Characteristics of architectural typology in colonial buildings in Loji Wetan Surakarta area

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Abstract. The characteristics of the façade are architectural elements in the diversity of shapes of each building. Architectural Typology is an approach to identify architectural attributes to define the similarities and differences of elements in a building object. In the area of Loji Wetan Surakarta which has a connection with the Vastenburg fortress, there are still some colonial buildings of Dutch heritage that still exist. This study aims to identify typology on the façade of colonial buildings in the Loji Wetan area of Surakarta. The data collection process is conducted through field observations and in-depth interviews. Collection of primary data through purposive sampling (visual and measurement). While secondary data through the study of literature and related documents. Based on the results of research characteristics of architectural typology in colonial buildings in the Loji Wetan Surakarta area there is a tendency for uniformity and diversity on the façade of architectural elements. There are also differences in the characteristics of buildings caused by periods in the area. (neo-gothic, neoclassic, postmodern)

1. Introduction
Colonial architecture is a combination of western and eastern cultures that is present through the works of Dutch architects who were allotments for the Dutch in Indonesia in the period before independence. Western influence is widely applied to various aspects of life including in urban planning and buildings. In the planning and development of cities and buildings. Western architects also apply many local or traditional concepts that adapt to the climate of the region [1].

In its development according to Hadinoto [2], Dutch Colonial architecture in Indonesia is divided into 3 periods. The 16th to 1800s centuries were: 1. Neo Classical architectural style, 2. Neo Ghotic architectural style, 3. Postmodern architectural style. This is evidenced by the many India buildings such as houses, schools, offices and fortifications [3].

Colonial buildings in Surakarta began to develop in 1871. This is characterized by the number of white people as newcomers in Surakarta at that time, this goes hand in hand with the development of land rental practices in the kingdom, especially in the jurisdiction of Surakarta Kasunanan Kraton. It also underlies the grouping of a particular ethnicity in Surakarta based on a region [4]. This is also behind the creation of Dutch colonial architecture buildings in the Loji Wetan Surakarta Area.

The Loji Wetan area is currently starting to change a lot as a result of the development of the city of Surakarta itself, this can be seen from the many colonial buildings in the Loji Wetan Area that began to change the shape of the building's façade. The façade of the building itself according to Krier
[5], the part of the building and the easiest architectural elements to see are the face of the building or better known as the face of the building.

Therefore, to maintain the characteristics of colonial buildings in the Loji Wetan Area, there needs to be an effort by conducting an analysis process on the typology of the façade of colonial buildings in the Loji Wetan Area. Therefore, there needs to be a study of each form of typology of the façade of colonial buildings in the Loji Wetan Area, then used aspects of research variables in the form of visual features of the visual form of the colonial building façade.

This research was conducted to explore the typology characteristics of the façade of colonial buildings in the Loji Wetan Area. This identification process is obtained by studying, living and analyzing objects in terms of building facades in the typology aspect of colonial building facades in the Loji Wetan Area.

2. Literature Review

2.1 Typology. Typology is a concept that describes a group of objects that have some inherent structural similarities. It can even be said that: type means the act of group thinking [6]. In view of Markuz [7], it was explained that typology is generally a science of classification of units based on basic patterns/types according to certain properties which include elements, the number of types/units, the form of elements, and specific structures.

According to Guney [8], it is revealed that typology is the comparative study of physical or other characteristics of an existing environment into some kind. Pfeifer and Brauneck [9] explain that a typology is an attribute approach that deals with the shape of a space. According to Ayyildiz [6], typological analysis is divided into 3 phases, namely:

a. Analyze typology by digging from history to find out the initial idea of a composition, or by knowing the origin of events of an architectural object.
b. Analyze typology by knowing the function of an object
c. Analyze typology by looking for the simple shape of a building through a search for flat wakes and their basic properties.

Typology of the façade of a building there is a building sheath which is a barrier that limits the inner and outer areas of the building on the front, back, side, right and left of the building. The typology of a building's façade itself is a grouping of a building based on a façade of the same category. Thus, typology can also be said to be a combination of typology and morphological studies, i.e., an approach to reveal physical structure and crowd, but typology and morphology have a difference [8].

2.2 Facade. The part of the building and architectural elements that are easiest to see is the face of the building or better known as the building façade, the façade of this building is also often referred to as the appearance, outer skin, or appearance of the building, therefore the façade is often assessed by observers and laypeople [10]. A façade is an element in architecture that can express the function and purpose of a building [11].

