West Science Interdisciplinary Studies
Vol. 4, No. 11, November 2026: pp. 1605-1614

Design of a Mixed-Use Building Using a Hybrid Metropolitan Cultural Architecture Concept in Jakarta

Aristia[1], Dian Kusumowardani[2], Medina Suci Handayani[3], Tri Wahyuni[4], Satria Dwitama[5], Selly Indrawati[6]

[1] Fakultas Teknik Sipil dan Perencanaan, Institut Teknologi Budi Utomo, Jakarta and aristia@itbu.ac.id
[2] Fakultas Teknik Sipil dan Perencanaan, Institut Teknologi Budi Utomo, Jakarta and diankus@itbu.ac.id
[3] Fakultas Teknik Sipil dan Perencanaan, Institut Teknologi Budi Utomo, Jakarta and medina@itbu.ac.id
[4] Fakultas Teknik Sipil dan Perencanaan, Institut Teknologi Budi Utomo, Jakarta and triwahyuni@itbu.ac.id
[5] Fakultas Teknik Sipil dan Perencanaan, Institut Teknologi Budi Utomo, Jakarta and ksatria@itbu.ac.id
[6] Fakultas Teknik Sipil dan Perencanaan, Institut Teknologi Budi Utomo, Jakarta and selly@itbu.ac.id

ABSTRACT

The architectural evolution of Jakarta as a metropolis has driven the construction of high-rise buildings that integrate multiple functions—such as apartments, hotels, and shopping centers—into a single structure. Designing such multi-functional buildings through an architectural concept that blends Jakarta's modern urban culture aims to create high-rises that are contextually appropriate, environmentally friendly, and reflective of local cultural identity. A hybrid concept is implemented by selecting and processing both local and modern materials, designing facades that respond to the climate, and creating transitional and public spaces that foster social interaction. This approach integrates residential, hospitality, and retail functions into a cohesive mixed-use building capable of adapting to urban activities. The concept of blending urban cultures is realized by combining living, working, and leisure functions; providing public areas and communal spaces; using skybridges to connect towers; and employing designs suitable for the tropical climate. This design demonstrates that a "Metropolitan Cultural Hybrid Architecture" approach can effectively reconcile the functional needs and dynamic lifestyle of a major city with local cultural identity. Consequently, this design serves as a reference for developing mixed-use buildings in Jakarta that are more responsive to local conditions, particularly amidst the influence of globalization.

Keywords: *Building Design, Mixed-Use, Hybrid Architecture, Metropolitan Culture, Jakarta.*

1. INTRODUCTION

As the national economic center, Jakarta is a prime location for skyscraper construction, particularly mixed-use buildings that combine the functions of apartments, hotels, and shopping centers in one building. As a metropolitan city, Jakarta has a culture formed from the fusion of various local cultural backgrounds and influences from the modern world. Metropolitan culture is formed from a mixture of various cultures that developed in the big city, such as Betawi, Sundanese, and Chinese culture, as well as external cultural influences that came due to changes and developments in the fields of urbanization and modernization. This culture is not only visible in the traditions carried out, but also reflected in the ever-changing lifestyle of urban communities, high levels of migration, and the need for space that can be used for multiple functions simultaneously [1]–[4].

However, today's large city development focuses more on speed, a so-called "instant culture," and often neglects local conditions. This results in the implementation of mixed-culture architecture being less than optimal, even though traditional values and modern technology are essential [2], [5].

This situation causes Jakarta to lose its unique appearance and creates a uniform image of the city, lacking a reflection of local values. This concept, however, could combine local culture with

modern functional and aesthetic needs, creating spaces that are not only cost-effective but also possess strong symbolic meaning and identity [2], [6].

To address these issues, a design approach is needed, incorporating culturally integrated architectural concepts. By using a culturally integrated architectural approach, the buildings designed serve as a solution to identity and environmental issues in urban areas.

