

The Character of Nighttime Architecture on Letjen Soeprapto Street at Semarang Old Town

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Abstract

Since the old town of Semarang preened to be proposed to UNESCO as a heritage city, many tourists have been visiting the area during the day and night, especially the Letjen Suprpto street, which is the main corridor of the old town of Semarang. Business people also help enliven the activity by reviving old buildings that were not functioning. Facade is an important element in architecture and becomes a major concern in strengthening the character of colonial architecture in the old town of Semarang. Architecture that is characterized by door openings and windows with a height and width with thick walls, gives the impression of space that is more pronounced in the composition of architectural elements in the facade of the building. At night, the role of artificial lighting attached to the outer walls of the building, lighting from inside the building, and lighting the environment will lead to different perceptions of the facade of the building. Parts of the dark facade elements can be a bright part and vice versa, as part of the visual relationship between the front and inside of the building which shows the existence of a figure-ground relation in the scope of the facade of the building. In order to examine the character of nighttime architecture in this corridor, reviews are done on several buildings that have the composition of facade elements and use artificial lighting as a building factor for nighttime architecture.

Keywords: *nighttime architecture, artificial lighting, building facade*

Introduction

The old town of Semarang is historically known as a fortress city which is used as an office that manages trade in its time. Slowly, the buildings were having problems and began to be abandoned until most of them finally became empty and unkempt. The area gradually becomes less comfortable as it is widely used by homeless people and are prone to criminal acts.

Due to the potential possessed by the old town with its colonial architecture and interesting historical values, these buildings are starting to be revived by improving the infrastructure in the surrounding area. The improvement of

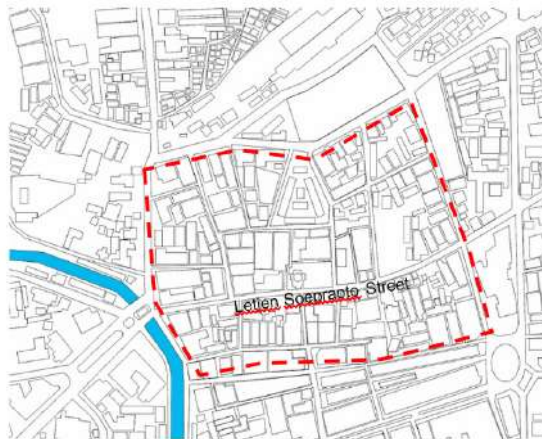
infrastructure gave confidence to building owners or investors to participate in the improvement of the old town area.

The scope of the old town revitalization area is limited to buildings inside the fort that had previously existed. In general, visually the physical state of these buildings still look good due to the infrastructure improvement in the 40 Ha area. (Figure1)

To revive activities in the old town area, the stages of development carried out by the government include prioritizing the corridors that divide this area and at the same time the main route since the beginning of the existence of this old town, located on Letjen Suprpto street or formerly called Heeren Straat (Murtono, 2008). On this corridor, there is a building that serves as the landmark of the old town, namely Blenduk Church, which is supported by the existence of Srigunting Park as a public space.

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Figure 1. Semarang Old Town Map Area (Source: Author's Document, July 2019)



The main feature of buildings in the old town area is a building without a yard with a building height of at most two floors, so that visually the facade elements and architectural composition are easier to recognize. The buildings on Letjen Suprpto street are not all physically in a good condition, from buildings that still exist, only 78% are in good condition, while the rest are either in improper conditions, destroyed, or turned into open spaces.

The revitalization of the old town causes the duration of human activities in the area to be longer, extending up until night. With better physical conditions of roads and pedestrians and general lighting support, tourist feel safer and more comfortable at night, especially on Letjen Suprpto street which is the main axis of the area. This situation is also supported by the existence of several buildings that change functions by transforming into commercial or business places. Turning on activities especially for young people as future generations in the region, is one way to encourage building owners to improve the quality of buildings, especially building facades (Ismail, 2016).

Theoretical Basis

The term nighttime architecture was first created by an American architect Raymond Hood in 1930. Immediately, his statement invited debate between architects, lighting designers, and critics. They argue that architecture at night should be carefully planned and should be part of the design concept (Neumann, 2002).