In principle, the composition of the façade is done by creating harmonious unity by using a proportional composition, structured vertical and horizontal elements, materials, colors, and fundamental decorative elements in terms that are no less important to get more attention are proportions, openings, building height, the principle of looping the balance of good composition, as well as themes that are covered into variation [5].
2.3 Characteristics of buildings. The appearance and image of a building are greatly influenced by various elements forming the building character. This is due to the composition and configuration of the elements forming the character of the building will produce a certain image [10]. Based on Moudon [11], the principle of composition is divided into several factors, including:

a. Hierarchy is an emphasis or thing that can be used as the dominance of a shape or space using differences in size, shape, and place against other elements.

b. Balance is a form of pleasant relationship between the parts in a design to produce an attractive arrangement.

c. Geometry on the façade of a building is an idea in realizing shapes in the field of architecture with various components such as triangles, circles, rectangles, and also other shape variants

d. This repetition is a existence of an object or form arranged together with more than one number with the same form. Looping can create the impression of a start motion that connects from one part to another on an object.

3. Research Method

Based on the problems and objectives of this study, the method used is qualitative descriptive with case study strategies on the façade of the colonial building of the Loji Wetan area. The research site is in the Loji Wetan area. The area/locus that will be observed is a building that still tends Colonial Architecture. The selection of buildings by sampling method is commonly used in scientific research. Purposive sampling is a sampling technique by determining certain criteria [12]. Data analysis is done inductively by reviewing and interpreting the data that has been obtained into the theme that can answer the purpose of the research and get the conclusion.

The selection of samples in this study is based on the shape of the façade of the building that still has the characteristic shape of the colonial façade according to the classification of colonial buildings. So selected ten buildings that still look to tend the façade of colonial buildings, this is based on the criteria of the object of research on the façade of colonial buildings in the Loji Wetan area. Among the colonial buildings in the other Loji Wetan Area based on shape, façade, material, doors, windows, and ornaments. The ten buildings that have the most elements of colonial building classification that are still easily recognized based on their facades among other buildings located in the Loji Wetan Area. The object of the colonial building is divided into two streets, namely on Jalan Sungai Kapuas and on Jalan Sungai Barito, as given in Figure 1 and Figure 2.

Figure 1. Location of Loji Wetan Area

Figure 2. Research Object Building Map
4. Result and Discussion
At this time the number of buildings that are colonial buildings located in the Loji Wetan Area is approximately more than 150 buildings that have and still maintain the original shape of colonial buildings no more than 75 buildings.

The building changes, among others, changes in the shape of the façade that affect the image of the area, the condition of the house left by the owner, and some buildings change function but still maintain the authenticity of the building and have also undergone changes thoroughly. In the focus of this research only a few RT are located in the Loji Wetan Area namely RT 03, RT 05, RT 06. Building on the Barito Riverside is illustrated in Figure 3, while the increased floor building is illustrated in Figure 4. This building is located on the Barito riverside. In this building there is still gavle on the side of the building, there is large air ventilation opening on the walls of the building and with a distinctive brick pattern order. To appear in front of the building itself has switched functions as a shophouse. There is a gavel shape on top of the building, and there are air vent openings. In this building, there is an increase in the floor as high as approximately 45 cm, with 2 different windows, but for a large scale the same window. The door is made of wood with two openings, in and out. By having an ornament on the vent above the door. Windows have two different types of windows. The first has ventilation above the window and the second there is no ventilation. Both are made of wood.

![Figure 3. Building Barito Riverside](image3)

![Figure 4. The increased floor building](image4)

Figure 5 shows building with a type of limasan roof. There is a difference in the height of the floor of the building between the ground with a distance of approximately 60 cm. Balustrade building is also still awake. It has windows with no air vents on them. And for the door only one opening with ornamentation of air vents on it. Limasan Pintu roof with opening one and made of wood with square accent air vents on the roof. Windows with openings and there are 2-layer openings both it uke in and out, for which layers into the window are made of glass.

Another building with limasan roof and flat front canopy like a Postmodern building is shown in Figure 6. It has a floor distance with a rather high ground face of about 1 meter, has large door openings and windows that almost touch the ceiling. There is also a balustrade with a height of approximately 1 meter. Large windows and doors that have 2 openings balustrade on the building. There are steps for the entrance as a barrier to the ground floor zone and ground level.

Figure 7 describes building with type of fives roof that is fixed, has a large column, no windows in this building but all there are doors with two openings of the same size as well. There are also differences in height in the ground floor zone and ground level. It has a fairly high balustrade. Doors with large openings and air vents are on top of each. With the same ornamentation on each door.

