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Palladian Architecture in Thailand : Its meanings and Evolution



Abstract: - This research aims to study Palladian architecture in Thailand focusing on its meaning and evolution. Palladian architecture originated from an Italian architect, Andrea Palladio, in the Renaissance period. The distinctive identity is that it has beautiful proportions that are harmoniously consistent, with the style which unraveled from ancient Greco-Roman architecture. Around the 17th century, Palladian architectural style was popular in Europe. Therefore, it can be clearly reflected as a symbol of Western architecture. In the 19th century, Western powers began to gain more influence in Southeast Asia as well as in Thailand. The arrival of Westerners led to the development of Western architecture in many cities. The Palladian architectural style was used as a model for the design of many buildings. This study finds that Western architects working in Thailand had applied their knowledge of classical architecture to design the buildings according to Thai cultures. Palladian architecture in Thailand is mostly applied for large buildings. Its layout is outstanding. The main circulation uses the central hall as a link to different functions. Palladian architecture reflected luxury, simply majestic, easy to be applied to suit the terrain and modernity equivalent to the developed Western nations.

Keywords: Palladian Architecture, Palladian Style, Andrea Palladio, Western architecture, Thai Architecture

Introduction

Palladian architecture is originated from an Italian architect Andrea Palladio, who worked in the Renaissance period, around 1508-1580 A.D. Palladio's works are, such as Villa Gazzotti, Villa Pisani, Villa Pojana, Villa Barbaro and Villa Rotonda. (Figure 1) Palladio Architecture is accepted for its beautiful and harmonious symmetrical architectural design. Palladio employs elements of Greek -Roman classical architecture to decorate the buildings (David Watkin, 1996). The luxury and classic of the Palladian architecture has become a favorite and popular style in many areas of Europe, America, as well as South East Asia (Tavernor, 1991).

Palladian architecture was first entered Thailand in 1859 during the reign of King Chulalongkorn (Rama V). Somdet Chao Phraya Borom Maha Srisuriyawong (Chuang Bunnag) and Krom Muen Wisanunat traveled to see administrative work at Singapore, thus brought the pattern of Palladian architecture that they had seen to be a model for building a Western-style building in Bangkok. Later, this style became popular in many areas of Thailand.



Figure 1 Palladio's major design work.

Nevertheless, Palladian architecture during the reign of King Rama V was diverging from the original Western-style plans. Instead, it featured architectural styles that were adapted to various factors, including location, functionality, and the decorative characteristics of the buildings. Therefore, the objective of this research is to investigate the architectural significance that has led to the adaptation of Palladian architecture in Thailand, exploring its characteristics, similarities, and differences from the original Palladian works. Additionally, the study aims to examine the motivating factors and various influences that have contributed to

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the popularity and continued use of Palladian architecture in Thailand up to the present day.

Literature Review

The main characteristics of Palladian architecture can be summarized as follows:

1. Location– Palladio's principles emphasize a thorough understanding of the environmental context of a site. Palladio places great importance on the design and placement of buildings in relation to their surroundings. This meticulous attention to detail in site analysis and design aims to create a seamless integration between the building and its environment, enhancing the building's visual impact and leaving a strong first impression. It is a common practice for Palladio designed buildings to consistently face the main traffic route or primary axis (Sheewasukthaworn, 2023).

2. Horizontal layout of floor plans - The design Palladian architecture is related to the design of Vitruvius, which consist of three fundamental principles and serve as a foundational framework for architectural design including Firmitas (Stable), Utilitas)Function (and Venustas) Delight ((Leland, 2015). The layout of floor plans in Palladian architecture tends to be orderly and symmetrical, following the classical architectural plans. Symmetry and proportion are key design principles that are commonly emphasized in Palladian architecture. Palladio developed building plan to a more complex level which is called “Five-part planning emphasizes three parts.” which typically includes:

