E-ISSN: 2528-388X
P-ISSN: 0213-762X

INERSIA
Vol.20, No.2, December 2024

The Acculturation of Building Facade Characters in Loji Wetan Area, Surakarta

Dewi Widowati Putri* and Dyah Titisari Widyastuti

Master Program of Architecture, Universitas Gadjah Mada, Yogyakarta, Indonesia

Keywords:
Architectural Characteristic
Facade Characteristic
Loji Wetan
Acculturation

ABSTRACT

Loji Wetan is a former European ethnic residential area to the east of Vastenburg fort, Surakarta. This area has the characteristics of European building. However, the visual are gradually fading due to changes in facade form. The research identified the character of 22 residential buildings based on variables and indicators regarding facade components which discuss roof components, columns, doors, windows, guardrails, porches or verandas, and stairs, as well as architectural facade composition which discusses symmetry, geometry, proportion and scale, rhythm, and contrast. The research show that the characteristics at Loji Wetan are a product of acculturation between colonial, Javanese and Chinese architecture. Colonial elements presented with clipped gable roofs, supporting column structures, size of the doors and window, as well as the presence of a 2-story building. Javanese influence the presence of carved ornaments above lintels, wooden lattice window models, wooden columns, and the symmetry of the façade which represent the Javanese philosophy of balance. Meanwhile, the Chinese style is shown through the column-free facade that squeezes into the street. This product of acculturation influenced by several factors, including socio-cultural, political, and economic factors.

1. Introduction

Colonialism in the Dutch East Indies, from the 1600s until 1942, had a significant impact on various aspects of society during that period. Policies were formulated with the development of civilization to regulate the lives of the people, thereby shaping a new influence that continued to evolve and be continuously implemented. One sector that bore the strong influence of the culture brought by the colonizers was urban planning, which consequently affected its architectural characteristics.

Loji Wetan is one of the areas in Surakarta that visibly has a strong colonial character in its buildings. Research was conducted to determine the characteristics of the buildings in the area.

Research on Loji Wetan has been carried out few times. The difference is that in previous research, it has not led to a specific classification like in this research. This research focuses on the type of building classification in the form of residential. Another difference is in the selection of objects, which in previous research only included one of the roads in Loji Wetan or not the whole one. Meanwhile, in this study, all roads, namely the Barito River Road, the Kapuas River Road, and the Mahakam River Road, were included.

1.1 Architecture Character

Character is defined as all the qualities and traits that make an individual, a group of people, or a place different from others [1]. Concerning architecture, it means characteristics that distinguish a work of architecture from similar ones elsewhere.

Two important components that shape the overall character of a building are spatial and visual character [2]. Both of these characteristics are essential aspects in identifying and classifying a particular architectural style. The character of an area can be easily assessed if done visually [3]. The visual character of a building can be identified, one of which is through the facade. In the architectural design process, the facade holds an important position as it is the first part that will be appreciated by the public and reflects the assessment of

*Corresponding author.
E-mail: dewiwidowati@gmail.com

https://doi.org/10.21831/inersia.v20i2.72441
Received 3th April 2024; Revised 13st December 2024; Accepted 31st December 2024
Available online 31th December 2024

a building, as well as shaping the character of the building [4]. The facade consists of facade components and compositions. Facade components include entrance doors, ground floor zones, windows, boundary fences, building roofs, signage, and ornaments. While the compositions consist of geometry, symmetry, contrast of depth, rhythm, and proportion [5].

1.2 Colonial Architecture

Colonialism in the Dutch East Indies, from the 1600s to 1942 by the Dutch, greatly influenced various aspects of society at that time. Policies emerged alongside the development of civilization to regulate community life, thus forming a new influence that continued to evolve and be implemented continuously. One sector heavily influenced by the cultural influence brought by the colonizers is urban planning. During the 1600s to 1800s, urban planning was oriented towards trade, where the Dutch East India Company (VOC) or the Dutch trading consortium was in power at that time. In terms of residential areas, high-position VOC officials in Batavia built houses as resting places with spacious gardens, commonly known as *landhuis*. Initially, VOC officials built houses in downstream areas such as Batavia, Surabaya, and Semarang. However, over time, swampy areas were considered unhealthy, prompting them to establish settlements inland [6].

Architecture in colonialism is a cultural phenomenon resulting from the blending of cultures between traders and diverse local cultures [6]. The Dutch colonization period in the Dutch East Indies from the 1600s to 1942 brought about a cultural mix in architecture and urban planning in the Dutch East Indies. At the beginning of the arrival of Europeans to the Dutch East Indies, they settled by building houses like the buildings they lived in in their home country [7]. However, this building form was not suitable for use in the Dutch East Indies due to climate differences and were later adapted to the tropical climate, availability of building materials, and differences in carpentry techniques. The presence of the Dutch in new areas influenced the architectural forms of houses that later adapted to the local tropical climate and culture, eventually giving rise to a culture of fusion or acculturation known as the Indische style [8]. In architecture, the fusion of styles or idioms in architecture is referred to as architectural acculturation. This acculturation occurs due to the encounter of two or more cultures [9].

