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The study of the influence of functionalism and international style on architecture development in Medan City

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Abstract. As we know before that the development of Modern Architecture especially in Europe was not separated from the influence of *Avant Garde*, this influence brought a remarkable thing to the development of mindset at the time. It was not only in art and its beauty, but also in the development of architectural theories. The development of this new theory produced new forms in the world of architecture. The transition era from Renaissance to Modern was showed with Eclectic Architecture, at that time the shape of the building was still in classical form. The use of classical ornaments was still often used so that the outside appearance of architecture was seen like the previous one. Although skeleton concrete had been found as a new technology at that time, the shape of the building was still looked like in the classical period. This will be different at the time after the Eclectic because the views on the mindset of life have changed. The development of modern architecture in Europe is influenced by the movement of Functionalism and International Style; this movement characterizes a free architecture in the past. This movement also brought to Indonesia and some big cities like Jakarta, Surabaya and Medan. This study aims to see its influence in several colonial buildings built during the reign of the Dutch East Indies in Medan. With a qualitative approach looking at the existing theory and theories used to clarify the effect of the movement and see that the colonial buildings have a significant influence on the development of Functionalism and International Style in Europe.

1. Introduction

The influence of *Avant Garde* (*an ideology that breaks away from the past*) brings a big change to the development of architecture in the world, especially in Europe and America. In its development, the different views of art and beauty in the past and now bring the changes in the development of architectural theories and their physical manifestations in the field. The beginning modern era is marked by the development of *Eclecticism / Eclectic Architecture*. At this time the physical form of the building still refers to the classical forms and the use of classical ornaments are still often used so that the outer look of the architecture looks like in the classical period. Although reinforced concrete has been found as a new technology at the time, the shape of the building still looks like in the



classical period. This will be very different after its time because the different views of life's mindset changed and *Avant Garde's* view became a trend of the moment [1].

The discovery of reinforced concrete makes the architecture develop rapidly. *Avant Garde's* mindset took an important role in the development of the architecture after that. The discourse of function was surprisingly getting the interest in the hearts of the architects at that time, so the term of *Functionalism* in architecture emerged, it was an early period of Modern architecture, where the mindset of art and beauty and architecture changed [2]. The beauty of Functionalism is showed at the geometrical function and form of the building and the use of limited geometrical and floral ornament.

This form of architecture in modern times is not measured by elements applied to the building, but it has seen the *function* of the building as a factor of its beauty. At this time many ideologies come that refers to the *Avant Garde* such the ideology of *Art Nouveau* and *Art Deco* that use decorative ornaments, but not same as in the Eclectic period because the ornaments used are usually shaped organic like nature. Modern Functionalism states that the function of building elements such as windows, doors, etc. is a form of beauty and everything is seen as something logical, and beauty appears in it.

The Disconnecting of relation from the past is a concept of Functionalism, there is a pure form that is completely different from the form in the Eclectic period. This change is also called *pure ideology* or *Purism*, because the buildings in this period have been free from the ornaments and shapes used tend to be geometrically shaped like cubes, squares, etc. These shapes are combined so that it produces a building with a new form of arrangement of boxes that are harmonious in one unity of fields that arise from the arrangement of geometrical shapes. No more decorations or ornaments on the cover of the building, so that the beauty arises from the new form without ornament.

In this period, the term Cubism Architecture emerged because the arrangement of geometrical shape was in line with the emergence of the *Cubism* in France in the early decade of the 1900s. This ideology is an ideology of art that incorporates the element of time in its design. Previous space elements added with time elements so that the results can be viewed from various sides, in other words, can be viewed from another perspective.

This influence is also found in architecture, the architect of Functionalism seeks to design the building with the concept of cubism, one of which is *Schroder House* (1924) in Utrecht, Netherlands by Gerrit Rietveld (1888-1964) (Figure 1.). This building looks like boxes which are arranged harmoniously that is completely different from the previous period. The composition of space created from the wide opening on the sides of the building. Harmonization is seen in the side of the building and the use of contrasting colors.