2. METHODS

2.1 Design Research Methods

2.1.1 Data Collection Method

The methods and data processing used in this design are secondary data. Secondary data is data that already exists and is ready to be used, having been collected by others previously and can be reused by other researchers in their own research. Secondary data is data that has been previously collected in the past [7]. This secondary data search includes:

1) Condition of the area and size of the site
2) Boundaries with surrounding buildings
3) Local regulations
4) Weather data, land forms, wind direction, sun movement, and others.
5) Vegetation on the site
6) Drainage system
7) Transportation

2.1.2 Design Conception Method

The design concept consists of:

1) Site Concept.
2) Building Concept
3) Pre-Design Method

The pre-design methods consist of:

1) Alternative Design 1
2) Alternative Design 2
3) Selected Alternative

3. RESULTS AND DISCUSSION

3.1 Design Concept

This section explains the design concepts used to ensure the design meets functional requirements, attractive appearance, sustainability, and compliance with applicable regulations. Design analysis involves a thorough examination of the site, building, and other supporting components to create the best possible design [8]–[10].

3.1.1 Site Concept

The site concept discusses how to manage and use the building area which includes various important information.

1) Existing Site Condition Analysis

The research object is located within a mixed-use building project consisting of apartments, a hotel, and a shopping center in Kelapa Gading, North Jakarta. This location was chosen because of its strategic location and the presence of commercial areas nearby.

Analysis of existing site conditions in the design of mixed-use buildings (apartments, hotels, and malls) with architectural development that combines culture in North Jakarta includes observations of the characteristics of the surrounding environment, existing infrastructure conditions, and planning for the development of commercial areas in the region.



Figure 1. Location map
Source: Processed Research Data (2026)

The description of the image above is used to provide information about the conditions around the planned location.

a. Gading Kirana Housing
b. Pertamina Patra Niaga
c. Artha Gading Mall
d. PT Pertamina Logistics
e. PT TEMAS Tbk
f. PT Astra Daihatsu Sunter
g. Trans Sunter Kelapa Gading Bus Stop

It can be concluded that the location where this apartment will be built is very strategic because it is in a commercial area that is filled with mixed-use buildings such as apartments, hotels, and malls, and access to the location is very easy.

2) Accessibility

The site is located in a developing commercial area and is feared to cause future congestion. Therefore, special attention is needed to regulate the traffic flow in and out of the mixed-use building design (apartments, hotels, and malls) to avoid exacerbating traffic congestion and potentially causing congestion. The design separates incoming and outgoing vehicles from the main gate into the project area.



Figure 2. Site Access Circulation
Source: Processed Research Data (2026)

3) Site Orientation Analysis

The results of the land orientation analysis are used as the basis for determining the building's facing direction and the location of its primary functions. The side of Jalan Yos Sudarso, which can be developed as a secondary orientation, provides reliable alternative access with high visibility, and supports the visual appeal of surrounding buildings. This concept allows the building to have a clear direction, be more easily recognized, and provide the best visual appearance from its most potential sides.

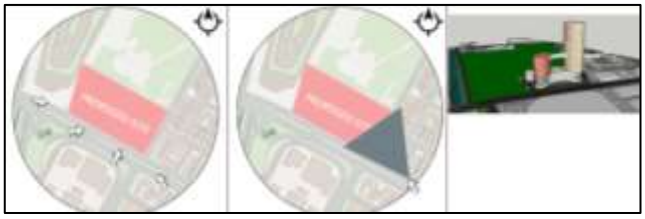


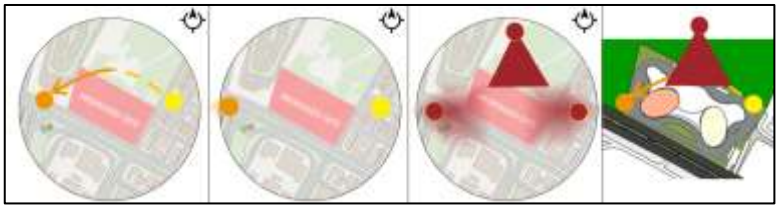
Figure 3. View and Site Orientation

Source: Processed Research Data (2026)

4) Sun Orientation Analysis

This design concept follows the sun's movement by orienting the building diagonally to the incoming sunlight. This strategy aims to reduce the area of the building's walls exposed to direct sunlight, especially from morning to evening when temperatures are at their highest.