Cultural blending, both directly related to architecture and in general, resulting from the introduction of Dutch colonial culture to the Dutch East Indies, is known as acculturation. Acculturation is a social process that emerges from the exchange or mixing of cultures that occurs within a group of people when faced with foreign cultures from other groups, so that in its development, foreign cultures are accepted and incorporated into one's own culture without causing the loss of the character of that culture [10]. In terms of architecture, acculturation represents a specific cultural blend that affects the field of architecture. The product of architectural acculturation in relation to imperialism and colonialism in the Dutch East Indies, between the styles brought by the Dutch colonizers and local architecture, is then known as Colonial or Indische Architecture [11].

Indische or colonial architecture is applied to various buildings, ranging from offices to houses. Buildings constructed by them usually have large forms and are then known as "lodges." The term later changed to "*loji*" because the local people at that time had difficulty pronouncing the word "lodge" correctly. In general, "*loji*" refers to buildings built to support the Dutch East Indies government, such as assistant resident offices, entertainment buildings or societeit, bank offices, and so on [12]. This also includes residential houses. In Indonesia, several types of colonial residential houses have developed, namely Indische Empire Style, Voor 1900, NA 1900, and Romantiek. Some of these types of houses have undergone a mixture of technologies, materials, and the climate present in the Dutch East Indies from their original styles [13].

During colonialism, the architecture of the Indies was commonly found in residential houses known as *Loji*. One of these areas can be found in Surakarta, namely Loji Wetan. The term "*loji*" originates from the Dutch word "Loge," which means a large house or mansion. Meanwhile, "*wetan*" is the Javanese word for the east direction, because the area is located east of Fort Vastenburg [14].

Loji Wetan was formerly an exclusive residential area for European descendants in Surakarta. This was because Loji Wetan was not only a place of residence for Dutch East Indies government officials but was also equipped with other supporting facilities such as a clinic, weapons warehouse, store, and school for aristocratic children. In addition to the mentioned buildings, there was also an entertainment building or Societeit known as Societeit Harmoni built in 1874. Furthermore, in this area, there was Heerenstraat road, which was one of the characteristics of the colonial city center at that time. Loji Wetan also once had a cinema called Alhambra Bioscoop [15].

One famous shop in Loji Wetan called Gebr. Haije once published a postcard featuring a street view in Loji Wetan. From the photo, it can be seen that the building depicted in the photo (Figure 1) has large support pillars with a veranda and a tiled roof.

Figure 1. Sungai Barito Street or Bloemstraat

Several buildings with such characteristics can still be found in Loji Wetan. However, after centuries have passed, the presence of old buildings with distinctive characteristics in Loji Wetan is gradually decreasing. Efforts are needed to preserve these buildings so that they do not become a lost part of history in the city of Surakarta.

2. Methods

This research adopts a deductive-qualitative approach. The deductive method relies on theoretical foundations as a guide in collecting empirical data, while the qualitative method is used to analyze and elucidate the findings using words and language. The research process concerning the architectural characteristics of the Loji Wetan area begins with a literature review. This involves tracing the history of the Loji Wetan area through records, previous research, maps, and other relevant data sources.

Subsequently, the data collection phase involves primary and secondary data related to the history, condition, changes, and other aspects of Loji Wetan. This includes observations and interviews for primary data collection, while secondary data is obtained through literature review and old documentation related to the selected objects.

The selection of research objects was carried out by collecting data on all buildings on three roads in Loji Wetan. After that, filtering is carried out by classifying buildings according to their function. Because Loji Wetan was essentially a residential area for Europeans living in Surakarta at that time, the main function of the area was taken, namely residential.

Figure 2. The Map of Observed Buildings Distribution in *Loji Wetan*, Surakarta

The results of this grouping are then filtered again by looking at building elements that have old-looking facade. The shape of the door, the shape of the window, the shape of the roof, and the presence of a balustrade typical of past houses are several things taken into consideration when selecting research objects. The results of these filtering stages used as research objects (see Figure 2).

The next step of the research is analysis phase, this phase entails identifying the characteristics and typology of buildings based on both field and supporting data. Documentation of building data is processed and analyzed according to predetermined theories.

The analysis is structured using archetypes proposed by Thomas Evensen namely the elements that limit space, namely the head, body and feet. In this element it can be said that the roof is the head element, the walls are the body element, the floor is the foot element. The head elements are roofs and ceilings, the body elements are walls, columns, and doors and windows. Meanwhile, the foot element is the floor of the building [16]. In the basic variable observed in this research, the head part includes the roof, then the walls which consist of column elements, doors, windows and guardrails, and the foot part which includes the floor parts such as verandas and stairs.

3. Result and Discussion

The study on the architectural characteristics of the Loji Wetan area in Surakarta was conducted by selecting observation units along three streets in the area (see Figure 2). The selected buildings met the criteria of retaining old architectural patterns, with a total of 22 buildings included in the study.

