

Elements of Unity of Facade in Building J, Core, L, and M in Campus One, Universitas Tarumanagara

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ABSTRACT

The purpose of this research is to look for similarities, changes and unity of the Universitas Tarumanagara buildings, especially the J, Core, L and M buildings of Campus 1 Universitas Tarumanagara which are associated with the history of the old buildings that have become obsolete based on age and time. By conducting qualitative research based on the timeline, the common thread of the Universitas Tarumanagara building is obtained. This research method is a qualitative method by paying attention to the historical process of Universitas Tarumanagara by paying attention to; 1) Facades; 2) Unity; 3) Building Form. The conclusion of this study is to provide input and the concept of change at this time and in the future if architects want to design the Universitas Tarumanagara building by paying attention to the history of the Universitas Tarumanagara facade.

Keywords: *Facade, Universitas Tarumanagara, Character, Unity Icon*

1. INTRODUCTION

The construction of the lecture building on campus I of Universitas Tarumanagara was not carried out simultaneously. Universitas Tarumanagara began to be built in 1962-1965 in limited financial conditions and the tough Indonesian economy. On the Letjen S Parman No. 1 campus, two mass blocks (B, C) have been erected on 3.08 Ha as a place for lectures for two faculties and as the first building (Figure 1).

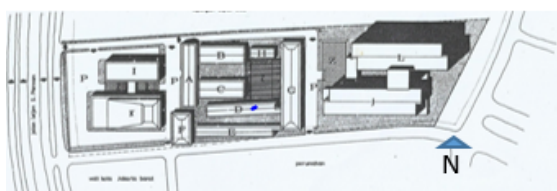


Figure 1. The composition of the dominant mass according to the East-West axis according to the site.

The year 1968 completed three new blocks (A, D, E) to become 4.008 m². Furthermore, blocks F (288 m²) and G (1.140 m²) were built with a typical West Java character building. At the age of 10 years (1972), the number of Universitas Tarumanagara students was 1.354, with a total area of 4008 m². The first stone was laid to construct the block I building at the front of the site. Consisting of three floors with an area of 1.866 m² and was completed in 1976 [1].

The construction of the three-story concrete structure of the building block I attracted many prospective new students. Because of its strategic location, it is easy to see from Jl. Letjen. S. Parman. In 1976, the finishing of building block I was completed with a specific facade, namely a massive wall to the west, flat windows, and a triangular rooftop. Since 1976 the number of Universitas Tarumanagara students has increased every year [2]. The block I building is painted with a light brown colour combination, different from the previous building painted white. With the 2000 Master Plan designed by the Architectural Engineering Faculty team, chaired by Ir. W. Pragantha, and the Foundation's new leadership, Ir. Ciputra and the Chancellor Prof. Drs. Harsojo. Then in 1978, the construction of Block J (dr. H.R. Suwondo) building was started as high as five floors with a facade similar to the character of block I.

Then followed by block J building with ten floors and block L (PK. Ojong) with a height of 8 floors, completed in 1983. Block J area is 33,267 m². Then in 1985, Blok M (Khoe Woen Sioe) began with eight floors with 14,888 m² for the Rectorate, Foundation room, Reception, Lecture Room, Meeting Building, and Sports. The facade of the block M building also takes on the character of buildings I, J and L. The existence of building M requires the demolition of buildings A, B, C, D and G (total area of 3,020 m²).

The total floor area until 1987 was 45,153 m² consisting of Blocks E, F, I, J, Core, L and M [3]. From the explanation above, there is a long timeline (1965 – 1987) which initially showed that the processing of various forms of building and facade was not designed in an integrated unit, but at the time of starting to build a multi-storey building, the facade

character became a part that was processed by the Design Team to create unity facade character (Figure 2). In the next stage in 2006 – 2007, building blocks E and F were demolished to construct a 22-storey Main Building with a design result of a competition on the two-story Auditorium plan area. On the south side of the M building, a 6-storey parking building is built, and on the top floor, there is a sports building. Building Block I (1.866 m2) on the north side of the Main building was demolished for an open space plaza. So, the existing buildings are blocks J, Core, L and M, and block L expansion in the backyard, namely blocks K and R, Parking building, Main building, and Auditorium.