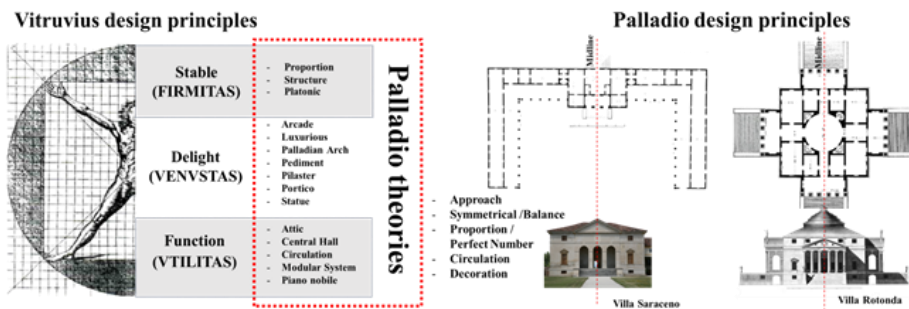


Figure 2 Palladio theories according with Vitruvius design principles.

Central Hall (Main building): This is the central, main part of the building, which often contains the principal rooms and spaces. It is the core of the design and serves as the focal point.

Two Connecting Building)Colonnade(: On either side of the central hall, there are two symmetrical wings that extend outward. These wings may contain additional rooms or spaces and contribute to the overall balance and symmetry of the design.

Two Wings Building: At the ends of the flanking wings, there are two building, which are smaller structures that may house specific functions or serve as decorative elements. They provide a sense of termination and completeness to the design.

The layout of floor plans in this manner is defined by symmetry and the suitability of interior space utilization. It is coupled with an emphasis on the prominence of the building. (Figure 2)

3. Vertical arrangement of space - The design principles of Palladio divide the vertical space into 3 levels, consisting of:

Level 1: Basement - According to the philosophy of Palladio's design principles, a good design should not bring

the service or less desirable spaces to the forefront of perception in the main area of the building (Placzek, 2017).

Level 2: Piano nobile - This is the most important and prominent living space of a building. This area is characterized by its grandeur, spaciousness, and high ceilings, designed to create a sense of luxury and elegance. It often serves to showcase the status of the building's owner and is adorned with decorative elements to enhance its beauty (Pape, et al., 1989).

Level 3: Attic - This is typically an additional space within a building. It is generally used for storage or as auxiliary space.

4. Elements of Architectural - The ornamentation and decoration of buildings are indeed regarded as important features in Palladio design, which adheres to the principles of architects from the Renaissance era. The Greek and Roman architectural elements of decoration and ornamentation play a significant role in enhancing the classical beauty and opulence of buildings, creating impression on those who enter. Palladio had a deep understanding of the proportions of various architectural elements, and he applied this knowledge authentically: for example, the application of arcade as external circulation corridors, decorating walls with pilasters to add dimension to the building, taking the characteristics of ancient Roman adapting them into the Palladian Arch (Palladian Window). Furthermore, Palladio's incorporation of elements from ancient Roman temple entrances and porticos into residential architecture brought about a transformation in meaning, in line with the innovative principles of the Mannerist philosophy and design ethos of that era (Sheewasukthaworn, 2023).

The study of dissemination of influence of Palladian Architecture to various areas mainly focused on the influence in Europe and the Americas. There was still a lack of study of the influence that affects the style of Palladian architecture in Southeast Asia and Thailand. This point is considered a research gap that will lead to objectives of this study which is to finding characteristics and evolution of Palladian architecture in Thailand.

This research will be based on qualitative research, comparing architectural styles from case studies together with historical data which appear both as documental evidence and in evidence in connection with the architectures. This conceptual model of this study is summarized in Figure 3.

Research Methodology

This study employs case studies of buildings influenced by Palladian architecture which were built during the reign of King Rama V, and analyzes its architectural patterns and decorative elements leading to the process of comparative analysis with the prototypes to find various factors related to the unraveling of architectural styles and answer research questions correctly and appropriately.

The scope of the case study in this research will be defined by focusing on buildings constructed during the reign of King Chulalongkorn (King Rama V) which has a distinctive style of Palladian architecture.

Criteria for selecting the case study will be outlined in the following details.