The use of electrical lighting is considered to have the potential to form building materials that can change very large concepts, in regard

to the presence of steel and glass materials in the 19th century. Electric lighting also presents a vision of architectural lighting in the future. Around 1920 and 1930, thousands of buildings in American cities were illuminated by artificial lighting. In fact, often artificial lighting changes color with additional special effects and can actually change the appearance of the skyline at night.

In both Europe and the United States, architectural design at night according to its supporters is an art potential that covers the whole to shape the future, which includes architecture, mural paintings, stage designs, and film projections. Outside of these fields, the terms “painting with light” and “theaters in the air” often appear, and artists predict the existence of a “luminous urbanism”, the choreography of city lighting into a visual symphony, or “space light architecture “projected by a beam of light into the air above the city.

Architecture and light encourage the progress of thinking in producing architectural ideas that are used as the basis for great architects from ancient to medieval times in designing, which initially used natural lighting as an architectural element in forming the character of a building.

In the development of modern architecture with simple forms and glass material that dominate the facade, during the daytime lighting in buildings produces “transparency, insubstantially, weightlessness” as a natural lighting effect that penetrates transparent fields into space. Meanwhile at night, the use of artificial lighting produces “beaming brightness”, allowing the building to look like a crystal lamp that emits lighting from within the building itself.

In spite of the disapproval on the use of artificial lighting, in fact, nighttime architecture is increasingly developing along with increasing and varied human activities at night. Commercial cities have different forms during the day and night. The architecture of the city may work perfectly during the day, but it also needs to provide an attractive spectacle at night. (Neumann, 2002).

According to Lynch (1961), the elements forming the city image are path, edge, landmark, node and district. In the physical form, the edge can be interpreted as a wall, or

in this case, a façade. In this study, the building with a strategic location and essential role in the past now becomes a landmark in the old town. Landmarks are visual objects that are perceived and remembered because of their shape and structure (Presson & Montello, 1988). As a corridor in the old town, Letjen Soeprapto street has an important meaning in forming the urban space. As a space that is connected continuously, corridor shows the relationship between one building with another in a parallel line, while the edge acts as a boundary between the building and the sky, or between the road and water (Swinoff, 2000).

On the importance of facades in buildings, Krier (1988) states that facades convey the cultural conditions of the time when the building was built; facades also reveal the criteria for order and arrangement and play a role in providing possibilities and creativity in ornamentation and decoration. Furthermore, a facade tells us the condition of the occupants of a building, shows a kind of collective identity as a community for them, and at its peak is a representation of that community for the public.

According to Krier (1988), facade elements consist of:

- a. Entrance
The entrance is a sign of transition between the public (exterior) to the private part (interior).
- b. Arcade
Arcade is a space in between which can fulfill semi-public functions.
- c. Ground Floor Zone
The base of a building is the ground floor, without a doubt the most important urban element of a facade, because it is related to the transition to land.
- d. Fenestration
Fenestration is the arrangement, the proportion of perforation designs in the form of doors and windows in buildings. Meiss (1989) also explained that the window functions as a light source, the view looks out and shows the articulation of space in it.
- e. Roof and Building Endings
The roof is the end of the building as well as the crown of the building.
- f. Signage
Signage is a sign in the form of graphic art or visual images attached to the facade of a building that is shown to the public.

Lighting in architecture

Besides being able to give an idea of the state of architecture, light can also act as an element. Light from the sky is media that can penetrate and pass through the view of human experience in producing architecture; but light, both natural and artificial, can be manipulated by the design to mark special places and to give a place with special characters. (Unwin, 1997).

At night, artificial lighting in buildings is the only factor that provides comfort, both to fulfill the role of use and visualization of buildings. In addition, lighting can interpret the relationship between mass, form, and detail. (Moyer, 1992). Furthermore, Moyer (1992) also explained that artificial lighting on building facades has several purposes, i.e.

