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THE FORMATION OF THE NOTION ON "OPEN VERANDA" ("*EMPER TERBUKA*") BY FRIEDRICH SILABAN

フリードリッヒ・シラバンにおける「オープン ベランダ (エムペル・トゥルブカ)」の概念の生成

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This paper aims to examine the formation of Friedrich Silaban's notion of the "open veranda" ("*emper terbuka*"). Using descriptions extracted from Silaban's reports of his journeys to Japan (1954), India (1954), and the United States of America (1957), unpublished and published articles (1950s-1960s, 1982), we analyzed the formation of this "open veranda" into three periods: 1954-1957, 1950s-1960s, and 1970s-1980s. Silaban's notion of the "open veranda" is the reorganization of the subject in Indonesian traditional houses and modern architecture. At the final stage, this notion has a dual character that reflects the unique subject of Indonesia and the universality simultaneously.

Keywords: *Friedrich Silaban, Open Veranda, Tropical Climate, Tradition, Modern Style*
フリードリッヒ・シラバン，オープン ベランダ，熱帯気候，伝統，モダンスタイル

1. Introduction

1.1. Background

Friedrich Silaban (1912-1984) was one of the first generation of Indonesian architects.[1)] He started his early career during the Dutch colonial occupation,[*1)] then reached the peak of his career after Indonesian Independence.[1-3),*2)] He became well known as one of the most reputable Indonesian architects after winning three renowned national design competitions: the Indonesia Bank Headquarter (1954), the National Mosque of Istiqlal (1955), and the National Monument (1956).[2)]

Silaban applied modern architectural principles to develop a new Indonesian architecture.[4)] He emphasized modern tropical notions in Indonesian architecture, as explained in his article, "Architectural Idealism and the Reality in Indonesia," which was presented at the second National Congress of the Indonesian Institute of Architects in 1982. In this congress article, Silaban establishes the notion of the "open veranda" (*"emper terbuka"*) as a required space in Indonesian houses.[5)] Silaban himself had developed this notion, he typically only used the term "veranda" (*"emper"*) in text documents published before 1982,[6,7)] apart from one description in an unpublished article draft (1950s-1960s)[8)] that also used the term "open veranda" (*"emper terbuka"*).[9),*3)] The open veranda (*emper terbuka*) was consistently presented in his works, regarding both houses and public buildings, throughout his career.[2,10)]

1.2. Purpose

This paper focuses on Friedrich Silaban's notion of the open veranda (*emper terbuka*) as a required space in Indonesian houses. The paper aims to analyze the formation of Silaban's notion of the open veranda (*emper terbuka*) through an analysis of his textual documents.

1.3. Previous Research

Like others in the first generation of Indonesian architects, Silaban did not leave behind many texts that explain his ideas.[10)] Silaban himself only wrote some texts (Table1). Previous researchers have analyzed some of Silaban's text documents, for instance, Odang, et al.,[11)] and Sopandi[2,10)] discussed his article from the second National Congress of the Indonesian Institute of Architects. The modern Asian Architecture Network[3)] and Sopandi[12)] discussed the conclusion of Silaban's journey reports to Japan and Chandigarh, India. Furthermore, Sopandi[2)] analyzed the details of Silaban's reports of his journeys to Japan, India, the United States of America, and West Germany. In

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addition, the modern Asian Architecture Network[3] and Sopandi[2] discussed some sketches in an unpublished article draft to analyze Silaban's house designs. Previous researchers mainly discussed the contents of Silaban's textual monographs and did not explore the processes through which his notion changed. While most of the aforementioned studies discuss the open veranda shapes in Silaban's designs, only Sopandi[10] discussed Silaban's descriptions of open verandas (*emper terbuka*) and confirmed that Silaban's illustrations for *emper* (or *emper terbuka*) can be defined as "veranda, gallery or terrace, or *voorgalery* (front gallery) and *achtergallery* (rear gallery)." The sketch descriptions in the unpublished article draft regarding the open veranda (*emper terbuka*) were also not specifically discussed. In order to fill the gap left by these studies, this paper focuses on the differences between the descriptions of open veranda (*emper terbuka*) in Silaban's texts to analyze the processes through which his notion of the open veranda (*emper terbuka*) was formed.

1.4. Materials and Methods

Silaban's archive collections serve as the primary resource materials for this paper. The modern Asian Architecture Network cataloged and documented Silaban's archives.[13] Pusat Dokumentasi Arsitektur (PDA/Architecture Documentation Center) digitized most of these archives with support from Ministry of Education and Culture of the Republic Indonesia,[2] and some of which have been published online on arsitekturindonesia.org.[14] Sopandi composed and published Silaban's biography based on Silaban's archives.[2] The author collaborated with Sopandi and PDA as a volunteer to assist in Silaban's archives metadata's development and received permission to access the archives.

Using Silaban's archives catalog,[13] his digital archives,[14] and his biography references,[2] the authors were able to list Silaban's texts by their year of publication (Table1). We then analyzed five texts that include description of open verandas: reports of journeys to India (1954) and the United States of America (1957), an unpublished article draft (1950s-1960s), an article from the second National Congress of the Indonesian Institute of Architects (1982), and reports of a journey to Japan (1954) related to Silaban's following journey to India. As additional resources, we reviewed Silaban's biography concerning these texts and his photograph archives regarding the journey reports. Since all of the archives have not yet been digitized and published, the text of "Gelora Senayan" (1969-1970)[*4] could not be examined.

We extracted open veranda descriptions from the texts and grouped them into three chronological periods then compared the descriptions:

1) Period 1954-1957: Diverse forms of verandas (*emper*) observed on journeys to other countries (chapter 2).

2) Period 1950s-1960s: Considerations of open veranda (*emper terbuka*) expression (chapter 3).

3) Period 1970s-1980s: Adaptation of previous theories about open verandas (*emper terbuka*) in Indonesia (chapter 4).

4) Finally, we discussed differences among the texts and analyzed the process through which Silaban's notion of the open veranda (*emper terbuka)* was formed (chapter 5).