In (Figure 2), houses located in Jalan Sungai Barito is given code B, houses located in Jalan Sungai Kapuas is coded by letter K, and lastly the houses in Jalan Sungai Mahakam has M as the code.

3.1 Roof

Observations conducted on the rooftops along the three main streets of Loji Wetan area revealed several types of roofs commonly found on buildings in Surakarta's Loji Wetan district. These include gable roofs, shield or hip roofs, and clipped gable roofs. In terms of materials, most roofs are constructed using clay tiles, with some areas also featuring metal materials such as zinc. In certain cases, buildings are adorned with additional ornaments along the eaves shown that in Table 1.

Table 1. Roof types

Code	Roof Types	Quantity
A1	Gable roof with clay tile material	9
A2	Gable roof with clay tile material and embellished with ornamental eaves	1
A3	Hip or shield roof with clay tile material	8
A4	Hip or shield roof with clay tile material and adorned with ornamental eaves	2
A5	Clipped gable roof with the main roofing material being clay tiles	2

From the observations conducted on buildings along three streets in Loji Wetan, Surakarta, it was found that the presence of saddle and hip roofs dominates significantly. Meanwhile, clipped gable roofs were only found along the Sungai Barito Street.

Hip and saddle roofs can be categorized as roofs with Javanese and colonial styles since they are commonly found on traditional Javanese houses as well as colonial buildings [17]. Meanwhile, the presence of clipped gable roofs is categorized as a colonial-style roof as it is often found on buildings in Europe and America.

The presence of fascia ornaments was not found along Sungai Mahakam and Sungai Barito streets. However, several buildings along Sungai Kapuas Street have fascia ornaments on the eaves of the roof. These fascia ornaments, made of wood with various shapes, are influenced by Javanese architecture in buildings along Sungai Kapuas Street.

3.2 Columns

Observations conducted on the column components of buildings in Loji Wetan, Surakarta, revealed the presence of four variations of column types. These include small cylindrical columns made of iron, Doric columns made of brick, and the last one is rectangular columns, shown that in Table 2.

Table 2. Column Types

Code	Column Types	Quantity
C1	Metal Small cylindrical columns	7
C2	Brick Doric columns	3
C3	Rectangular columns with ornaments	3
C4	Cylindrical columns made of concrete	1

The presence of small cylindrical columns made of iron is the dominant type found on Jalan Sungai Kapuas and Jalan Sungai Barito. Another type, the Doric columns made of brick, stands out in this area. Although the number of buildings with these columns is not as many as those with small cylindrical iron columns, this type adequately represents the colonial style in the European settlement area of Loji Wetan. On Jalan Sungai Kapuas, columns with rectangular shapes adorned with geometric ornaments can be found. Rectangular columns, unique to the Loji Wetan area, are only found on Sungai Kapuas. Finally, there are cylindrical columns made of concrete, which exhibit a modern pattern due to their shape and material.

Large columns styled in the Doric fashion emerged during the 1800s to the early 1900s when the Indische Empire style was prevalent in the Dutch East Indies [18]. Meanwhile, cylindrical iron columns developed during the period from the 1870s to the 1910s, corresponding to the emergence of the Voor 1900 style. A distinguishing feature of Voor 1900 buildings, based on their columns, is the use of iron or fabricated materials, which were products of the Industrial Revolution. The presence of rectangular columns, also found in houses in Loji Wetan, represents the influence of Javanese architecture [17].

3.3 Doors

The types of doors found in the Loji Wetan area are quite diverse. Therefore, in the observations, doors were classified as single doors, double doors, double doors with ornaments at the top of the frame, folding doors, and rolling doors, shown that in Table 3.

Table 3. Door types

Code	Door Types	Quantity
P1	Single door	8
P2	Double door	7
P3	double doors with ornaments at the top of the frame	15
P4	Folding door	11
P5	Rolling door	1

From observations of the buildings in the three streets, it was found that the presence of double doors with ornaments above the frames predominates, with the addition of different side doors. The ornaments adorning the ventilation above the door frames and the door leaf surfaces vary. In some cases, the door leaf has louvers as ornaments. The double door type has a simpler shape with no air holes or ornaments above the door frame, and can only be found on the Mahakam River and Kapuas River streets. A simpler form compared to the double door type is the single door type or swing door with one leaf. This type of door is most commonly found on Kapuas River Street and is used as a door for side masses adjacent to the main building mass. Another type of door found in the Loji Wetan area is the folding door and rolling door.

Doors with double-leaf characteristics are the result of colonial architectural influences [17]. This also applies to the physical form of doors in some houses, which also have layered door leaves. Meanwhile, the top of the door frame, which has ornate carvings in various shapes, is a form of influence from Javanese architecture.

3.4 Windows

In the Loji Wetan area, various types of windows are found on the front facade of buildings. One of them is the double-leaf window, also known as the "*kupu tarung*" or butterfly hinge window. Additionally, there is the type of window known as the "*kaca berkisi*" or "nako glass" window, shown that in Table 4.

