMPORARY ART INSTITUTE

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Contemporary art in Bhutan have struggled to emerge due to more concentration on Bhutanese traditional art. But as the country went through lots of development, people started to come out of the box and took part in learning Bhutanese contemporary art. Due to the growing numbers of contemporary artists in Bhutan, artists started to have a problem with space such as a contemporary art institute to accommodate their works. Looking forward to that issue, I'm proposing to build a contemporary art institute which will be in the capital city, Thimphu. The project consists of a study on primary theories about spirituality in space and socio petal idea to help enhance in architectural design. It aims to facilitate Bhutanese contemporary artists with a proper space to aspire their dreams and exhibit their works to the public which has yet to be established in Bhutan.

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Chapter 1: THESIS INTRODUCTION

1.1 BACKGROUND OF INTEREST

Bhutan is a small Himalayan kingdom located between China from the north and India from the south. Religion has a significant influence in the culture and society of the Bhutanese. The country also has a tradition of decorative arts, and the ideas are mostly based on Buddhist beliefs, hence spiritually we have deep connection to it.

Bhutan National Art Institute, or locally known as “Gyalyoung Zorig Chusum” (zo = the ability to make; rig = science or craft; chusum = thirteen) which located in the capital city, Thimphu, has previously controlled all aspects of art world in Bhutan until the mid of the 1990s.

In response to the fast-changing neighbouring countries and globalization pressure, Bhutan has officially opened its doors to the international community in 1990s. Since then Bhutan has changed rapidly and challenged the strict stylistic standards of the Bhutan national art institute. Where in Bhutanese Traditional art, artist follows the strict iconographic rules which leads to having a same composition or a repeated style. This gave no room for artistic discussions nor experimentations. Due to this there have been a growing number of contemporary artist who were looking for a way to break from the Traditional art academy.

However, it is not just in art, but the way the youth in Bhutan has also been brought up and educated with a same set of subjects and rules. Thinking out of box is very alien to them. The education system in Bhutan is nowhere near creative or interactive which could render the young minds to think in a different manner than their predecessor. Thus, with the exposure to the globalized world, the youth tends to prefer the contemporary ways of thinking and doing things over the traditional way

since it's more active and challenging. And contemporary art in Bhutan is one of the major fields which helps nurture the creative mind.

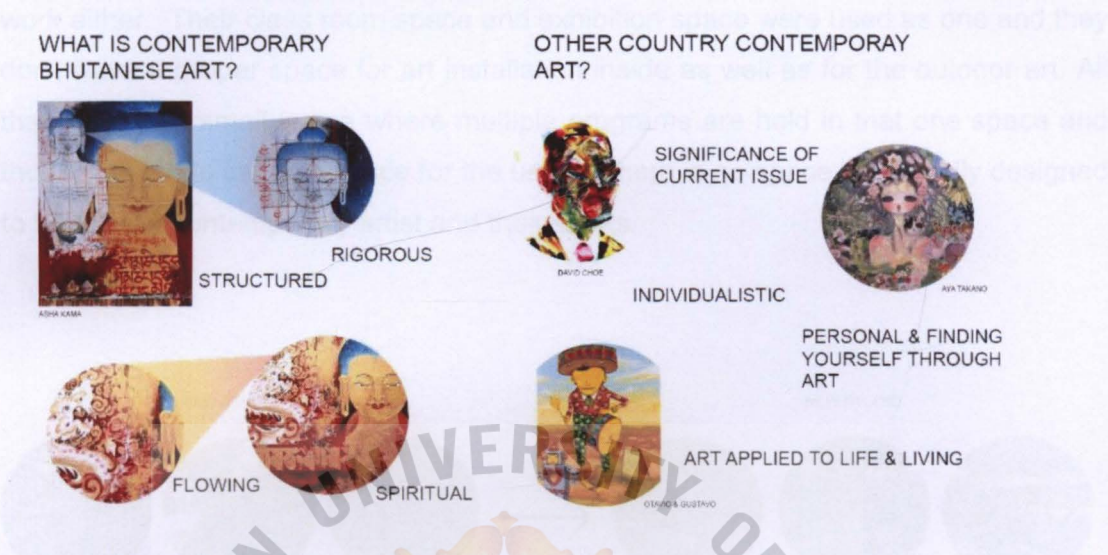


Figure 1.1 Comparison of Bhutanese contemporary art with other countries art (Author's image)

In Bhutanese contemporary art, what makes it different from the other country arts is that, the art practice consisted of usage of the traditional art methods blending with their modern style art. Bhutanese contemporary art mostly consist of spiritual expressions and they are also used as a tool for meditation and self-transcendence, to express their thoughts in their arts. But to do so, there is no proper place for learning art and to exhibit their art works other than the VAST (voluntary artist studio).

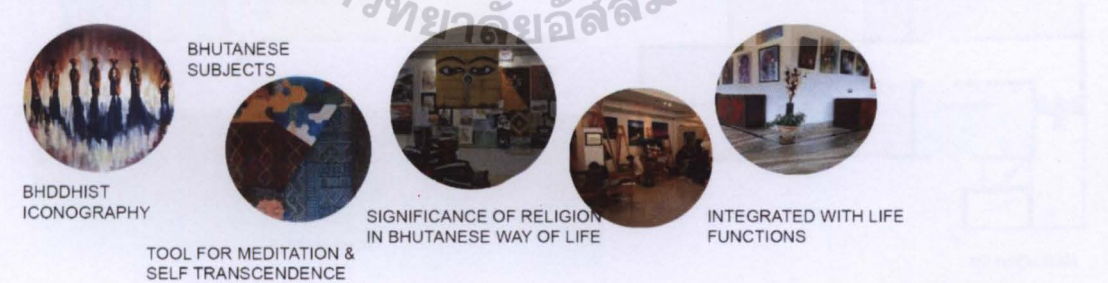


Figure 1.2 Bhutanese contemporary art work (Author's image)

VAST is the only contemporary art studio supporting the contemporary artist of Bhutan. But VAST doesn't have a proper space for learning and exhibiting their work either. Their class room space and exhibition space were used as one and they don't have a proper space for art installation inside as well as for the outdoor art. All they have is a small space where multiple programs are held in that one space and thus it has led to inconvenience for the users. There is no space specifically designed to house the contemporary artist and their works.

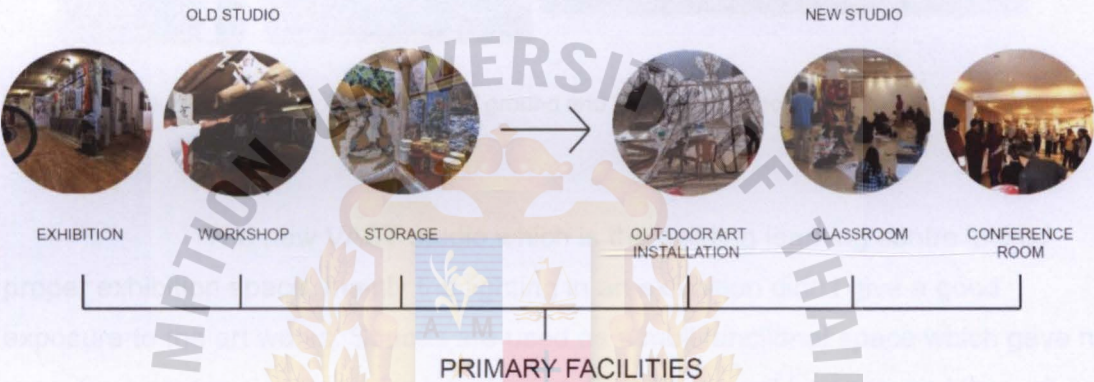


Figure 1.3 Old and new VAST studio (Author's image)

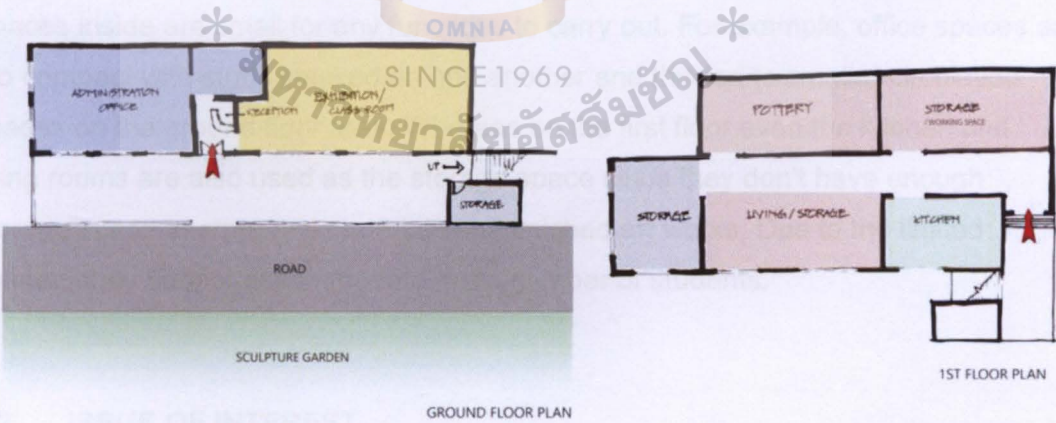


Figure 1.4 New Vast studio sketch plan (Author's image)

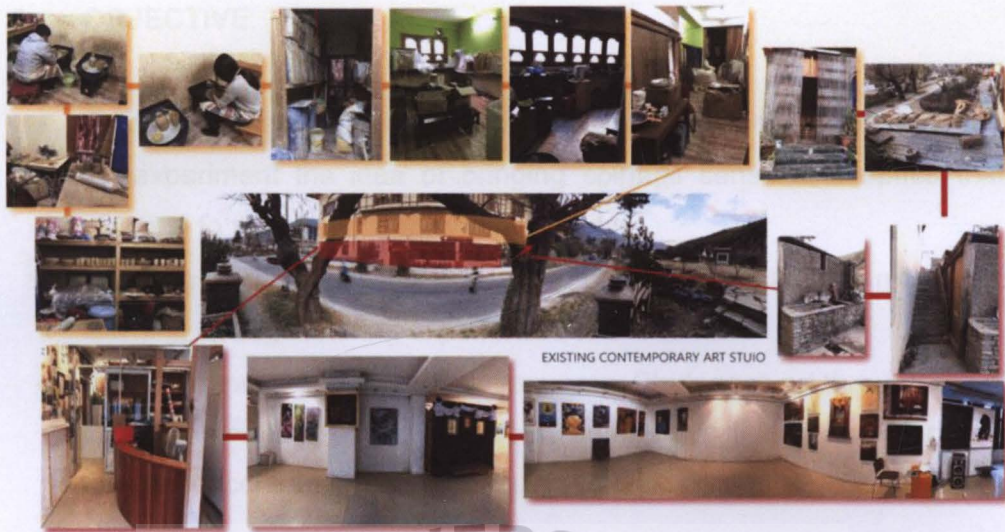


Figure 1.5 Pictures showing VAST spaces of ground and first floor (Author's image)

The new VAST studio which is the existing learning centre lacked proper exhibition space, mainly the lighting in an exhibition didn't give a good exposure to the art works. Spaces are used as a multifunctional space which gave no room for a proper classroom for learning art. First floor must be accessed through outdoor stairs which is quite steep and doesn't have enough space to carry bigger arts. Hence, they have outdoor art space on the other side of the road which is inconvenient for the users as well as the visitors to pass through the busy road. Spaces inside are small for any functions to carry out. For example, office spaces are too compact with stuffs stacked on one another and this led to smaller circulation spaces on the ground floor area. Whereas on the first floor even the kitchen and living rooms are also used as the storage space since they don't have enough storage space to store raw materials and finished art works. Due to the limited spaces, they cannot accommodate more number of students.

1.2 ISSUE OF INTEREST

- Need of proper space for the artist to work and exhibit their work.
- To find an approach in designing a space that will give a spiritual sense to the users.

1.3 OBJECTIVE

- To bring Bhutanese Contemporary art into a new form of light through design.
- To experiment the idea of bringing spiritual sense in a space that would respond to the contemporary art of Bhutan.
- To design an interactive space for the contemporary artist to motivate creative learning through sharing experiences with eachother.
- To create awareness of the contemporary Bhutanese art through design to the locals and visitors, where as it would be an educational center for the growing number of contemporary art pursuers.

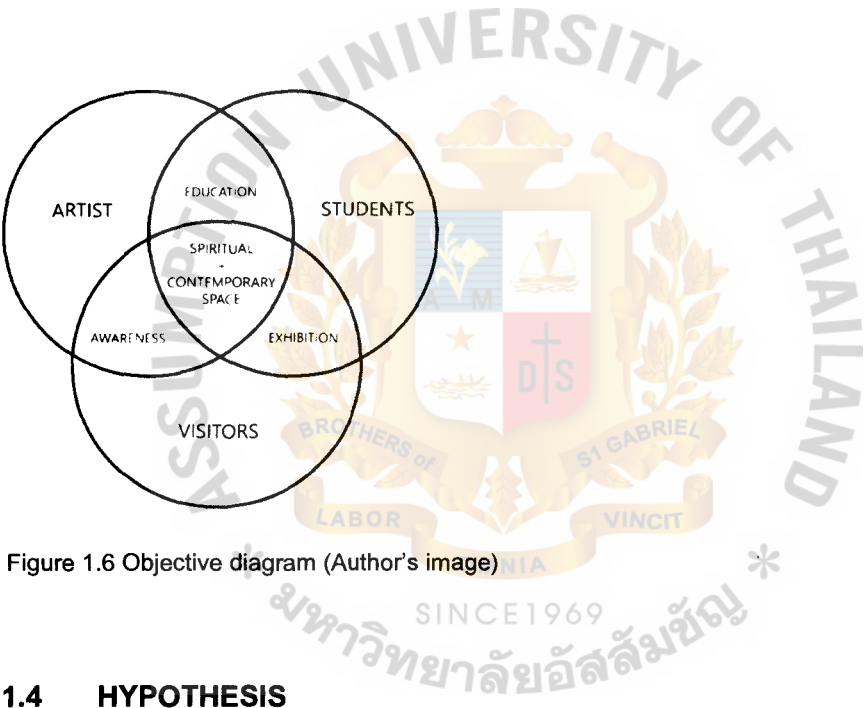


Figure 1.6 Objective diagram (Author's image)

1.4 HYPOTHESIS

Bhutan is a country where in the daily lives or norms of the people are connected with religious beliefs of Buddhism. Even the art style has an elements that are based on religuouos beliefs. So, since we have spiritually deep connection with religion, my idea is to bring the idea of spiritual space and retrofit in a contemporary space by adapting Spirituality in place theory so as to relate to the contemporary users.

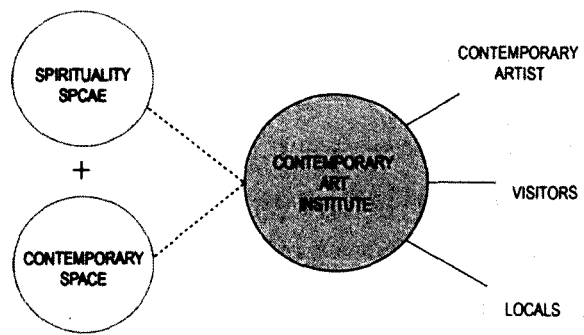


Figure 1.7 Hypothesis diagram (Author's image)

1.5 DEFINATION OF TERMS

Spiritual

In terms of my project it is related to Buddhist religion or Buddhist religious belief. It refers to a religious process of reformation which aims to recover the original shape of man, oriented at the image of God. In modern times, the emphasis is on subjective experience of a sacred dimension and the deepest values and meanings by which people live, often in a context separate form organized religious institutions. ¹

Contemporary

In general, it means belonging to or occurring in the present. Well in art it means art of today, produced by artist who are living in the twenty-first century. It reflects on contemporary society and the issues relevant to ourselves and the world around us.²

Contemporary users

Contemporary users in my project refers to the contemporary artists, art learners (students), locals and visitors. Basically, people living in the contemporary society where globalization has an effect.

¹ Wikipedia, s.v. "Spirituality," last modified 16 September 2016, at 23:47, accessed on 25 August 2016, <https://en.wikipedia.org/wiki/Spirituality>.
² NYU, Steinhardt, "department of art and art profession, definitions," last modified on 2016, accessed on 26 August 2016, steinhardt.nyu.edu/art/education/definitions.

1.6 THESIS STATEMENT

To create a Contemporary art institute where Bhutanese contemporary art can be brought into a new form of light by using diffused and natural light, thereby creating a spiritual essence in a space.



2.1.1 Humanity (narrative and authenticity)

This theory explained about how to engage with the site context which will be shown in the next chapter. The theory is about bringing your site closer to spiritual monuments or any spiritual structures like temples around your site. It can convey social / cultural meaning to the site.

Chapter 2: LITERATURE REVIEW

This chapter is focused on the study regarding some theories that concern the idea of spirituality in architecture design which would help to achieve the idea of bringing the spiritual sense in a space. The study on these theories will help with the interactive design that will respond to the user's functionality about creating art through interaction to help with creativity. The chapter also describes about the study on the design principle for art institute.

2.1 SPIRITUALITY IN PLACE³

'Spirituality in place' described about how to bring a sense of spirituality through their physical design, to allow users to find a greater meaning in their surroundings. Aside from a design practice that focuses on addressing basic human needs, it rather focuses on higher-order needs of human, which are defined as 'self-transcendence'. It's a psychological theory that aims to achieve it through a theorized framework, which consist of humanity, sensuality and sustainability, and utilizes this framework to identify ways in which spirituality is manifest in architectural design.

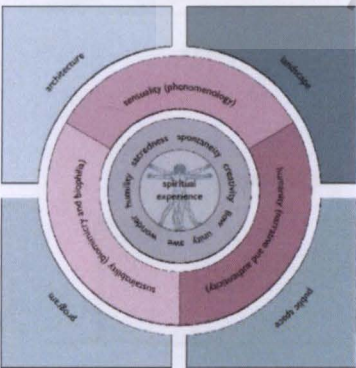


Figure 2.1 Theory framework

³ Robert Birch and Brian R. Sinclair, "Spirituality in Place: Building Connections Between Architecture, Design, and Spiritual Experience," (ARCC 2013 | The Visibility of Research Culture: New Ideas, Minor Voices, and Topics on the Margins), accessed on 1 October 2016, <http://www.arcc-journal.org/index.php/repository/article/download/116/88>.

