

THAI CERAMIC ART MUSEUM

VASIMON THAMMANIT

A THESIS SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS
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Thai Ceramic Art Museum

Vasimon Thammanit

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Nowadays, The Ayutthaya Historical Park is the one of cultural tourist place in Thailand and announced is the world heritage park. In Ayutthaya Historical park is the center of the Historical possessions like ancient's remains and objects. Beside that, The Ayutthaya Historical Park also has Thai handicraft. But nowadays, clay ceramic was not succeeded by Thai people and still not have a place to maintain the collection of ceramic for next generation and the foreigners people to receive our cultural.

The Thai Ceramic Art Museum will create in the purpose of encourage the Thai People to succeed the Thai traditional and expose the culture to the international world. By renovation the Ayutthaya Tourist center to be the Museum of Thai Ceramic Art.

The Museum is created to be the Activities Knowledge museum which visitor can participate and get benefit from the Activities with the historical exhibit and art objects. The museum will provide the program such as the demonstration, game activities and workshop.

The concept design will be the Thai modern style between the building and the historical art object. The building will design in the Modern time and space will look modern and simplicity, it will make contrast with the appearance of the ceramic art to create more interesting and attractive to visitor



Approved:

Date A. Pisit Viriyavadhana, **DEAN**

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Chapter 1 Introduction

1.1 Historical and background

- History of the Building site

The Ayutthaya Tourist Center building used to be the former provincial office of Ayutthaya around 50 years ago. The Ayutthaya Tourist center was organized in accordance with the plan of Conservation and Rehabilitation of the city of historical Ayutthaya by the cooperation between the Fine Arts Department and Tourism Authority of Thailand in the last few years. After this Building was change into the tourist center has not impacted the whole structure of the old building, they change only the interior partition to accommodate the new exhibition function.

The Ayutthaya Tourist center is a place for visitors to get all tourist information in Ayutthaya province. The tourist center is also nominated as the District Center Office for Region 6. There are three storeys in this building. The first floor is the tourist information office. The second floor is the exhibition hall of Ayutthaya history. It is recommended to visitors to have a visit in order to get the overview history of Ayutthaya.

- History of the Thai Ceramic

The history of Thai ceramic has been existed for long time ago before the prehistoric period. It was discovered over 5,000 years ago in Banchiang in Udonthani. Banchiang ceramic are the simple earthenware with paint and unpainted vessels which are used for cooking and storage. The ceramic in the historic period like Sukhothai period has been waxed in white. Benjarong in the Ayutthaya period until Rama V in Rattanakosin period was made in China but decorated in Thai pattern. Benjarong has a lot of patterns between two periods eg; Ayutthaya period used Thep-Panom pattern and lotus shape pattern but Rattanakosin period used the lion shape pattern and lotus bud shape pattern.

1.2 Thesis Statement

The Thai Ceramic Art Museum created in the purpose of Activities knowledge Museum which the users would participate and enjoy the functions and activities with the historical and arts object. The user can enjoy in the program of activities are the Outdoor demonstration show, workshop and lecture

1.3 Reason for studying topic

Actually, The Thai ceramic pottery is the valuable historical object that now has already been shown in some places. But all of the existing places displayed the Thai ceramic only locally, such as Ban Chiang for example. But also we need to create a specific museum place for display ceramic pottery of all ages. The reasons are also for serving the followings,

- The travel attractive spot for interested Thai people, foreigners and people who love the collection of ceramics and also study archaeological.
- To convince Thai people to preserve the Thai traditional cultural and to make them concerned in the importance of the Thai ceramic.
- To promote and expose the culture of Thai ceramic arts to the international
- The learning center of the Thai historical background of ceramic, and the information center for Thai people, student and the foreigners.
- The Ayutthaya site is the world historical park and this site is suitable place for learning the ceramic history and still maintains the inherited cultural ceramic making from those days. The interested people can make a visit to the real walk of life in making ceramic around this site very easily.

1.4 Problem and solving

- Site and building Problem

Thailand still does not have a specific museum for the ceramic. The existing museum like Ban Chiang museum is now rather old and lack of maintenance. The main part of site was not renovated as well as the surrounding of site. And the existing site in Ayutthaya was not fully utilized because some rooms in the building are left abandoned.

- Design and Display Problem

The problem of the existing museum is not fascinating at all and unattractive to the people's vision including all of display area, the poor information and lack of maintenance. And all of display areas do not have any attraction in each piece of work.

- The presentation and technology Problem

The problem of the display presentation is not attractive, short of the information and also the way that present was not stimulating at all.

Solving the Problem

The new display and new design should be made and setup the new idea and also set in the zone by the historical period, by style as well as by process of making ceramic. And the story of design for each pottery should be attractive to the public.

The Ayutthaya building location should be partially renovated or get some good maintenance both inside and outside by adding some more facilities for earning more income than now. The last thing is the total area of Ayutthaya location will be fully utilized after renovation

The presentation will use the new concept like "Demonstrate show" to get visitors interesting and the visitors can participate on the demonstrate show such as making the ceramic vessels, design the style. Also combine with the technology in light, sound and picture in the new presentation.

1.5 Objective of the study

- Improve the Thai craft museum to become the international travel spot for tourist people and also get a lot of income for nation.
- Convince Thai people to love and to succeed the Thai cultural forever from generation to generation.
- Achieve the good development of the learning information center and good design presentation media.
- Encourage the student or young generation to apply and use the knowledge from the museum in their study.
- The center for interested people to gather here for exchanging their experiences and knowledge.

1.6 Scope of research

Due to this project is the renovation of the building (tourist information center) in to the new function as the museum. So that the information of the similar type of museums are necessary for comparison purpose and research is also necessary before designing process.

+ Office and function:

1. User circulation
2. Space planning and space activities
3. Function analysis and organization of office such as Meeting room, presentation room etc.

+ Museum:

1. Museum circulation and Museum space
2. Activities workshop and exhibition space
3. Composition, Lighting system, Display area in technology
4. Emergency circulation

+ Restaurant and resting area:

1. The kitchen space and dimension
2. Capacity of storage
3. Dining space and function, non smoking and smoking area

+ Site:

1. Site analysis on the data of surrounding area
2. Culture of people in that area and the historical resources.

+ Process of Ceramic:

1. The method of making the ceramic
2. The kiln for baking, the type of soil and the time for drying.

+ The style and period of the ceramic:

1. Banchiang Period - ceramic are the simple earthenware with paint and unpainted vessels which used for storage and cooking.
2. Dvaravadi period – include Ban Prasart, Sivijaya and Haripunchai.
The style of ceramic were Everted rims, narrowed necks, flared mouth, round bodies and projected carination.
3. Sukhothai Period – OR Sangkalok, was produced in monochrome white-glazed and under glazed black ware and also began to use Celadon and the pattern almost used in the natural terms.
4. Ayutthaya period – The Famous one was Benjarong used Thep-Panom pattern and lotus shape pattern. And also include Maenam NOI, Lai Kram and Lai rod nam.
5. Rattanakosin period – 1ST KING – 5TH KING. In the reign of king Rama III has the Arch element like tile, column, door and etc.

+ Demonstrate Show:

1. The workshop space and activity
2. Area for presentation and make the ceramic
3. The kiln space and Dimension
4. The method to keep the soil and bake the soil
5. space circulation and space in both outside and inside

1.7 Scope of project

This project is renovation the building into museum, so the scopes of project are:

1. Ticket booth and reception
2. information counter , map board and First-Aid
3. shop : Ceramic shop, Souvenir shop and storage
4. Small library and Book Shop
5. Museum area: include of the display area in the different period and the process of making the ceramic, Exhibition area (temporary), presentation room and Auditorium
6. The demonstrate show: include of the ceramic making process and the activities for learning and making the ceramic to the people. Workshop area
7. Ceramic club room and auction room
8. The lecture room and the presentation show
9. Office area :
 - Waiting area and reception
 - Secretary and manager room
 - staff office : Technical part, financial part and Maintenance part
 - meeting room
 - Storage and Pantry
10. Restaurant and Café
11. Restroom (Customer and Office)

1.8 Definition of terms:

Ceramic: Articles made of fired and baked clay for Utensils, vessels and decorative items.

Demonstrate show: the real present show how to make ceramic starting from the clay molding.

Ban Chiang: is the World famous heritage in the ceramic - Pre-historical period over 5,000 years in history.

Benjarong: The ceramic which mean five colors but sometime has more than five colors. The famous colors are green, yellow, blue, white, black and red. The patterns are design in both of Thai and Chinese styles.

Sangkalok: The ceramic that produced in Sukhothai Period which has a greater variety of clays and Sangkhalok was the name given to ceramic wares produced by he kiln in Sukhothai province.



Chapter 2 Research

Part 2.1 Literature Review

1. History of Thai Ceramic

The Thai term “**Khreung Thuai**” means Ceramic. Ceramic can classify into 2 types by the purpose of potter or user. The first type is the industrial ceramic and another one is ceramic Art.

1. The manufacturing ceramic (Functional Ceramic) – use for the practical use and have the purpose to create for something useful such as cup, plate, dish, lamp and sanitary wares. Manufacturing ceramic is necessary for human daily life and have to concern in three things is Raw Material, Technology and Worker.



Figure2.1 Bowl Functional ware

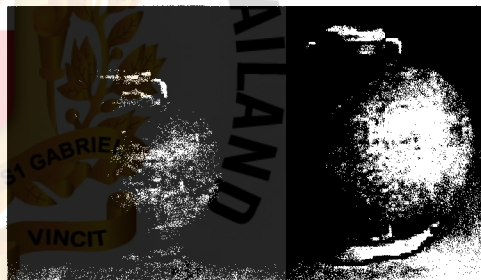


Figure 2.2 Jar Functional Ware

2. The Ceramic Art – The purpose of making ceramic art was different from manufacturing ceramic. Because of the purpose of ceramic art is the beauty and charming however some piece of works can use for household items. The character of ceramic art was depends on the figure, story and color. The piece of work was unique and never reproduces or make in a large amount. The cost is very expensive and hardly to find. The ceramic art was create by the inspiration of the artist but different in the technique to present.

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Figure 2.2 Jar Functional Ware

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Figure 2.3 Plate ceramic art

Ceramic has been produced in Thailand for many years ago since the prehistoric period from the excavation in Ban Chiang Village, Udonthani. The Broken Jar and vase was spoken that Thai nation was ancient, very old and has their cultures for many years. In several archeological sites in Thailand, a large number and variety of ceramic remains have been discovered. The ceramic both has produced in Thailand and also ceramic produced in foreign countries such as Chinese ceramic and Bencharong which Thai asked china to make the ceramic but Thai artist paint the Thai pattern on ceramic.

The Thai ceramic can classified into 2 periods are the Pre-historical and Historical period.

1. The Prehistoric Period around 50,000-1, 700 years ago is Ban Chiang, Peeman cave, Bankao in Kanchanaburi
2. The historic Period is Tharavadee 10-15 AD, Sivijaya 12-16 AD, Chaingsean 16-20 AD, Sukhothai 18-20 AD, Ayutthaya 19-24 AD. And Rattanakosin

In the Museum of Thai Ceramic Art will mainly present in the ceramic art and moreover focus into **five** periods is

1. **Ban Chiang** , Udonthani

-> Ban Chiang, a village in the Nong Han district in Udonthani, northern part of Thailand. Ban Chiang is well known as one of the most important and valuable sites. The period extended from about 3,600 BC. - Around AD. 200. Ban Chiang has six famous patterns are curve, shell, flower animal and geometry form. The Ban Chiang cultural series has been categorized into three major periods according to thermo luminescence testing at the University of Pennsylvania:

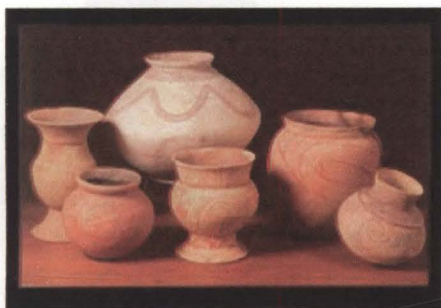


Figure 2.4 Ban Chiang Utensil ware



Figure 2.5 Early Period Black Vessel

1.1 Early Period (Ca.3, 600-1,000 BC.)

The ceramic of this period is characterized by black vessels and decorated with a cord-mark design.

1.2 Middle Period (Ca. 1,000- 300 BC.)

The ceramic of this period is characterized by carinated ceramic with clay, plain surface and low carination. Some were incised and painted under their rims



Figure 2.6 Middle Period, Low carinated with painted under rim

1.3 Late Period (Ca. 300 BC. – AD. 200)

The ceramic of this period is very famous throughout the world and is characterized by dark clay covered with a polish slip and painted with red geometric designs.

2. Dvaravadee Period

-> Dvaravadee

-> Haripunchai The low - lying plane around Ping River and Wang River in Lampoon cities as "Haribhunchai"

-> Sivijaya



Figure 2.7 Haripunchai Jar



Figure 2.8 Ban Prasart ceramic

-> Ban Prasart is located in Nakhon Ratchasima. This type of ceramic has been dated from 1,000 BC. – AD. 500. the most popular are plates and kendis with everted rims, narrowed necks, extremely flared mouths, round bodies. Exterior and interior surfaces were slipped in red. The lower part of the body was decorated with cord-mark designs, but some were left undecorated.

3. Sukhothai Period

-> The Sukhothai Kingdom has long been known as a producer of ceramic. Sukhothai produced mainly bowls, plates, covered jar, boxes and bottles. The clay at Sukhothai was dark and coarse so a pale slip was used for decoration with under glazed iron brushwork. The decoration in Sukhothai style was fish and water plant design. **Sawankhalok** has a greater variety of clays and become the larger center both in range and volume. Earthenware and stoneware, domestic and architectural (pipes, roof tiles, finial, statues) wares were produced using a variety of glazes (including celadon) and decorating techniques. Sangkhalok was the name given to ceramic ware produced by the kiln in Sukhothai. The kiln sites of the Sukhothai ware which already been explored were in two places:

1. The Sukhothai Kilns

The group of kilns located outside the northern wall of the ancient city of Sukhothai. The kilns were constructed along an ancient moat known as Mae Chon. They produced monochrome white-glazed and under glazed black ware.

2. The Sri Satchanalai Kilns

The largest industrial site which is produced the Sukhothai wares in ancient times. Several kilns had been found on both banks of Yom River. They produced high quality products such as **Celadon**, under glazed black, monochrome white-glazed and brown-glazed, as well as two-colored glazed and under glazed ware.

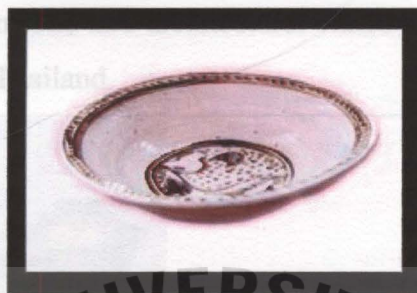


Figure 2.9 Dish with white glazed in the fish outline decoration

Celadon is the process which man wants to develop the ceramic art making by create stronger more useful forms the overcome aesthetic beauty. Celadon appeared in China and dominated the world of ceramic for the rest 700 years. Celadon was first appeared in various part of China that often used ash glazed, limestone, feldspar and small amount of red clay. Thailand also produced celadon with beautiful green tones.

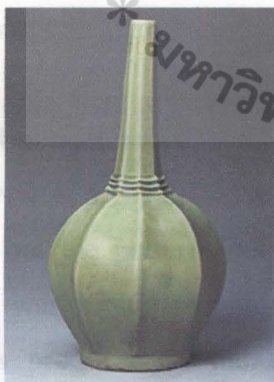


Figure 2.10 Vase celadon in green glazed

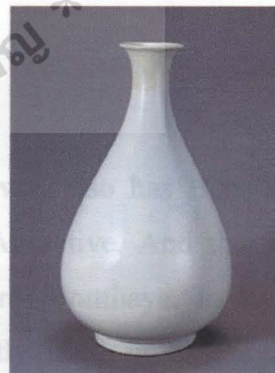


Figure 2.11 Vase in white glazed

4. Ayutthaya Period

-> Ayutthaya period was the period that continue from Sukhothai period. The ceramic production sites have been found at Singburi (Mae Num Noi) and Suphanburi to the north and north-west. Though not the production area, Ayutthaya was a center of Thai culture and international commerce trading about 1350-1767. The development of ceramics in Thailand was connected with that of Ayutthaya as a growing market for domestic and architectural wares and an export trade center with water access to gulf of Thailand.

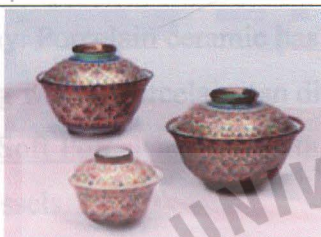


Figure 2.12 Hand Painted Bencharong Bowl

One of the famous ware which appeared in this period was **Bencharong**. Bencharong was molding and baked at china but painted in Thai pattern by Thai artist in Thailand. Bencharong was beautiful more than any ceramics. Bencharong is the ceramic used glazed color. Bencharong means five colors. But the famous color has more than five colors are red, yellow, blue, green, white, black and violet. Bencharong can used in many types of vessels like bowl, plate, dish, tea pot. The shape was designed in both of Chinese and Thai style. The pattern in Ayutthaya was Lai Kram, Lai Rod num, Lai Thep Panom pattern and lotus shape.

5. Rattanakosin Period

-> 1ST KING – 5TH KING. In Rattanakosin Period was also has Bencharong like Ayutthaya but the pattern look more beautiful and Attractive. And the design and production was highly technique and good skill more Ayutthaya. In Rattanakosin period was produced in the best quality and mostly used in the royal family. Bencharong in Rattanakosin was excellent and has gold in the rim and body. The pattern was the lion shape pattern and lotus bud shape pattern. In the reign of king Rama III has the ceramic was not only the utensil or vessel, there can be the Arch element like tile, column, door and etc. The ceramic can used for decorative items the roof as the tiles.

The two types of ceramics

1. Stoneware Ceramic is the pot which has been fired with a high temperature around 1190-1390 c. Stoneware is cheap and generally used in every class. Stone ware has a coarse surface and strong. Most of the ceramic color was natural color like gray, brown. Stoneware almost used for food container, utensils like plate, dish, cup, vase.

2. Porcelain Ceramic is the sheen clay pot and the color surface was white and translucent with 1250 c temperature high. The ingredient is Quarts, Kaolin clay and Ball clay. Porcelain ceramic has a sticky texture so method of them was not use on the throwing wheel. Porcelain can divided into two groups by the fired temperature.

2.1 Soft Porcelain fired with 1210-1235 c; mostly use for Art sculpture, statue and food vessels.

2.2 Hard Porcelain fired with 1310-1431 c; this type was strong and durable use for electric equipment and electrical insulator.

In Thailand widely produced in a white ceramic ware that was decorated with a brown glaze and was exported throughout Asia. White Porcelain was more highly advance technology to produce in both stronger and more practical for everyday use.

The Four types of clay

Clay is the major raw material for produce ceramic. Clay has a various types which depend on the chemical ingredients and temperature duration. Clay can categorized into four groups are

1. **Kaolin Clay** – The word Kaolin is the name of mountain in China. Clay is pure and white. Mostly used for plate, dish, bowl.
2. **Ball Clay** (White Clay) – Ball clay has a small amount of Kaolin clay so the color was not rather white. Ball clay was sticky more than Kaolin clay. Mostly used for the dense and good texture ceramic.
3. **Fired Clay** – clay which can resist the heat, do not change form when touch a heat. Clay is dark and sticky, mostly used for brick and crucible.
4. **Clay** – clay look nearly dark and black and sticky more than every clays.

The four types of stone

Stone or Potash is one of the ingredients for produce the ceramic which can categorized into four groups are.

1. **Feldspar** (Fan-Ma Stone) – the texture is muddy, look white and pink. Feldspar has an alkaline salt of soda and Potassium. Mostly used for mix with clay and chemical solution.
2. **Quartz** – Quartz has a lot of Silica and transparency in pink and grey color. Quartz can resist the heat and hard structure. Mostly used for the high resist heat ceramic.
3. **Limestone** – limestone is a calcium carbonate used for Concentrate chemical solution
4. **Prophyllites** – This stone combine with Aluminum, Silicate, used as the mixing ingredient. Also it can resist the high heat.



Tool and Equipment

Kiln -> is the major tool which built for fire the product. Kiln is look like a tunnel with slender and length shape. Usually was made from brick. The size of kiln was depends on the amount of products. Kiln can categorized into four types are firewood kiln, oil kiln, gas kiln and electric kiln.

+ **Electric Kiln** is widely used in present day because it is easy and convenience for fired and good in control temperature. Electric kiln has a temperature 1,000-1,600 c. Electric kiln is easy to move and can accurate the heat. But electric kiln is very expensive and waste of money because of the electric cost. Sometime when increase too high temp, the Ni-chrome will split and ceramic will damage. The electric kiln are well-known in nowadays for produce the large products such as Sanitary wares and Refractory. The electric kiln has many types such as the Top-Hat kiln, Top Loading kiln and Front Loading kiln. This kiln uses the Single phrase – Three phrases in 220-380 Volts. Moreover electric kiln also can Gloss Firing, Bisqu  Firing and Over Glaze Method. The three types of Electric Heating Element are **Nichrome, Kanthal and Silicon Carbide**.

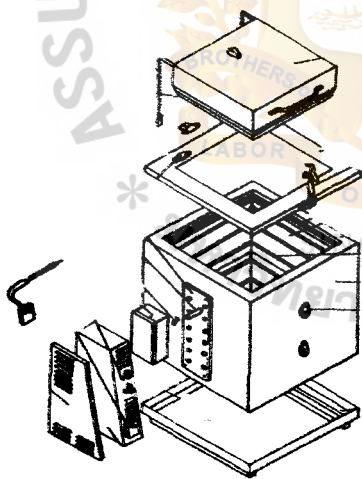


Figure 2.13 Electrical Kiln

The Element of Electric Kiln

1. The kiln bodies -> the structure of kiln, firebrick, and heat insulation.
2. Heating Element -> Type of Heating Element and Circuit (Single and Three)
3. Others -> the pyrometer, post and shelf.

+ **Firewood Kiln** still widely used in the educational term and a lot of factories. Firewood kiln is cheap and easy to find the wood. This kiln is easily to make and can contain the number of product depends on the user's need. The damage during the fired was not happened. But the firewood kiln is hardly to control, reduce and increase the fire. Ash has to be dispose easily. Ceramic outcome will dirty or the color-glazed will be change.

The element of Firewood kiln

1. **Firing Chamber** – can classified into three parts are top, middle and low part. All of three parts have to control the heat to be equivalent.
2. **Floor** – Build from firebrick and need to support the kiln's body.
3. **Kiln Fire Wall** – was divided into two layers are external layer was built from ordinary brick and internal layer was built from firebrick.
4. **Vent hole** – The top part of kiln has a height around 4x5 meters. Use for ventilate the heat to outside.
5. **Kiln Buffle Wall** – Protect the products from the heat fire.
6. **Fire hole** – The hole which drills at the side of kiln for put the wood into kiln and the hole will drill in the zigzag way.
7. **Door Kiln** – The access of kiln when you bring the products in and out.
8. **Walkway** – The walkway which located at the side of kiln for worker to put the firewood in the fire hole. Now, they were extended the walkway for the truck to drive into.
9. **Burner** – The famous Burner is the Venturi, it can adjustable in it self

+ **Gas Kiln** this type of kiln can produce in a maximum heat or high temperature easy to use, not waste the fuel, safety and was burning in Oxidizing or Reduction Process. Gas kiln has two types are Up Draft Kiln and Down Draft Kiln. The Gas Kiln has to build in the insulating Brick for resisting the heat and safe the fuel. The element of kiln almost like Firewood kiln but the gas kiln does not have Kiln fire wall, floor and Walkway.

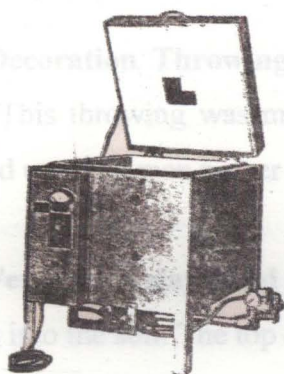


Figure 2.14 Gas Kiln

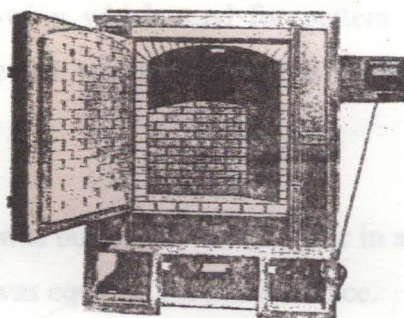


Figure 2.15 Front loaded gas kiln

Throwing Wheel -> throwing wheel is important for molding the clay into form. About fifteen years ago, the throwing wheel was made from concrete and has a diameter around 0.80-1.00 meters; the depth was 8-10 inches. But now, throwing was developed to use in electrical power and throwing plate was made of the round metal, has diameter around 0.26-0.80 meters, depth 3-8 inches. The size of throwing will different depends on the size of ceramic. The most important element is the stand for molding clay which needs to set close to the throwing. It was a wood stretcher and the size is 0.30x0.80 meter.



Figure 2.16 Throwing Wheel



Figure 2.17 Molding Machine

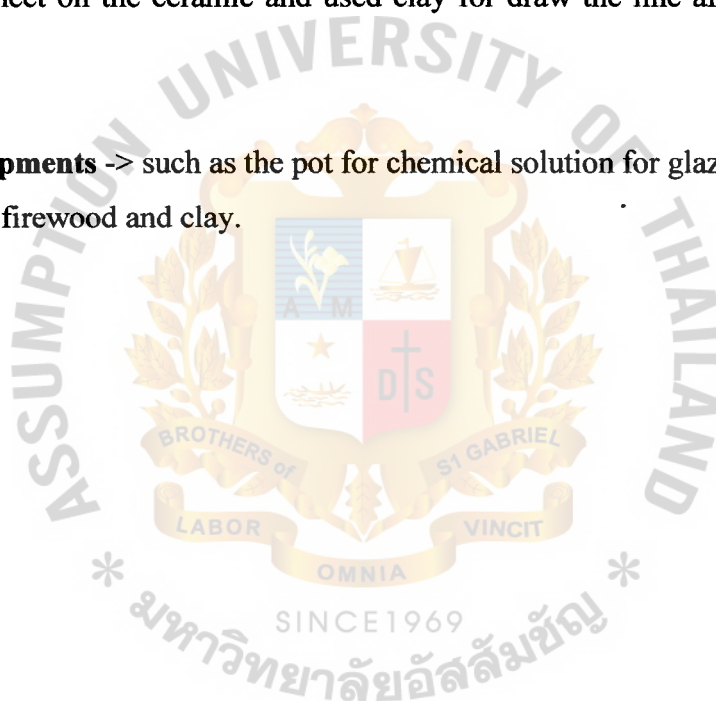
The molding Machine -> the machine which is mold contaminated clay into the pure clay. The machine looks like the meat grinder. All elements were made of metal for strong and durable and use for high electrical motor or diesel engine. The molding machine can mold the clay about 3-10 cubic meters per hour. The clay will come out from the cylinder which has a diameter 8-12 inches. When the potter wants to portion the clay into the small piece, they will use the “**Tui Kraeng**” or cutting tool.