1. Reflecting the Palladian architectural style.
2. Complete architectural integrity and encompassing both the overall design and the intricate decorative details.
3. No excessive alterations to the architectural style in place.
4. Clear historical evidence of construction design.

From the preliminary data study, it was found that, during the reign of King Chulalongkorn (Rama V), there were a total of 9 Western architects who came to work in Thailand. Each of these architects had significant and distinctive architectural designs. They all had different design styles and approaches. However, it was found that there were three architects who prominently adopted the Palladian architectural style in their designs. These architects were John Clunis and one English architect, Joachim Grassi and Stefano Cardu, also two Italian architect.

The designs of the three architects can be categorized as follows:

1. Mr. John Clunis designed 3 buildings.
2. Mr. Joachim Grassi designed 13 buildings (6 buildings adopted the Palladian architectural style).
3. Mr. Stefano Cardu designed 5 buildings (3 buildings adopted the Palladian architectural style).

However, the designs by all three architects did not adhere to the Palladian architectural style for every building. This research focuses on studying works that predominantly feature Palladian architectural elements. (Figure 4)

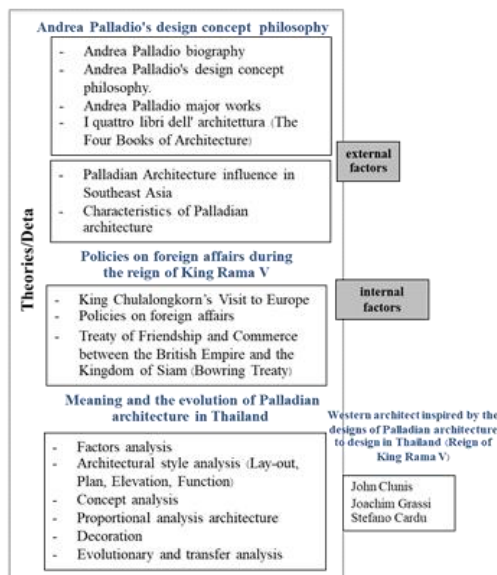


Figure 3 Conceptual framework



Figure 4 Case Studies

Results and Discussion

The analysis of meanings and evolution of the Palladian architecture in Thailand can be divided into 4 aspects. As follows

1. Approach and location design

Andrea Palladio's design philosophy places significant emphasis on the placement of buildings in relation to their environmental context. The positioning of a building has a profound impact on the perception, experience, and distinctiveness of architecture. It establishes a connection between architecture and its surroundings, creating a harmonious relationship with the environment.

The Western architects who came to work during the reign of King Chulalongkorn adapted the principles of Palladian architectural layout to align with the local context and environment of Thailand.

This adaptation allowed them to create a unique architectural synthesis that integrated Western design concepts with the Thai landscape and culture. This blending of styles and ideas resulted in the development of distinct architectural forms that were both functional and aesthetically pleasing within the Thai context. The analysis of case studies found that the placement of buildings inspired by Palladian architecture often involved positioning the front of the building facing important main roads or thoroughfares. This approach was commonly used to ensure that the façade of the building was prominently visible and accessible to passersby. Furthermore, in addition to the orientation towards main roads, there was also a deliberate design of external approach to create distinctiveness for the buildings. Architects employed the concept of designing open spaces in front of the buildings to enhance the building's viewpoint. This design approach clearly demonstrates the adaptation of Palladian design. Examples from case studies are, such as, the Phra Thinang Chakri Maha Prasat, Wang Burapha Phirom and Phra Thinang Vorobhas Bimarn, etc.

2. Proportions in design

The Western architect who came to work in Siam during the reign of King Chulalongkorn, brought with them textbooks related to classical architecture. This is considered an important source of knowledge that influenced the design principles, for example, "I quattro libri dell'architettura" (The Four Books of Architecture) written by Andrea Palladio which was translated into English by Isaac Ware in 1738, "Antiquities of Athens" by James Stuart between 1762 -1816. "Vitruvius Britannicus" by Colen Campbell and published between 1715 - 1725. These books contain detailed information related to architectural elements, sizes, and various proportions that can be applied in the design of buildings. These books provide valuable insights into classical architectural principles and can serve as important references for architects and designers (Chungsiriarak, 2010).