2.1.1 Humanity (narrative and authenticity)

This theory explained about how to engage with the site context which will be shown in the later part of chapter 3, which is about contextual proposition. Well basically the idea is about bringing your site closer to spiritual monuments or any spiritual structures like temples around your site, so that it can convey social / cultural meaning to the space. It helps to reflect values and ideals of the place.

2.1.2 Sensuality (phenomenology)

This theory deals with the sensual engagement in design. It also describes about the usage of materials that has specific meanings to connect with the designed space.

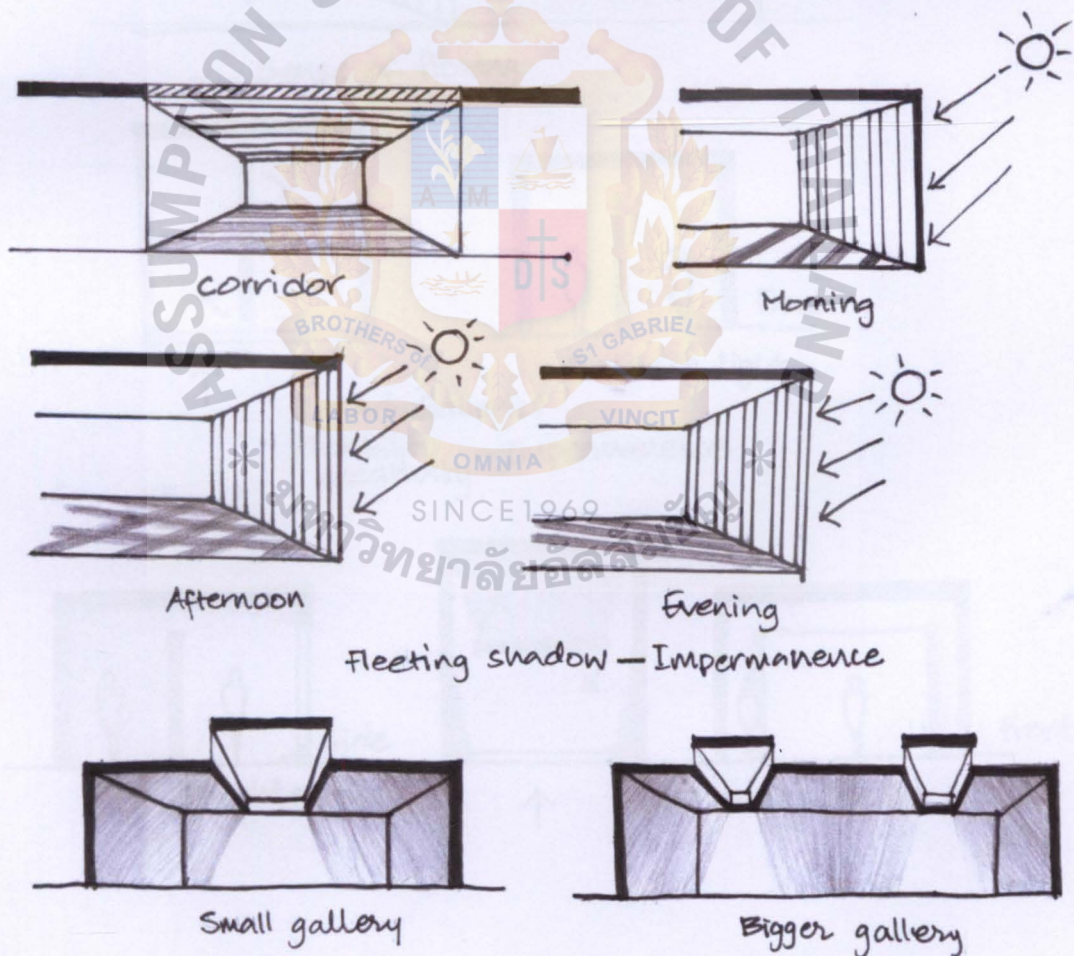


Figure 2.2 Light effect (Author's image)

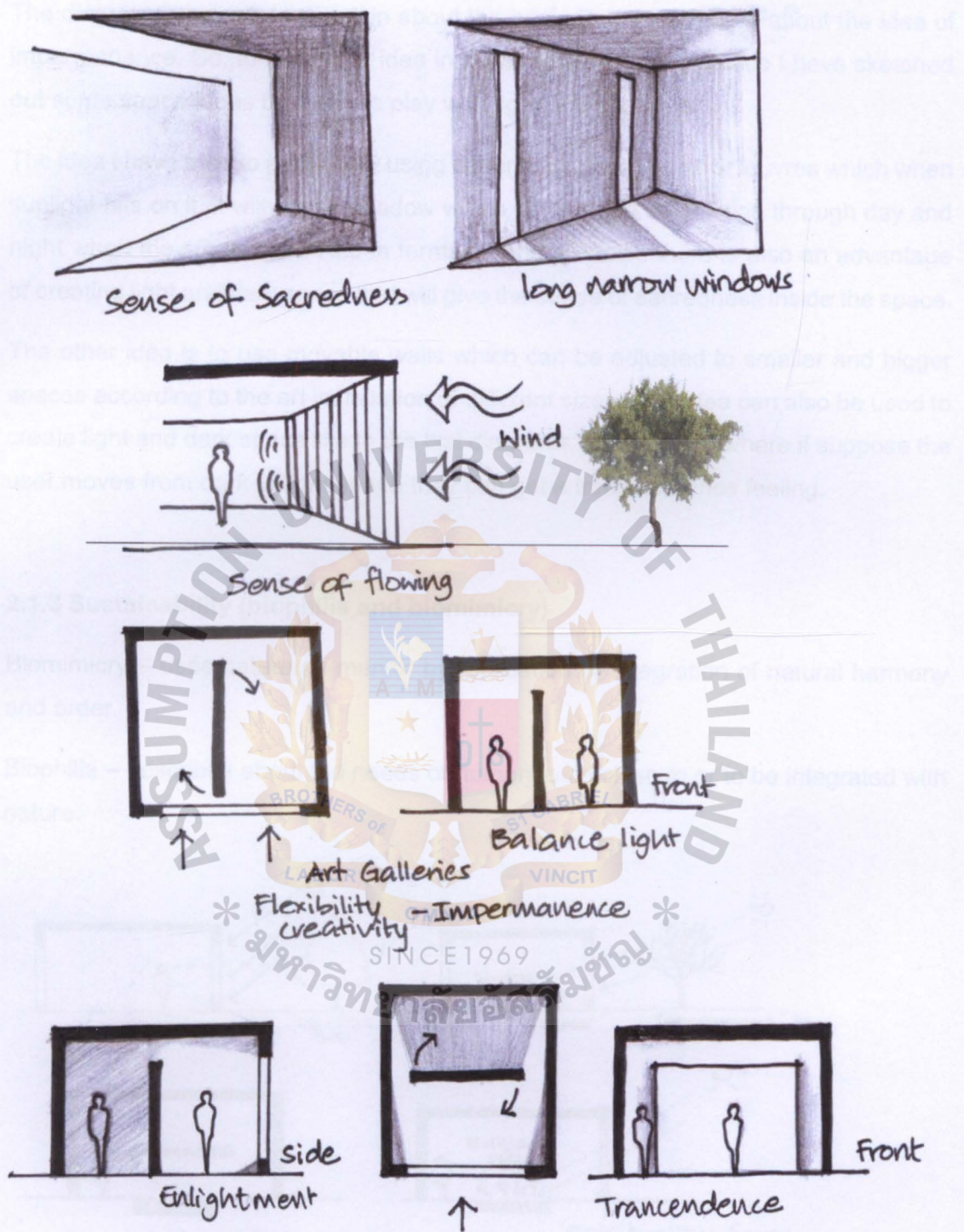


Figure 2.3 Sensuality (Author's image)

The diagrams above try to explain about the basic Buddhist believe about the idea of impermanence. So, to show that idea in terms of architectural space I have sketched out some space ideas by trying to play with light and shadows.

The idea I have tried to apply is by using either long slit windows or louvres which when sunlight hits on it, it will cast a shadow which will change its position through day and night when the sun moves. And in terms of long windows there is also an advantage of creating light and dark space that will give the sense of sacredness inside the space.

The other idea is to use movable walls which can be adjusted to smaller and bigger spaces according to the art installation of different sizes. This idea can also be used to create light and dark space like in the last diagrams of figure 2.3, where if suppose the user moves from dark to light space they can get a transcendence feeling.

2.1.3 Sustainability (biophilia and biomimicry)

Biomimicry – uses nature as mentor by replication or integration of natural harmony and order.

Biophilia – describes about the needs of human to be close to or to be integrated with nature.

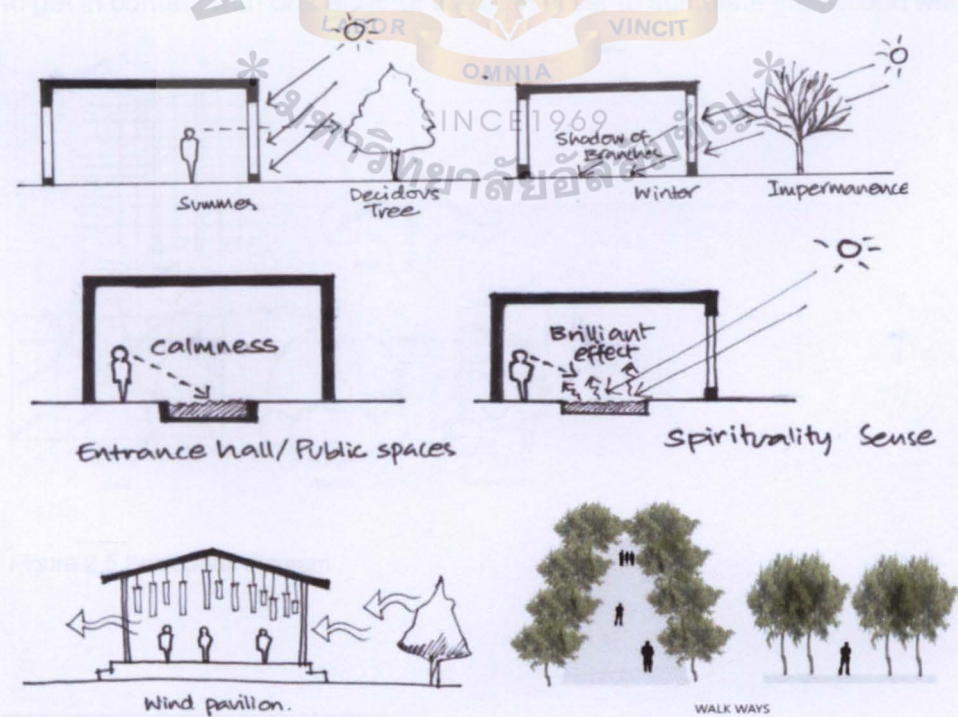


Figure 2.4 Sustainability (Author's image)

This part of the chapter concerns about the use of nature, like in the first diagram, it expressed the idea of impermanence by using deciduous trees that shed their leaves during the winter period and its' branches can be used to cast a shadow inside a space with the help of the sunlight.

The second diagram is the idea about the use of water body which will bring sense of calmness to the users. This can help while artist try to create an art since they also use it as a tool for meditation.

The third diagram is the idea about the use of large trees along the walk ways to give a spiritual sense as people move through. These trees are also functioned as a wind pavilion when the wind blows and hit the bells, it will produce the similar sound to a spiritual place like temple.

2.2 SOCIOPETAL⁴

The theory of sociopetal describes about bringing people together and stimulating interaction in the design aspect which emphasizes on a radial arrangement of space and a removal of visual barrier. For example, sometimes a removal of doors can help to get in contact with one another easily in order to stimulate interaction with each other.

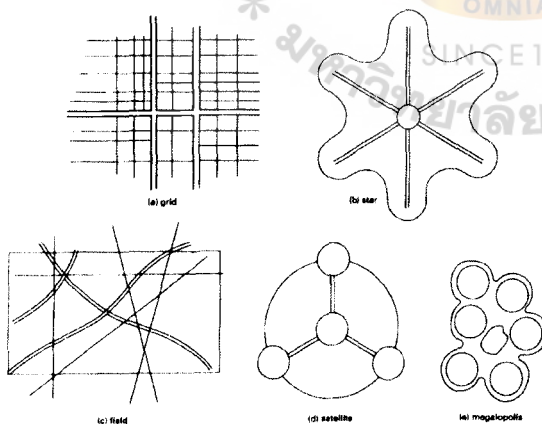


Figure 2.5 Sociopetal diagram

⁴ Jeff Howard, "Design for service, research, pattern and observation," February 9, 2008, accessed on 3 October 2016, <https://designforservice.wordpress.com/2008/02/09/sociofugal-and-sociopetal-space/>

This theory would help to render creativity mind through interaction with one another in the project. Furthermore, it would help to ease with the user's activities such as intellectual class activities where the artists can gather and share their ideas or thoughts and sometimes they can arrange some art critiques to gain more knowledge in art. So, it is important to provide a space that will help stimulating this interaction.

This is not only a particular activity like intellectual class, but it can also be applied to some of the space design such as exhibiton spaces, entrance hall, outdoor spaces where outdoor art exhibition activites can be held.

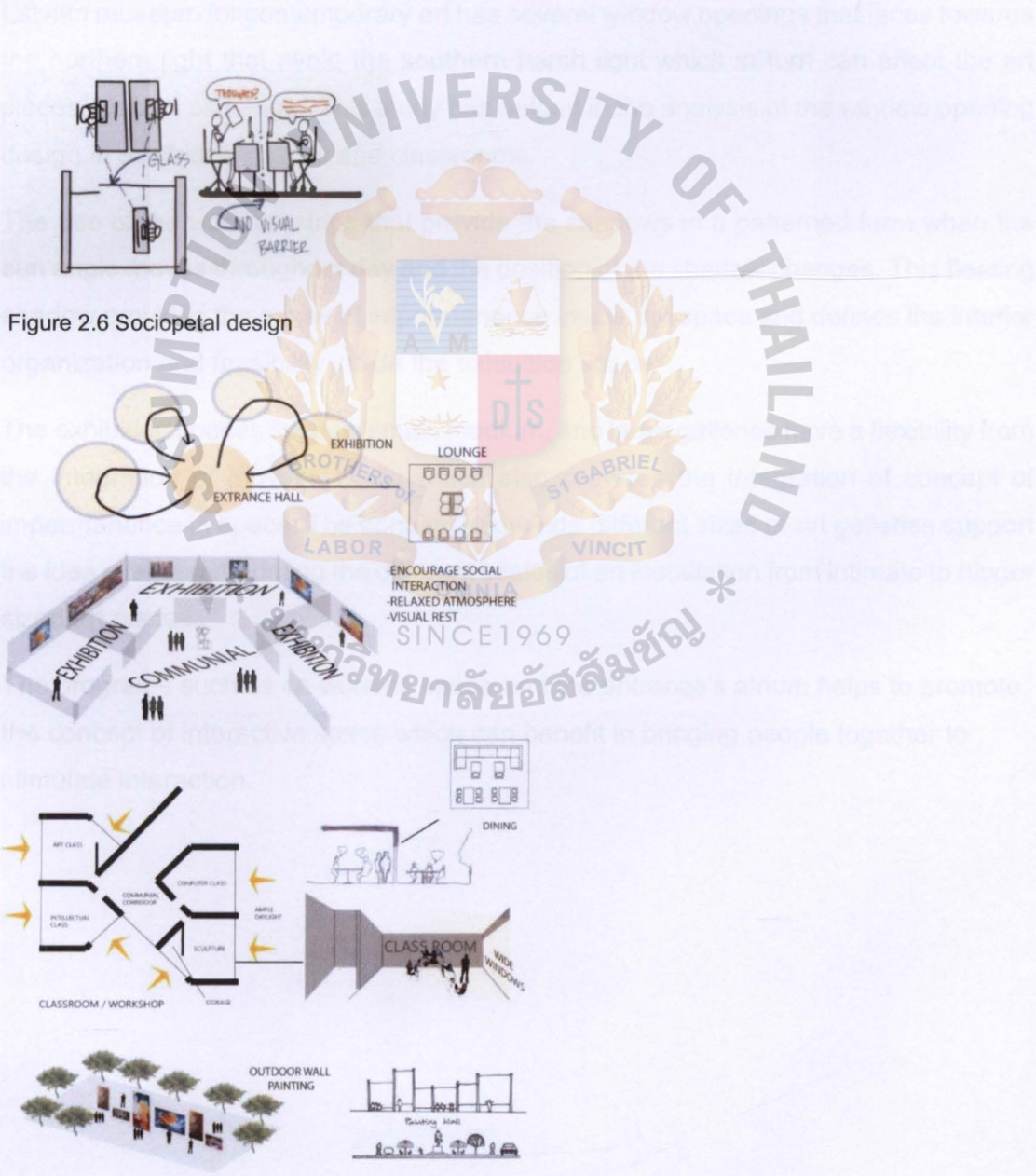


Figure 2.7 Sociopetal analysis diagram (Author's image)

2.3 CASE STUDIES

The following case studies are conducted based on the lighting effects for museum or exhibition space designs and also the study on creative lighting design inside the space. Furthermore, I have also studied on how to design the interactive spaces for museum and exhibition area which came from the user's analysis in my research.

CASE STUDY 1

Latvian museum for contemporary art has several window openings that faces towards the northern light that avoid the southern harsh light which in turn can affect the art pieces such as paintings. This study has helped in the analysis of the window opening design in exhibition spaces and classrooms.

The use of the wooden strips that provide the shadows in a patterned form when the sun angle moves throughout day and the position of the shadow changes. This fleeting shadow provides the sense of impermanence inside the space and defines the interior organization and feasibility inside the exhibition space.