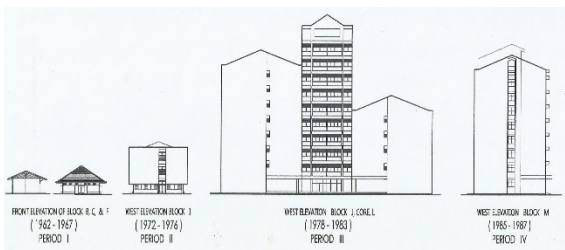


Figure 2. Timeline 1962-1987 Building Construction Facade on Campus I Universitas Tarumanagara

2. THEORY AND METHODS

The campus I building of Universitas Tarumanagara is designed and built according to the site form and orientation. The linear building mass is directed along the East-West axis. The East and West walls are made massive, or if there are minimal openings. This position is in the same direction as the sun's movement in the morning, afternoon and evening to avoid direct sunlight, which is hot and glaring [4]. The openings are oriented towards North and South with the placement of windows simultaneously for natural airflow [5]. The opening is a glass window from a parapet height of + 0.90 to a ceiling beam of + 2.90 to get natural light throughout the day. Glass openings give effect to the facade.

The use of plain glass (transparent), which is dominant in educational buildings, gives the impression of transparency. It also allows people inside the building to see the scenery outside. Hence, they are not depressed [6]. Glass with a pleasing arrangement plays an essential role in the aesthetics of the facade; it is considered capable of giving a modern, clean, aesthetic impression and commercial appeal [7].

Reduce excessive heat in the vast and high window panes, oversteak is made, sunscreen is installed, and the listplank is adjusted to protrude, and height is adjusted to give a good shadow effect to the windowpane [5]. The window must be able to be opened so that clean air can be exchanged after we experience this COVID-19 pandemic. The use of roofs, oversteak and listplank dramatically affects the facade's appearance as a characteristic of tropical buildings. Oversteak also functions as rain gutters, maintenance and facilitates the cleaning of building window glass.

This research method is a qualitative method by paying attention to the historical process of building Universitas Tarumanagara by paying attention to; 1) Facade; 2) Unity; 3) Building Form.

3. RESULT AND DISCUSSION

3.1. Facade

The facade can be interpreted: Each surface of the building, especially the front view of the building. Naming or mentioning the facade of the building looks towards the building or its function, Southern View, Front View, Side View and others. According to Krier (1988), in "Architectural Composition", the root of the word Facade is taken from the Latin word "facies", which is a synonym of "face" and "appearance". Therefore, the facade is part of the building face or the front of the building facing the road. The facade is the most important architectural element capable of conveying function [8].

The repeated design facade of the building can provide a sign for the building, thus making this mark a specificity for the building [9]. Signs are part of semiotics; the signs on this facade are used signs from the semiotics of Pierce namely; If the meaning is said to be a Symbol, it is a sign that has been recognized and is also known by the general public, while the meaning is Icon to be that represents a sign, and lastly, the index is a causal relationship between the Icon or Symbol [10]. If the facade of the UNTAR (Universitas Tarumanagara) building is a sign with the meaning of an icon for Tarumangara University, the Icon is the gable shape leading to the West and East is the hallmark of Tarumangara University.

3.2. Unity

Unity is an essential part of regulating the composition of mass and building facades to look aesthetically pleasing. Unity in the building facade can be achieved by: Texture; Color; Briefing; Proportion; Solid and Void; Form. Unity aspects consist of; Prominence (dominant); Harmony; Proportion; Vitality (life force); Balance [11].