Table1 List of Friedrich Silaban's Textual Documents[2,13,14]

Period	Year	Friedrich Silaban's texts	Description of open veranda		Relevant chapter	Remarks
1954-1957	1954	Short Report of F. Silaban's Journey to Japan to study and review the art of building as intended by decree of the Minister of Education, Teaching, and Culture of the Republic of Indonesia; Date January 28th, 1954. No. 9417/Kab.; August 19th, 1954	X	-	2	Not mention description of verandas, but connected with the journey report to India
		Short Report of F. Silaban's Journey to India to study and review the art of building as intended by decree of the Minister of Education, Teaching, and Culture of the Republic of Indonesia; Date January 28th, 1954. No. 9417/Kab.; August 19th, 1954	O	p.9, 10, 12	2	Includes description of verandas
	1957	Short Report of F. Silaban's Journey, the Head of Public Works Department of Bogor Municipality, to the United States of America as intended by decree of the Minister of Home Affair of the Republic of Indonesia; Date June 11th, 1957. No. Pend. 6/5/34 and the Decree of Government Council of Bogor Regency; Date June 11th, 1957. No. 1795/3/57.	O	p.2	2	Includes description of verandas
1950s-1960s	1950s-1960s	Unpublished Article Draft (Personal Lecture Notes)	O	p.19, 20, 45, 46, 47	3	Includes description of verandas
	1965	Report of F. Silaban in the first pile erection ceremony of "*Bung Karno* Tower" at Antjol, Jakarta; October 8th, 1965	X	-	-	No mention description of verandas
1970s-1980s	1969-1970	F. Silaban's diary regarding the task of helping Director/Secretary General of "*Gelora Senayan*" Djakarta[*4]	-	-	-	Document not yet digitized or published
	1970	F. Silaban's Notes on "*Gelora Senayan*" [*4]	-	-	-	Document not yet digitized or published
		Report of F. Silaban's journey to West Germany (The last check of the polyhedron dome of the Istiqlal Mosque); August 5th, 1970.	X	-	-	No mention description of verandas
	1975-1976	Architecture and Architect Profession (edited by Anton de Sumartana, published by Spektra Almamater magazine, p. 4-5)	X	-	-	No mention description of verandas
	1982	Architecture Idealism and Its Reality in Indonesia (presented on the Second National Congress of the Institute of Indonesian Architects (IAI) at Yogyakarta, December 3rd, 1982); published in Budihardjo (ed), 1996	O	p.76, 77, 78, 79, 85, 86, 89	4	Includes description of verandas

The object of the research

2. Period 1954-1957: Diverse Forms of Verandas (*Emper*) Observed on Journeys to Other Countries

2.1. Journey to Japan (1954)

In January 1954, Silaban was assigned by the Minister of Education, Teaching, and Culture of the Republic Indonesia to study Japanese and Indian building arts.[15] He departed from Tanjung Priok port on March 14th and arrived in Kobe on April 2nd. As is stated in his biography, he traveled to Osaka, Kobe, Nagoya, Tokyo, Kamakura, Hiroshima, Kyoto, and Nara. He visited the Imperial Palace, Tokyo

Station, the Imperial Hotel (designed by F.L. Wright), Ueno Park and Museum, Teishin Hospital, the National Gallery of Modern Art, and Daichi Hotel in Tokyo. In Hiroshima, he explored Peace Memorial Park and the Memorial Cathedral for World Peace. He observed traditional buildings such as Tsurugaoka Hachiman-guin Kamakura, Ginkaku-ji, Kinkaku-ji, Sanjusangen-do, Kyomizu-dera, Higashi Hoganji, Nishi Hoganji, the Imperial Palace, Heian-jingu, and the Kabuki Theatre in Kyoto, and also Todai-ji, Kokufu-ji, Horyu-ji, and Kasuga Taisha in Nara. He went to Tokyo University of the Arts Ueno, the Department of Architecture of Waseda University, the Research Center for Materials and Construction, and a flat developed by Kajima corporation.[2)]

Silaban found that Japanese modern buildings were inspired by modern Western architecture, using white or red terracotta facades and fabrication materials.[2)] He was impressed by Japanese aesthetic constructions that made of natural wooden materials from mountainous areas, and noted that the houses were well-created and managed. He described the buildings as big and tall yet elegant and aesthetically pleasing and reported that the temple constructions were heavy, but their appearance was light and elegant. He found that temples had wide eaves reaching five to eight meters, as exemplified by a temple between Kamakura and Tokyo that extended to five meters.[15)]

He believed that aesthetic Japanese wooden construction was the result of a culture that respected life and aimed to design structures considering the local climate.[15)] He also concluded that Japanese perspectives on architecture were closely related to climatic and geographic conditions. He proposed that Indonesians should create the architectural styles considering their dry and rainy climates.[2,12,15)] He did not provide any description of verandas (*emper*) in this report, although he included a description of wide eaves attached to temple roofs[15)] that particularly for shelter.[16)] He also did not include photographic archives related to the above impressions, but his conclusions concerning the connection of architecture, climate, and geographical location were also mentioned in his next visit to India (1954).

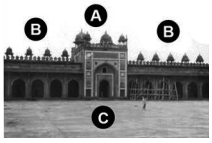
2.2. Journey to India (1954)

Departing from Okinawa, Silaban arrived in Calcutta on June 24th, 1954 and visited Delhi, New Delhi, Agra, Chandigarh, and Jaipur. His biography states that he explored Viceroys Palace, Jami Mosque of Delhi, Red Fort, Qutb Mosque, Hamayun Mausoleum, Indonesian Embassy, Birla Temple, the Taj Mahal, Chandigarh, and Jaipur. He visited the Indian Public Works Department, Chandigarh architect's office, and met some architects, namely H.L. Gehlote, T.J. Manickam, Habib Rahman, Achyut P. Kanvinde, and D.N. Gupta. He then visited Manickam's and Kavinde's projects.[2)] He mentioned the verandas (*emper*) of the Jami Mosque in Delhi and Chandigarh in his report.

2.2.1. Silaban's Journey to Jami Mosque, Delhi

The Mughal emperor, Shah Jahan, built Jami Mosque in Delhi (known as Jami Masjid of Shahjahanabad) in 1664-1658[17-19)] for communal worship and royal ceremonies.[17)] Silaban was impressed by the mosque complex's monumentality with its spacious courtyard surrounded by three gates paired with verandas (*emper* (*zuilengalerij*)). Three domes and two towers decorated the mosque.[2,6)]

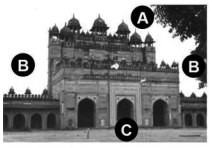
Silaban used the word *"emper"* (veranda) to refer the part of *iwan*[17)] with a colonnaded construction supporting the roof in Mughal architecture adopted from the Central Asian veranda or loggia.[18)] Four-*iwan* opening onto a central courtyard (*sahn*) is a mosque plan that is often used in Islamic architecture.[20),*5)] Silaban defined *iwan* as facade elements from the Indian stone building tradition that express monumentality. The flat-roofed verandas with rows of columns and arches on three courtyard sides were mediated by each gate.[17)] These verandas are open both to the courtyard and the city view below the mosque complex.[19)] He did not take any photographs at Jami Mosque in Delhi, but he took photographs at Jami Mosque in Fatehpur Sikri (Photo1 and Photo2), which has a similar plan to that of Delhi.