Figure 1. Schroder House, Utrecht, The Netherlands
(Source: en.wikipedia.org)

At the same time in Germany, this ideology also develops which was pioneered by Walter Gropius (1883-1969) who designed the *Bauhaus Building* in Dessau, Germany (1925-1926) (Figure 2.). This building is a school of art and design; the curriculum has included about the modern architecture that

was developing at the time. The Boxy building looks harmonious with the use of concrete and glass as a building facade. On one of its sides, there is a contrasting emphasis on the other side, indicating the overall harmonization of the shape.



Figure 2. Bauhaus Building, Dessau, Germany
(Source: en.wikipedia.org)

At the same time also in the United States of America, Functionalism develops which has grown in Europe. The style of cubism is used by American architects in planning the building for example, *Lovell House* (1927-1929) located in Los Angeles, USA. The building is designed by Richard Neutra (1892-1970) (Figure 3.). This residential building is built on contoured land, clean without ornament and only uses the composition of typical forms of cubism. Glass and concrete plays show a harmonious relationship between outer space and inner space.



Figure 3. Lovell House, LA,USA
(Source: en.wikipedia.org)

The development of modern architecture at that time in every country in Europe and America is pioneered by various movements that use modern concepts in the mindset. Previously there was *Ecole des Beaux-Arts* in France than in America pioneered by the *Chicago School*, in England there was the *Glasgow School of Fine Arts*, in Germany appeared *Bauhaus* and in the Netherlands developed *De Stijl*.

Movement in each country has almost the same mindset that is rejecting to come back to the old form, in other words, no look back to history. Developing mindsets and rules accentuate the new technology and building constructions that developed at the time. At that time, as the modernization movement grew stronger, a group called MARS (Modern Architectural Research Group) was established in 1932 [3], and then held an International congress for the development of Modern architecture in Athens in 1933 called CIAM (*Congres Internationaux de l'Architecture Modern*). This

modernization movement in architecture is finally referred to as the *International Style* movement, with the intention that the developing architecture has the same characteristics even in different places. This movement supported functionalism that developed at the time. This movement did not see art as individual satisfaction anymore, but art can be widely applied to manufacturing and industry.

There are several important figures in this movement such as in Germany there is *Peter Behrens*, in the United States, there are *Louis Henry Sullivan* and *FL. Wright*, in the Netherlands there is *HP. Berlage*, in Austria there is *Adolf Loos* and In England there is *Mackintosh*. This ideology tends to principally architecture as a whole and not separate and considers architecture as volume and beauty arise through the composition of form. This ideology also applies the principle of regality that is the similarity of building forms and patterns seen in the building. In addition, this International Style movement does not use ornaments for decoration so that the overall building looks clean of decorative and decorative elements.

Along with the discussion above, the influence of modernization also hit the Netherlands as one of the countries in Europe. This movement is called *De Stijl* which is a movement pioneered by a group of modernization of art, architecture and interior in the Netherlands. The name of the movement is taken from the name of the first published magazine in 1917 [3], and was founded by Theo Van Doesburg (1883-1931), Piet Mondrian (1872-1944) both painters and several other painters and Gerrit Reitveld (1888- 1964) and JJP.Oud (1890-1963) are both architects along with some other architects and sculptors, poets and photography artists [2].

The movement of *De Stijl* is important to know because the architects at the time used this movement as a trend in architectural design. This directly affected Indonesia as a colony of the Netherlands. The influence of this movement was also brought to Indonesia by Dutch architects who work in Indonesia. The influence of *De Stijl* is also inseparable from the influence of Functionalism and Cubism that developed at that time there. With the facts above, the buildings built by the colonial government in Indonesia use the same mindset. Indirectly, this mindset was carried away because the Dutch architects were then accustomed to the powerful movement of modernism and the technology that had existed in the development process.

