

The Typology of Colonial Building Façade in Jalan Hasanudin, Batu City

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Abstract— *Jl. Hasanudin is a street in the western part of Batu city that has a historical nuance as it has Dutch colonial buildings that exist until now. The buildings are built by the Dutch in the 19th century until 20th century. Climate differences required the modification of the design, especially the building's facade so that it is comfortable to live in a tropical country, while still keeping the European architecture characteristics. Nowadays, colonial buildings are slowly losing their original character and historical value due to the need for renovation and adjustment to the current building type, that the majority of which are for business. This study used a Descriptive method with the theory of typology approach. The technique of sample selection was Purposive sampling. The result demonstrated that based on its function, there are 4 types of buildings in Jl. Hasanudin; houses, religious buildings, rental buildings and foundation offices. The diversity of building facade is based on the physical factors including climate and building materials, and non-physical factors including the age of the building (which affects the architecture), the ownership of the building and the function.*

Keywords— *Typology, facade, colonial architecture.*

I. INTRODUCTION

Batu City is a city in East Java which has a tourism attraction due to its beautiful natural panorama and cool weather. The image of Batu city as a tourism city has existed since the beginning of the 19th century, where the city developed into a tourism area for the officials of the Dutch colonial. Furthermore, the Dutch built a residential complex (Villa), for their residence in Batu City. The buildings are still exist today and become one of the tourism destinations. According to Handinoto (1996), there are 6 styles of Dutch colonial buildings in Indonesia, namely Indische Empire, Voor 1900, NA 1900, Romantiek, Amsterdam School (1915s), and Nieuw Bouwen (1930s).

The Dutch colonial buildings in Indonesia are unique as they are different from colonial buildings in other countries. The architectural design of colonial buildings in Indonesia has its own characteristics as the design combines Dutch architectural techniques with Indonesian culture. In addition, the buildings were also designed by adjusting the tropical climate in Indonesia (Sumalyo, 2006).

Facade is an indicator of the building characteristic. Based on the history, the facade of Dutch colonial building in Jalan Hasanudin was designed as a rest area for the government officials in the era of the Dutch colonial in Indonesia. Nowadays, however, the current conditions are more dominated by modern buildings and shop buildings (shop houses). Many colonial buildings have been restored, especially in other areas, thus erasing the identity and

historical value in of the location. The government of Batu City has made the observations to maintain the cultural and historical nuances of Jalan Hasanudin even though until now there has not been any visible program for this purpose. The higher business development will further increase the pace of development and eliminate historical values in buildings in Jalan Hasanudin.

In this study, researchers highlighted the ongoing issue by examining the typology of the Dutch colonial building facade which still exists until today. The results are expected to be an important information and recommendations, especially for the Batu City Government to better understand the characteristics of colonial architecture and consider to preserve the historic heritage. It is also important to maintain the diversity of choices of tourist destinations in Batu City.

Typological study is a theoretical approach to provide scientific explanations for supporting the preservation of historic buildings. The typology was chosen as a reference for identifying and analyzing the types of Dutch colonial building in the street corridor of Jalan Hasanudin, Batu City. Typological study has been widely discussed and used in previous studies, but so far it has never been applied to study the colonial buildings in Batu City. Anthoy Vidler (1977) explained that typology is an analysis to study the incorporation of basic building elements to then make a classification of architectural elements based on types.

Typology is the study of identification based on categorization and classification to produce types. This categorization process will show the diversity and uniformity of the objects studied (Iswati 2003). Furthermore, Triady (2012) added that typology is a method of grouping several types of buildings based on their respective characters. Classification based on colonial building types can be interpreted by identifying the similarity of the building to several factors, such as the year of construction which consists of 4 periods. Buildings with Dutch colonial architecture in Jalan Hasanudin need to be examined with the approach of typological theories.

