

Study on Architectural Form and Space of Ancient Monastic Buildings in U Ariya Monastery Compound (Yangon, Myanmar)

¹Hnin Kay Khaing, ²Pwint, ³Theingi Shwe

¹Ph.D Candidate, Department of Architecture, Yangon Technological University, Yangon, Myanmar

²Professor, Department of Architecture, Yangon Technological University, Yangon, Myanmar

³Professor, Department of Architecture, Yangon Technological University, Yangon, Myanmar

Email - ¹hninkaykhaing@gmail.com, ²p.mapwint@gmail.com, ³tgi.shwe@gmail.com

Abstract: As Myanmar is a Buddhist country, there are many religious buildings all over the country. Among these religious buildings, monasteries are one of the significant buildings in Myanmar architecture because many Myanmar traditional architectural features can be found in these buildings. Also, there are many Buddhist monasteries, that were constructed in different periods, in Yangon, Myanmar. Among them, U Ariya Monastery is one of the most ancient heritage monasteries in Yangon. The study of this research paper is emphasized on the architectural form and space of ancient monastic buildings in U Ariya Monastery compound which were built during colonial period of Myanmar. The layout planning of this compound and the other rebuilt monastic buildings are excluded. In this paper, firstly, the study aims to trace back historical background of this monastery. And then, this paper is approached by using two main criteria; form and space. The results indicated that the spatial composition is cluster organization but all monastic buildings are in the form of grid. The form composition is more emphasized the body of the building than the roof. This form composition gives stable and massive expression. The roof forms are mostly used as Myanmar traditional roof types such as Madras Talepaw roof form, Hta we Hsaung roof form, etc. The overall facade reflects harmonized visual aspect because the colonial style of all monastic buildings is complementary.

Key Words: U Ariya Monastery, Ancient Monastic Building, Spatial Composition, Form Composition.

1. INTRODUCTION:

Myanmar has its own unique art and architecture. There are many religious buildings all over Myanmar such as stupas, temples, monasteries, ordination halls and so on. Throughout Myanmar history, the splendid and unique architectural features can be seen in the architecture of these religious buildings. Among these religious buildings, Buddhist monasteries play a significant role in the history of Myanmar architecture. In addition, these buildings reflect culture, tradition, socio-economic, political conditions, architecture thoughts and theories of each periods that they were constructed. Many Buddhist monasteries are found all over Myanmar since Pyu period to the present day. Accordingly, Yangon, the former capital city as well as one of the famous cities in Myanmar, has many Buddhist monasteries which were built from colonial period (late 19th Century) to until now. There are over 3000 numbers of Buddhist monasteries in Yangon, Myanmar. Among these buildings, U Ariya Monastery is one of the ancient heritage Buddhist monasteries in Yangon. This monastery is nearly 120 years old and it has so much valuable architectural features.

2. AIM AND OBJECTIVES:

This paper aims to study the architectural form and space of ancient monastic buildings in U Ariya Monastery compound in Yangon, Myanmar. The specific objectives that will enhance to achieve the above aim are (1) to point out the value of architectural features of these ancient monastic buildings (2) to intend to be useful as the record and reference for further studies and conservation works of this monastery.

3. SCOPE OF RESEARCH PAPER:

The scope of this research paper is limited to study the architectural form and space of U Ariya Monastery mainly focusing on the ancient monastic buildings that were built in colonial period still existing with the original ancient architecture. The layout planning of this monastery compound and the other reconstructed monastic buildings that were built after cyclone Nargis in 2008 AD are not included.

4. METHOD OF APPROACH:

In this research paper, qualitative and quantitative approaches were used for data collection and data study. The followings are method of approach to study architectural form and space of ancient monastic buildings in U Ariya Monastery compound in Yangon, Myanmar. Firstly, primary data were collected by field survey and photos taking, measuring and sketching drawings, and making interviews about this monastery. The relevant literature and a brief

background history of U Ariya Monastery were studied to collect the secondary data. And then, on the basis of these data, the study on the architectural form and space has been carried out emphasizing only on the ancient monastic buildings in U Ariya monastery compound. Finally, spatial composition and form composition were discussed and the findings were expressed. And then the conclusion of the above studies was followed.