Legend:

A. Gate
B. Colonnaded veranda
C. Courtyard (*sahn*)

Photo1 Silaban's photographs of the Eastern Gate, Jami Mosque in Fatehpur Sikri, 1954[14)]



Legend:

A. Gate
B. Colonnaded veranda
C. Courtyard (*sahn*)

Photo2 Silaban's photographs of the Southern Gate (*Buland Diwarsa*), Jami Mosque in Fatehpur Sikri, 1954[14)]

2.2.2. Silaban's Journey to Chandigarh

Silaban visited Chandigarh on July 7th-8th, 1954. He was impressed by Le Corbusier and related architects (Pierre Jeanneret, Jane Drew, and Maxwell Frey) that designed Chandigarh. In his report, he analyzed Chandigarh buildings in consideration of the North Indian climates,[2,6,12),*6)] modern materials and constructions, and the typical activities conducted by Indian during the summer.[6)]

> "All the roofs are made of concrete but use no eaves. All the windows, doors, and verandas (*emper* (*zuilengalerij*)) affected directly by the sunlight are protected by "sun breakers" made of concrete or perforated bricks, due to wind flow and sunlight avoidance."[6)]

In this description, he pointed to a combination of the veranda (*emper*) and *brise soleil* (sun breaker) in Chandigarh buildings to mitigate sunlight and wind factors. Le Corbusier himself mentioned the sun and rain as the two controlling factors in his design,[21)] especially concerning the High Court buildings that Silaban appreciated as brave architectural projects.[6)]

He also described the Mount View hotel where he stayed in Chandigarh concerning the bedroom design that included a veranda (*emper*).

> "The hotel consists of: a. A big two-story block of bedrooms and stairs; b. A small block for the office, manager room, restaurant, and sitting terraces; c. A small block for the kitchen and storages; d. A small one-story block for servants and the garages; and e. A spacious yard. (Note: building a and b are connected by concrete verandas (*emper*)). The materials are concrete, brick, natural stone, tile, terrazzo, and wood. All bedrooms have a bathroom and water closet. The bedroom blocks face the wind (important for ventilation) and get hot because they also face the sun (the bedrooms face the sunrise in the morning, and the bathrooms face the afternoon sunset). Sun breakers in the form of balconies and awnings are built in front of the bedrooms for protection, while nothing is built at the back because verandas (*emper* (corridor)) are attached to the block (13 bedrooms)."[6)]

Silaban noted two functions of verandas in this hotel. Concrete veranda (*emper*) are used as connectors between buildings (Photo3) and bedroom verandas (*emper*) form narrow corridors alongside the rooms as protection from direct sunlight in the afternoon (Photo4).

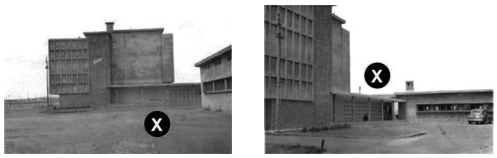


Photo3 Silaban's photographs from Chandigarh, India of concrete verandas (*emper*) (X) that connects buildings, 1954[14)]

Photo4 Silaban's photographs from Chandigarh, India of verandas (*emper*) that form a corridor along bedrooms, 1954[14)]

2.3. Journey to the United States of America (1957)

In June 1957, Silaban was assigned to visit the United States of America by the Minister of Home Affairs of the Republic Indonesia. He departed from Djakarta on July 3rd and arrived in Honolulu on July 4th, then he observed a milk factory, a school complex, the Governor's house, museums, and housing complexes.[7)] According to his biography, he visited many cities such as Honolulu, San Francisco, Washington DC, Philadelphia, New York, Boston, Detroit, Taliesin, Chicago, Phoenix, and Charlottesville. He visited Washington International Center, the Capitol Complex, the United Nations Secretariat Building, the Guggenheim Museum, the Laver House, Massachusetts Institute of Technology, the Ford Rotunda, Cranbrook Campus, Taliesin East and West, Lake Shore Apartments, the Johnson Wax Building, V.C. Morris Gift Shop, Maimonides Hospital, the Price Tower, Boston Avenue Methodist Church, and various factories. He visited architectural associations and architect offices and met the architects, Louis Khan, Eero Saarinen, Aaron G. Green, and Frank Lloyd Wright. He also visited Boston Architectural Center and the Department of Architecture at Pennsylvania University and Harvard University.[2)]

Silaban mentioned verandas (*emper*) in his visit to a school complex in Honolulu without took any photographs. His reports states that:

> "The plan uses a pragmatic modern style with romantic modern features in some parts. The materials are concrete, local coral reef, wood, and glass. Compared to the Honolulu office building's architects, this school's architect considers the issues of Honolulu's climate that has similarity to mild tropical climate. The existence of verandas (*emper*) and roofs that serves as eaves protecting the walls justifies the above assertion."[7)]

In this modern school building, he noted the combination of veranda and eaves as climatic adaptation elements. The above descriptions of veranda in two different countries demonstrate the diverse forms that verandas can take. Each country has a building tradition that resolves the issues related to its climates. The Jami Mosque in Delhi and Chandigarh buildings have verandas without eaves in adaptation to the Indian climates, while the school building in Honolulu has verandas with eaves adjusted to its mild tropical climate.

3. Period 1950s-1960s: Consideration of Open Veranda (*Emper Terbuka*) Expression

Silaban wrote an unpublished article draft, the date of which is not mentioned, discussing architectural design principles related to building expressions.[8)] He cited some sketches of building orientations and roof shapes from the *Bouwkunde* textbook[2,12)] that he collected in 1949 and 1952.[13)] Sopandi inferred that it was written around 1959-1961, as it uses paper and ink similar to the minutes of the "Tugu Nasional" meeting in 1960.*[7)] The authors have inferred that his sketch of Japanese house verandas was made around the 1950s-1960s after he traveled to Japan in 1954 and 1962.[22)] Over a series of visits to West Germany, he traveled to Japan on July 26th-29th, 1970. He visited the Osaka Expo, new buildings in Tokyo, and the Imperial Hotel Tokyo, but he did not mention any visits to traditional buildings.[23)]

This text touches on four topics: building shape, building height, origin, and roof. He includes a sketch description of veranda in the building shape section and three sketch descriptions in the roof section. The first sketch description focuses on veranda on the second floor:

> "The shape of the main block should be clear and concise, and the façade planes should be clear and plain from the bottom to the roof, which is from the floor to the gutter line. As an example, it is not a good idea to build friction on a story-floor height at the back façade only to include a veranda. Light and transparent balconies should be provided to maintain the façade's integrity."[8)]

Three sketches are provided in addition to this first sketch description as the design cases (Fig.1). The first and second sketches (A and B) with a cross mark show his suggestion to avoid back veranda design on the second floor located above an additional room, while the third sketch (C) shows his suggestions for a better design using a balcony without any room below it, so that the façade plane is clear from the floor to the roof. Through these design cases, he emphasizes the importance of considering façade clarity when designing verandas.