Figure 8 is building with 2 cube-shaped floors with asymmetrical doors and windows. It's also a balustrade. Limit the height of the ground floor zone with ground level. Between the 1st and 2nd floors has differences in the doors and windows. Doors and windows that have two openings are in and out. It has balustrade on the 1st and 2nd floors The difference between the ground floor zone and the ground level.
Figure 5. Building with limasan roof

Figure 6. Building with 2 opening balustrades

Figure 7. Building with fixed fives roof

Figure 8. Building with 2 cube-shaped floors

Similar to other buildings, the building in Figure 9 has 2 cube-shaped floors with asymmetrical door and window buildings. It also has a balustrade. The height of the ground floor zone is limited with ground level. Between the 1st and 2nd floors has differences in the doors and windows. But the entrance of the building is on the side. It has a balustrade on the 1st and 2nd floors. Doors and windows that have two openings are in and out. It has an asymmetrical shape to building. There is no entrance at the front of the building but next to the building.

Figure 10 is building with 2 floors and large columns typical of colonial architecture has large door openings, as well as large window openings with a limasan roof shape. Ornamentation in this building also still exists. The large columns of the building make the building look magnificent. Large door openings with ventilation on them with a distinctive pattern.
Building in Figure 11 was a health centre for the Dutch. Currently, it switched functions as a church. On the top floor has a typical and continuous window system. The door has a large and 2 openings.

Figure 12. This building has a type of five roof that is fixed, has a large column, no windows in this building but all there are doors with two openings of the same size as well. There are also differences in height in the ground floor zone and ground level. It has a fairly high balustrade. Large columns of colonial buildings. There are no windows, ventilation is only found in the upper bopen of the building door. Door openings are divided into 2 There are balustrade There are differences in floor zones and ground level so that there are steps/stairs.

**Figure 11.** Old building of Dutch health centre  **Figure 12.** Building with five roof and large column

From the description above there are several types on each element of the façade of the Indis building in the Loji Wetan area. Figure 13 shows the types and found the most dominant type as characteristic of the façade of colonial buildings in the Loji Wetan Area.

**Figure 13.** Examples of Visualization of Colonial Buildings in the Loji Wetan Area.

Analysis of the characteristics of architectural elements of colonial buildings in the Loji Wetan Area

a. Characteristics of the roof

There are variations of roofs in Indi’s buildings in the Loji Wetan area, i.e., limasan point roof, Saddle roof, and mountain roof. Almost all Indi’s buildings in the Loji Wetan area use precarious clay as a roof covering material. On all parts of the roof of the Indi’s building in the Loji Wetan area there is not a single decoration or ornament on the roof. Figure 14 to Figure 16 are the types of roofs of Indi’s buildings in the Loji Wetan area.
b. Building openings

Openings in the building that will be discussed in this study are doors, windows. There are variations in the types of doors and windows that will be discussed in this study and as already mentioned there are decorative elements in the ventilation section in some buildings with unique patterns that make the appearance of the façade attractive.

The doors on the Indis building in the Loji Wetan area have several types according to the shape of the doors in the colonial building in the Loji Wetan Area, as given in Figure 17 to Figure 21.

Figure 14. The roof of the line with a longitudinal position or transverse in the direction of the site, using clay tiles.

Figure 15. The roof of the mountain with 1 point as a meeting point for tiles, using clay tiles.

Figure 16. Saddle roof using a zinc roof

Indi’s Building Windows in the Loji Wetan area has five types of windows. The windows on the façade of the building have a large size and height parallel to the door. The colour used in the window material is in line with the colour of the door material. Figure 22 to Figure 26 are the types of windows in colonial buildings in the Loji Wetan Area.
5. Conclusion

The study could find the characteristic of the façade of colonial buildings in the Loji Wetan Area. Characteristics are determined by the façade-forming elements of a building such as roofs, doors, and windows.

a. In colonial buildings in the Loji Wetan Area there are still many buildings that have balustrade.
b. In colonial buildings in the Loji Wetan Area each building has steps for the entrance to give a difference of sign between the floor line and the ground level.
c. For the roof, 9 out of 10 buildings use a limasan roof with a tile cover and for others use a saddle roof with a zinc cover.
d. There are variations in the types of doors and windows as already mentioned, there are decorative elements on the door leaves and windows and ventilation parts in some buildings with unique patterns that make the appearance of the façade attractive.

From the above characteristics, it turns out that it cannot be used to analyse the system of periodization that is presented in Handinoto’s theory because the criteria mentioned in the theory above do not exist in the condition of colonial buildings in the Loji Wetan Area for now. It is therefore the theory is only used for an introduction to the explanation of colonial buildings.

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