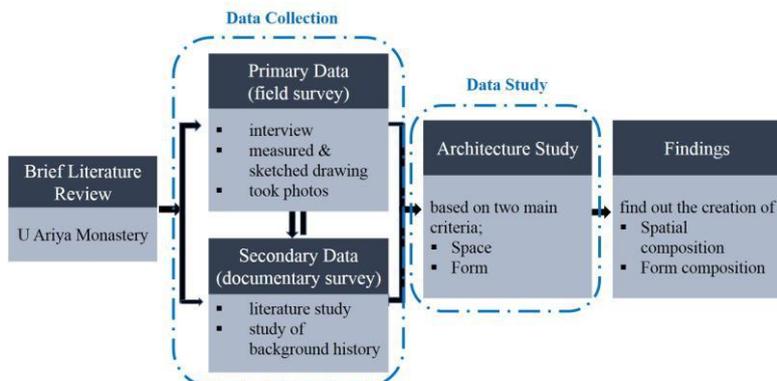


Fig. 4.1 Process of Approach Method

5. BACKGROUND STUDY OF YANGON:

Yangon, formerly known as Rangoon, is the capital of Yangon Division as well as the former capital city of Myanmar. It is also the most populous city and the most important commercial centre of Myanmar. It is located in Lower Myanmar at the convergence of Yangon and Bago rivers. (7)

Yangon has a tropical monsoon climate and heavy rainfall during the raining season. According to 2014 census, the total population is 7.36 million. It is multi-religious city and 91% of population is Buddhism. The culture and tradition have been mainly influenced by Buddhism. (7)

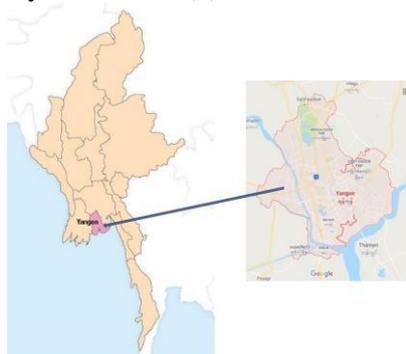


Fig. 5.1 Location of Yangon (source: <https://www.google.com/maps/yangon>)

6. BUDDHIST MONASTERIES IN YANGON:

According to manuscripts and historical records, in Yangon, there was many Buddhist monasteries around pagoda such as Shwedagon pagoda, Sule pagoda and so on in the late 15th century. Numerous religious buildings, including Buddhist monasteries, around Shwedagon pagoda were destroyed during First Anglo-Burmese War (in 1824 AD) and Second Anglo-Burmese War (in 1852 AD). During the late 19th century, many Buddhist monasteries were constructed in Yangon as in Kyimyindaing township and Puzundaung township. Most of monasteries that were built in that period were brick buildings while western architectural style began to penetrate into Myanmar traditional architecture at that time. (3)

At the present-day, there are over 3600 numbers of Buddhist monasteries in Yangon, Myanmar which were built since colonial period (late 19th century) up to the present. These Buddhist monasteries can be generally categorized in three types. They are

- (1) Akyinyokhan Kyaungtaik (monastery)
- (2) Pariyatti Sarthintaik (learning & teaching place of The Buddha's doctrines)
- (3) Kammahtan Kyaungtaik (meditation center).

7. BACKGROUND STUDY OF U ARIYA MONASTERY:

U Ariya Monastery was constructed during late 19th century (during colonial period of Myanmar) in Yangon, Myanmar. The type of this monastery is Akyinyokhan Kyaungtaik (monastery). This monastery is not only over hundred-year-old heritage building but also a prestige place in history of Myanmar. Therefore, it is the main reason that U Ariya Monastery is chosen to study among historical heritage monasteries in Yangon.

7.1 Location of U Ariya Monastery

This monastery is located at Gyar Tawya street, Bahan Township, Western District of Yangon, lower Myanmar. It is nearly at the East gate of Shwe Dagon Pagoda and Kandaw Gyi Lake. (7)

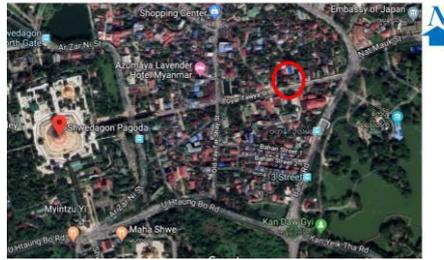


Fig. 7.1 Location of U Ariya Monastery (source: <https://www.google.com/maps/yangon>)

7.2 Brief History of U Ariya Monastery

According to Myanmar historical records, this monastery was established in 1871 AD (Myanmar Era 1233). The name of this monastery was known as U Ariya Monastery with reference to the first abbot Sayardaw U Ariya who was set up this monastery. (8) But the building that was built at that time can no more be found at the present day.

U Ariya Monastery is also an important and significant place in the history of Myanmar Politics. Because, on December 4th 1920 AD, Yangon University students made a meeting at this monastery to protest against University Acts made by the British. Moreover, the main place of boycotting students was camped in Daw Kyout pavilion which was located at the east of this monastery compound. (6) But this pavilion cannot be found since it was destroyed after cyclone Nargis in 2008 AD. (8)

In 1921 AD, after the first university students' boycott, the first national college was temporarily opened in this U Ariya Monastery and was known as Bahan National College. Therefore, this monastery compound was also named the auspicious place of Bahan because of many historical events. (6) Additionally, nowadays it is still using as a monastery existing with most of precious ancient architecture.



