

# The Status of Academic Outputs in Architecture in Thailand

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## Abstract

The academic development in architecture which is appropriate to the contexts of economic, social and environmental conditions in Thailand calls for an investigation of the status of academic outputs, the results of which will support setting up a direction for further development. This research thus undertook a survey on architectural studies published mainly during 1957-1994. It covered various types of investigation produced in different sources such as research reports, theses, books, articles, proceedings, etc. Analyses were made in the attempt to categorize the contents of all academic works into major areas and sub-areas in the field of architecture. Specific concerns and comprehensiveness as well as academic achievement were scrutinized. Data-based information was also provided in quantitative terms in the form of matrix. Through such an approach and method in conducting the research, the developments of each major area and sub-area of study were reviewed and conclusions were made together with recommendations for future research. Accordingly, both the significance and opportunities in academic development in architecture were proposed.

To expedite the usage of such a comprehensive research product, the outputs were organized in 5 parts reflecting the major academic concerns as follows:

- A. **Architectural Fundamentals:** Theories, development, education, foreign influences, architectural design fundamentals, behavioral basis, and building type study.
- B. **Building Technology:** Building structure, industrialized building system, modular coordination, construction materials, energy conservation and consumption.
- C. **Professional Practice and Laws:** Standards of professional practice, building control regulations and related ordinances.
- D. **Thai Architecture:** Traditional Thai houses, religious architecture, palatial architecture, and miscellaneous buildings.
- E. **Art, Culture, Conservation and History of Architecture:** Aesthetic and architectonic character in architecture, architectural restoration and conservation, history of architecture.

Thus, this research is rather encyclopaedic in content which is useful in building up fundamental comprehension in architecture, in setting up academic scope and professional roles, in undertaking research in specific topics for further academic enhancement. Research directives and emphases were proposed in order to upgrade both academic and professional performances to international standards, while still being able to sustain Thai identity in architecture.

## **Background/ Problem**

The academic development in architecture which is appropriate to the contexts of economic, social and environmental conditions in Thailand calls for an investigation of the status of academic outputs, the results of which will support setting up a direction for further development. Only few research works so far have been carried out; thus still being scattered and disalleged in nature in many areas of study. Most of the academic outputs are studies serving mainly to clarify some basic issues.

## **Objective**

1. Investigating academic works in terms of substances, complexity and architectural concerns, including academic development.
2. Providing data-based information of academic works in quantitative terms.
3. Providing findings of academic achievement for each specific area and each major area of study as well as recommendations for future research.
4. Proposing holistic conclusions concerning the status of academic outputs, focusing on their significance to the architecture discipline, and their academic development potentials. Future research directions and implementations will thus be given.

## Methodology

1. Surveying all academic works in architecture and related areas which were published during 1987-1994. More than 1,000 items were investigated, and only those which were referred were included as references in each chapter and as bibliography.
2. Analyzing the contents of all academic works to set up major areas and sub-areas in the field of architecture.
3. Quantitative data-based information was provided in terms of types of works and publication, methodology, purposes, major concerns, and period of publication.
4. Qualitative analysis of each academic output in the specific concerns, comprehensiveness as well as academic achievement.
5. Identifying the academic status of each specific area.
6. Conclusions concerning the academic development were made for each major area.
7. Holistic conclusions and an overview of related major areas in architecture were proposed, in terms of significance and opportunities in academic development, together with recommendations for future research.

## Result and Recommendation

To expedite the usage of such a comprehensive research product, the outputs were organized in 5 parts reflecting the major academic concerns as follows:

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Major findings and recommendations were presented in each part as follows:

## **Part I: Architectural Fundamentals**

### **1. Conceptual Basis**

It is urgent to establish a more comprehensive definition of 'architecture' in the context of current society. This implies the increased roles of architects in their profession, especially in such dimensions as management and marketing, their roles in construction projects. Philosophical and religious concepts should also be explored in their applications to the development of architectural concepts and design.

### **2. Western Theory and Influences**

Though western influences prevailed in architectural development in Thailand, the theoretical complexity and ambiguity of Modernism, Post-modernism and Deconstruction, etc., should be investigated and redefined. The modern appearances are obviously contradict to regionalism in

architecture. More critical research should be conducted in order to be able to support the creation of appropriate architecture through indigenous wisdom.