- a. To declare or indicate the existence of a building
- b. To express the entrance, stairs, area with special functions and service area
- c. To draw attention towards the building
- d. To create an impression, or positive community atmosphere
- e. To show the figure that is the pride of the people

There are two factors in artificial lighting that affect the visual quality of the building's facade at night, namely the placement of the armature and the distribution of light.

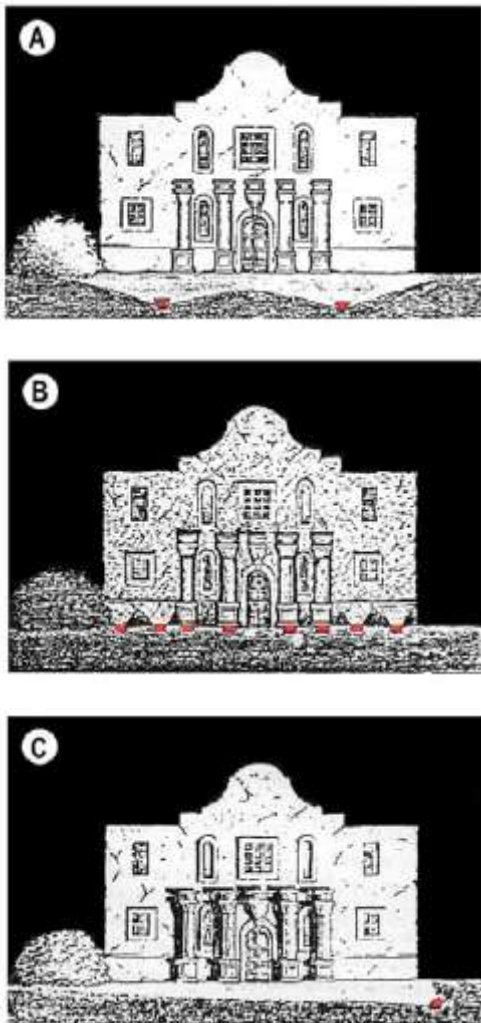
Figure 2. The Potential Distance of the Location of Lighting Points in the Building for Facade Lighting (Source: Moyer, 1992)



In the right position, the placement of the armature can produce an effect on the facade

that has not been seen properly. The obstacle in creating lighting effects is sometimes due to the lack of sufficient space to place the proper armature. Placement of the armature that is forced on a certain position can cause the armature to look so real that sometimes it can reduce the aesthetics of the building's facade, therefore it is necessary to try to locate a hidden armature.

Figure 3. Effects that Appear from the Direction of the Light (Source: Moyer, 1992)



The direction of the light can be determined by the placement of the light points on the object to be highlighted. There are three types. The first point of light is placed in front of the building and will cause a flat effect. Even though the architectural shape is visible, the texture is not very clear and shadows are poor (Figure 3.A). The second type is grazing lighting in the direction of the upward light with the point of the light close to the surface of the façade, which will produce effects that accentuate the

bottom of architectural details such as columns, window frame decorations, sculpture reliefs, and other architectural details. Likewise, the lighting from top to bottom will give the same effect; the difference is the effect of the brighter light at the top (Figure 3.B). The last type of direction of light is from the side which gives a stronger shadow effect on the building's facade (Figure 3.C).

Figure 4. Application of Lighting on the Façade of Collegium Maius Building (Source: WIT Transactions on the Built Environment, Vol. 121)



The picture above is an example of the application of lighting in the historic building of Collegium Maius in Poznan. Based on the lighting study conducted on this building, it appears to show the details of the building that are missed during the day. The use of illumination in large amount and low power makes it possible to reveal architectural details which are normally not visible during the day (Górczewska, 2011).

As an area that consists of heritage buildings, the old town of Semarang has special characteristics that need to be strengthened by improving the quality of corridor space with artificial lighting. This is in line with the statement of Maki (1964), on how cities are a combination of different forms and the articulation of forms in a wide scope.

Illumination (floodlighting) of building facades determines the identity of the building and the local environment. Frequently, the night identity is different and independent from the day identity. The night identity gives a new meaning and images to the buildings. (Polonova, 2016). In a wider scope, when applying facade lighting, several issues related to the placement and selection of appropriate lighting must be considered, including ecology. Light that is not

properly directed onto a façade is perceived as distracting and an unnecessary waste of light (Zumtobel, 2018).