The Palladian architectural style emphasizes proportions that result from the harmonious combination of complete shapes. It involves carefully arranging both the horizontal and vertical layouts systematically, using mathematical principles, and establishing the rhythm of shapes to define the proportions of a building (Tavernor, 1991). Architects who apply the Palladian architectural style in their designs often adapt it to suit the local climate, topography, or functional requirements. This flexibility may lead to deviations from the strict proportions defined in Palladio's original designs. Nevertheless, these architects still strive to maintain the fundamental classical proportions and elements of Palladian architecture, which reflect its classical essence. This approach allows for a harmonious integration of classical architectural principles with the practical and environmental considerations of the specific site and context.

The horizontal proportion can be divided into 2 patterns as follows:

Pattern 1: Planning that emphasizes the use of classical proportions.

This is about creating architecture within the framework of proportions defined according to classical standards. It prioritizes maintaining and utilizing classical proportions when designing buildings, both horizontally and vertically. John Clunis and Joachim Grassi incorporated the classical style as a significant component in their designs. They rigidly adhered to the original proportions when planning the horizontal layouts of the buildings. The case study of the Chakri Maha Prasat, designed by John Clunis, demonstrates a symmetrical architectural layout. The design places particular emphasis on three parts that align with the architectural plan of the Villa Barbaro in Palladio's Palladian style.

When you analyze and compare the floor plans of both buildings, you will find that the central hall is slightly wider than the side wings. The central hall is typically the most important part of the building and is designed to be the most prominent. The side wings on both sides are slightly recessed to create a sense of depth and to make the front facade of the building more prominent. This design approach is consistent with classical architectural

principles, where the central portion is often emphasized and the side wings are subtly set back to enhance the building's visual appeal and balance. When comparing the proportions of the connecting building (Colonnade) to the Villa Barbaro, you will find that it is wider than the central hall of the Villa Barbaro in a 1:1.5 ratio. Palladio designed the connecting building to be wider than other sections, as it serves as the primary utility area within the structure. Following these principles, John Clunis adapted the floor plan to align with the functional requirements of the Chakri Maha Prasat, ensuring that it perfectly suited the royal functions of the monarch (Figure 5). The design of the connecting building with wide halls on both sides, linking it to the central section, serves to connect the central area of the royal palace. It is evident that the horizontal proportions of the Chakri Maha Prasat Throne Hall are still influenced by the clear and precise design principles laid out by Palladio in the Villa Barbaro, demonstrating the enduring influence of Palladio's architectural concepts.

Joachim Grassi employed classical proportions, primarily using rectangular shapes as the primary proportion in his design work. In the case of the Concordia Hall, the initial architectural design had a rectangular plan. Joachim Grassi used well-defined rectangles to determine the functional spaces inside the building. He also introduced arcades as decorative elements surrounding the building. This approach aligns with classical architectural principles, where rectangles and arcades were commonly used as elements.

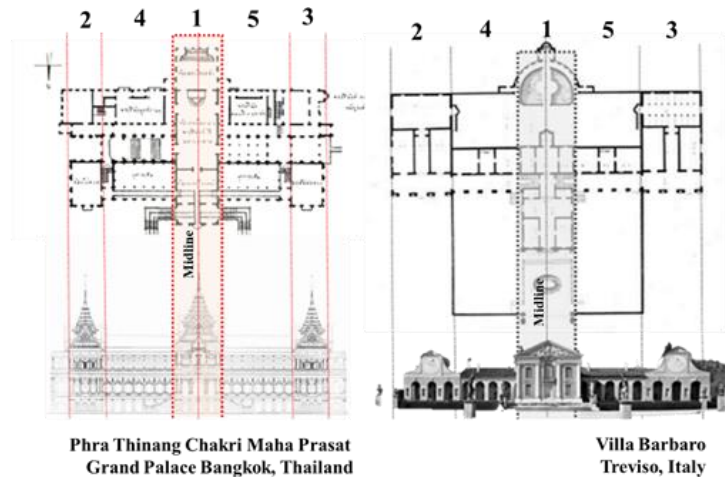


Figure 5 Design comparison between Phra Thinang Chakri Maha Prasat and Villa Barbaro