### **3. Architectural Development in Thailand**

There are considerable amounts of research works which are dealing with the development of contemporary architecture in Thailand. A comprehensive investigation that has explored the various concepts and formal developments together with the related influencing factors can be found in *The Development of Concepts and Design in Architecture: Past, Present and Future*, (Vimolsiddhi Horayangkura et al, 1993). More research focussing on the development of modern Thai character in architecture should be undertaken. There were strong criticisms in the disaster of Thai architectural identity during the past two decades. The movement has stimulated more creativity in identity-conscious design.

### **4. Architecture Education**

Research on architecture education has yet to be systematically conducted (Vimolsiddhi Horayangkura, 1978). Previous studies mainly focused on the analysis of abroad education patterns and partly were dealing with education approach and learning-teaching process. Though architecture education has significant impacts on being an architect, it should be noted that, in more than six decades of architecture education in Thailand, there were no critical changes in both the curriculum and learning-teaching method. Only minor improvements can be worked out within the existing education framework.

### **5. Principle and Methodology in Architectural Design**

Academic works concerning design fundamentals mainly focused on the aesthetic and perceptual criteria in the organization of architectural elements and space. More comprehensive fundamentals for spatial design have yet to be proposed, especially in a more scientific basis, in terms of relative factors such as various functions, brightness, ventilation etc.

An intuitive approach has been generally employed rather than the scientific method in the design process. Thus, only very few studies have been initiated in connection with architectural programming. However, there are increasingly more concerns in the rationality in the design process. In scientific-based design creativity, human behavior has been increasingly integrated into the design response.

## **6. Behavioral Basis in Architecture**

Though architecture is inevitably related to human behavior, studies of human behavior have been limited. Exploratory investigations were found in the research works of Vimolsiddhi Horayangkura (1978, 1983) and graduate theses with respects to covert behaviors such as affects, attitudes and satisfaction, etc., to safety and security, and to overt behavioral relations to physical environment. The multiplexity of human behaviors should be explored as regards the various user groups and the multi-dimension of physical environment.

## **7. The Studies of Building Type**

Various building types have been examined in the attempts to set up prototype designs and standards, especially for residential and school designs. Space standards in relation to construction budget were explored. However, more critical research should be conducted with regard to the behavioral evaluation of spatial and functional standards for various user groups and public building design and improvement.

# **Part II: Building Technology**

## **1. Building Structure**

Most of the building structure studies cover the analyses of building structure in general, high-rise structure, and structural failure. Though being aware of the impacts of structural and construction innovation on critical changes in architectural history, very few studies so far have been made, even those being only conceptual investigations. The most prominent leader of structural

analysis is Ruengsak Kantaputra (1983) whose works mostly focus on structural transformation of natural forms, the structure of which can resist external forces. The comprehension of high-rise structure will strengthen the professional role of architects. Further studies should investigate the structural behaviors and failures which include those caused by earthquake. Valuable findings may also be found in the investigation of the rationale of traditional structure in Thai architecture.

## **2. Industrialized System: Design and Construction**

Studies on the industrialized system for building construction were still introductory in essence and related to history, emerging needs, supporting factors — especially the component standards, production process and method, and including structural system and various building systems. It should be pointed out that research and development (R & D) of the industrialized system in construction should be carried out, for such a newly industrialized country (NIC) like Thailand, in connection with economic and population growth.

Research on modular co-ordination in building systems has been undertaken, in co-existence with the concern for industrialized system, upon the recommendation of the International Organization for Standardization (ISO). The limited research works, as being presented in a seminar organized by Thailand Institute of Applied Science Research, covered such topics as modular co-ordination in relation to structural system (Ruengsak Kantaputra, 1977), joints of structural and prefabricated components, tolerance, etc. Further research should be undertaken, though only a partial prefabrication system has been employed. However, modular co-ordination with basic standard modules still has to be taken into account in the building material industry.

## **3. Construction Materials**

The studies of new construction materials, such as plastic, fiberglass, etc., appear simply as the transfer of foreign information. No research and

development of new construction materials and those for industrialized building systems were found, even in the period of rising interest in material development in the mid 1960s. Only in the decade of 1980, there were notable attempts in undertaking research and development of prefabricated construction components by the Thailand Institute of Scientific and Technological Research. Both government agencies and private organizations should carry out research and development of construction materials and technology which are appropriate to architecture in Thailand.