Table 4. Windows types

Code	Window Types	Quantities
J1	Window swing with 2 leaves (butterfly-hinge window)	14
J2	Nako glass window	1
J3	Hung window made of wood and glass	1

Observations of buildings along three streets in Loji Wetan, Surakarta revealed that the swing window type, also known as butterfly-wing windows, dominates in this area. These windows exhibit a variety of leaf ornamentations. In some cases, swing windows in Loji Wetan feature lattice patterns, commonly known as "*krepyak*" windows. The next types are nako glass windows and hung windows. Nako windows are only found in one building located on Sungai Mahakam Street. Meanwhile, hung windows made of wood and glass can be found in one building on Sungai Kapuas Street. The large-sized windows in Loji Wetan are influenced by colonial architecture [17]. Conversely, the presence of lattice or wooden lattice windows is influenced by Javanese architecture.

3.5 Krepyak (Wooden Windows)

The observed buildings on the streets of Sungai Mahakam and Sungai Barito do not have "krepyak" as side boundary fences. "Krepyak" can be found in several observed units along Sungai Kapuas street.

Figure 3. The Krepyak boundary fences in the Loji Wetan area

All buildings with Krepyak as their side fences are two-story buildings. As explained in the previous point, *Krepyak* or wooden windows with louvers is an adaptation from the influence of Javanese architecture [17].

3.6 Boundary fences

Observations conducted on three streets in Loji Wetan indicate that the front porch enclosing fences on these streets exhibit several different variations. There are fences made of wood, fences made of iron with geometric ornaments, and fences made of iron with natural ornaments, shown that in Table 5.

Table 5. Types of boundary fences

Code	Types of boundary fences	Quantities
G1	Iron fences with geometric patterns.	11
G2	Iron fences with natural motifs.	3
G3	Brick fences	4
G4	Wood fences.	1

The most common type of fence found is the one made of metal with geometric ornaments. This type of fence can be found on the streets of Sungai Mahakam and Sungai Kapuas. The second type is the fence made of the same material, iron, but the ornamentation leans

more towards natural motifs, especially floral adaptations. This type of fence can be found on the streets of Sungai Kapuas and Sungai Barito. The next type is the fence made of brick. These fences can be found on the sections of Sungai Mahakam and Sungai Kapuas. In some cases, these brick fences are combined with iron fences adorned with ornaments. The last type is the fence made of wood. The shape of this fence tends to be geometric due to the use of wooden slats as the building material for the fence [17].

From the above discussion, the presence of boundary fences can be categorized into fences influenced by Javanese architecture and colonial architecture. In Javanese architecture, the influence is evident in the use of wood as the material and the presence of ornaments, both geometric and natural in shape. Meanwhile, the influence from colonial architecture can be seen in fences made of iron material with ornaments tending towards geometric shapes.

3.7 Porch

The presence of porch serves as one of the observation indicators for buildings in the Loji Wetan area. The classification of verandas or porches is divided into several groups based on their elevation height. The commonly found elevation height in colonial buildings is around 30 to 60 cm [13], shown that in Table 6.

Table 6. Porch types

Code	Porch types	Quantities
E1	Elevation of 1 – 29 cm	2
E2	Elevation of 30 – 60 cm	9
E3	Elevation above 60 cm	4

The elevation with a height of approximately 30 cm to 60 cm represents the standard average height for colonial houses, and this type is most commonly found in the Loji Wetan area, Surakarta. This elevation height can be found on Sungai Mahakam Street, Sungai Kapuas Street, and Sungai Barito Street. For verandas or porches with heights below the standard average height, they can be found on Sungai Kapuas Street. Meanwhile, verandas with heights above the standard average height can be found on buildings on Sungai Kapuas Street and Sungai Barito Street.

The presence of floor elevations reflects the influence of both Javanese and colonial architecture. In Javanese architecture, floor elevations reflect the social status of the homeowners, while in colonial architecture, floor elevations may also indicate that during that period, the prevailing architectural style was neoclassical, characterized by the presence of floor traps.

3.8 Stairs

The stairs observed as part of the building's base in the Loji Wetan area are the stairs leading to the veranda's entrance. Buildings along Loji Wetan Street have two types of stairs as their access points: front stairs or frontal access stairs, and side stairs located beside the buildings, shown that in Table 7.

Table 7. Stair types

Code	Stair types	Quantities
T1	The stairs at the front of the building.	15
T2	The stairs at the side of the building.	3

The classification of staircase types in the 22 observed units along three streets in Loji Wetan, Surakarta, is predominantly characterized by staircases located at the front entrance. This type is distributed evenly along Sungai Mahakam, Sungai Kapuas, and Sungai Barito streets. Meanwhile, 2 buildings along Sungai Mahakam and 1 building along Sungai Kapuas utilize staircases located beside the porch.

3.9 Symmetry

The axis of symmetry of a building is the line that divides the building into two equal parts. In this study, buildings can be categorized as either symmetrical or asymmetrical. The observed part of the building is the main facade. The assessment of the symmetry of the building is based on the placement of building components, starting from the roof, central components, and the lower or bottom part. The placement of the axis of symmetry of the building is determined with reference to the main facade door, shown that in Table 8.