Figure 4. Sun Orientation



Source: Processed Research Data (2026)

5) Wind Direction Analysis

The concept of natural air circulation is implemented by designing the building's shape to align airflow with the dominant wind direction. This concept effectively utilizes natural air circulation to enhance user comfort and reduce reliance on air conditioning.

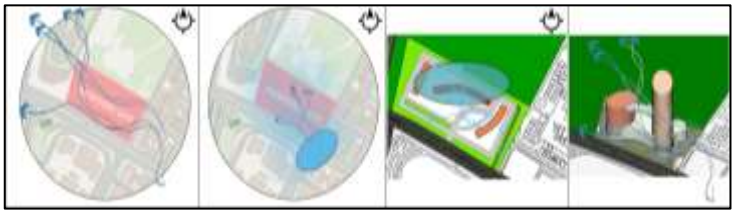


Figure 5. Wind Direction

Source: Processed Research Data (2026)

6) Noise Analysis

The area directly adjacent to Jalan Boulevard Artha Gading is used as a public and commercial zone that is more exposed to noise, while functions requiring high comfort, such as hotels and apartments, are located further inland. To reduce noise from the main road, buildings are set back approximately 10–15 meters and planted with greenery as a natural barrier. Using natural elements and green open spaces also eases the transition from the road to the buildings, thus

reducing incoming noise. By implementing this strategy, sound quality in the area improves and helps make building users more comfortable and more efficient in their work.

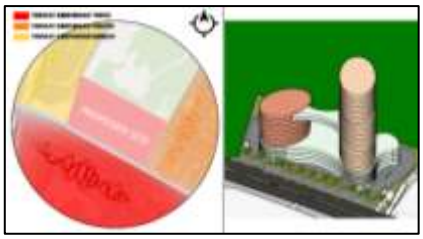


Figure 6. Sound Intensity Level (Noise)
Source: Processed Research Data (2026)

7) Site Zoning Analysis

This analysis also determines how spaces, such as garden areas, activity areas, parking lots, and the main building, will be arranged to ensure order and efficient land use. Furthermore, this analysis also considers user comfort by ensuring each space is optimally arranged according to their needs and activities. Furthermore, this design considers the flexibility of the space to adapt to future changes in function or needs.



Figure 7. Site Zoning
Source: Processed Research Data (2026)

3.2 Pre-Design

3.2.1 Design Alternative 1

1) Site Concept

The alternative site design 1 that will be selected as part of this design is as follows:

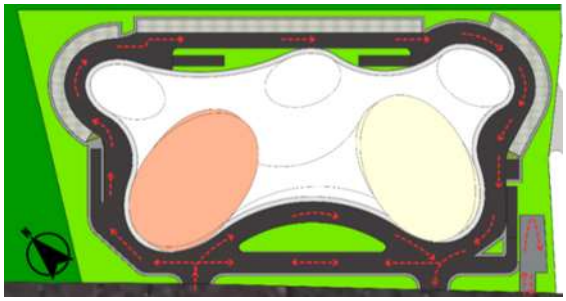


Figure 8. Alternative Site Concept 1
Source: Processed Research Data (2026)

The land use planning concept was designed with a focus on harmony between vehicle movement, building function grouping, and the creation of open spaces that maximize user activities. The building mass is placed centrally in a natural form that aligns with the design concept.

2) Building Concept

The following is the alternative building design concept 1 that will be selected in this design:

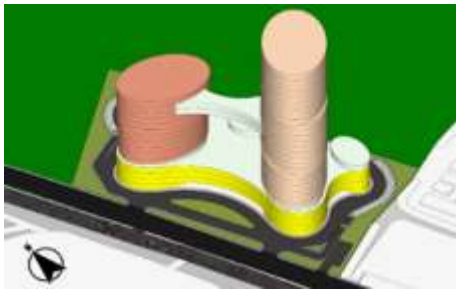


Figure 9. Alternative Building Concept Design 1

Source: Processed Research Data (2026)

The final form of the building mass as seen above takes into account the direction of the site, wind direction, and sun direction, with the aim of making the building more attractive without reducing the feasibility value of the building.