3.3. Building Form

3.3.1. Initial Form

The one-story building with linear quadrilateral geometry was dominantly extending the East-West axis (Figure 1). The East-West walls are massively made to avoid the sun's rays. Opening on the North -South side, for privacy, made parapet as high as 90 cm. Windows up to a height of + 2.10, the rest *bovenlicht* or wooden jalousie up to +3.00. Construction of concrete pillars, modular, corrugated asbestos gable roofs are all at an angle of 20°, using oversteak with a width of 1.80 – 2.00. The next stage is a gable roof using a pressed tile with a slope angle of 30°. All

walls are painted white. Window door frame using wood. The sixth and seventh blocks have a pyramid roof in West Java with a 2.00 m overlay with a press tile roof.

3.3.2. First Three-Story Building

The first three-story building uses reinforced concrete construction, modular, grid 3.60 m x 7.20 m, linear along the East-West axis. The East-West walls of the second and third floors are rectangular in massive shape, given an opening as wide as a corridor, giving an expression of asymmetry. At the top, there is a small triangle with 20° angles as a cover for an angled steel frame with a zincaluminum cover. This massive field does not stand on the structural column but is a cantilever so that in 3 dimensions, it gives a unique impression (Figure 3). The building blocks I at the front of the Universitas Tarumanagara with cream and light brown colours gives pride to the academic community and enlightenment for Universitas Tarumanagara, which has not seen any building for the past five years activity for development building lectures. It is marked by the rapid increase in new student registrations in 1976, 1977, and 1978 by conducting selective Entrance Screening Examinations and taking place in the following new academic years.



Figure 3. 3D Sketch of Building Block I (1972-1976)

3.3.3. First Five-Story and Eight-Story Building

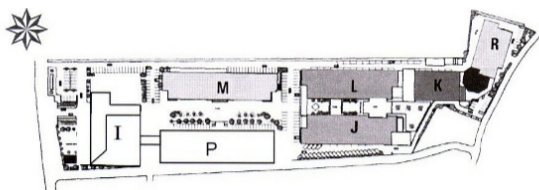


Figure 4. The Masterplan University of Tarumanagara until 2007.

In 1975, there was a change in the Foundation's leadership and a change in the Chancellor of the University. The new leadership initiated the Universitas Tarumanagara Masterplan 2000 (Figure 4) and began to be realized in 1978

– 1980. Block J building as high as five floors (+ 8500 m²) on former swampland in the back of the campus land to meet the needs of lecture rooms and laboratories due to the increase in the number of students, because Universitas Tarumanagara is starting to be known in the wider Jakarta and national community.

In 1982, the block J building was built, namely the 8-story block L building. The mass of blocks J and L are slab-shaped along the East-West axis. So that students want to use stairs up to a height of 4 floors and go down several floors, each building block is only provided with 2 (two) stairs without an elevator. So, the entrance to the block J building has 3 points, namely through the west, middle and core doors.

While entering the building in building L, there are 3 points: the central hall, the core, and then back on the east side. To serve the two blocks provided 3 (three) lift units and an additional 1-unit ladder on the core mass, which is slightly pulled to the back as a binder or connecting the masses of J and L blocks. Hall lift and core are reached from an open hallway with a width of 21.60 m cut by Central entrance circulation in the form of a hall. In the seventies, 8-story buildings were trendy and considered tall buildings. Blocks J and L use a 9.60 m grid module span and 4.80 m column spacing. The width of the corridor in the middle is 2.40 m. Floor to floor height is 3.60 m with a ceiling height of + 3.00 m. Each room is designed with the same prototype. The East and West sides are massive with no openings but not a plot (Figure 5). The East-West facade has an element of similarity to the massive block I building facade with windows in the corridor.