Fig.7.2 Daw Kyout Pavilion (1920 AD) (source: <http://blog.moemaka.com>)

8. U ARIYA MONASTERY COMPOUND:

U Ariya Monastery is one of the ancient monasteries in Yangon, Myanmar and used as a monastery until now. This monastery compound (Kyaung Htaik) is nearly one acre. There are many monastic buildings in this compound such as main monastic buildings (Kyaung), ordination hall (Thein), pavilion (Zayat), baths and toilets (Kuti). Most of these monastic buildings are two storied. The almost of these buildings are made of brick and ornamented with many decorative elements and motifs. Some buildings are still with age-old architecture style except a little renovated and some are newly reconstructed after 2008 AD. In this paper, the study on architecture of three ancient monastic buildings like as a triplet building block, is mainly focused on space and form.

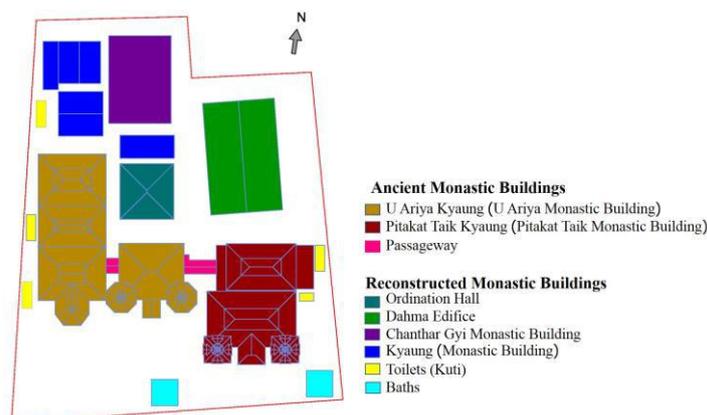


Fig.8.1 Site Layout Plan of U Ariya Monastery Compound

9. BACKGROUND OF ANCIENT MONASTIC BUILDINGS IN U ARIYA MONASTERY COMPOUND:

At the present day, U Ariya Kyaung (U Ariya monastic building) is the oldest monastic building in the compound and it was built in 1903 AD (Myanmar Era 1265). This building was combined with two building blocks that were connected by passage at the upper floor and they are two storied buildings. The building at the right is brick load bearing structure. The internal staircase was not found in this building, so the only one stair in the left building was used to step up to the upper floor. The building at the left is combination of brick load bearing and timber structure. Actually, this is linearly combined with three buildings by using intermediate areas.

Pitakat Taik Kyaung (Pitakat Taik monastic building) is located at the east side of U Ariya Kyaung (U Ariya monastic building). This building was constructed in 1923 AD (Myanmar Era 1285). It is two storied brick load bearing building and a combination of two buildings connected by intermediate area. These three ancient monastic buildings are connected with passageways at the first floor like as fly over corridor and this triplet building block is the most ancient buildings in the compound.

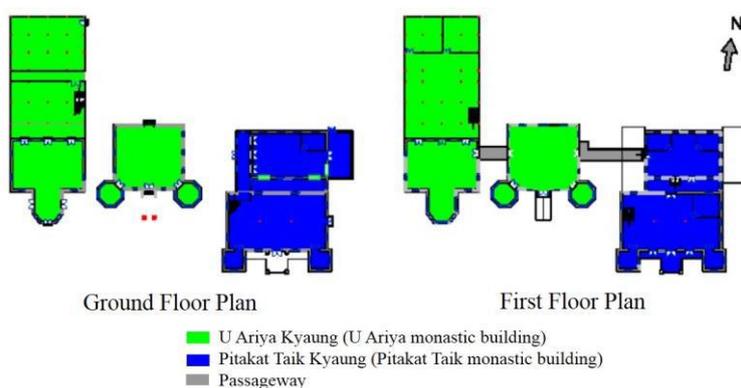


Fig.9.1 Floor Plans of Ancient Monastic Buildings in U Ariya Monastery Compound

10. STUDY ON SPATIAL COMPOSITION:

10.1 Functional Accommodation

The main functional accommodations are (1) Shrine (or) Buddha Hall, (2) Bed Room (or) Dormitory, (3) Hall (include main hall, community hall, multifunction hall) (4) Living Area, (5) Dinning Area, (6) Storage Area and (7) Passageway (or) Intermediate Area.