The exhibition spaces such as small, medium, and large galleries have a flexibility from the integration of movable walls which also provides the integration of concept of impermanence in space. The concept to provide different sizes of art galleries support the idea of accommodating the different scales of art installation from intimate to bigger sized art pieces.

The programs such as co-working space and the entrance's atrium helps to promote the concept of interactive space which can benefit in bringing people together to stimulate interaction.



Figure 2.8 Latvian museum analysis diagram⁵

⁵Adjaye Associates (UK) and AB3D, "Latvian museum for contemporary art," 2016, accessed on October 8, 2016 <http://competitions.malcolmreading.co.uk/lmoca/adjaye-associates/>

CASE STUDY 2

In this case study, I have analysed about the lighting design in a space that connects with the spiritual space idea. Like the usage of the slight windows which allows only a partial amount of light creates a different level of space where when one proceeds from light to dark side of the space, it brings some sense of sacredness and faith. I have also learned that this can be used to define user flow in a space by playing with natural lights.

The use of materials such as translucent glass and the integration of reflecting pool concept also deals with the idea of integrating with nature brings the sense of calmness to the users.⁶



⁶Steven Holl Architects, "Herning center of the arts," accessed on October 8, 2016, <http://www.archdaily.com/34833/herning-center-of-the-arts-steven-holl-architects>

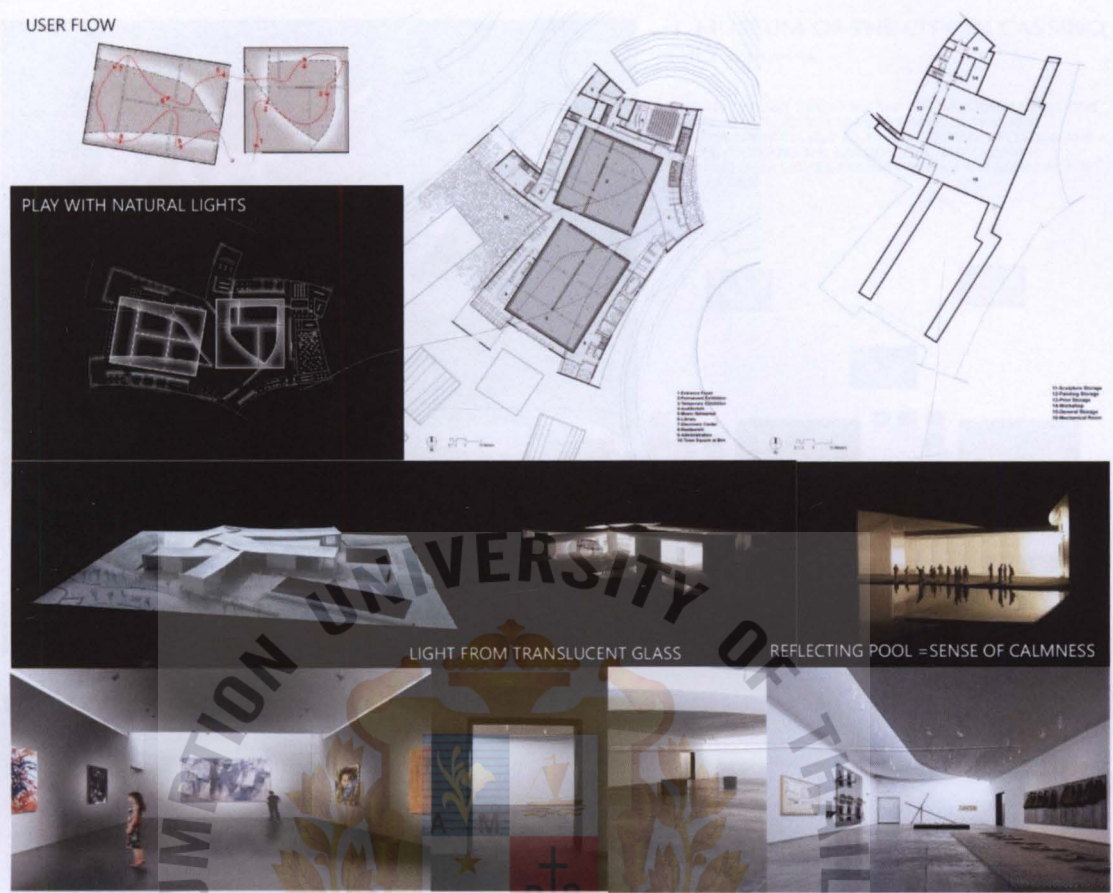


Figure 2.9 Herning museum analysis diagram

CASE STUDY 3

This case study helps in improvising the usage of light. It further enhances by creating an illusion of floating ceiling with the dancing light around the room as the time passes by. In comparison to the other case studies, this concept helps the users by giving a sense of transcendence as they produce their arts. The playful lights can also help in nurturing creative mind for the users, as well as gives the idea of impermanence.



3. MUSEUM OF THE CITY, IN CASSINO, ITALY BY STEVEN HOLL

DAYLIGHT PASSES THROUGH THE SLIT WINDOW AND AS TIME PASSES AS WELL AS THE SEASON CHANGES, THE LIGHT PATTERN CHANGES. DUE TO A HIGH CONTRAST BETWEEN THE LIGHTS, IT CREATES THE ILLUSION THAT THE CEILING IS FLOATING WITH LIGHT DANCING AROUND THE ROOM AS THE TIME PASSES.

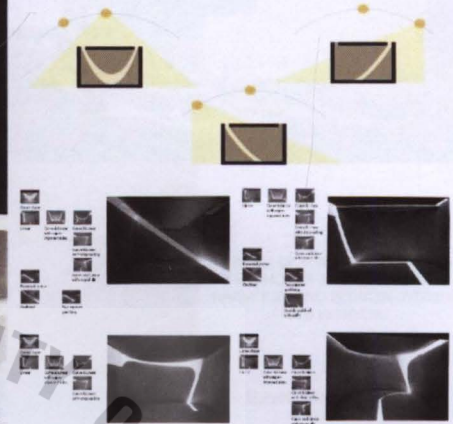


Figure 2.10 Museum of the city (Italy) analysis diagram.⁷

CASE STUDY 4

This contemporary art museum has a space that helps with an idea of interactive space. the space flows in a manner where people can come in contact with each other through the usage of glass or avoiding the usage of visual barrier. They tried to keep open views as much as possible throughout the spaces. This allows interaction with one another and can help with creativity as well. But the usage of mosaic-tiled façade on the outside is to blur in between the outside and inside space, so as to trigger the people outside with curiosity about the inside space. Where the inside space contains different activities that will add on to curiousness of the people outside.

⁷ Steven Holl, "Museum of the city," March 21, 2015, accessed on October 10, 2016, <https://scarletdinh.wordpress.com/2015/03/21/museum-of-the-city-in-cassino-italy-by-steven-holl/>



Figure 2.11 KOC contemporary art museum analysis diagram⁸

⁸ Grimshaw, "Koc Contemporary art museum," accessed on 10 October 2016, <http://www.archdaily.com/405092/koc-contemporary-art-museum-winning-proposal-grimshaw>

Chapter 3: CONTEXTUAL PROPOSITION

3.1 DISTRICT SELECTION

An appropriate site with the right context must be selected for the project in order to promote the design concept according to the design theory. The district was chosen based on the place where it has great globalization effect or has big development because these areas would have social, economic, and cultural contemporary change. However, the site needs to be placed where it has access to the spiritual side as well. It means that the district needs to contain not just a globalization affect but also some spiritual connection which could be temples or monuments that have values and ideals of the place.



Figure 3.1 Bhutan map

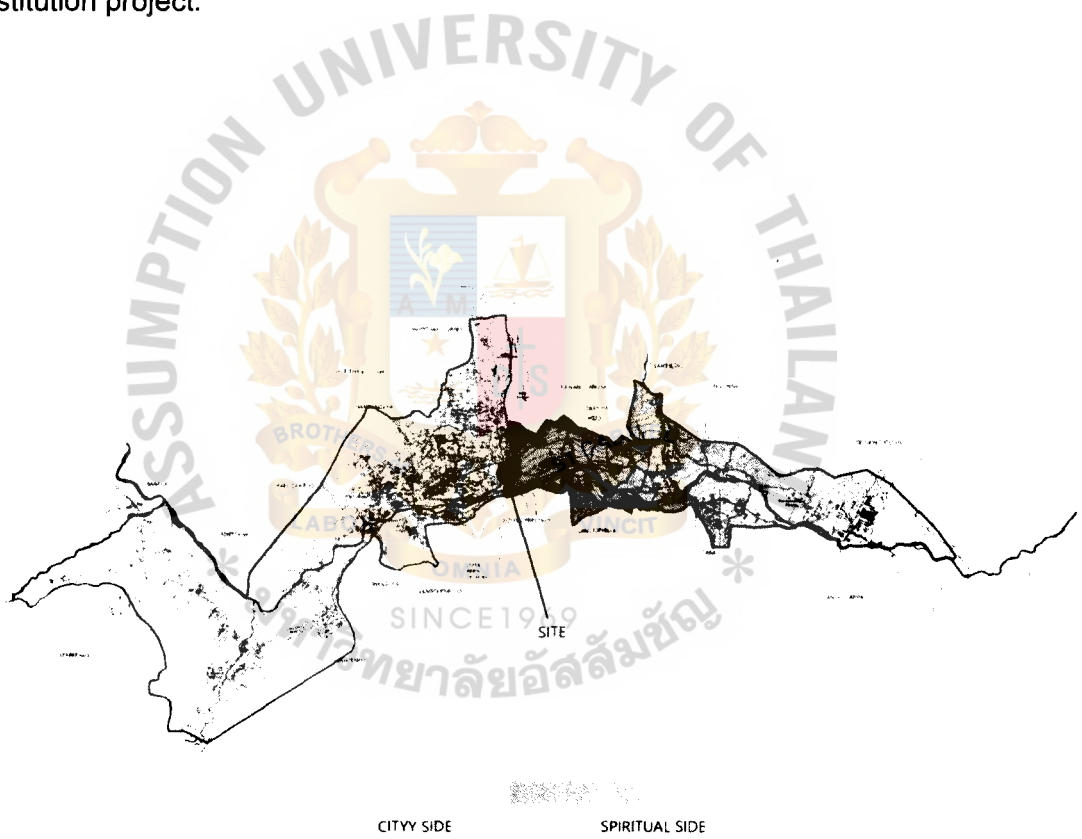
Among the twenty districts in Bhutan, Thimphu is the district that perfectly suits for the project because Thimphu is the capital city of Bhutan where it has the most development or a globalization affect. Thimphu is also the place where it contains the important religious monuments and temples. All these will help to connect the contemporary site and the spiritual site for the project.

Moreover, most of the existing contemporary art studios are also located in Thimphu because the contemporary change in the society in Thimphu could have great

effects to the artists' works. On the other hand, the other districts did not have these rich contexts compare to Thimphu City.

3.2 SITE SELECTION AND SITE ANALYSIS

In terms of site selection, the site should also have the potential to generate a sense of place. It needs to connect with both spiritual site and contemporary context. That is why this site is perfectly fit for the Bhutanese Contemporary Art Institution project.



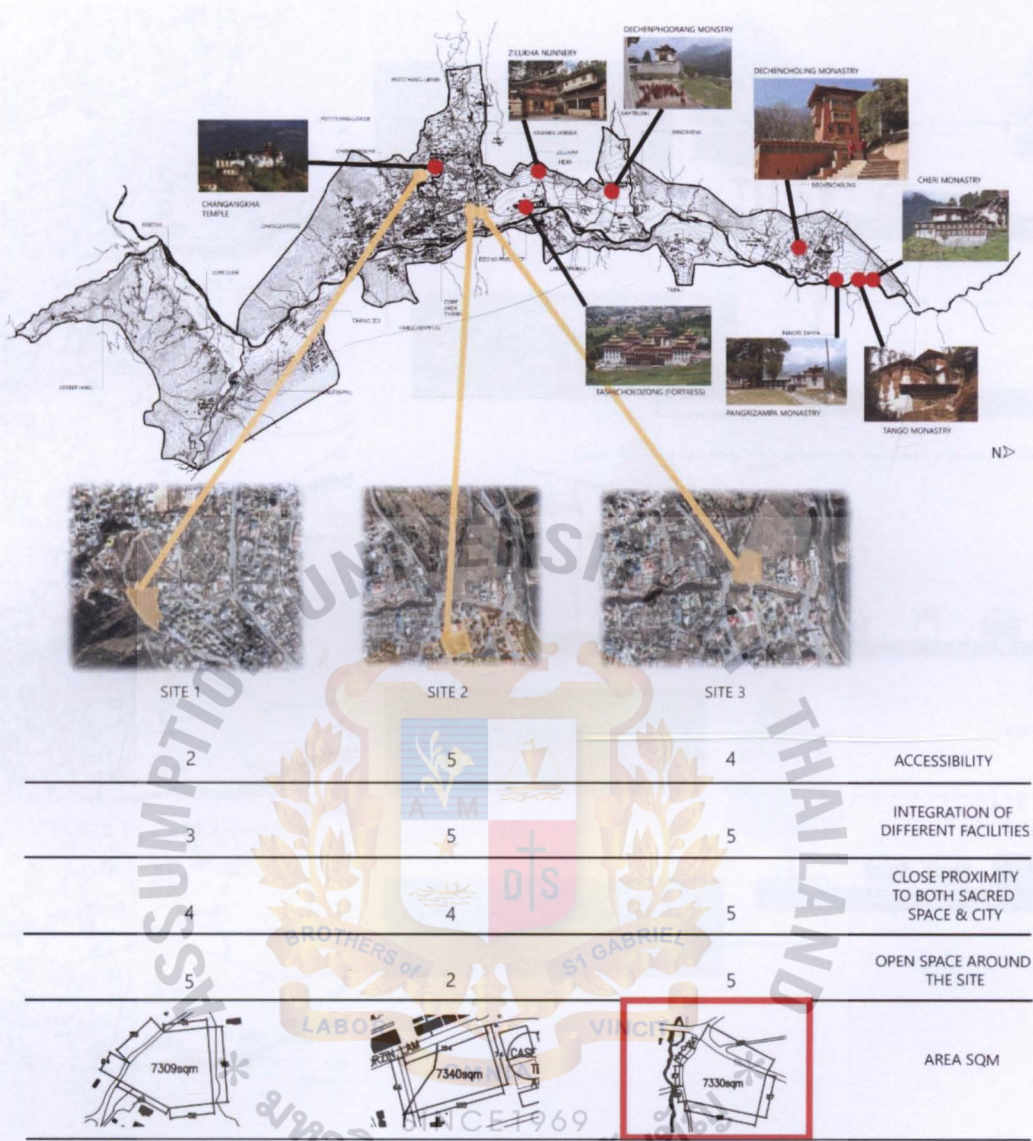


Figure 3.2 site selection

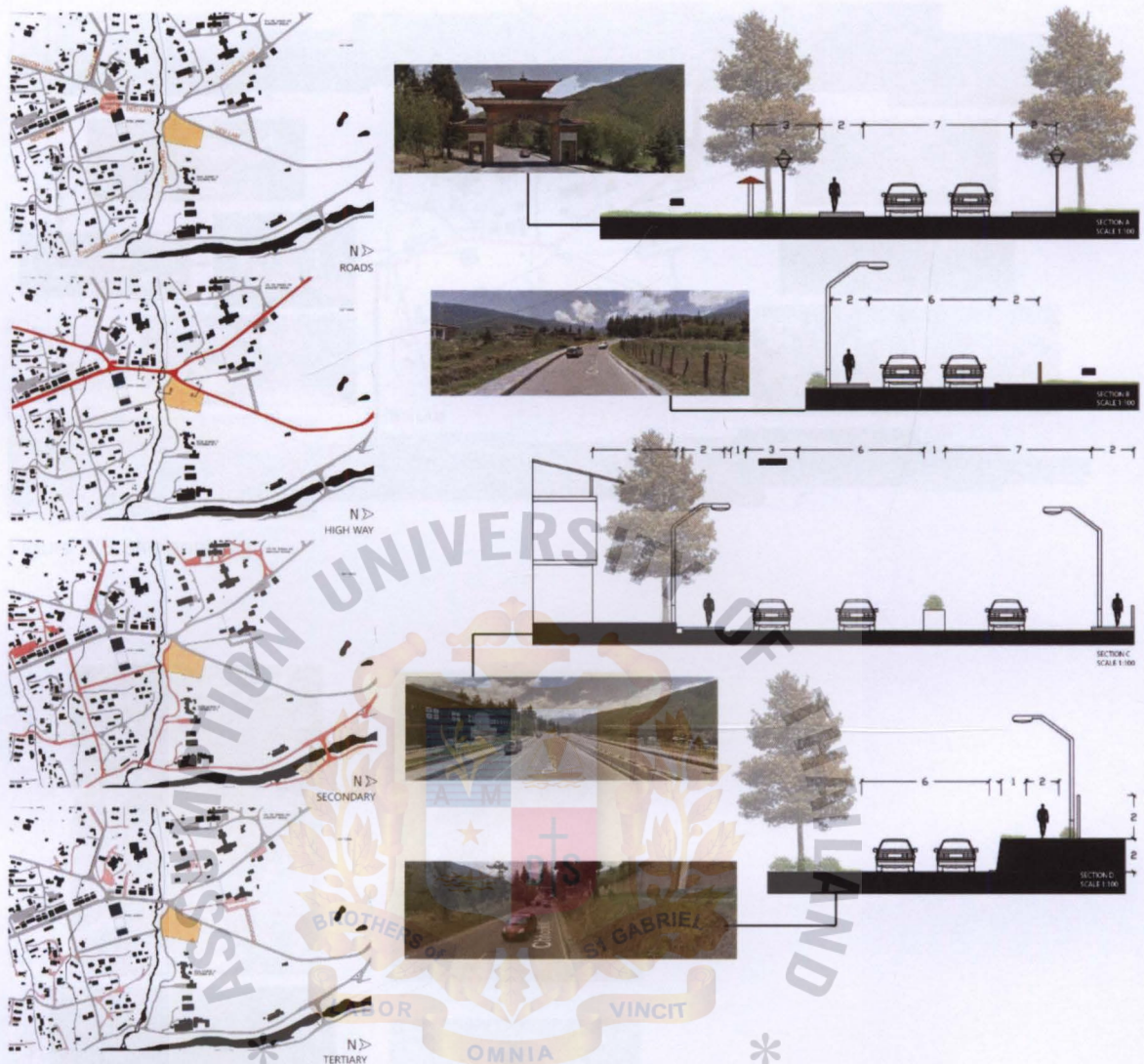


Figure 3-4 View along the site

Among the three sites, site 3 was chosen because it fits with all the requirements that needed for the project. The site context and approach is perfect for the project. The northern side has the spiritual feeling whereas the southern side provides own contemporary space feeling. The site location at the place where it is in between the two different feeling approaches. This has provided the site with some space and