The limited development of indigenous construction materials focussed on only a few items, such as bamboo and laterite, which are materials with unreliable properties. Various government organizations such as the Thailand Institute of Scientific and Technological Research, the Public Works Department and the National Housing Authority should be cooperating in developing local construction materials to meet higher standards and relevant to the construction budget of the regions and including promoting local identity.

#### **4. Building Energy Conservation and Consumption**

Energy conservation studies and research works undertaken since the oil crisis have covered the following major issues: overviews of guidelines in energy conservation (Soontorn Boonyatikarn, 1994), heat reduction in buildings by passive cooling approach, the application of insulation, material selection for energy savings, the uses of daylighting and the efficient application of lighting, energy conservation and consumption in buildings, and the control of energy consumption. It was found that more in-depth research works should be carried out following the major energy conservation framework, especially in building up data-based information. The passive cooling method should become the primary approach in energy conservation rather than the application of mechanical systems. Experimental research should focus on such topics concerning the efficient application of insulation, the innovation of various kinds of materials for opaque and transparent walls, roofs and ceilings that

bring about energy reduction, the appropriate application of daylighting in connection with the increased energy consumption. Architects should be more concerned about the technical approach to energy consumption control. Moreover, in the management side, the investigations of energy consumption behaviors of various user groups are required.

### **Part III: Professional Practice and Laws**

#### **1. Professional Practice in Architecture**

In general, the prescription of principles, bylaws and standards of professional practice, and also the laws pertaining to professional registration and control, are more than often belated in the context of the professional movement. The situation was likely the result of relying on foreign standards, especially “The Standards of Professional Practice” of the American Institute of Architects. However, the few investigations of professional practice in Thailand have covered various issues as follows: the basis of being an architect, architects’ roles in society, guidelines for professional practice in architecture, professional control law and regulations, the roles of foreign architects, and guidelines for competition.

Only since 1989 the Association of Siamese Architects has promulgated a substantial number of bylaws of the institute to form the bases for all disciplinary actions. It should be noted that during the past decade such professional enforcements can hardly reach any practical objectives. The situation calls for an improvement through critical investigations of the Standards of Professional Practice, especially in sections related to the basis of professional fees and professional competition standards.

#### **2. Building Control Regulations and Related Ordinances**

Studies concerning building control regulations and ordinances have revealed such major issues as law improvements, high-rise and extra-large building control regulations, the criticism of building control regulations, the

problems of acquiring building construction permission, and the compilation of documents regarding various building control laws and regulations. Surprisingly, no significant studies were found to provide the information basis for law enactment and improvement. Moreover, architects have not participated directly in the legislation process. These two practical issues also accounted for the belated enactment of other laws and ordinances related to the architectural profession. The law enforcement that followed only resulted in serious conflicts between law users and various regulations, which mostly did not support performance and did not promote investment as well. Such conflicts can be avoided, provided that appropriate research works were undertaken to provide updated information for law improvement. It should be pointed out that the revised version (1992) of building control laws of 1979 is still obsolete due to the fact that it is simply the further development of building control regulations for shophouses. Research activities and criticism should provide an academic basis for future law enactment and improvement.

## **Part IV: Thai Architecture**

### **1. Traditional Thai Houses**

Within the vast realm of Thailand, there is a great diversity of traditional Thai house styles. While these aspects of Thai houses have grown from many roots stretching deep into the long history, each individual style has been gradually developed in its own distinctive characteristics. Within the present study, the houses of the Thais can be characterized according to their styles as the Central Thai house, the Northern Thai house, the Northeastern Thai house, the Southern Thai house, the bamboo house, and the tribe house.

Concerning the Central Thai house, a large number of study works have been undertaken during the past decades. However, it was not until after the introduction of the study of *Traditional Thai Houses* (Rutai Jaijongrak, 1975) that the issue of the Central Thai house has been widely recognized. Thereafter, several other documents relating particularly to the subject matter

of the Central Thai house have become widespread. In short, myriad detailed materials as to the Central Thai house are presently available.

Aside from the Central Thai house, the Northern Thai house has also been intensely studied by numerous scholars. Since the decade of 1960, several studies concerning the Northern Thai house have been published. Unfortunately, these previous works did not address several important issues such as measure works of the houses and systematic approaches to analyze forms, spaces, and the aesthetics of the house's proportion.

