Material And Form Resilience in Dutch Architectural Style Buildings in Ternate (case study: Ternate nobleman's house)

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Abstract. The material resilience and shape of Dutch buildings in Indonesia is very famous. This is evidenced by the establishment of buildings in the present. The resilience of material and shape of Dutch buildings was also found in noble homes with typical Colonial architecture in Ternate which was the object of research. The research method used is descriptive by comparing data in the field with literature studies and explaining elements in buildings such as walls, floors and frames. The conclusion that was achieved knew the resilience both in terms of building material and the shape of a house building with colonial architectural style in Ternate.

Keywords: Dutch Colonial Architecture, Noble House, Resilience

1. Introduction

Dutch heritage buildings in the city of Ternate are still widely visible and still standing firmly even though they are hundreds of years old. With the design of a colonial-style architectural style, the strength of building construction is classified as strong and technologically in its time. Even when compared to modern buildings, the existence of these buildings seems to be a masterpiece. So sturdy, the type of building in the modern era seemed to be defeated by the construction that was hundreds of years old. For example, many of the buildings, bridges and houses in the modern era such as today tend to collapse easily and seem to last a long time. Unlike the Dutch colonial buildings that are far more durable and sturdy from time to time. Like the Ternate nobility building. Dutch Colonial style buildings in the 19th century still stand firm and still display the remnants of the grandeur of this building in the past.

This house is the residence of Prince Muhammad (brother of the Sultan of Ternate, Iskandar Muhammad Djadir Syah) who was once visited by Alfred Russell Wallace, a British researcher [1]. Some of the previous studies on resilience were Colonial Architecture in the Home of the Governor-General of the VOC at Fort Oranje Ternate. This research tells about the typology of buildings in orange fortress in terms of shapes, materials and compositions that produce conclusions about the construction of the building being built [2]. Another study studied was Sigi Lamo and Remnants of Islamic History in Ternate where this research is closely related to the object of research. Besides because it is very close to the object of research around 50 meters, the shape and material of the building are still preserved from the original [1]. There are also several studies that are referred to and attached to the bibliography.

Building materials are becoming increasingly directly related to all levels of society, both the noble strata and the lowest strata of society [3].

2. Research Methods

To study the building character of Dutch-style architecture, the approach used is descriptive by comparing data in the field with the study of literature and then explaining the elements in buildings such as walls, floors and frames.

Sources of data in this study are grouped into two data, namely: first, primary data is data obtained through direct observation and interviews with home owners. Direct observation in this study is a...
structured observation in which researchers have known what aspects will be observed and relevant to
the problem and research objectives. Second, secondary data, namely data obtained from documents or
reading materials, and other sources related to the research theme

3. Results and Discussion

The Colonial Architecture style has the following characteristics:[2]
   a. Symmetrical façade
   b. Material from brick or wood usually exposed without coating.
   c. The entrance has two doors
   d. Symmetrical Plan
   e. Floor pattern motifs are straight lines
   f. Large window with wooden frame

3.1. Symmetrical façade

From the façade look of the house, both from the front and rear view, the building with the
characteristics of Dutch colonial architecture is very measurable and symmetrical where the
symmetrical impression is reinforced by the prominent pillars of the pillars rising up (Greek style). On
the front and back porches. This towering pillar is a type of residence in the entire Dutch East Indies in
the 19th century, known as Rumah Landhuis (Indische Architectuur). The symmetry of this building
can also be seen in previous studies[2], [4], [5], and [6].

Pillars or columns used in this building use columns that are in the style of classical Greek, namely
the Tuscan style column. Where the columns do not use many carvings with rounded shapes smaller
upwards. This Tuscan style column is a characteristic of the Indische Empire style which in the 19th
century was very well known in continental Europe. Form dominated by rows of Greek style columns
with front porch and back porch and shape symmetry also appears on the Mojowarno church building
[7].