De Stijl specializes to the visual expression generated by the expression of angles and the play of horizontal and vertical lines and the colors commonly used are red, yellow and blue and added gray and black. From the concept of art that is rolled by *De Stijl* is the two-dimensional form used in painting so that it creates new forms (*Neo Plasticism*) which are harmonious. The concept of *De Stijl*'s mindset also leads to a pure form so-called Purism, as it developed in early modern times. Purity and clean are elements of beauty, abstract shapes with clear boundaries with the play of visual elements to create harmonization. This ideology is not only limited to the art , but also concerns the development of architecture in the Netherlands, some architects have used this principle on the design.

One of the works of Dutch architect William Marinus Dudok (1884-1974) is Town Hall or Town Hall in Hilversum (1924-1928) this building is patterned Kubism with the spirit of *De Stijl* (Figure 4.). It is seen the building that implements the function of purity that at that time developed the term Form Follows Function which is a form following function. The design of the building shows a harmonious composition without being decorated by ornaments and carvings on the side of the building. The building looks clean with doors and windows arranged harmoniously. There is a tower as the main point of view to add to the splendor of this building. This tower became one of the hallmarks of *De Stijl*'s design at the time.

In addition to Dudok, there is another architect who uses the spirit of *De Stijl* in his design. An architect named JJP.Oud (1890-1963) one of the founders of *De Stijl* designed Cafe De Unie (1925) in the city of Rotterdam (Figure 5.). This building applies the concept of *De Stijl* art with the use of red, yellow and blue on the facade of the building. It is seen the play of vertical and horizontal fields to get the harmonization from building the shape. The use of glass material is also found on the parts of the facade arranged in harmony to get an attractive appearance. This building also receives the influence of Cubism by using concrete and glass that look abstract, but still shine the beauty by the beauty

concept of De Stijl. This proves that the movement of De Stijl has greatly influenced the Dutch architects at the time.



Figure 4. Town Hall, Hilversum, The Netherlands
(Source: www.wikiwand.com)



Figure 5. Café De Unie, Rotterdam, The Netherlands
(Source: www.wikiwand.com)

2. Method

This research uses *the qualitative method* and the facts that exist in the field will try to be elaborated to see the relationship between the influence of modernism in Europe and the existing in the city of Medan. The influence of modernization is devoted to the influence of *Functionalism (De Stijl)*. For that, the chosen method is to parse the existing facts with a qualitative approach. This method is able to see the object comprehensively and its data analysis using *inductive approach* [4]; [5].

This study uses the existing object in the city of Medan. This city once had become one of the important cities in the Dutch colonial government. The opening of a tobacco plantation in this area in 1863 by *Jacob Nienhuys, Vandervalk, Elliot* made this area (Deli land) reckoned by the colonial government [6]. In parallel, it was established a plantation company in 1866 by the colonial government to run and manage the interests of the Dutch, named *Deli Maatschappij* by *Janssen, PW.Clemen* and *Nienhuys*. Furthermore, many government and private plantations were built around Medan [7]. With this situation, the city of Medan becomes more popular.

Case studies are used to see the development of architectural modernization whether both the shape of the building and ornament or decoration. Field survey stage is to record the existence of this building and see the relation with the development of modern architecture. In addition to primary data from the field, literature review of modern architectural theories used as a test tool to the object of

research. The case study in this study is Medan Post Office which is the main post office in Medan City until now.

Changes that occur to the development of cultural activities in society provide a significant change to life [8]. This change has had a major impact on the overall architecture as a result of the discovery of new materials and technologies. For that, the parameters used in analyzing the research object are:

1. *Ornaments of Building*

Building with the theory of functionalism in modern times has the intention, not like the building in the past. Both interior and exterior buildings look "cleaner" in other words the use of ornaments is not a trend in this modernization. The building used only simple ornaments in the form of floral and geometric, but does not contain the meaning as in Classic Architecture.

2. *Form and Function of Building*

The form and function of buildings in modern era are more to geometric form and seem to accumulate each other, but look harmonious with the use of glass windows that tend to be wide. The form of the building is adapted to the function of the building so that space is designed as efficiently as possible by managing the function of space in the building. Function plays an important role in the formation of buildings and building forms will follow the existing function.