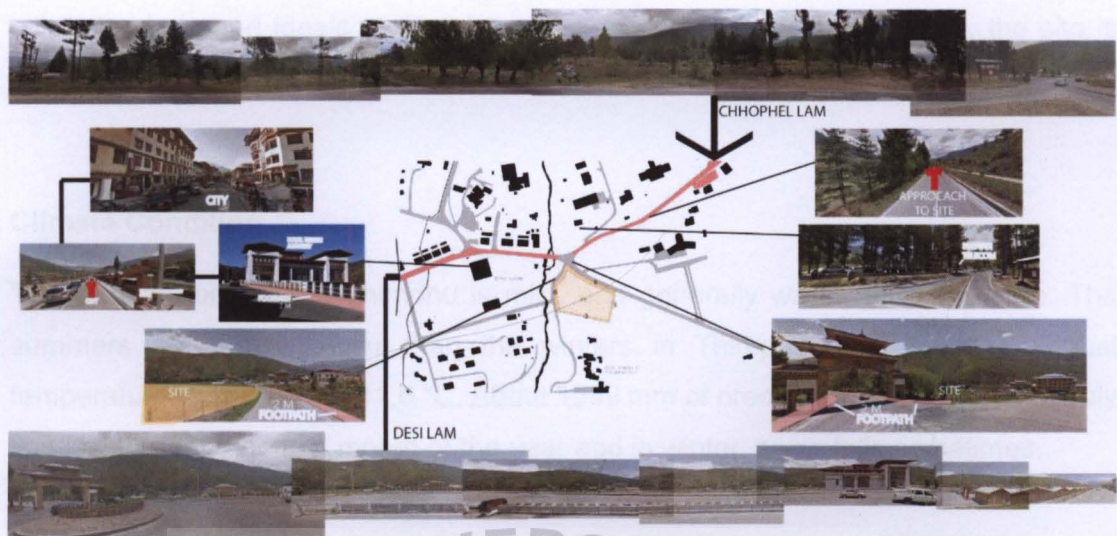


Figure 3.3 Site analysis



Figure 3.4 View from the site

Among the three sites, site 3 was chosen because it fills with all the requirements that needed for the project. The site context and approach is perfect for the project. The northern side has the spiritual feeling whereas the southern side provides the contemporary space feeling. The site locates at the place where it is in between the two-different feeling approaches. This has provided the site with some social and

cultural values and ideals of the place to develop this project. Moreover, the site is located in an area where there are existing art and cultural heritages nearby.

Climate Condition

The climate condition in Thimphu is mild, and generally warm and temperate. The summers are much rainier than the winters in Thimphu. The average annual temperature in Thimphu is 11.6 °C. About 1599 mm of precipitation falls annually. July is considered the hottest month of the year and in winter, snow falls sometimes.

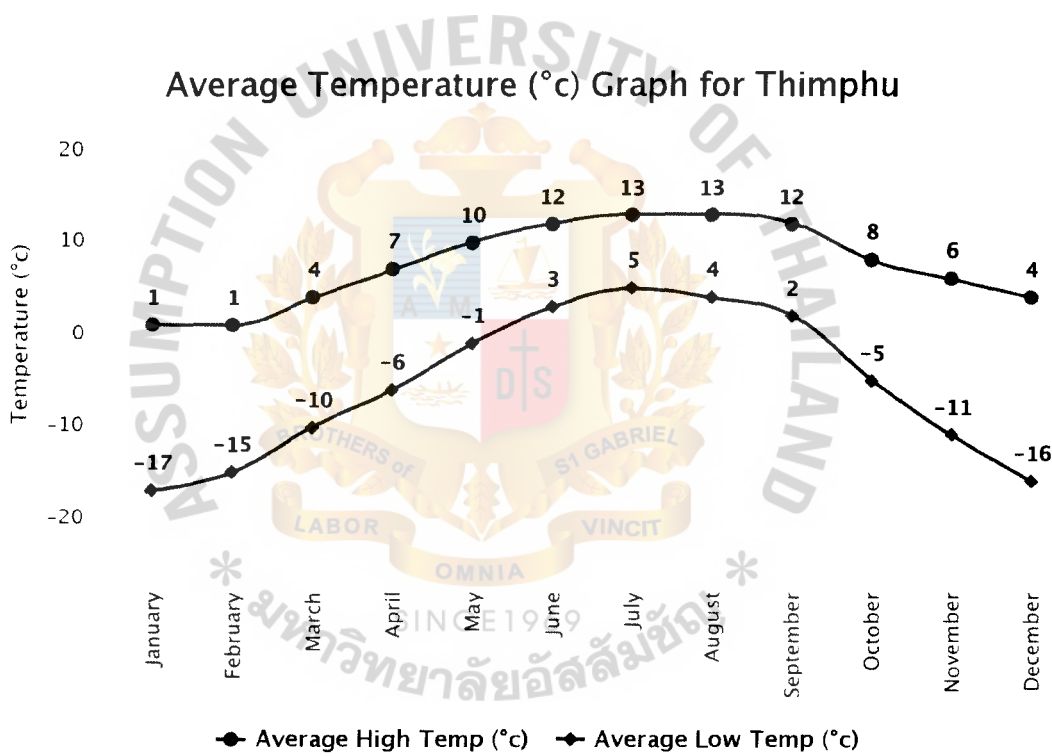


Figure 3.5 Average temperature graph for Thimphu

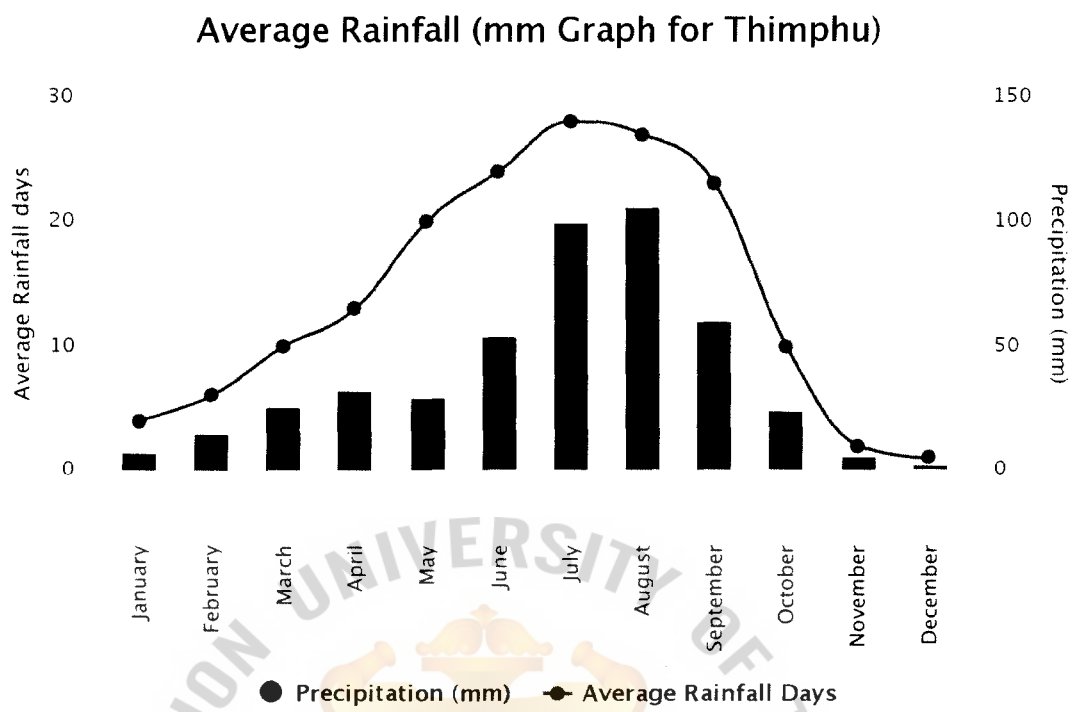


Figure 3.6 Average rainfall graph for Thimphu⁹

⁹“Thimphu monthly climate average, Bhutan”, accessed on 18 Oct 2016, <https://www.worldweatheronline.com/thimphu-weather-averages/thimphu/bt.aspx>

3.3 LAW AND REGULATION

Limitations while designing in Bhutan¹⁰

The limitations that we will have while building an institution.

3.3.1 ROOF

GABLE ROOF

This is the standard traditional roof. It is the most feasible form of roof to finish with timber shingles, but is also suitable for any other type of roofing material.



Figure 3.7 Gable roof

HIP ROOF

The hipped roof is a new form of roofing gaining great popularity in Bhutan with the advent of new materials like corrugated sheet and roofing tiles.

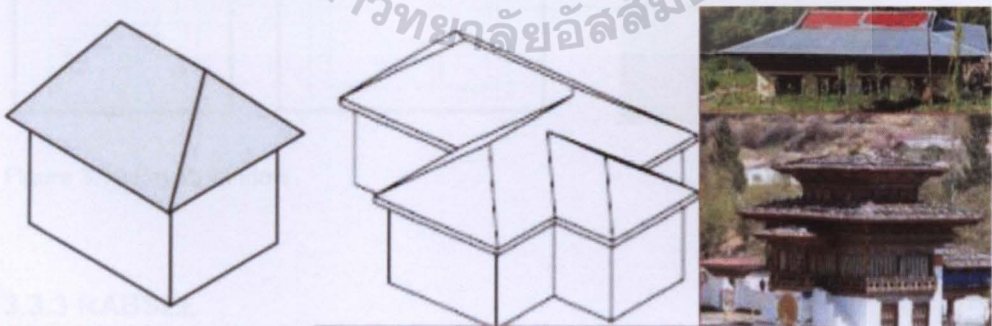


Figure 3.8 Hip roof

¹⁰Ministry of Works and Human Settlement, Royal Government of Bhutan, “Bhutanese Architecture Guidelines,” 2014.

LEAN TO ROOF

Traditionally it is only allowed on buildings with attics.

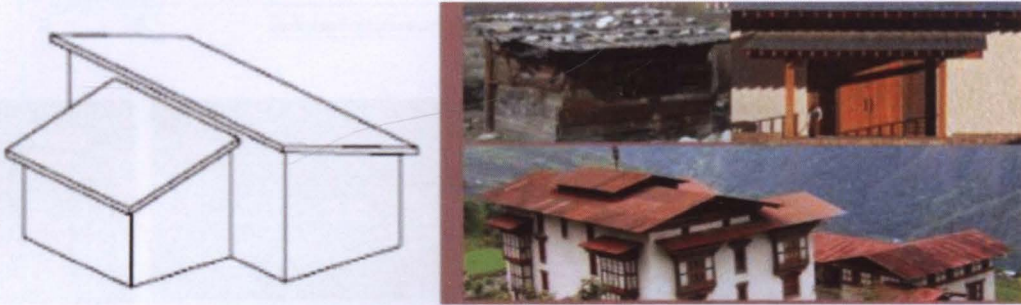


Figure 3.9 Lean to roof

3.3.2 WINDOW

PAYAB

The Payab is a window that is embedded in the wall, but has few traditional decorative components. According to height of house appropriate size of payab is used.



Figure 3.10 Payab window

3.3.3 RABSEL

The Rabsel is a timber structure constructed with a series of vertical and horizontal timber members with infill panels and windows.

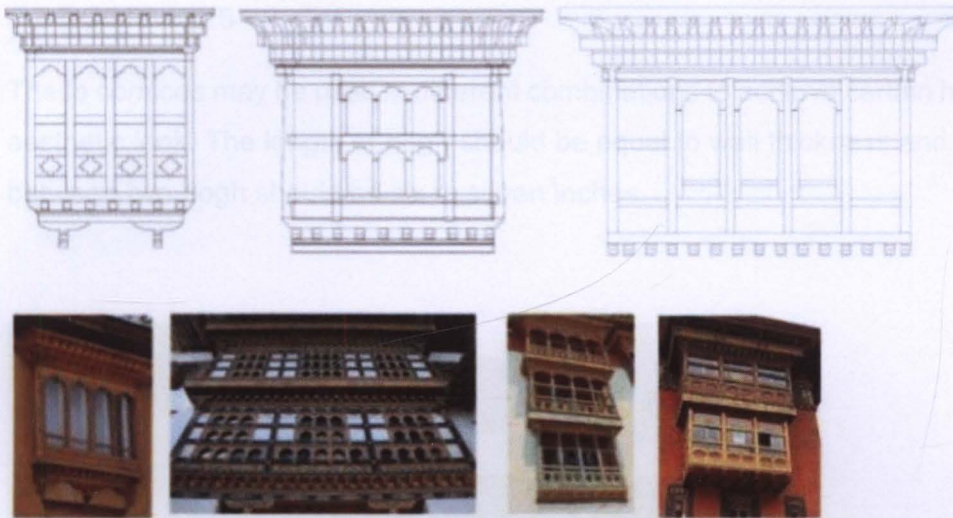


Figure 3.11 Rabssel

3.3.4 DOOR

Mago means main entrance of the building. When a Mago is placed next to windows, cornices are provided to match with window cornices. An average door height would be between four and half to seven feet and the width between the 28-33 inches.



Figure 3.12 Bhutanese doors

Door and the edge of wall should not face each other

- Cannot erect pillars without reason
- Main door should not face storeroom
- Door and stair way should not face each other
- Erecting of single column is not allowed it should be in pair.

3.3.5 CORNICES

These cornices may be used in different combinations to achieve certain hierarchy and aesthetic look. The length of bogh should be equal to wall thickness and the distance between two bogh should be six to seven inches.



Figure 3.13 Traditional cornices

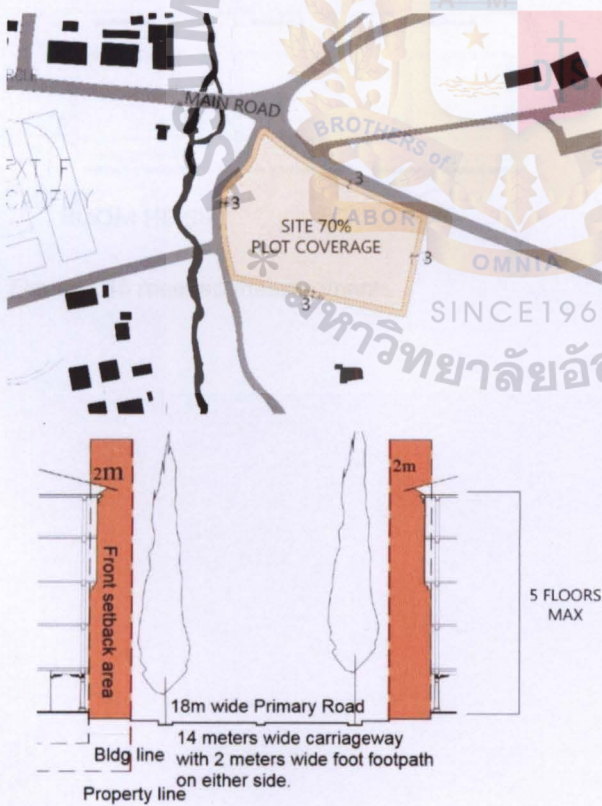


Figure 3.14 Setback rules

Since my site is located right next to the main road, the site needs to have a setback of 3m from the road and due to its location on the urban context, the rear side and the sides also need to have 3m setback as well.

The site needs to leave 30% for open space area. That leaves to 70% of plot coverage in the site area. The building can go up till 5 floors with floor to ceiling height of 2.4m minimum.

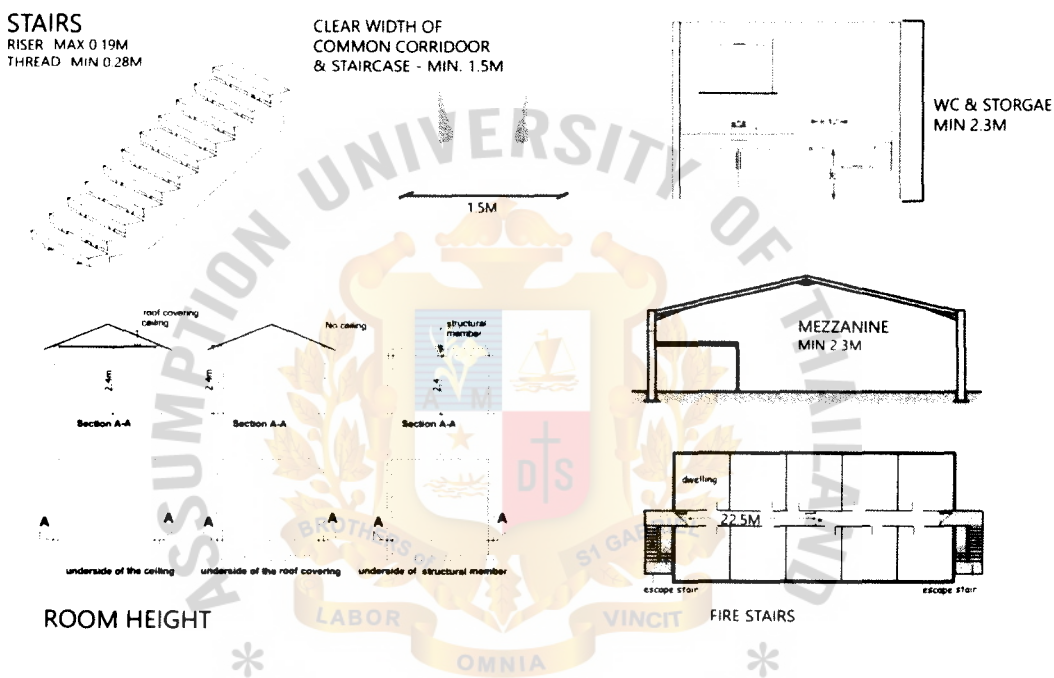


Figure 3.15 required measurements

Chapter 4: POTENTIAL DESIGN RESPONSE

4.1 DESIGN SCOPE

The design scope for this project is basically intended to design an architectural space by retrofitting the spiritual sense space with contemporary sense space in order to respond to the users as well as the contemporary Bhutanese's art. It is also aimed to create a space for interaction that responds to the user activities, which will allow to motivate creative learning through the sharing experiences between one another.