![Figure 1. Symmetrical facade of Ternate noble house.](image)

This Dutch architectural house has a distinctive character that distinguishes it from ordinary homes,
one of which is a symmetrical façade.

Dutch building facades rarely use material from iron or steel. These materials can corrode and
cause the facade material to crack, and then worsen the building façade [8].

3.2. Exposed brick or wood material

This Dutch building or house was made using material such as mountain rock with a wall thickness
of 50 cm. The use of a mixture of red brick and mountain stone walls as a filler material in addition to
strengthening the wall structure, this wall thickness also serves as a fortress. In the war era, houses can
also be used as temporary fortifications from enemy attacks.

The typology of wall thickness is also found in the Ternate Sultanate Kedaton and the Ternate
Sultanate Mosque. This building thickness is a type of architectural style in the early 19th century. The
typology of wall thickness is also found in Ternate Sultanate Kedaton, Ternate Sultanate Mosque and
Oranje fortress. Predicted the material used on the walls of the nobleman's house is the same as the
material used on the walls of the Oranje fortress.

Material on the walls of the Oranje fortress was built with a combination of rocks, river stones and
broken glass then plastered with cement [2]. Material from brick or wood, usually exposed without coatings [9]. The stones used are fine black pebbles, broken stones that come from river stones (black) or mountain stones [10].

![Figure 3](image_url)  
*Figure 3. a) The walls of the nobleman's house, b) Building wall material in Oranje Fort*

Damage to the building facade is caused by lack of maintenance such as peeling off building walls and emergence of plants [11].

3.3. Entrance

In this Dutch building or house, there are two entrance, namely from the front porch and from the back terrace.

![Figure 4](image_url)  
*Figure 4. The main door of a nobleman's house  
a) Front Entrance, b) Rear Entrance*

Two entrances use two doors. With material from the entrance made of wood. Frames on the doors and windows of this building are still original on the doors and windows that have been repaired without any change from the door leaf. Likewise with the entrance, the doors in the rooms inside the house also use two doors. With wood material with a frame motif with frames that are still original and well-maintained wood materials.

From the data obtained in the field, the door to Ternate nobleman's house is rectangular with a width of about 60 cm and a height of about 230 cm. The main door frame integrates with the vent or vent. The door frame uses wood with an average dimension of ± 10 cm × 10 cm, on the upper frame of the house with the overall stone wall the width follows the wall thickness of the house. The door in the living room, the main bedroom, the room dividers and the back door almost all use the doors of two leaves (split in two) [3]. The characteristics of double doors can also be found in Dutch buildings in the study typology of the face of Dutch colonial architecture at the sugar factory in Jember [12].

3.4. Symmetrical Plan

From the floor plan it can be seen that the distinctive feature of the colonial-style house plan is the symmetrical character of the colonial house. This is in accordance with the characteristic form of the colonial house plan according to Handinoto [13], which is symmetrical. The central axis is very clear where the middle axis is the axis that divides the space as a whole.
The floor plan characteristics are very much in line with Soekiman's opinion about the structure of residential houses in the 19th century. [14]

The room plan in this Dutch house is the same as other plans where there is a living room, family room, bedroom, dining room and service area. Usually the dining room or family room becomes the centre of the room.

From the results of observations and measurements in the field, it can be seen that the plan of this Dutch house is very symmetrical where the size is 20m x 14m respectively. There is also a clear spatial arrangement, such as structuring the terrace, living room, bedroom, and maid's room which follows the spatial arrangement of the colonial residence.

According to Soekiman [14] the structure of residential houses in the 19th century consisted of a terrace or front porch (voorgalerij), a central room, a family room and a dining room, and a service room used by servants. One of the characteristics of the Dutch building is the symmetrical floor and there is a living room consisting of the main bedroom and another bedroom [15].

Symmetrical floor plan forms that give an open impression which is characteristic of buildings that apply the architecture of the indische empire in Indonesia [16].