3.2.2 Design Alternative 2

1) Site Concept

The alternative site design 2 that will be selected in this design is as follows:

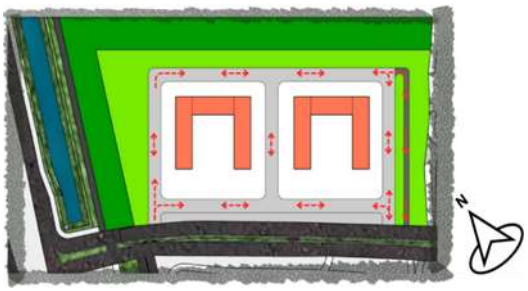


Figure 10. Alternative Site Design Concept 2

Source: Processed Research Data (2026)

The selection of the site layout as in the image above places more emphasis on circulation efficiency within the site as well as overall accessibility, both for pedestrians, bicycles and motorized vehicles, starting from entering the site area, entering the building area until returning out of the site, thus providing ease and comfort in carrying out various activities.

2) Building Concept

The following is the 2nd alternative building concept design that will be selected in this design:

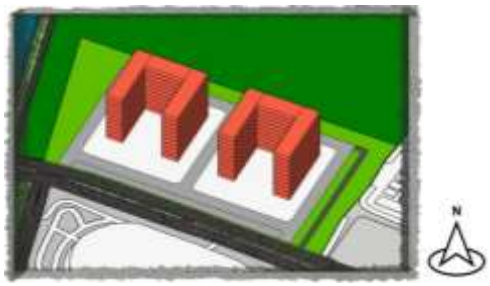


Figure 11. Alternative Building Concept Design 2
Source: Processed Research Data (2026)

The selection of building form in the second design alternative focuses on dividing the area into two zones with the aim of maximizing the use of the building on the existing land.

3.2.3 Selected Alternative

1) Site Concept

There are several criteria for designing alternative site concepts as follows, namely:

Table 1. Selected Alternative Site Concepts

Category	Provision	Site 1	Site 2
Accessibility	Ease of access	8	7
	Does not cause queues	8	4
Circulation	One Way	7	-
	Two-way direction	6	6
	Cross Circulation	7	4
	Service Access	7	7
Sun Exposure Level	Low	6	-
	Currently	-	-
	Tall	-	5
Noise	Noisy	-	-
	Quite Noisy	-	-
	No Noise	7	7
Orientation and View	Towards the Main Road	8	6
	View out	8	6
	A look inside	8	6
Total Value		80	54

Source: Processed Research Data (2026)

2) Building Concept

The following are several criteria for designing alternative building concepts, namely:

Table 2. Selected Alternative Building Concepts

Category	Provision	Building 1	Building 2
Composition	Regarding Appearance	8	4
	Against Wind Circulation	8	4
Mass Pattern	Distance Between Buildings -25 meters	8	8
Total		24	16

Source: Processed Research Data (2026)

Based on the assessment results, the first design alternative was chosen because it got a better score than the other design alternatives.

3.3 Design Results

a. Site Plan



Figure 12. Designed Site Plan
Source: Processed Research Data (2026)

b. Block Plan



Figure 13. Block Plan Design Results
Source: Processed Research Data (2026)

c. Front look

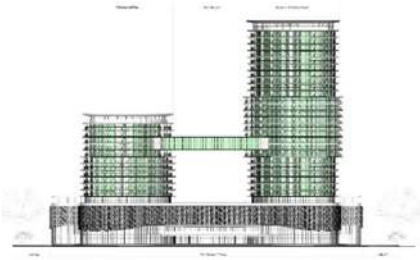


Figure 14. Front View of the Building Design Results
Source: Processed Research Data (2026)

d. Right Side View



Figure 15. Right Side View Designed Building
Source: Processed Research Data (2026)

e. Left Side View



Figure 16. Left Side View of the Designed Building
Source: Processed Research Data (2026)

f. Back view



Figure 17. Rear View of the Building Design Results
Source: Processed Research Data (2026)

g. Piece 1



Figure 18. Section 1 Design Results
Source: Processed Research Data (2026)

h. Perspective




Figure 19. Perspective 1 & 2
Source: Processed Research Data (2026)