Figure 6 Layout comparison between Palazzo Thiene and Front Soldier Barracks

The characteristics mentioned above demonstrate the appropriate use of classic proportions to determine the size of buildings and the suitability of traditional shapes in architectural design in Thailand during that time. However, these proportions were adjusted to accommodate the needs of the building's owners and the climatic conditions, rather than strictly adhering to the original European architectural plans.

Pattern 2: Planning layouts that do not consider the use of classic proportions. This pattern became more apparent during the time when Western architects played a more significant role in the design of buildings in Thailand. The classical proportions and layout plans were adapted to align more closely with the functional use of buildings. From the case study of the Front Soldier Barracks (Ministry of Defense at present), Joachim Grassi used the Palazzo architectural style as a prototype for subsequent building designs. However, he significantly departed from the classical proportions and guidelines of the Palazzo architectural style in his designs.

Joachim Grassi adjusted the floor plan from a complete rectangle to align the building with the north road. This change was influenced by various factors, including the internal space requirements of the building, the surrounding environment near the City Pillar Shrine, and the constraints imposed by the size of the land, which was bounded by the road. The arrangement of the building along the street caused the complete rectangular shape to disappear. At the corner of northwest the building, the walls of the building intersect at acute angles. As a result, the central court of the building takes on a trapezoidal shape rather than a perfect square or rectangular shape. The style is less common in classically influenced buildings. (Figure 6)

However, Joachim Grassi designed the front part of the building in a classical style, incorporating various architectural elements to decorate it completely. He adorned the front with the facade of a Roman temple and a pediment at the center to create a design that reflects classical aesthetics (Inapanich and Panin, 2020).

Another important case study is the Saran-Rom Palace and the Saran-Rom Cadet School, both designed by Stefano Cardu. The building reflects the modification of the original classical plan to suit practical use. The layout of the building was designed as a long rectangular shape because designing a rectangular plan could increase the usable area. Additionally, due to the constraints of the building's location, the building's layout does not conform to the perfectly proportioned classical plan as it originally was. While the decoration of the building's walls is still adorned with classical architectural elements, this appearance only reflects classical aesthetics on the surface, but still lacking of the classical spirit, especially in terms of architectural proportions. Palladio places significant importance on this principle.

3. Circulation and Area

3.1 Horizontal circulation analysis

Palladio emphasizes the importance of organizing interior spaces within a building systematically. The central hall, - which serves as a connector to various areas on the same level, - is crucial. Living spaces, - such as bedrooms and lounges, - are symmetrically arranged on both sides. Palladio believes that such space allocation has a profound impact on the occupants' feelings and perception, creating a sense of grandeur and prominence. The straightforward circulation paths make it easy to use and contribute to an efficient and suitable utilization of the building. Thus this is the main reason why Palladian architecture has gained popularity in various regions.

The analysis of the circulation in the horizontal layout using the case study of Palladian architecture in Thailand (Figure 7) reveals that Western architects working in Siam (Thailand), including Jonh Clunis, Joachim Grassi and Stefano Cardu, possessed a strong knowledge and understanding of Palladian design principles. They effectively adapted the distinctive features of Palladian design to suit the context of space utilization, creating well-suited and efficient designs for the usage of space.

Palladian architecture in Thailand typically features a central hall as the focal point for connecting various sections. This layout aligns with the design principles by Palladio. The building incorporates arcades to create internal circulation pathways connecting various areas and within the wings building on both sides. Subsequently, these arcades are developed by adding walls and modifying them from open arcades into windows that can be opened or closed. These walls may be extended to help protect the interior from rain and to provide shade during the summer season.