Decoration Throwing -> the throwing which used for potters to draw the pattern. This throwing was made of circle flat wood or steel, has stand for easy to move and used the man power for rotate.

Fermented clay pond -> the pond was built from the concrete in a rectangular form dig into the soil. The top of the pond was equal to the plain surface.

Craft Tool -> Used for grate, draw and erode the surface into the pattern by hand. Another way for draw the pattern is used the transparent plastic sheet by placing the plastic sheet on the ceramic and used clay for draw the line after that lift plastic off.

Equipments -> such as the pot for chemical solution for glazing, wheel barrow for carry the firewood and clay.



The Process of produce the ceramic

The process of produce ceramic can divided into six steps is

1. Preparation of clay

At first the potter need to concern on the type of soil that suitable for ceramic. The process of prepare the clay can divided into three steps is

1.1 Fermented -> bring clay after digging to dry in the sun about one year in order to get the best quality of clay. After drying for a year, clay will place in the Fermented pond with water about one week to let water absorb into clay.

1.2 Mixing clay -> slice clay by the steel wire and bring into the molding machine for blending the clay together ,after that bring the clay molding with a little of sand.

1.3 Molding -> the best way for molding is used feet. During the molding, potter need to observe the clay by using the rope or wire to cut it. If it has a strain on the clay, potter has to continue to molding.

2. Mould Clay - The mould clay can divided into five groups are

2.1 Free Hand Method -> this method was used for a long time ago and used for produce the pot, flower pot and etc. This method used clay mixing with Silica Sand.

2.2 Coiled Method -> the easy method for molding and save the time more than other methods. Mostly used for jar, flower pot and vase.

2.3 Throwing Method -> this method is widely used in the industrial for produce a large number of ceramics. The first step of throwing method is placing clay on the center of throwing plate and drip water. The next step was used the hand press clay to attach on the plate. Starting the motor with high speed and used two wet hands press on the both sides of clay in to the center point. If your hand could feel that clay was not swing anymore, it means that the clay was ready to mold.

Starts to molding by reduce speed to middle power and press the clay at the center by the thumb. Open the clay form by using left and right hand for pull the clay up to the cylinder form. Decorate inside of the ceramic by sponge and tool. The ceramic can make it narrower or wider shape need to use tool or knife. When the molding finished, you should grate the unwanted part and switch off the motor.

2.4 Casting Method -> this method is similarly to the coiled method but different in the type of clay. In casting method is used the clay called Slip. This method will make the ceramic has an equal thickness, do not a fracture and beautiful glazing.

2.5 Pressing Method-> This method has a technology for produce by connect the molding machine to the pressing machine with the conveyer belt.

3. Decorative Pattern

Before bring the ceramic to draw the pattern, the ceramic should make the surface smooth and plain by wood stick or **Hui Loop**. The decoration on the ceramic should to draw before the clay dry.

4. Drying the ceramic

The method for dry the ceramic need to be careful on the sunlight, it can cause the fracture on the surface. The best place for drying ceramic is indoor space with medium wind. The big scale ceramic should dry in the completely close space and spend around 15-30 days for dry. And the small or slimness ceramic spends around 3-7 days for dry.

5. Glazing

The glazing method is help the characteristic of the ceramic's surface like the surface of the ceramic is polish, smooth and look beautiful. The glazing will help to increase the heat insulation of ceramic and make the ceramic is strong and durable.

The method of glazing is placing the ceramic in the big pan and used a glazing solution polish both inside and outside after that dry in the wind. For the small ceramic dry around 3-4 days but the big scales ceramic dry around 8-10 days.

6. Fired of ceramic

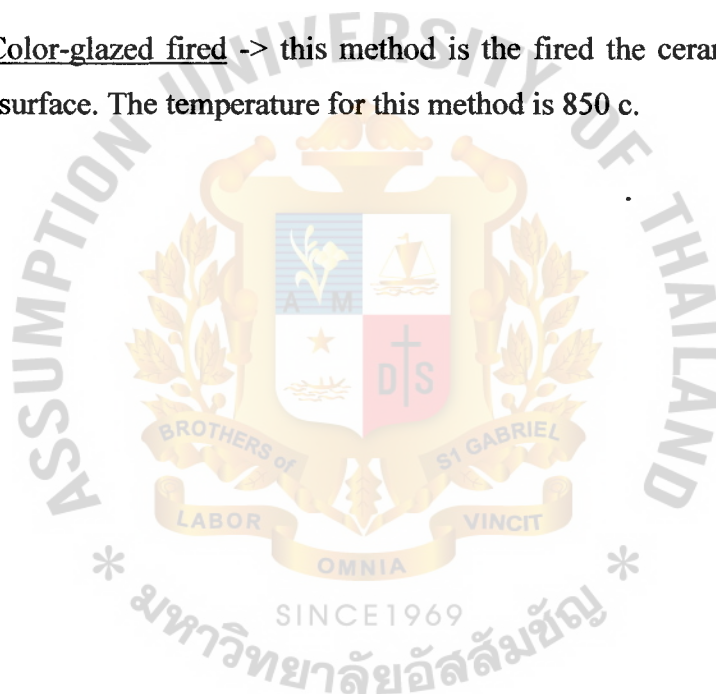
The fired of ceramic is the most important process for making the ceramic is beauty and polish surface. The fired of ceramic can categorized into three groups is

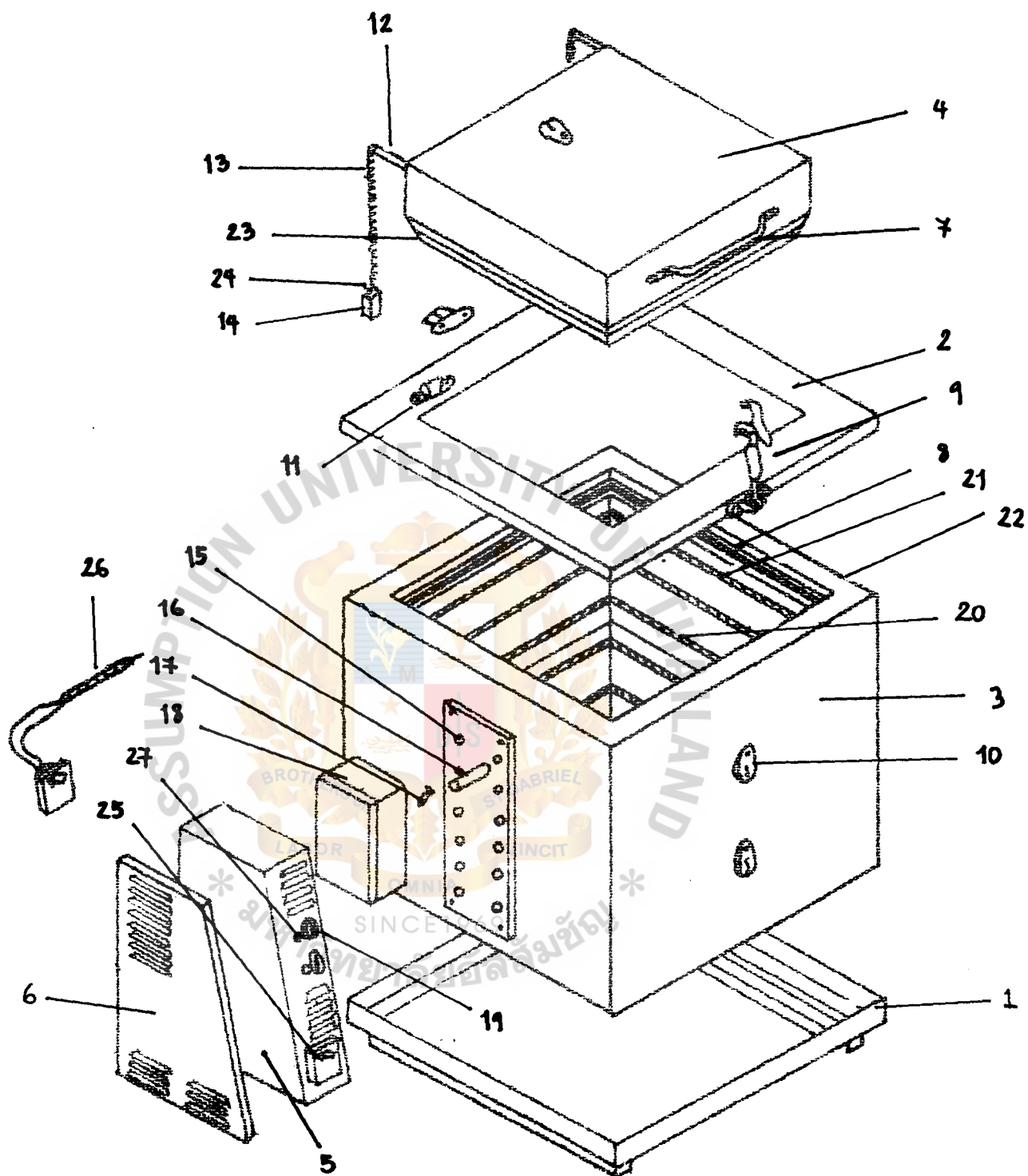
6.1 Bisque Firing-> Bisque Firing is the first time for fired. Bisque Firing has two groups is fired with the high temp and low temp. The fired in high temp is

stronger and easy to decorate more than low temp. The purpose of Bisque is to make the clay strong and long-lasting product. During the firing, you need to gradually increase the temp to prevent the fracture.

6.2 Glazing fired -> the second time for fired by dipping all part of ceramic and put the ceramic into the kiln for glazing. The purpose is to make the ceramic look smooth and polish surface. Before put the ceramic into the kiln, you should wash the bottom of ceramic and put in a small range in order to prevent the glazing water pour to the others. During the firing, you need to increase the temperature in regular. After finish for fired, left ceramic in the kiln around 16-25 hours for protect the crack of surface.

6.3 Color-glazed fired -> this method is the fired the ceramic which has the color on the surface. The temperature for this method is 850 c.





ELECTRICAL KILN

The Element of Electrical kiln

1. Bottom Support
2. Top Rim
3. Heater Cladding
4. Cover Support
5. Switch box
6. Switch bow Cover
7. Cover Handle
8. Insulation
9. Cover Handle
10. Sight Glass Cover
11. Hinge
12. Top Spring Support
13. Tension Spring
14. Bottom spring Support
15. Insulation cover
16. Cable Protection Tube
17. Thermocouple Insert hole
18. Main Breaker 60 Amps
19. Main Switch
20. Heater wire or coil
21. Insulation Brick
22. Rim Insulator
23. Refractory
24. Tension Knots
25. Temperature Indicate
26. Thermocouple
27. Switch Lamp



2. Principles Design Method for Museum

The type of Exhibition in Museum is

1. Permanent Exhibition mean the exhibition that locates in area without Adjusting or moving places. Exhibitors have to think carefully about the topics of exhibition, the objective, how to order the story and problems that may occur. Normally this kind of exhibition will exhibit for several years before improvement, fixing or changing the topic, so it is important to choose the topic that is very significant and valuable for most people.

2. Temporary Exhibition means the exhibition that has the most impact since public has to study and search information from mass media in many areas such as politics, economics, social and culture. Each of mass media has various techniques to represent the same story or news interestingly kinds of activities to stimulate people to be interesting for public. The role of temporary exhibition is very essential because if the museum does not update new news and information, the boredom will arise. Therefore the museum should exhibit temporary exhibition occasionally to attract people, visitors, travelers and foreigners.

The Museum Principle

Each type of museum use different techniques to exhibit but there are some similarity in the basis, which are

1 the object in Exhibition The object that has some beauty inside is essential to stress the object to be obvious by having a plane background, color and light to support the beauty of the object impressively..

2. The information of exhibit objects the component of the object that will support object to have some meanings is explanation. Using technique must be appropriate and match with the topic of exhibition. Museum will compose of brief explanation, map, photo, diagram and others to tell the story about those objects.

3. The related relationship between each exhibited object the exhibition should set in order from one point to another point such that it is easy for audience to follow story

4. Impressive Audiences should be impressed and accept that the objects should be preserve to last forever.

5. Simplicity the exhibition should not be too complex but it has to plan carefully. If it is not in order of complex, lost of importance will occur. Audiences may be bored and criticize as if the exhibition is lack of interest and lack of impression.

6. Object safety it should be considered that exhibited objects will be damaged or stolen or not. The duty of museum and gallery is to protect that object in any way. The exhibition must be careful on temperature, heat, dust, humidity and light, which may harm those objects.

In conclusion, basic principles emphasize on object, the order of story, appropriate explanation, components, light and graphic art in the proper way, and the safety of the object. Emphasizing on the design of cabinet, base and platform breaks the rule.

Design Exhibition Principle

The components of exhibition are

1. **Outstanding:** such as outstanding line, direction, structure, design, size and color to attract attentions of audiences
2. **Not repeat again and again:** Don't set the same design, size and color for all the work because it is the origin of boredom for audiences.
3. **Intimation and continuity:** This helps audiences not to bore of the exhibition. Don't let the idea of audience stop which will make confusion and boredom to them.
 - Structure intimation
 - Surface intimation
 - Size intimation

4. **Proportion:** Don't put object too crowded such that there is no space, no distance which will make people confuse and feel uncomfortable. Proportion doesn't mean only size, shape and distant but also the alphabet describing objects too.

5. **Stress:** Must stress the important of subject in order to make audiences understand the concept. The exhibitors have to ask themselves that what is the thing that we should emphasize on and how much to do so.

The method to stress the attractive part is

- Stress by line : using line to attract attention of audience to the pint we want top stress on for example using line linking object to the message you want to emphasize
- Stress by color: using the colorful object or using background to make the object attractive or using contrast
- Stress by using space: putting the object that we want to emphasize on the place in which there is no other attracting attention such as put only one picture in each wall or at the middle of the room.

The Gallery Atmosphere

These three types of the characteristic of room are

1. Aesthetic -> beauty of object and component of the room are very important.
2. Romantic -> Entertainment is one of the important components for exhibition room
- 3 Intellectual -> Having only beauty and entertainment are not enough for exhibition so there should some stimuli to inspire people's curiosity. The ways to create curiosity are

3.1 Exhibition room should be designed as attractive when you move to the room, you will see each section. The room that is too long will lack of interesting. The room that arranges in a row leads to unstructured order for audiences to observe.

3.2 The explanation stimulates curiosity of people and audiences. A lot of museums have questions for people to think of answers, which are the part of stimuli for the interest and curiosity.

Exhibition Technique

Every exhibition in the museum uses the same “Basic Principles” to exhibit but each technique for exhibition will be somewhat different based on type of the object .

1. Aesthetic-Presentation is the technique used in the art museum. It uses the technique of setting the room by using appropriate background, light, suitable cupboards and stands. The light is also very important for the art museum. Some objects need very bright light directly. Some need very bright light behind them. Some need light beside them.

2. Intellectual Presentation is the exhibition that uses explanations, photos, paintings, maps, charts or other components to explain stories about the topic of exhibition.

3. Natural Context Presentation this emphasizes on exhibiting natural setting mostly as Natural History Museum by using Diorama Technique to make things look like reality as much as possible. It also needs a natural background providing the feeling of living.

4. Authentic Setting Presentation. Authentic Setting Presentation makes audience enjoying themselves and also is very easy to understand without long description.

5. Push Button Presentation it suits with the presentation for children in order to make them use all sense of stillness to get their attention.

The use of sound and smell can be used in some cases. The most important is that to use any technique, we should have the clear objective and understand the basis of each technique. Designers must follow the new technology in order to use or adapt those to use within the museum or exhibition.

The security and Protection Service

In addition, the security system, fire system and alarm system are also crucial in each museum not as less as other components. The preservation of the object needs Chemical or special equipment, which needs special suggestion from technical engenderers.

The System of the Arrangement of exhibition

1. Room to Room Arrangement

Set the space that visitors do not have to turn back to the place they visit before. It is easy to set and also save the space. But if we close any room, it would impact the other room and also audiences will uninteresting and the space will crowd of people.

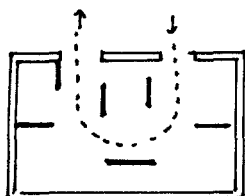


Figure 2.18 Room to Room

2. Corridor to Room Arrangement

The pathway is quite long and also has corridor to other rooms. Each room will have their own entrance and entry door by not have to pass the other room. Visitors can choose what they want to watch by themselves. The exhibition will not in order, thus it interrupts the representation and also waste of space.

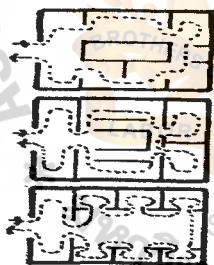


Figure 2.19 Corridor to Room

3. Nave to Room Arrangement

Hall is a Central of the exhibition. From the hall, there will be the path every exhibition rooms. We can set the exhibition in many steps by using the hall as a central core all the way. People can choose what they want to see and also save a lot of spaces.

However, we have to beware of the traffic within the exhibition in case of there are many people within the show.

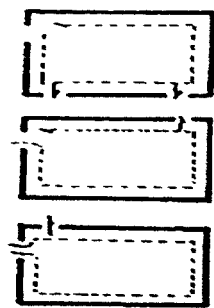


Figure 2.20 Nave to Room

4. Central Arrangement

It is the combination of room-to-room, corridor to room and nave to room arrangement together by having a hall as a center core that can lead to the other rooms. Each room connects with one another and if we close any of this room, we can use court of hall to go to the other rooms immediately.



3. Data Collection

Vision of seeing

The human's perspective is more than 40 degree without turning their head and The angle that people can see is around 120 degree

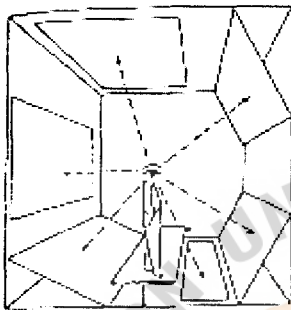


Figure 2.21

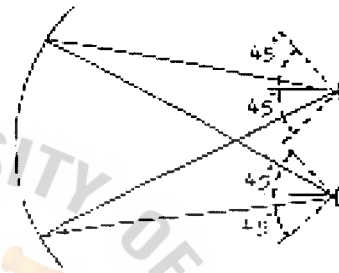


Figure 2.22

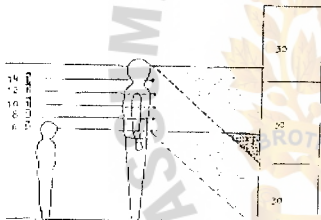


Figure 2.23



Figure 2.24

Library

The project library can be classified as specific area of library that can be found

on general building such as banks, organizations, and institutions to serve general people.

The area can be calculated as the following section

- Area for each reader can be divided as the table

Table 2.1

User	Floor area m
Student or general reader	1.5
Research worker	2.5
Carrel user	3.70
Actual floor area occupied by reader at table	· 0.93 to 1.20

- The capacity of book story would be calculate from the standard shelf (.90 width with the 7 stories) that can contain 3 in 4 books such that we will have the number of book in average as follow

Table 2.2

Type	Number	Recommended shelf
Depth		
Children's books	10-12	200-300
Loan and fiction stock	8	200
Literature and history	7	200
Politics and economic	6	250
Scientific and Technical	5	250
Law	4	200

- Officers' area should be 2-3 persons and should not be less than 10-15 m² in each library.

- Working room area should be 20 % of public space in which the average should be around 10-12 m² per person.
- Counter for returning and borrowing per person is around 0.13 m².

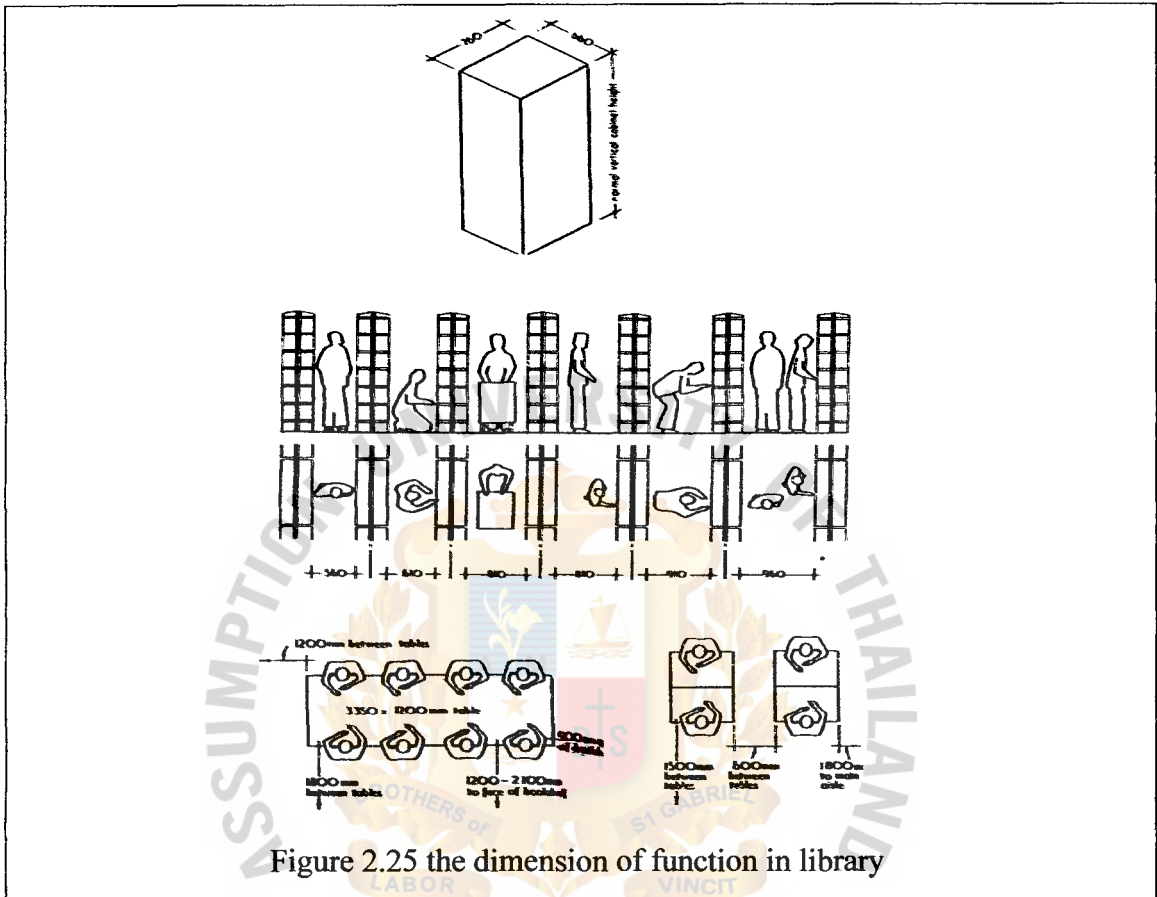


Figure 2.25 the dimension of function in library

For personal comfort zone, we can expand the ellipse surrounding the body up to 0.93 m³. it allows a crowded group of people to walk within the space with some degree. However, Fruit's circulation zone that expands the space area for each individual up to 1.21 m³ allows people to walk around by not disturbing or touching the others

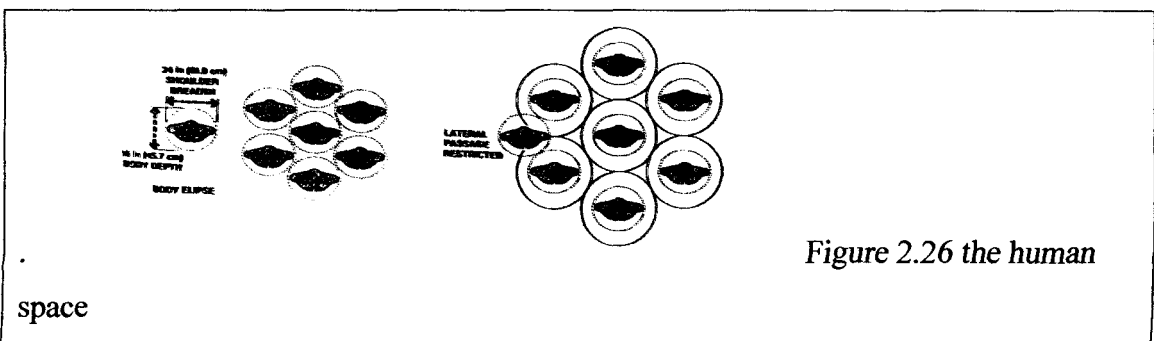


Figure 2.26 the human

Waiting area

The waiting area for people to sit can be calculated from the average width of person body by adding some space for movement and the width of the sofa with area for legs that would be around 0.85 m² per person.

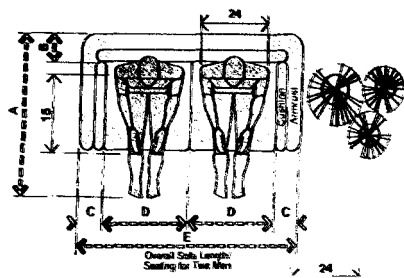


Figure 2.27 Waiting Dimension

Information area

Information area should be calculated from the depth of the body including legs and some chair movements with convenience that would be at least 112 cm for diameter and the depth of information table should be 75 cm.

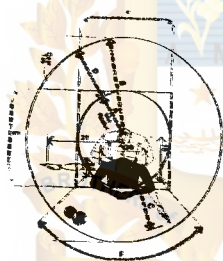


Figure 2.28 Information Dimension

Dining Space

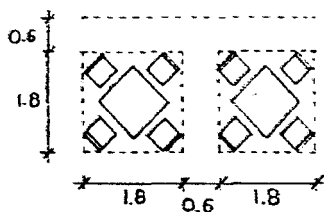


Figure 2.29 the dimension of dining table

Demonstration Work

Preparation clay: wedging bench 600-670 high

Making model: Heavy table, Benches 750-600 mm per person

Potter wheel: 900 – 1000 and Fire kiln 600-750 mm

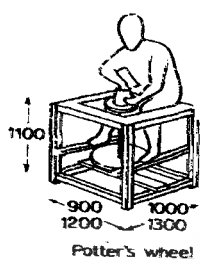


Figure 2.30 Potter wheel

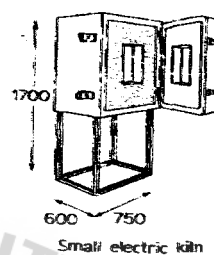


Figure 2.31 The kiln



Part 2.2 Case study

Primarily Information Case Study

I Case study: The Ayutthaya Historical Educational Center



Figure 2.32 View of building at front

Location: Rojana road, Muang, Ayutthaya

Owner : Ministry of Interior

Architect: Dr. Apichart Wongkeaw and
Hideharu Hisano

Exhibit Design: Nikken Sieki-Nomura

Area of building: 2773.356 Sqm.