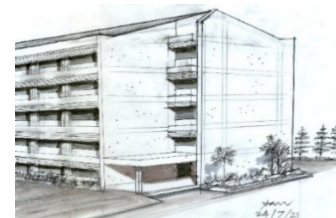


Figure 5. Buildings J and L have no openings on the East-West sidewalls, but they are not made on one side, giving the impression of a strong entrance

The north-south facade is made of openings along the mass block. The height of the glass window in the parapet position is 90 cm from the floor to + 2.10, and the rest is *bovenlicht* or glass jalousie to the ceiling. Parapet walls and windows are installed almost flush with the columns for easy furniture arrangement. Parapets in educational buildings are needed in terms of privacy and to get an element of security. It reduces rain, hot sun and glare; it is designed to oversteak 1.20 m with a listplank as high as 60 cm. Oversteak is also helpful for building maintenance services. At the bottom of the listplank, an aluminium sunscreen is installed to produce a higher shadow so that the inner space is not hot.

3.3.4. Second Floor Eighth Building

The next stage at the centre of the site, according to the 2000 Master Plan, is to build a 12-storey tower building flanked by two slabs of the lecture building. However, this plan was replaced by building an 8-floor slab with an area of 14,888 m² extending East-West for the Rectorate, Admissions, Foundation Room, Administration Office, Master Programs, Research, Publishing, Meeting and Sports Room. The presence of building M needs to dismantle buildings A, B, C, D and G (total area reduced by 3020 m²).

The main entrance to the M building is on the plaza's south side, marked by a canopy and a marker wall mounted with 6 x 20 red clinker stones. There are two entrances on the east and north sides. The block M building is a design improvement from blocks J and L, equipped with non-structural cores for two lifts, toilets and stairs. The ground floor to the second floor is 4.00 m, and the floor to the next floor is 3.60 m.

The inter-column module grid is 6.00 m with a span of 8.40 m and a corridor of 3.00 m, oversteak 1.20 m with 80 cm concrete listplank without using aluminium sunscreen. The North-South side of the column is highlighted with a Rayban glass window with a black aluminium frame over the parapet with high 0.90 m to + 2.10 and bovenlicht 0.90 m high. East-West side is made massive, not on a plot with openings in the corridor reinforced by frames in terms of the facade. The walls are coated with 10 x 20 ceramic instead of the original plan proposed for the Aluminum Composite Panel. (Figure 6).

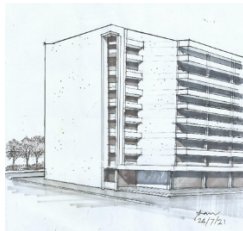


Figure 6. The eight-storey East-West side of the eight-story Building M is made massive. The opening is only in the corridor. Dominant opening in North-South.

In the Block M building, part of the ground floor has been renovated, replacing the window frames with aluminium frames to frameless with sizeable transparent glass to give the impression of a public, luxurious and modern area. Timeline since the first simple building A, B, and C until the building Block I (3 floors), Block J (5 floors), Core (10 floors) and L (8 floors) and in 1987 the Block M building was completed (8 floors) the picture is obtained as follows: From the time lime above the buildings that still survive after being over 40 years old are building J, Core, L and building M which are 34 years old.

For this reason, it is necessary to find a vital element in the design of the two groups of buildings, which are markedly different even though they are only five years apart in construction. It is also necessary to explore the

differences between groups of buildings and parts of buildings that are less harmonious or lack a unitary element, concerning: colour, texture, repetition and rhythm, proportion, solid and void, emphasis and others.

3.3.5. Facade Strong Element

Both blocks J, Core, L and M of the two building groups with four different years of construction have consistent facade elements, i.e. on the East and West sides, the walls are massive planes to block the sun's rays if necessary only have small openings (Figure 7). The facade blocks J and L are made of plastered and painted brick. As for the facade of Blok M, it has brick walls and is covered with ceramic measuring 10 cm x 20 cm to withstand the sun's heat to make it more aesthetic and maintenance-free.