Figure 20. Perspective 3 & 4
Source: Processed Research Data (2026)




Figure 21. Perspective 5 & 6
Source: Processed Research Data (2026)




Figure 22. Perspective 7 & 8
Source: Processed Research Data (2026)



Figure 23. Perspective 9
Source: Processed Research Data (2026)



Figure 24. Bird's Eye Perspective
Source: Processed Research Data (2026)

CONCLUSION

In this concluding section, based on the analysis and design development process that has been carried out, the design of a mixed-use building consisting of apartments, hotels, and shopping centers in Jakarta shows that the needs of urban buildings are not only related to providing various functions, but also to the building's ability to adapt to environmental conditions and the characteristics of the area. The results of the site analysis on Jl. Jalan Artha Gading serve as the main reference in determining direction, ease of access, traffic flow, area division, noise control, and adjustment to sunlight and wind direction. The application of the tower-shaped multi-story building type is then used to combine public and commercial functions in the podium section with more private functions in the tower. This division allows apartments, hotels, and malls to be in the same building, but have different levels of access and privacy according to the needs of each user. Therefore, the contextual meaning that is formed is not only derived from the appearance of the building, but also arises from the relationship between the building's function, site conditions, movement flow, placement direction, open space, and user needs within the Jakarta urban environment.

REFERENCES

[1] M. Tedja, S. N. P. Hidayat, and Y. Mariana, "Mixed-Use Building with Threshold Space Approach in Central Jakarta," *IOP Conf. Ser. Earth Environ. Sci.*, vol. 1169, no. 1, 2023, doi: 10.1088/1755-1315/1169/1/012062.

[2] D. F. Ramadhan, "Kajian Konsep Arsitektur Hybrid pada Bangunan Transportasi," *J. Arsit. PURWARUPA*, vol. 7, pp. 87–88, 2023.

[3] U. S. Perera, A. U. Weerasuriya, X. Zhang, R. Ruparathna, M. G. I. Tharaka, and C. S. Lewangamage, "Selecting suitable passive design strategies for residential high-rise buildings in tropical climates to minimize building energy demand," *Build. Environ.*, vol. 267, 2025, doi: 10.1016/j.buildenv.2024.112177.

[4] K. A. Mannan, S. G. Tarigan, and N. Uddin, "A Study of Shading Selection Strategy for Natural Ventilation of Office Buildings in Jakarta," *IOP Conf. Ser. Earth Environ. Sci.*, vol. 1218, no. 1, 2023, doi: 10.1088/1755-1315/1218/1/012037.

[5] K. P. U. dan P. Rakyat, "Peraturan Menteri Pekerjaan Umum dan Perumahan Rakyat Nomor 14/PRT/M/2017 tentang Persyaratan Kemudahan Bangunan Gedung," Kementerian Pekerjaan Umum dan Perumahan Rakyat, Jakarta, 2017.

[6] B. S. Nasional, "SNI 03-1735-2000 Tata Cara Perencanaan Jalur Evakuasi pada Bangunan Gedung," Badan Standardisasi Nasional, Jakarta, 2000.

[7] N. M. Abdul Rahman, *Metode Penelitian Ilmu Sosial*. Bandung: Widina Bhakti Persada Bandung, 2022.

[8] I. Akmal, *Menata Apartemen*. Jakarta: PT Gramedia Pustaka Utama, 2007.

[9] H. S. Geyer Jr., "The theory and praxis of mixed-use development - An integrative literature review," *Cities*, vol. 147, 2024, doi: 10.1016/j.cities.2023.104774.

[10] S. Giamarelos, *Resisting Postmodern Architecture: Critical Regionalism Before Globalisation*. London: UCL Press, 2022. doi: 10.14324/111.9781800081338.