While the existing documentation pertaining to the Central Thai house and the Northern Thai house can be obtained, the study materials concerning the Northeastern Thai house are very limited. Nevertheless, after the 1987 Conference on "Identity of Isan Architecture" arranged by the Association of Siamese Architects under Royal Patronage (ASA) (1997), the issue of the Northeastern Thai house has become the matter of concern among Thai scholars.

As with the Northeastern Thai house, the preceding works as to the Southern Thai house are also extremely rare. Therefore, this issue should be concentrated in the future study. Nevertheless, there are continuing interests in undertaking studies on residential architecture of various regions. It is noteworthy to find such an integrated reader as **Thai Houses** (1993) published by the National Identity Board, Office of the Prime Minister. Additionally, the materials on the subject of the bamboo house and the tribe house are also very scarce. However, since the appearance of the tribe house is quite attractive, this kind of house has recently begun to draw interest from many researchers, for instance, Ornsiri Panin, who investigated the vernacular architecture of various tribes in the Northern Region in *Vernacular Houses and Villages* (1995).

## **2. Religious Architecture**

The present study encompasses the previous works as to old and new Buddhist architecture scattered in various parts of the country. These include those religious complexes that were built during the periods of

Sukhothai, Ayutthaya, and Rattanakosin. Also, the existing materials pertaining to monasteries in the Northern and Northeastern Region of Thailand are also included within the present study. Additionally, the relevant documents of specific buildings within the boundaries of monasteries are also the matter of concern.

While the issue of Buddhist monasteries has been recognized, the deterioration of several buildings within these sacred sites, especially those built since Ayutthaya and Sukhothai periods, has become a huge obstacle for many researchers. Furthermore, some religious buildings have been improperly modified due to the restoration. Thus, the exploration for the original aspects of these ancient monasteries might be the appropriate issue for the future study.

Concerning the previous studies of Rattanakosin monasteries, they have been primarily concentrated on those that were constructed during the reigns of King Rama I to King Rama III. The study works as to monasteries erected during the later period, especially after 1932, are quite rare.

Of the religious architecture in the Northern Region, the earlier works have been mainly focused on the monasteries of Tai-Yuan, the predominant ethnic group within the area, and the monasteries of Tai-Lue that have been similar to those of Tai-Yuan. Presently, the study materials of Tai-Yai monasteries are very limited.

As with the monasteries of Tai Yai, the earlier studies on subject of religious architecture in the Northeastern Region are also scarce. However, the existing materials about Sim have been conducted exhaustively, such as *Vernacular Sim in the Middle of Northeastern Region of Thailand* (Suwit Jiramanee, 1990) and *Isan Sim: Northeastern Buddhist Holy Temple* (Wirot Srisuro, 1993). The detailed studies on the religious architecture of the South are still not available.

### **3. Palatial Architecture**

Since the decade of 1960, numerous studies concerning palaces have been undertaken, mainly for tourist-related purposes. Slightly, these materials

have been related to the context of architecture. In addition, these available studies have been essentially stressed on the palaces that were built during the Rattanakosin period (1782-present). Presently, several buildings within these palaces are generally still in good shape, while the physical conditions of other palaces constructed before the Rattanakosin period have gone to rack and ruin.

Compared to traditional Thai houses and monasteries, the number of palaces is rather small. Of these, the Royal Grand Palace within the capital of Bangkok has been the most popular among researchers. Examples of previous studies that encompassed the whole area of the Royal Grand Palaces are *The Grand Palace Architecture I* and *The Grand Palace Architecture II* (Naengnoi Suksri, Khaisang Sukhavadhana, and Pussadee Tiptus, 1991). At present, in spite of the fact that there are numerous important buildings within the complex of the Royal Grand Palace, no comprehensive study in the context of architecture is available.

#### **4. Miscellaneous Buildings**

In addition to houses, monasteries, and palaces, several other kinds of buildings and structures, such as pyres, pavilions, markets, bone depositories, and granaries are also included in the present study. However, the study materials as to these elements are extremely limited. Still, several kinds of buildings such as forts, city walls, and small spirit houses are not covered in the previous studies.

In the light of the rapid and dramatic socioeconomic transformation of this developing nation, there is evidence that several kinds of buildings have been emerged to respond to the need of contemporary Thai society. Evidently, the context of Thai architecture has been brought to incorporate into the present professional practices of architecture. Examples are conference centers, governmental office buildings, hotels, and even restaurants. Essentially, the issue of assimilating the practical parts of Thai architecture into contemporary Thai architecture is very important for the future study. This may develop a

new kind of architecture that will simultaneously retain not only the essence of the ancestral Thai tradition, but also the appeal of contemporary standards.