Table 8. Types of facade symmetry

Code	Symmetry axis	Quantities
S1	Symmetrical building facade	12
S2	Asymmetrical building facade	10

The buildings on Sungai Mahakam Street have facades that tend to be asymmetrical. Meanwhile, Sungai Kapuas Street is dominated by buildings with symmetrical facades, where the axis divides the building into two equal lengths. Lastly, on Sungai Barito Street, all main facades of the buildings are symmetrical. The balanced length between the right and left sides of the

building is also supported by facade components that are identical on both sides.

3.10 Proportion and Scale

The field observations of 22 buildings in Loji Wetan, Surakarta, reveal two types of buildings related to the proportion and scale of their facades. These types are horizontal buildings and vertical buildings. A building can be classified as a horizontal type when its front width is greater than its height. On the other hand, vertical buildings are characterized by a front width that is smaller than its height, shown that in Table 9.

Table 9. Proportion types and building facade scale

Code	Symmetry axis	Quantities
PS1	Horizontal building proportion	20
PS2	Vertical building proportion	2

Buildings along Jalan Sungai Mahakam exhibit a building proportion where the facade width is larger than the building height. Although they have walls of considerable height with high door openings, the roof shape, which does not soar high, results in a relatively similar proportion of building height. On Jalan Sungai Kapuas, the building facade proportion is still dominated by facades that extend sideways. However, in some cases, the facade has a height-to-width ratio larger than one. All observed buildings on Jalan Sungai Barito have a proportion where the facade widens sideways, with the facade width being greater than the building height. Similar to buildings on Sungai Mahakam Street, buildings on this area have colonial-style tall door openings, but the presence of non-soaring roofs also does not significantly affect the roof height.

The widening proportion of buildings is a characteristic of buildings influenced by Javanese and colonial architecture. Javanese-influenced buildings and their identity with single-story buildings lead to Javanese facade proportions being influenced to widen rather than stand tall. In colonial buildings, although multi-story buildings with two floors are becoming known, the main facade shape, combined with additional masses on the sides or pavilions, results in the overall building facade widening.

3.11 Geometry

The basic geometric shapes in architecture are square, triangle, and circle. Observing the geometric forms of building facades in the observed units in Loji Wetan, Surakarta, these shapes are seen as core elements that define the character of the building facade. The presence of any of these shapes, either individually or combined, will influence the visual complexity formed on the facade. Therefore, the presence of geometry in these observed buildings aims to assess the complexity of the facade character, shown that in Table 10.

Table 10. types of facade geometry

Code	Geometry types	Quantities
GM1	Square	22
GM2	Triangle	14
GM3	Circle	16

The combination of the three basic shapes—square, triangle, and circle—in one building is a common characteristic found in the Loji Wetan area of Surakarta. The most commonly encountered shape on the building facades observed is the square. All buildings in the Loji Wetan area feature square geometric shapes on their facades.

However, the geometric shapes alone cannot definitively define the architectural influences affecting the buildings in the Loji Wetan area. Whether they lean towards Javanese or colonial architecture cannot be accurately determined solely by assessing the geometric shapes present on the building facades. This is because geometric shapes can be found in both Javanese-influenced architecture (including geometric ornamentation) and colonial architecture. However, the geometric shapes manifested on building facades can indicate the visual complexity of the buildings. The more geometric shapes visible on the facade, the more visually complex the building is perceived to be.

Observations conducted on the three streets of Loji Wetan indicate that the visual complexity of buildings based on the geometry manifested on their facades yields results where buildings with the highest visual complexity are found on Jalan Sungai Kapuas, followed by Sungai Barito Street, with the buildings observed on Sungai Mahakam Street having the lowest visual complexity.

3.12 Rhythm

Within this category, two groups are apparent from the observed building facades along the streets of Sungai Mahakam, Sungai Barito, and Sungai Kapuas. These groups divide buildings into those with repetitive elements and those without repetition or redundancy in their facades. The presence of repetition in the facade elements influences the symmetry of the observed buildings. This occurs because repetition typically occurs before and after the main entrance door, which

serves as the axis of symmetry for the building, shown that in Table 11.

Table 11. Types of facade rhythm

Code	Rhythm types	Quantities
RM1	Building facades with repetition	13
RM2	Building facades without repetition	9

Building facades with repetition dominate the observed buildings in Loji Wetan, Surakarta. This type is the main characteristic on the streets of Sungai Barito, where all buildings have repetitive patterns on their facades, as well as on Sungai Kapuas Street.

The rhythm on building facades, forming distinct patterns, is closely related to the symmetry of the buildings. Buildings with repetitions tend to have symmetrical main masses on their facades. While in the previous section, the analysis of symmetry has been explained, stating that if a building has symmetrical facades, it can be categorized as having influences from Javanese architecture and colonial architecture. However, if the facade of an observed building is asymmetrical, it cannot be categorized as having influences from Javanese architecture and can only be classified as having influences from colonial architecture.