The building facade is an architectural element that describes the characteristics of a building from the front view of the building. Based on the building's facade, the typological analysis is then carried out to identify the facade forming elements, such as the roof, doors, windows, ventilation and wall ornamentation.

After analyzing the building facade, the factors that influence the design of the facade are then searched. So that it can bring up a finding about the factors that influence the

building facade formation. These factors can be identified by analyzing the conditions or regional characteristics, such as climate. Different climates certainly affect the physical design of buildings, especially on the roof, windows and ventilation which are responsible for regulating the temperature of the room in the house during the day and night. The design of the house must be adjusted so that it is comfortable to live in.

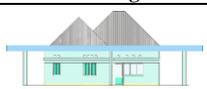
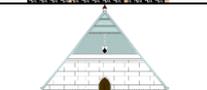
In general, the factors that influence the type of building are physical and non-physical factors. If the physical factor is climate, among others, non-physical factor is the age of the building. Age of a building tells about the year or era of the construction. This variable demonstrates the background of the building style, which is related to the architecture of the building at that time. Thus, in the analysis of building typologies, physical and non-physical factors are crucial to be identified.

II. METHOD

The method used in this study was the Qualitative method with a typology analysis approach. A qualitative research consists of 3 activities, which are data reduction, data presentation and making conclusions or verification (Miles-Huberman, cited in silalahi, 2009). The research objects were the colonial buildings in Jalan Hasanudin, where the determination of the sample was carried out using the Purposive technique, which is a technique of sampling based on certain criteria (Sugiyono, 2010). The criteria of research sample were buildings that aged over 50 years, represent Dutch colonial architectural, and are located and face towards Jalan Hasanudin corridor. Based on these criteria, from a total population of 53 buildings, 8 buildings were selected as research samples.

1. Observation on buildings that meet the criteria.
2. Interview with the building owners or keeper.
3. Identification of building types based on facade elements.
4. Typological analysis on the factors related to the facade design and style.
5. Conclusion making.

TABLE 1. Building Samples

Building Picture	2D Image	Year of construction
		1950
		1940
		1930
		1940
		1930
		1930
		1940
		1900

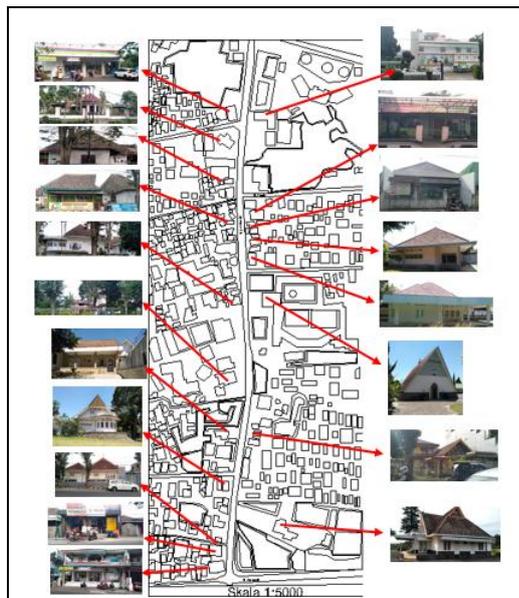


FIG. 1. Buildings in Jalan Hasanudin (Research population)

After the building samples were determined, the observation on the facade type was then conducted based on the building elements; the roof, doors, windows, ventilation and walls. The stages of observation were as follows:

III. RESULT AND DISCUSSION

The result of this study is regarding the elements of the colonial building façade, including roof type, door type, window type, ventilation type, and wall. In addition, the factors influencing the façade design were also investigated. This includes physical factors (climate and building materials) and non-physical factors (age of the building, ownership status and function of the building).

A. Building Façade

Based on the observations, the roof of the colonial building consists of six types, including gable roof (1), pyramid (2), double pyramid (3), shield-type and double pyramid (4), shield-type and gable (5), and shield-type and double gable (6). Roof type 1, gable roof, is used in building samples number 3, 5 and 6. The material used on the gable roof is used in buildings of the 1930-1950 era. The gable roof has a slope of 45°-60°.