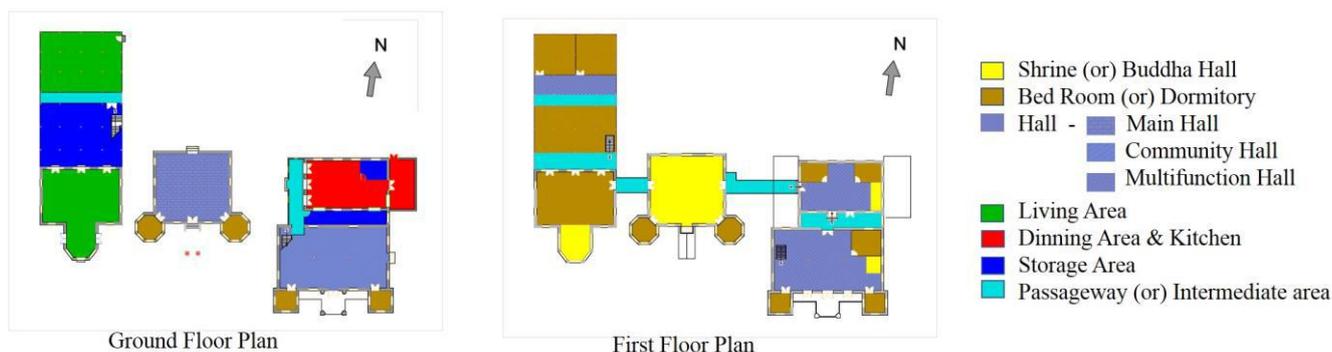


Fig.10.1 Functional Accommodations of Ancient Monastic Buildings in U Ariya Monastery Compound

For the functional arrangement and orientation, the façade faces South and each building is accessed separately with each main entrance. Besides, they are connected with each other by using passageway. In the U Ariya monastic building, the hexagon shape areas on both floors are used as bed rooms for monks. The hall on the ground floor is reserved as a main hall where visitors or laymen who came to pay respects to the abbot or monks are received. The main shrine is placed on the first floor which is used as a common worship area, especially during period of The Buddhist lent. In the left block, dormitory areas for monks and novices are on the first floor. The halls on the ground floor are used for living area for laymen (Zayat).

In Pitakat Taik monastic building, the community hall is placed on the ground floor to use as a space for preaching or religious ceremonies. The dining area for monks and novices is placed on the ground floor and is attached with kitchen. The dormitory areas (bed rooms) for monks are placed on both floors. The halls on the upper

floor are used multifunction area where novices slept or are recited. Also, the Buddha images are placed in these halls which are served as private shrines.

10.2 Space Utilization

According to the space utilization, the largest percentage of area is hall areas which includes main hall, community hall and multifunctional halls. Bed rooms (dormitories) use the second largest percentage of the area usage. And the third is living area for laymen. The least usage of area is dining area for monks and novices.

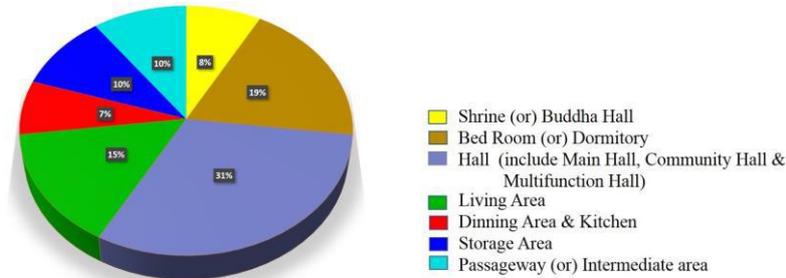


Fig.10.2 Space Utilization of Ancient Monastic Buildings in U Ariya Monastery Compound

10.3 Spatial Organization

Additionally, the main axis of each monastic building is aligned with North-South direction. All rooms of these monastic buildings are arranged in rectangular plan shape except the bed rooms for monks in the right building of U Ariya monastic building and in the form of grid. So, it possesses grid spatial organization. Moreover, it is also linear spatial organization because the left one of U Ariya monastic building is combined with three blocks that are connected with intermediate areas like as a series of spaces.

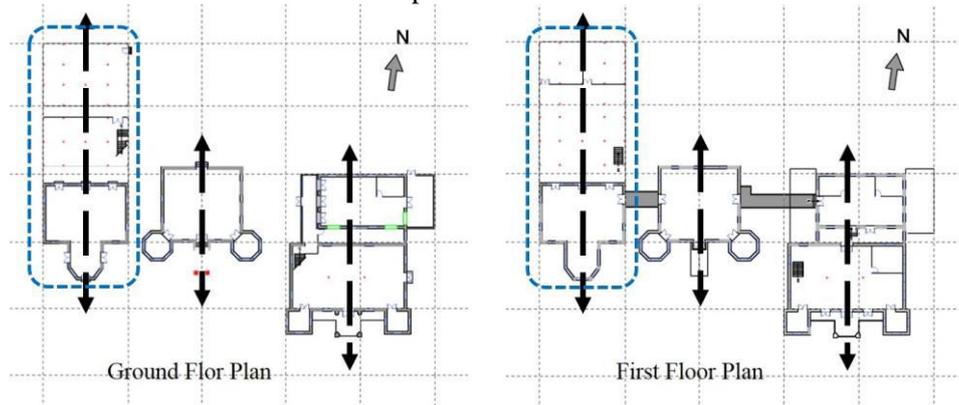


Fig.10.3 Main Axis of Each Monastic Building and Spatial organization of Ancient Monastic Buildings in U Ariya Monastery Compound

10.4 Spatial Relationship

In U Ariya monastic building, the spatial relationship of plan composition is interlocking spaces because the main rectangular plan is interlocked with two hexagonal bed rooms at both edges. There is also adjacent space relationship in the other monastic buildings because all rooms are adjacent each other.