Methods

In identifying the character of the nighttime architecture in the street of Letjen Soeprapto street at old town, the step taken is to select all buildings along the road that are physically intact, i.e. buildings with recognizable completeness of facade elements, buildings that have activities up to night, as well as buildings that use artificial lighting both in facade lighting and lighting from inside the building. In addition, the role of lighting outside the building, which is general lighting, is another factor that influences the perception of the character of the building affected by the lighting.

The next step outlines the visual description of the facade components of several buildings with complete facade elements and compares the appearance of facade elements in the building during the day and at night when artificial lighting plays a role in giving character to the building's facade.

According to Hopkinson et al.(1972), the most successful buildings are those in which the lighting of the building itself and the lighting of activities it contains together make up a unified design concept, both by day and by night.

The scheme below shows the plot to identify the characteristics of nighttime architecture at one of the corridors in the old town. (Figure 5)

Discussion

There are 35 buildings and one public space along the Letjen Soeprapto street, and one of them has no more buildings and has been converted into a parking space. On the north side, there are 16 buildings, while the south side has 19 buildings.

From the 78% of buildings with facade elements, only 89% or 26 buildings have been used so far. From the 26 buildings, only 11 buildings have the initial criteria as buildings with impressions, indicated by the composition of facade elements and the role of lighting at night.

There are several buildings along the corridor which have the potential to define the completeness of the facade elements through artificial lighting exploration.

Entrance is an important element to enter a building, and generally has a different shape with other openings. On the north side of the corridor, there are two buildings that require attention on the entrance, namely Blenduk Church and Spiegel Café. Blenduk Church entrance position is right in the middle of a large column and the Spiegel Café entrance is in the corner of the building with a balcony on the upper side. (Figure 6)

Figure 5. Study Method (Source: Author's Document, August 2019)

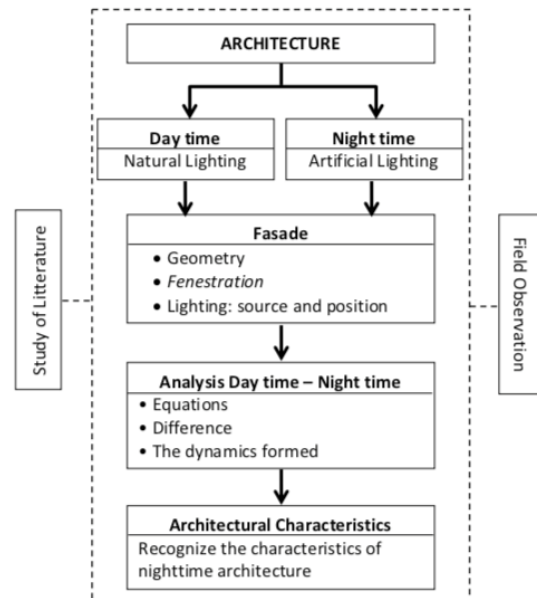


Figure 6. Entrance Building on the North Side (Source: Author's Document, June 2019)



The entrance on the south side is represented by the Semarang Creative Gallery, the Jiwasraya Insurance Office and Marba. Uniquely all of

them has an arc shape at the top. The three positions represent each other, some are on the front side of the building, in the corner of the building and those in the corner of the building.

Figure 7. Entrance Building on the South Side. (Source: Author's Document, June 2019)



Fenestration in some building facades is a repetition of rectangular and curved geometry. The buildings on the north side are represented by the Bank Mandiri Building and PT RNI, which are dominated by curved shapes on the ground floor and rectangles on the second floor, whereas Spiegel Café is dominated by rectangular shapes on all floors.

Figure 8. Fenestration Façade on the North Side. (Source: Author's Document, June 2019)



The buildings on the south side, in general, have almost the same characteristics, but with a smaller size, making it look denser. These buildings include the PT RNI building, the Jiwasraya Insurance Office and Marba.