Opening: 2533 Bc.

The point to study: Exhibition Design and interior Design

The Architectural and planning of the building

The style of architectural is the Thai modern art style in the combination of Ayutthaya and Lopburi style.

The center has two buildings: Main building and the connected small building

1. The Main building has two floors
 - 1.1 The first floor -> office, storage, library and restroom
 - 1.2 The second floor -> the exhibition, temporary hall and lecture room
2. The connected small building is shown only the relationship between Ayutthaya and Foreigner countries.

The Exhibition Planning

The Ayutthaya Historical center was design for only display exhibition in the idea of relationship of the Architecture and the story of exhibits. From this idea, it

makes the architectural and the planning inside exhibition look balance. The planning is the open space for create continues eye's vision to all part of the exhibitions. The plan is arranged in the Central arrangement, has the central hall to release people to the part of exhibitions Zone. They divided the space in to the zone by using influence of the fan shape planning. The fan shape plan has three cores or three exhibitions and one part is at the center and the end of three cores. The step level in both of floor and ceiling and model can make visitor attraction.

Circulation

The main circulation is the center of the building and separate to the other parts. The stories of the exhibits were not set by the event of time or period of the stories. So that visitors can chose to see the exhibition that they want.

Conclusion of the planning and circulation

Good Point: 1. the way to set the exhibitions can serve big amount of people.

2. The planning is open space so the visitors can see the exhibits through all parts of them.

3. Have a choice to observe or watch the exhibits that they feel like.

Bad Point: 1. the circulation may be making the visitors feel confuse about the exhibit planning.

2. Because it have no direction rule for exhibition so may be it will look more complicate and complex to visitor on circulation.

The Display Exhibitions

The display content can divided into five parts by the sequence of time

1. The city of Ayutthaya display the civilization and prosperity of city such as the model of Thai ancient palace, Wat Chaiwattanaram

2. The port Ayutthaya city display the trading with the foreign country such as the model of the ship and lifestyle in market and commercial in Ayutthaya

3. The central of the political system display the power of the Ayutthaya dynasty and king with people

4. The Thai house display the living, custom, believe, ceremony such as model of Thai House, wall painting

5. Relationship with foreigner countries displays the map of Ayutthaya painted by western people and the letter document that contacted with western country.

The good and poor Point of Exhibition Display

In the exhibition, they use five type of display to represent and attract the visitor with the nice decoration design and technology display presentation.

1. Large Scale Model: Ship, Temple wall, Arch and Thai House

Good Point: 1. can attract to the public easily

2. Explain clearly without the text

Poor Point: 1. used a lot of space

2. Easy to damage and hard to maintenance



Figure 2.33 Thai Arch

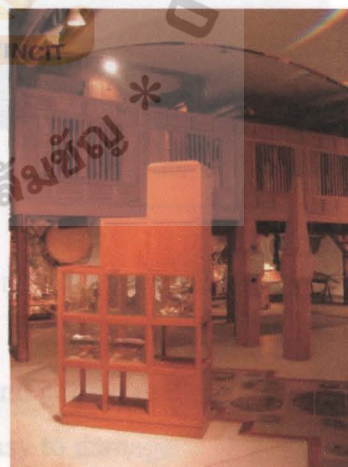


Figure 2.34 Thai House

2. Diorama: Imitate the event with the curve panel in the concept of view of perspective such as the social class between King and People.

Good Point: 1. Visitor can catch the sense from the exhibition Clearly

Poor Point: 1. Need to be careful of model skill

2. Need to be careful about the size of the object in order to make it depth

3. Slide Media: The Temple Exhibitions

Good Point: 1. Create the motivation and interesting to visitors

2. Used a few space

Poor Point: 1. The Height of camera and screen was too low for adult

4. The sound sensor: when visitor walk pass the sound sensor, the sound will start for explain such as area of Thai House.

Good Point: 1. Have relationship with audients

2. Can attract and make visitors exciting

Poor Point: 1. Very expensive and Sound annoy



Figure 2.35 Slide Media



Figure 2.36 the route map of trading

5. The Video record: Present the information both of sound and picture such as map of ship route trading and Thai cultural.

Good Point: 1. East to understand and get the real picture

Poor Point: 1. Sound annoy and easy to damage

The **conclusion from the case study** used for design the exhibition in project is the exhibition will use and adapt the method of display. Some poor point will adjust such as sound sensor will change to the touch in the area and stop when you leave. The design techniques also bring to decoration in the exhibition design.

II Case Study: Sawanvoranayok National Museum



Location: 69 Pracharat roads, Sawankhalok

Sukhothai, Thailand

Service Hours: Opened Wed-Sun

9.00-16.00 Pm

Figure 2.37 View of the museum building

The Point to study: The Planning, Display and the dimension

The Purpose of study and Planning

The planning of thesis project was similarly to this case study includes the dimension; the width and height are nearly close. The museum type also the same is the Thai ceramic museum but this case study museum was specific on the Sukhothai period and a few of Ayutthaya.



Figure 2.38 the museum exhibition hall

The main objective of the museum is the same as thesis project is to preserve and collect the Thai arts object for next generation. Mostly ceramic and Buddha images are the collection of this museum. The Sukhothai wares excavated in the ancient cities of Sukhothai and Si Satchanalai and those salvaged from Khmer sunken

ship in gulf of Thailand and other related found was display on the first floor and the Buddha images was display on the second floor.



Figure 2.39 First Floor Plan



Figure 2.40 Second Floor Plan

The display and dimension

The **Poor of The display** was not good and no attraction in all of area and also cannot motivate the visitor the interest and impression. Each piece of works was not outstanding and put the object to crowd. The display was set in the same size and pattern of design

Suggestion: Exhibition should create the outstanding in both of design and structure. Using the background of the painting or picture can stress the object look more interesting. The display in some part need more security for protect the damage of the ceramic object from visitor.

Dimension of the ceramic can divide into three types from the exhibition in the area of each works are

The small object: The area is not more than 1 square meter
Mostly set on the cabinet and on the box

The middle object: The area is around 1-4 square meters

The large object: The area is around 6-10 square meters



Figure 2.41 the ceramic exhibition Display

The **conclusion of the case study** use for thesis project is the area of planning and the dimension for adjust the ceramic object in the right dimension area. The way to preserve and maintain the ceramic and the display of this case quiet not good so I will bring this point to example of thesis exhibition display.

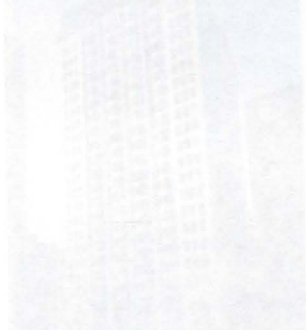
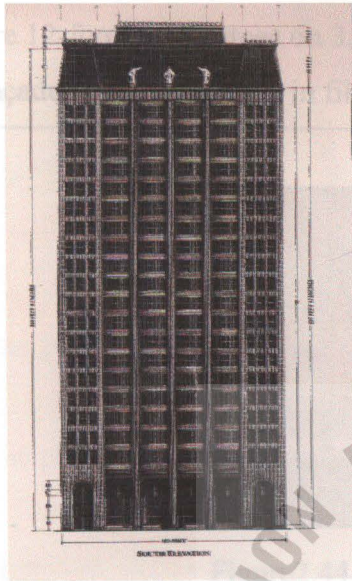


Figure 2.43

The two storey arcade at the base is arched only at the corner but of uniform height and tied together with the base course of Napoleon red granite. The arcade is embellished with the cast ornament aluminum skirting. Nine-foot lanterns of similarly detailed cast aluminum and transparent glass hang in each bay. The pavement inside the building is the white marble. At the top the building the

Secondary Information case study

I Case Study: 580 California



Location: San Francisco, California

Architecture: Philip Johnson

Construction: 1981-1984

Building type: Office Building

Area: 340,000 square foot

Floor: 23 story-building

Figure 2.42 Elevation of building

The Point to study: the facade of the Building and material color scheme

The purpose to study and the façade design

Due to the building in the thesis project has a problem of façade design which has six statues of the King in the reign of Ayutthaya so the façade need to change to relate to my museum project.

The 580 California was organized classically into the bottom, middle and top. The design was different and commingling stylistic components. The façade of scalloped bays windows were separated by a super scale order of granite columns.



Figure 2.43

The two storey arcade at the base is arched only at the corner but of uniform height and tied together with the base course of Napoleon red granite. The arcade is embellished with the cast ornament aluminum skirting. Nine-foot lanterns of similarly detailed cast aluminum and transparent glass hang in each bay. The pavement inside the building is the white marble. At the top the building, the

tower pulled together in the two tiered gray-coated glass mansard roof. Demarcated corners, projecting beyond the rest and surmounted by more grillwork and ornate finials, suggest separate but minor mansards above each corner. The balancing these are 12-foot high statues on 3.5 foot bases surmounting each of the giant columns of the façade. The statues cast in fiberglass by sculptor

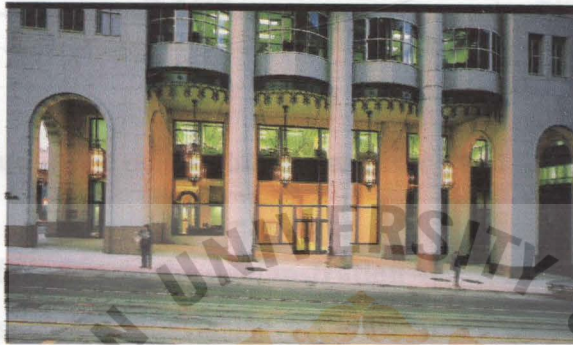


Figure 2.44 Entrance of the building

The **conclusion of the case study** use for my project is the façade of 580 building is similarly to my project like statue and this building was renovate the old building to the contemporary between classical and modern. The building appearance look a like my project concept design and the color scheme of the building, I will use to apply to my project too.



Figure 2.45 Roof top with three statues

II Case Study: The Bendigo Pottery Tourist Complex



Location: Midland highway,
Epsom, Bendigo, Australia

Figure 2.46 Map of Museum

The point to study: The demonstration, workshop and functions

The purpose of study and the demonstration

In this project, it has the activities for visitor to participate on such as workshop, demonstration etc. It looks rather to use function and program base on the bendigo pottery complex.

The bendigo complex has the experience the clay for the visitor such as the potter's workshop area is clay play area for kids to try some hand building and sculpting. Also provide the class lesson and workshop and demonstration of hand throwing.



Figure 2.47 Potter at work

The facilities and function in complex

In this project, the museum will create the imitated kiln in the real middle size and define in the real sense of the kiln and in the museum will imitate the kiln and the imaginary model of people and utensils. And also study about the function and dimension of the equipment and space

III Case Study: The Meull Collection Museum

The bendigo complex has the largest surviving collections of historic wood fired kiln in the world which includes five bottle kilns, three circular kilns and two in rectangular kilns

Location: Houston, Texas, USA

Architecture: Renzo Piano

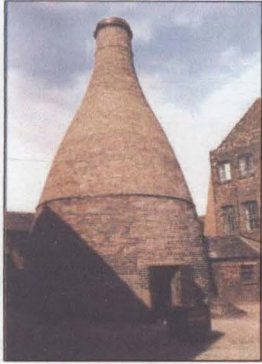


Figure 2.48 The kiln



Figure 2.49 Interpretive Museum

The bendigo has the Interpretive museum is built around the old kilns and contains displays of the equipments used over the years and product made at the pottery since 1858

The **conclusion of case study** use for my thesis project is the function and facilities are nearly close in the workshop, demonstration and include the model of kiln and the imaginary image model in museum. I will use the function and dimension from the case adjust to the project and also the class program how to reserve and time spent for each class lesson and workshop.

SINCE 1969

Figure 2.51 Exhibition Showcase

Figure 2.52 Museum Corridor

III Case Study: The Menil Collection Museum



Location: Houston, Texas, USA

Architecture: Renzo Piano

Construction: 1987-1992

Owner: Dominique De Menil

Figure 2.50 Inside museum hall can see outside through glass wall

The Point to study: the Interior space and Planning

The Purpose to study and the planning

Due to the thesis project, the planning was long and narrow. The function and planning will nearly difficult for adjust. The function can be set based on the planning of Menil Museum.



Figure 2.51 Exhibition Showcase



Figure 2.52 Museum Corridor

The museum's repeated spaces and multiple plans (the galleries open out to interior gardens) contributes to the sense of a vibrating light and feeling of lightness. The display is set in the simple but get the feeling in the piece of art works.

The roof is made of **leaf-like** modular elements to allow the light to pour in, while filtering out ray. The transfusion of light through the leaves gives the rooms a unique character.

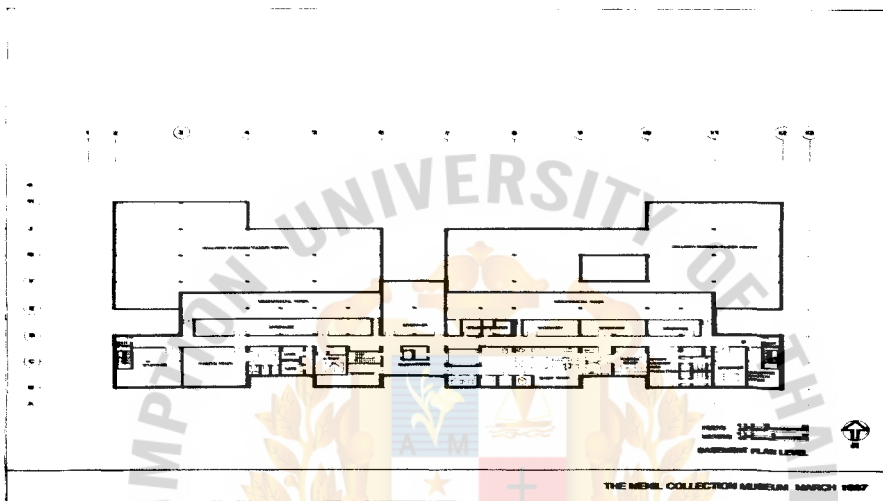


Figure 2.53 Museum Basement Plan

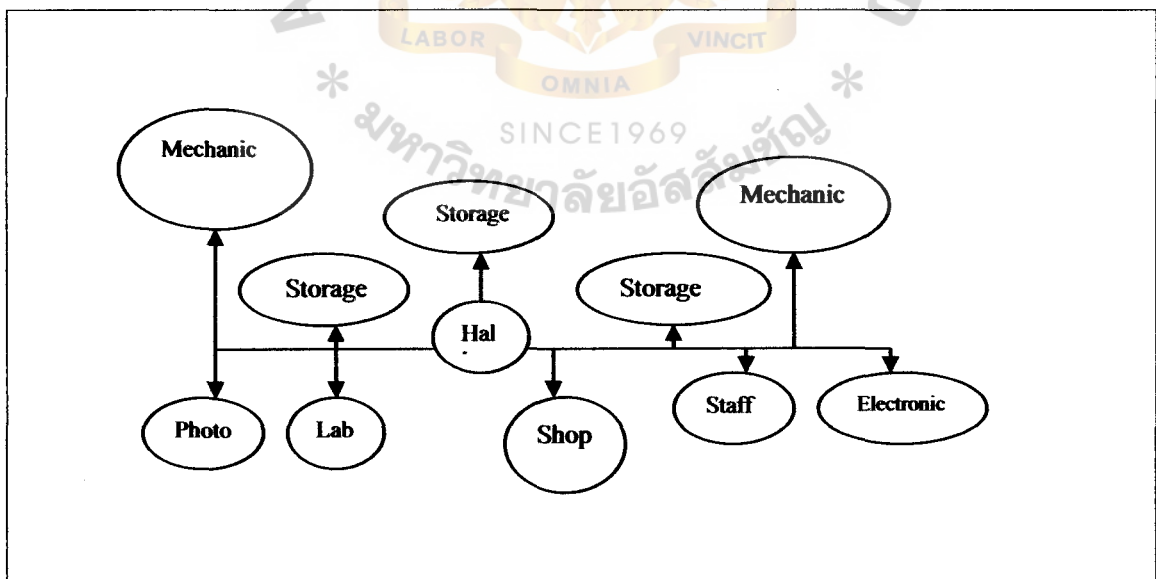


Diagram of Planning

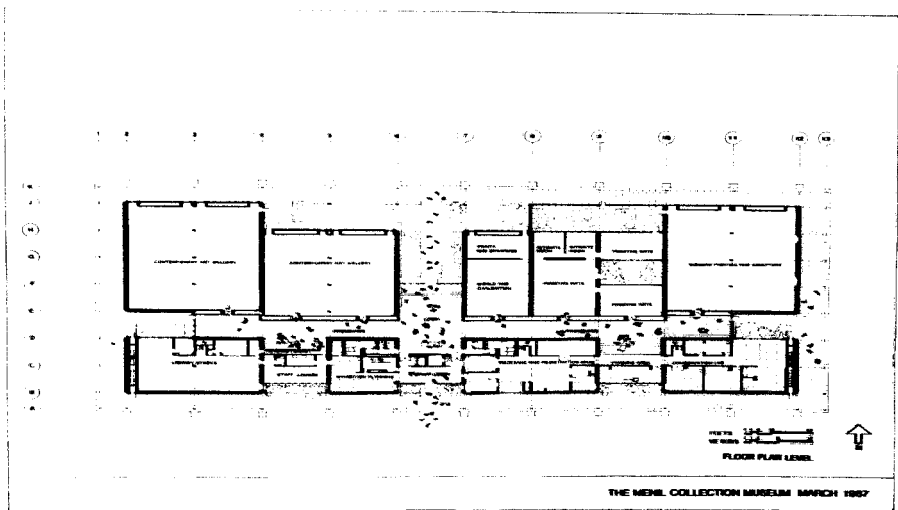


Figure 2.54 Museum Floor Plan

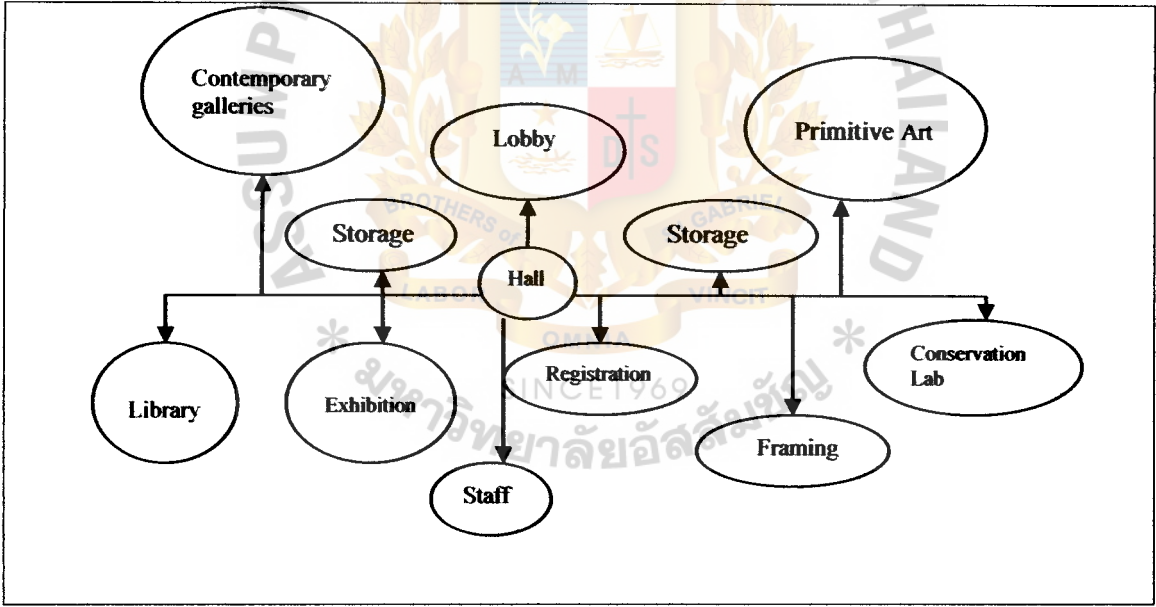
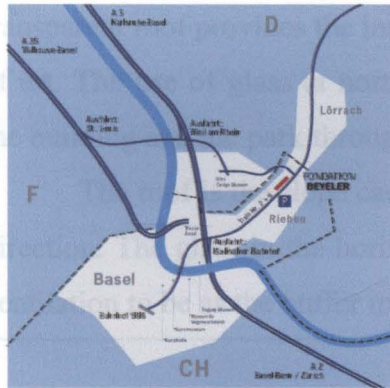


Diagram of Planning

IV Case Study: The Beyeler Foundation Museum



Location: Basel, Switzerland

Construction: 1994-1997

Planning: 120x25 meters along the road

Figure 2.55 Map of Museum

The Point to study: Art Education, the exterior and interior, material

The purpose to study and Art Education

In the thesis project, the museum is the activities knowledge for visitor so the art education likes School class, guide tours or tour outside the museum need to have in the museum.

In Beyeler museum has many several of special class events such as the public event, school event, group event and lecture event. These include the reading, panel discussion and guide tours

Group events are private tours that deal either the collection or the current exhibition depending on visitors' wishes. The training guides are specialists who are very familiar with the museum and art object.



Figure2.56 The Group Lecture

The exterior and interior space and material

The Beyeler museum has the good relationship between outside and inside by using the harmonious combination of stone, white-painted steeled glass. The transparent roof provides the interior with natural light so desirable for viewing work of art. The use of glass at northern and southern facades creates interaction between the building and the park through the interconnections of space.

The roof is the slope can reduce the light to 30 % and diffuse light to the north direction. The glass in the horizontal of the first floor in the enclosed space is the air ventilation to be as the buffer in each exhibition for keeps the temperature constant.



Figure 2.57 the interaction between the exterior pools to interior exhibition

The **conclusion of the case study** use for the thesis project is the material because the Beyeler museum uses the natural earth tone color material like the thesis project. The art education, I know how to arrange the program and how to reserve the program. And the important is how to make the lecture education to attract the visitor. The relationship between the outside and inside, I can adjust into thesis project due to the site has a large park around the building.

1. The Essential Ancients remains
2. The Education and tourist information center
3. The Handicraft village
4. Public Park (Srirachin Park)
5. New Settlement of the migration people
6. New adjustable place for the handicraft village
7. Improvement of the surrounding around essential-ancient remains.

Chapter 3 Project Fact

Part 3.1 Site Analysis

Introduction

Pra Nakorn Sri Ayutthaya Province is situated on the central part of Thailand. Ayutthaya historical park is the one of the cultural tourist place in Thailand as the former city hall of Ayutthaya and A Thai cultural heritage place. Unesco announce the Ayutthaya Historical Park is the world heritage park.

Figure 3.1 The building site



Physical of Site Location

The Museum of Thai Ceramic Art building site (The Ayutthaya Tourist Center) is located on the area of Ayutthaya historical park connect with the canal. The area of all the Ayutthaya historical park is 1,810 Rai as a result of separate in the 7 areas is

1. The Essential Ancients remains
2. The Education and tourist information center
3. The Handicraft village
4. Public Park (Srinakarin Park)
5. New Settlement of the migration people
6. New adjustable place for the handicraft village
7. Improvement of the surrounding around essential ancient remains.

Figure 3.2 The Thai Authority Tourism

Figure 3.3 road in front of site

Site Location



Figure 3.1 The building site

The Museum of Thai Ceramic Art is located on the end of Rojchana road which is the main entrance and exit of Ayutthaya province, the Pratuchai Sub-district, Krungkao district. The location of the Museum is the center of Ayutthaya which on the all sides is the ancient remains, palace, Educational historical center and Chao Sam Phraya Museum. The Museum area is located on the tree way intersection between Rojchana and Sri-Sanphet road which the boundary is connect to the four directional are

1. **East Direction** – connect with the Sri-Sanphet and Rojchana road and opposite to the Chao Sam Phraya Museum
2. **South Direction** - connect with the Thai Authority Tourism and the upcoming project of the educational and tourist service center.
3. **North Direction** - connect with the Ayutthaya medication and remedy center which has a trend to move.
4. **West Direction** - connect with the Sparse Wood Park and residents. But nowadays was adjust to be a car park.



Figure 3.2 The Thai Authority Tourism



Figure 3.3 road in front of site

The Good Point of the site: The surrounding of site is attractive fine without the ambient noise and unwanted activity. The surface of area is flat and plain, the surrounding of the building is the yard with the U-shape pond (width 240 and length 200 meters).



Figure 3.4 Yard around building

The site Approach

Due to The museum is located at Ayutthaya so it has many ways to visit the place. When the visitor gets in to Ayutthaya come straight on the main road of the Ayutthaya city and passes the monument of the temple at the intersection, across the bridge and go straight on Rojana road until the end of the road, the museum is in front of you.

Nowadays, the site has only one main access is the east direction at the Rojana road. But the problem of the access is the main entry and exit is the same way with 2 lanes in not typical range so the car cannot get easily into the car parking. The coach or Bus cannot get in to the building due to the space of car park and road.

Approach and Vista

Approach from the Rojana road is good approach because we can see the building in the far distant.

Vista to the rojana road and side of building is good and from the building can see the road in far distant.