The second, third, and fourth sketch descriptions are in three sequence pages connected to each other. In the second sketch description, Silaban describes the small angle roof expression.

> "The roof with a small roof angle becomes a flat roof that is always less visible than the substructure. This roof type will not dominate the substructure. It also cannot be a prominent crown. The flat roof is more obviously seen as a roof with the function of providing protection from the top (a lack of space forming) especially when given eaves. The eaves on a flat roof, in fact, are an aesthetic necessity, since the above roof plane is slightly invisible and plays an obsolete role."[8)]

He describes the weakness of a small angle roof that is less dominant than its substructure. Here, the term "substructure", refers to the space below the roof, which is known as the space below the eaves in Japanese design theory.[24),*8)] Silaban suggests that eaves are an aesthetical element that makes this roof type more visible. He drew three sketches showing wide eaves forming a space below the roof (Fig.2). The third sketch description shows the Japanese verandas as an excellent example of the use of wide eaves (Fig.3).

> "So, the part playing a role is the plane below the roof that is more visible when eaves are used. This is a beautiful and interesting element of Japanese indigenous architecture! Houses are often surrounded by verandas (*emper*) with large eaves and pure wooden constructions that are plainly and bravely exposed from below. A vision over the roof is not playing a role!"[8)]

The veranda (*engawa*) is an important space in Japanese houses connecting the indoors and outdoors.[25,26)] The space is located below the eaves[25,26)] that protects the room from the rain, blocks the sunlight, and provides shade in the summer.[25)] In the winter, the veranda allows sunlight to enter the room, creating a warm and comfortable atmosphere.[25)] It can be enclosed by the rain-door (*amado*) during storms or night.[26)] Silaban's sketches (Fig.3) show Japanese verandas below wide eaves opening onto gardens supported by a row of wooden columns and beams upon a rising floor platform. He underlines the wooden construction characteristics that are pure and bold.[8)] Japanese verandas are supported by natural wooden columns and beams forming an elegant construction expressing honesty, simplicity, clarity, and purity.[26,27)] This supports Silaban's impressions of Japanese wooden architecture from his journey to Japan (1954) in Chapter 2.1. He portrays Japanese verandas and their eaves as an ideal veranda façade showing clarity, as he emphasizes in the first sketch description.

Unlike previous descriptions in which Silaban uses the term *"emper"* (veranda), he uses the term *"emper terbuka"* (open veranda) to describe the roof accentuation in the fourth sketch description and provides a solution for the visual problem of the small angle roof.

> "The use of the roof as a protector from above can sometimes be accentuated by apparently removing it from the substructure with a barrage of windows. If the building is large, an open veranda (*emper terbuka*) may sometimes be used. This technique allows the roof to be released from the substructure and makes it appear to dominate above the substructure."[8)]

He suggests adding windows in a small building (Fig.4) or an open veranda (*emper terbuka*) in the larger buildings (Fig.5) to make the roof more dominant and visible. These solutions clearly show the façade division: the roof, the space below the roof and eaves, and the floor.

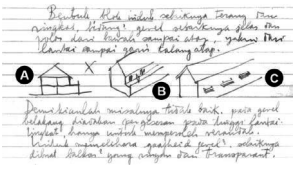


Fig.1 Silaban's sketches of the back veranda and back balcony[8)]

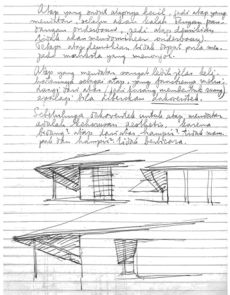


Fig.2 Silaban's sketches of the space below the roof and eaves[8)]

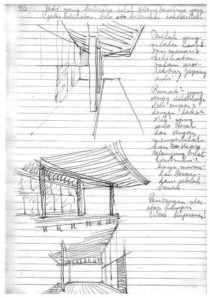


Fig.3 Silaban's sketches of Japanese verandas[8)]

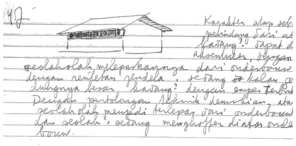
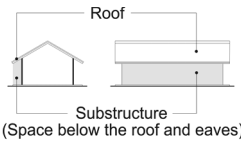
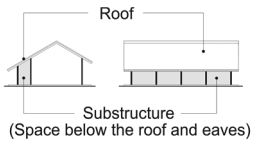


Fig.4 Silaban's sketches of roof accentuation in small buildings[8)]



Building without open veranda (*emper terbuka*)



Building with open veranda (*emper terbuka*)

Fig.5 Roof accentuation in larger buildings according to the fourth sketch description

4. Period 1970s-1980s: Adaptation of Previous Theories about Open Verandas (*Emper Terbuka*) in Indonesia

Silaban presented an article at the second National Congress of the Indonesian Institute of Architects titled "Architectural Idealism and the Reality in Indonesia" on December 3rd, 1982 in which he explained his idealism regarding the purity of Indonesian architecture. He considered seven points for designs in tropical countries: 1). The importance of the roof for "climatic effects" mitigation; 2). "Open veranda (*emper terbuka*)" as required spaces in Indonesian houses; 3). The "ideal architectural form" is simple, concise, and clear; 4). Leak-free "roof material," shape, and construction; 5). Good quality of "materials"; 6). Harmony of modern "architecture shapes" with tropical characteristics; and 7). Inessential use of "Air Conditioning" for buildings in Indonesia. He concluded his criteria for ideal houses in the final part of the text.[5] In this congress article, the second considered point primarily concerns the description of open verandas. The other two points, the first and sixth, were also mentioned in the paragraph related to the open verandas. The conclusion mentioned the open veranda as a criterion for ideal houses. This text was presented before Silaban fell ill in 1983 and died on May 14th, 1984.[2,10]

4.1. Function of the Open Veranda as a Social Space

The first description in this congress article shows Silaban's unique interest in open verandas (*emper terbuka*) of Indonesian houses.