![Photo Documentation](image_url)

**Figure 5.** The mass pattern of Ternate noble house

3.5. **Straight-line floor pattern motif**
As mentioned in the above theoretical study, the style of design that was popular in the Netherlands was around 1624-1820, one of which was the floor pattern in the form of a straight line. In this nobleman's house, it can be seen that the ceramic material found on the front and rear terraces is still preserved from its original form. The floor pattern is a straight line and forms a rectangular pattern.

![Photo Documentation](image_url)

**Figure 6.** The pattern of house floor of noble

3.6. **Large window with wooden frame**
Prijotomo, Latief & Christiyani [17] mention the appearance of colonial type houses that feature decorative buildings with highly detailed (but not complicated) finishing, high doors and windows that look vertically strong.

The door, window and ventilation elements in this building use wood and iron. The type of window used is a double type with wood material as the material. Window panels use a double-type directional window where the inner window is an iron trellis and the outer window uses jalusi shutters. This decoration is the hallmark of government buildings or buildings of the rulers [18].

![Figure 7. Ventilation (bovenlight) type](image)

Based on the theory above, from the shape and ornament of windows, it can be seen that the shape of the window is high so that it appears strong (vertical) and upright with finishing ornament ventilation on the door and window that is very detailed. Windows use large wooden panels with decorative boxes of wooden frames, without curved elements. At the top of the door there is a vent with a form of plant made of iron metal for air circulation. Shutters and openings consist of two shutters in all the windows of the Dutch house, so does the entrance that has two doors. The characteristics of these doors and windows are influenced by the *Indische* and Art Nouveau imperial architectural styles in addition to the shape of the window, the shape of this door is also a feature of colonial design style which is quite popular in the Netherlands around 1624-1820.

The frames on the doors and windows of the building are still original while the doors and windows have been repaired by not changing the shape of the door leaf. In addition to the Dutch colonial style above, several theoretical explanations pay attention to the characteristics of Dutch buildings as expressed by Soekiman [14]. That the elements that can be used to identify the decorative character of a building include: columns (pillars), porch railings (*stoep*), bovenlicht, and roof decorations (*nok acroterie*)

a. Column (pillar)

The columns that are very prominent in the facade of this building are strongly influenced by 19th-century Dutch East Indies architecture, which adopted many neo-classical architectural styles, namely styles oriented to classical Greek and Roman architectural styles. The 19th-century Dutch East Indies architectural style popularized by Herman Willem Daendels came to be known as the Royal Style. This style by *Handinoto* [13] can also be referred to as the Dutch colonial style. The Royal Style architectural style is a neo-classical architectural style popular in Europe (especially France). This column style is also known as the Tuscan column (the Tuscan column is a simplification of the Doric column).

These large pillars are the influence of European culture, the front door is right in the middle of the facade which is usually flanked by large windows on the left and right [19].
b. Patio fence (stoep)
The word stoep is a word commonly used in Ternate where people used to refer to the porch / terrace with the word stup taken from the word stoep. The porch fence in the building uses concrete with a thickness equal to the thickness of the building wall. Only the height of the front porch is lower than the height of the pheasant in the back porch. One feature of colonial architecture is the terrace around the building which also serves to prevent the entry of direct sunlight and rain water [20].

c. Ventilation (bovenlicht)
Ventilation in this colonial house consists of three types, namely glass ventilation in the room door, ventilation in the room window and decorative motif ventilation on the main door and the main window.

Image of ventilation clearly shows the motif details of metal flower carvings that adorn every main door in the building. bovenlicht this main door, showing very beautiful architectural details with high-level precision metal engraving. The Dutch are very proficient and love carpentry to the details [5].
4. Conclusion

Based on the results of the discussion it can be concluded that the buildings of the houses of the nobles of Ternate, are still original both in terms of building materials and the shape of the building itself. the resilience of this building is still maintained until now

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