Figure 9. Fenestration Façade on the South Side. (Source: Author's Document, June 2019)



The roof or the top of buildings and towers are parts of buildings that can be seen and enjoyed from a considerable distance. The roof is also

one of the tops of the hierarchy. Therefore, it is usually designed with a form that contrasts with the shape of the building. The buildings on the north side are represented by Bank Mandiri Tower which is in the corner of the building, the dome roof that characterizes Blenduk Church, and the triangle shape above the Spiegel Café entrance.

Figure 10. Roof and Tower Building on the North Side. (Source: Author's Document, June 2019)



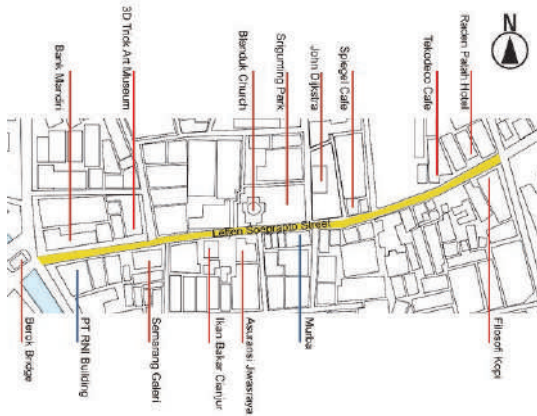
On the south side, the roof element is represented by the Semarang Creative Gallery and the Jiwasraya Insurance office. The Semarang Creative Gallery uses transparent material with a rectangular top with a curved opening pattern, while the roof of the insurance office is octagonal Jiwasraya with a curved roof.

Figure 11. Roof and Tower on the South Side Buildings (Source: Author's Document, June 2019)



To find out the criteria for nighttime architecture in the corridor, buildings that are the object of analysis are buildings that have activities through the night or buildings that use artificial lighting where the composition of facade elements is generally well seen. This is aimed to examine which elements are enhanced by the geometric shape or position of the entire elements of a building.

Figure 12. Letjen Soeprapto Corridor (Source: Author's Document, July 2019)



Berok Bridge

The bridge that crosses the Semarang River is one of the landmarks and is the gateway to the old town area from the city. The columns along the rectangular bridge with the decoration of warm-colored lights at the end become one of the characteristics of the colonial architecture. Lighting on this element does not strengthen the dominant vertical element. The lights in the column function more as general lighting.

Figure 13. Berok Bridge (Source: Author's Document, June 2019)



Bank Mandiri Building

This building is located at the western end of Letjen Soeprapto street, close to the Berok bridge. This building has the characteristics of the existence of an arcade and facade dominated by curved shapes. Even though it is not active at night, the arc shape repetition is felt because the lighting in the arcade room is stronger than the lighting from outside the facade. The strategic location of the building is very potential to be explored, as it enhances the character of the tower at the corner of the building. The good placement of artificial lighting makes it possible to enjoy the building at night. From a great distance, the building

serves as a marker of the old town area.

Figure 14. Bank Mandiri Building at Night and Daytime (Source: Author's Document, June 2019)



PT RNI Building

In front of the Bank Mandiri building, there is a building owned by PT RNI with the same height as the dominance of rectangular openings repetition even without an arcade. Unfortunately, at night there is no role for lighting that can strengthen the character of the building, as the building only relies on the general lighting along the pedestrian.

Figure 15. PT RNI Building (Source: Author's Document, June 2019)



3D Trick Art Museum

On the east side of Bank Mandiri is a one-story building that is part of the 3D Trick Art Museum building which functions as a café. Lighting that gives character to the building actually comes from the advertising signage attached to the columns at the top of the building. The lighting strengthens the repetition pattern of column elements in the building and the bottom of the

pattern of irregular openings.

Figure 16. 3D Trick Art Museum (Source: Author's Document, June 2019)



Semarang Creative Gallery

Right in front of the 3D Trick Art Museum, this building has a fairly complete variety of facade shapes from the ground floor to the roof. At night repetition of window elements is obtained from interior lighting as a result of activities inside the building. Lighting on the outside is in the form of signage at the top, but does not strengthen the facade of the building. Roof elements are not given special lighting, although transparent material is very potential if given artificial lighting to strengthen the character of the roof of the building.