> "When we drive a car from one town to another, passing through farming areas and seeing most people's houses on the roadside with front verandas (*emper*) opposite the roads. We will find the occupants sitting in these front verandas (*emper*) all day. They will enter the walled parts inside the houses at night. Therefore, I dare to say that *a house without a sufficiently large open veranda (emper terbuka)* (instead of a narrow veranda (*emper*) with an additional platonic *eave*) *is not an authentic Indonesian house*. This is a sign for me that *the open part of such houses is the most pleasant place for sitting while chatting and resting*."[5]

Silaban identified open verandas as required spaces in Indonesian houses according to his observations of Indonesian vernacular houses built by local people in countryside and their occupants' daily activities. In Indonesian vernacular tradition, the outer space of houses is an essential site in which occupants spend most of their time engaging in daily social activities. They use inside parts of the house for domestic purposes such as sleeping, cooking, and storing family heirlooms. Outer spaces in such houses differ according to various ethnicities, cultures, and house shapes from a sheltered area under the house, a platform under a rice barn, an open-walled pavilion, or a simple roofed platform (veranda).[28] For instance, a traditional Javanese house (*omah*)[*9] is divided into inner (*dalem*) and outer spaces (*emperan*) forming a roofed open veranda for public activities with a raised bamboo platform (*amben*) for receiving guests, napping or sleeping in the daytime, and on which adults' sleep at night.[1,4] Silaban emphasizes the important functions of open verandas as social spaces in this tradition.

4.2. Adaptation to the Hot-Humid Tropical Climate in Indonesia through Open Verandas

Silaban also explained the influence of traditional verandas in Indonesian houses on Dutch Colonial architecture in his description of the importance of roofs for "climate effects" mitigation.

> "It was not astonishing that many Dutch people (before World War II) built their houses with large rooms and high ceilings. In addition to building verandas (*emper*) that surround houses or at least one large front veranda (*voorgalery*) and one back veranda (*achtergalery*) with a comparable size. Having come from a cold country to a tropical country such as Indonesia, the Dutch quickly understood the importance of verandas (*emper*), *voor* (front) and *achtergalery* (back veranda) as well as large rooms and high ceilings. They considered these fundamental elements for houses in tropical countries. Remember the Residen houses, the Residen assistants' houses, the Regent's houses and their pendopo,[*9] the houses and pendopo of the Wedanas, and the Administrateurs' houses on big farms in the past that we can still admire the remaining constructions today. Indeed, these designs are the results of their observations of local indigenous houses. Both small and big houses are built following the same principles."[5]

Silaban explains that the Dutch observed Indonesian indigenous houses and adapted verandas as an essential element for their own houses. Verandas were commonly used in 1790-1820 for *landhuizen* or *thuyen*, also known as Indies Style Country Houses.[1),*10] Dutch aristocrats build these houses in the countryside in search of a better environment than that of Batavia.[1,29] Adapting to the hot-humid tropical climate[*11] and environment, they built houses similar to Javanese *joglo* houses[*9] with verandas surrounding or located in the front and at the back of houses. The pitched roof that expands above the veranda protects it from direct sunlight and pouring rain.[1,4,29,30] The style shifted to the Indische Empire Style[*12] in the 19th century which involved a neoclassical style adjusted to the hot-humid tropical climate. Buildings in this style have symmetric plans with large front verandas (*voorgalery*) and back verandas (*achtergalery*) applying a row of Greek or Roman columns.[30,31] The Governor-General building was renovated in this style followed by subdivision positions, such as *residen*, etc,[*13] with a smaller size.[4] In early 1920s-1930s, modern Dutch colonial houses replaced this style using smaller front and back verandas.[1] Although the style changed, the veranda was preserved since it had been proven as useful for climatic adaptation.

Maintaining veranda's function as a social space, he emphasized the importance of considering hot-humid tropical climate of Indonesia.

> "The most important thing is to avoid a single ray of sunlight reaching the floor, instead of building a wall. However, to hold the sunlight, a widened roof can be built beyond the wall outline. By doing this, the sunlight will not reach the wall."[5]

Silaban suggested resolutions for the problem of torrid sunlight in the hot-humid tropical climate. In his open veranda design, he included

wide eaves as shade to prevent sun rays from reaching the floor. He explained the first step of his design processes in following excerpt:

> "Hence, I personally always make a solar *shadowgraph* first for the site where a building will stand before thinking over the building design. Because of *noorderkeerkring* (June 21st) and *zuiderkreeding* (December 21st), the "*solar shadowgraphs"* will be different in every place. Since Java island is located almost parallel to KHATULISTIWA, one "*solar shadowgraph*" can be applied to all places in Java. Another "*solar shadowgraph*" can be used for areas located near KHATULISTIWA and another for areas such as Medan, Sibolga, etc. Northern areas like Aceh, etc. should use a different "*solar shadowgraph*". The sun will be at the northernmost position on June 21st, while it will be at its southernmost position on December 21st, so the *awning*'s shade on a *facade* will move throughout the year.[5)]

In order to get a maximum shade from wide eaves, Silaban first employed a solar shadowgraph (sun chart) considering the geographical location. He considered the distance from the site to the equator (*khatulistiwa*) and the relative sun position in the site concerning the seasonal solstice in June and December. This method defines Silaban's conception for tropical architecture:

> "Based on the above principles, I personally believe that tropical architecture is mainly a balanced and harmonious play of lights and shadows. The darker the building is (direct sunlight cannot reach it), the more tropical the building's architecture will look."[5)]

He defines dark interiors as ideal characteristics of tropical architecture. Furthermore, he identifies five criteria for the ideal house:

> "After understanding my viewpoints described above, as a conclusion, it is easy for me to present an image of ideal houses: 1). The houses should be surrounded by *a veranda (emper) producing shade* and covered by a high ceiling of a minimum of *four meters*; 2). If it is not feasible, the houses should have *wide eaves*, so *there is no part of the floor affected by direct sunlight and should have a limited-sized voorgallery (front veranda)*; 3). If this is still too costly, the houses should have *sufficiently eaves* and *a limited-sized voorgallery (front veranda)*; 4). The house should have *a concise roof shape* and *durable roof material*; 5). The houses should be *free from roof leakage*, except for broken tiles on roofs that are easy to replace."[5)]

The first three criteria concern verandas as an ideal element in houses that are three alternatives for veranda attachments according to financial considerations. Silaban adapted his architecture to Indonesian hot-humid tropical climate by prioritizing the open veranda as a climate modifier to prevent direct sunlight from affecting the interior. He thus emphasized a combination of open veranda and wide eaves.