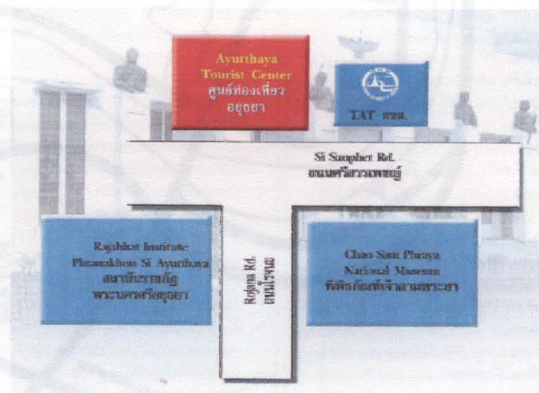
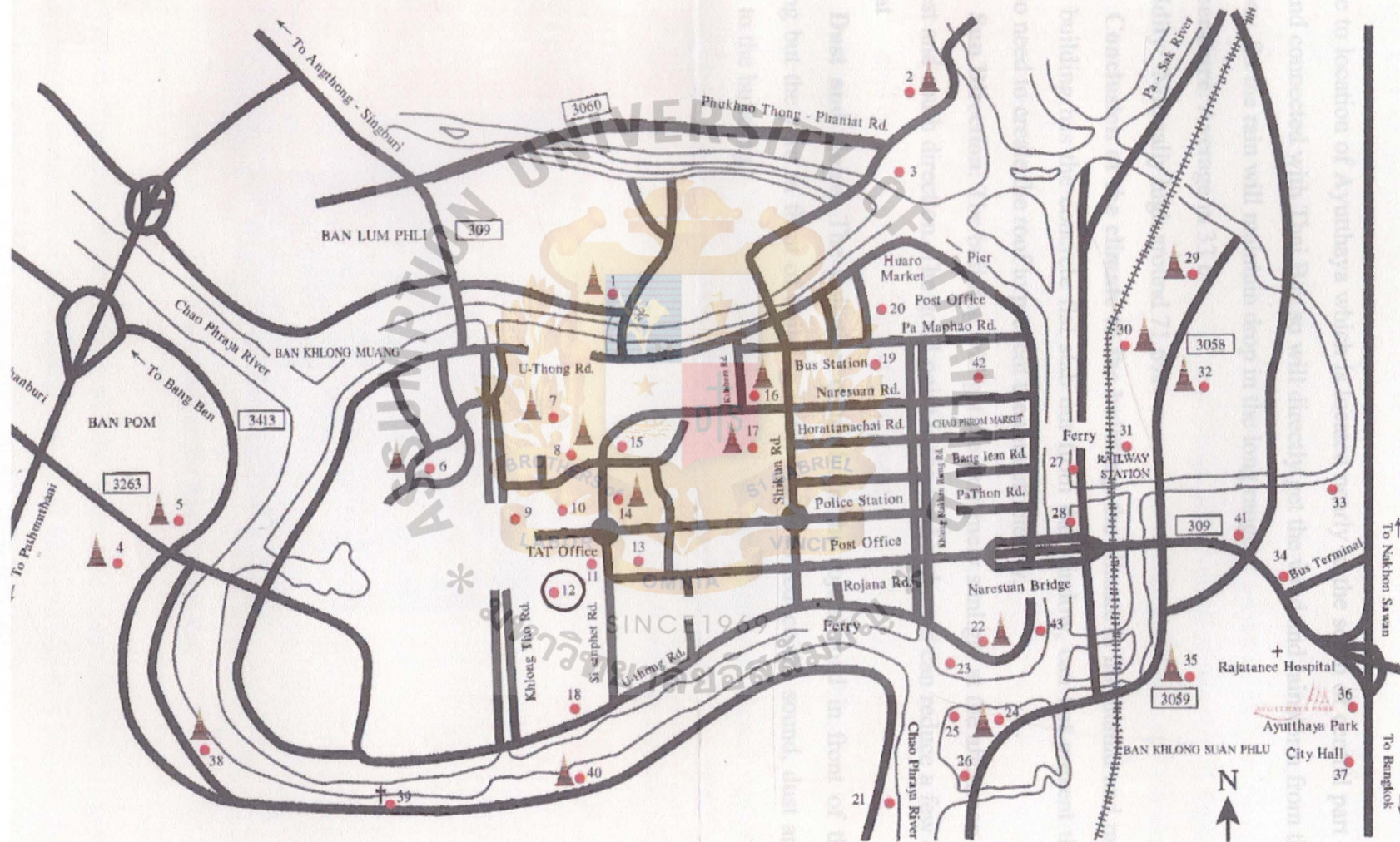


Figure 3.5 map of Site

Ayutthaya



12. Building Site.

Topography and climate

Due to location of Ayutthaya which is located nearly to the south of central part of Thailand connected with Thai Bay so will directly get the wind and rainstorm from the Thai bay. So the rain will maintain drop in the long range.

Temperature: Average in 33 c

Humidity: Normally high around 71.6%

Conclusion of the climate to the building: the climate is hot humid and rain so the building has the concrete flat slab out from the window, can not prevent the rain. So need to create the roof to prevent the rain efficiently.

Sun Direction: The building will get the extremely sunlight at the afternoon at the west and south direction. The good point is the yard and pond can reduce a few of the heat

Dust and Noise: The pollution come from the rojana road in front of the building but the yard in front of building is the buffer to reduce the sound, dust and smoke to the building.

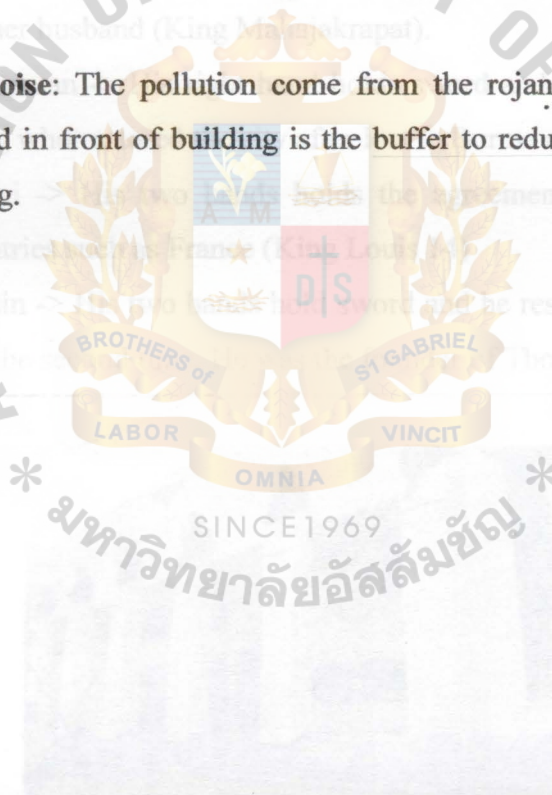


Figure3.6 The six statues at the front of building

The original shape of the building was the rectangular shape and has 2 storeys. After that has the expansion of the building in the two sides and add to 3 storeys. And the last expansion was added the construction of the back look like T shape.

Building and Architectural Analysis

This building was originally built for used as the **city hall of Ayutthaya province**. The City Hall was built in the 2486 BC. in the period of Governor of the province associated with Mr. Preedee Panomyong (The minister of ministry of finance in that time). At the Façade of the building have the six statues of Kings and Heroines who did the virtue to the Ayutthaya and the Thai nation in the historical time are

1. King Ramathibodi I (King U-Thong) -> His left hand holds Prasart Sang and He was the founder of Ayutthaya in 1893 BC.
2. King Borommatrilocranart -> His two hands hold the code of laws
3. Queen Suriyothai -> First Thai Heroine fought with the enemy until she died for her husband (King Mahajakrapat).
4. King Naraesuan -> His right hand holds sword and his left hand holds the hat. The King who restored the city after lost to Burma at the first time.
5. King Narai -> His two hands holds the agreement that signed with the western countries such as France (King Louis 14)
6. King Taksin -> His two hands hold sword and he restored the city after lost to Burma in the second time. He was the founder of Thonburi.



Figure3.6 The six statues at the front of building

The original shape of the building was the rectangular shape and has 2 storeys. After that has the expansion of the building in the two sides and add to 3 storeys. And the last expansion was added the construction at the back look like T shape.

Nowadays, the building in the front part was registered as the conservative building of Fine Art Department because the unique character and worth to conserve both of the architectural and façade of the building.

The construction and the architectural style

The building was built from the concrete steel construction. The weight support was used Beam system. The flooring construction is used wood and the floor is the wood and stone Sheet.

Firstly, the roof is the hip style but the hip roof was blocking the statue at the façade so change to the parapet high to the roof. This roof makes the building look modern in that time.



Figure 3.7 the water adsorb at the wall

The weakness point of the building is:

1. The additional building at the back has a problem of the construction due to the column system was not the grid line. But the building still good and not have the break or collapse problem.
2. The parapet roof does not have the water drainage so the water was absorb to the ceiling and make damage to ceiling.

Suggestion: the ceiling should change to the slope style in the one direction.

3. The problem of the flat slap at the back of building is the connection of the roof was not good so the water absorb to the wall.

The interior Architectural

After used this building more than 50 years, the city hall was changed to **Ayutthaya Tourist Center** around 5 years ago. The change into the Tourist center has not impacted the whole structure of the old building but change only the interior partition in some space to accommodate in to the new exhibition function.

There are **three storeys** in the building. **The first floor** is the tourist information office. **The second floor** is the exhibition hall of Ayutthaya history. And **the third floor** was left to abandon. The hall entrance is the double space, no partition, the space that link with the additional part at the back.



Figure 3.8 The Hall at the entrance

The weakness point of design and existing project is:

1. The Building hall has a lot of column and the span of column was to narrow.
2. The column at the back was arranged in the same pattern in the range of three meters so they were obstruction of the building space and function
3. The statue at the in front of building was not relate to the project , it need to change or adjust in to the project
4. The problem of the Ayutthaya tourist Center is the space in the building was not fully utilized
5. This project was not successful in their objective.
6. Some part was lack of maintenances and no improvement at all.



Figure 3.9 the abandon space

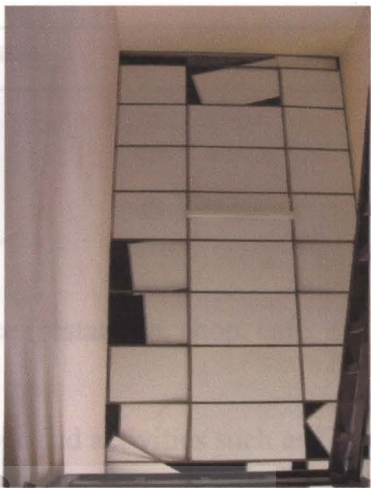


Figure 3.10 The damage ceiling

Area of the Building site

1. First Floor Area	1,570 SQM.
2. Second Floor Area	1,570 SQM.
3. Third Floor Area	360 SQM.

According to the area of the existing building can not contain all the activities such as the auditorium, workshop or the demonstration show so the project of Museum of Thai Ceramic Art need to expand the area at the back and add the third floor at the back in the same area as the existing second floor areas. However, all of the expansion in the building requests to support on the structure, beams and columns. So the third Floor Area will be 1,570 SQM. like the second Floor Plan. Also expand the two sides of back buildings around 2 meters for each side because the original building wide only 8 meters so it is too narrows for museum exhibitions area. The expansion of the building is not impact to any things because around the building is the yard.

2.3 Staff in the general service

- > Restaurant staff wills work on 8.00 am. - 18.30 pm.
- > Souvenir, ceramic and book shop staff will work on 8.30 am - 17.30 pm
- > Library staff will work on daily on 8.30 am - 17.30 pm.

Part 3.2 Facility Study

The User Behavior of Thai Ceramic Art Museum

1. Type of user group of museum

1.1 Staff (officer)

- > Staff who work in the museum part
- > Staff who work in the general service (restaurant, shop, café, etc.)

1.2 Visitor

- > People who interesting in the art work and activities such as library, workshop and lecture.
- > Student who come and find the knowledge from museum.
- > Tourist both of Thai and foreigner.
- > Artist and person who love the ceramic who come and exchange the idea to each other.
- > User who is contacts for general objective such as information.

2. User programming schedule

2.1 Museum service hours

- > Museum opens on Tuesday- Sunday on 9.30 am – 16.00 pm.
- > Library opens daily on 9.00 am -17.00 pm.
- > Demonstration show and workshop will show in the museum hours.
- > Lecture will open on first weekend of a month on 10.00 -16.00 pm.
- > Restaurant & shop opens on Tuesday-Sunday on 9.00 – 17.00 pm.

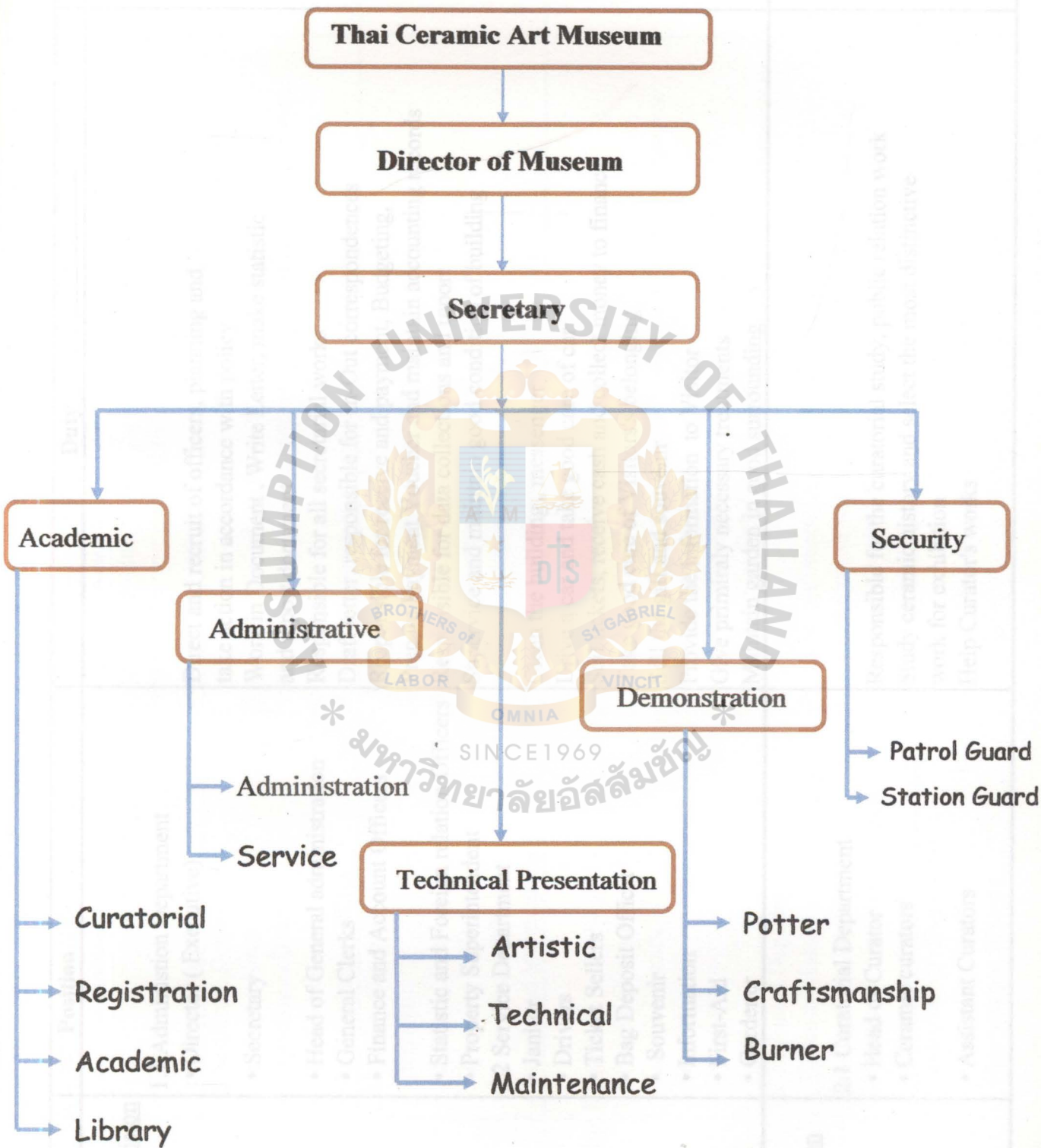
2.2 Staff working hours

8.30-9.00	o'clock	Preparation and sign name
9.00-12.00	o'clock.	Working Hours
12.00-13.00	o'clock	Lunch time
13.00-17.00	o'clock	working Hours

2.3 Staff in the general service

- > Restaurant staff will work on 8.00 am. - 18.30 pm.
- > Souvenir, ceramic and book shop staff will work on 8.30 am – 17.30 pm
- > Library staff will work on daily on 8.30 am – 17.30 pm.

Organization Chart of Work Position



Organization and Job Description

	Position	Duty	Number
1. Administrative Division			
	1.1 Administration Department		21
	• Director (Executive)	Direct and recruit of officers, planning and take action in accordance with policy	9
	• Secretary	Work in Document , Write Letter, make statistic and report document	1
	• Head of General administration	Responsible for all secretarial works	1
	• General Clerks	Draft letter, responsible for In-Out correspondences	2
	• Finance and Account Officers	Responsible for receive and payment, Budgeting, Prepare Payment Voucher and maintain accounting records	2
	• Statistic and Foreign relation Officers	Responsible for data collections and report	1
	• Property Superintendent	Supervise and maintain good condition of building	1
	1.2 Service Department		12
	• Janitor	Clean the building , messenger	4
	• Drivers	Drive a car and take good care of car	1
	• Ticket Sellers	Sell tickets, receive cash and collect money to finance	1
	• Bag Deposit Officer	Take good care of Visitors's belonging	1
	• Souvenir	Sell the gift and souvenir	3
	• Information	Provide the information to Visitor	1
	• First-Aid	Give primiraly necessary treatments	1
	• Gardener	Maintain garden in good surrounding	2
2. Academic Division			
	2.1 Curatorial Department		19
	• Head of Curator	Responsible for the curatorial study, public relation work	4
	• Ceramic curators	Study ceramic history and select the most distinctive work for exhibition	1
	• Assistant Curators	Help Curator's works	2
			1

	Position	Duty	Number
4. Security Division	2.2 Registration Department		3
	• Statistic Control Officer	Collect and analyze data, make report of Arts object movement	1
	• Registrar	Make Arts object card and make good custodian	1
	• Assistant Registrar	Packing and Delivery	1
	2.3 Academic Department		5
	• Academic Head	Responsible for all academic works	1
	• Education Officers	Lecture and give knowledge to visitor and contact other institutes	1
	• Site Tour Officers	Guide tour	2
	• Public relation Officer	Responsible for publishing and contact other institutes	1
	2.4 Library Department		7
	• Librarian	Keep record of books, update borrowing cards	1
	• Assistant Librarian	Assist librarian's works	1
	• Borrowing Officers	Control the movement of book	2
<u>Technical Presentation Division</u>	• Audio Visual Officers	Video presentation	2
	• Repair and Maintenance Officers	Repair and maintainance books and documents	1
	3.1 Artistic Departmet		12
	• Artistic Director	Create and present the exhibition plan to the board for approval	5
	• Secretary	Work in Document , Write Letter	1
	• Designer	Design the exhibition	1
	• Artist	Responsible for Exhibition's decoration	2
	3.2 Technical Department		4
	• Technical Head	Planning and controlling the technical works	1
	• Air conditioning Officer	Control the proper temperature and humidity	1
	• Electrical Maintenance Officer	Control the electrical system	1
	• Light and system Officer	Control the lighting and sound system	1
	3.3 Maintenance Department		3
	• Maintenance Head	Repair and maintainance the Arts object	1
	• Maintenance Officers	Assist in repairing and maintainance the Arts object	2

	Position	Duty	Number
<u>4. Security Division</u>	• Head of Security Guard	Responsible for Security check and Twenty-four hours guard	12
	• Patrol Guard	Responsible for outside building compound	1
	• Interior Guard	Responsible for inside building	3
	• Station Guard	Responsible for assign area	5
			3
<u>5. Demonstration Division</u>	• Head of Demonstration Show	Arrange for daily demonstration show	8
	• Potter	Show how to make ceramic	1
	• Burner	Control temperature and make quality of ceramic	2
	• Craftmanship	Make pattern as designed	2
	• Glazing	Make glazing as designed	2
			1

Total of staff office

74



The Program evaluation of Thai Ceramic Art Museum

The Thai ceramic is the valuable historical objects that want the Thai people especially on the young generation to succeed and obtain the knowledge from ceramic. The other purpose is to expose and promote the international world.

Program of project

1. Main Hall and waiting area
2. Ticket booth and office
3. information counter , map board and First-Aid
4. Shop: Ceramic shop, Souvenir shop and storage
5. Small library and Book Shop
6. **Museum area:** include of the display area in the different period and the process of making the ceramic, Exhibition area (temporary), presentation room and Auditorium
7. **The demonstrate show:** include of the ceramic making process and the activities for learning and making the ceramic to the people.
8. Ceramic club room and auction room
9. The lecture room, Workshop area and activities area (game)
10. **Office area :**
 - Waiting area and reception
 - Secretary and manager room
 - staff office : Technical part, financial part and Maintenance part
 - meeting room
 - Storage and Pantry
11. Restaurant and Café
12. Restroom (Customer and Office)

Design of Criteria

Public Area

The service area uses for support the user in the building. This area is the center of the museum to relate with any function of the building. The functions in the public hall are following this item:

1. **Main Entrance** one staff for security and service

Space can be related to every functions of building. Normally, the design of the entrance and space should be attract and interest to the user in order to get the impression from the space. And at the main entrance should have the staff to welcome And invite the visitor to the museum.

2. **Ticket Booth and bag deposit** two staffs at counter

Ticket booth is for buying a ticket, book the ticket and leave stuff

3. **Information Area** one staff at counter

Space for introduction and give information to the user before get in the exhibition area. Function in this area was consisting of information counter, map board, computer service, leaflet and also box suggestion.

4. **Waiting Area** the set of the seating

Space which providing the comfortable seat for the users to sit and relax.

Also serve the visitors in the group for waiting and meeting. The space was consisting of the set of seat, table and decorative items such as tree, lamp and picture.

5. **Public Telephone and ATM.** One staff for security

Provide the service to the user and should be located at the corner of waiting area. Also design to avoid the sound and people's vision.

6. **Souvenir Shop and Ceramic shop** one per each shop

Souvenir Shop that visitor can buy the gift such as the doll, magnet, key-chain and etc. The ceramic shop is the shop that visitor or artist want to but for the collection or decoration. The Shop should locate on the main circulation for attract and convenience for visitor.

7. Book Shop

two staffs at shop

Shop that provide the book that relate to the ceramic such as history of ceramic, collection of ceramic, art of ceramic ,the artist and the potter.

8. Restroom and paralytic restroom

Restroom should design near waiting area for the convenience and easy to observe but should to locate out of people's vision.



Educational Service Area

Space for research and find the information that relate to the topic. The educational area has the activity for learning and participates to the topic. The location should concern on the convenience for public area because some user only come to use in this area. The functions in the educational area are following this item:

1. Library

eight staffs in library

The space for search and find the information all detail about the ceramic. Moreover, the other type of Thai art and cultural also has. The library is open for every people such as student, researcher, and people.

Function in Library

-> Entrance should provide the entrance and exit that can come from the outside. And also should have the hall area for resting and waiting.

-> Locker and bag Deposit should locate near the entrance.

-> Borrow and Return Book should locate near the entrance or short walk to the entrance

-> The internet service for find the book and information.

-> Library area has both the public space and room. The reading area should set near the bookcase

-> Copy machine should set near the reference book.

-> Librarian office and counter should easy to walk in the library area.

-> Maintenance room for receive new book and repair the damage book

-> The photo room and listening room should separate from seating area.

2. Lecture room

The space for do and make the activity like for the lecture for the student or discussion group for the artist and potter. In this room can divide into two rooms and should the storage for keep the seat, table and all equipments. The lecture of the ceramic will teach on the first weekend of the month.

3. Practical workshop

The space for people, tourist and student can get the information of the ceramic by participates on the process of produce the ceramic. This workshop will open on the museum hours and has special activity on weekend. In the summer also has a special program for the student and people. The workshop will classified into two levels are

: Children Level -> for the children to learn in the principally process of making or painting.

: General Level -> for the people who really interest in the ceramic process and want to get the real benefit from workshop.

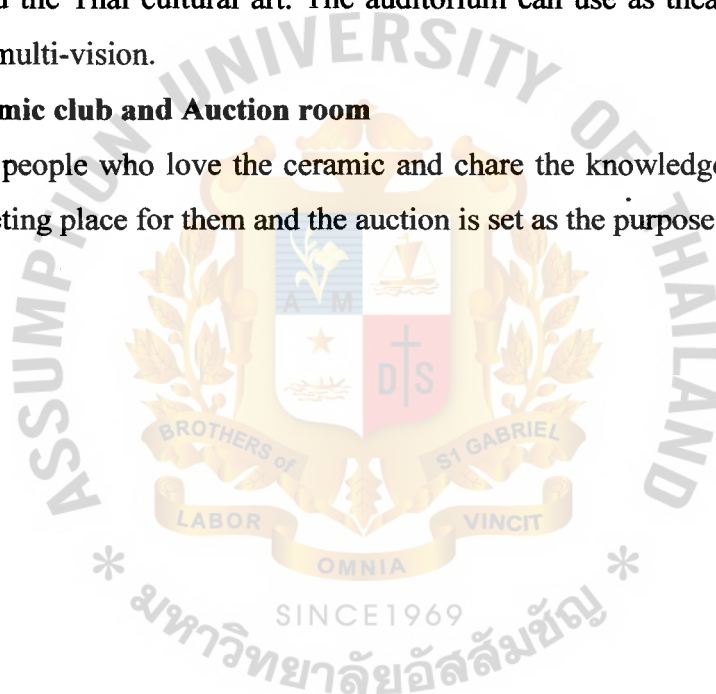
Before make the ceramic, People need to lecture in lecture room to know how to make ceramic from the molding to firing in kiln. The workshop should have the outdoor space to dry the ceramic.

4. Auditorium

The 120 seats room for the large lecture and conference with the topic relate to the ceramic and the Thai cultural art. The auditorium can use as theater to show the movie or slide multi-vision.

5. Ceramic club and Auction room

For the people who love the ceramic and share the knowledge to each other. Club like a meeting place for them and the auction is set as the purpose of earn income



Museum Area

The exhibition area for show and display the product of ceramic and the information of the ceramic can divide into four parts are

1. Permanent Exhibition

The exhibition area is show and displays all the information of the Thai valuable ceramic that collect from each part of the country. The exhibition will change in 1-2 years. The plan will order to lead in sequence of time so space will arrange in the prehistoric and historical period, the time of ceramic, the process of ceramic, the style of ceramic and the tool and equipments.

2. Temporary Exhibition

The exhibition areas show the collection of the ceramic art in the past and the present time like the contemporary ceramic art. This space will use for the artist or potter want to show or display his work. This type of exhibition is a short range show.

3. Outdoor Exhibition

The outdoor area is imitating the kiln site to locate on the yard of the building in order to lead and persuade the people to imagine to the past. The outdoor exhibition should durable to the climate and need to have relationship with the surrounding.

4. Demonstration show

The area for let the people to get more knowledge and understand to the method of produce ceramic and people can participate on the show but not like the workshop. The workshop looks formal more than the show. Because of the show, people can learn and make in the beginning step but the workshop is deeper than the show. This part can be near the workshop.

The Collection Storage is the room for keep and maintains the ceramic that was not display or show in that time. The collection Storage should connect with the Specialist room because Specialist need to research and study the ceramic. The area should be 30% of museum. The collection should have the air condition quality control and humidity.