Furthermore, the type 2 which is the pyramid roof found in building number 2. The pyramid roof has a 45° slope. Roof type 3, double pyramid, is found in building number 1, with a roof slope of 35°-45°. Roof type 4, which is shield-type and double pyramid with a 45° slope is found in building number 4. Roof type 5 is the shield-type and gable, found with a slope of 45° and is used in building number 7. Finally, roof type 6,

which is shield-type and double gable, has a slope of 45° and is found in building number 8.

TABLE 2. Roof type

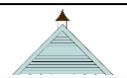
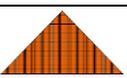
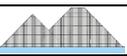
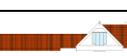
Building Number	Type 1		
	Frontal	Type	Material
Building No.3		Gable	Clay tile
Building No.5		Gable	Clay tile
Building No.6		Gable	Clay tile
Type 2			
Building No.2		Pyramid	Clay tile
Type 3			
Building No.1		Double Pyramid	Clay tile
Type 4			
Building No.4		Shield-type and Double pyramid	Clay tile
Type 5			
Building No.7		Shield-type and Gable	Clay tile
Type 6			
Building No.8		Shield-type and Double gable	Clay tile

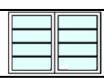
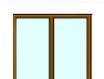
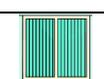
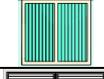
TABLE 3. Door type

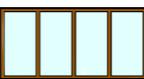
Building Number	Type 1		
	Visual	Type	Material
Building No. 2		Inward-opening	Teak wood
Building No. 4		Inward-opening	Teak wood
Building No. 7		Inward-opening	Teak wood
Type 2			
Building No. 1		Inward-opening	Teak wood and glass panel
Building No. 4		Inward-opening	Teak wood and glass panel
Building No. 8		Inward-opening	Teak wood and glass panel
Type 3			
Building No. 5		Inward-opening	Teak wood, iron trellis and glass panel
Type 4			
Building No. 3		Inward-opening	Teak wood
Type 5			
Building No. 6		Inward-opening	Teak wood and glass
Building No. 8		Inward-opening	Teak wood and glass

The second element to observe is the door of the house. The doors of the colonial building in Jalan Hasanudin consist of 5 types, namely 1 door panel (1), 1 door panel with glass (2), 1 door panel with glass and iron trellis (3), 2 panels (butterfly) door (4) and 2 door panels with glass (5). Door type 1 is found in buildings number 2, 4 and 7, door type 2 is used in building numbers 1 and 8, door type 3 is used in building number 5, door type 4 is found in building number 3, and door type 5 is found in building number 6 and 7.

The third element is the house window. The colonial buildings in the street corridor of Jalan Hasanudin have 10 types of windows. Type 1 window (1 window pane) was found in buildings number 2, 4, 6, and 8, type 2 (1 double panel) in building number 1, type 3 (2 panel) in building numbers 6 and 7, type 4 (2 panel) in buildings number 1, 5 and 6, type 5 (glass windows with iron trellis) in building number 5, type 6 (3 panels) in building number 1, type 7 (4 panels) in building number 7, type 8 (1 static glass window) in buildings number 2, 4 and 8, type 9 (1 static window with wide circular glass model) in building number 5, and type 10 (4 static glass panels) in building number 2.