4.3. Balance between Façade Shape and Open Veranda

Silaban also described his opinion about the relationship between open verandas and building façades with a row of columns in his description of the harmony of modern "architecture shapes" with tropical characteristics.

> "Many buildings use free column sequences. I think these column sequences suggest that they surround an open space or stand in front of it. The distance between the column row and the room border should be large and equal to the column size and the spacing between the columns, so the free columns stand in front of a large *voorgalery* (*front veranda*) (as seen in Merdeka Palace, State Palace of Jakarta, and Bogor Palace)."[5)]

In Silaban's definition, the large open veranda balances the façade with the row of columns facing the open space. He suggested three significant factors to achieve a harmonious façade shape: open veranda width, column size, and column spacing. He mentioned three official presidential palaces using Indische Empire Style*[12)] as examples. The State Palace of Jakarta was a Dutch merchant residence in the 18th century that became the Dutch Governor-General residence in Batavia. This building located in front of the Merdeka Palace (1873-1879) and was used as a place to hold ceremonies, while Bogor Palace (1834) was the former primary official residence of the Dutch Governor-General.[4)] These buildings had front verandas with big neo-classic columns above rising floors and stairs facing a spacious yard.

5. Discussion

From the five texts written by Friedrich Silaban including description of open veranda in over three periods, we can see that he gradually developed his notion of the open veranda. The authors will next summarize the formation processes of Silaban's notion of the open veranda.

In the first period (1954-1957), Silaban discovered the diverse forms of verandas (*emper*) on his journeys to other countries. He gained a foundational understanding of the relationship between climatic and geographical conditions and architecture on his journey to Japan (1954). On his next journey to India (1954), he observed a monumental *iwan* with a colonnaded veranda at Jami Mosque in Delhi. In Chandigarh, he learned about the use of traditional building techniques such as verandas to solve climate problems using modern forms, materials, and constructions. He then identified another veranda form adapted to the mild tropical climate at a modern school building in Honolulu, Hawaii (1957). In this stage, Silaban identified the connection of the regional climate with the veranda form in modern buildings as a climate modifier, while in Indian building tradition, he identified the influence of the Mughal veranda on building expression.

In the second period (1950s-1960s) through his unpublished draft article, he connected verandas (*emper*) and eaves with simplicity and clarity expressions as well as roof's accentuation. He emphasized simple and clear façade when designing verandas. He pointed to verandas in Japanese houses as an ideal form of verandas below the eaves with simple columns and beam construction. He first mentioned the term

"open veranda" ("*emper terbuka*") to describe the roof's accentuation. The combination of the roof's eaves and open verandas not only differentiates façade areas (roof, space below the roof and eaves, and floor) but also makes the small angle roof more dominant. In this stage, Silaban recognized the form of open veranda and its roof's eaves as an aesthetic element creating a simple, concise, and clear façade.

In the last period (1970s-1980s), he adapted previous theories into Indonesian contexts explained in his article for the second National Congress of the Institute of Indonesian Architects (1982). Silaban specifically used the term "open veranda" ("*emper terbuka*") as his notion to address the ideal veranda for Indonesian houses. He emphasized this as a required space for Indonesian houses where social interaction take place and tropical characteristics are accommodated. The open veranda must be large enough for its social function and open (without wall barrier) to people and the environment. Such verandas are not only physically open, they are also socially open to allow people to interact in this space; this is the uniqueness of veranda in Indonesian houses. He also confirmed that the open verandas in Indonesian indigenous houses could become climate modifiers. This is proven through its application in Dutch colonial houses. Concerning the hot-humid tropical climate, he suggested that an ideal house should have an open veranda and a wide eave that provides shade to prevent direct sunlight entering the open veranda and the interior. The balance of the veranda's width and the columns achieves a harmonious façade. In this stage, Silaban recognized open verandas as a social space, climate modifier, and façade balancer.

Over these three periods, the formation of Silaban's notion of the open veranda (*emper terbuka*) turns back to the Indonesian indigenous houses and the periods of colonial buildings through experiences he underwent on journeys to foreign countries. At the final stage, Silaban summarizes the subject of the "open veranda" in connection with its functions as social space, climate adaptation, and harmony with a facade. He determined the essence of the function of open verandas and the tropical features of Indonesian indigenous houses, although the facade problem is not directly related to Indonesian indigenous houses. For Silaban, the façade expressions must be concise and clear regarding the principles of modern international styles. In other words, Silaban's notion of the open veranda (*emper terbuka*) clearly expresses the special social problems of space function and climate in Indonesia through simple, clear, balance and universal forms.

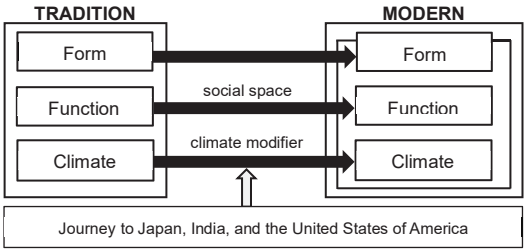


Fig.6 The formation of Friedrich Silaban's notion of the "open veranda" (*"emper terbuka"*) through his textual descriptions

One limitation of this study is that our interpretation of Friedrich Silaban's notion of the open veranda only focused on descriptions of such structures in his textual documents. Despite this limitation, our findings that Silaban not only pointed out Indonesian vernacular houses and Dutch colonial houses but also expressed open verandas as a simple, clear, balanced, and universal form through other architectural references contributes to the understanding of the formation of Silaban's notion of the open veranda. Generally, architects connect aesthetic forms with social and climatic factors in their designs. In this case, Silaban recorded his ideas regarding the connection between open verandas and its social functions, climatic factors, and aesthetic forms in his later text (1982). Analyzing the transformation of Silaban's open veranda design through his design documents will be the subject of further investigations to clarify the adaptation of his notion of the open veranda and the application of the connected elements (social function, climate, and form) in his design development.

6. Conclusion

The formation of Friedrich Silaban's notion of the "open veranda" (*"emper terbuka"*) was influenced by such factors as his experiences from journeys he undertook to study architecture (Japan, India, and the United States of America), his considerable studies on the expression of open verandas, and his discovery of the essence of open verandas in Indonesian vernacular houses. On his journeys to foreign countries, Silaban discovered domestic traditions mixed with modernism and regional climates. He then identified the open veranda as a traditional Indonesian building technique that is suitable for modern tropical architecture. In addition to its function as a social space in Indonesian tradition, the open veranda adopts tropical climate characteristics to be transformed into a modern form.