This new contemporary art institute design will also focus on an awareness of the contemporary Bhutanese art for both locals and visitors where it would be an educational centre for the growing number of contemporary artists. It can also help the youths to be engaged with art and nurture creative minds, thus refraining them from wasting their youth.

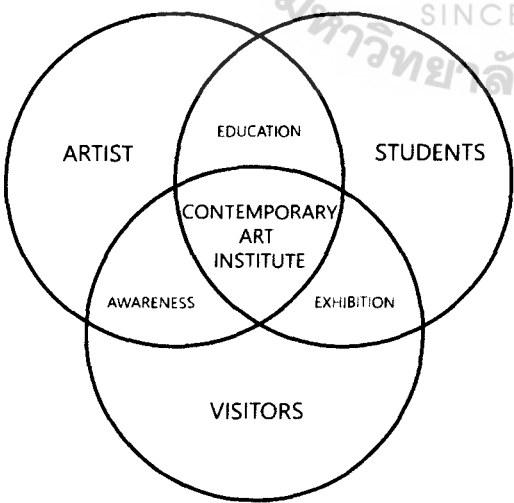


Figure 4.1 Relationship diagram

4.2 PROGRAM ANALYSIS

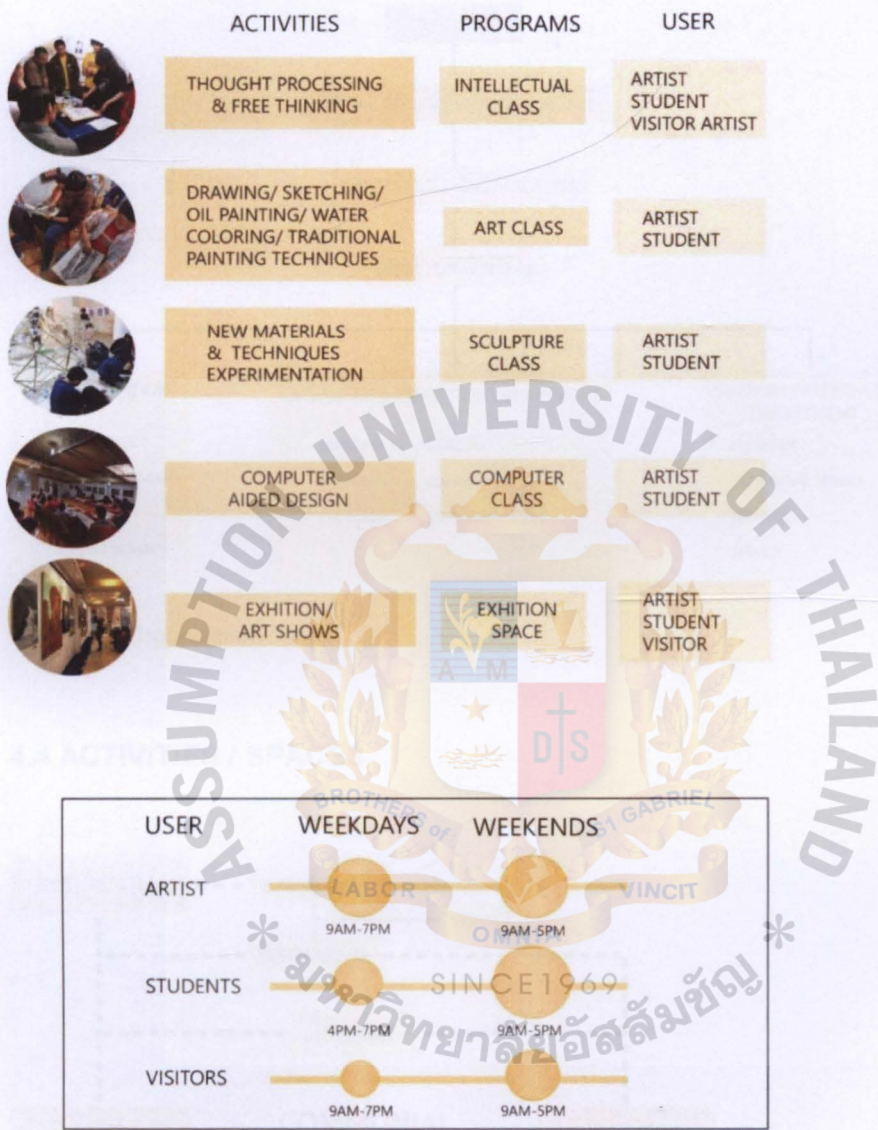


Figure 4.2 User analysis

The above figure 4.2 shows a user analysis based on a study of their activities and programs held in different times. It is seen that they held different activities in a single space which creates an inconvenience to the users in terms of timing for different activities. In order to solve that problem a different space for different programs needs to be created, so that the users can work on their own activities without disturbing each other.

4.3 ORGANIZATION STRUCTURE

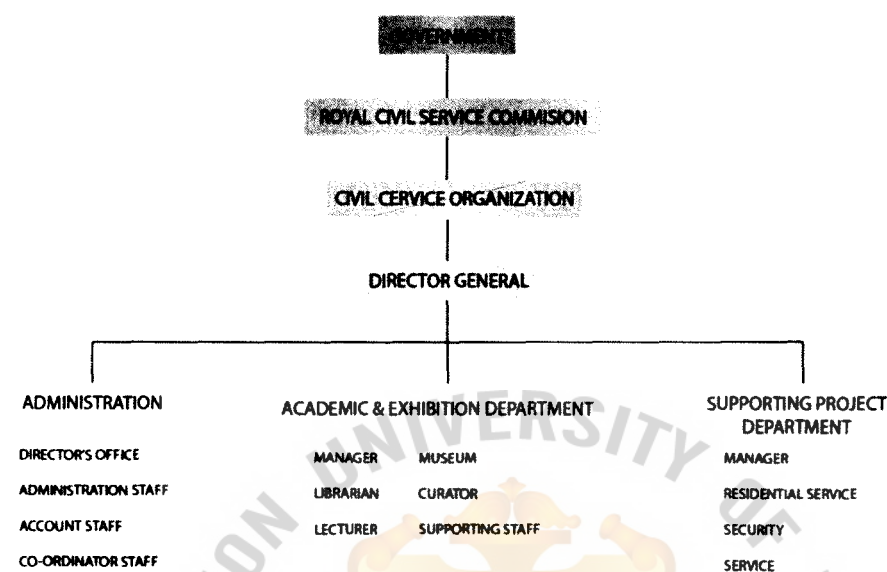


Figure 4.3 Organization chart

4.4 ACTIVITIES / SPACES

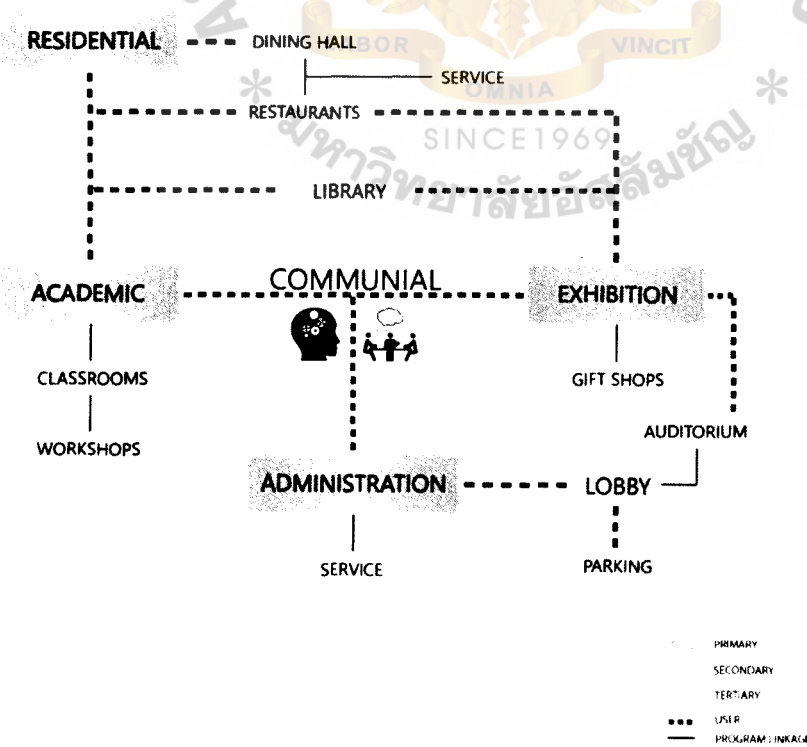


Figure 4.4 Functional diagram

Figure 4.4 shows how the programs need to be linked with each other in a radial arrangement with communal space in between. The idea here is to let the users come in contact with each other, so that they can have an interaction with each other, in order to nurture their creative minds. The main programs that brings about the communal space in between are academic space, exhibition space and administration space. Residential area is moved a bit further away from the other spaces because it is zoned as a private space hence residential space cannot be close to other programs.

Table 4.5 shows about a space summary with five different categories and they are:

- I. Administration facilities – for the staff members that looks after the whole system.
- II. Museum facilities – for the visitors, students and teachers. Visitors will mainly use the exhibition areas and in the educational facilities they can access to workshop areas where they won't just have a look around but can also have a hands-on experience with art works.
- III. Public space – includes spaces such as library, auditorium, restaurant, interaction space, etc, where different types of users can access.
- IV. Residential facilities – is for the visiting students from different places who wants to take a short course in art, in order to give them an opportunity to learn contemporary art of Bhutan.
- V. Others – includes basic facilities that will support in functioning other programs, such as M&E, car park area, etc.

4.5 SPACE SUMMERY

ADMINISTRATION FACILITIES	NO.	AREA
RECEPTION AND ENQUIRY	1	40 SQ.M
ADMINISTRATION OFFICE	1	85 SQ.M
ADMIN DIRECTOR'S OFFICE	1	20 SQ.M
ACCOUNTS	1	25 SQ.M
MANAGER'S OFFICE	1	15 SQ.M
SYSTEM'S MANAGER	1	40 SQ.M
CONFERENCE ROOM (30 PERSONS)	1	50 SQ.M
LOBBY & WAITING AREA	1	60 SQ.M
COPY ROOM	1	15 SQ.M
PANTRY	2	32 SQ.M
STORE	2	20 SQ.M
MUSEUM FACILITIES	NO.	AREA
DISPLAY AREA		
VISUAL ARTS	1	420 SQ.M
PLASTIC ARTS & ARTIFACTS	1	420 SQ.M
EDUCATIONAL FACILITIES		
AV ROOM	1	30 SQ.M
COMPUTER CLASS	1	30 SQ.M
RAW MATERIAL STUDY AND USE	1	45 SQ.M
ART CLASS	1	30 SQ.M
INTELECTUAL CLASS	1	30 SQ.M
ADMINISTRATIONAL FACILITIES		
OFFICE	6	90 SQ.M
CURATOR'S OFFICE	1	15 SQ.M
ART STORAGE	1	30 SQ.M
GIFT SHOP	3	90 SQ.M
SECURITY SERVICES	1	15 SQ.M
STAFF ROOM	3	90 SQ.M
PUBLIC FACILITIES	NO.	AREA
THE BANQUET		
BANQUET HALL	1	150 SQ.M
CATERING AREA	1	20 SQ.M
RECEPTION	1	10 SQ.M
EVENT MANAGER'S OFFICE	1	25 SQ.M
STORE	1	20 SQ.M
LIBRARY	1	260 SQ.M
INTERACTION SPCAE	1	140 SQ.M
RESTAURANT	1	100 SQ.M
AUDITORIUM (150 SEATS)	1	175 SQ.M
RESIDENTIAL FACILITIES	NO.	AREA
VISITING ARTIST/ STUDENT'S GUEST ROOM	20	700 SQ.M
DINING HALL WITH KITCHEN & STORE	1	100 SQ.M
OTHERS	NO.	AREA
HOUSE KEEPING ROOM	1	10 SQ.M
JANITOR	1	6 SQ.M
SECURITY ROOM	1	10 SQ.M
STORAGE	1	20 SQ.M
GARBAGE	1	16 SQ.M
LOADING AREA	1	15 SQ.M
M&E	1	200 SQ.M
STAFF ROOM	1	40 SQ.M
TOILET		100 SQ.M
PARKING (120 CARS)		2250 SQ.M
TOTAL		6158 SQ.M

Table 4.5 Space summery.

Chapter 5: BUILDING TECHNOLOGY

For an art institute, a simple post and lintel system is used to achieve the outcome of the project. But on the first floor above the visual arts exhibition area, a long span structure is used for an auditorium space. To achieve with the diffused lighting quality, I have used the Bhutanese roof layering style which allows the natural light to diffuse by letting the light to reflect and pass through the long narrow window spaces. For further details, the structure system is explained on the below part.

5.1 BUILDING STRUCTURE

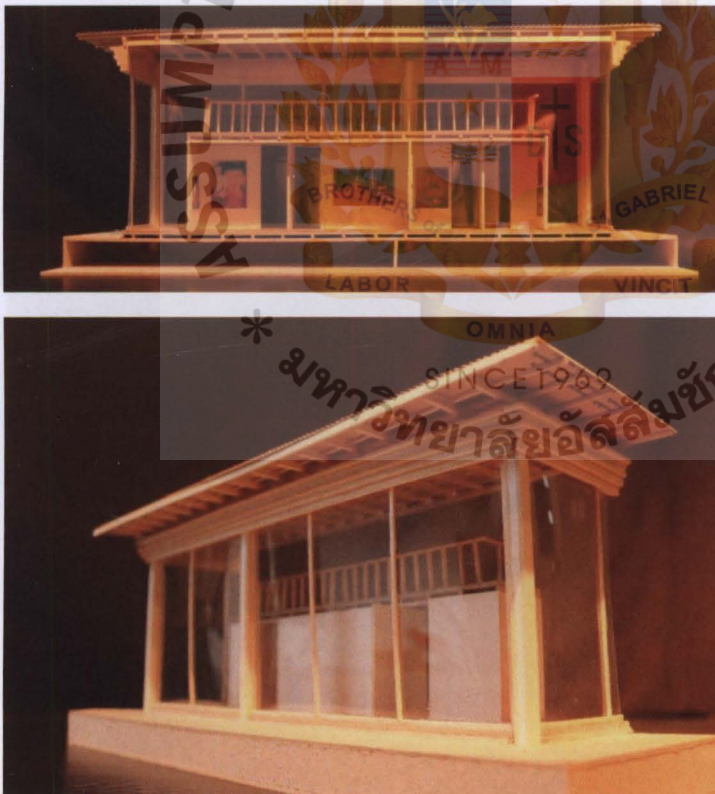


Figure 5.1 Section model for visual arts exhibition

Post-and-lintel system¹¹

Post-and-lintel system, in building construction, is a system in which two upright members, the posts, hold up a third member, the lintel, laid horizontally across their top surfaces. All the structural openings have evolved from this system, which is usually seen in pure form only in colonnades and in framed structures because the posts of doors, windows, ceilings, and roofs are normally formed part of the wall. The lintel must bear loads that rest on it as well as its own load without deforming or breaking. The posts must support the lintel and its loads without crushing or buckling. Post material must be especially strong in compression.

In my design, I have used reinforced concrete material to support the structure system of the building's mass with columns sized of 3.5m and a span of at least 5m. Since Bhutan lies in the earthquake zone, the structure needs to be strong enough to withhold the building's mass from the seismic force.



Figure 5.2 section model for sculpture arts exhibition.

¹¹ Post-and-lintel system, accessed on 20th January 2017
<https://www.britannica.com/technology/post-and-lintel-system>

In figure 5.1 for the section model of visual arts exhibition, I have used movable walls in relations to the different time of the day when the sun path moves from east to west. The movable wall can be adjusted to control the natural light from penetrating to the interior spaces and effect the art works. This movable wall openings also help guiding the user circulation flow.

In figure 5.2 showing the section model for sculpture arts exhibition, I have used roof lighting which allows the diffused light to pass through the space. This also helps to avoid the direct natural light from shining on the art works. This concept idea was initially influenced from the Bhutanese Architecture in term of roofing design. In Bhutanese Architecture's roof design, we have layering various styles of roofing which I have used to replace the walls with window openings for the use of diffused light.