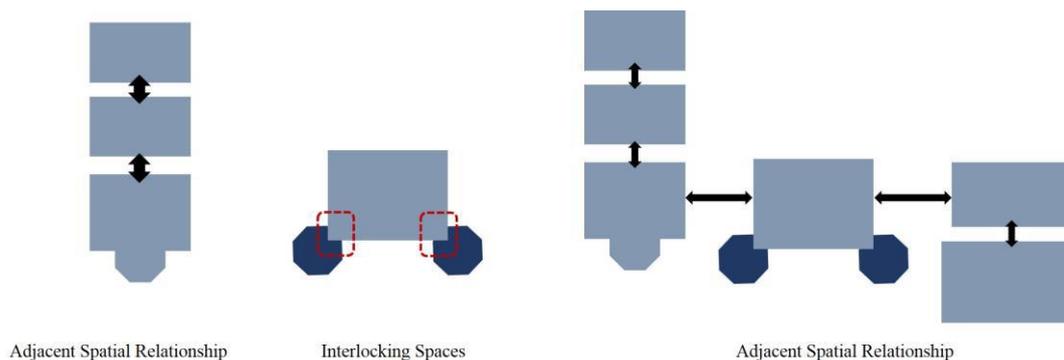


Fig.10.4 Spatial Relationship of Ancient Monastic Buildings in U Ariya Monastery Compound

10.5 Spatial Transition

The projected building entrances are used in the U Ariya monastic building and Pitakat Taik monastic building because each of these buildings has a porch to enter these buildings. All of passageways (intermediate areas) are used as the main transition spaces of these buildings. And all paths of movement are linear configuration of the path.

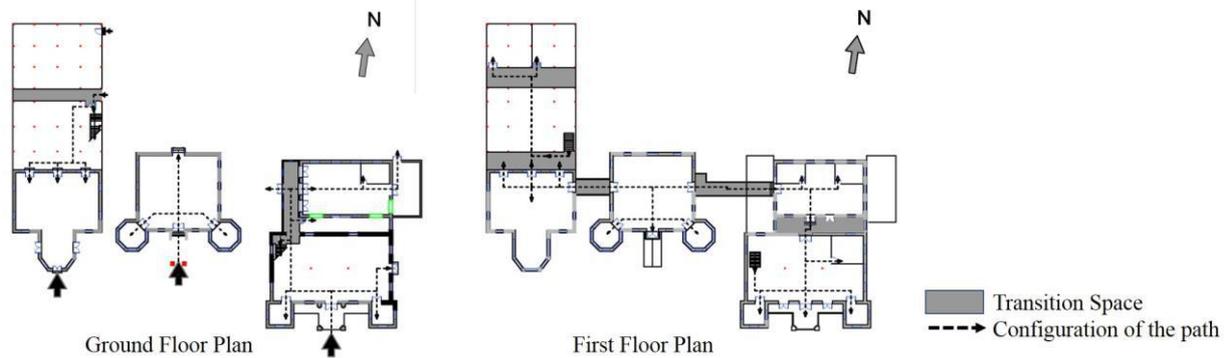


Fig.10.5 Spatial Transition and Configuration of the Path

10.6 Interior Space

The ceiling height of upper floors is higher than that of ground floors. Also, the ceiling height of passageway (intermediate areas) is lower than hall areas.



Fig.10.6 Interior Spaces at Ground Floor

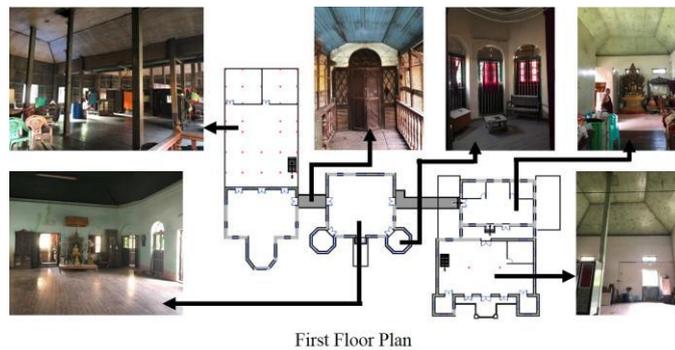


Fig.10.7 Interior Spaces at First Floor

11. STUDY ON FORM COMPOSITION:

In the form composition, the outstanding components of the building form can be divided into two parts; body of the building and roof form. The body form of all monastic buildings is block form that the secondary forms are attached to the main block form.