## **Part V: Art and Culture, Conservation and History of Architecture**

### **1. Aesthetics and Architectonic Character**

Studies on aesthetics explore the concept of beauty, which is certainly a dominant aspect in the creation of architecture. However, the studies have been conducted in rather broad perspectives; such as, the aesthetics of structure, aesthetics in architectural composition, and the aesthetics of urban elements, etc. The studies have also covered, to some extent, those aspects related to philosophy and literature. Nevertheless, these studies have not yet directed toward the major aspects of truly architectural aesthetics.

The studies regarding architectonic character is the initiative to investigate Thai characteristics in various dimensions. In the future, the studies of architectonic character and architectural aesthetics ought to be combined to provide a design basis that would enhance Thai architectural identity, as well as meanings.

### **2. Architectural Restoration and Conservation**

The meanings of restoration and conservation have not yet been clearly understood. Practically, there are many possible choices and solutions. This, however, reflects the numerous debatable concepts. For instance, some historical sites have employed tourism as a leading concept to improve and manipulate the historic monuments. Both government and private agencies, without any clear vision, have solely emphasized studies that seemed to support the significance of sites and monuments, and leaving the indefinite choices of practise into the hands of commissioners. Nevertheless, one successful technique in the reconstruction of those ruined structures is 'anastylosis,' which also implies that there are only a few wooden edifices left for restoration and conservation.

### **3. History of Foreign Architecture (Western)**

Studies on the history of foreign architecture are still mainly those concerning western architecture. The scarce studies have focused on the overviews of western architecture and the theoretical and formal concepts. They are mostly the academic works of Vichit Chareonpak (1983, 1995). However, there were considerable studies concerning the prominent architects and their architectural works in the late 1960s and 1970s. The studies of specific works of historic architecture appeared in more than four decades ago. Thus far, there are still vast opportunities to initiate historical investigations, especially the comparative studies of western and eastern architecture in the historical context, —the influences on architecture in Thailand.

### **4. History of Indigenous Architecture**

Studies regarding the history of indigenous architecture incorporate local art and culture, and focus in four regions: the central, the north, the north-east, and the south. The studies always claim that almost all local architecture changing rapidly into the situation of emptiness, —without good taste and profound understanding, as compared to that of the past. The studies, therefore, always recommend the increasing need of restoration and conservation.

On the other hand, not to mention the current meaningless copying of traditional architecture, many studies were undertaken because there was confidence that these imitation practices were the right tracks in searching for more meaningful modern Thai architectural identities. In the future, the trend of studies will have to focus on the more unique indigenous cultures in more specific settings.

### **5. History of Religious and Palatial Architecture**

Concerning the history of religious architecture, the present studies have been developed pertaining to the context of pre-Thai architecture and Thai architecture. Broadly, it consists of two main issues, the developmental

periods of religious architecture and the related architectural styles. During the past years, several studies in connection with religious complexes have been conducted. While the early works have been primarily concerned with the development of monastery architecture within the region of what is vernacularly known as Suwannapoom from the period that it was politically dominated by peoples speaking the Mon-Khmer language until the present time, the later study materials have concentrated in large part on one specific architectural style.

Apart from the matter of religious architecture, the study works relating to palaces have also been undertaken during the past decades. However, while the study in this circumstance was published initially in 1919, subsequently, there has been evident that the sporadic presence of the research outputs as to the subject of palatial architecture has occurred. Moreover, these available studies of palaces focused only on the palaces that were built during the present Rattanakosin period, the Royal Grand Palace in particular, the studies of which can be found in *The Grand Palace Architecture I* and *The Grand Palace Architecture II* (Naengnoi Suksri, Khaisang Sukhavadhana, and Pussadee Tiptus, 1991) and also partly in *Rattanakosin Architectural Heritage I* (Naengnoi Suksri, 1994).

## **Application**

This research is rather encyclopaedic in content which is useful in building up fundamental comprehension in architecture, in setting up academic scope and professional roles, in undertaking research in specific topics for further academic enhancement. Research directives and emphases were proposed in order to upgrade both academic and professional performances to international standards, while still being able to sustain Thai identity in architecture.

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