Office Area

The office is divide into five divisions are:

1. **The administrative division** should have the sub entrance for staffs and should set near the public hall for convenience in order to visitor contact for information. This division has two departments are administration and service department.

2. **Academic Division** is the division for research all about the knowledge of ceramic and gives the information to visitor. This division can divide in four departments.

2.1 The curatorial Department for the curator to research and study about ceramic. This department should near the administrative and technical department. The function in this department is study room and the study collection.

2.2 The Registration Department for check and receive the ceramic object. The registrar will make the arts object card for each ceramic. The Registration was include these function are :

- : Receiving area
- : Office
- : Supplied storage
- : Photography workroom
- : Temporary storage

2.3 Academic Department is for give all the education of ceramic and Thai art for visitor. The lecturer provides the knowledge and to be as guide tour for visitor.

2.4 Library Department is the department in the library to provide the information to the reader.

3. **Technical Division** is the division for create and design the exhibitions. Also repairing and maintained the ceramic. The exhibition part is control the work, decorate exhibition and name card. The technical division also include the maintenance, artist, electronically department.

4. **Security Division** for secure and protect the ceramic and building.

5. **Demonstration Division** is the division for the demonstration shows in the museum area responsible all the produce the ceramic for the visitor.

The design exhibition in Thai Ceramic Art Museum

In the exhibition part is present the overview of the Thai Ceramic both of Pre historical and Historical Period arranged in the chronological approach of the ceramic age. The exhibition was display in all valuable ceramic both of art and functional but specific on the art ceramic. The exhibition will arrange in the concept of **Intellectual** mean the exhibition should have the aesthetic, entertainment and stimulating to inspire visitor's curiosity. The exhibition has a various styles like Diorama, board, computer touch screen, model and etc. The purpose of this type of exhibition is in order to make visitor catch the attention all the time.

The Estimation time of visitor in Museum

The time need to be considering for watch the ceramic without boring or exhaust. From the researcher told that the constant time that visitor can watch the ceramic with out resting is one hour and the low average of time is thirty minutes and highest is two hours. The exhibition should break in the thirty seconds.

Estimate Time for watch the each ceramic object is:

Highest time	30 Seconds
Lowest time	2 Seconds
Total estimate time	2 Hours

The type of display in exhibition

1. Original Art Object
2. Art Object Imitation for the object that cannot take the real object to show
3. Model for the big object
4. Diorama using the miniature model with the painting background to build the feeling of the work. The diorama should have a depth more than 0.60 m or more than that depend on the size of room.
5. Board and panel such as the chart , map route , picture and fanta view
6. Tape recording, slide and computer touch screen.

The Zoning Relation and Circulation

Firstly, the entrance hall is the long hall that can connect through the back of the building because at the back of the building is main car park. The permanent museum are located on the first floor include an outdoor exhibition and also second floor. The temporary exhibition is also located on the second floor. The third floor is the lecture room and office.

The library has two entrances from outside and inside the building for the user who come only research the information can use the door from outside.

The circulation need to be flowing and can connect all the main relationship of space like the restaurant should be near restroom, etc.

The Design Aesthetic of furnishing and material

The Thai Art Ceramic Museum is creating in the concept of modern Thai contemporary in the combination of the modern architecture and Thai cultural scheme. The façade and building will use the glass panel and the warm color scheme.

In the area of hall entrance, the color space will use earth tone color like the white, brown or black. Using the natural material such as

Floor: Using the unsmoothed tile and the glazing tile to represent the type of ceramic. The stair floor is the white stone tile with the glass panel

Lighting: using the skylight to provide the natural light from the north direction and the wall washer in the painting texture.

The main material and color Scheme of the project

The color scheme is the warm tone nearly earth tone such as white, brown, and gray by using the natural material color. The color will define the scheme of the ceramic display.

The Material in the part of the building

Floor: The flat tile material use the white marble, white stone and brown stone tile

And some part will use the carpet to adsorb and reduce the reflection of sound

Wall: mostly will use the concrete brick wall coated with the white and grey color and some part use the decorative painting.

Ceiling: the ceiling will use the acoustic sheet and suspended the ceiling for hiding the lighting.

Lighting

The lighting will has both of natural and artificial light. The natural light will come from the skylight but not too much. The exhibition part will use the spot light, wall washer and down light to define the volume of object and space.

Psychology of lighting in museum

- White light creates feeling of awareness, calmness, cleanness, freshness and cool.
- Yellow light uses with things that one likes, interested with average temperature.
- Red light helps stimulating and expressing feeling for the confused mind. It is the attractive color to draw attention.

The design of lighting for the size of room

Light can come into the room through narrow window that can enter more than the wide window; however it would be brighter for eyes than wide window.

Width The more wide it is, the less brightness will be.

Height The more high it is, the more brightness will be

Principal of Selecting light for the exhibition

1. Choose lighting that is suitable for the exhibit and atmosphere
2. The time of exhibition and weather situation such as at night is required enough usage of artificial lighting.

3. Climate of that country such as in tropical area should not use natural light from skylight.
4. Determine exhibition in each specific area can use spotlight.
- 5 The hide of fluorescent by shining directly gives equal spread of light
6. Shining light to above and reflect from the ceiling method gives soft light.
7. Lighting from ceiling with translucent glasses spreads light thoroughly with not too bright.
8. The appropriate use of light bulb would give out brightness for area and object.
9. The light that stays behind the cabinet is the cause of shadow on the object. Thus The hide of light can help this problem.
10. The use of natural light may also have shadow in some area so the artificial light has to be used to solve and support.

Lighting system for the wall

1. Lighting between two narrow walls such as pathway. The light should lay in the middle of both walls by spreading light in wide angle.
2. Lighting at the corner of the ceiling in order to create softness for the ceilings and also has a diagonal intersection of light from both ceiling.
3. The lighting stress on specific area would use Low Voltage bulb, which has a small size, has been developed by setting bulb deeper into the ceiling. For PAR bulb will use and area and the depth of ceiling more than Low Voltage one.
4. Light for general lighting uses lens that can spread light near the mouth of lamp and use PAR bulb which has ability as usage needed. It provides clearer and brighter light from besides and behind.
5. The use of unclear Incandescent bulb creates the reflection at the ceiling by 1/3 of the ceiling.
6. Specific lighting area uses special lighting by using lens that can be adjusted for each objective to stress on things and for value of those things.

The Building Atmosphere Criteria

Environment Control

The main important thing is temperature and humidity. The ceramic is the object that durable to the variable change of the climate should have the suitable condition is RH: winter at least 25 % and summer more than 50+ 10%

T: 70-76 F

The ventilation of air: 15-25 min

Acoustic Control

The component of the museum like the HVAC system and the other facilities will make the sound noise so the acoustic is very essential for control the sound by reducing the sound origin, use the sound absorb material and separate the quite and sound zone. This is the standard of the noise

- | | |
|---|----------|
| 1. The area for quite | 30-35 Db |
| : The exhibition, library, lecture and auditorium | |
| 2. The area for minor noise | 40-50 Db |
| : The office, crew room, café and restaurant | |
| 3. The area of noise | 50-60 DB |
| : The public hall and workshop | |

The Security Control

1. Control the object in the exhibition by
 - : make the boundary for primarily security
 - : for the precious arts object use the wire carpet hiding beneath the carpet or use security contracts if the two steel sheet separate, alarm will occur
 - : If in the case of cabinet will use the shock proofing
2. Control in the each of exhibitions ,restroom and terrace by
 - : CCTV
 - : Use the lighting in the control area in the psychological purpose
 - : Photo camera

3. Control the entrance and exit by
 - : CCTV
 - : use the automatic door when the alarm occurs
4. Control the collection storage by
 - : Heat detector

The Fire Protection

1. usually check and change the wire
2. install the fire alarm
3. install the sprinkler in each part
4. see the alarm connect the fire station
5. install heat detector and prepare the water pipe
6. Usually training the officer



Chapter 4 Data Synthesis and Programming

The Programming and Function of Thai Ceramic Art Museum

The Thai ceramic is the valuable historical objects that want the Thai people especially on the young generation to succeed and obtain the knowledge from ceramic. The other purpose is to expose and promote the international world.

Program of project

1. Main Hall and waiting area
2. Ticket booth and office
3. information counter , map board and First-Aid
4. Shop: Ceramic shop, Souvenir shop and storage
5. Small library and Book Shop
6. **Museum area:** include of the display area in the different period and the process of making the ceramic, Exhibition area (temporary), presentation room and Auditorium
7. **The demonstrate show:** include of the ceramic making process and the activities for learning and making the ceramic to the people.
8. Ceramic club room and auction room
9. The lecture room, Workshop area and activities area (game)
10. **Office area :**
 - Waiting area and reception
 - Secretary and manager room
 - staff office : Technical part, financial part and Maintenance part
 - meeting room
 - Storage and Pantry
11. Restaurant and Café
12. Restroom (Customer and Office)

Dividing into five Area are: Museum area, Educational area, Office area, Collection storage and Public area.

Area Requirement of Permanent Exhibition

Part 1. History of Thai Ceramic (from the past and present time) = 5 %

Table 4.1

Exhibition	Furniture Requirement	Equipment Requirement
Introduction	Boards and Free standing	Computer touch screen
History of Ceramic	Diorama	Audio
Pre Historical period	Model	Television and Video
Historical period		Lighting

Total area of part 1 : 188.5 SQM

Part 2. Period of Thai Ceramic = 15%

Table 4.2

Exhibition	Furniture Requirement	Equipment Requirement
Ban Chiang	Wax Figure of Humans being	Computer touch screen
Dvaradee	Boards and Free standing	Audio
Sukhothai	Model	Lighting
Ayutthaya	Original arts object	
Rattanakosin	Arts object imitation	

Total area of part 2 : 565.5 SQM

Permanent Exhibition Area = 30 % (1131 SQ.M)

Part 3. Style of Thai Ceramic = 5 %

Table 4.3

Exhibition	Furniture Requirement	Equipment Requirement
Ceramic Arts	Boards and Free standing	Computer touch screen
Functional Ceramic	Diorama	Audio
Porcelian	Original arts object	Television and Video
Stoneware	Wax Figure of Humans being	Lighting
Earthen ware	Arts object imitation	

Total area of part 3 : 188.5 SQM

Part 4. The Tool and Equipment = 5 %

Table 4.4

Exhibition	Furniture Requirement	Equipment Requirement
Type of Kilns	Boards and Free standing	Computer touch screen
Type of clay	Model	Audio
Decorative tools	Real object	Lighting
Type of Making Ceramic		Television and Video
Glazing Process		

Total area of part 4 : 188.5 SQM

Include storage 1.2%= 45.24

Area requirement of Temporary Exhibition)

Functional ceramic and Ceramic art = 754 SQM or 20% of All area

Table 4.5

Exhibition	Furniture Requirement	Equipment Requirement	Area
Hall			50
Collection of Ceramic		Audio Lighting Computer touch screen	628.6
Storage	Shelves		75.4

Demonstration Area = 207.8 SQM or 5.51% of All area

Table 4.6

Exhibition	Furniture Requirement	Equipment Requirement	Area
Indoor Area			100
Introduction	Boards and Free standing	Audio	56.5
Site Excavation	Diorama	Lighting	
Game Activities	Model	Television and Video	43.5
Demonstration Area			107.8
Demonstration Show	Stage with potter wheel	Audio /Tool	20
Workshop	Seats	Tool and Potter wheel	40
Yard	Table/Shelves	Kiln (2)	17.8
Storage		Wash basin	30

Technical room = 50 SQM or 1.32% of All area

Outdoor Area for Imitated Kiln = 96 SQM or 2.5% of All area

Area Requirement of Educational Area

Table 4.7

1. Library = 188.5 SQM or 5% Of All Area

Function	Furniture Requirement	Area/Unit (SQM/person)	Number Of User	Number of Staff	Total Area (SQM)
Library Area	Table and Seats Book case	0.9 (3.6)	40	-	144
Internet	Counter and Computer	1.2	5	-	6
Audio Vision	Audio set and seats	2	5	2	12
Librarian	Office set, counter, cabinet	3.5	-	5	17.5
Photo Room	Cabinet and Shelf	-	-	-	9
					188.5

2. Auditorium = 295.5 SQM or 7.84% of All Area

Function	Furniture Requirement	Area/Unit (SQM/person)	Number of User	Number of Staff	Total Area (SQM)
Seat /Circulation	150 seating / walkway	1.05	150	-	157.5
Stage	Screen & Projector	20% of Seat	-	1	20
Storage	Shelves	-	-	-	16
Control Room		-	-	-	15
					295.5

Area Requirement of Educational Area

3. Lecture Room = 50 SQM or 1.32% Of All Area

Function	Furniture Requirement	Area/Unit (SQM/person)	Number of User	Number Of Staff	Total Area (SQM)
One/ two room	Seat	0.6	50	-	30
Stage	Screen & Projector	-	-	-	20
					50

4. Workshop = 68.2 SQM or 1.809% of All Area

Function	Furniture Requirement	Area/Unit (SQM/person)	Number of User	Number Of Staff	Total Area (SQM)
Workshop area	Stage	-	-	1	10
	Screen & Projector	2	20	-	40
Storage	Shelves	-	-	-	7.54
Outdoor area	Shelves	-	-	-	10.65
					68.2

5. Ceramic Club Room = 40 SQM or 1.06% Of All Area

Function	Furniture Requirement	Area/Unit (SQM/person)	Number Of User	Number Of Staff	Total Area (SQM)
Club Room	Table and Seat, shelve	-	-	-	40

Area of the Education is 642.05 SQM of all area(3770 SQM) or 17.03 % of all area

Area Requirement of Office Area

Table 4.8

Function in Office = 72.5 SQM

Function	Furniture Requirement	Area/Unit (SQM/person)	Number Of User	Number Of Staff	Total Area (SQM)
Conference RM.	Table / 30 Seats	2	20	-	42
Pantry	Counter and table	-	5	-	10
Locker	Seats and shelves	-	-	-	20.5

1. Administration Division = 56 SQM

Function	Furniture Requirement	Area/Unit (SQM/person)	Number Of User	Number of Staff	Total Area (SQM)
Director	Office Set and equipment Cabinet, Sofa	20	-	1	20
Secretary	Office Set and Equipment	5	-	1	5
Head of Admin	Office Set and Equipment	10	-	1	10
Administration Officer	Office Set and Equipment , counter, cabinet	3.5		6	21
*Service department staffs are work in the service area					56

Area Requirement of Office Area

2. Academic Division = 32 SQM

Function	Furniture Requirement	Area/Unit (SQM/person)	Number Of User	Number Of Staff	Total Area (SQM)
Registration Dep.					10.5
Statistic Control	Office Set and Equipment	3.5	-	1	3.5
Registrar Officer		3.5	-	2	7
Academic Dep.					21.5
Academic Head	Office Set and Equipment	7.5	-	1	7.5
Academic Officer		3.5	-	4	14

* Curatorial department staffs are work in the Collection Storage

3. Technical Presentation Division = 45.5 SQM

Function	Furniture Requirement	Area/Unit (SQM/person)	Number Of User	Number Of Staff	Total Area (SQM)
Artistic Dep.					21.5
Artistic Director	Office Set and Equipment	7.5	-	1	7.5
Secretary		3.5	-	1	3.5
Designer.		3.5	-	1	3.5
Artist		3.5	-	2	7

Area Requirement of Office Area

3. Technical Presentation Division

Function	Furniture Requirement	Area/Unit (SQM/person)	Number Of User	Number of Staff	Total Area (SQM)
Technical Dep.					13.5
Technical Head	Office Set and Equipment	3.5	-	1	3.5
Technical Officer		3.5	-	3	10.5
Maintenance Dep.					10.5
Maintenance Officer	Office Set and Equipment	3.5	-	3	10.5

Area Requirement of Collection Storage

Table 4.9

Collection Storage = 226.2 SQM.

Function	Furniture Requirement	Area/Unit (SQM/person)	Number of User	Number of Staff	Total Area (SQM)
Main Storage	Cabinet and Shelf	60% of storage	-	-	135.72
Study Storage		20% of Storage	-	-	45.24
Study Room	Counter and table	3.5	5	-	17.5
Curatorial Office	Office Set and Equipment	7/3.5	-	1/3	17.5
Receiving Room	Counter and table	-	-	-	10.24

Area Requirement of Public Area

Area of the public is 433.5 SQM Of all area(3770 SQM) or 11.5 % Of all area

Table 4.10

Function	Furniture Requirement	Area/Unit (SQM/person)	Number Of User	Number Of Staff	Total Area (SQM)
Hall	Sofa set Bulletin Board Newspaper Stand	0.65	150	-	96
Ticket Booth	Counter	2	2	1	4
Information	Counter And computer	2.25	2	1	4.5
Bag Deposit	Bag Locker	0.5	20	1	10
Restaurant					152.3
- Dining Area	2 Seating/ 10 Sets	1.98	10	-	19.8
	4 Seating/ 20 Sets	4.37	20		87.4
	10 Seats at Counter Bar	1	10		10
- Kitchen	Pantry and Cooking Area	30% of Dining	-		35.1
Cafe					39.7 = 40
- Café area	Seating and Table	1.15	30	-	34.5
	Pantry	15% of cafe			5.2

Area Requirement of Public Area

Function	Furniture Requirement	Area/Unit (SQM/person)	Number Of User	Number Of Staff	Total Area (SQM)
Restroom	4 per each Men & Female	4	8	-	32
Handicapped	1 per each Men & Female	3	2	-	6
Souvenir Shop	Counter and Shelf	-	-	1	25
Ceramic Shop	Counter and Shelf	-	-	1	20
Book Shop	Counter and shelf	-	-	1	25
Service area					
- Telephone	Telephone booth	1	3	-	3
- ATM		1	1	-	1
- First-AID	Bed and toolkits	-	-	1	18.75
Total Area of Public :					432.4

Total Area of Museum

= 3770 SQM

25 % Circulation

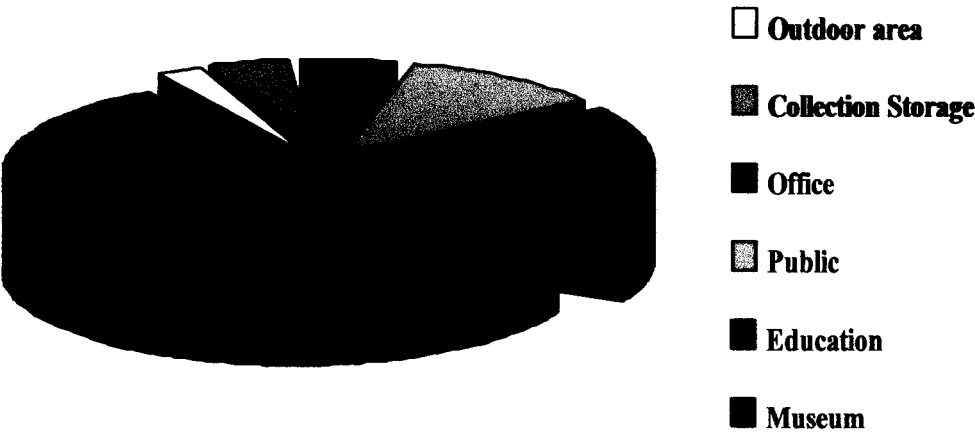
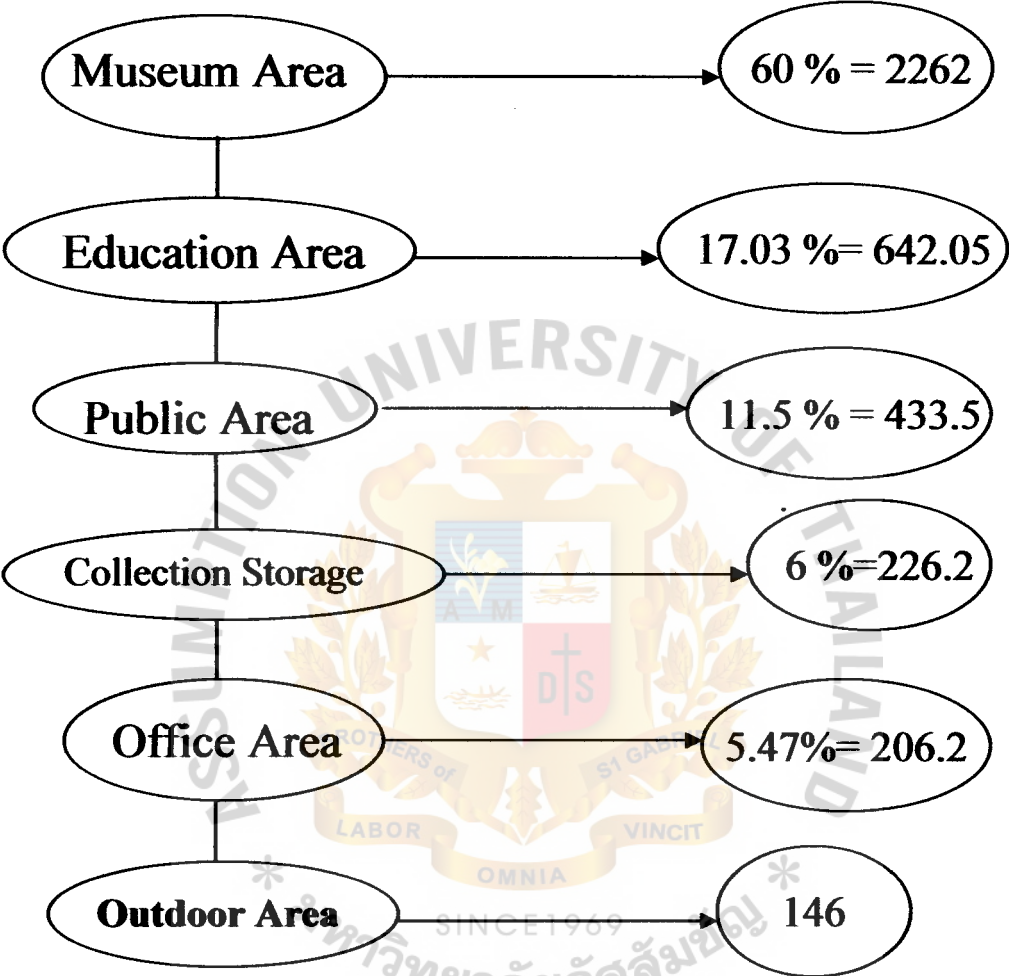
= 942.5 SQM.

Grand Total Of Building

= 4712.5 SQM.

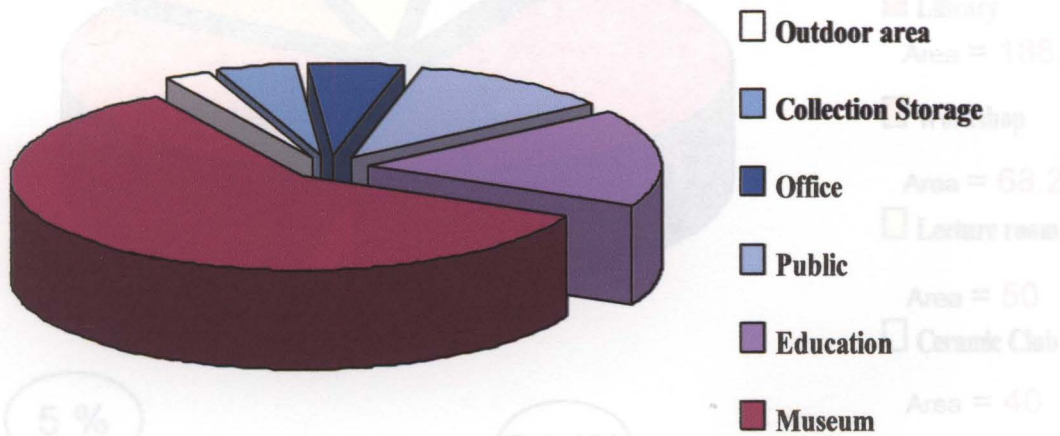
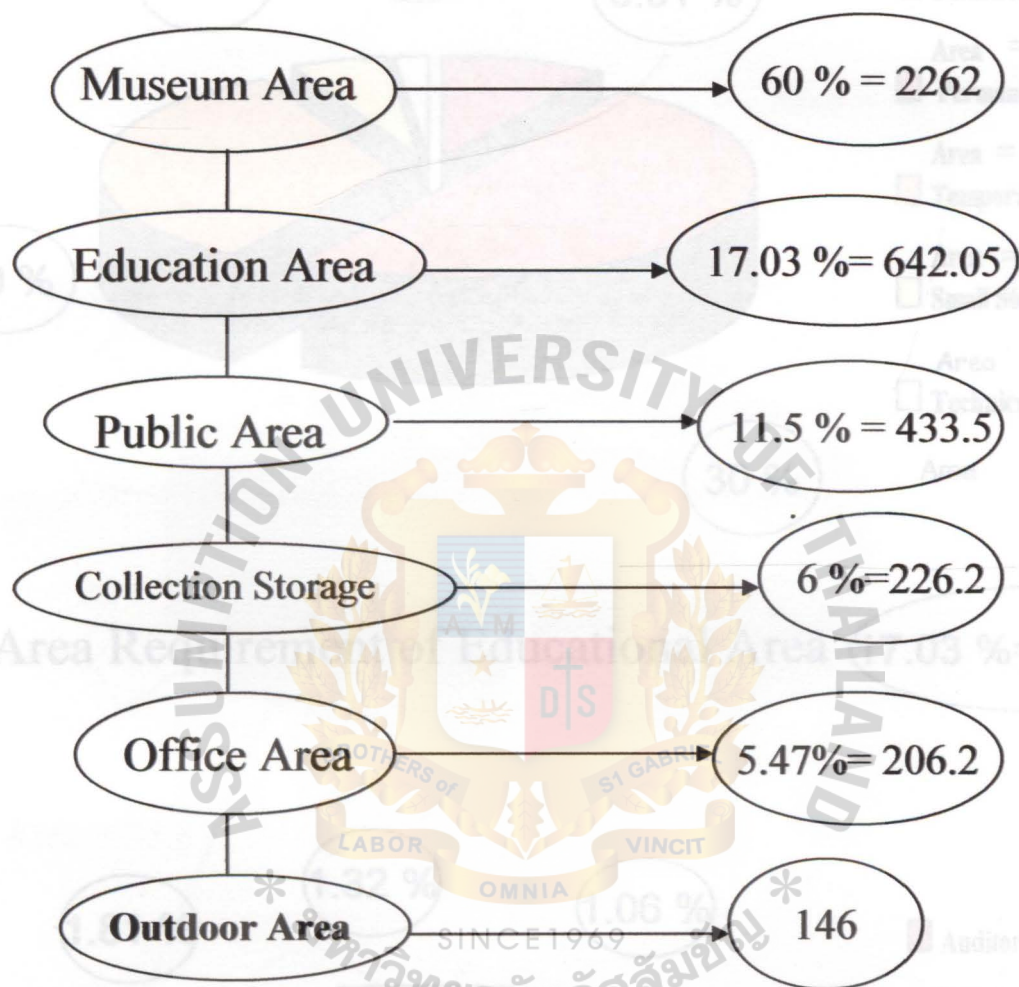
Area Requirement of Museum = 3770 SQM

* Add circulation 25 % = 942.5 SQM. Total area = 4712.5 SQM.