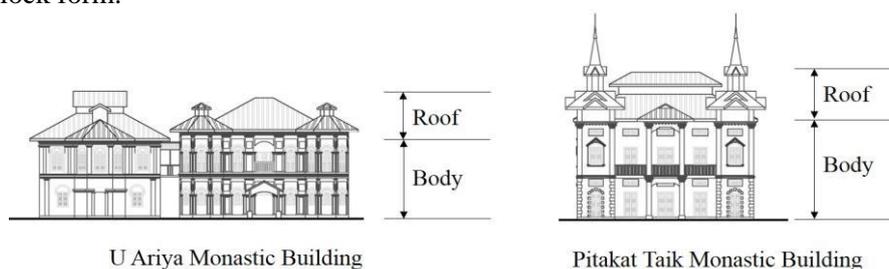


Fig.11.1 Outstanding Components

For elevation, the form composition of the building's body is simply composed with the combination of rectangle and triangle forms. But fanlight windows and archivolt are in the form of semi-circular arch. The composition of roof form is also composed with rectangle and triangle. Besides, the form of each monastic building is symmetry and formal balanced condition when viewing from façade. This form composition gives simplicity, massive and stable visual aspect.

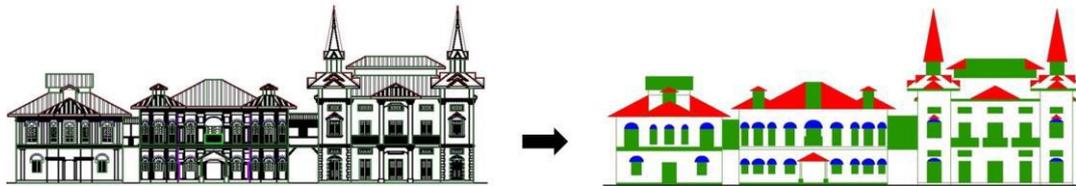


Fig.11.2 Form Composition of Ancient Monastic Buildings in U Ariya Monastery Compound

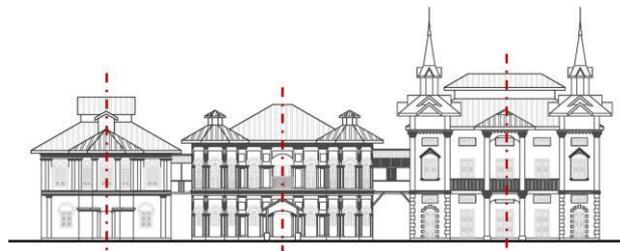


Fig.11.3 Symmetry and Formal Balance Composition from Façade



Fig.11.4 Façade View of Ancient Monastic Buildings in U Ariya Monastery Compound

11.1 Roof Form

The common roof form of this monastery is hipped roof and tiered roof. Most of roof are Myanmar traditional roof form. The detailed roof forms of each building are shown in Table 11.1.

Table 11.1. ROOF FORM OF ANCIENT MONASTIC BUILDINGS

Name	Roof Type	Figure
U Ariya Monastic Building (Left Building)	-Hta We Hsaung Roof -Madras Khaung Roof Form (hipped roof) -Madras Talepaw Roof Form	
U Ariya Monastic Building (Right Building)	-Madras Khaung Roof Form -Two-tiered Hexagonal Roof	
Pitakat Taik Monastic Building	-Madras Talepaw Roof Form -Bengali Pyathat (tiered roof) -Eine Daw Khaung Roof Form	

11.2 Decoration

All of these monastic buildings are ornamented with simple decorative elements. The roofs are adorned with floral motif decorated eave boards. In U Ariya monastic building, long windows are used with semicircular form fanlights at the façade. In the right building, archivolts are also used at the windows of ground floor. The windows at the back of this building are decorated with aprons and arched form hoods that was made by masonry. In the left building, a combination of round and square pilasters is decorated with Tuscan orders at both sides of windows.



Fig.11.5 Arch-formed Fanlight and Archivolts at U Ariya Monastic Building

In Pitakat Taik monastic building, the prominent decorative element is floral stucco curving. The wall is decorated with dentil cornice and stucco curving is used around the fanlight. The column of porch of this building is decorated with Corinthian order. Besides, the diaphragm walls between columns are ornamented with floral arabesque.