5.2 BUILDING SYSTEM

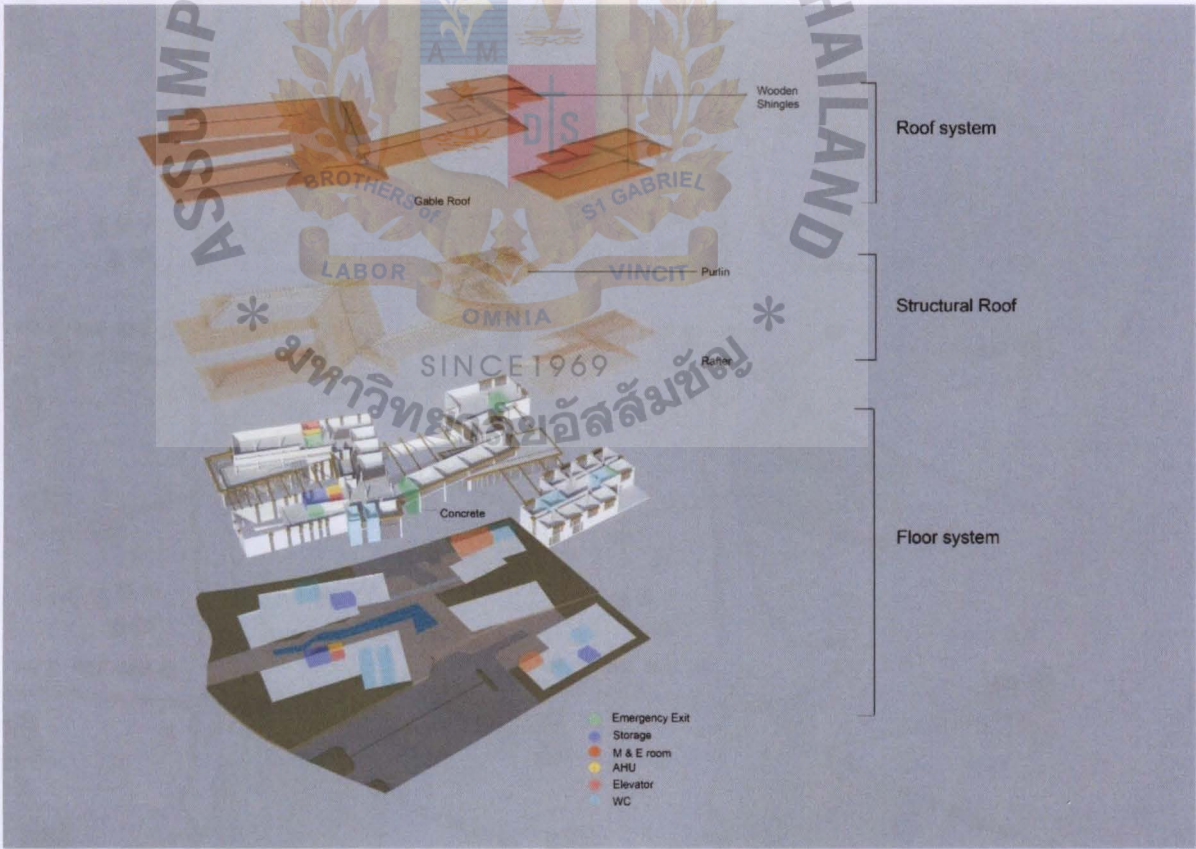
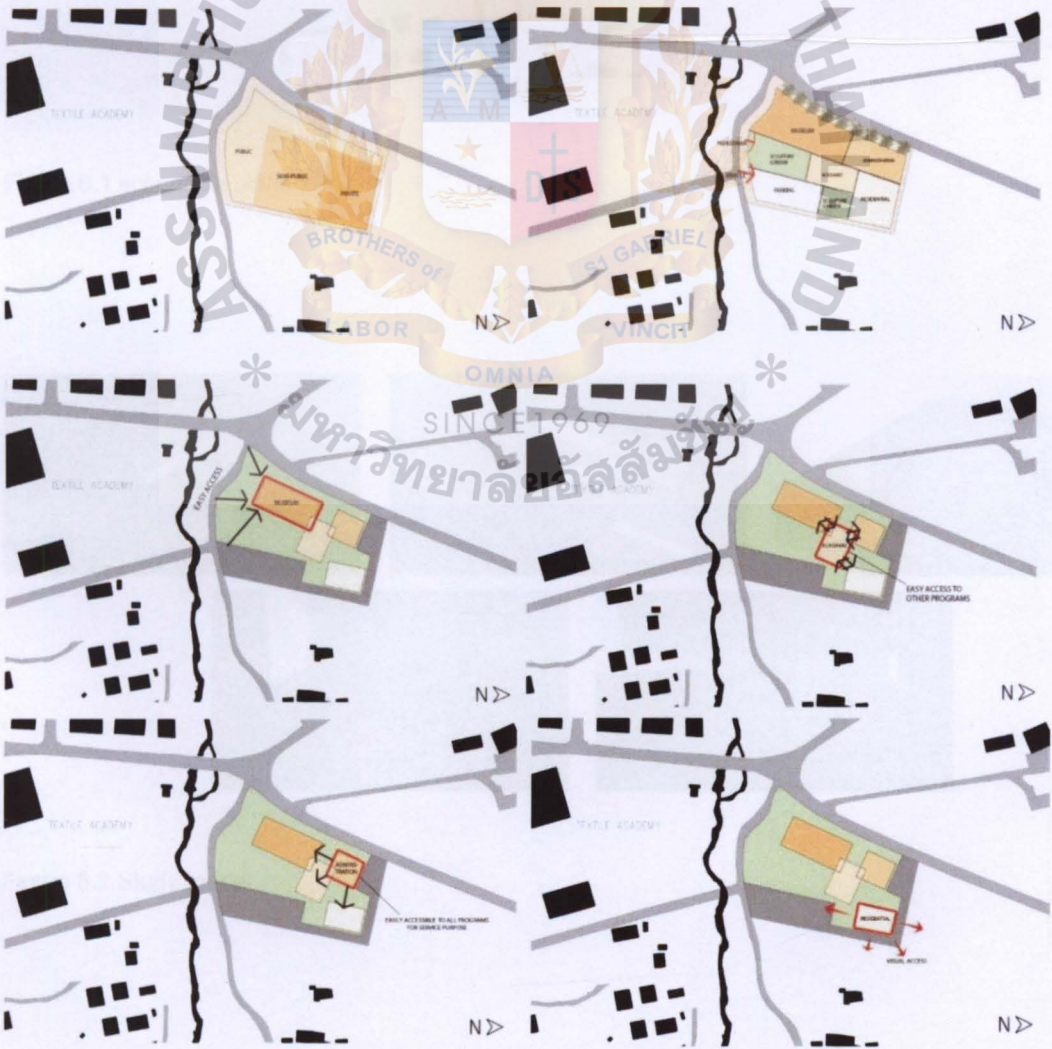


Figure 5.3 building system

Chapter 6: DESIGN SCHEMATICS

6.1 SCHEMATICS

Regarding the conceptual idea, I have placed the building's rotation facing the longer side towards the sun so that it will not just play with light but also can receive maximum heat from the sunlight to keep the spaces inside warm especially during the winter. Schematic layout plan is done according to the conceptual idea and the site analysis.



6.2 DESIGN DEVELOPMENT

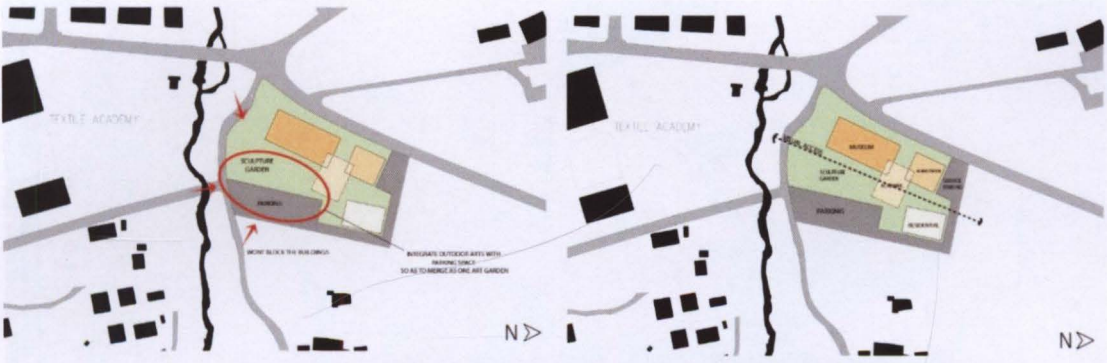


Figure 6.1 schematic plans



Figure 6.2 Study model

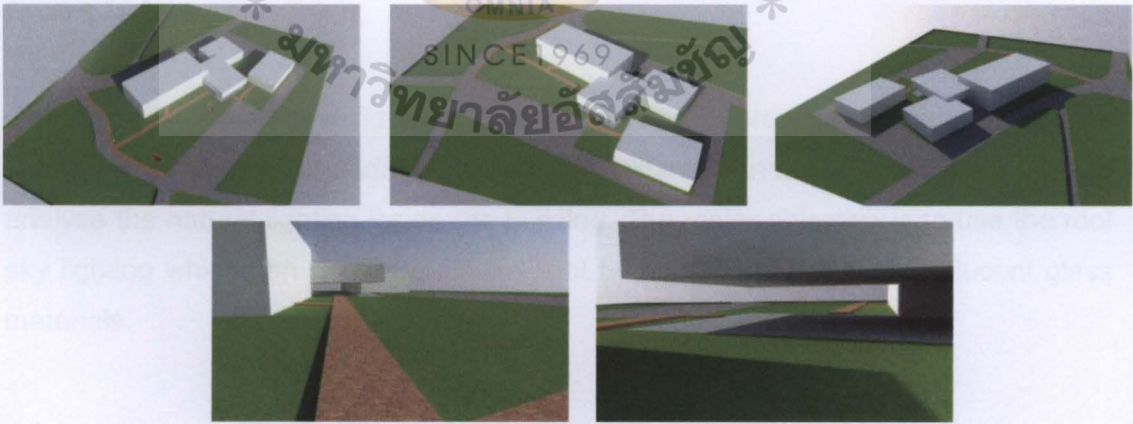


Figure 6.2 Study model

6.2 DESIGN DEVELOPMENT

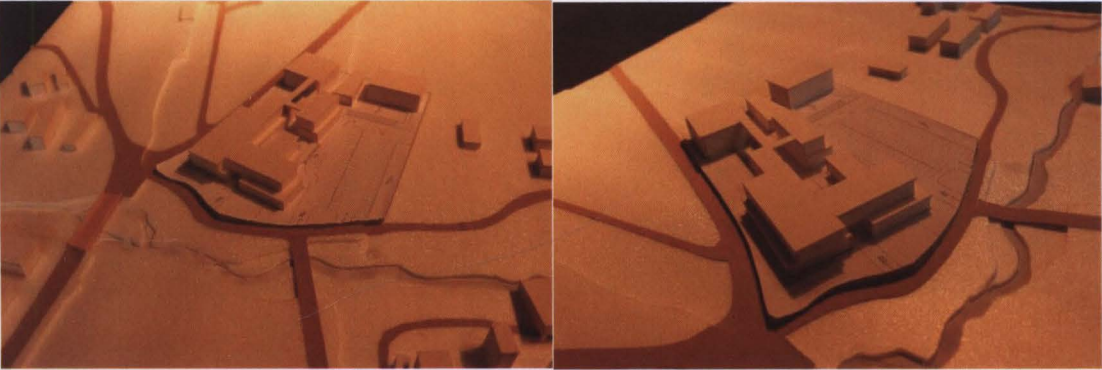


Figure 6.2.1 schematic model on site

The above mass model shows a mass layout of the model according to the programs which is developed from the simple schematic plan that is shown in figure 6.3 and figure 6.4.

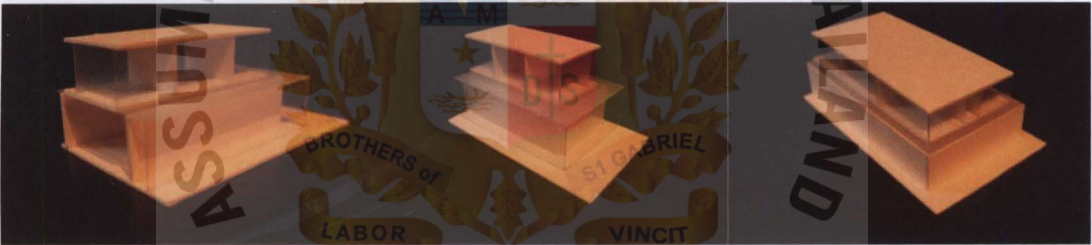


Figure 6.2.2 Study models

The above figure 6.2.2 shows a three different study models which are based on the schematic model of figure 6.2.1. Different kinds of materials are used to analyse the natural lighting inside the building. The major objective is to use the roof sky lighting which can generate diffuse light by using long narrow translucent glass materials.

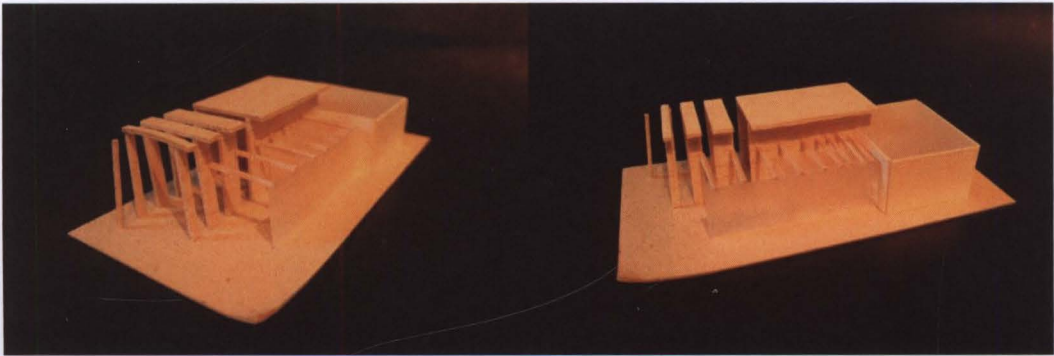


Figure 6.2.3 Study model 2

Figure 6.2.3 shows a study analysis of a lighting inside a space using different materials on the louver design. The use of louvers is intended to cast a fleeting shadow inside the space to give the idea of impermanence.

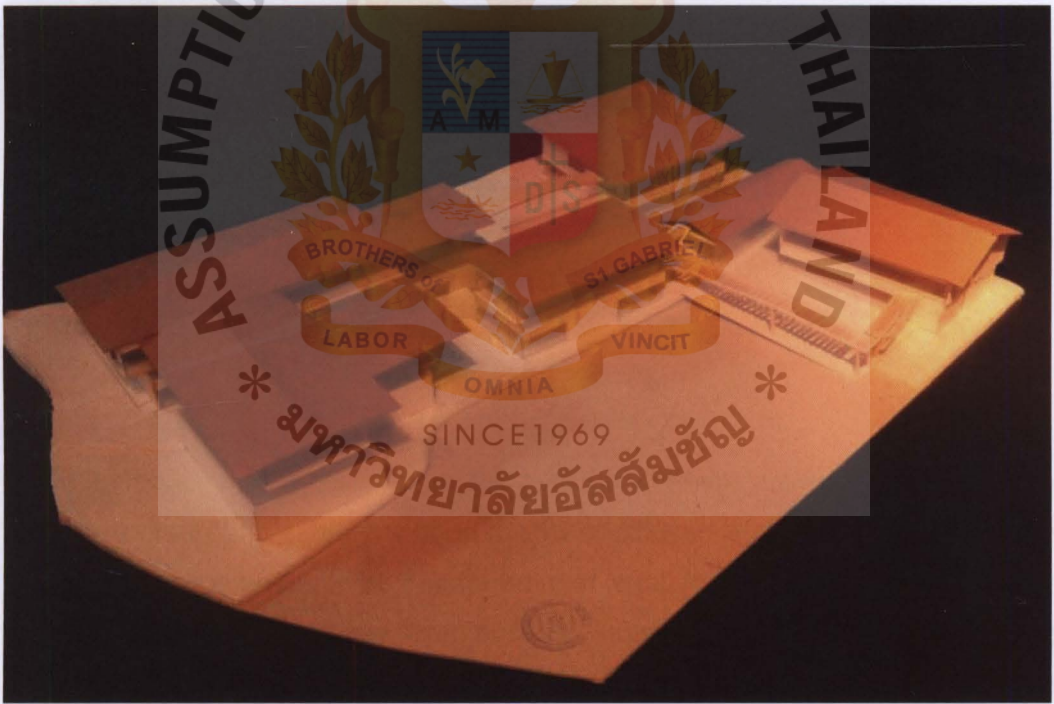


Figure 6.2.4 Model development 1



Figure 6.2.5 Model development

From the above schematic studies, the conclusion I have drawn to further develop the project is that, to achieve a good quality of diffused lighting on roof lighting area the roof elevation needs to be shortened to at least 1m from the initial length of 1.5m. Since the programs are zoned from public to more private zone, programs such as exhibition, workshop, etc are placed towards the south side so that it can easily be accessed by the public and also the advantage it has is that, in order to achieve the lighting quality in those spaces it faces the sun path which allows better lighting quality as per the concept. Library area is zoned in a private area along with the administration and hostel area so that a privacy is also maintained for the people using the library and it can be accessed from the public area as well.

Chapter 7: DESIGN SUMMARY

In Bhutan, religion has a major influence on our culture and society. Hence, the arts of Bhutan reflect spiritual nature which is also used as a tool for meditation and self-transcendence.



Figure 7.1 Bhutanese spiritual space

To achieve this spiritual conceptual idea in terms of architecture, I have studied about Bhutanese's spiritual space in relations to the dark or dim lighting inside the space. For example, when people enter inside spiritual spaces such as temples, they will feel that the lighting inside the space is dimmer than usual and when they leave the space, they will face the bright natural light which will give them the sense of self transcendence.

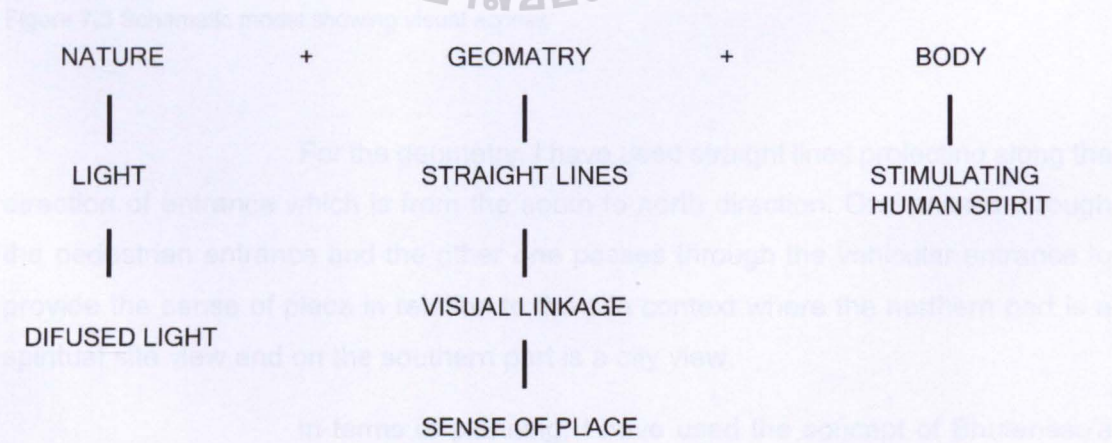


Figure 7.2 Analysis diagram using Tadao Ando's philosophy

To achieve this essence in my project, I have integrated Tadao Ando's concept of blending nature with geometry and body in the design. I have used the diffuse lighting in the interior space with the help of sky lighting and in certain parts. I have designed the long narrow windows with movable walls which can be adjusted according to the sun path moves from east to west. Movable walls are used to avoid the harsh natural lighting from reflecting on the art works inside the space. With all the above ideas, my main objective is to bring the Bhutanese contemporary art into a new form of interior lighting design and create a new architectural design approach.