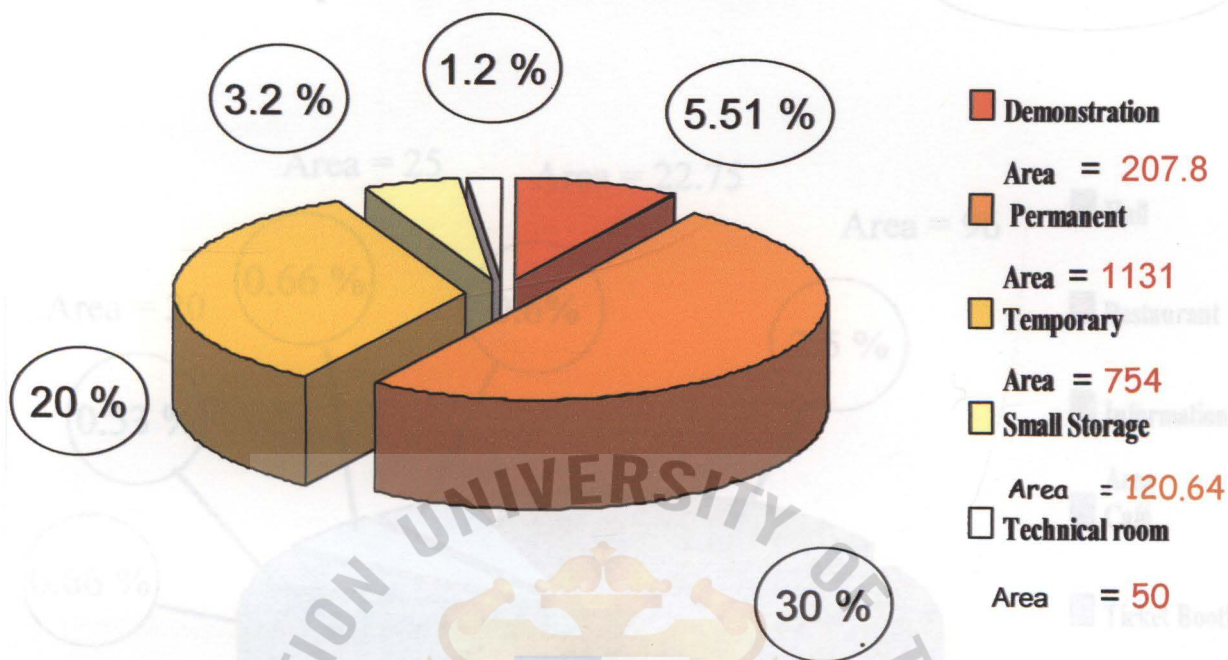
Area Requirement of Museum = 3770 SQM

* Add circulation 25 % = 942.5 SQM. Total area = 4712.5 SQM.

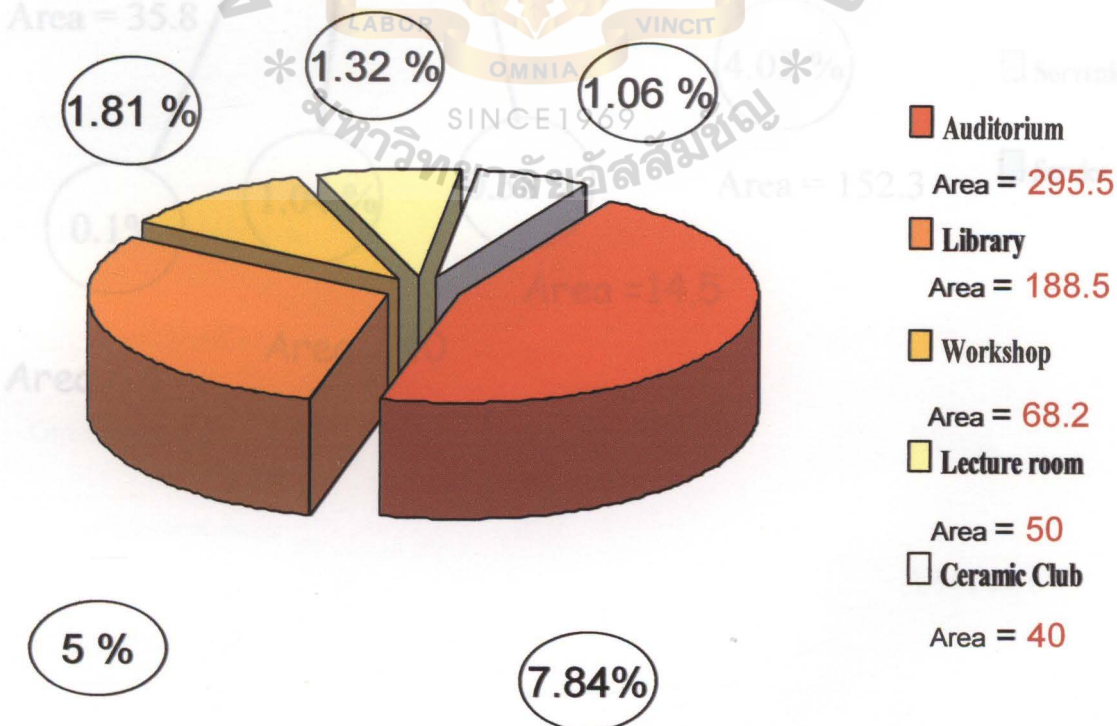


Area Requirement of Museum Area

60 % = 2262

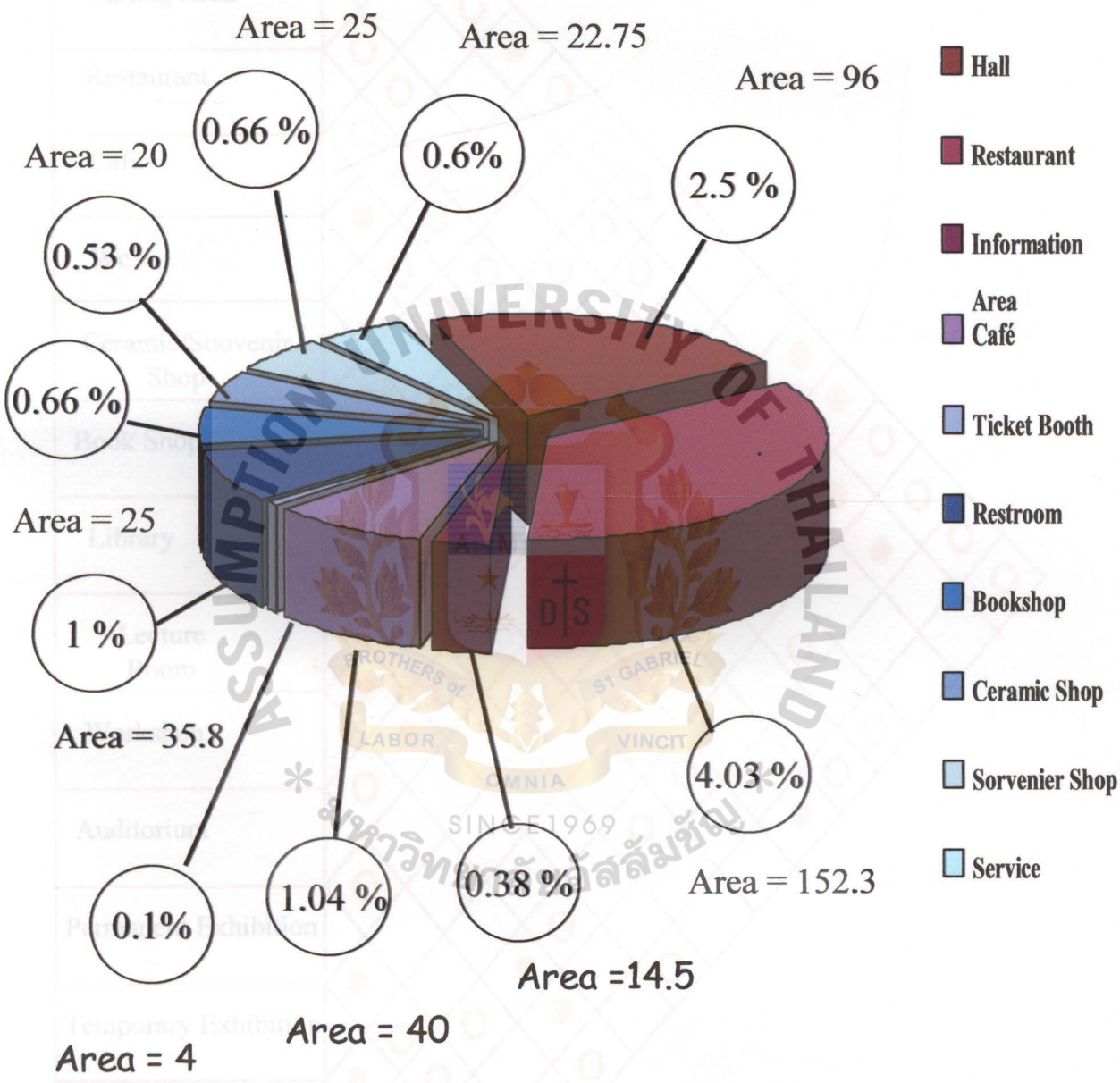


Area Requirement of Educational Area 17.03 % = 642.05



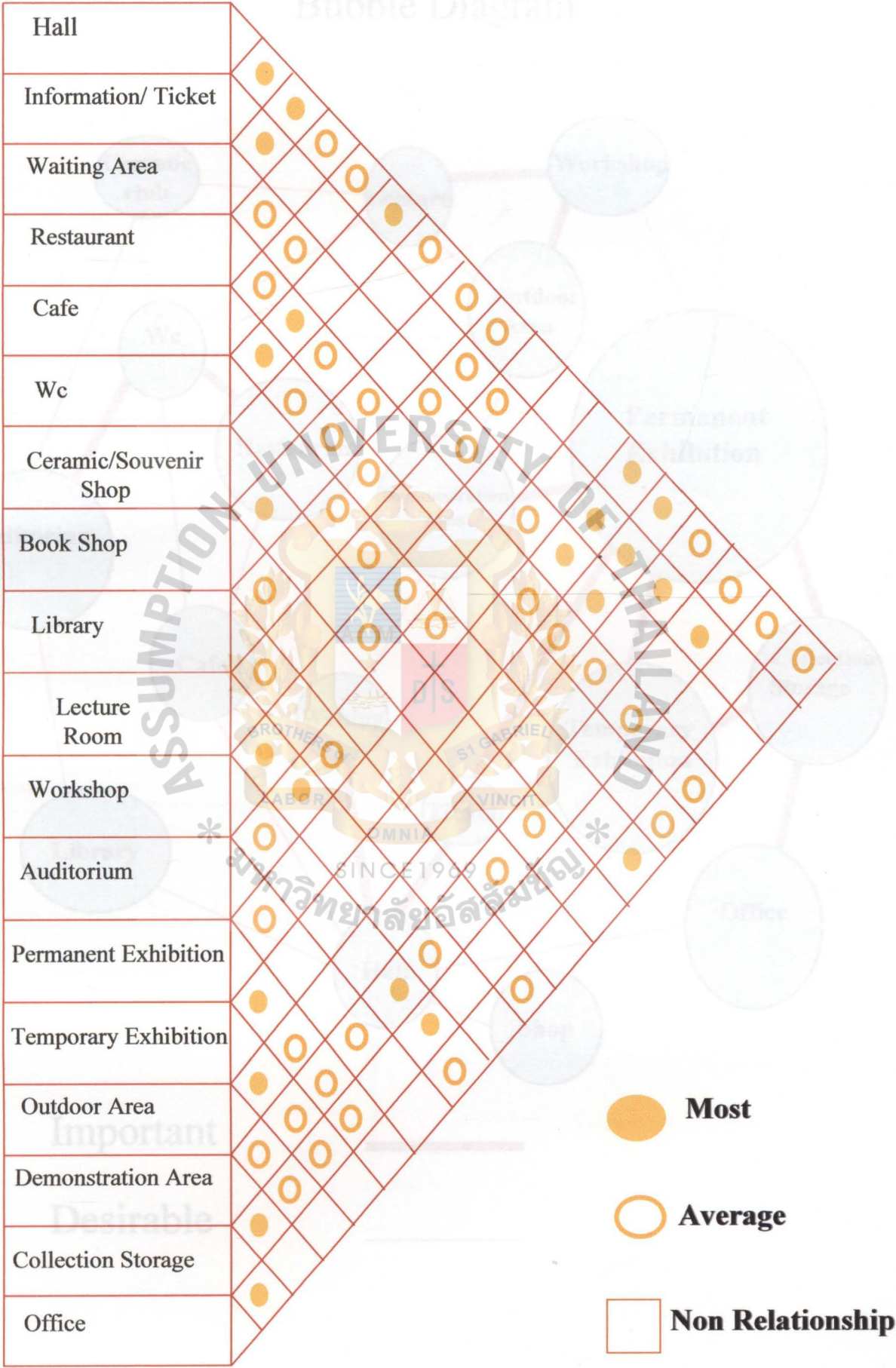
Area Requirement of Public Area

11.5 % = 433.5

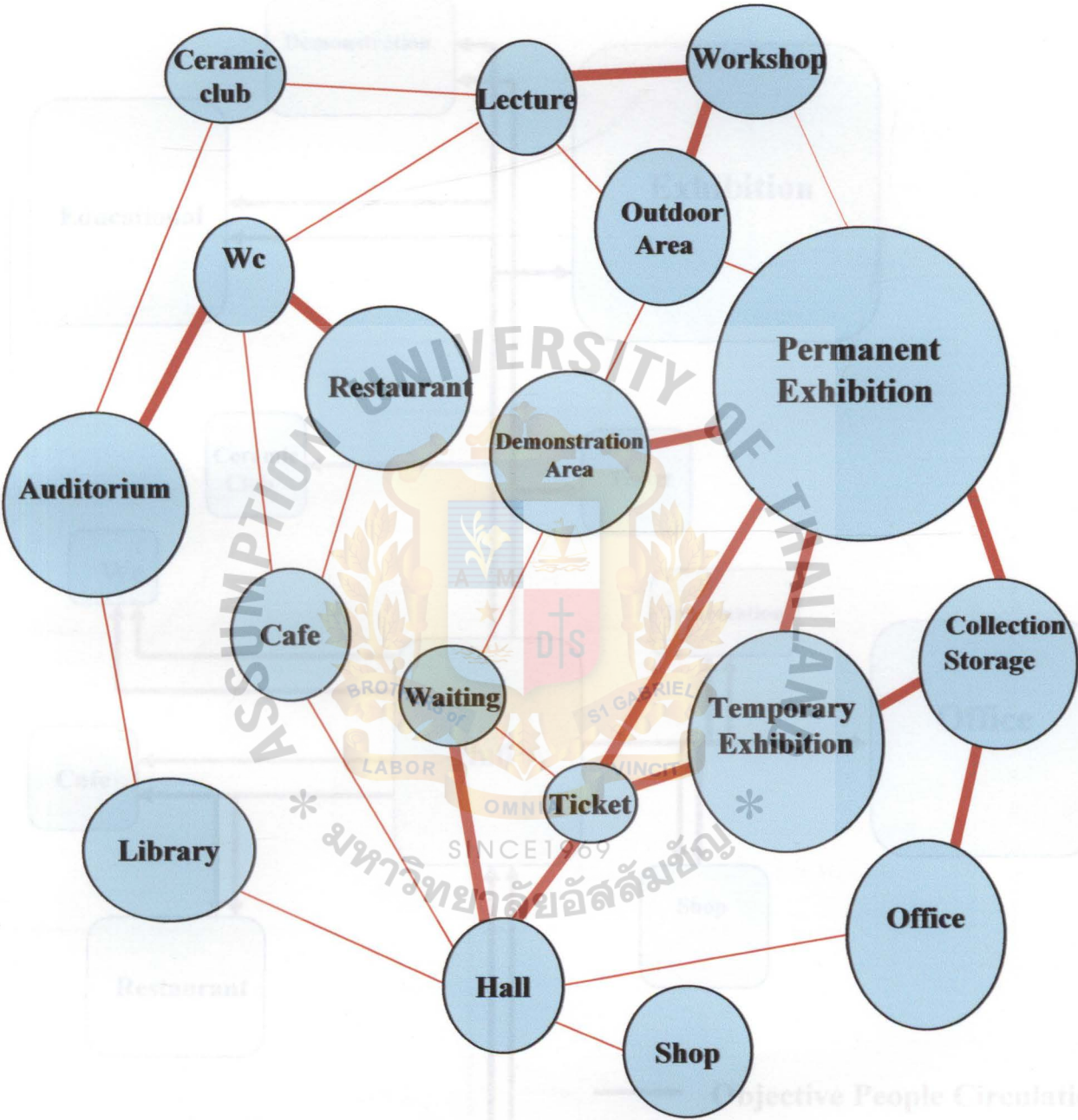


Most
Average
Non Relationship

Matrix Diagram



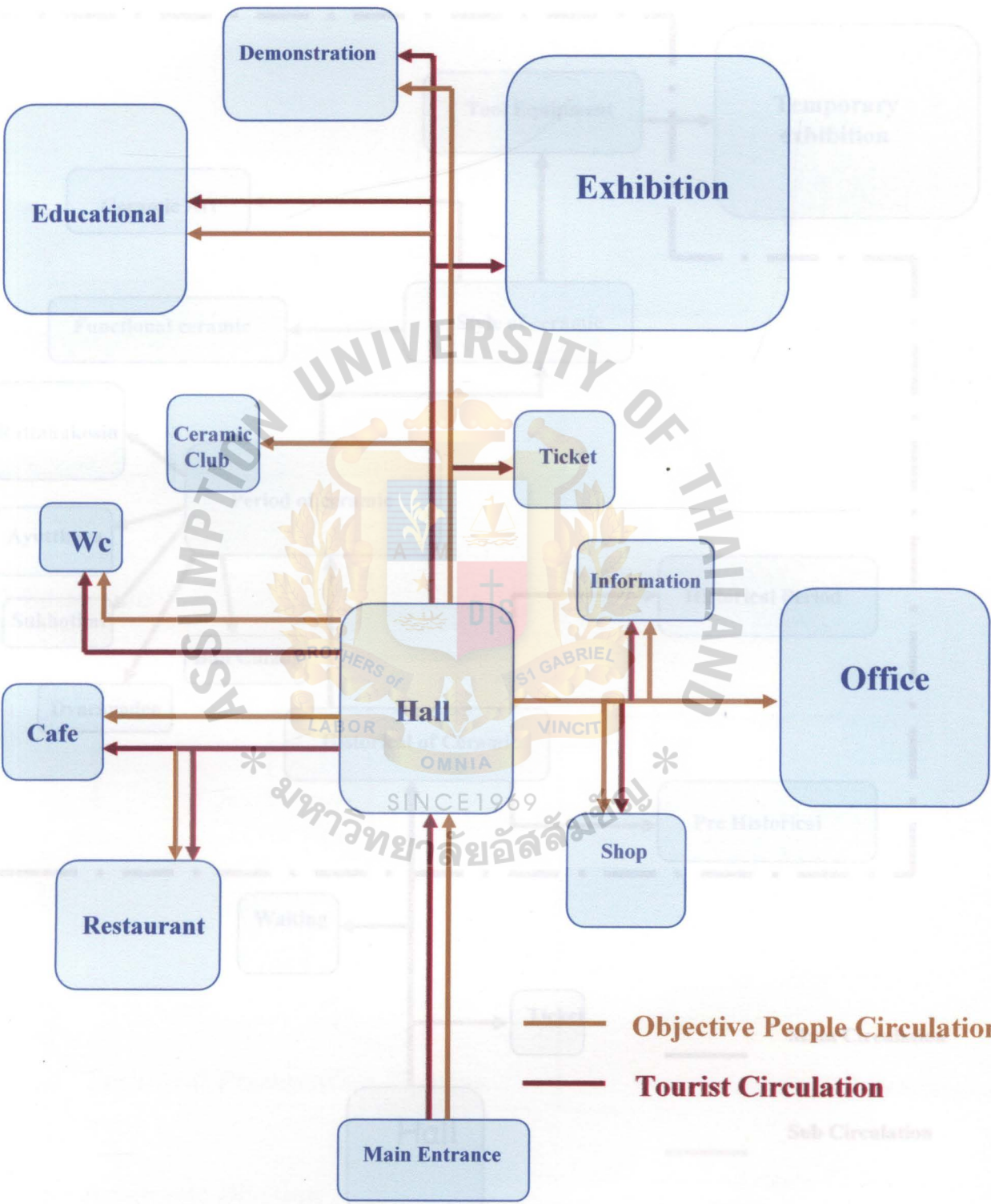
Bubble Diagram



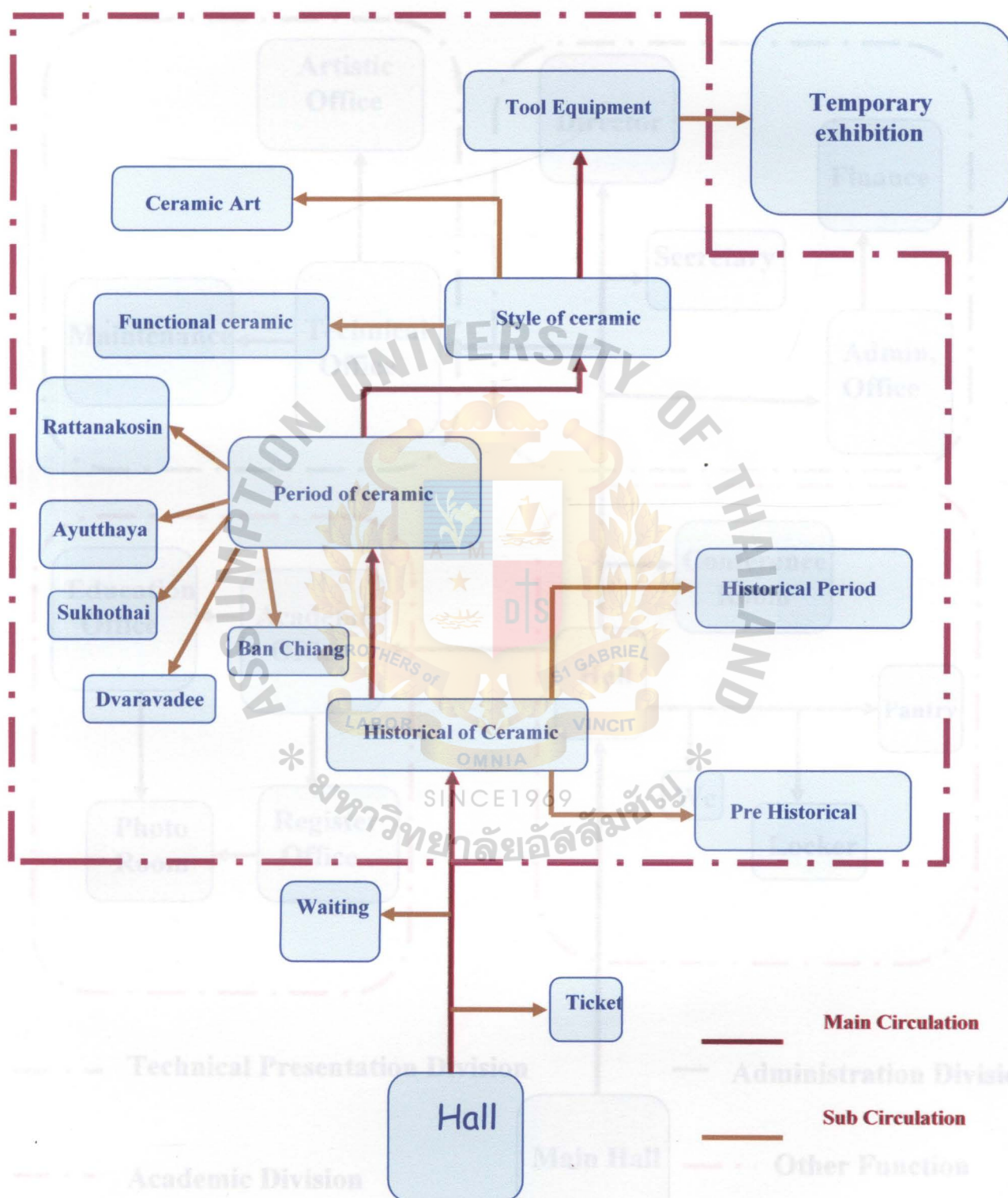
Important
Desirable



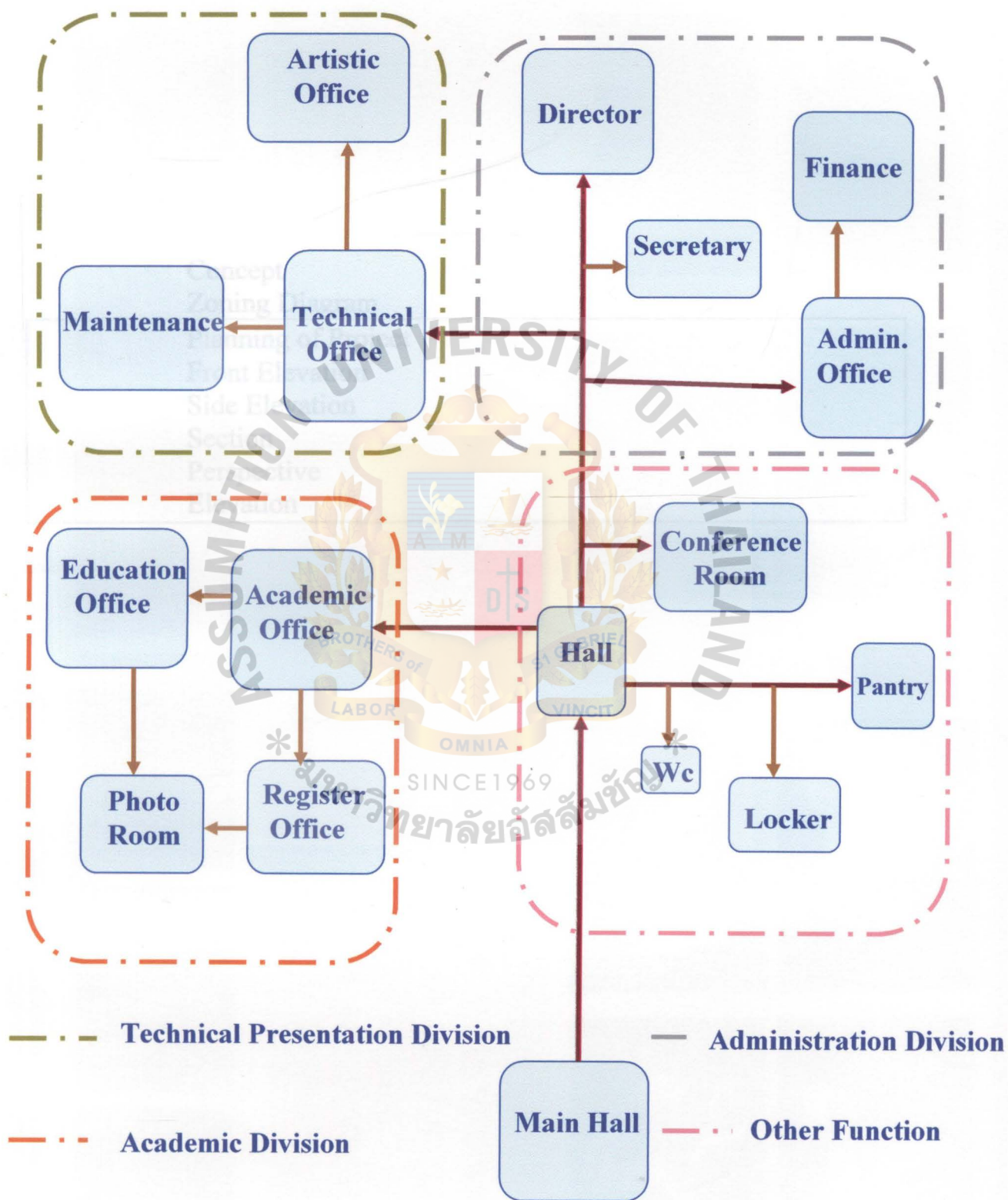
The relationship Diagram of User in Museum



The Relationship Diagram of Visitor in Permanent Exhibition



The relationship Diagram of Staff in Office area



Chapter 5 Design Solution

Concept
Zoning Diagram

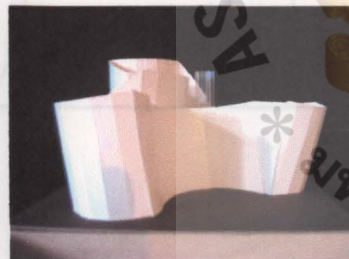
Planning of Project
Front Elevation
Side Elevation
Section
Perspective
Elevation



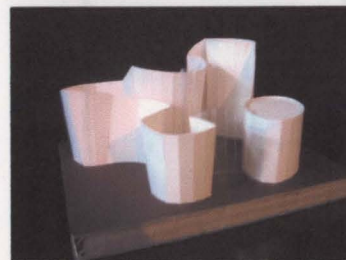
Thai Ceramic Art Museum



CONCEPT WAS COME FROM THE EXPANSION AND DISTORTION OF CLAY DURING THE MOLDING. AT FIRST, CLAY WILL BE LIKE PILE AFTER START MOLD IT, CLAY WILL BE EXTEND IN VERTICAL AND THEN POTTER WILL PUSH CLAY IN HORIZONTAL. A POTTER WILL HOLE CLAY AT THE CENTER AND CLAY WILL DISTORT AND BEND TO INSIDE AND OUTSIDE DEPEND ON POTTER AND QUANTITY OF CLAY WILL REDUCE DURING MOLD.