The design of circulation in Palladian architecture in Thailand is diverse and tailored to emphasize the functional use of buildings, local tradition and the cultures of the local people, which differ from Western cultures. This complexity is particularly noticeable in Royal palace buildings, resulting in more intricate circulation patterns compared to the original Palladian architecture.

3.2 Vertical circulation analysis

The analysis of Western architects incorporating Palladian architecture into their designs in Thailand reveals that many buildings do not strictly adhere to the Palladian style as they should. Most buildings in Thailand are typically two to three stories high and no extensive underground spaces (Basement). The entrances to these buildings typically start from the ground level, with only a slight elevation from the ground. This design is influenced by traditional Thai architecture, which often features elevated floors or raised buildings. Constructing extensive underground spaces may not align with the lifestyle local people.

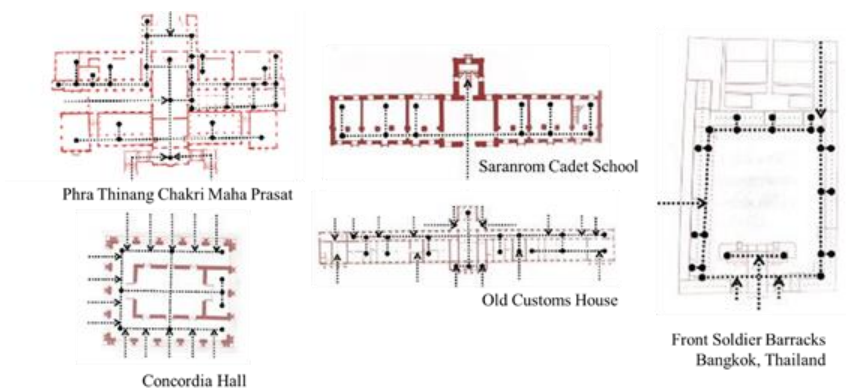


Figure 7 Circulation analysis of the case study Palladian Architecture in Thailand.

Nevertheless, the use of the "Piano nobile" which is a distinctive feature of Palladian architecture has been adapted for the design of buildings in Thailand, particularly in the case of Royal palaces. Increasing the vertical space within the building, from floor to ceiling, and adorning the walls with pilasters and various decorative elements can enhance the beauty, luxury, and grandeur of the building. For example, in the case of the central building of the Chakri Maha Prasat Grand Palace in Thailand, the ground floor serves as a general area for royal servants and palace guards. Meanwhile, the second floor, or the central floor, is the main royal chamber. The third floor is used as a grand hall for royal ceremonies. This division of vertical space corresponds to the traditional hierarchy in Thai culture. The ground floor is for servants, the second floor is for the king, and the top floor is reserved for sacred purposes.

In contrast, in government buildings and other buildings inspired by Palladian architecture in Thailand, the grand Piano nobile space is often reduced in its ornamental decor due to a greater emphasis on practical utility and budget constraints.

The use of the attic or top floor space, as commonly seen in Palladian architecture, is not prevalent in Thailand. This is primarily because of the cultural and lifestyle differences. Thai people traditionally do not store non-religious belongings or items above their heads, as they consider the space above to be sacred and reserved for spiritual purposes. Consequently, utilizing the area under the roof for storage or functional space is not in line with these cultural beliefs.

4. Decoration elements

Palladian architecture in Thailand often incorporates classical architectural elements to adorn buildings, such as

pediments, columns, balustrades, pilasters, and various decorative features. These elements are arranged rhythmically, but there can be variations in the details and proportions compared to the original Palladian designs. The decoration of a building depends on the building type, the preferences of the owner, and the construction budget. Different architectural projects may have different styles of ornamentation to suit their specific needs and aesthetics.

For certain Royal palace buildings, especially those associated with Thai royalty, the level of decoration and ornamentation tends to be more intricate and elaborate, often featuring ornate elements reminiscent of Baroque architecture from the 17th century. In contrast, government buildings are typically less ornate and focus on achieving a simpler, more classical appearance without excessive detailing.