In conclusion, Silaban's notion of the "open veranda" (*"emper terbuka*") is the re-organization of the subject in Indonesian traditional houses and modern architecture. However, the notion formation consists of Indonesian indigenous architecture, other countries' architecture, historical buildings, and modern building references. Therefore, Silaban's notion of "open veranda" ("*emper terbuka*") has a dual character that reflects the unique subject of Indonesia and the universality simultaneously.

7. Future Research

In addition to analyzing Silaban's design documents, it also necessary to consider that indigenous/international or traditional/modern issues are not only morphological problems but also material and construction issues. The result of this paper could be developed to conduct further research on the relationship between Silaban's notion of the open veranda and his notion regarding material and construction.

Acknowledgements

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Fig.1 Silaban, F.: The Unpublished Article Draft (Personal Lectures Notes), pp. 19-20, modified by the authors
Fig.2 ibid, pp. 45
Fig.3 ibid, pp. 46
Fig.4 ibid, pp. 47
Fig.5 Created by the authors based on Silaban's description of roof accentuation for large buildings in his unpublished article draft, 2018
Fig.6 Created by the authors based on the analysis of chapter 2, chapter 3, and chapter 4, 2018

References for Photographs

Photo1 Pusat Dokumentasi Arsitektur: F. Silaban's digital archives collection, modified by the author, April 2018
Photo2 ibid
Photo3 ibid
Photo4 ibid

Notes

*1) Led by Cornelis de Houtman, the Dutch landed at Banten in 1596 for trading and established the Vereenigde Oost-Indische Compagnie (VOC) in 1602. It controlled the Dutch East Indies (the name for Indonesia during this era) until it was taken over by Dutch government in 1799. Dutch colonial period ended when the Japanese invaded Indonesia during World War II in 1942. Indonesian proclaimed its independence on August 17th, 1945 (Tjahjono, 2009).

*2) Silaban studied *bouwkunde* (building techniques) in Koningin Wilhelmina School (KWS) and graduated in 1931. He worked as a staff in the Dutch government and ran a private architectural practice. He was a reputable Dutch East Indies young architect who won the *Netherlandsch-Indisch Architecten Kring* (NIAK) competition in 1936. He received architect profession certificate from the *Academie voor Bouwkunst* Amsterdam in 1950. After winning three national design competitions in 1954-1956, he reached the peak of his career (1955-1965) and became involved in architectural projects during the era of president Sukarno, applying modern tropical style (Tjahjono, 1998; Sopandi, 2009, 2017; modern Asian Architecture Network, 2008).

*3) The term "*emper terbuka"* is a combination of the words: *"emper*" and *"terbuka*". The official Indonesian language dictionary states that the word "*terbuka*" means open; not closed; revealed, while the meaning of *"emper*" is veranda (at the side, front, or back of the house or building). It can also refer to an additional roof that is connected to the main house or an additional roof at the side or the back of a house (Departemen Pendidikan Nasional, 2007).

*4) The Gelora Senayan complex (now Gelora Bung Karno) in Jakarta was built as the venue for the Asian Games IV, which was held from August 24th to September 4th, 1962. The main stadium is known as Senayan stadium. Silaban lead the Asian Games Construction Command (KUPAG) (Sopandi, 2017).

*5) *Iwan* refers to a vaulted hall that is walled on three sides, with one end entirely open. *Iwan* has been a basic unit of Islamic architecture since the Seljuk era (10th century). Four *iwan* opening to a central courtyard is the most typical *iwan* arrangements for mosques, madrassas, and palaces. This basic plan was also established in Mughal mosques with a pillared *iwan* (Peterson, 1996:130, 203). Mughal architecture combined Timurid, Indian, Transoxanian, Persian, and European elements. In Mughal architecture vocabulary, *iwan* specifically refers to a pillared construction of any dimension and plan that was adopted from the roofed veranda or loggia supported by slender wooden columns in vernacular Transoxanian architecture. Transoxania was the Mughal's ancestral land located in Central Asia between Amu Darya (Oxus) and Syr Darya (Jaxartes) (Koch, 1991:14, 42, 55, 140).

*6) In Silaban's report of his journey to India (1954), he broadly analyzed Chandigarh's architectural form, considering several factors: 1). The climate was sweltering in summer and cold in the winter; 2). The rain is not too strong or heavy and the climate is generally arid; 3). The wind blows in one direction that can be used for bedroom ventilation to prevent hot temperatures during summer; 4). In the summer, Indian people sleep outside on flat roofs, balconies, or terraces. Architects scientifically, technically, and aesthetically considered these factors to create architectural designs for Chandigarh. Silaban cited the High Court as an example of a building corresponding to the hot and dry climate. He noted this building as one of Le Corbusier's bold designs dominated by large eaves, sun breakers made from concrete, main columns, beams, floor constructions, and large walls (Silaban, 1954:9, 12).

*7) The author interviewed Setiadi Sopandi on November 3rd, 2017.

*8) For the Japanese, it was necessary for roofs to stick out buildings and have eaves. The space below eaves is endowed with meaning signifying design and life. The wide eaves not only protect the outer wall and prevent the decay of the building, they also connect the building with nature. The space under the eaves was categorized as a transitional space or pivot space that connects the inner space with the outer space (Ito, T, 2012).

*9) The traditional Javanese houses have three types based on roof shapes and the owner's socio-economic status: 1). The *kampung*-style houses are for the common man; 2). The *limasan*-style houses are for higher status; 3). The *joglo*-style houses are for the nobles. The *kampung* and *limasan*-style include the *omah* as a basic house, while the *joglo* house has three divisions: the *omah*, a *peringgitan*, and a *pendapa* (*pendopo*). The *peringgitan* is a connector for *omah* as the inner space of family and *pendapa* (front pavilion) as the public space for social gatherings and ritual performances (Tjahjono, 1998, 2009).

*10) The Indies Country Houses were the result of the Indische lifestyle, a combination of Dutch and Indonesian culture (Tjahjono, 2009 and Soekiman, 2011).

*11) Indonesia lies along the equator and has a hot-humid tropical climate with only a rainy and a dry season. The climate is characterized by: 1). High air temperature, 2). High relative humidity, 3). Heavy rainfall, 4). Relatively low wind speed, and 5). Strong sun heat (Karyono, 2016).