3. **Result and Discussions**

In addition to the eclectic architecture that developed in Indonesia [9], at the same time also developed the modern architecture of functionalism, this architecture developed in the 19th century. In the beginning, it developed the term architecture "*Indisch*" derived from the term "*Nederlansch Indie*" or often called the Dutch East Indies. This term is used by the Dutch for naming the archipelago as its colony. This Indis architectural style is a mixture of local forces with the strong influence of modernism brought by the Dutch to Indonesia. The beginning of the development of this architecture is because the Dutch need shelter and buildings to support their colonization. Then they begin to build by looking at the local potential that exists, especially the tropical climate in Indonesia [10].

Dutch policy in dealing with its colonies, as discussed above that the Dutch colonial government issued a regulation on buildings built in colonies [11]. This rule is used to distinguish the architecture built in the colony, the term used is *Indische Huizen* or *Indo Europeesche Bouwkunst* to mention architecture in the colonies because the architecture is no longer the same as that occurred in Europe because they have been mixed with climate and customs in Indonesia. From this point, the term Indies Architecture began to be widely used, but still within a small scope [12].

This Indis architecture is closely related to the passionate spirit of De Stijl in the nineteenth century and inspired Dutch architects in Indonesia. The influence of modernization they brought along with the emergence of the ideology of Art Deco which uses elements of decoration, but not like the classical form, but a more natural form. The influence of cubism that occurred in Europe also entered into the scope of architectural development in Indonesia.

At that time in Indonesia and Medan City, in particular, this new model of architecture also developed. The style that adopts the spirit of De Stijl is named with the term *Nieuwe Bouwen* which means new building [12]. *Nieuwe Bouwen* style is also paying attention to the climate because it does not merely pursue the form of boxes as contained in Cubism Architecture, but it must consider the local potential, especially the tropical climate in Indonesia.

One of the buildings with the concept of De Stijl, found in Indonesia is Denis Bank Building 1936 (now Bank Jabar) is located at Braga Road Bandung, designed by Albert Frederick Aalbers (1897-1961). The hallmark and form of the building are plaid and use the harmonization of the composition of the horizontal and vertical plane so that this building looks harmonious in its composition. The presence of a tower on the front of the building indicates that the influence of De Stijl is in this building. Art Deco geometric decoration is also contained in the building, so the expression that arises to be typical of modern (Figure 6.).



Figure 6. Bank Jabar Building in Bandung, Indonesia
(Source: en.wikipedia.org)

This style developed after the modernization began to enter into the realm of human life. At that time the influence of modernization is not only belongs to architecture, but it has become a new culture that developed at the time. The breaking of the chain of history colored the development of modern culture because the views of people at that time no longer look back, but think far forward to what is achieved or their future goals. The development of modernization at that time has entered the joints of life because along with the development of science and technology that looked at everything must be effective and efficient.

This modern culture came to Indonesia directly brought by the Dutch architects who got a lot of work designing the building. *Medan Post Office* is a case study to see the influence of *Functionalism* and *International Style* (Figure 7.). It is designed by a Dutch architect named *J. Snuyf*, and its location lies at the crossroads of City Hall and Bukit Barisan Street. The building was founded in 1911 and J.Snuyf was still the Head of BOW throughout Indonesia. It is Influenced Art Deco, L-shaped building and has an atrium on the corner of the building as well as the right and left wing of the building. The walls are not filled with ornaments and use many horizontal and vertical lines on buildings.