In the area around the front pediment of the building, it is common to decorate and adorn with symbols related to the nation and the monarchy. These symbols often include the coat of arms, royal emblem, garuda (Vishnu riding garuda is symbol of the King) and other regal emblems. This decoration reflects the center of power in the rule of the monarch under the absolute monarchy (Figure 8) which will be different from the simple and elegant decoration of the Palladian pediment.

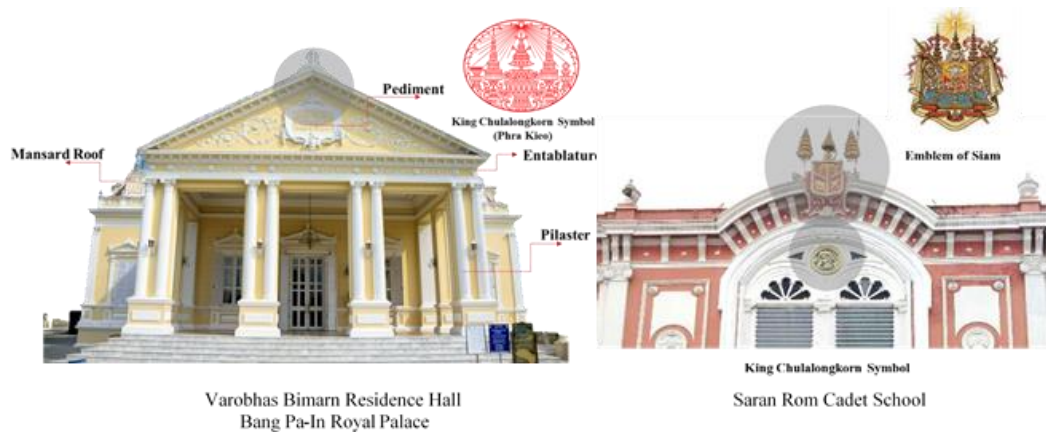


Figure 8 Element of Palladian Architecture in Thailand.

Conclusion

Palladian architecture is an architectural style that Western architects who came to work in Thailand during the reign of King Chulalongkorn, (Rama V) adopted and applied in the design of various buildings in Thailand. This style became popular and served as a model for architectural design in many regions of Thailand.

The distinctive features of Palladian architecture in Thailand, as derived from the previous studies, can be summarized as follows:

1. Architectural meaning

1.1 Palladian architecture in Thailand primarily consists of significant buildings with large usable spaces. Architects designing in this style create spacious front areas, positioning the buildings to face the main road, aiming to give the conveys luxury, majesty, elegance, resulting in showing the status of the building owner.

1.2 The Palladian architecture in Thailand often features decorative elements and details that clearly reflect Western classical influences. The decoration and ornamentation of buildings in Thailand tend to differ from traditional in Europe. While European Palladian architecture emphasizes simplicity and elegance, the Thai Palladian often features more extensive and elaborate decorative elements.

These decorations may include intricate details and ornamental features that are less commonly found in the European Palladian architecture creating a more ornate and opulent appearance in the Thai context.

2. Architectural style evolution

2.1 Palladian architecture in Thailand reflects the knowledge of classical Western architecture. Western architects who came to work in Thailand during that period adapted various design theories and concepts to their work. This adaptation led to distinctive characteristics of Palladian architecture in Thailand, setting it apart from its Palladian architecture origins.

2.2 The Palladian architecture in Thailand typically incorporates a central corridor or circulation path with a central space, often in the form of a central hall or atrium, which serves as a focal point and connects different areas of the building. This arrangement is consistent with the design principles of Palladio.

2.3 The elements of Palladian architecture in Thailand still follow classical proportions, including elements such as columns, pediments, arches, pilasters, and supporting columns. The decorative embellishments on buildings will vary depending on the type of structure, the preferences of the building's owner, and the construction budget available.

Acknowledgement

This article is part of a research Meaning and Evolution of Palladianism Architecture in Thailand. This research project was financially supported by Division of Research Facilitation and Dissemination Mahasarakham University and Mahasarakham University Development Fund.

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