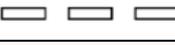
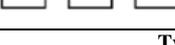
TABLE 4. Window type

Building Number	Type 1		
	Visual	Type	Visual
Building No. 2		Louver window with outward-opening	Teak wood and glass
Building No. 4		Swing window with outward-opening	Teak wood and glass
Building No. 6		Swing window with outward-opening	Teak wood and glass
Type 2			
Building No. 1		Louver window with cover on the second layer. First layer is regular window	Teak wood
Type 3			
Building No. 6		180° Swing window	Teak wood and glass
Building No. 7		180° Swing window	Teak wood and glass
Type 4			
Building No. 1		180° Swing window with outward-opening	Teak wood
Building No. 5		180° Swing window with outward-opening	Teak wood
Building No. 6		180° Swing window with outward-opening	Teak wood
Building No. 1		180° Swing window with outward-opening	Teak wood
Building No. 5		180° Swing window with outward-opening	Teak wood
Type 5			
Building No. 5		180° Swing window	Teak wood, iron trellis and glass

Type 6			
Building No. 1		90° Swing window	Teak wood and glass
Type 7			
Building No. 7		90° Swing window	Teak wood and glass
Type 8			
Building No. 2		Glass window (Static)	Teak wood and glass
Building No. 4		Glass window (Static)	Teak wood and glass
Type 9			
Building No. 5		Glass window (Static)	Teak wood and glass
Type 10			
Building No. 2		Glass window (Static)	Teak wood and glass

Furthermore, the next element observed is the house ventilation. Ventilation is the part of the house that regulates the air circulation. Generally, ventilation is positioned above the window and/or above the door. Based on the observation, there are three types of ventilation; type 1 which has a rectangular shape with a size of 30cm (wide) x 10cm (length), type 2 which has a circular shape with a diameter of 15cm, and type 3 which is the building without ventilation on the facade. Ventilation type 1 is found in building numbers 2, 4, 5, 6, 7, and 8, ventilation type 2 is in building number 1, and ventilation type 3 is in building number 3.

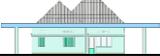
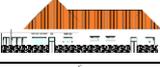
TABLE 5. Ventilation Type

Building number	Type 1		
	Visual	Size	Material
Building No. 2		10cm X 30cm	Cement and bricks
Building No. 4		10cm X 30cm	Cement and bricks
Building No. 5		10cm X 30cm	Cement and bricks
Building No. 6		10cm X 30cm	Cement and bricks
Building No. 7		10cm X 30cm	Cement and bricks
Building No. 8		10cm X 30cm	Cement and bricks
Type 2			
Building No. 1		15cm	Cement and bricks
Type 3			
Building No. 3	No ventilation	No ventilation	No ventilation

Wall is the vital part of a building. The colonial building in Jalan Hasanudin has 4 types of walls, namely plain colored wall (1), plain white wall with river pebble ornaments (2), plain color walls with river pebble ornaments (3), and brick motifs with river pebble ornaments (4). Type 1 was found in building number 1 with a mixture of cement and brick material. Type 2 was found in buildings number 2, 5 and 7 with a mixture of cement, brick and river pebble. Type 3 was

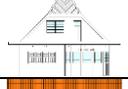
found in buildings number 4, 6 and 8, where the materials used are cement, brick and river pebble. Finally, type 4 was found in building number 3 with a mixture of brick and river pebble.

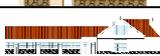
TABLE 6. Wall Type

Building Number	Type 1		
	Visual	Color & Detail	Material
Building No. 1		Cyan	Cement and bricks
Type 2			
Building No. 2		Light brown color with river pebble motif	Cement, bricks and river pebbles
Building No. 5		Dark brown color with river pebble motif	Cement, bricks and river pebbles
Building No. 7		Light brown color with river pebble motif	Cement, bricks and river pebbles
Building No. 2		Light brown color with river pebble motif	Cement, bricks and river pebbles
Type 3			
Building No. 4		Plain white with river pebble motif	Cement, bricks and river pebbles
Building No. 6		Plain white with river pebble motif	Cement, bricks and river pebbles
Building No. 8		Plain white with river pebble motif	Cement, bricks and river pebbles
Type 4			
Building No. 3		Brick and river pebble motifs	Cement, bricks and river pebbles

Based on the style of the building, there are 2 types of Dutch colonial building in Jalan Hasanudin, namely the Amsterdam School (3 buildings), and Nieuw Bouwen which is the modern style of colonial architecture (5 buildings).