Figure 17. Semarang Creative Gallery (Source: Author's Document, June 2019)



Ikan Bakar Cianjur Restaurant

This building has openings that are quite wide with proportions between openings and walls that are almost the same. At night the openings become transparent fields that are seen dominating the facade elements of the building. This pattern is one of the character building facades that is different from other buildings in general, while the outside lighting is only a signage that does not affect the character of the facade.

Figure 18. Ikan Bakar Cianjur Restaurant (Source: Author's Document, June 2019)



Jiwasraya Insurance Company Office

On the same line on the east side there is a building owned by Jiwasraya Insurance Company. The facade of the building is dominated by sweeping games of colorful LED lighting above the openings with the direction of the highlight to the top. The prominent facade of the building also receives emission from the lamp to form a pattern of horizontal lines. The building also has a terrace in the south side of the building, at night and the lights on the terrace emit light outside the building which reinforces the impression of space. The octagonal roof section is one of the elements that is very potential to be exposed but unfortunately, there is no special lighting on that part. The repetition of the vertical plane which is quite dominant in the facade has not yet been maximized, it appears that there is no illumination that focuses on these areas, as well as the space at the end under the roof.

Figure 19. Jiwasraya Insurance Building in the nighttime
Source: Author's Document, June 2019



Blenduk Church

Blenduk Church is a landmark in the Old Town area which is characterized by neo-classical architecture. The figure of this building is recognized by four large diameter columns, two towers and a semicircular roof as a characteristic of the building. Artificial lighting in the building includes public lighting. There is no use of special artificial lighting that aims to strengthen the character that characterizes the building in terms of both architectural and structural elements, especially the roof, round columns and towers on both sides. At night, this landmark looks no different from its appearance in the daytime.

Figure 20. Blenduk Church (Source: Author's Document, July 2019)



John Dijkstra Building

John Dijkstra is one of the setback buildings. The yard is dominated with shady trees. As a result, the building facade does not look more complete. At the top of the building, there is a game of three spotlights that point downward, on a flat wall without any facade below it, to give emphasis.

Figure 21. John Dijkstra Building (Source: Author's Document, July 2019)



Spiegel Café

Spiegel Café is the only building that utilizes artificial lighting optimally to show the beauty of facade elements. There is a café function on the ground floor with wide transparent openings, producing a beam of light from the interior of the room that strengthens the existence of the window. Facade elements on the second floor that are not transparent rectangular form are highlighted by two lights from both sides, including a triangular wall at the end of the wall of entrance. At the entrance, artificial lighting is not used optimally, so the arc shape is not well exposed. Nevertheless, the lighting placement in this building makes it a building that has the most interesting attraction in this area.

Figure 22. Spiegel Café (Source: Author's Document, July 2019)



Tekodeko Café

Tekodeko is a two-story café but is somewhat different in buildings in general, because the distance between floors is not so high. Unfortunately, as a commercial place, the use of lights to attract visitors looks rather excessive. The interior lighting that radiates out is still added to the lights that are on the terrace so that the pattern of the opening is not visible. On the top floor, the character is more visible with the presence of columns highlighted by lights to strengthen its existence.

Figure 23. Tekodeko Café
Source: Author's Document, June 2019



Raden Patah Hotel

Raden Patah Hotel is one of the setback buildings. Facade lighting can be seen from the interior and the terrace and almost all parts of the building, so that the facade pattern or pattern that needs highlighting is not so visible.

Figure 24. Raden Patah Hotel (Source: Author's Document, July 2019)



Filosofi Kopi

Filosofi Kopi is a cafe located on the east end of the road Letjen Soeprapto. The lighting of the facade at night on the first floor comes from the emission of light from the interior of the building and decorative lights as signage. There are also several spotlights that highlight the thick walls on the first and second floors.