3.13 Contrasts

In the observations conducted in Loji Wetan, the differentiation of materials serves as the basis for determining the contrast of the observed building facades. Additionally, the density of patterns formed by the materials also dictates the light and dark areas of a building facade. Establishing materials as the basis for the light-dark contrast of building facades demonstrates the complexity imparted by materials on the visual aspects of buildings. The darker the contrast, the more intricate the visual complexity exhibited on the building facade. The observation results identified two categories of contrast in the observed building facades: light-to-moderate contrast and light-to-dark contrast, shown that in Table 12.

Table 12. Types of Depth Contrast in facade design

Code	Contrast type	Quantities
KK1	Light- to-moderate contrast	12
KK2	Light-to-dark contrast	10

On Sungai Mahakam Street, it was found that the observed buildings tended to exhibit a light to moderate contrast. Half of the buildings on Sungai Kapuas Street had a depth of contrast reaching dark levels. On Sungai Barito Street, 2 out of the total 3 observed buildings had a contrast reaching dark levels.

Table 13. The influence of component and composition of colonial building façade in Loji Wetan

Road Name	Code	Roof					Column		Door		Window	Guardrail		Veranda			Staircase		Symmetry		Proportion		Rhythm		Total
		A1	A2	A3	A4	A5	C1	C2	P2	P3	J1	G1	G2	E2	E3	E4	T2	T3	SM1	SM2	PS1	PS2	RM1	RM2	
Sungai Mahakam Street	M1	●	○	○	○	○	○	○	○	●	●	○	○	○	○	○	○	○	○	●	●	○	●	○	6/10
	M2	●	○	○	○	○	○	○	○	●	●	○	○	○	○	○	●	○	●	○	●	○	●	○	7/10
	M3	●	○	○	○	○	○	○	●	○	●	○	○	○	○	○	○	○	○	●	●	○	○	●	6/10
	M4	○	○	●	○	○	○	○	○	●	●	○	○	○	○	○	●	○	○	●	●	○	○	●	7/10
	M5	●	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	●	●	○	○	●	5/10
	M6	○	○	●	○	○	○	○	●	○	○	●	○	○	○	○	●	○	○	●	●	○	○	●	7/10
	M7	○	○	●	○	○	○	○	●	○	●	●	○	○	●	○	○	●	○	●	●	○	○	●	9/10
	M8	○	○	●	○	○	○	○	○	●	○	●	○	○	●	○	○	●	●	○	●	○	●	○	8/10
Sungai Kapuas Street	K1	○	●	○	○	○	○	●	○	●	●	●	○	●	○	○	●	○	●	○	●	○	●	○	10/10
	K2	○	○	○	●	○	●	○	○	●	●	●	○	○	●	○	○	●	●	○	●	○	●	○	10/10
	K3	●	○	○	○	○	○	○	○	●	●	●	○	○	●	○	●	○	●	○	●	○	●	○	9/10
	K4	●	○	○	○	○	●	○	○	●	○	●	○	○	○	○	○	○	○	●	●	○	○	●	7/10
	K5	○	○	●	○	○	○	○	●	○	○	●	○	○	●	○	●	○	●	○	●	○	●	○	8/10
	K6	○	○	○	●	○	●	○	○	●	○	○	○	○	○	●	●	○	●	○	●	○	●	○	8/10
	K7	●	○	○	○	○	●	○	○	●	●	●	○	●	○	○	●	○	○	●	○	●	○	●	10/10
	K8	○	○	●	○	○	○	○	○	○	○	○	○	○	○	●	●	○	○	●	●	○	○	●	6/10
	K9	○	○	●	○	○	●	○	○	●	●	○	●	○	○	●	●	○	●	○	●	○	●	○	10/10
	K10	○	○	●	○	○	○	●	○	●	○	●	○	○	●	○	●	○	●	○	●	○	●	○	9/10
	K11	●	○	○	○	○	○	○	○	○	●	●	○	○	●	○	●	○	○	●	○	●	○	●	8/10
Sungai Barito Street	B1	○	○	○	○	●	●	○	○	●	●	○	○	○	●	○	●	○	●	○	●	○	●	○	9/10
	B2	○	○	○	○	●	●	○	○	●	●	○	●	○	○	●	●	○	●	○	●	○	●	○	10/10
	B3	●	○	○	○	○	○	●	○	●	○	○	●	○	●	○	●	○	●	○	●	○	●	○	9/10

Both having contrast indexes reaching dark levels is due to the closely spaced boundary fences with ornaments.

From these three streets, it can be concluded that the order of the darkest contrasts in the Loji Wetan area is first Sungai Barito Street, followed by Kapuas, and lastly Sungai Mahakam Street. Thus, it can be said that the buildings on Sungai Barito Street are more complex in terms of their material differences and the patterns created by their materials compared to Sungai Kapuas and Sungai Mahakam streets. Similarly, Sungai Kapuas Street has a more visually complex facade compared to Sungai Mahakam Street.