TABLE 7. Building Style

Building Number	Type 1		
	Visual	Year of Construction	Style
Building No. 3		1920	Amsterdam School
Building No. 5		1930	Amsterdam School
Building No. 6		1930	Amsterdam School
Type 2			
Building No. 1		1950	Nieuw Bouwen
Building No. 2		1950	Nieuw Bouwen

Building No. 4		1950	Nieuw Bouwen
Building No. 7		1940	Nieuw Bouwen
Building No. 8		1930	Nieuw Bouwen

B. Factors Influencing the Façade Design

In this study, all relevant factors were analyzed to determine the typology of the colonial building facade in Jalan Hasanudin, Batu City. In general, there are 2 factors analyzed, namely the physical and non-physical factors.

Physical factors that influence the design of the building facade are the climate, material and color of the building. Based on the analysis, the building facade was designed with the consideration about the climate in Indonesia and local weather in Batu. The houses were designed by considering criteria that are suitable for tropical climate, for which it can adjust the rainfall during the rainy season and the heat exposure in the dry season. Based on the material, the selection was also determines the design of the building facade, in which the material used is clay tile as the roof of a house, wood and glass for doors and windows. The material selection is based on the local resources where the construction took place. Finally, the last physical aspect is color, which is the finishing stage in buildings. Thus, color does not affect the facade model.

The next aspect is the non-physical aspects; the age of the building, the status of ownership, and the function of the building. The analysis shows that the age of the building affects the architectural style of the building. The building design must follow the prevailing style in the year the building was built. In addition, the ownership factor also influences the design of the building facade as the owner uses the building for their respective needs, although in general it is for a residence. House buildings are still maintained the authenticity of the design. The design of the building facade has not changed much because it has fulfilled the desire and need of the current owner. The church building, on the other hand, is a building owned by a foundation. Church building renovations are only allowed for minor repairs, such as wall paint, so that the facade design of the building remains the same. Related to the third factor, namely the function of the building, the analysis showed that the building function also influenced the design of the facade. Building design is the first step made in the construction process, where it is influenced by the function of the building to be built. Therefore, it can be stated that the building facade is a reflection of the function of the building itself, which influences the façade design.

IV. CONCLUSION

The typology of colonial building facade in Jalan Hasanudin include 6 types of roofs, 5 types of doors, 10 types of windows, 3 types of ventilation and 4 types of walls. In addition, there are 4 types of building functions and 2 types of building styles. Factors affecting the design of the building façade are physical factors (climate and building materials) and non-physical factors (age of the building, ownership status

and function of the building). Typology of building facades has a correlation with the initial ownership in the era of its construction, where the building was once a villa for a vacation or family gathering. At present, this nuance is still maintained, especially on the houses where the current owner is comfortable and satisfied with the original design of the building. The shape of the facade is related to the style of the building. This correlation demonstrates a modern and best design in the year of construction.

Furthermore, the design of the facade is also influenced by the climate in Indonesia and materials that fully depend on natural resources in Indonesia. In addition, the Dutch officials at that time had different strata or positions (history of ownership status), which also influenced the design of the facade, in terms of their shape and proportion. The colonial building is a cultural and historical heritage, thus it is important to be maintained so that it can be utilized as the source of information and an educational tourism destination for the community, along with the development of science and technology.

V. SUGGESTION

Batu City is a tourism area that has many interesting destinations, one of which is the colonial buildings in Jalan Hasanudin which has historical and cultural values. Future studies are suggested to compare the results of this study with research on building facade typologies in other cities. Furthermore, the government of Batu City is advised to keep the architectural style of colonial buildings in Jalan Hasanudin so that the area can be a good educational tourism destination for the community. Building maintenance can be carried out without changing the original design of the colonial architecture.

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