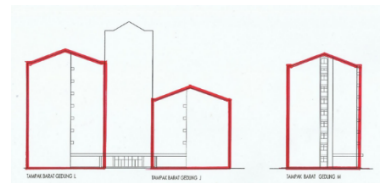


Figure 7. Strong elements of the East-West side of the facade

Massive quadrangular geometry with a 20° angle triangular shape at its apex is a unique feature. When relating the semiotic view of Peirce [9, 10] is an icon that represents the hallmark of Universitas Tarumanagara which adapts to the climate of tropical countries.

On the North-South side, they have elements in common: Structural columns highlighted, concrete oversteak and listplank, parapet walls as high as 90 cm, glass windows from column to column as high as + 2.10 to the ceiling. The parapet walls, both blocks J, L and M, brick walls were plastered, painted and painted in a matching colour with 10 x 20 ceramic (Figure 8).

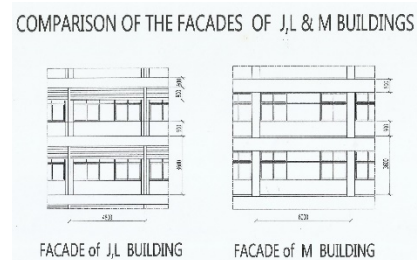


Figure 8. Vital elements of the North-South side facade in columns, parapets, windows and elongated listplank

Another vital element (Icon) is elongated listplank building slab blocks in both groups of buildings. In Blocks J and L, the listplank is 60 cm and the oversteak is 1.20 m out. Meanwhile, in Block M, the height of the listplank is made 80 cm higher because it no longer uses aluminium sunscreen (Figure 9). Listplank block M was initially designed to be exposed concrete so that it is free of

maintenance and is compatible with the selected 10 x 20 ceramic colour. However, in the end, it was just plastered and painted white.

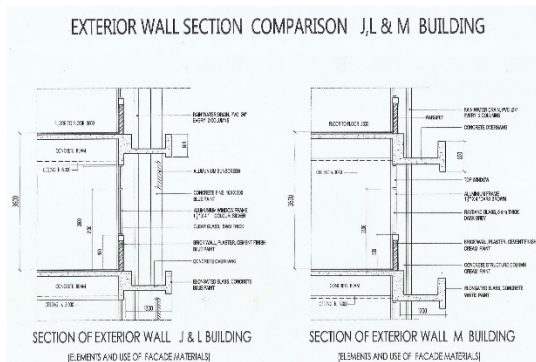


Figure 9. Similarities and differences in the outer walls of Buildings J, L and M

Both J, L and M Buildings have the same functional and structural characteristics [12]. Namely, the floor area is free of columns so that it has high flexibility. Space can be used multipurpose. Roof construction with IWF steel portal, zincalum roof covering with a slope of 20° so that the compressed wind = suction wind. The multipurpose room in block M, which is on the west side, is a meeting building/auditorium from an interior point of view, so it has no windows at all. However, the exterior of the outer facade is not massive, but like the condition of the facade on the lower floor with typical windows (Figure 10). The design weakness of this auditorium building was criticized by the Minister of the Environment, Prof. Dr Emil Salim, when giving a scientific oration on the Environment in the auditorium room, Fl. 8th Building M.

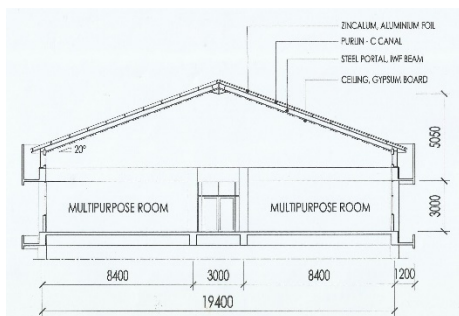


Figure 10. Section of 8th floor, M Building

4. CONCLUSION

Looking for elements of unity in the facade of several Tarumangara University buildings based on the theory presented. Unity in the facade of the building can be achieved by: Icon; Texture; Color; Briefing; Proportion; Solid and Cavity; Form. Unity aspects consist of; Prominence (dominant); Harmony; Proportion; Vitality (life force); Balance (balance). Based on field conditions, it can be concluded that there is an inconsistency in:

- (1) The colour of the building blocks J, Core, L has been changed from beige or light brown paint to bluish. Thus, to achieve the element of unity, the 10 x 20 M building ceramics can be used as a benchmark or benchmark so that the surrounding buildings use the same paint colour.
- (2) In building J, core, L, the aluminium sunscreen is dirty and damaged. This sunscreen is no longer used in the block M building so that mistakes do not happen again. The sunscreen can be replaced with a horizontal linear overhang of aluminium composite panel material. This facade treatment also prevents the irregular layout of the outdoor air conditioner with a metal grill above the parapet-high listplank.
- (3) The glass in the M building using the rayband type is not appropriate for educational buildings; it is necessary to propose a replacement with clear glass. To reduce glare, it can create overhangs and sunscreen so that the sun cannot enter the room too much.
- (4) On the top floor of building M, the proposed changes appear to be with massive dominant walls that can unite buildings J and L (as classrooms or studios). As a proposal for top floor building M interior processing on walls that are movable to be closed and opened for air exchange and visually see out. The M block building no longer uses aluminium sunscreen, which is dirty and has been too old (20 years). Sunscreen does not give the impression of being elegant. The appearance of the entrance must be clear and firm, so to achieve a good entrance; it is necessary to set the right proportion and composition. The canopy that is too short in the current state needs to be dismantled and raised in position.

REFERENCES

- [1] UNTAR, "Dwi Windhu Universitas Tarumanagara", Buku Peringatan, Jakarta: Universitas Tarumanagara, 1978.
- [2] UNTAR, "Wisuda Sarjana XI Universitas Tarumanagara", Buku Peringatan., Jakarta: Universitas Tarumanagara, 1986.
- [3] UNTAR, "Wisuda ke 43 Universitas Tarumanagara", Jakarta 2004, Buku Peringatan., Jakarta: Universitas Tarumanagara, 2004.
- [4] B. Chandra, R. Trisno, S. Gunanta, N. Widayati and F. Lianto, "The Application of Passive Design Chart on the Analysis of Natural Ventilation of Low and Middle Income Flats Case Study Sky View Apartment and 'Rusunawa' Manis Jaya, Tangerang," *Journal of Physics: Conference Series*, vol. 1179, pp. 1-9, 2019.
- [5] G. Lippsmeier, "Bangunan Tropis", Jakarta: Penerbit Erlangga., 1994.

- [6] P. Manurung, "Pencapaian Alami Dalam Arsitektur", Yogyakarta: Penerbit Andi., 2012.
- [7] T. Karyono, "Arsitektur dan Kota Tropis Dunia Ketiga: Suiatu Bahasan tentang Indonesia" J, 2013. Jakarta: Rajagrafindo Persada.
- [8] R. Krier, *Architectural Composition*, London: Papadakis, 1988.
- [9] P. Salura, *A Criticism: Architecture That Fools (Sebuah Keritik: Arsitektur yang Membodohkan)*, Jakarta: Gakushudo, 2015.
- [10] A. V. Zoest, *Semiotics about the sign, how it works, and what we do with it (Semiotika tentang tanda, cara kerja, dan apa yang kita lakukan dengannya)*, Jakarta: Penerbit Yayasan Sumber Agung, 1993.
- [11] K. Smithies, "Prinsip Prinsip Perancangan Dalam Arsitektur", Bandung: Penerbit Universitas Katolik Parahyangan, 1982.
- [12] R. Trisno and F. Lianto, "Relationship between function-form in the expression of architecture creation," *Advance Preprint*, 2019.