After identifying the components and composition of facades from the observation units, an analysis of colonial architecture elements was conducted. The analysis began by determining which elements of the buildings could serve as indicators of colonial architectural influence (Table 12).The elements of the facade components and composition, as determined according to theories found in several relevant literatures, were then used as the basis for classifying components and compositions of the facade that exhibit colonial influence (Table 13). The data resulting from the analysis (Table 13) indicates that among the three streets in Loji Wetan, Surakarta, each currently exhibits distinct characteristics shaping the facade character of each street.

Firstly, on Sungai Mahakam Street, the observed buildings tend to have 5 to 9 out of a total of 10 colonial building indicators. That means this road has around 50% until 90% elements of colonial building. Compared to the others, this yields the smallest values (has the low value as the lowest among all the roads). This suggests that on Sungai Mahakam Street, the buildings experience less colonial architectural influence compared to the other two streets.

Secondly, on Sungai Kapuas Street, the assessment of the observed buildings yields the highest number of perfect scores among all streets. However, upon closer inspection, some buildings in this area still received scores ranging from 6 to 8 or around 60% until 80%. This indicates that while colonial influence on the buildings on Sungai Kapuas Street is significant in some instances, in other buildings, colonial architectural influence is mixed with other architectural influences. The low value slightly higher than the first road.

Lastly, Sungai Barito Street, located in the southernmost part of Loji Wetan, Surakarta, exhibits a relatively high assessment of the buildings, with an average rating of 9 to 10 out of 10 or 90% until 100% of indicators. This suggests that, overall, the buildings on this street receive the strongest colonial architecture influence compared to the other two streets, which have more varied and relatively lower ratings.

From the above exposition, it can be understood that among the three streets in Loji Wetan, Surakarta, Sungai Barito Street exhibits the strongest colonial architecture character. Following Sungai Barito Street, Sungai Kapuas Street also shows considerable influence of colonial architecture on its building facades. Lastly, Sungai Mahakam Street exhibits the least influence of colonial architecture on its building facades. On Sungai Barito Street, colonial-style buildings are the dominant architectural style among the buildings on this street. However, upon closer examination, some parts of this street exhibit Javanese architectural influences, such as in the ornamentation of the openings, though the Javanese influence is not particularly prominent and is evident in the variety of facade decorations.

Meanwhile, in Sungai Kapuas Street, colonial architecture influence remains strong. However, in some cases, Javanese architectural elements in the buildings are equivalent to colonial architecture influence. Javanese architectural influence on this street is manifested in several architectural features not found on other streets, such as ornamental molding with carved wooden materials and the presence of *krepyak* as side fences on the second floor of some multi-story buildings.

Lastly, on Sungai Mahakam Street, the colonial architecture influence is the weakest compared to the other streets. If we consider Sungai Kapuas Street, which has a significant Javanese architectural influence, and then combine it with colonial architecture, it can be inferred that Sungai Mahakam Street also exhibits influences from architectural styles other than colonial. For example, in the case of Sungai Kapuas Street, which has Javanese architectural influence as a precedent, the values held by the buildings in this area should generally resemble those of Sungai Kapuas Street. The next question is whether other architectural influences affect the facade characteristics on this street, apart from colonial and Javanese architectural styles. Therefore, a review of the buildings in the Sungai Mahakam Street area was conducted. One aspect is to try to link the presence of Loji Wetan to the presence of other ethnicities in the surrounding area. Many descendants of the Chinese ethnic group now inhabit the Loji Wetan area. Because of their connection to the ethnic Chinese

community, a study of residential buildings in Chinatown was conducted, resulting in several examples of buildings as depicted in the following Figure 4.

Figure 4. Chinatown buildings in several areas of Surabaya
Source: timesindonesia.co.id (2024)

The Chinese buildings in several cities in the Dutch East Indies typically feature buildings characterized by the absence of supporting columns for the roof canopy, some using saddle roofs, the presence of side doors next to the main building, roofs that are not prominently raised (unlike the high colonial roofs), door openings with windows on both sides, and a facade that appears very close to the street. These characteristics bear some resemblance to the buildings on Mahakam River Street, which also lack supporting columns for the roof canopy, and their facades seem to press up against the street due to the absence of a front porch or the presence of a relatively narrow porch. With the presence of buildings with Chinese characteristics, the development of Loji Wetan since its establishment in the 1830s may have undergone acculturation not only with Javanese culture but also with Chinese culture.

It can be concluded that the Loji Wetan area exhibits characteristic colonial buildings, as it served as a settlement base for European ethnicities during the Dutch colonial period. The types of buildings found here are those with elements of Indische Empire and Indische Transition (Voor 1900), which developed between 1800 and 1900 for Indische Empire and between 1890 and 1915 for Indis Transition. Colonial architecture also underwent fusion with the Javanese style and, in its development, with Chinese architecture.