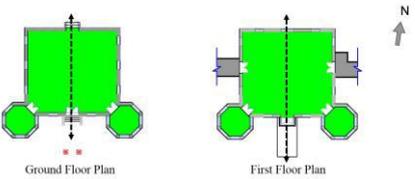
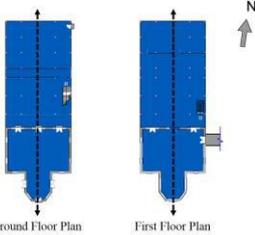
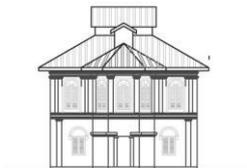


Fig.11.6 Stucco Curving, Floral Motifs and Dentil Cornice at Pitakat Taik Monastic Building

12. SUMMARY OF FINDINGS:

According to the previous studies on spatial composition and form composition, the findings of each ancient monastic buildings in U Ariya Monastery compound are shown in the following tables.

Table 12.1. FINDINGS OF U ARIYA MONASTIC BUILDING

Spatial Composition	Form Composition
<p>U Ariya Monastic Building (right block)</p>  <ul style="list-style-type: none"> ▪ N-S direction main axis ▪ Main rectangular plan which attached with two rooms at two edges ▪ Grid spatial organization ▪ Interlocking spatial relationship 	 <ul style="list-style-type: none"> ▪ Rectangle, triangle and semicircular arch forms ▪ Symmetry and formal balance condition from viewing façade ▪ Colonial architecture style ▪ Massive and stable visual aspect
<p>U Ariya Monastic Building (left block)</p>  <ul style="list-style-type: none"> ▪ N-S direction main axis 	 <ul style="list-style-type: none"> ▪ Rectangle, triangle and semicircular arch forms

<ul style="list-style-type: none"> ▪ Building that is combined with three blocks ▪ Main rectangular plan which attached with one room ▪ Grid and linear spatial organization ▪ Adjacent space relationship 	<ul style="list-style-type: none"> ▪ Symmetry and formal balance condition from viewing façade ▪ Colonial architecture style ▪ Tuscan order ▪ Massive and stable visual aspect
--	--

Table 12.2. FINDINGS OF PITAKAT TAIK MONASTIC BUILDING

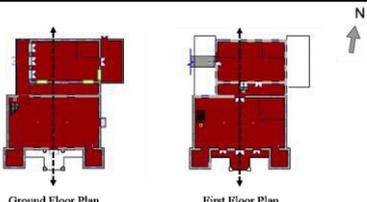
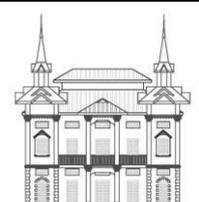
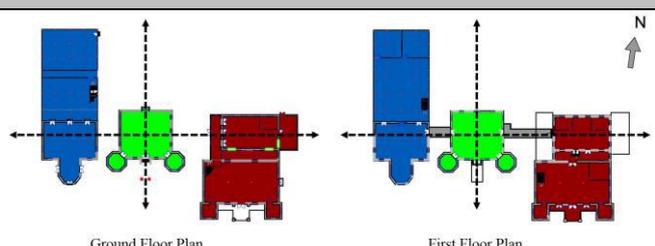
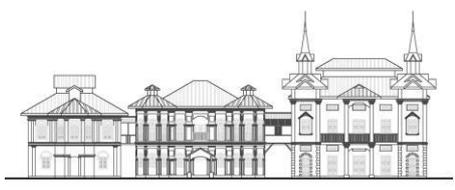
Spatial Composition	Form Composition
 <ul style="list-style-type: none"> ▪ N-S direction main axis ▪ Combination of two building ▪ Main rectangular plan that room attached at three sides ▪ Grid spatial organization ▪ Adjacent space relationship 	 <ul style="list-style-type: none"> ▪ Mostly rectangle and triangle forms ▪ Symmetry and formal balance condition from viewing façade ▪ Colonial architecture style ▪ Corinthian order and floral motifs ▪ Massive and stable visual aspect, unity and dominance

Table 12.3. FINDINGS OF ANCIENT MONASTIC BUILDING

Spatial Composition	Form Composition
 <ul style="list-style-type: none"> ▪ E-W and N-S direction axes ▪ Rectangular plan composition except the hexagonal shaped rooms in U Ariya monastic building ▪ Grid organization and axial condition of cluster spatial organization ▪ Adjacent spatial relationship ▪ Space link by a common space (three monastics buildings are linked by passageways) 	 <ul style="list-style-type: none"> ▪ Mostly rectangle and triangle forms, semicircular arch form ▪ Asymmetry and informal balance condition from viewing façade ▪ Colonial architecture style ▪ Massive and stable visual aspect ▪ Harmonized visual aspect

13. DISCUSSION ON ARCHITECTURAL FORM AND SPACE:

As the previous studies, it can be found that the complete functional requirements which are commonly used in Myanmar traditional Buddhist monasteries such as main shrine (Pyathat Hsaug), main hall (Hsaung-ma-gyi), passageway or intermediate area (Sanu Hsaung), dining and store (Bawga Hsuang) and so on. Among functional accommodations, hall area used the largest percentage of space utilization in each monastic building. This area utilization is the same as in the other most of traditional Buddhist monasteries in Myanmar.