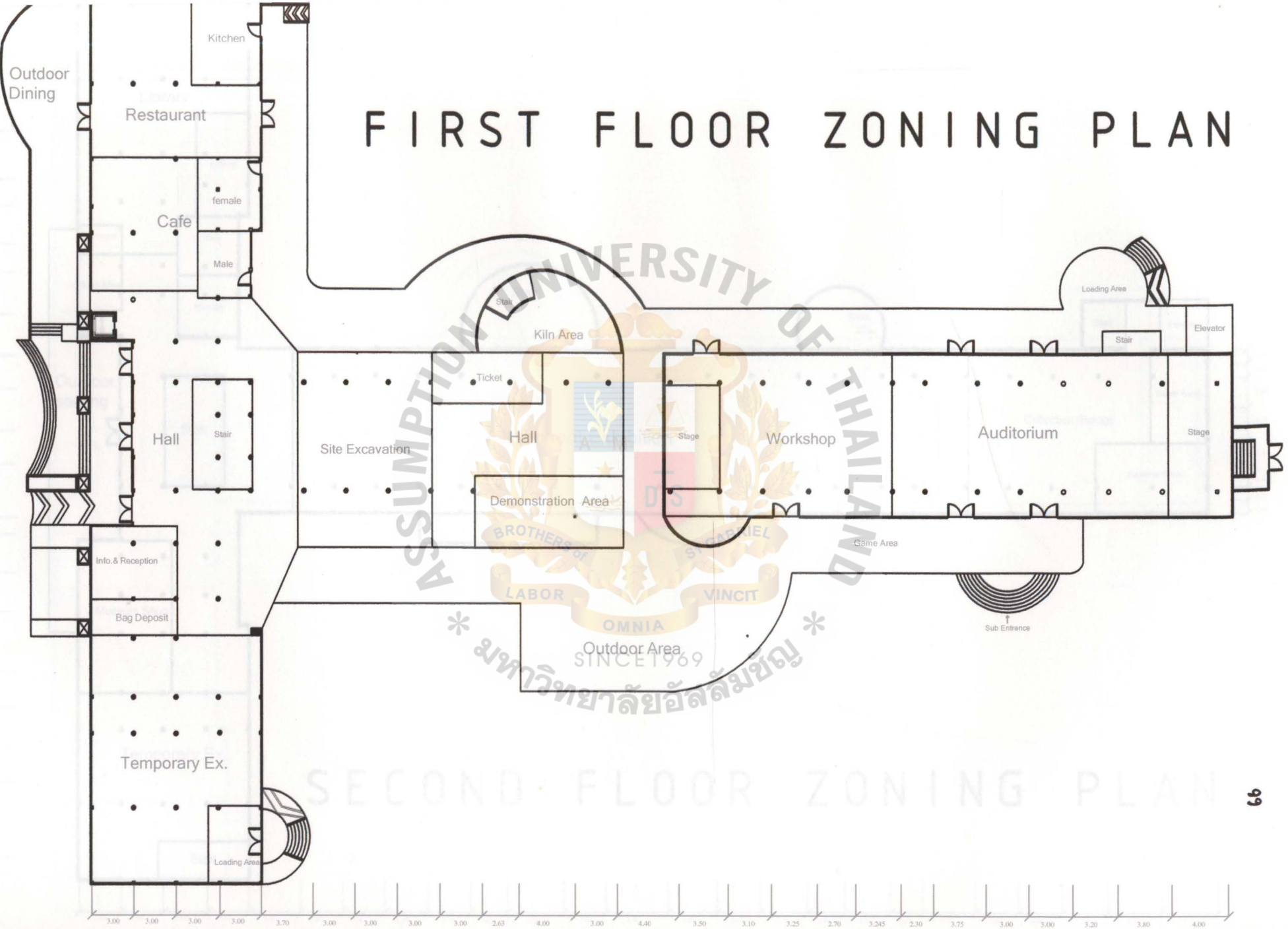


DEVELOPED



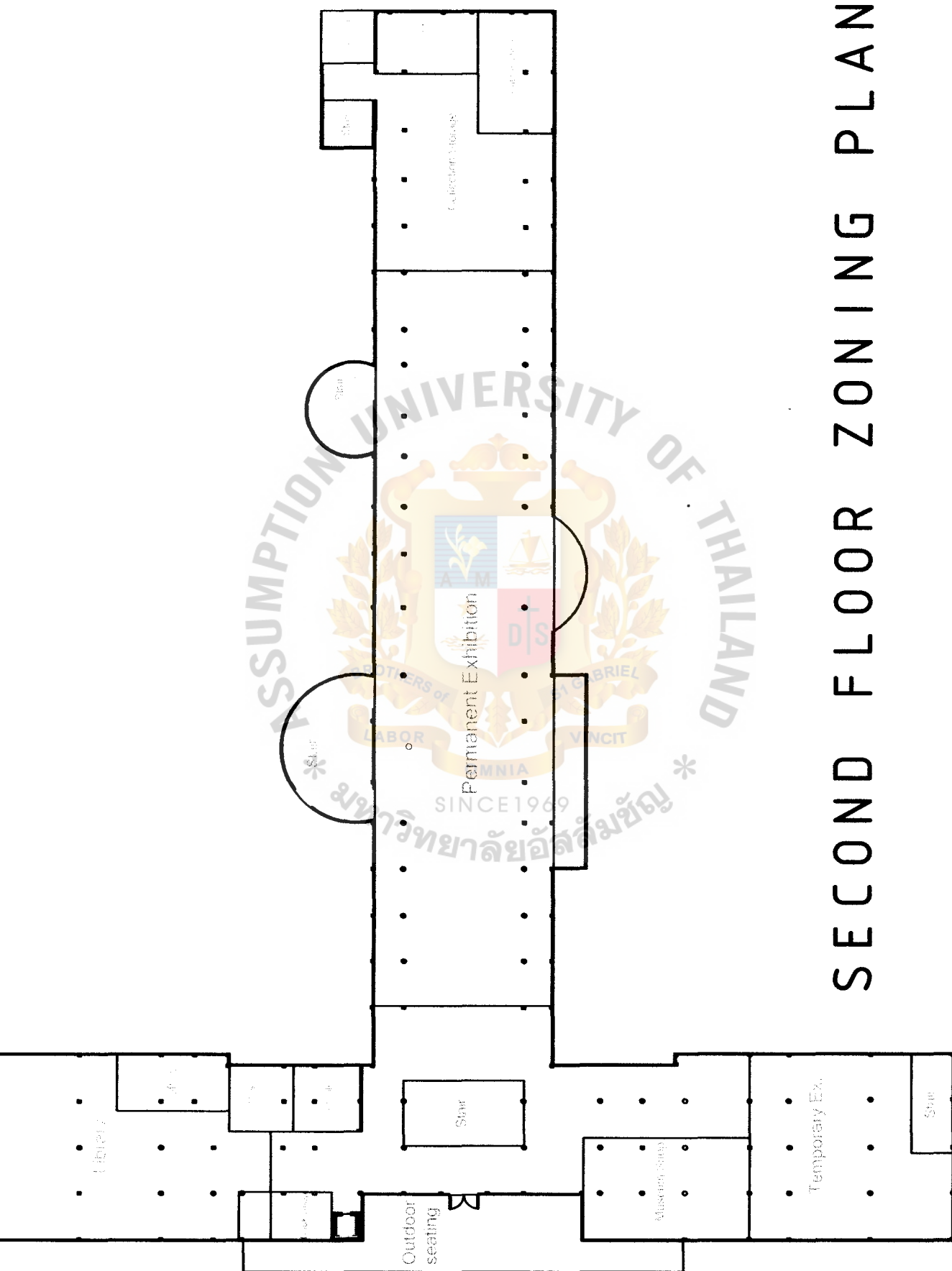
CONCEPTUAL

DESIGN

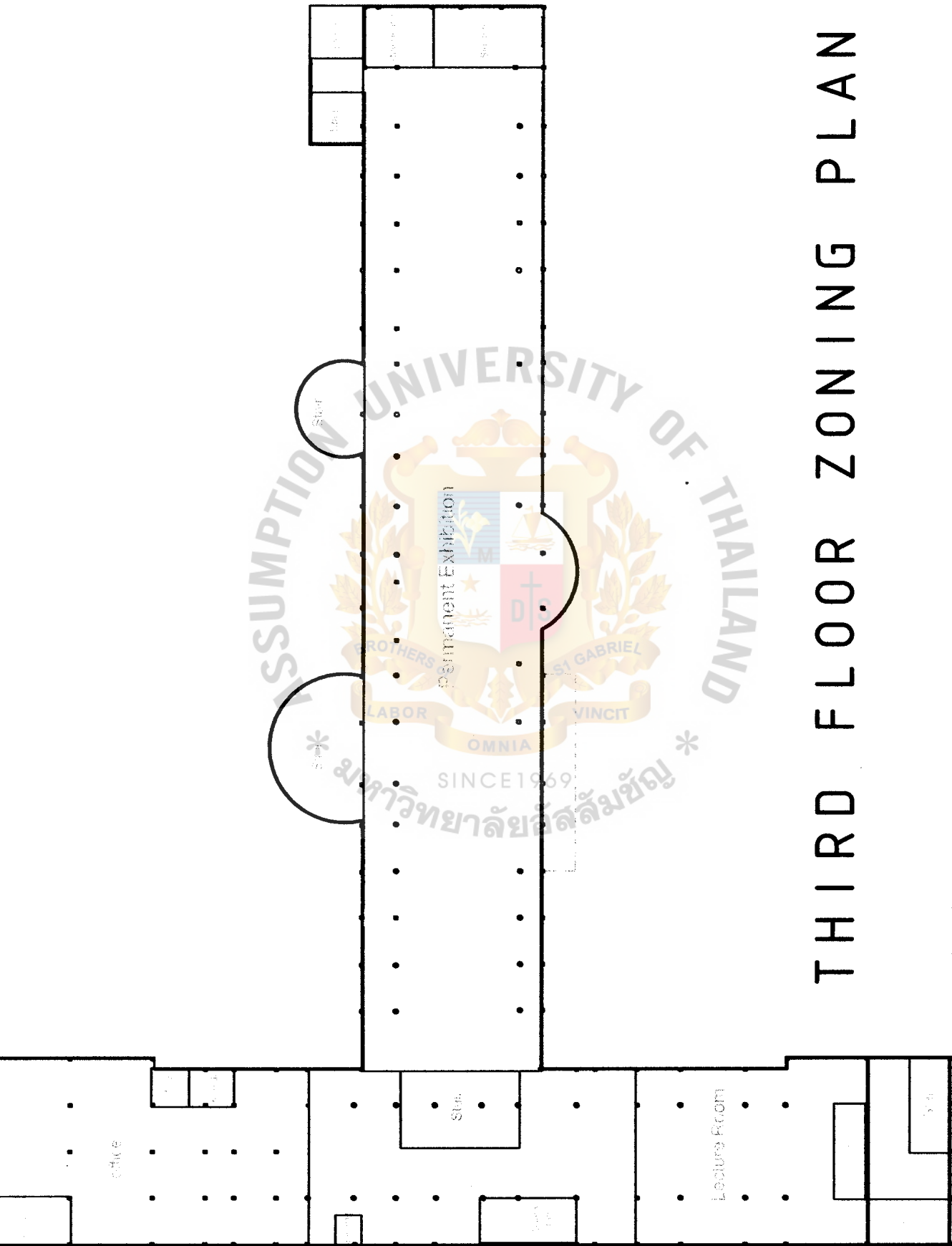


SECOND FLOOR ZONING PLAN

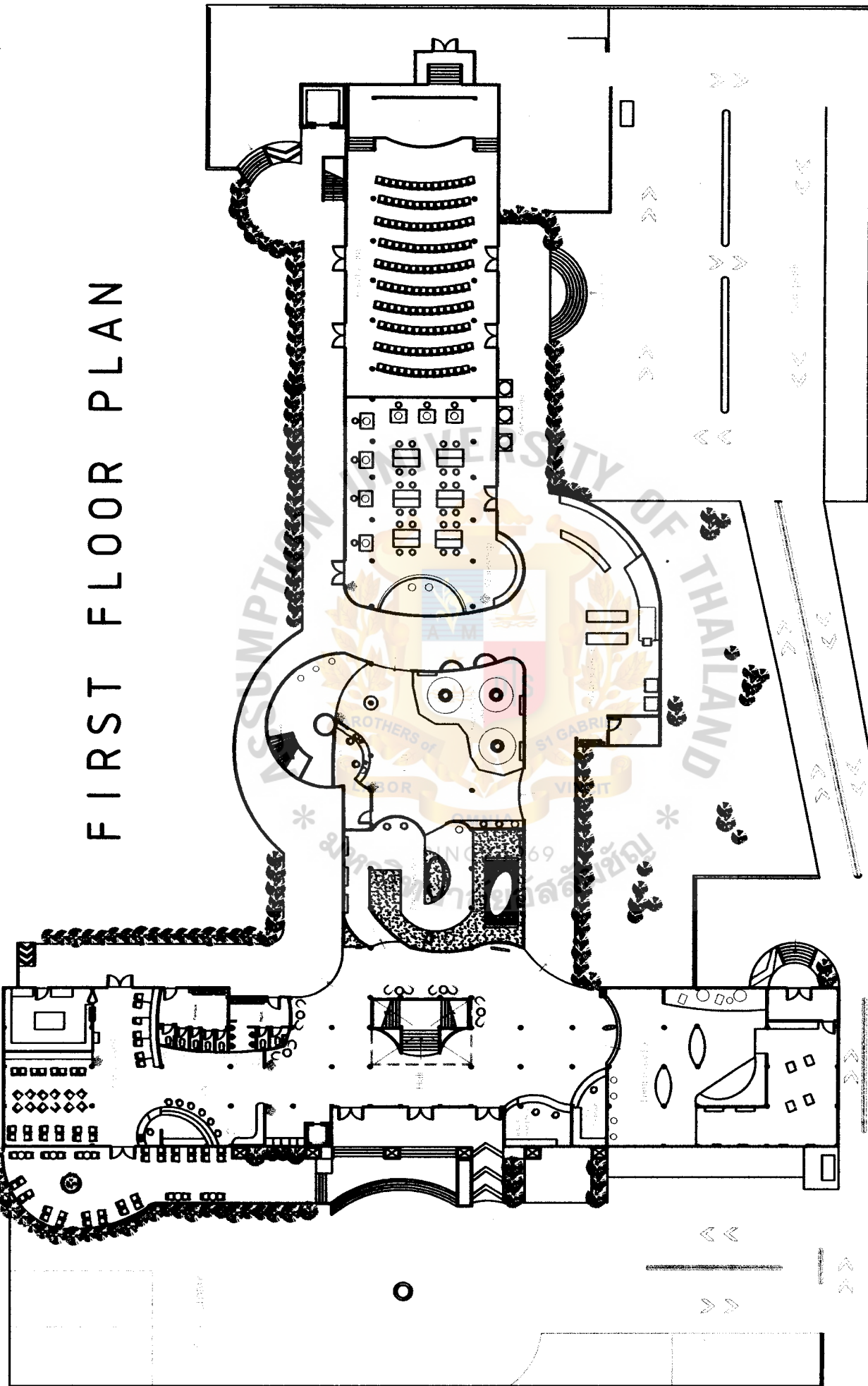
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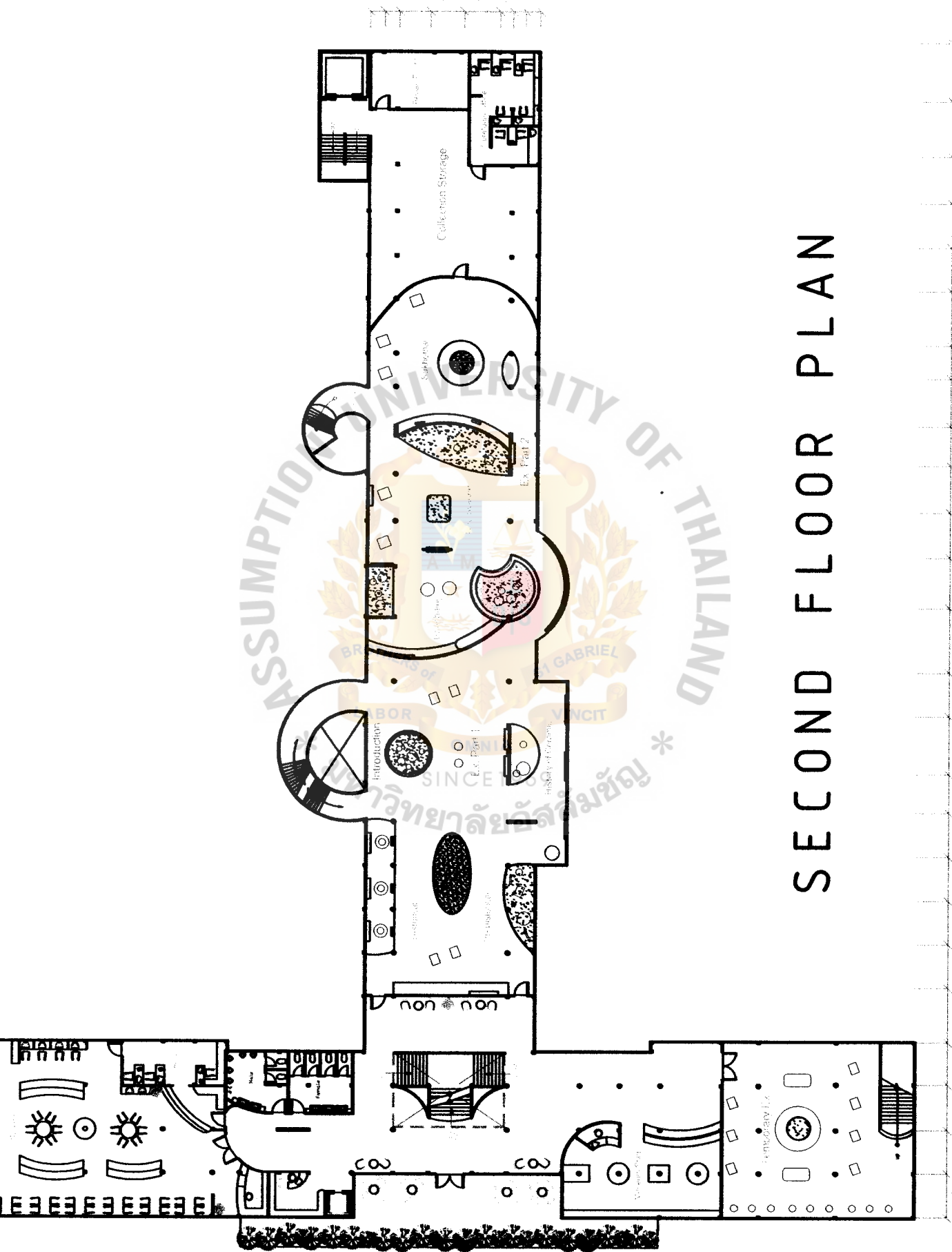