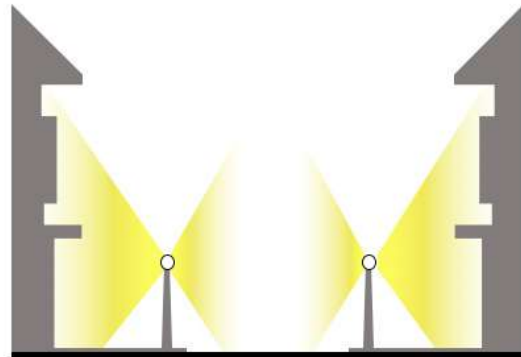
Figure 25. Filosofi Kopi (Source: Author's Document, June 2019)



Public Lighting

The element that characterizes at night on the Letjen Soeprapto street is the general lighting installed on this road. In addition to functioning as security and convenience for visitors, this lighting lamp also acts as an element that strengthens this corridor. Buildings without activities or not providing artificial lighting at night are indirectly visible at night. However, the white light from the lamp can interfere with the role of lighting that comes from the building.

Figure 26. The Range of Public Lighting to Building Facades (Source: Author's Document, August 2019)



Besides general lighting, some pedestrian points with trees are given spotlights from the bottom up. The purpose of the lights is to strengthen the presence of trees and pedestrian paths.

Figure 27. Public Lighting Installed on Both Sides of the Letjen Soeprapto Street (Source: Author's Document, June 2019)



Among the buildings that have been described above, Marba building is one of the buildings that have rich in ornaments with brick red access that attract tourists. This building is located in front of the Srigunting Park, a gathering place for tourists. Although from the outside it still looks like it is in a good condition, the building does not function anymore. Even at night, the building is not given artificial lighting to strengthen the facade character.

Figure 28. Marba Building (Source: Author's Document, June 2019)



Figure 29. Table Building Lighting (Source: Author's Document, August 2019)

No	Building	Lighting		
		Interior	General Lighting	Special Lighting
1	Bank Mandiri		●	
2	3D Trick Art Museum		●	
3	Blenduk Church		●	
4	John Dijkstra		●	
5	Spiegel Café	●		●
6	Tekodeko		●	
7	Raden Patah Hotel		●	
8	PT.Rajawali Nusantara Indonesia		●	
9	Semarang Kreatif Galeri		●	
10	Ikan Bakar Cianjur	●		
11	Jiwasraya Assurance		●	●
12	Marba			
13	Filosofi Kopi Café	●		●

The table above shows the extent of the role of artificial lighting in shaping the character of buildings at night based on the artificial lighting methods that occur in buildings on Letjen Soeprapto street at Semarang old town.

According to Schulz (1984), if the design has considered the existence of the building for its activities at night, of course, the building facade will be integrated with the cultural environment. Its existence is expected to realize a place that has a character so that the essence of a place can be shown by "environmental character."

In understanding nighttime architecture, it is necessary to be able to imagine the architectural conditions of two different situations regarding the light conditions, i.e. when the sunlight sweeps evenly on the surface of the facade from the same direction but different shadows, and at night. This is important to ensure that the architectural elements that will be highlighted can be designed according to the concept of building appearance.

Conclusion

Even though there are many buildings in Semarang old town that use lighting to accentuate the appearance of the building at night, most of the lighting use in other buildings is solely for practical purposes.

Many buildings have not identified the facade elements properly, especially parts that are easily experienced at close range such as entrances and opening patterns on the ground floor and second floor. Another element that needs to be exposed is the roof element. Although it may not be as straightforward as other elements, it is part of a single unit of a building that can show the building's character. The Spiegel Café is one of the tourist attractions in the region. Activities in the cafe last into the night, and the lighting of the facade forms a character that is of particular interest.

There needs to be guidance so that the use of artificial lighting at night can strengthen the character of each building. On the other hand, it is imperative that public lighting not be too dominant. With its bright white light, public lighting can weaken the character of the building as the face of the building is swept evenly, so that it looks no different from the appearance in the daytime.

Therefore, it is absolutely important to not only preserve old buildings, but also to strengthen their characters at night. This will result in a nighttime atmosphere that reflects a dialogue between elements of the city that are supported by lighting elements. Moreover, the elements of the corridor and its boundaries, in this case the facade, can mutually strengthen the architectural characteristics in the Semarang old town, especially the Letjen Suprapto street, at night.

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