According to plan composition, it is found that main shrine and private shrine area are placed on the first floor. The main axis of each building is aligned with North-South direction. But, the two axes are found in East-West and North-South direction for the triplet building block. All buildings are in the form of grid spatial organization. The spatial organization of these three buildings are the axial condition of cluster organization.

The form composition of this monastery is more emphasized the body of building than roof. The colonial architecture style is found and a combination of rectangle, triangle and semi-circular arch form has been used. The roof forms are mostly Myanmar traditional roof types but hexagonal roof and Bengali Pyathat (tiered roof form) are used since this monastery was built in colonial period of Myanmar. Even though Pyathat roof form is commonly used

for shrine in most of Myanmar traditional monasteries, it cannot be found in this monastery. The form composition of each building is symmetrical formal balance condition from viewing at façade. But the whole are asymmetry and informal balance condition.

14. CONCLUSION:

This paper emphasized the study on architectural form and space of ancient monastic buildings in U Ariya Monastery Compound. As a result, the functional accommodations that is commonly used in Myanmar Buddhist monasteries are found and they are adequate for the occupants. The spatial composition of the triplet building is cluster organization at axial condition but all plan compositions are in the form of grid. Although the roof form of shrine is used Pyathat in most of Myanmar Buddhist monasteries, there is no tiered roof form (Pyathat) for main shrine in this monastery. The form composition of this monastery is stable and massive. Besides, the overall façade reflects harmonized visual aspect because the colonial architecture style of these buildings is complementary. To conclude, U Ariya Monastery is over hundred-year-old ancient monastery as well as a significant place of history of Myanmar. Therefore, the study is intended to be useful to some extent as the record and reference for further studies.

15. RECOMMENDATIONS:

In this research paper, the study is mainly focused on architectural form and space of ancient monastic buildings in U Ariya monastery compound. It is recommended that this research should be used as a record and reference for conservation and maintenance works of this heritage monastic buildings. Besides, it is recommended that the other detailed studies such as the planning of monastic compound, the architectural aspects, ornamentation and decorative elements, construction system and materials, etc, should be deeply studied and analysed in the future research works.

REFERENCES:

1. Lwin aung, Dr. (1976). Architectural Composition of Monasteries in Colonial Period. *Journal of the University of Rangoon, vol.11 No.4*, pp.97-135
2. San San Myint, Mg Hlaing, and Yin Min Paik. (April 2017.). Study on Form and Space of Shwe Inn Bin Monastery in Mandalay, *YTU Journal of Engineering, vol. 4 No.2*, pp. 1-8.
3. Aung Hlaing, U. (2018), *Long ago Yangon*, Myanmar Translation of *Old Rangoon: City of Shwedagon*, Noel F.Singer, Myanmar, Sakekuchocho Press
4. Yin Hline (Pyin-ma-myaing), Mg. (2008). Tin Tin Win (December Moon), Daw (Eds), *Myanmar Traditional Ornamentation and Buddhist Monasteries*. Myanmar, Sarpaybakeman Press
5. Sandar Win, Ma. (April 2011). *Form and Space of Konbaung Monasteries in Mandalay*, M.Arch. Thesis, Technological University (Thanlyin), Yangon, Myanmar
6. Than Win Hlaing. (Dec 8, 2012) Homepage on Moemaka Media [Online]. Available: http://blog.moemaka.com/2012/12/national_day_92_years-than-win-hlaing.html
7. Yangon-Wikipedia, the free encyclopedia. [Online]. Available: <https://en.wikipedia.org/wiki/Yangon>
8. Ashin Sandimar, Abbot of U Ariya Monastery. Personal Interview, Yangon, (May 2 2019).

AUTHORS' BIOGRAPHY:



Hnin Kay Khaing is a PhD Candidate of Architecture Department in Yangon Technological University, Yangon, Myanmar.



Dr. Pwint is a Professor and Deputy Head of Architecture Department in Yangon Technological University, Yangon, Myanmar since 2012. Her interest and research area are Heritage Conservation and Management, Sustainable Development of ancient cities such as Pyu, Bagan and others in Myanmar.



Dr. Theingi Shwe is a Professor and Head of Architecture Department from Yangon Technological University (YTU) located in Myanmar. She held in PhD (Architecture) from YTU and Doctor of Engineering from Kumamoto University, Japan. Since 2006, several research publications have been accomplished in the field of sustainable development, disaster and climate change adaptation planning and history of Myanmar architecture. Throughout her journey, the achievements include Best Project Award (China, 2014), Best Paper Award (Japan, 2015), Excellent Paper Award (Japan, 2017), Academic Excellent Award for her doctoral course in Kumamoto University, 2018.