*12) The Indies Empire style was popularized by Governor General H.W. Daendels (1808-1811) with the following characteristics: 1). A symmetrical plan; 2). A "central room" that consists of a master bedroom and other bedrooms located in the middle of the house; 3). A central room connects to a large front and back veranda (*voorgalerij* and *achtergalerij*) with Greek or Roman columns (Doric, Ionic, Corinthian); 4). A kitchen, bathroom, and service area that are separated in the back of the main house; and 5). A pavilion added at the side of the house that serves the guest bedrooms (Handinoto, 2008.7).

*13) The Dutch East Indies government was formed by: 1). The Dutch lead by the Governor-General assisted by *residen*, assistant-*residen*, and inspectors; 2). Native nobles appointed by the Governor-General: regents, *wedana* (the head of district), and assistant-*wedana* (the head of sub-district)) (Anrooij, 2014).

和文要約

1. はじめに

フリードリッヒ・シラバン（1912-1984）は、インドネシア建築家の第一世代の一人であった。シラバンは理想的な住宅の基準として「ベランダ」に言及し、とりわけインドネシアの住宅には「オープン・ベランダ」（エムペル・トゥルブカ emper terbuka）が必要であるとした。そこで本稿では、これまでその重要性が指摘されつつ概要しか明らかにされていなかったフリードリッヒ・シラバンによる「オープン・ベランダ」の概念形成を明らかにすることを目的とする。

資料としては、日本（1954 年）、インド（1954 年）、アメリカ（1957 年）の度の手帖や報告書、非公開論文草稿（1950 年代～1960 年代）、第 2 回ナショナル・ジオメトリーインドネシア建築家協会（1982）の議会論文をシラバン・アーカイヴから抽出した。そしてこれらの資料を 1954-1957 年、1950 年代～1960 年代、1970 年代～1980 年代の 3 つの時系列に整理し、各時期における「オープン・ベランダ」の様態を比較検討した。

2. 1954 年～1957 年：他国への旅行によって経験したベランダの多様な形態

シラバンにおける「オープン・ベランダ」の萌芽的様態は、他国への旅の記述に認めることができる。すなわち、日本（1954 年）、インド（1954 年）、及び米国（1957 年）への旅である。

シラバンは日本への旅の経験を通して、建築物と気候や地理的位置との関係に注目し、同年のインドにおいても同じまなざしで建築物を見ていた。そこでシラバンは、気候の問題を解決するための伝統的もしくは近代的なベランダの多様な形を発見した。

日本においてシラバンは、木造建築における屋根の軒の張りだしに気候に対する建築的解決を見出した。インドにおいては、デリーのイスラム教寺院にあるフラットな石の屋根付きベランダの伝統は、直射日光の当たる部屋を保護するためのものであるが、チャンディガールのル・コルビュジエの日除け装置ブリーズ・ソレイユではコンクリートのベランダに置き換えられているとした。

一方、ホノルルの学校の建物については、シラバンは緩やかな熱帯気候を調整して張り出した別の形式のベランダを発見している。

3. 1950 年代～1960 年代：オープン・ベランダ表現の考察

シラバンが「オープン・ベランダ」について言及している初期の論文は、1950 年代～1960 年代の未発表の論文草稿に認められる。この時期のシラバンは日本建築における屋根の軒の張りだしを「ベランダ」の理想的な形態としている。そして、幅のある屋根の張りだしと床、そして規則正しい柱と梁によって構成される室内外の媒介的空間を現代建築における「オープン・ベランダ」として定義している。日本の木造建築の伝統的形式の援用であることは明白であるが、インドネシアの現代建築に限定したものではなく、そのファサードを単純かつ明快にすることによって普遍的な形態を志向している。

4. 1970 年代～1980 年代：「オープン・ベランダ」のインドネシアへの理論的適用

シラバンにおける「オープン・ベランダ」の最終的な概念は、インドネシア建築家協会（1982）の第 2 回全国会議の講演録に認めることができる。そこでシラバンは、「オープン・ベランダ」に関して 3 つの主な主題を指摘している。すなわち、1）社会空間としての機能。2）インドネシアの熱帯気候への適応。 3）ファサードとの調和。

そしてシラバンは、インドネシアにおける土着の民家を調査し、オープン・ベランダがインドネシアの住宅には必要な空間であるとする。そしてシラバンは、インドネシアの住宅の居住者の日々の習慣から、座っておしゃべりをして休息するための社会空間としての機能の重要性を強調する。

次にシラバンは、オランダのコロニアル・スタイルを例に出し、インドネシアの温湿度の高い熱帯気候には、室内環境への影響を防ぐオープン・ベランダが適切であるとしている。

さらにシラバンは、機能的観点に加えて、審美的な観点からインドネシアにおける「オープン・ベランダ」について論じている。シラバンに拠れば、調和のとれたファサードを得るためには、オープン・ベランダの幅、列柱の径、列の間隔という 3 つの要素を考慮する必要がある。大きく開いたベランダは、列柱を構成することによってファサードの主要な要素となる。

5. 考察

上の 3 つの時期から、シラバンの「オープン・ベランダ」の概念は、他国への旅の経験を経由して、インドネシア土着の住宅、そしてインドネシアにおける植民地時代の建物へと遡行していく仕方で形成される。

最終的にシラバンは、「オープン・ベランダ」の主題を、社会空間としての機能、気候への適応、そしてファサードとの調和の 3 つに要約している。たしかにシラバンはインドネシアの伝統からベランダの機能と熱帯の特徴の本質を読み取っているが、ファサードの問題だけは、インドネシア土着の住宅を直接参照していない。

シラバンにとって、ファサードの表現は、現代の国際的スタイルの原則に関連して簡潔かつ明確でなければならない。すなわち、「オープン・ベランダ」は、インドネシアにおける社会空間機能と気候という特殊問題を単純、明快、均衡のとれた普遍的形態によって表現しようとするシラバンの理念を端的に示す概念である。

6. 結論

フリードリッヒ・シラバンによる「オープン・ベランダ」の概念は、インドネシアの伝統再編成の目論見の一つであろう。しかしその概念形成は、土着の建築から、他国の建築、それも歴史的建造物から近代的建物の参照から成り立っている。

それゆえに、シラバンにおける「オープン・ベランダ」は、インドネシア固有の主題を反映していると同時に、普遍的な解となり得るという二重の性格を帯びている。しかし土着的／国際的、伝統的／近代的の問題は、形態の問題だけではなく、建設技術や素材の問題も含まれているであろう。今後の課題である。

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