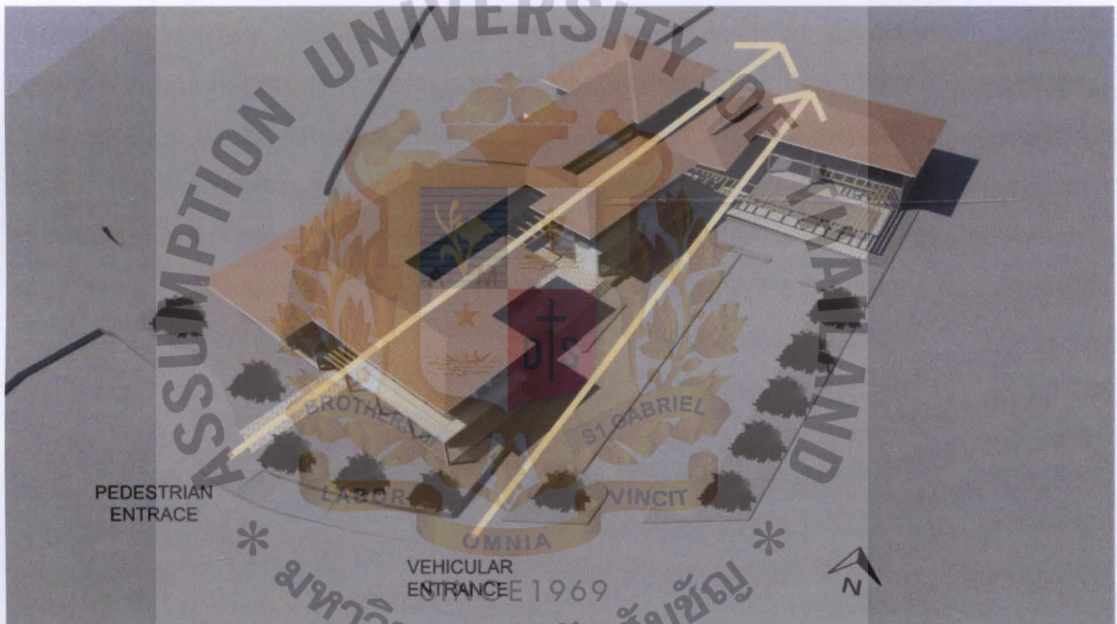


Figure 7.3 Schematic model showing visual access

For the geometry, I have used straight lines projecting along the direction of entrance which is from the south to north direction. One passes through the pedestrian entrance and the other one passes through the vehicular entrance to provide the sense of place in relation to the site context where the northern part is a spiritual site view and on the southern part is a city view.

In terms of planning, I have used the concept of Bhutanese's landscape design to portray the symbolism of a journey through our kind of sacred space. Most of the spiritual places are located on the mountainous areas, so when people visit the spiritual places they must climb down through the winding roads. This

concept, in terms of planning, associates with the circulation flows which the users passes through the sculpture arts exhibition on the ground floor and reaches the first floor where the visitors can get a hands-on experience with art works. After that, they reach the ground floor on the other side where there is a visual arts exhibition. When visitors exit from the visual arts exhibition space, they will pass through the circulation space where it is brightly lit with natural daylight to promote the idea of self-transcendence.

The zoning of the site moves from public to more private side. The southern side consists of more public spaces and when people move towards the northern side, they will find more private programs such as administration offices, library and hostel areas. The exhibition areas are zoned as the public space whereas the workshop areas are designed for visitors to get a hands-on experience with art works. The classroom areas are diverted from the public zone with semi-private zone at the first floor. They are connected to the workshop and exhibition areas so that they can have a direct access to the exhibition area for moving the art pieces for displaying.



7.1 CONCEPT

The main conceptual design is to provide a spiritual sense feeling to the users by experimenting with light and shadow inside the space. In order to achieve the final design, I have studied the sun direction and have experimented with the space models to see how the spaces will receive sunlight inside the space during different time of the day. The first step is by tilting the space away from the sunlight so that the space inside can receive half daylight and let the other half be casted in shadow. Then I have used the slit windows on the walls to receive little amount of sunlight in every space and maintain the other parts in darkness.