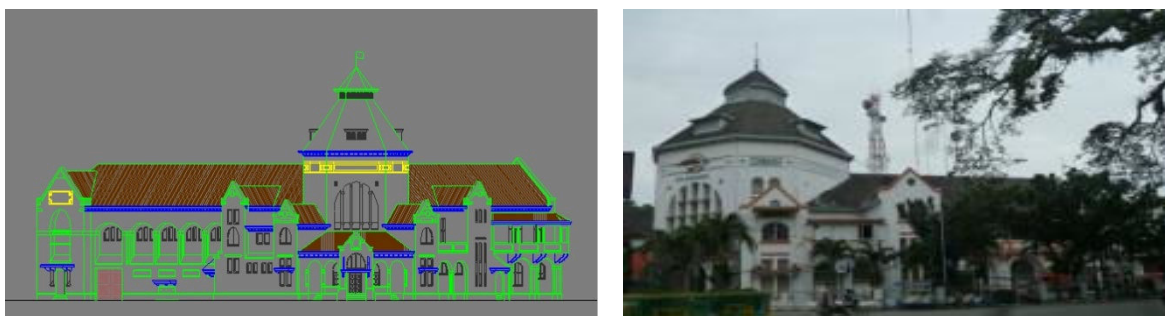


Figure 7. Front View of Medan Post Office

3.1. Ornaments of Building

For ornaments of the building do not look as striking as in eclectic buildings, there are some decorations on the front side of the building, but do not dominate the image of the building. Art Deco style is thick in the building. Some decorative wall paintings are on the front facade of the building. On the inside of the building is also not filled with ornaments, there are only pigeon ornaments in the hall of the building. The building is only relying on the play of vertical and horizontal geometric shapes to affirm the overall shape. In general, the building is “clean” of ornaments or decorations that are usually found in the previous architecture (Figure 8.).

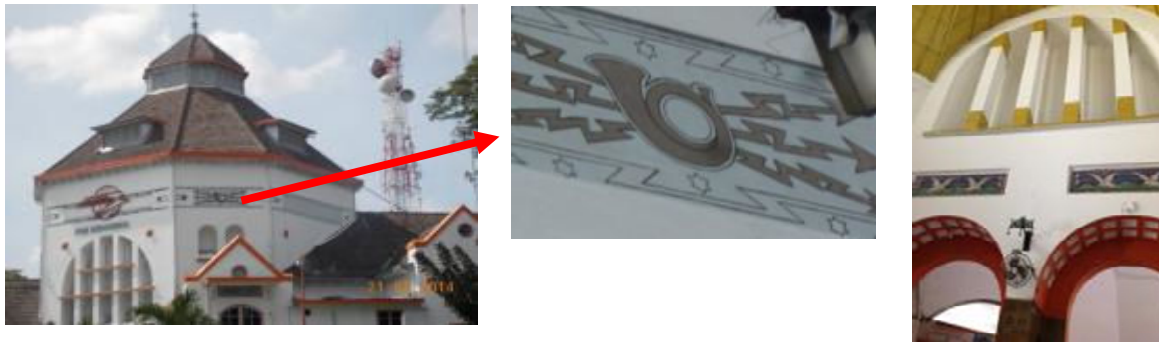


Figure 8. Ornaments and vertical and horizontal elements in buildings

3.2. Form and Function of Building

Medan Post Office is *art deco* style and has a linear form of the building following the shape of the road, at the corner of the street there is a different hall height. De Stijl's influence is seen with the height difference in the building element; it is only the tower is replaced by the raised hall. The octagonal hall serves as a catch point at the corner of the building. In this hall, there are postal service counters, and there are several rooms for administrative purposes.

On the roof, especially the octagonal hall, there are additional roofs upstairs, and on some sides of the roof, there is a small roof that protrudes (lucarn) as a natural conditioner buildings. The Strong modern influences affect the building as a whole, a curved opening play for the natural lighting and conditioner of the building. On the side of the building that is just on the corner of the road, there are wide openings with arches and the use of color glass which is so harmonious when it is viewed by eyes (Figure 9.).



Figure 9. Elements of the roof that protrude (lucarn) and openings in buildings

4. Conclusion

The conclusion drawn from this study is that the architectural style of Medan Post Office is very closely related to the development of the ideology of functionalism and International Style in the world. Although it is not entirely using the style of De Stijl, it is seen that the elements of ornaments that are used do not dominate the building and the tower elements manifested to the hall that has a roof that rises upwards and similar to the rotunda in Roman times. So, it can be concluded that the role of functionalism and International Style is in the building. It is advisable to continue researching some of the other colonial buildings to get how much influence the functionalism and international style is to the existing buildings in the city of Medan.

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