The characteristic of buildings in Loji Wetan undergoing acculturation with several cultures is influenced by various factors. The colonial character of buildings in this area is predominant because Loji Wetan was a residential area for European descendants living in Surakarta during the colonial period. Initially, the arrival of European descendants in the Dutch East Indies was not accompanied by women until around the mid-1860s. This fact led to marriages between European immigrants and native women being inevitable. These marriages then became one of the cultural acculturation factors that influenced the fusion in architecture, in addition to adaptation to the local climate. The buildings that became their residences, one of which was in Loji Wetan, became structures with a blend of European and Javanese architecture.

For the Chinese architectural style found in the Loji Wetan area, such architectural acculturation could have occurred, given the area's proximity to the Balong Chinese quarter, now known as Sudiroprajan. Another supporting factor is the street names in Loji Wetan. The three streets in Loji Wetan are Barito River Street, Kapuas River Street, and Mahakam River Street. Barito River Street was previously known as Bloemstraat because it was the location of flour mills, and there were also shops in this area, making it a commercial street. The second street is Kapuas River Street, formerly known as Heerenstraat. The name Heerenstraat is also known in several areas like Surabaya, Rembang, Pasuruan, and Semarang, shown that in Figure 5.

Figure 5. Heerenstraat pictures in Semarang

The portrait above depicts Heerenstraat in the city of Semarang. This street served as the main thoroughfare for transportation routes centered around the Vijfhoek fortress. Its purpose was to expedite transportation routes between the three gateways of the fortress. In the cities of Surabaya, Rembang, and Pasuruan, the mention of Heerenstraat itself signifies a street for the nobility. The street was surrounded by the residences of high-ranking officials, with roads already paved with stone. In Surabaya, in 1678, the VOC fortress was built, with the southern straits area used as housing for European employees, and the main street, Heerenstraat, became the residence of VOC officials. Around Heerenstraat in these cities, there were supporting facilities such as the residence of the governor, hotels, schools, and churches [19].

The last street in the Loji Wetan area is Mahakam River Street. The interesting thing about this street is the absence of a Dutch name for it. Coupled with the slight

Chinese influence in some of the existing buildings, the possibility that can be inferred from this street is that Mahakam River Street was once a street for the Chinese ethnic group. If this theory is correct, then it becomes an attraction of the European village of Loji Wetan. For, if in other areas the ethnic restrictions were very strict between one another during the colonial period, then the presence of Chinese ethnic houses in the European area of Loji Wetan becomes a unique anomaly. This situation is in line with Susanto's journal (2016), which describes Surakarta as a multicultural city, where all ethnic groups living in Surakarta have interdependent relationships and mutual respect for one another [20]. Consistent with the theory of acculturation where cultural blending can occur between friendly groups and that acculturation can arise both politically or economically. The close relationship between the Chinese ethnic group, known as traders, and the European descendants who held the dominant trading companies at that time, serves as evidence of this.

4. Conclusion

From the discussion above, it can be concluded that the Loji Wetan area in Surakarta, which was the residence of Europeans, still exhibits architectural characteristics influenced by various architectural styles. These include colonial, Javanese, and Chinese architectural influences. The colonial architectural style in this area is strongly felt on Barito River Street and can still be found on other streets, namely Kapuas River Street and Mahakam River Street. Prominent colonial architectural elements in the houses of Loji Wetan include the presence of clipped gable roofs, supporting column structures, the size of doors and windows, and the presence of two-story houses. The clipped gable roof type is influenced by roof styles that developed in Europe and America. Supporting column structures, such as Doric columns and cylindrical iron columns, also reflect colonial architectural influences. Similarly, the tendency for doors and windows to be large is another characteristic feature.

The Javanese architectural style is quite clear in buildings in the Loji Wetan area, particularly on Kapuas River Street, although Javanese nuances in buildings can also be felt on other streets. Javanese architectural elements that are acculturated include ornate carvings above lintels, wooden ornaments on fascia boards, wooden lattice window models, and column structures made of wooden beams. Symmetrical building forms also manifest the principle of balance in Javanese philosophy. This street, also known as Heerenstraat, exhibits a greater level of visual complexity through geometry and depth contrast on its façades compared to the other two streets. This is likely because the street was designed as a residence for high-ranking European officials, whose dwellings were more elaborate compared to other areas with simpler functions.

The Chinese architectural style in the Loji Wetan area can be found on Mahakam River Street. Buildings without supporting column structures with facades that encroach onto the street are prominent characteristics of the buildings on this street. Despite each street having distinct architectural styles, these architectural elements harmoniously blend within the buildings, creating continuity throughout the area. The acculturation of various cultures resulting in architectural products in the Loji Wetan area is influenced by several factors, including socio-cultural, political, and economic factors. Socio-cultural factors come into play due to the absence of Dutch women in the Dutch East Indies until around the mid-1860s, leading immigrants to marry native women. Political factors are associated with the influence of the VOC's power in the city of Surakarta. The presence of activities related to their activities within the fortress environment necessitated supporting facilities, including residences for their officials. Economic factors influencing this area are closely related to other ethnic groups, including the Chinese ethnicity. The close relationship with the Chinese, who dominated the trading sector in Surakarta, also influenced housing arrangements in the Loji Wetan area.

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