Figure 7.4 Conceptual diagrams

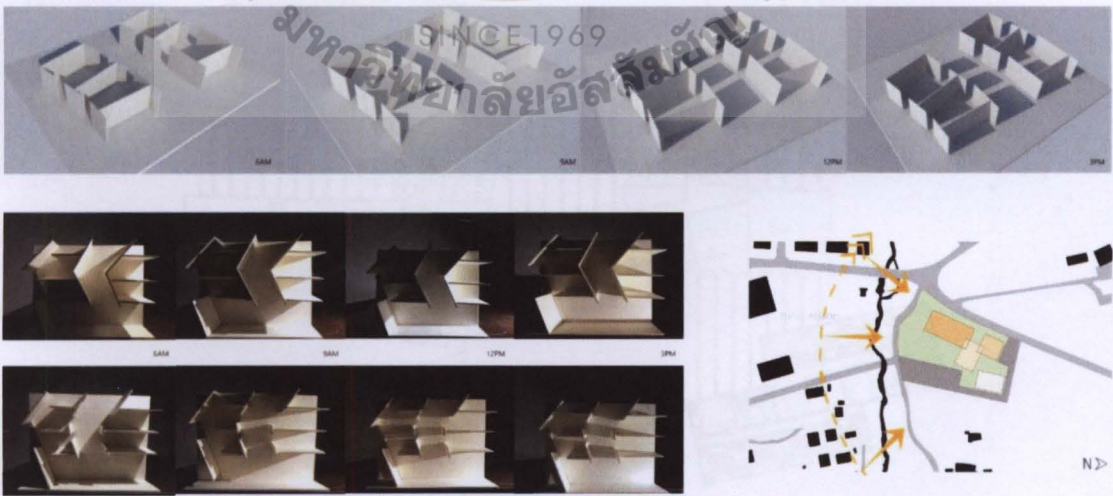


Figure 7.5 Light study using conceptual model

7.2 DRAWINGS

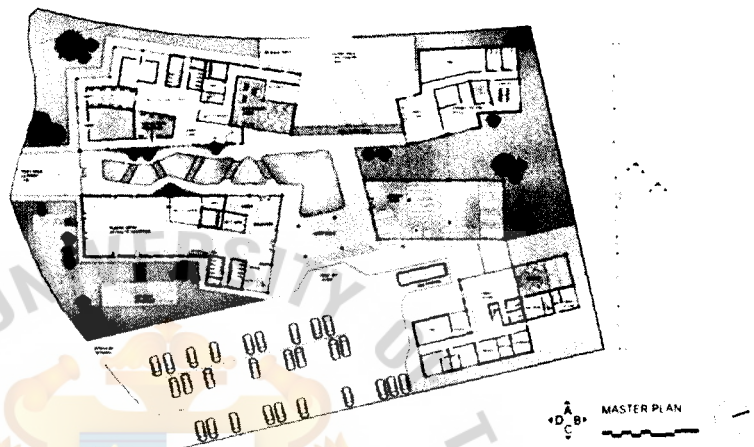


Figure 7.2.1 Master plan

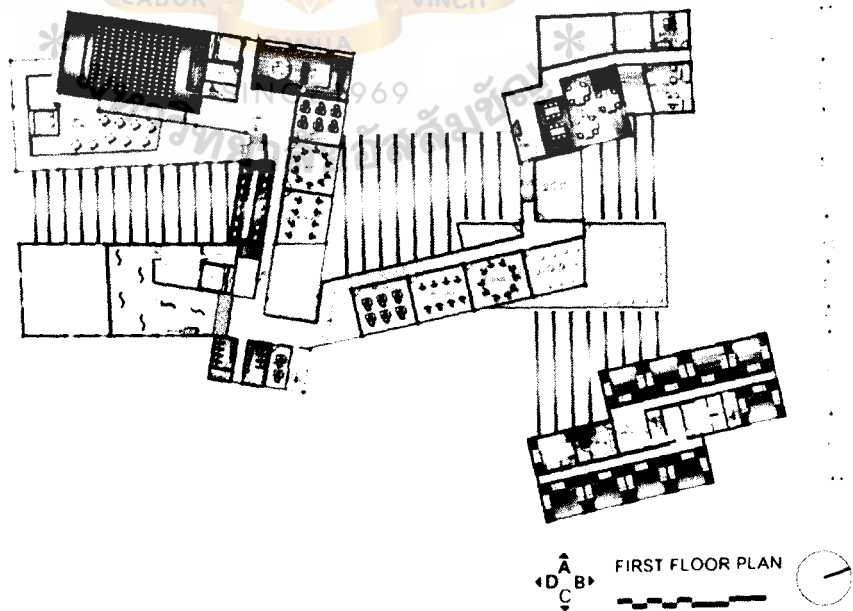


Figure 7.2.2 First floor plan

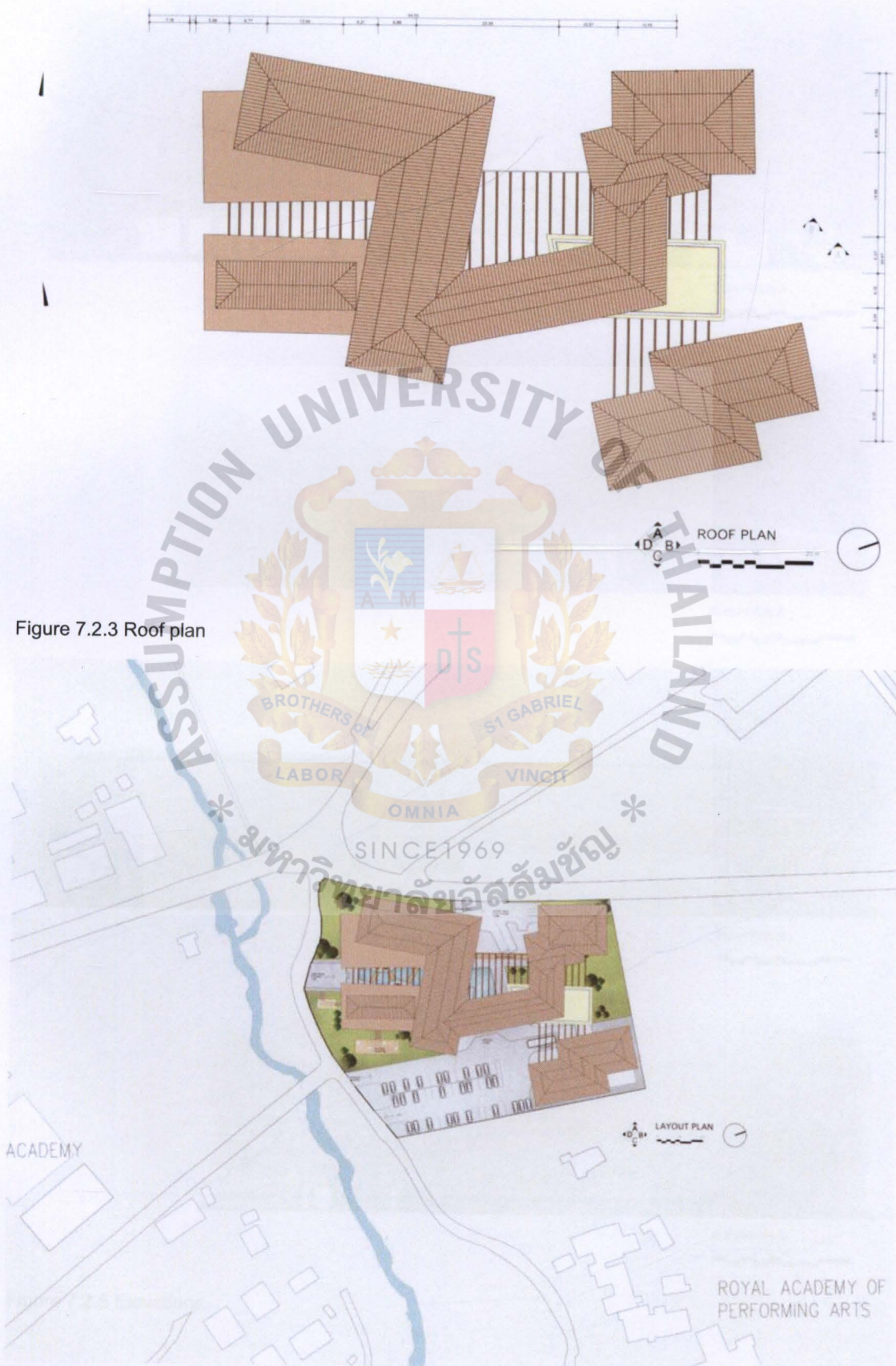


Figure 7.2.3 Roof plan



Figure 7.2.4 Layout plan

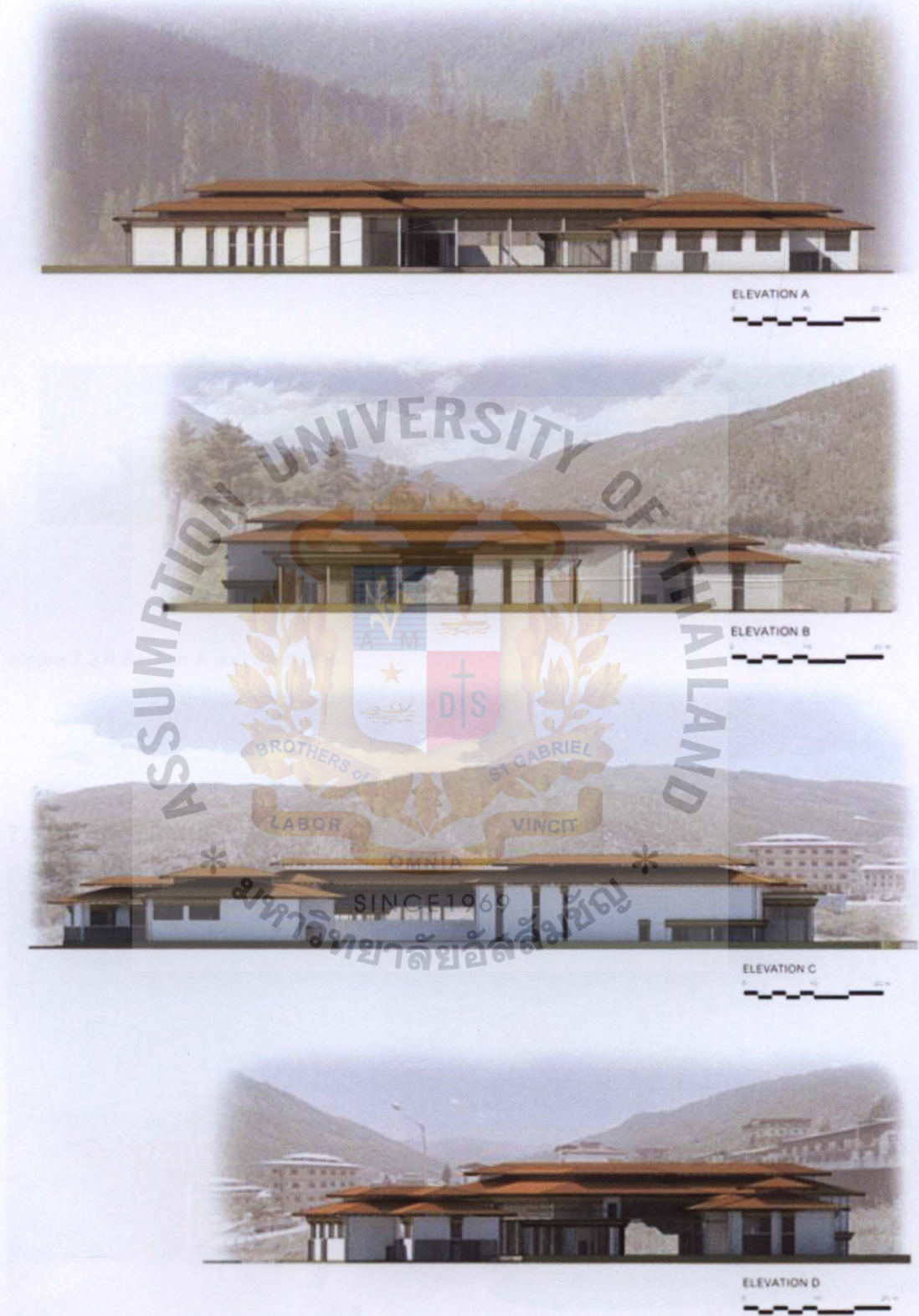


Figure 7.2.5 Elevations

Figure 7.3.1 Pedestrian entrance view

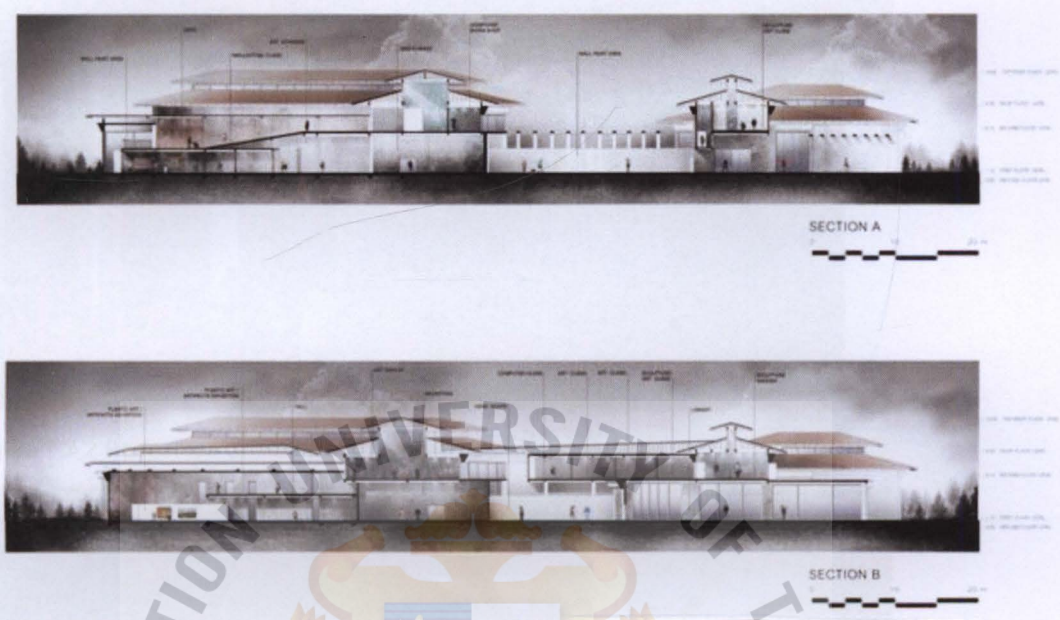


Figure 7.2.6 Section A and Section B

7.3 PERSPECTIVES



Figure 7.3.1 Pedestrian entrance view



Figure 7.3.2 Pedestrian entrance to the contemporary art institute



Figure 7.3.4 Entrance from the parking area



Figure 7.3.5 Visual arts exhibition space



Figure 7.3.6 visual arts exhibition



Figure 7.3.7 Sculpture arts exhibition



Figure 7.3.8 Outdoor arts exhibition



Figure 7.3.9 Entrance to sculpture arts exhibition



Figure 7.3.10 Classroom corridor space



Figure 7.3.11 Cafeteria



Figure 7.3.12 Visual arts exhibition



Figure 7.3.13 Painting classroom

7.4 MODEL PICTURES

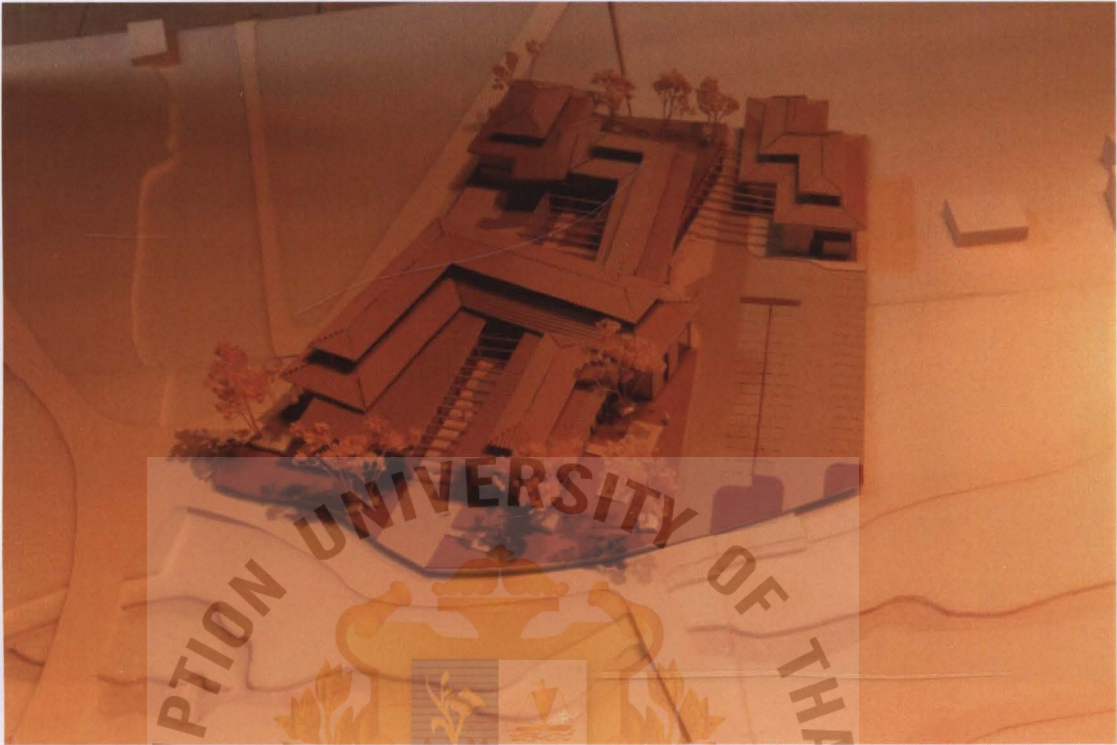


Figure 7.4.1 Final model

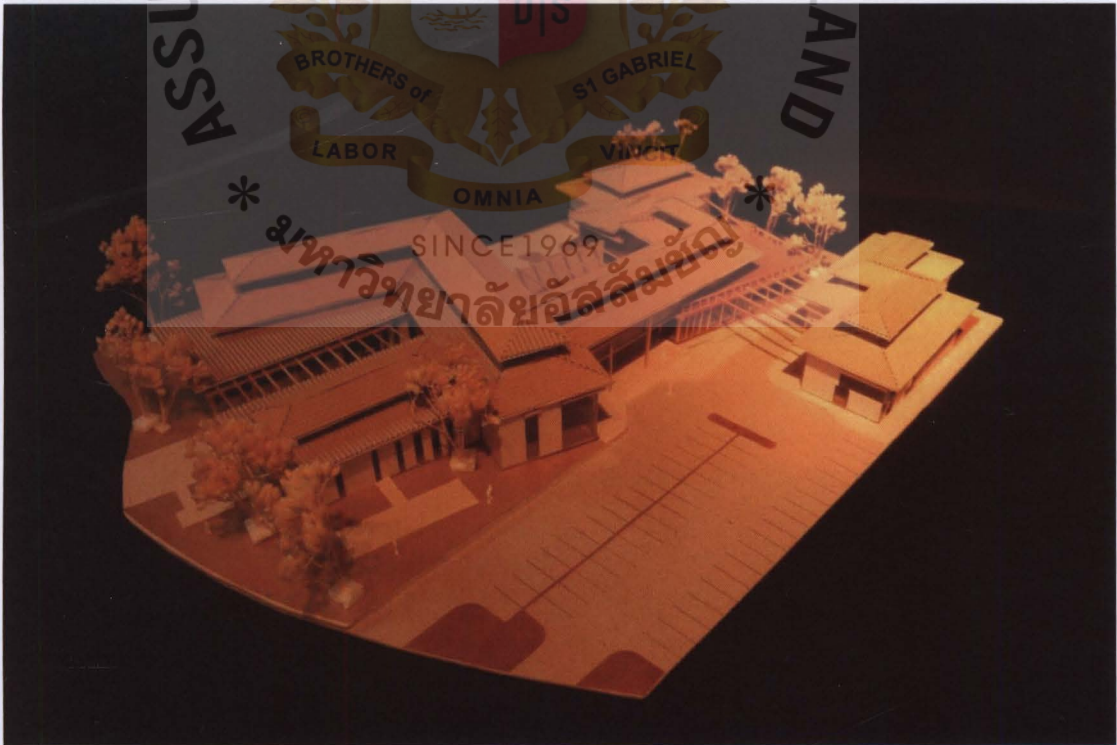


Figure 7.4.2 Bird's eye view

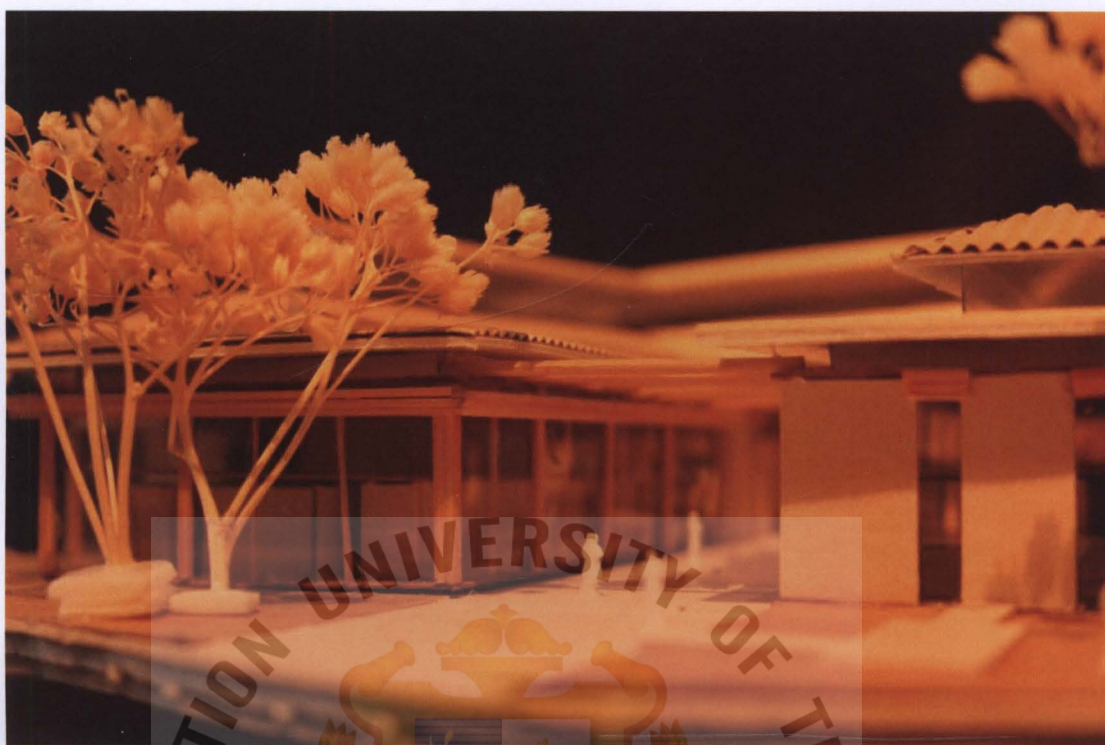


Figure 7.4.3 Pedestrian entrance view

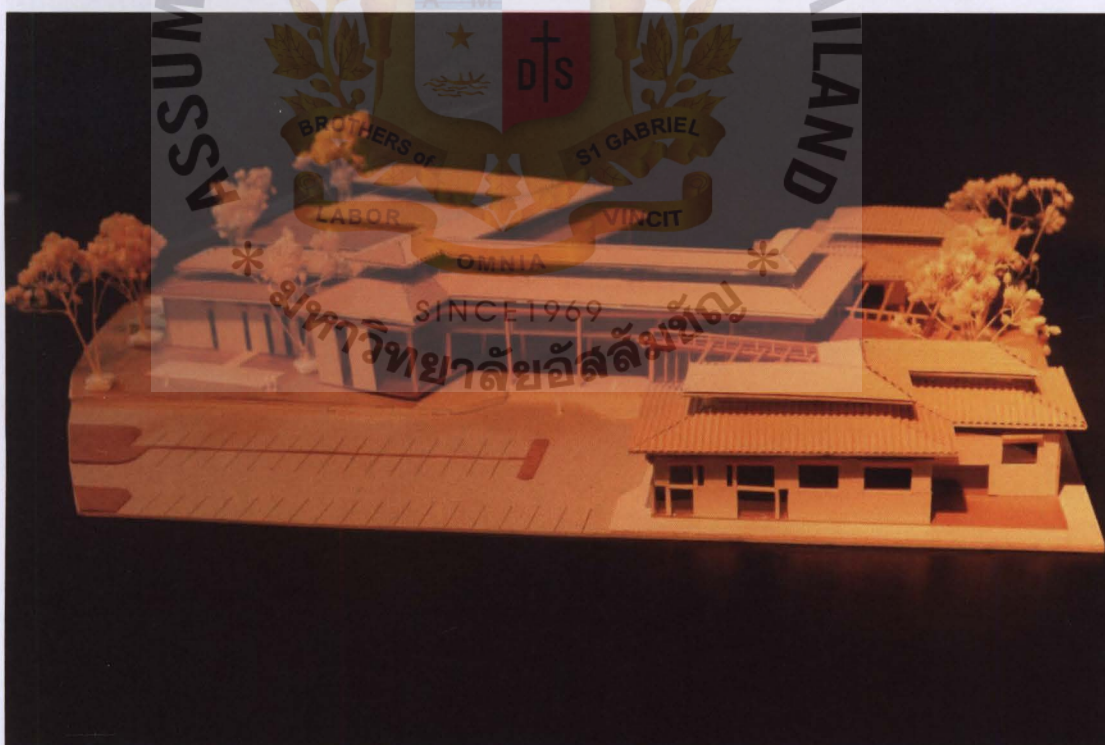


Figure 7.4.4 Front view

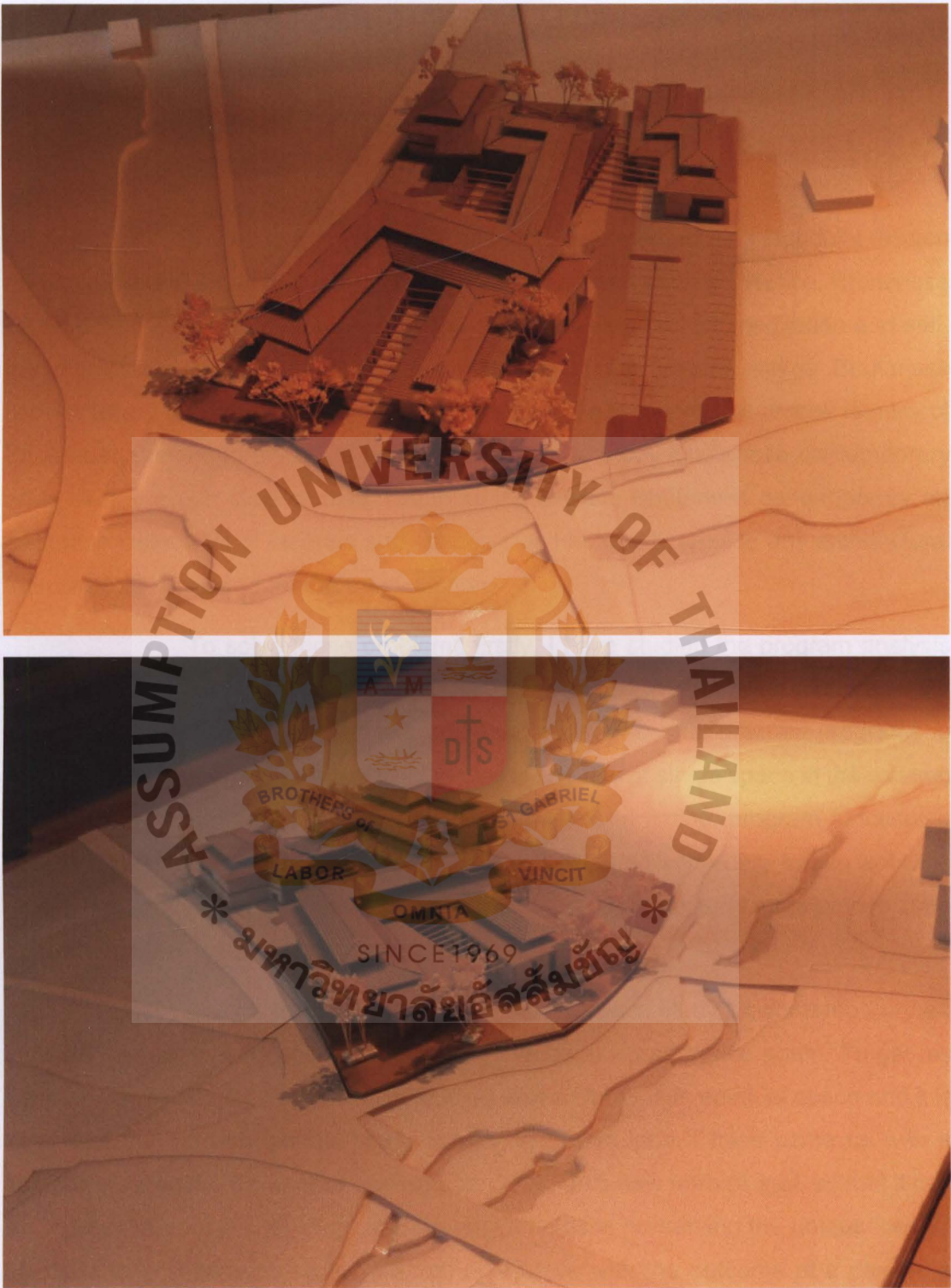


Figure 7.4.5 Main model with site view

Chapter 8: DESIGN CONCLUSION

Bhutan is a country that has long been guided by a Buddhist religion up until now and it has major influence in our culture and society. Hence, Bhutanese art reflects the idea of Buddhism and it is also used as a tool for meditation and self-transcendence through art. It is seen that this unique feature makes Bhutanese contemporary art different from other country's art. To preserve that unique identity of Bhutanese contemporary art, a need of institution to study Bhutanese contemporary art is seen through case studies. Such as the existing Bhutanese contemporary art institution lacks a lot of facilities and spaces didn't not really provide any architectural features that is needed for the art institution.

To solve those problems firstly, I have studied the program analysis and activities of the users from the existing contemporary art institution and drawn out a list of needed programs, so as to provide different spaces for different programs to avoid a use of single space with multi functions. The use of single space in the existing contemporary art institution has led to inconvenience in timing, program functioning and activities. These lists of programs have been zoned according to site analysis study. The zoning moves from public zone of southern side towards more private zone of northern side.

On the other hand, an architectural space study for contemporary art institute has been done and the programs have been revised once again. To get my hands on architectural design I have studied with a Bhutanese spiritual space and it is seen that our kind of spiritual space is dim. With that idea, I have come up with a solution to bring the Bhutanese contemporary art into a new form of light, so that it can be brought to people's attention and thereby it helps in preserving the unique identity of Bhutanese contemporary art. To further achieve with the outcome of a design, a simple post and lintel structure has been used with long span structure for the auditorium space on the first floor. And to achieve the light quality in a space a roof lighting has been used to pass through the long narrow window by using diffused light.

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