THIRD FLOOR ZONING PLAN

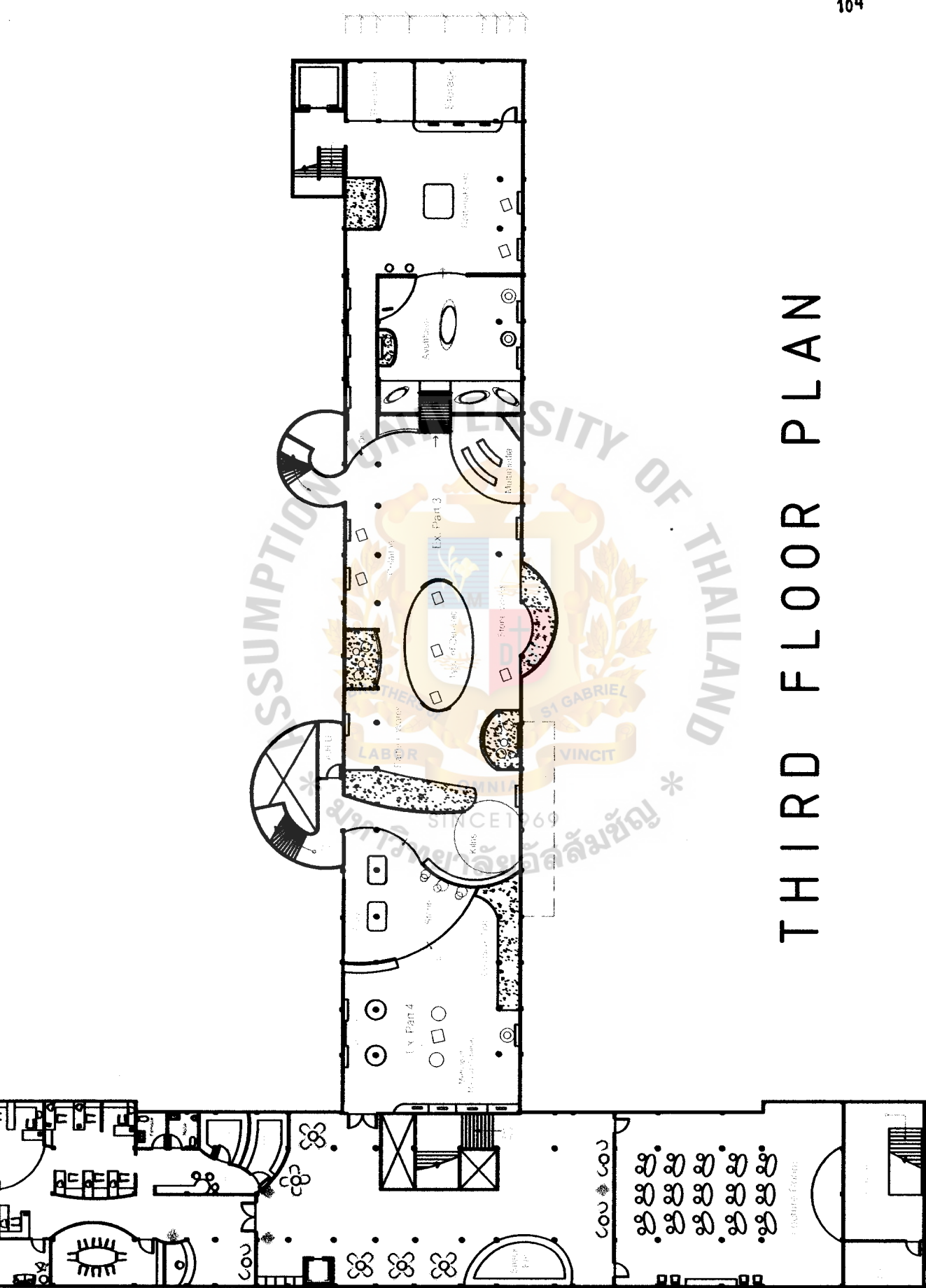


FIRST FLOOR PLAN

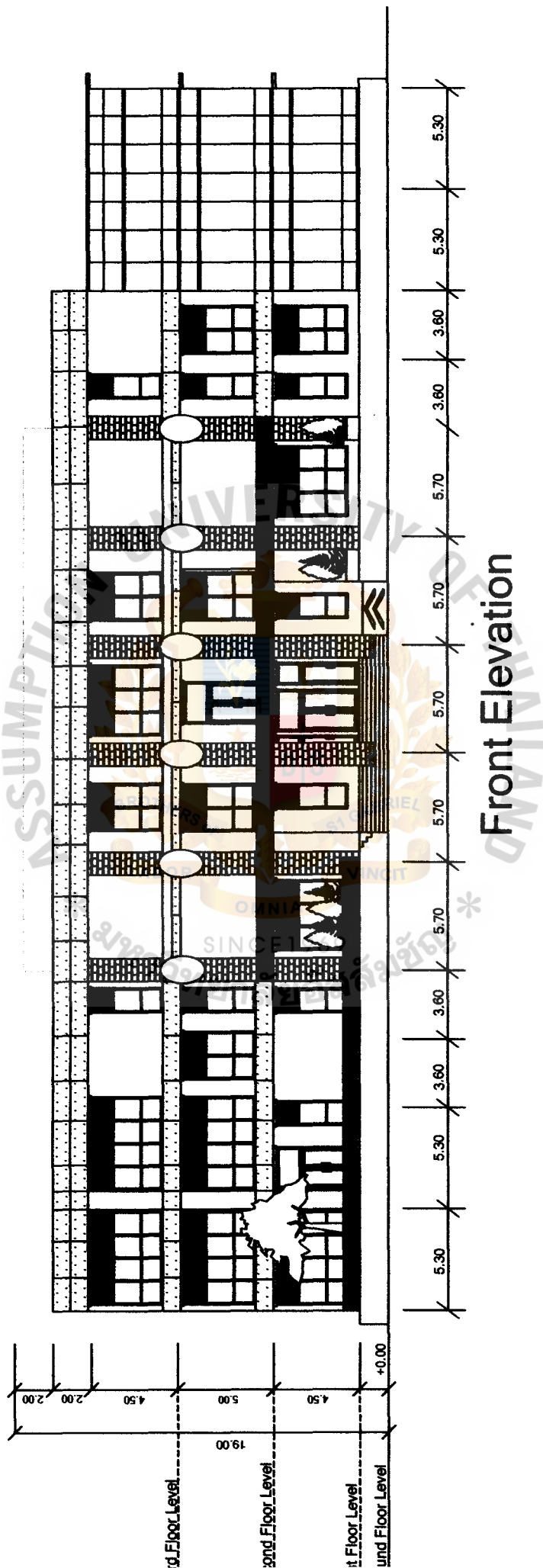


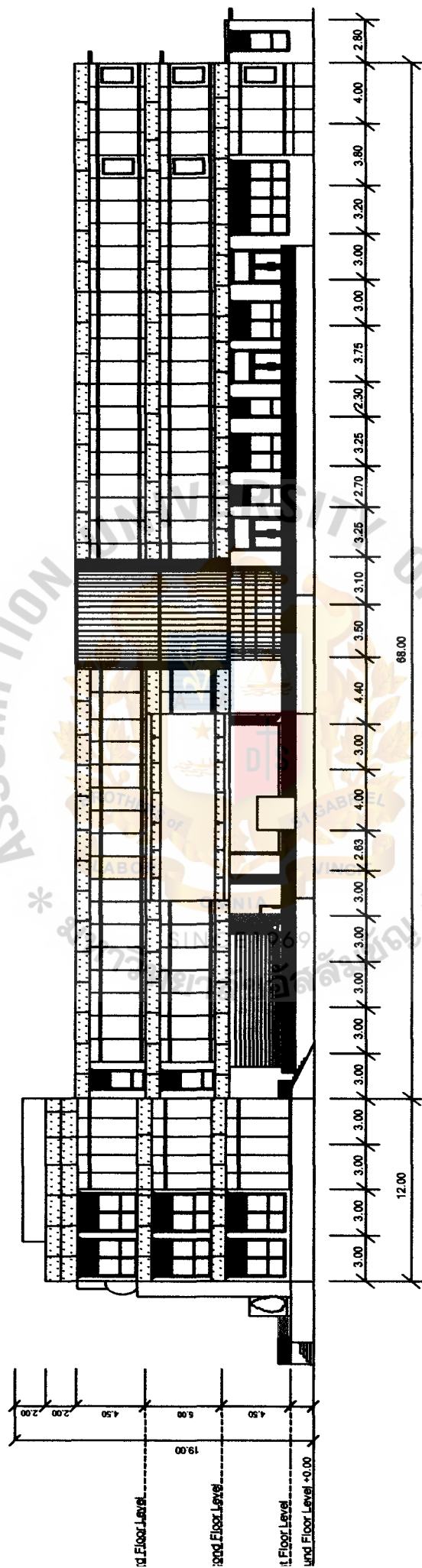


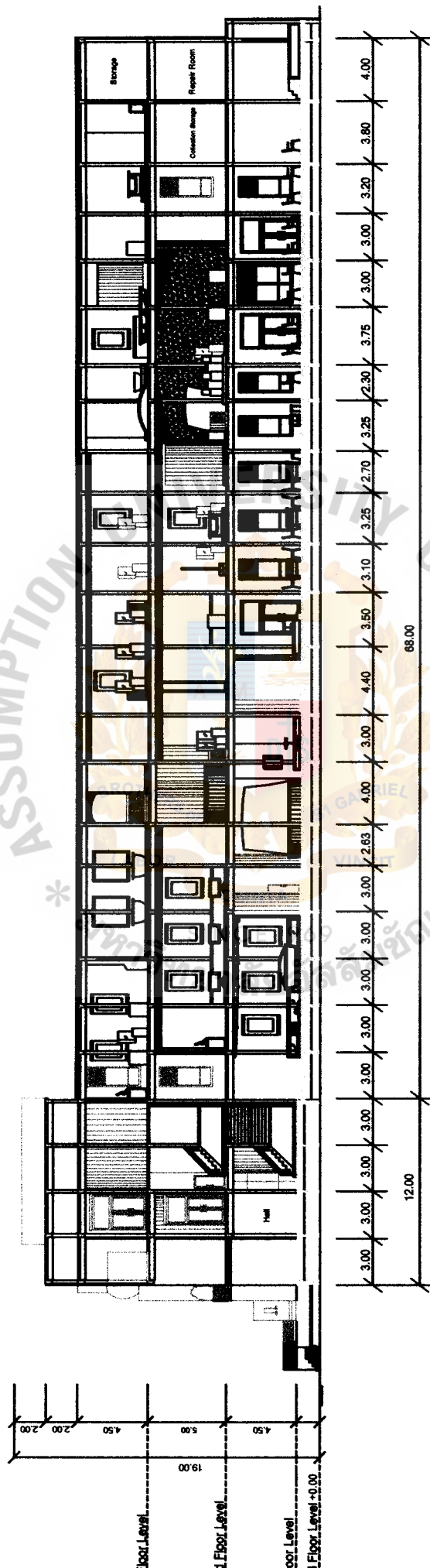
SECOND FLOOR PLAN



THIRD FLOOR PLAN

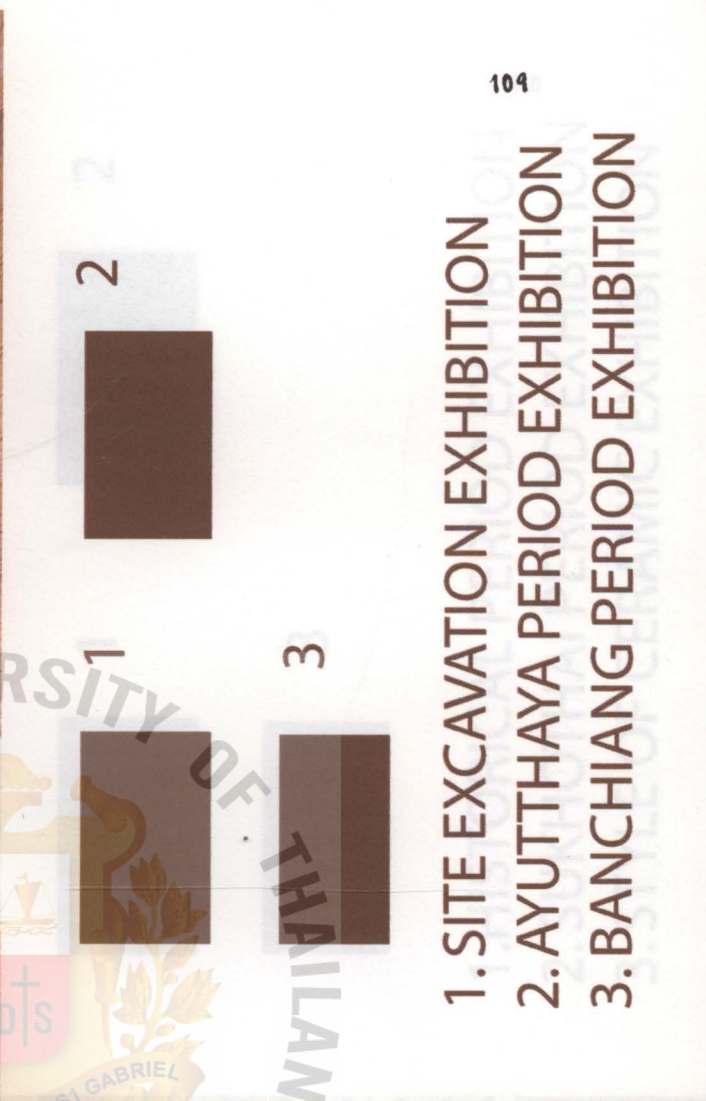




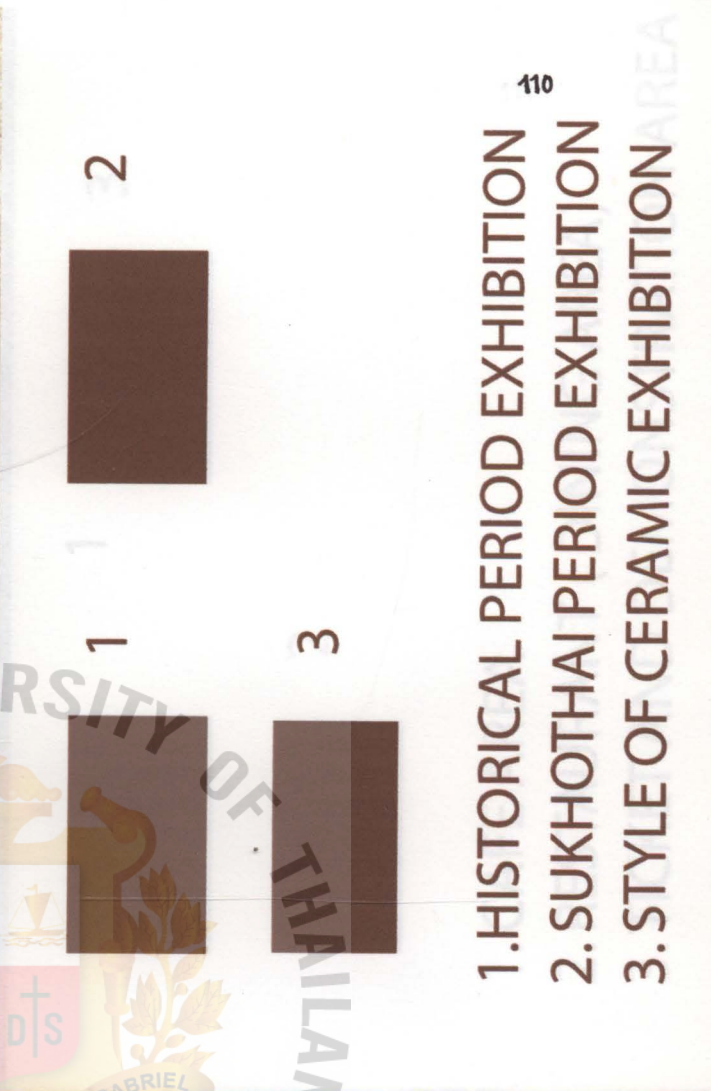




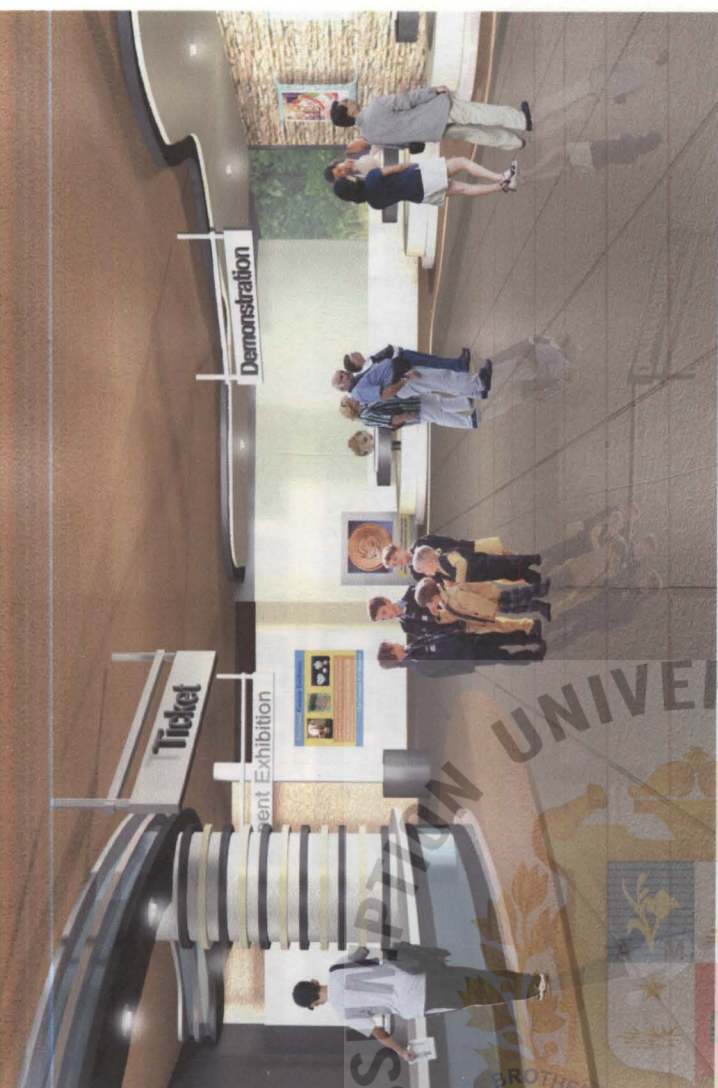
Perspective



1. SITE EXCAVATION EXHIBITION
2. AYUTTHAYA PERIOD EXHIBITION
3. BANCHIANG PERIOD EXHIBITION



1. HISTORICAL PERIOD EXHIBITION
2. SUKHOTHAI PERIOD EXHIBITION
3. STYLE OF CERAMIC EXHIBITION AREA



1



2



3

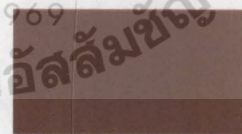
1. CAFE AREA
2. RESTAURANT (DINING AREA)
3. TICKET AND DEMONSTRATION AREA



1



3

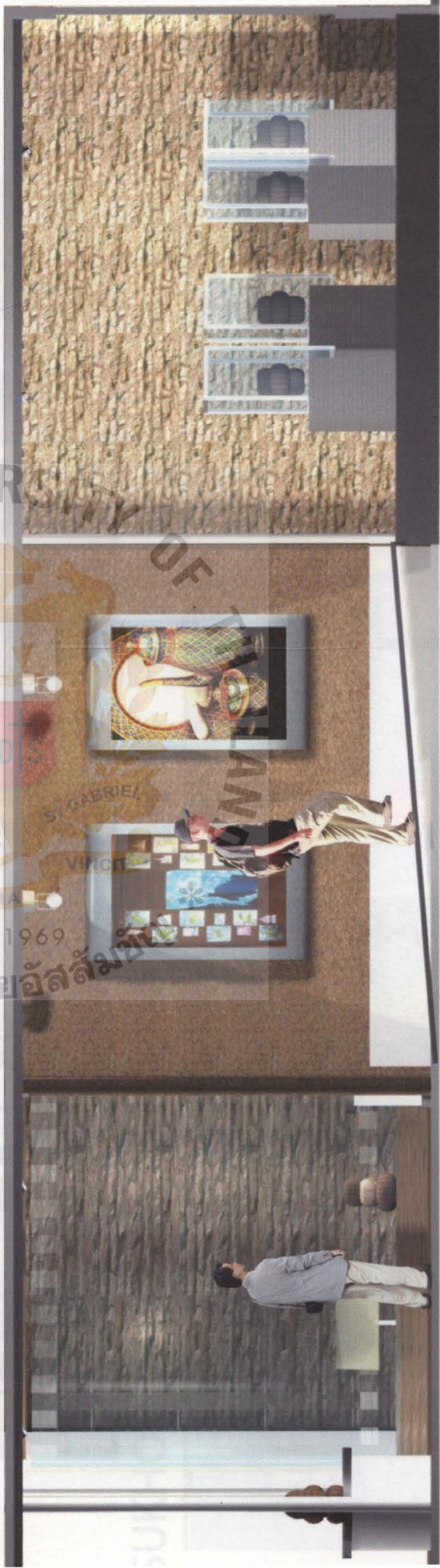


2

- 1. LIBRARY AREA
- 2. LIBRARY (SEATING AREA)
- 3. BUILDING FACADE



TEMPORARY EXHIBITION



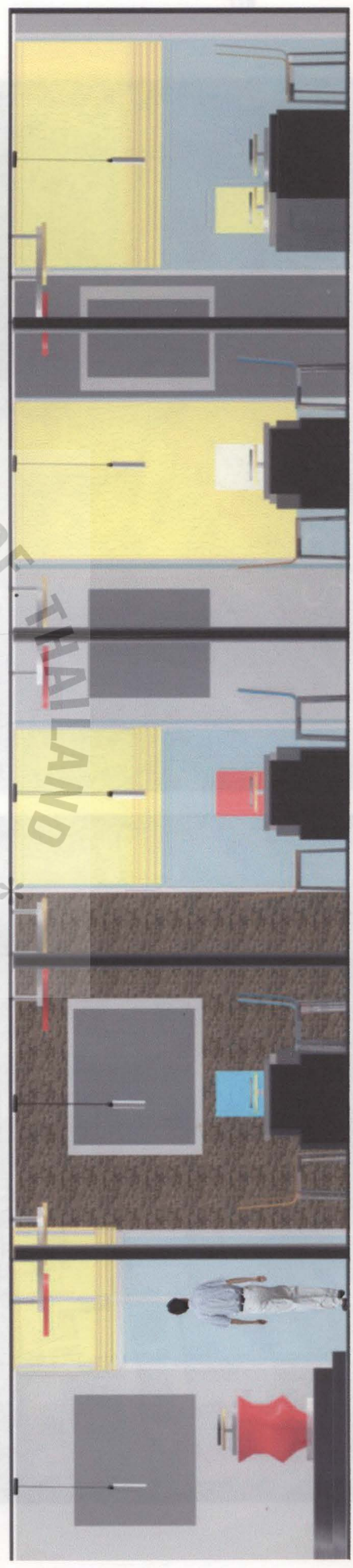
TEMPORARY EXHIBITION



RESTAURANT

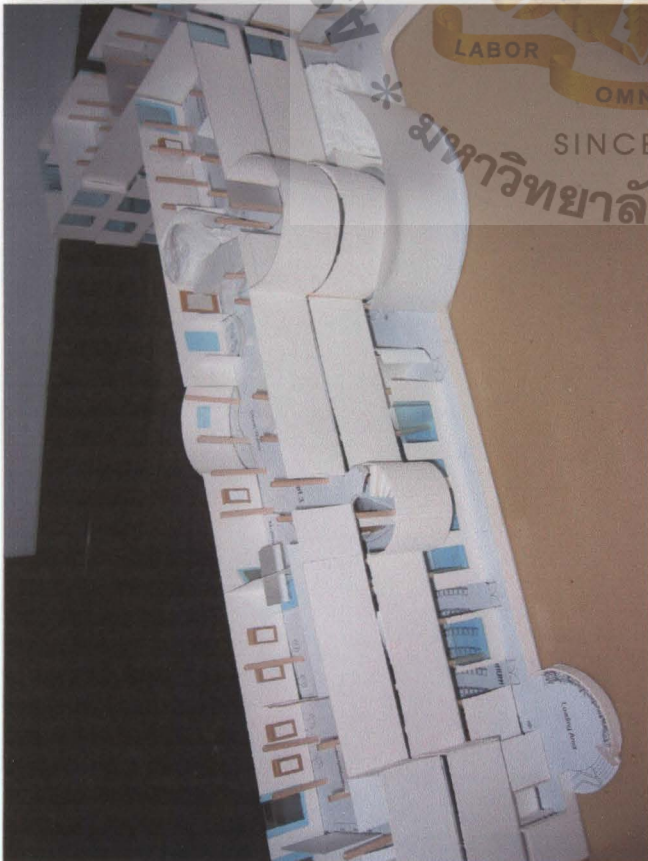


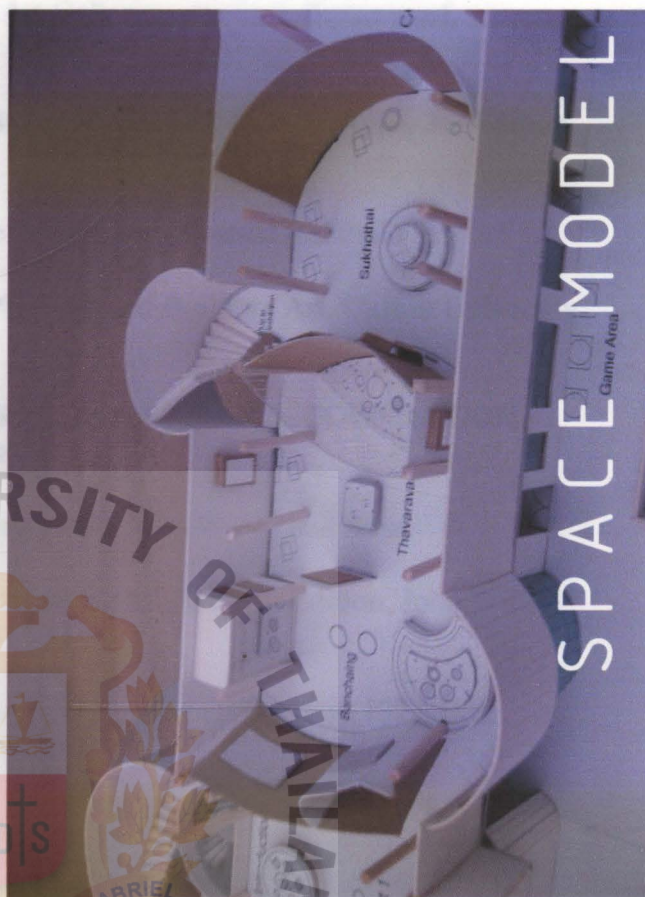
SUKHOTHAI PERMANENT EXHIBITION



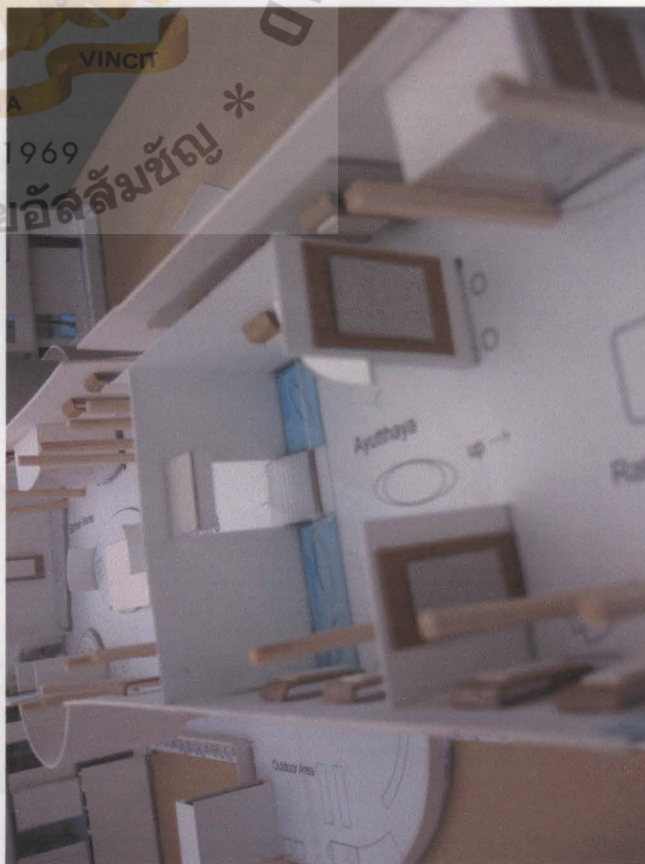
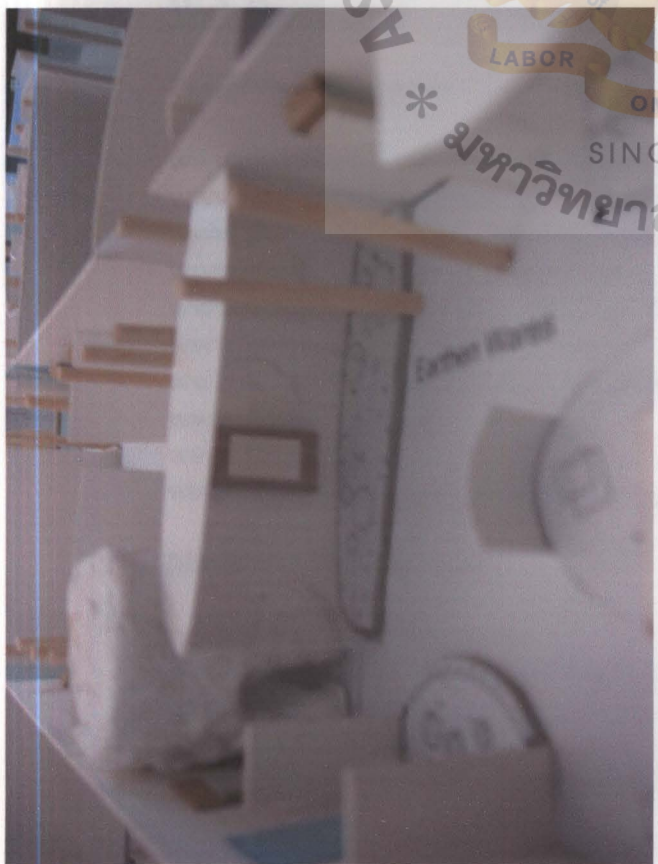


SPACE MODEL





SPACE MODEL



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www.geocities.com/rainforest/potter
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